FOMENTO RESOURCES

Date: 28/11/2025

To,

1. The Director (IA),
   Ministry of Environment, Forest and Climate Change
   Indira Paryavaran Bhavan,
   Jorbagh Road
   New Delhi – 110003

Sub: Submission of half yearly compliance report as stipulated in the environmental Clearance bearing file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025, for the period from April 2025 to September 2025 in respect of Block IV – Kalay Mineral Block, belonging to Fomento Resources Private Limited, over an area of 152.5073 Ha., located at Santona Village of Sanguem Taluka, South Goa District, Goa.

Ref: Environmental Clearance bearing file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025, issued by the Ministry of Environment, Forest and Climate Change.

Dear Sir,

With reference to the above-mentioned Mineral Block, we wish to inform you that the mine is not yet in operation. The project Proponent is in the process of obtaining statutory permissions and signing of Mining Lease Deed with the State Government. The mining operations will commence upon execution and registration of Mining Lease Deed.

We are filing herewith point-wise half-yearly Environmental Clearance compliance report for the period from April 2025 to September 2025, accordingly.

The soft copy of the said Environmental Clearance compliance report has been sent electronically to the following:

1. Director, IA Division, MoEFCC, ms.mining2-mef@nic.in and Monitoring cell – monitoring-ec@nic.in
2. Regional office of the MoEFCC, Bangalore, rosz.bng-mef@nic.in

FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis - I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001.
Tel : +91 832 2441000 Email : fomento@fomento.com Website : www.fomento.com
CIN-U13209GA2010PTC006440

3. The Member Secretary, Central Pollution Control Board, ccb.cpcb@nic.in
4. The Member Secretary, Goa State Pollution Control Board, mail.gspcb@gov.in

Thanking you,
Yours Faithfully,
For Fomento Resources Private Limited

Sanjay Kumar

(Sanjay Kumar)
Mines Manager

FOMENTO RESOURCES PVT. LTD. FRPL GOA

Encl: As mentioned above.

Your (Half Yearly Compliance Report) has been Submitted with following details	
Proposal No	IA/GA/MIN/529454/2025
Compliance ID	135432624
Compliance Number(For Tracking)	EC/COMPLIANCE/135432624/2025
Reporting Year	2025
Reporting Period	01 Dec(01 Apr - 30 Sep)
Submission Date	29-11-2025
RO/SRO Name	Shri S Senthil Kumar
RO/SRO Email	jk083.ifs@nic.in
State	GOA
RO/SRO Office Address	Integrated Regional Offices, Bengaluru
Note:- SMS and E-Mail has been sent to Shri S Senthil Kumar, GOA with Notification to Project Proponent.	

Half Yearly Compliance Report
2025
01 Dec(01 Apr - 30 Sep)

Acknowledgement

Proposal Name	
Name of Entity / Corporate Office	
Village(s)	
District	

Proposal No.	IA/GA/MIN/529454/2025
Plot / Survey / Khasra No.	7/1,8/1,8/2,11/1,15/1,15/2,16/1,23/1,24/1,25/1,25/2,26/1,27/1,28/3,28/4,28/5,28/6,29/1,38/1,38/3,39/1,40/1,40/2,40/ & Road
State	GOA
MoEF File No.	IA-J-11015/11/2023-IA-II(NCM)

Compliance Reporting Details

Reporting Year	2025
Remarks (if any)	Please note that the mining operations has not yet commenced in the said Mineral Block. We are in the process of obtaining various statutory permissions in the nature of Forest Stage - II Clearance and Consent to Operate. On compliance of all statutory permissions, we will sign and execute the Mine Development and Production Agreement and Mining Lease Deed with the Government of Goa. Mining Activity will commence after the execution of Mining Lease Deed.
Reporting Period	01 Dec(01 Apr - 30 Sep)

Details of Production and Project Area

Name of Entity / Corporate Office	FOMENTO RESOURCES PRIVATE LIMITED

	Project Area as per EC Granted	Actual Project Area in Possession
Private	72.9675	72.9675
Revenue Land	58.4068	58.4068
Forest	21.1330	21.1330
Others	0	0
Total	152.5073	152.5073

Production Capacity

Sr. no	Product Name	units	Valid Upto	Capacity	Production last year	Capacity as per CTO
1	Iron Ore	Million Tons per Annum (MTPA)	N/A	0.75	0	

Conditions

Specific Conditions

Sr.No.	Condition Type	Condition Details
1	GREENBELT	1.9 - The Project Proponent shall undertake plantation activities along the seasonal Nallahs to prevent soil erosion.

PPs Submission: Agreed to Comply There exists thick plantation along the seasonal nalla within the Mineral Block, Project Proponent undertakes to strengthen and maintain the same to prevent soil erosion.	Date: 26/11/2025

2	Statutory compliance	1.29 - The Project Proponent shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to RO, MoEFCC.

PPs Submission: Agreed to Comply The Project Proponent will conduct third party audit of compliance of EC condition every year and its report will be submitted to Regional office of MoEFCC.	Date: 26/11/2025

3	WATER QUALITY MONITORING AND PRESERVATION	1.1 - The Project Proponent (PP) shall ensure effective storage of rainwater within the designated mine pit, as per the approved comprehensive water management plan. Continuous monitoring of water levels during the monsoon period shall be carried out, and necessary preventive measures shall be in place to avoid any overflow under all circumstances. PP shall strictly follow the recommendation of GSPCB and State WRD in this regard. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half-yearly compliance reports.

PPs Submission: Agreed to Comply The Mine is not in operation. Upon the commencement of mining operations, the Project Proponent will ensure that effective storage of rainwater within the designated mine pit is undertaken, as per the approved comprehensive water management plan. Mine pit water levels will be continuously monitored during monsoon as well as post monsoon and necessary preventive measures will be undertaken to avoid any overflow. PP will strictly follow the recommendation of GSPCB and State WRD in regard to the mine pit water and an action taken report will be submitted to Ministry's	Date: 26/11/2025

Regional Officer in subsequent Half-yearly compliance reports.			
4	MISCELLANEOUS	1.4 - The Project Proponent (PP) needs to follow the recommendations issued by the Goa State Pollution Control Board as mentioned below: (a) Buffer of 50m (Part) from the western side of the river towards the Mining lease on the Southeastern side falls in the lease area and the same will be maintained as no Mining zone. (b) All the safeguards proposed in the report by the project proponent, and by the technical advisory committee shall be adhered to by the Project Proponent. (c) Monitoring of water quality in upstream and downstream of the Kalay River with respect to the discharge point shall be done by the Project Proponent. (d) No mining activity will occur within the prescribed distance set by GSPCB for the Kalay River. Other recommendations of SPCB in this regard should also be followed by PP.	
PPs Submission: Agreed to Comply PP will follow the recommendations issued by the Goa State Pollution Control Board as mentioned below: (a) Buffer of 50m (Part) from the western side of the river towards the Mining lease on the Southeastern side falling in the lease area will be maintained as no Mining zone. (b) All the safeguards proposed in the report by the project proponent, and by the technical advisory committee will be adhered to by the Project Proponent. (c) Monitoring of water quality in upstream and downstream of the Kalay River with respect to the discharge point will be done by the Project Proponent. (d) No mining activity will occur within the prescribed distance set by GSPCB for the Kalay River. PP will also follow the other recommendations received from SPCB in this regard.			Date: 26/11/2025
5	WATER QUALITY MONITORING AND PRESERVATION	1.7 - PP shall carry out annual maintenance and de-siltation of all settling ponds and garland drains immediately following the monsoon season. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half-yearly compliance reports.	
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will carry out annual maintenance and de-siltation of all settling ponds and garland drains immediately following the monsoon season and an action taken report will be submitted to Ministry's Regional Officer in subsequent half-yearly compliance reports.			Date: 26/11/2025
6	WATER QUALITY MONITORING AND PRESERVATION	1.3 - PP needs to strictly follow the groundwater treatment and disposal plan. The Project Proponent (PP) shall not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from the Central Ground Water Authority (CGWA) or the concerned State Ground Water Authority/State WRD. PP needs to submit the half-yearly report on water balance (rainwater received, stored, pumped out, and reused) to Regional office, MoEFCC.	
PPs Submission: Agreed to Comply PP will strictly follow the groundwater treatment and disposal plan as per the approved comprehensive water management plan and the recommendation of GSPCB and State WRD. Necessary permission has been obtained from the Water Resource Department, Govt. of Goa (WRD) for drawl of ground water and will not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from WRD. Copy of the WRD permission is enclosed as Annexure-1. PP will submit the half-yearly report on water balance to Regional office, MoEFCC in the subsequent half yearly compliance reports.			Date: 26/11/2025
7	WATER QUALITY MONITORING AND PRESERVATION	1.10 - The Project Proponent needs to carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Institutions/ Laboratories. Report of the above monitoring and analysis should be submitted along with the six monthly compliance reports.	

PPs Submission: Agreed to Comply Project Proponent will carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Institutions/ Laboratories and report of the above monitoring and analysis will be submitted along with the subsequent six monthly compliance reports.		Date: 26/11/2025
8	WATER QUALITY MONITORING AND PRESERVATION	1.2 - PP must ensure that, under no circumstances, untreated water is permitted to overflow or be discharged from the mine pit into surrounding areas or nearby water bodies. Arrangements should be done accordingly in the project.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will ensure that no untreated water overflows or discharged from the mine pit into surrounding areas or nearby water bodies. Appropriate arrangements will be made to ensure only clear water is discharged from the mineral block. During monsoon there will be no pumping of mine pit water. During non-monsoon season, water from the mine pit will be pumped and passed through series of settling ponds. Water in the settling ponds will be allowed to settle and treated with flocculants for faster settlement of suspended solids and only clear water will be discharged from the settling ponds into the seasonal drainage. The mine water will be sampled and analysed for its quality before its discharge from the mine.		Date: 26/11/2025
9	WATER QUALITY MONITORING AND PRESERVATION	1.5 - PP shall ensure that surface runoff generated during the monsoon season is effectively diverted into designated mining pits to facilitate the sedimentation of suspended solid particles. To enhance the sedimentation process, appropriate flocculants shall be applied as necessary. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half-yearly compliance reports.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will ensure that surface runoff generated during the monsoon season will be diverted through garland drains into designated mining pits to facilitate the sedimentation of suspended solid particles. Appropriate flocculants will be applied whenever necessary to mine pit water to enhance the sedimentation process. An action taken report will be submitted to Ministry's Regional Officer in subsequent Half-yearly compliance reports.		Date: 26/11/2025
10	MISCELLANEOUS	1.24 - The Project Proponent needs to use modern equipments such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
PPs Submission: Agreed to Comply The Project Proponent will use modern equipment's and will provide monetary assistance to the State Forest Department for implementation of measures proposed in the Wildlife Conservation Plan such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with State Forest Department. Appropriate interventions will be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.		Date: 26/11/2025
11	WATER QUALITY MONITORING AND PRESERVATION	1.6 - PP shall ensure that, during non-monsoon periods, accumulated rainwater and stormwater extracted from the mining areas are conveyed through a series of settling ponds. The water shall be discharged into the environment only after achieving adequate sedimentation and meeting prescribed quality standards. PP should increase the number of settling ponds in consultation with GSPCB and State WRD. Minimum 07 settling ponds should be provided of appropriate area/volume so as to provide adequate settling time. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half-yearly compliance reports.

		PPs Submission: Agreed to Comply PP will ensure that surface runoff generated during the monsoon season will be diverted through garland drains into designated mining pits to facilitate the sedimentation of suspended solid particles. During monsoon there will be no pumping of mine pit water. The PP will ensure that during non-monsoon season, accumulated rainwater and stormwater from the mine pit will be pumped and passed through series of settling ponds. There are 7 nos. of settling ponds existing in the mineral block. Water in the settling ponds will be allowed to settle and treated with flocculants for faster settlement of suspended solids. Only clear water will be discharged from the settling ponds into the seasonal drainage. The mine water will be sampled and analysed for its quality as per the standards, before its discharge from the mine. An action taken report will be submitted to Ministry's Regional Officer in subsequent Half-yearly compliance reports.	Date: 26/11/2025
12	WATER QUALITY MONITORING AND PRESERVATION	1.8 - PP shall install velocity droppers with gentle gradients and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half- yearly compliance reports.	
		PPs Submission: Agreed to Comply PP will install velocity droppers with gentle gradients and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. An action taken report in this regard will be submitted to Ministry's Regional Officer in subsequent Half-yearly compliance reports.	Date: 26/11/2025
13	AIR QUALITY MONITORING AND PRESERVATION	1.25 - The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions.	
		PPs Submission: Agreed to Comply The areas prone to air pollution are related to loading, hauling and unloading at dumps. Fugitive dust pollution will be controlled at source by implementing dust suppression measures such as sprinkling of water by water tankers and permanent sprinklers to avoid the generation of fugitive dust. As the Project is an Opencast Mine Unit, there are no primary or ancillary activities which will be carried out that will need the use of bag filters, vacuum suction hoods, dry fogging system, etc. we are in the process of obtaining statutory permissions and signing of Mining Lease Deed with the State Government. The mining operations will commence upon execution and registration of Mining Lease Deed.	Date: 26/11/2025
14	AIR QUALITY MONITORING AND PRESERVATION	1.17 - PP should undertake regular sprinkling of water to mitigate dust generation.	
		PPs Submission: Agreed to Comply PP undertakes to regularly sprinkle water to mitigate dust generation, upon commencement of mining operation.	Date: 26/11/2025
15	Statutory compliance	1.19 - The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed.	
		PPs Submission: Agreed to Comply The natural water bodies and or streams which are flowing in and around the mine lease area will not be disturbed.	Date: 26/11/2025
16	Statutory compliance	1.23 - Project Proponent should follow up with State Forest Department regarding implementation of WLCP Act 2022. An implementation report in this regard needs to be submitted to Ministrys Regional office in half yearly compliance report.	

PPs Submission: Agreed to Comply Project Proponent will follow up with State Forest Department regarding implementation of WLCP Act 2022 upon commencement of mining operation and an implementation report will be submitted to Ministry's Regional office in subsequent half yearly compliance report.		Date: 26/11/2025
17	WATER QUALITY MONITORING AND PRESERVATION	1.11 - PP should strictly adhere to mine water treatment plan as submitted by them and action taken report in this regard shall be submitted to Ministrys Regional Officer in Half- yearly compliance reports. The mine water treatment plan includes the following: Action Plan for Treatment: (a) The storm water diverted to mine pits will be stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. (b) During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. (c) There are no toxic elements in Ore and waste material. The quality of the surface runoff water does not change except for increase in turbidity due to surface runoff. (d) The pumped water will be passed through a series of settling ponds, where it undergoes a sequential retention process. (e) Water will be treated at mine pits and strategic settling ponds by adding flocculants for faster settlement of suspended solids. (f) Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon Action plan for disposal: (a) Six number of centrifugal pumps will be engaged for pumping of water and pumping will be carried out in the non-monsoon season. (b) Permission for registration of Mine pit and pumping from the same has been obtained from Water Resource Department, Government of Goa. (c) To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. (d) Clear water will be discharged outside the mining lease area. (e) Regular monitoring of discharge water will be undertaken to monitor the quality of water discharged from the pit. (f) The mine pit water will be sampled and analyzed as per CPCB norms, before its discharge from the mine. (g) The upstream and downstream of the seasonal nallah and Kalay River water will be analyzed as per CPCB norms.
PPs Submission: Agreed to Comply PP will strictly adhere to mine water treatment plan as submitted and action taken report will be submitted to Ministry's Regional Officer in subsequent Half- yearly compliance reports.		Date: 26/11/2025
18	MISCELLANEOUS	1.12 - PP to protect the temple ensuring no drilling/blasting activity within 500 m without prior permission from MoEFCC and DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.
PPs Submission: Agreed to Comply PP will ensure that no drilling/blasting activity within 500 m of the Sai temple (Dukarkond) is carried out without prior permission from MoEFCC and DGMS. There exists thick plantation around the temple, Project Proponent undertakes to strengthen and maintain the same in consultation with local administration/gram panchayat.		Date: 26/11/2025
19	Statutory compliance	1.13 - No blasting shall be undertaken in the ML area without the prior permission from MoEFCC.
PPs Submission: Agreed to Comply The mining operation will be carried out using heavy earth moving machinery and there will be no drilling and blasting undertaken in the mining lease without the prior permission from MoEFCC.		Date: 26/11/2025
20	Statutory compliance	1.14 - PP needs to submit the proof of submission of Wildlife

		Conservation Plan as per Wildlife Amendment Act 2022 to State Forest Department.
PPs Submission: Complied The Wildlife Conservation Plan as per Wildlife Amendment Act 2022 was submitted to the State Forest Department vide our letter dated 25/08/2025. The submission of WLCP was communicated to Ministry's Regional Office vide our letter dated 15/09/2025 is enclosed as Annexure-2. The said WLCP has been approved by the State Forest Department vide letter dated 18/11/2025. Copy of the letter of approval of WLCP dated 18/11/2025 is enclosed as Annexure-2A.		Date: 26/11/2025
21	Statutory compliance	1.15 - Project Proponent must comply with the directions issued by the Honorable High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology. PP must get its transportation plan approved by State DMG and SPCB. PP should strictly follow up the recommendation of DMG and SPCB.
PPs Submission: Agreed to Comply In terms of the directions of Hon'ble High Court of Bombay at Goa and as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024, Directorate of Mines and Geology Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) which will be followed by the PP during transportation. A transportation plan has been prepared in accordance with the Standard Operating Procedure (SOP) devised by Directorate of Mines and Geology, Goa and Goa State Pollution Control Board. A copy of the transportation plan is enclosed as Annexure - 3. Further, the PP undertakes to strictly follow-up the recommendations of DMG and GSPCB.		Date: 26/11/2025
22	MISCELLANEOUS	1.16 - PP shall ensure that there is no spillage of ore during transportation. All transportation trucks should be covered with tarpaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEFCC.
PPs Submission: Agreed to Comply The mining operations and transportation in the Mineral block have not yet commenced. Upon commencement of transportation of ore, PP will ensure that there is no spillage of ore. All transportation trucks will be covered with tarpaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal will be properly trained on environmental aspects and records of the training will be submitted to Regional office of MoEFCC.		Date: 26/11/2025
23	GREENBELT	1.18 - PP in consultation with Local Administration/Gram Panchayat/State Govt/DMG shall undertake plantation along the transportation route. An action taken report in this regard shall be submitted to Ministrys Regional Officer in Half-yearly compliance reports.
PPs Submission: Agreed to Comply The Project Proponent undertakes to carry out plantation of native trees along the transport route in consultation with Local Administration/Gram Panchayat/State Govt/DMG, upon commencement of transportation activities. The compliance of the same will be submitted during subsequent six-monthly compliance report to Ministry's Regional Officer.		Date: 26/11/2025
24	Statutory compliance	1.20 - The Project Proponent shall continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministrys Regional Office.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the Project Proponent will continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at		Date: 26/11/2025

other sensitive receptors and such collected data will be submitted quarterly to the Ministry's Regional Office.		
25	AIR QUALITY MONITORING AND PRESERVATION	1.21 - The Project Proponent should install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.
PPs Submission: Agreed to Comply The Project Proponent will install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with GSPCB. The digital display board has been installed at the entry/exit gate of the mine and the real time data so generated will be displayed on the digital board for public. The real time data generated from the CAAQMS will be linked to the server of Goa State Pollution Control Board.		Date: 26/11/2025
26	Statutory compliance	1.22 - PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministrys Regional office within one month from the date of issue of EC to the instant project.
PPs Submission: Complied The Wildlife Conservation Plan as per Wildlife Amendment Act 2022 was submitted to the State Forest Department vide our letter dated 25/08/2025. The submission of WLCP was communicated to Ministry's Regional Office vide our letter dated 15/09/2025 is enclosed as Annexure-2. The said WLCP has been approved by the State Forest Department vide letter dated 18/11/2025. Copy of the letter of approval of WLCP dated 18/11/2025 is enclosed as Annexure-2A.		Date: 26/11/2025
27	MISCELLANEOUS	1.27 - The Project Proponent should adopt the proper mitigation measures as proposed under EMP. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministrys Regional Office.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the Project Proponent will adopt the proper mitigation measures as proposed under EMP and the adoption of mitigation measures and its monitoring will be done under the supervision of the qualified environmental personnel. The implementation status of the same will be submitted to the Ministry's Regional Office in subsequent half yearly compliance report.		Date: 26/11/2025
28	ENERGY PRESERVATION MEASURES	1.26 - The Project Proponent shall explore the possibility of using atleast 20 percent of Electric vehicles/ CNG/ Solar instead of diesel operation within three years in the project.
PPs Submission: Agreed to Comply The Project Proponent is in consultation with stake holders to explore the possibility of using atleast 20 percent Electric vehicles/CNG/Solar instead of diesel operation within the stipulated period of three years upon commencement of the mining operation.		Date: 26/11/2025
29	Statutory compliance	1.28 - The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should

		be reported to the concerned authority.
PPs Submission: Agreed to Comply The PP will establish in house (at project site) environment laboratory for measurement of environment parameter with respect to water quality monitoring (surface and ground). A dedicated team to oversee environment management is being setup comprising of Environment Engineer, Laboratory chemist and staff for monitoring water quality parameters. As regards to air quality monitoring and measurement, Continuous Ambient Air Quality Monitoring Systems will be used, and the reports will be submitted subsequently upon commencement of mining operations.		Date: 29/11/2025
30	GREENBELT	1.30 - The Project Proponent shall ensure the survival rate of 95 percent for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95 percent survival rate, action plan for achieving the target survival rate shall be submitted to the Ministrys Integrated Regional Office. Density of plantation should be 2500 plants/ha. PP shall make provision for drip irrigation to conserve the water. PP should plant fruit bearing trees along with Sal and allied species within the ML area.
PPs Submission: Agreed to Comply Plantation will majorly be carried out during monsoon season to ensure good survival rate. Records of plantation carried out along with its survival rate will be maintained. Project proponent will ensure achievement of survival rate of 95 percent and density of plantation of 2500 plants/ha. for planting both gap plantation and new plantation. Wherever possible, PP will make provision for drip irrigation to conserve the water. Native fruit bearing saplings along with Sal and allied species will be planted in consultation with the State Forest Department and the same will be maintained. An action plan will be prepared in the event of failure to achieve 95 percent survival and submitted to the Ministry's Integrated Regional Office.		Date: 26/11/2025
31	WATER QUALITY MONITORING AND PRESERVATION	1.31 - The Project Proponent shall provide the rainwater harvesting structure at mine offices and quarters/colonies to recharge the ground water.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP undertakes to construct rainwater harvesting structures at mine offices to recharge ground water.		Date: 26/11/2025
32	MISCELLANEOUS	1.39 - The Project Proponent shall ensure that the transportation shall not occur through village road.
PPs Submission: Agreed to Comply The PP undertakes to comply with the Rules framed by Department of Mines and Geology, Government of Goa (DMG), under The Goa (Prevention of Illegal Mining, Storage and Transportation of Minerals) Rules, 2013. Before the commencement of Transportation activity, the Project Proponent will apply for approval of transport route in online Bhumija portal to Directorate of Mines and Geology.		Date: 26/11/2025
33	WATER QUALITY MONITORING AND PRESERVATION	1.34 - The Project Proponent needs to provide good quality drinking water supply and also by laying network of pipelines to the villagers of santona, at free of cost.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the Project Proponent will provide good quality drinking water supply to the office and workers at the mine. The villagers of Santona have drinking water sourced from Government supply. If needed, drinking water will be provided to the villagers of Santona, free of cost.		Date: 26/11/2025
34	Human Health Environment	1.36 - The Project Proponent should periodically monitor and

		maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.
PPs Submission: Agreed to Comply Initial Medical Examination of a person will be carried before employing in the mine as required under Rule 29(b) of Mines Rules, 1955. The medical reports of the workers will be maintained in a digital format at the project site. Further, Regular surveillance on occupational health will be carried out as provided under Mines Rules, 1955. Project Proponent will also organize medical camps for the benefit of the local people and also monitor the health impacts due to mining activity.		Date: 26/11/2025
35	WATER QUALITY MONITORING AND PRESERVATION	1.41 - Approval/permission of the CGWA/SGWA shall be obtained before drawing ground water for the project activities, if applicable. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.
PPs Submission: Complied Necessary approval/permission has been obtained from the Water Resource Department, Govt. of Goa (WRD) for drawl of ground water for the project activities. Copy of the WRD permission is enclosed as Annexure-1. An application vide no. 2884438, has been filed on 06/10/2025 for grant of Consent to Operate at Goa State Pollution Control Board and the same is under process.		Date: 26/11/2025
36	GREENBELT	1.44 - PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33 percent greenbelt area as part of the tree plantation campaign EK Ped Ma keNaam () and the details of the same shall be uploaded inthe MeriLife portal (https://merilife.nic.in).
PPs Submission: Agreed to Comply The PP undertakes to carry out plantation of saplings in accordance with the approved mining plan and in compliance to MoEFCC's OM dated 24.07.2024 as a part of tree plantation campaign "EK Ped Ma ke Naam" upon commencement of mining operations. The details of the same will be uploaded in the MeriLife portal (https://merilife.nic.in)		Date: 26/11/2025
37	MISCELLANEOUS	1.35 - The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will organize employment-based apprenticeship training program for the youth and to enhance the skill of the local people. Records will be maintained for periodic assessment on performance of the training imparted, and improvement of the training program.		Date: 26/11/2025
38	MISCELLANEOUS	1.38 - The mobile water tankers should be used in the ML area for dust suppression and control. A logbook of water tankers should be maintained mentioning running hours, kilometre reading, maintenance hours of water tankers for each shift. PP shall use non-toxic chemicals for dust suppression in order to reduce the total water requirement.
PPs Submission: Agreed to Comply		Date:

		Dust suppression and control within the mineral block in areas such as haul road, loading and unloading point and transfer points will be carried out by sprinkling of water by means of mobile water tankers. A logbook of water tankers will be maintained mentioning running hours, kilometre reading, maintenance hours of water tankers for each shift. PP will explore the possibility of use of water-soluble chemical dust suppressing agents for effectiveness of dust control system and to reduce the total water requirement.	26/11/2025
39	Statutory compliance	1.45 - PP shall ensure that all type of plastic waste generated from the mines shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. In pursuant to Ministrys OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministrys Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall be submitted to Ministrys Regional Office.	
		PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will ensure that all type of plastic waste generated from the mines are stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. The project proponent undertakes to implement activities to impart awareness on ban of Single Use Plastic to the workers and the nearby schools. A report, along with photographs, on the measures taken will be submitted to Ministry's Regional Office in the subsequent six monthly compliance report.	Date: 26/11/2025
40	WATER QUALITY MONITORING AND PRESERVATION	1.32 - PP needs to construct sedimentation ponds, check dam, gabion structures, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Lease area.	
		PPs Submission: Partially Complied There are 7 nos. of settling ponds existing within the Mineral Block having a cumulative capacity of 14,070 m3 and is proposed to be further increased to a capacity of 25,092 m3. Upon the commencement of mining operations, the PP will construct and maintain settling ponds, check dam, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Mineral Block.	Date: 26/11/2025
41	AIR QUALITY MONITORING AND PRESERVATION	1.37 - The Project Proponent needs to install the permanent water sprinklers in addition to mobile water tankers along the haul road and the approach road. Further, 8 nos. of fog/mist cannon sprayer of atleast 40 m throw shall be installed at various locations in the mine and beneficiation plant area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.	
		PPs Submission: Agreed to Comply The PP undertakes to provide permanent water sprinkling arrangement along the Main haulage road within the mine lease for dust suppression. Regular sprinkling of water on mine roads will be carrying out by way of water tankers. The other areas of dust generation like material transfer points, material yards etc. will be provided with dust suppression arrangements to arrest the fugitive dust emission. Additionally, mist canon sprayer of atleast 40 m throw will be installed in the mine upon commencement of mining operations. There is no screening or crushing plant or beneficiation plant within the mineral block, thus the dust generation due to processing is avoided.	Date: 26/11/2025
42	PUBLIC HEARING	1.33 - To address the concerns raised by the public in the public hearing, PP should complete its public hearing commitments within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under the public hearing is different from the CSR activities.	

PPs Submission: Agreed to Comply The PP has prepared an action plan based on the concerns raised by the public during public hearing and undertakes to implement the public hearing commitments within three years from the date of start of mining operations. The PP will regularly maintain and record the progressive activity outcomes. It will be ensured that the activities proposed under the action plan prepared with respect to concerns raised during public hearing are different from the CSR activities.		Date: 26/11/2025
43	Statutory compliance	1.43 - Project proponent shall take necessary other clearances/permissions under various Acts and Rules if any, from the respective authorities / department.
PPs Submission: Being Complied The Project Proponent has obtained the following requisite Clearances/Approvals/ permissions for commencement of mining operations: 1. NOC from Water Resources Department dated 16/04/2024 2. Approved Mining Plan dated 23/08/2024 3. Stage I "In-Principle" approval of FCA dated 12/05/2025 4. Environmental Clearance dated 22/08/2025 5. Consent to Establish dated 30/09/2025. An application vide no. 2884438, has been filed on 06/10/2025 for grant of Consent to Operate at Goa State Pollution Control Board and the same is under process. Post the grant of Consent to Operate and Forest Clearance, Mine Development Production Agreement will be signed between the Project Proponent and the State Government followed by Execution of Mining Lease Deed, subsequent to which the Mining operations will be carried out.		Date: 26/11/2025
44	Statutory compliance	1.46 - PP needs to comply with the Honorable NGTs order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
PPs Submission: Agreed to Comply Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria is with respect to stone quarrying which falls under minor minerals under Section 3(e) of the Mines and Minerals (Development and Regulations) Act, 1957. Additionally, drilling and blasting activities are not proposed in the mineral block. In view of no proposal of drilling and blasting, the stipulated condition is not applicable.		Date: 26/11/2025
45	LAND RECLAMATION	1.40 - The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministrys Integrated Regional Office.
PPs Submission: Agreed to Comply The PP undertakes to regrassing the mining area and any other area which may have been disturbed due to mining activities and restore the land to a condition, which is fit for growth of fodder, flora, fauna, etc. at the conceptual stage of mining in accordance with the approved mining plan.		Date: 26/11/2025
46	WATER QUALITY MONITORING AND PRESERVATION	1.42 - PP shall minimise the use of fresh underground water in the project. PP should use mine pit and settling pond water for dust suppression, plantation and other project related activities.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will minimise the use of fresh underground water in the project by using mine pit and settling pond water for dust suppression, plantation and other project related activities.		Date: 26/11/2025
47	Statutory compliance	1.47 - PP shall comply with all the Judgement/ Orders of Honorable NGT in the OA No. 304/2019 in the matter of M. Haridasan and Ors. Applicant (s) versus State of Kerala and Ors. Reg
PPs Submission: Agreed to Comply		Date:

Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria is with respect to stone quarrying which falls under minor minerals under Section 3(e) of the Mines and Minerals (Development and Regulations) Act, 1957. Additionally, drilling and blasting activities are not proposed in the mineral block. In view of no proposal of drilling and blasting, the stipulated condition is not applicable.		26/11/2025
48	Statutory compliance	1.48 - Ministrys Regional Office shall undertake site visit within 18 months from the date of issue of EC to the project. PP should submit the site inspection report/CCR issued by Regional office of Ministry with respect to this project to Compliance and Monitoring Division of the Ministry.
PPs Submission: Agreed to Comply Presently, the mining operations at the mine has not yet commenced during the compliance period ending September 2025. The Project Proponent is in the process of obtaining Consent to Operate, Forest clearance stage-II and signing of Mining Lease Deed with the State Government. The mining operations will commence upon execution and registration of Mining Lease Deed. The project Authorities will extend full cooperation to the inspecting Officer (s) of the Ministry's Regional Office by furnishing the requisite data /information/ monitoring reports and submit the site inspection report/CCR issued by Regional office of Ministry with respect to the project to Compliance and Monitoring Division of the Ministry.		Date: 26/11/2025
49	Statutory compliance	1.49 - PP shall obtain the FC (Forest Clearance) Stage-II for 21.1330 Ha. before starting any mining operation within the ML area.
PPs Submission: Agreed to Comply The mining operations at the mine has not yet commenced. The project has obtained Stage-I "In-principle" approval dated 12/05/2025 and is in the process of obtaining FC (Forest Clearance) Stage-II under the provisions of Forest (Conservation) Act, 1986 for diversion of 21.1330 Ha. of forest land for non-forest purpose, before starting any mining operation within the Mineral Block.		Date: 26/11/2025

General Conditions

Sr.No.	Condition Type	Condition Details
1	Statutory compliance	1.1 - The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining and Geology in strict compliance of Judgment of Honorable Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India and Ors.
PPs Submission: Complied This condition is not applicable.		Date: 26/11/2025
2	Statutory compliance	1.2 - The Project proponent complies with all the statutory requirements and judgment of Honorable Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India and Ors before commencing the mining operations.
PPs Submission: Complied This condition is not applicable.		Date: 26/11/2025
3	Statutory compliance	1.8 - The project proponent shall prepare a Site-Specific Conservation Plan and Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved

		Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).

PPs Submission: Agreed to Comply The PP has prepared and submitted a site-specific Wildlife Conservation Plan to the State Forest Department and is duly approved. Copy of the duly approved Wildlife Conservation Plan is enclosed as Annexure-8. The Project Proponent will implement and follow up with State Forest Department regarding implementation of WLCP upon commencement of mining operation. An implementation report will be submitted to Ministry's Regional office in subsequent half yearly compliance report.	Date: 27/11/2025

4	AIR QUALITY MONITORING AND PRESERVATION	3.3 - Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.

PPs Submission: Complied The condition is not applicable.	Date: 27/11/2025

5	WATER QUALITY MONITORING AND PRESERVATION	4.1 - The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEFCC and State Pollution Control Board/Committee.

PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP undertakes to take up measures for reducing the consumption of water after conducting the water auditing and report will be submitted to RO, MoEFCC and GSPCB.	Date: 27/11/2025

6	WATER QUALITY MONITORING AND PRESERVATION	4.6 - The project proponent shall practice rainwater harvesting to maximum possible extent.

PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP undertakes to construct rainwater harvesting structures at mine offices to recharge ground water.	Date: 27/11/2025

7	Statutory compliance	1.3 - The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.

PPs Submission: Complied As per the stipulated condition, the accord of Environmental Clearance to Block IV - Kalay Mineral Block has been advertised on 26/08/2025, in the local newspapers, Bhaangarbhui (Konkani Newspaper), Goan Varta (Marathi), Navhind Times (English) and The Goan (English Newspaper). Copy of the advertisement cuttings is enclosed as Annexure-4. Copy of Environmental Clearance has been submitted to State Pollution Control Board on 25/08/2025. Environmental Clearance is available in the Parivesh Portal of MoEFCC.	Date: 27/11/2025

8	WATER QUALITY MONITORING AND	4.3 - The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water

	PRESERVATION	collected from the slime pond shall be treated and recycled.
PPs Submission: Agreed to Comply The Mineral Block does not involve generation of slime and hence the condition is not applicable.		Date: 27/11/2025
9	WATER QUALITY MONITORING AND PRESERVATION	4.4 - Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
PPs Submission: Agreed to Comply The domestic wastewater will be treated in septic tanks and soak pit arrangements at the mineral block.		Date: 27/11/2025
10	Statutory compliance	1.4 - The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the involved in the project.
PPs Submission: Partially Complied The project has obtained Stage-I "In-principle" approval dated 12/05/2025 and is in the process of obtaining FC (Forest Clearance) Stage-II under the provisions of Forest (Conservation) Act, 1986 for diversion of 21.1330 Ha. of forest land for non-forest purpose, before starting any mining operation within the Mineral Block.		Date: 27/11/2025
11	Statutory compliance	1.5 - State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collectors office/ Tehsildars Office for 30 days.
PPs Submission: Complied A copy of Environmental Clearance has been submitted to the Goa State Pollution Control Board along with other relevant authorities. Copy of the letter dated 25/08/2025 is enclosed as Annexure-5.		Date: 27/11/2025
12	Statutory compliance	1.6 - A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
PPs Submission: Complied Copies of Environmental Clearance has been submitted to Heads of local bodies, Panchayats and Municipal Bodies on 25/08/2025. Copy of the letter is enclosed as Annexure-6. Environmental Clearance has been submitted to relevant Government Offices on 25/08/2025. Copy of the letter is enclosed as Annexure-7.		Date: 27/11/2025
13	Statutory compliance	1.7 - The Project Proponent shall follow the mitigation measures provided in MoEFCC Office Memorandum No. Z- 11013/57/2014-IA.II (M), dated 29th October, 2014, titled Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area.
PPs Submission: Agreed to Comply The PP undertakes to maintain 50 meter buffer zone from the habitation as per the MMDR and Mines Act 1957.		Date: 27/11/2025
14	Statutory compliance	1.9 - The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

PPs Submission: Partially Complied The Project Proponent has obtained the Consent to Establish dated 30/09/2025 under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 from the Goa State Pollution Control Board. An application vide no. 2884438, has been filed on 06/10/2025 for grant of Consent to Operate under the provisions of Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 at Goa State Pollution Control Board and the same is under process.		Date: 27/11/2025
15	Statutory compliance	1.10 - The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
PPs Submission: Complied Clearance from the National Board for Wildlife is not applicable for the proposed project.		Date: 27/11/2025
16	Statutory compliance	1.11 - This Environmental Clearance (EC) is subject to orders/ judgment of Honorable Supreme Court of India, Honorable High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
PPs Submission: Complied Condition is duly noted.		Date: 27/11/2025
17	Statutory compliance	1.12 - The Project Proponent shall inform the MoEFCC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
PPs Submission: Complied There is no change in the ownership of the mining lease. In the event of change of ownership, the Project Proponent undertakes to inform the Authority of the same and will apply for the transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.		Date: 27/11/2025
18	Statutory compliance	1.13 - The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
PPs Submission: Complied Necessary permission has been obtained from the Water Resource Department, Govt. of Goa (WRD) for drawl of ground water for the project activities. Copy of the WRD permission is enclosed as Annexure-1.		Date: 27/11/2025
19	Statutory compliance	1.14 - The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.
PPs Submission: Agreed to Comply The PP will obtain authorization for collection, storage and disposal of hazardous waste under the Hazardous and other Waste Management Rules, 2016, from Goa State Pollution Control Board.		Date: 27/11/2025
20	LAND RECLAMATION	2.2 - The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Honorable Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day

		shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.
PPs Submission: Agreed to Comply The Mineral Block is already broken up by way of mining pits and waste dumps since 1950's. There are no grazing lands within the mineral block. In view of the above the condition is not applicable. However, the Project Proponent will develop and maintain greenbelt along the inner periphery of 7.5 m of the Mineral Block boundary in consultation with the State Forest Department.		Date: 27/11/2025
21	LAND RECLAMATION	2.1 - The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary provision shall be made for protection and care of trees.
PPs Submission: Agreed to Comply The PP undertakes to carry out final closure of the mine as per the approved mining plan. During the conceptual period of mining, plantation will be carried out in backfilled and reclaimed area of mining lease, around water body, along the roadsides, around infrastructure areas etc., by planting the native species, which are of use to the local people, in consultation with the State Forest Department. Project proponent will ensure that the CPCB guideline are adhered to, and density of trees plantation is 2500 plants/ha. for planting both gap plantation and new plantation. Adequate budgetary provision has been made for protection and care of trees.		Date: 27/11/2025
22	AIR QUALITY MONITORING AND PRESERVATION	3.4 - The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
PPs Submission: Agreed to Comply The PP undertakes to engage leak proof or spillage proof Trucks/ Tipper for transportation of ore and cover the carriers of the transportation trucks with tarpaulin, to avoid dust getting airborne.		Date: 27/11/2025
23	WATER QUALITY MONITORING AND PRESERVATION	4.8 - Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
PPs Submission: Agreed to Comply Upon commencement of mining operation, the Project Proponent undertakes to carry out monitoring of Groundwater levels and quality for a network of existing wells in and around the project area, on a monthly basis. Also, a piezometer will be installed within the block and records of the same will be maintained. The Report on changes in Ground water level and quality will be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and GSPCB.		Date: 27/11/2025
24	AIR QUALITY MONITORING AND PRESERVATION	3.1 - The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an

		angle of 120 each) covering upwind and downwind directions.
PPs Submission: Complied The unit is an Opencast Iron Ore Mining Lease. The air quality monitoring locations for the mining lease will be established as stipulated in condition no. 3.10 herein below. The Mining Lease does not involve processing plant.		Date: 27/11/2025
25	Noise Monitoring & Prevention	6.1 - Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
PPs Submission: Agreed to Comply Upon commencement of mining operation, Noise level survey will be carried as per the prescribed guidelines and report in this regard will be submitted as a part of subsequent six-monthly compliance report to Regional Officer of the Ministry.		Date: 27/11/2025
26	ENERGY PRESERVATION MEASURES	8.2 - Provide LED lights in their offices and residential areas.
PPs Submission: Agreed to Comply The PP undertakes to provide LED lights in the mine office and other premises.		Date: 27/11/2025
27	AIR QUALITY MONITORING AND PRESERVATION	3.2 - The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
PPs Submission: Complied The Mineral Block does not involve plant or process stack emission and hence the condition is not applicable.		Date: 27/11/2025
28	AIR QUALITY MONITORING AND PRESERVATION	3.5 - The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEFCC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
PPs Submission: Complied The Mineral Block does not involve plant or stack emission and hence the condition is not applicable.		Date: 27/11/2025
29	AIR QUALITY MONITORING AND PRESERVATION	3.6 - Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
PPs Submission: Complied The Mineral Block does not involve Raw material Stockpiles and hence the condition is not applicable.		Date: 27/11/2025
30	AIR QUALITY MONITORING AND PRESERVATION	3.7 - Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.

PPs Submission: Complied The Mineral Block does not involve plant or stack emission and hence the condition is not applicable.		Date: 27/11/2025
31	AIR QUALITY MONITORING AND PRESERVATION	3.8 - The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each). covering upwind and downwind directions.
PPs Submission: Complied The Mineral Block does not involve plant and hence the condition is not applicable.		Date: 27/11/2025
32	AIR QUALITY MONITORING AND PRESERVATION	3.9 - Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
PPs Submission: Agreed to Comply Upon commencement of mining operations, the PP undertakes to use effective safeguard measures for prevention of dust generation at locations such as haul road, loading and unloading point and transfer points. Further, the fugitive dust emissions from all sources will also be regularly controlled by installation of required equipment/ machineries and preventive maintenance. The PP undertakes to explore the use of water-soluble chemical dust suppressing agents for effectiveness of dust control system. The PP also undertakes to ensure that the air pollution level conforms to the standards prescribed by the MoEFCC/ State Pollution Control Board, upon the commencement of mining operations.		Date: 27/11/2025
33	WATER QUALITY MONITORING AND PRESERVATION	4.2 - Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
PPs Submission: Agreed to Comply The PP undertakes to establish an Eco-tank connected to the washing ramp of the workshop where waste water will be collected. An oil skimmer is fit to the eco-tank, wherein the oil and grease from the eco-tank will be collected and disposed to the recycler. The water will be further treated so as to conform to the notified standards prescribed from time to time.		Date: 27/11/2025
34	WATER QUALITY MONITORING AND PRESERVATION	4.9 - The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEFCC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.

		PPs Submission: Agreed to Comply The mine does not generate any chemical effluents. The project is an opencast mine. During monsoon majority of the water from the mine catchment area is diverted and collected in the mining pits and settling ponds. The rain water harvested in the mining pits and settling ponds are treated to conform with the CPCB standards before discharging out of the mining lease for gainful purpose. Regular quality monitoring of discharge water from the mine and ground water from the nearby wells will be carried out and the reports will be submitted to Regional Office of MoEFCC, Zonal office of CPCB and GSPCB along with six-monthly compliance report upon commencement of mining operations.	Date: 27/11/2025
35	AIR QUALITY MONITORING AND PRESERVATION	3.10 - The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120 degrees is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.	
		PPs Submission: Agreed to Comply Environmental Clearance is granted on 22/08/2025, and the Project Proponent is in process of obtaining Consent to Operate and Forest Clearance for the Mineral Block. The Project Proponent undertakes to install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction, such that an angle of 120 degree is made between the monitoring locations. Also, Ambient Air Quality monitoring will also be established at prominent places like office building, canteen etc. to ascertain the exposure characteristics at specific places. The digital display board has been installed at the entry/exit gate of the mine and the data so generated will be displayed within 3 months on the digital board for public.	Date: 29/11/2025
36	WATER QUALITY MONITORING AND PRESERVATION	4.5 - Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	
		PPs Submission: Partially Complied There are 7 nos. of settling ponds existing within the Mineral Block having a cumulative capacity of 14,070 m3 and is proposed to be further increased to a capacity of 25,092 m3. Upon the commencement of mining operations, the PP will construct and maintain garland drains, settling ponds, check dam, retaining wall, etc to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.	Date: 27/11/2025
37	WATER QUALITY MONITORING AND PRESERVATION	4.7 - The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.	
		PPs Submission: Complied The Mineral Block does not involve steel plant complex and hence the condition is not applicable.	Date: 27/11/2025
38	WATER QUALITY MONITORING AND PRESERVATION	4.13 - The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.	

PPs Submission: Agreed to Comply Upon commencement of mining operation, the Project Proponent undertakes to carry out monitoring of Groundwater quality and levels for a network of existing wells and piezometer in and around the mineral block area, on a monthly basis through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.		Date: 27/11/2025
39	WATER QUALITY MONITORING AND PRESERVATION	4.10 - The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
PPs Submission: Agreed to Comply The mine does not generate any chemical effluents. The project is an opencast mine. During monsoon majority of the water from the mine catchment area is diverted and collected in the mining pits and settling ponds. The rain water harvested in the mining pits and settling ponds are treated to conform with the CPCB standards before discharging out of the mining lease for gainful purpose. Regular quality monitoring of discharge water from the mine and ground water from the nearby wells will be carried out and the reports will be submitted to Regional Office of MoEFCC, Zonal office of CPCB and GSPCB along with six-monthly compliance report upon commencement of mining operations.		Date: 27/11/2025
40	MINING PLAN	7.1 - The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.
PPs Submission: Agreed to Comply The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life, excavation vis-a-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area will be in accordance with the approved Mining Plan. PP will ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status will be submitted in subsequent half-yearly compliance report to the MoEFCC and its concerned Regional Office.		Date: 27/11/2025
41	WATER QUALITY MONITORING AND PRESERVATION	4.11 - The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post- monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.

		PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will ensure that surface runoff generated during the monsoon season will be diverted through garland drains into designated mining pits to facilitate the sedimentation of suspended solid particles. Further, mine pit water will be pumped and passed through a series of settling ponds where it will be treated with flocculants and only clear water will be discharged from the Mineral Block The Project Proponent undertakes to carry out monitoring of upstream and downstream of the Seasonal Drainage passing through the mineral block and the upstream and downstream of the Kalay river flowing towards the East of the Mineral Block, on a monthly basis. The parameters will include their water quality vis-a-vis suitability for usage as per CPCB criteria and flow rate. The record of monitored data will be sent regularly to MoEFCC and its Regional Office, CGWA and Regional Director, CGWB, GSPCB and CPCB, Clearly showing the trend analysis on six-monthly basis. The PP undertakes to ensure that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC.
		Date: 27/11/2025
42	WATER QUALITY MONITORING AND PRESERVATION	4.12 - Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
		PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP undertakes to plan, develop and implement rainwater harvesting structures at mine offices to recharge ground water resources. Additionally, the rainwater accumulated in the mining pit during monsoon will act as a rainwater harvesting measure to augment the groundwater resources. An annual report on the amount of water recharged will be subsequently submitted to Regional Office, MoEFCC.
		Date: 27/11/2025
43	Noise Monitoring & Prevention	5.2 - The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
		PPs Submission: Complied The mining operation will be carried out using heavy earth moving machinery and there is no proposal for drilling and blasting in the mining lease.
		Date: 27/11/2025
44	WATER QUALITY MONITORING AND PRESERVATION	4.15 - Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.
		PPs Submission: Agreed to Comply The PP undertakes to monitor parameters such as pH, Total Suspended Solids (TDS), Dissolved Oxygen (DO), Total Suspended Solids (TSS), Chemical Oxygen Demand (COD) in mine discharge water, along with the presence of acid mine drainage and metal contamination. The monitored data will be uploaded on the website of the company as well as displayed at the project site, on a display board near the main gate of the Mine.
		Date: 27/11/2025
45	WATER QUALITY MONITORING AND PRESERVATION	4.16 - In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at

		a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.
PPs Submission: Complied PP has carried out a detailed hydrogeological study through Accredited Consultant of Central Ground Water Authority for Mining Projects and NABET, and submitted to Water Resources Department, Government of Goa. The PP has registered its mine pit with Water Resources Department (WRD), Govt. of Goa, and has obtained NOC for drawl of ground water. Copy of WRD NOC is enclosed as Annexure-1.		Date: 27/11/2025
46	WATER QUALITY MONITORING AND PRESERVATION	4.14 - Adhere to Zero Liquid Discharge
PPs Submission: Agreed to Comply Waste water generated from workshop and Wheel wash system will be treated through Eco-Tank, water will be treated for sedimentation of suspended particles followed by separation of oil and grease using oil skimmer fitted to the Eco-tank. Treated clear water so generated will be reused and recycled for vehicle washing purposes. The domestic waste water generated will be drained by underground impervious drains, leading to appropriately designed septic tanks and soak pits. In view of the above facilities in place, no contamination of any kind of water body is anticipated.		Date: 27/11/2025
47	Noise Monitoring & Prevention	5.3 - The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP undertakes to take measures to control noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. will be provided with ear plugs /muffs The PP undertakes to provide PPE to the personnel including laborers working in dusty areas, such as helmets, masks, goggles, safety shoes, etc. Adequate training and awareness will be created among workers on safety and health aspects.		Date: 27/11/2025
48	MINING PLAN	7.2 - The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden and dump management, O.B and dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).
PPs Submission: Agreed to Comply The mine is not yet in operation. The PP is in the process of obtaining Forest clearance and consent to operate along with other statutory permissions/ requirements. Upon the commencement of mining operations, the PP undertakes to carry out mining operations strictly in accordance with the Mining Plan approved by Indian Bureau of Mines from time to time. Approval of the Mining Plan for Block IV Kalay Mineral Block is granted on 23/08/2024. Copy of the approval letter is enclosed as Annexure-9.		Date: 27/11/2025
49	Noise Monitoring & Prevention	5.1 - The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages

		located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
PPs Submission: Complied No mining operations will be carried out during the night. Hence, there will be no disturbance to villagers due to sound or illumination at night.		Date: 27/11/2025
50	ENERGY PRESERVATION MEASURES	8.1 - Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly
PPs Submission: Agreed to Comply Project Proponent undertakes to install solar power generation on roof tops of buildings for solar light system for all common areas, street lights, parking around project area and maintain the same regularly.		Date: 27/11/2025
51	LAND RECLAMATION	9.1 - The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
PPs Submission: Agreed to Comply Upon commencement of mining operations, the Over burden (O.B.) and waste generated during mining will be stacked at the earmarked area in accordance with the Approved Mining Plan. Further, the physical parameters of the O.B. will be maintained as per the approved Mining Plan and in compliance of guidelines/circulars issued by D.G.M.S. The PP undertakes to stabilize overburden dump in accordance with the approved mining plan. Generation of topsoil during the mining plan period is not anticipated. However, topsoil generated if any, then the same will be used for land reclamation and plantation.		Date: 27/11/2025
52	Noise Monitoring & Prevention	6.2 - The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.
PPs Submission: Agreed to Comply The PP will ensure that ambient noise levels conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day tidaytime0 dB(A) during nighttime.		Date: 27/11/2025
53	LAND RECLAMATION	9.2 - The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo- membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
PPs Submission: Agreed to Comply Upon commencement of mining operation, the PP undertakes to vegetate the slope of the dumps in scientific manner with native species to maintain the slope stability, prevent erosion and surface run off. The project proponent undertakes to carry out adequate measures towards the stabilisation of		Date: 27/11/2025

dump slopes to prevent erosion and surface run off, such as consolidating and levelling of the dump mass with dozer/HEMM, attending to the gullies formed on slopes, and use of geo-textile in critical areas as per requirement.		
54	WASTE MANAGEMENT	10.1 - The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.
PPs Submission: Agreed to Comply The waste oil, grease and other hazardous waste will be disposed off as per the Hazardous and Other waste (Management and Transboundary Movement) Rules, 2016.		Date: 27/11/2025
55	WASTE MANAGEMENT	10.2 - Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)
PPs Submission: Agreed to Comply Food waste generated from canteen will be composted in-house and will be used as manure for plantation.		Date: 27/11/2025
56	LAND RECLAMATION	9.3 - Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will ensure that Adequate garland drains are constructed on mine benches dumps and stacks, before the onset of monsoon to divert the rainwater surface runoff is diverted into designated mining pits to facilitate the sedimentation of suspended solid particles. Further, there exist 7 settling ponds having a cumulative capacity of 14,070 m3 and is proposed to be further increased to a capacity of 25,092 m3 ensuring a longer retention period. The mine pit water will be pumped and passed through these series of settling ponds where it will be treated with flocculants and only clear water will be discharged into the seasonal drainage from the Mineral Block. The water collected will be utilized for dust suppression, green belt development, plantation, etc. The garland drains and settling ponds will de-silted before the onset of monsoon season and maintained properly.		Date: 27/11/2025
57	LAND RECLAMATION	9.4 - Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50 percent shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.
PPs Submission: Agreed to Comply The PP will ensure that during monsoon, rainwater from the mine benches, dumps and surrounding catchment area is channelized through garland drains into mining pits having cumulative capacity of storing about 8.5 million m3 of water. The process of storing water in the mining pit having adequate capacity provides the necessity retention period thereby allowing proper settling of sediments/silt material. Further, there exist 7 settling ponds having a cumulative capacity of 14,070 m3 and is proposed to be further increased to a capacity of 25,092 m3 ensuring a longer retention period. The mine pit water will be pumped and passed through these series of settling ponds where it will be treated with flocculants and only clear water will be discharged into the seasonal drainage		Date: 27/11/2025

from the Mineral Block. Protective measures such as check dam of appropriate size will be constructed across the seasonal drainage to further enhance the quality of water discharged. The above protective measures will be constructed considering maximum rainfall recorded in the area and discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material.		
58	Risk Mitigation and Disaster Management	13.2 - Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
PPs Submission: Agreed to Comply The PP undertakes to implement Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan upon commencement of mining operations.		Date: 27/11/2025
59	Corporate Environmental Responsibility	15.2 - The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders/stake holders. The copy of the board resolution in this regard shall be submitted to the MoEFCC as a part of six-monthly report.
PPs Submission: Complied Project Proponent has framed a well laid down environmental policy, duly approved by the Board of Directors. The standard operating procedures are in place in the Environmental Policy approved by the Board of Directors. A copy of environmental policy along with copy of the board resolution in this regard is enclosed as Annexure-10.		Date: 27/11/2025
60	Corporate Environmental Responsibility	15.6 - The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEFCC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
PPs Submission: Agreed to Comply Time-bound action plan has been submitted to the Regional office of the Ministry on 25/11/2025. Copy of the same is enclosed as Annexure-13. The project proponent undertakes to implement the action plan within three years of commencement of the project and the status of the same will be submitted in the subsequent six-monthly compliance report.		Date: 27/11/2025
61	GREENBELT	12.1 - Green belt shall be developed in an area equal to 33 percent of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant.
PPs Submission: Agreed to Comply Upon commencement of mining operations, the PP will undertake greenbelt development inter-alia covering the periphery of the Mineral Block, in accordance with the Approved mining plan by planting native tree species in accordance with CPCB guidelines. During the conceptual stage		Date: 27/11/2025
62	GREENBELT	12.2 - The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

PPs Submission: Complied The Mineral Block does not involve plant or stack emission and hence the condition is not applicable.		Date: 27/11/2025
63	Human Health Environment	13.1 - Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
PPs Submission: Agreed to Comply The project is a mining lease and the Occupational health surveillance of the workers shall be done on a regular basis and the records will be maintained as per the Mines Rules, 1955.		Date: 27/11/2025
64	Human Health Environment	13.4 - The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
PPs Submission: Complied The Mineral block does not involve any high temperature work zone and hence the condition is not applicable.		Date: 27/11/2025
65	Human Health Environment	13.5 - Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic wastewater should be treated with STP in order to avoid contamination of underground water.
PPs Submission: Agreed to Comply The workmen will be engaged from local villages outside the mineral block having their own source of fuel, drinking water, toilets and other domestic facilities and will not require provision for housing or labour camps. The PP will provide facilities to workmen during working hours such as safe drinking water, medical health care, mobile toilets etc. The domestic wastewater at the mineral block will be treated in septic tanks and soak pit arrangement in order to avoid contamination of underground water.		Date: 27/11/2025
66	GREENBELT	14.1 - The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.
PPs Submission: Agreed to Comply There exists plantation along the 7.5m wide safety zone from the mine lease boundary i.e. eastern boundary and partly on the western and southern boundary. As the Mineral Block shares a common boundary with adjoining mine, there is no greenbelt on its northern boundary. The PP will develop, strengthen and maintain the greenbelt in 7.5m wide safety zone within first 5 years starting from windward side of the active mining area as per the EC granted and irrespective of the stipulation made in approved mining plan.		Date: 27/11/2025
67	AIR QUALITY MONITORING AND PRESERVATION	11.2 - The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points,

		material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.
PPs Submission: Agreed to Comply The PP undertakes to provide permanent water sprinkling arrangement along the Main haulage road within the mine lease for dust suppression. Regular sprinkling of water on mine roads will be carrying out by way of water tankers. The other areas of dust generation like crushing zone, material transfer points, material yards etc. will be provided with dust suppression arrangements. There is no screening or crushing plant within the mineral block, thus the dust generation due to screening or crushing is avoided. Generation of fugitive dust will be monitored regularly at all sensitive locations within the mining lease.		Date: 27/11/2025
68	Corporate Environmental Responsibility	15.3 - A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
PPs Submission: Complied A separate 'Environmental Management Cell' (EMC) at the project level and company headquarters level with qualified manpower have been set-up under the control of a Senior Executive. A copy of EMC is enclosed as Annexure-11.		Date: 27/11/2025
69	Corporate Environmental Responsibility	15.4 - Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
PPs Submission: Agreed to Comply The action plan for implementing EMP and environmental conditions along with responsibility matrix will be provided upon commencement of mining operation. Copy of the same is enclosed as Annexure-12. Upon commencement of mining operations, the year wise funds earmarked for environmental protection measures will be kept in separate account and is not diverted for any other purpose. Report on the status of implementation of Environment Management Plan will be submitted in the subsequent half yearly compliance report.		Date: 27/11/2025
70	MISCELLANEOUS	11.1 - No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. (If

		applicable in case of road transport).
PPs Submission: Agreed to Comply The PP undertakes to comply with the Rules framed by Department of Mines and Geology, Government of Goa (DMG), under The Goa (Prevention of Illegal Mining, Storage and Transportation of Minerals) Rules, 2013. Before the commencement of Transportation activity, the Project Proponent will apply for approval of transport route in online Bhumija portal to Directorate of Mines and Geology. The Project Proponent shall undertake following measures to effectively control pollution load due to transportation: 1. Transport trucks having valid PUC will be engaged for ore transportation. 2. Transportation of mineral shall be done only through the carriers registered with the (Directorate of Mines and Geology). 3. The carrier on road shall be driven by driver having commercial batch issued by Directorate of Transport, Goa or such other authority acceptable to Directorate of Transport, Goa. 4. All the carriers shall be fitted with tracking devices based upon GPS system to control speed limit. 5. The mineral shall be carried on road in the carriers by covering the same with tarpaulin. 6. Trucks engaged in ore transportation will be passed through wheel washing system before entering the tar road. 7. Transport road will be washed with water wherever required. The PP undertakes to bear the cost of maintenance of the road from the mining lease to the jetty, which is utilized for the transportation of ore.		Date: 27/11/2025
71	Human Health Environment	13.3 - Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
PPs Submission: Complied The mineral block does not involve any construction stage. Moreover, all the workmen will be engaged from local villages outside the mineral block and have their own source of fuel, drinking water and other domestic facilities. The PP will provide facilities such as safe drinking water, medical health care, mobile toilets etc, to workmen during working hours. Domestic waste water at the mineral block will be treated in septic tanks and soak pit arrangement.		Date: 27/11/2025
72	Corporate Environmental Responsibility	15.5 - All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
PPs Submission: Complied The Mineral Block does not involve Mineral Beneficiation plant, hence the condition is not applicable.		Date: 27/11/2025
73	Corporate Environmental Responsibility	15.1 - Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
PPs Submission: Agreed to Comply The PP will conduct self-environmental audit every year and third party environmental audit every three years		Date: 27/11/2025
74	MISCELLANEOUS	16.5 - No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
PPs Submission: Complied The condition is duly noted.		Date: 27/11/2025
75	MISCELLANEOUS	16.9 - The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.

PPs Submission: Partially Complied Funds for the project will be from internal sources; hence, the condition of financial closure is not applicable. The date of start of land development work and start of production operation will be intimated to the Regional Office of the MoEFCC, upon commencement of mining operations.		Date: 27/11/2025
76	MISCELLANEOUS	16.12 - The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
PPs Submission: Agreed to Comply The PP will strictly adhere to the stipulations made by the Goa State Pollution Control Board and the State Government.		Date: 27/11/2025
77	MISCELLANEOUS	16.14 - Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
PPs Submission: Complied Condition is duly noted.		Date: 27/11/2025
78	MISCELLANEOUS	16.15 - The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Honorable Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
PPs Submission: Complied Condition is duly noted.		Date: 27/11/2025
79	MISCELLANEOUS	16.8 - Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
PPs Submission: Complied The condition is duly noted.		Date: 27/11/2025
80	MISCELLANEOUS	16.13 - The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
PPs Submission: Complied Condition is duly noted.		Date: 27/11/2025
81	MISCELLANEOUS	16.17 - The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC and its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
PPs Submission: Agreed to Comply Upon the commencement of mining operations, the PP will implement the Environmental safeguards as mentioned in the Environmental Management Plan and the report on the status of the		Date: 27/11/2025

implementation will be submitted in the subsequent six monthly compliance reports to the MOEFCC and its concerned Regional Office, CPCB and GSPCB.		
82	MISCELLANEOUS	16.19 - Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
PPs Submission: Complied Condition is duly noted.		Date: 27/11/2025
83	MISCELLANEOUS	16.1 - The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.
PPs Submission: Complied As per the stipulated condition, the accord of Environmental Clearance to Block IV - Kalay Mineral Block has been advertised on 26/08/2025, in the local newspapers, Bhaangarbhui (Konkani Newspaper), Goan Varta (Marathi), The Goan (English) and Navhind Times (English Newspaper). Copy of the advertisement cuttings is enclosed as Annexure-4. Copy of Environmental Clearance has been displayed on the project proponent's website permanently, link of which is (https://fomentoresources.com/index.php)		Date: 27/11/2025
84	MISCELLANEOUS	16.2 - The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
PPs Submission: Complied Copies of Environmental Clearance has been submitted to Heads of local bodies, Panchayats and Municipal Bodies on 25/08/2025. Copy of the letter is enclosed as Annexure-6. Environmental Clearance has been submitted to relevant Government Offices on 25/08/2025. Copy of the letter is enclosed as Annexure-7.		Date: 27/11/2025
85	MISCELLANEOUS	16.7 - The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
PPs Submission: Being Complied The project proponent will submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.		Date: 27/11/2025
86	MISCELLANEOUS	16.6 - The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
PPs Submission: Agreed to Comply The project proponent will upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis, upon commencement of mining operations.		Date: 27/11/2025

87	MISCELLANEOUS	16.10 - The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

PPs Submission: Agreed to Comply The PP undertakes to monitor parameters such as PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects. The monitored data will be uploaded on the website of the company as well as displayed at the project site, on a display board near the main gate of the Mine.	Date: 27/11/2025

88	MISCELLANEOUS	16.11 - The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Honorable Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

PPs Submission: Complied Condition is duly noted.	Date: 27/11/2025

89	MISCELLANEOUS	16.3 - The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

PPs Submission: Agreed to Comply The project proponent will submit the environmental statement for each financial year in Form-V to GSPCB as prescribed under the Environment (Protection) Rules, 1986 and upload the same on the website of the company.	Date: 27/11/2025

90	MISCELLANEOUS	16.18 - The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.

PPs Submission: Partially Complied Funds for the project will be from internal sources, hence, the condition of financial closure is not applicable. The date of start of land development work will be intimated to the Regional Office of the MoEFCC, upon commencement of mining operations.	Date: 27/11/2025

91	MISCELLANEOUS	16.4 - The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.

PPs Submission: Being Complied Environmental Clearance is granted on 22/08/2025 and the mine is not yet in operation. The Project Proponent is in the process of obtaining required statutory permissions for commencement of mining operations including signing of Mining Lease with the Goa State Government. The PP undertakes to abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.	Date: 27/11/2025

92	MISCELLANEOUS	16.16 - A separate Environmental Management Cell with suitable qualified manpower should be set-up under the control of a Senior

		Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEFCC.
PPs Submission: Complied A separate 'Environmental Management Cell' (EMC) with qualified manpower have been set-up under the control of a Senior Executive. A copy of EMC is enclosed as Annexure-11.		Date: 27/11/2025
93	MISCELLANEOUS	16.20 - In pursuant to Ministrys O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
PPs Submission: Agreed to Comply The PP undertakes to re-grassing the mining area and any other area which may have been disturbed due to mining activities and restore the land to a condition, which is fit for growth of fodder, flora, fauna, etc. at the conceptual stage of mining in accordance with the approved mining plan		Date: 27/11/2025
94	MISCELLANEOUS	16.22 - The concerned Regional Office of the MoEFCC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data / information / monitoring reports.
PPs Submission: Agreed to Comply Condition is duly noted. The project authorities will extend full cooperation to the MoEFCC officer(s) by furnishing the requisite data / information / monitoring reports as required.		Date: 27/11/2025
95	MISCELLANEOUS	16.21 - The Project Proponent shall prepare digital map (land use and land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEFCC.
PPs Submission: Agreed to Comply The project proponent will prepare a Digital map of land use and land cover over the entire lease area, once in five years and reports will be submitted to the concerned Regional Office of the MoEFCC.		Date: 27/11/2025
96	Corporate Environmental Responsibility	17.1 - The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEFCC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.
PPs Submission: Agreed to Comply Time-bound action plan has been submitted to the Regional office of the Ministry on 25/11/2025. Copy of the same is enclosed as Annexure-13. The project proponent undertakes to implement the action plan within three years of commencement of the project and the status of the same will be submitted in the subsequent six-monthly compliance report.		Date: 27/11/2025
97	Statutory compliance	1 - The above conditions will be enforced interalia, under the provisions of the Water (Prevention and Control of Pollution) Act,

		1974, the Air (Prevention and Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Honorable Supreme Court of India/ High Court and any other Court of Law relating to the subject matter.

PPs Submission: Agreed to Comply Condition is duly noted.	Date: 27/11/2025

Visit Remarks

Last Site Visit Report Date:	N/A
Additional Remarks:	

Note: This acknowledgement is as per the details submitted by project proponent. In no way is this document to be considered as conclusion on any action on the compliance of the project. This is strictly for the project proponent's reference purpose.

Annexure-1

GOVERNMENT OF GOA
OFFICE OF THE EXECUTIVE ENGINEER
& GROUND WATER OFFICER,
WORKS DIVISION I
WATER RESOURCES DEPARTMENT
PORVORIM GOA

To,
M/S Fomento Resources Private Limited,
102, 1st Floor, Kamat Metropolis-I,
Behind Caculo Mall,
St. Inez, Panaji–Goa 403001.

Sub:- Issue NOC reg.... Renewal/Registration of Mine Pit with respect to Block – IV, Kalay Mineral Block situated at Village Santona, Taluka Sanguem District-South Goa.

Ref:- Your letter dated:-03/01/2024

Sir,

The application submitted vide letter dated. 03/01/2024 along with Hydrogeological and impact assessment of Ground Water, prepared by Shri. M.C. Reddy Consultant with NABET & CGWA accreditation and former Regional Director, CGWB is examined by the Ground Water Cell during its 131th meeting held on 19/03/2024.

The NOC/Registration is hereby issued as below with conditions.

FORM – III
[See Rule 3(6)(2)]

Certificate of Registration of an existing well/mine and permission for its continuous use in the Scheduled area under 5(4) of the Goa Ground Water Regulation Act, 2002 (Goa Act 1 of 2002).

* Well be read as Mine

Registration Certificate

No. 3682 Date: 16/04/2024

1. Register Number of well/mine: **Block – IV, Kalay Mineral Block, Village Santona, Taluka Sanguem District-South Goa.**

2. Location of Mining Block,
   a) **Block – IV, Kalay Mineral Block, Village Santona, Taluka Sanguem District-South Goa.**

Survey No of Mining Block: **As per Annexure II - 7/1(P), 8/1(P), 8/2 (P), 15/1(P), 16/1(P), 24/1(P), 25/1(P), 25/2(P), 26(P), 29(P), 40/1, 40/2(P), 40/3(P), 40/5(P), 40/6(P), 40/7(P), 40/8(P), 40/9(P), 41/1(P).**

b) Name of Land: **Endigal**

b) Revenue village/Village Panchayat: **Santona.**

d) Taluka: **Sanguem.**

Type of well/tank: **Mining Pit (Opencast Mine)**

Details of well/mine
a) Diameter size of well/mining pits: One Pit 540 mts X 860 mts.
One Pit 350 mts X 850 mts.
b) Depth of well/tank/mining pits:
c) Year of construction: **Old Existing mining lease acquired by present applicant through e-auction.**
d) Year of commissioning: **2024-25.**
Name of occupant and address: - **Fomento Resources Private Ltd. 102, 1st Floor, Kamat Metropolis-I, Behind Caculo Mall, St. Inez, Panaji-Goa-403001.**

The device used for lifting the ground water Pump
Details of power supply
(a) Type of pump: **Centrifugal Pump**
(b) Horse power: **294; 151; 150; 112; 73; 99.**
(c) Pump capacity - **M3/Hr. 500; 400; 500; 500; 400; 140**
(d) E.D. Power supply connection number- **EE/Div.VII/TECH/HTC-25**

8. (a)Number of hours of pumping allowed per day: **12 Hours**
(b)The quantity of drawl of ground water allowed per day: **3360 Cum** as required for scientific operation of mine
(c)The total period of use permissible in each year: Full year **(12 months)**

9. Validity period of registration: 2 (Two) year from date of issue **(06/06/2024 to 05/06/2026)**

This is subject to the following conditions
1. The certificate holder should not deviate in any way from specification regarding well, pump etc. mentioned above without approval of Ground Water Officer.

2. The drawl of ground water under this license should not interfere with the normal activities of the locality nor should it cause any traffic hazard.

3. The Ground Water Officer or any person duly authorized by him shall have the right to inspect the place with such assistance as may be necessary to satisfy itself or himself whether the condition of restrictions specified as complied.

4. Installation of Peizometers: The applicant should install Peizometers of type (One DWLR with Telemetry System) for monitoring the Ground Water Levels within the core area of mining lease for observation & monitoring. Slotted pipe is to be fitted against ground water potential.

5. Monitoring the Ground Water level in the buffer zone the established network of existing wells in the buffer zone (as per table 16 of the report), needs to be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB.

6. The project proponent needs to monitor the water quality of the mines seepage and mine discharge through NABL accredited/ Government approved laboratory on monthly basis to WRD and CGWB, Bangalore.

7. The applicant needs to ensure that the water available from the dewatering operations needs to be properly treated and quantity utilized for supply to irrigation/dust suppression/mining process.

8. The applicant needs to install digital water meter for measurement of the quantity of water abstraction, which will be chargeable as per the notification of Ground Water Act 2002.

9. Once the mining activities commence, year wise mine planning including excavation depth, area and mine seepage are to be submitted to WRD/CGWB every year.

10. All activities committed in the report on ground water recharge and rain water harvesting is to be implemented satisfactorily.

11. The NOC/permission/Ground Water clearance is valid for a period of 2 years and further renewal is subject to fulfilling the conditions stipulated in the NOC.

Place: **Porvorim**

Date: **16/04/2024**

Signature of the Ground Water Officer

Works Division I, Water Resources Department
जलसंपदा विभाग १, उदका साधन खात
पर्वरी-गोवा
Porvorim-Goa

FOMENTO RESOURCES

Annexure-2

Date: 15/09/2025

To,
The Director,
Ministry of Environment, Forest & Climate Change,
Regional Office (Southern Zone),
4th Floor, E&F Wings, Kendriya Sadan,
17th Main Road, 2nd Block, Koramangalam,
Bangalore – 560034, Karnataka.

Sub: Submission of proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022, to the Goa State Forest Department as per the condition stated in the Environmental Clearance granted on 26/08/2025 with respect to Block IV – Kalay Mineral Block, located at Village Santona of Sanguem Taluka, South Goa District, Goa. - **Compliance with EC Condition.**

Ref: Environmental Clearance file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025

Sir,

In reference to the above mentioned Environmental Clearance (EC) granted to our project Block IV – Kalay Mineral Block, the EC condition no. 1.22 of the Specific Conditions, is stipulated as follows:

"PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministry's Regional office within one month from the date of issue of EC to the instant project."

A copy of the Environmental Clearance granted dated 22/08/2025 is enclosed as **Annexure 1**.

In compliance with the said above mentioned condition, we are submitting herewith proof of submission of the Wildlife Conservation Plan to the Chief Wildlife Warden, Forest Department, Goa. A copy of the letter dated 25/08/2025 is enclosed as **Annexure 2.**

S

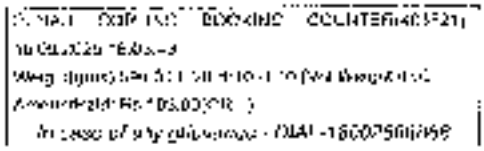
Kalamangalam S.O





Receiver THE DIRECTOR
BENGALORE
BENGALURU URBAN
KARNATAKA
-560034

Sender TOMORROWBOYZ
PVT LTD
NORTH GOA NORTH GOA
GOA
INDIA-403001



Thanking you,
Yours faithfully,
For and on behalf of
Fomento Resources Private Limited

for

Sandeep Morajkar
Authorized Representative

FOMENTO RESOURCES PVT. LTD.
FRPL
GOA

Enclosed: As above

File No.: IA-J-11015/11/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
EA Division
***

सत्यमेव जयते

Dated 22/08/2025

To,

Mr. Sandeep Murgaku
M/s FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Memorio-cum-Hotel Omalo Mall, 31 Dec. Panaji, North Goa, 403001, Panaji, NORTH GOA, GOA, Behind Caculo Mall, St. Inez, Penha-I, 403001
murgaku@filpl.biz

Subject: Kalay Mineral Block Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Nanhona, Sanguem Taluka, South Goa District, Goa - For Environmental Clearance reg.

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/GA/MIN/520154/2025 dated 05/03/2025 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006 and its amendments thereof.

2. The particulars of the proposal are as below:

(i) EC Identification No	EC25B039001A5877278N
(ii) File No.	IA-J-11015/11/2023-IA-II(NCM)
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block IV - Kalay Mineral Block
(viii) Location of Project (District, State)	SOUTH GOA, GOA
(ix) Issuing Authority	MoEF&CC
(x) Applicability of General Conditions	No

3. In view of the particulars given in the Para 1 above, the project proponent vide its online Form-1 (Part A, B and C), EIA & EMP Report were submitted to the MoEF&CC for an appraisal by the EAC under the provision of EIA notification 2006 and it subsequent amendments.

4. The above mentioned proposal has been considered by EAC in its meeting held on 25/26/06/2025. The outcome of the

meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above

3. Observation and Recommendation of the Committee

The instant proposal is for Environment Clearance for the Kalay Mineral Block – Block IV (Amrion Block), submitted by M/s Fomento Resources Private Limited for the mining of iron ore with a production capacity of 0.35 MTPA and waste generation of 3.0 MTPA, over a mine lease area of 152.5973 hectares. The project is located at Village Sanguem, Sanguem Taluka, Sattari Goa District, Goa.

During the presentation, the Project Proponent and their consultant submitted the KML file to illustrate the site position within the 10 km study area. It was informed that there are three existing pits within the mine lease area. A seasonal nallah traverses the mineral block, flowing from west to east, while the Kalay River flows 0.065 km along the eastern boundary of the lease area at varied distances. The mineral block is located with Vasdana village. Dandoli and Kalem villages are located at distances of 0.6 km and 0.7 km, respectively. Two government primary schools, one in Devrival and the other in Ambendik, are situated 0.83 km and 0.78 km away from the mine lease boundary. EAC also noted the presence of temples at a distance of 0.3 km from the mine lease area.

The nearest town, Sanvordem, is about 6 km away in the south-west direction. The State Highway SH-7 is situated approximately 1.27 km west of the project site. The Karnataka state boundary lies at an aerial distance of 10.03 km. Kulay Railway Station is 4 km in the east. The Bhagwan Mahaveer Wildlife Sanctuary lies 1.04 km from the eastern boundary. PP has submitted the letter dated 05.07.2023 issued by Deputy Conservator of Forests, Goa, wherein it has been stated that the mineral lease located at Sanguem village, Goa, falls outside the notified ESZ boundary of the Bhagwan Wildlife Sanctuary and National Park. The Expert Appraisal Committee (EAC) noted that the Final notification for Eco-Sensitive Zone around the Bhagwan Mahaveer Wildlife Sanctuary and National Park in Goa was issued vide S.O. 2210(E) dated 23.06.2015. Further vide letter dated 25.10.2023, Regional Office of the Ministry at Bengaluru stated that Kalay Mineral Block-I and Amrion Block of M/s Fomento Resources Private Limited located at village Sanvordem, Sanvordem Taluka, South Goa District, Goa falls outside of ESZ of Bhagwan Mahaveer Wildlife Sanctuary and National Park and ESA of Western Ghats.

The Project Proponent was granted the Letter of Intent on 14.01.2014 for a total area of 179.1896 hectares. Subsequently, the Directorate of Mines and Geology, Government of Goa, through its letter dated 13.03.2023, revised the area of Block IV – Kalay Mineral Block to 152.5973 hectares by excluding 26.5923 hectares falling within the Eco Sensitive Zone (ESZ).

The project area includes forest land, and the PP has received in-principle Stage-I Forest Clearance for 21.133 hectares of forest land under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, granted on 17.05.2023 by the competent authority following the Advisory Committee's recommendation on 16.04.2015.

EAC observed that PP has submitted the revised Wildlife Conservation Plan to Chief Wildlife Warden on 05.03.2024 which was also presented by the PP during the 16th EAC meeting (15-16 May 2024). The subject of the letter submitted to Chief Wildlife Warden on 05.03.2024 indicated that plan under Wildlife Act 1972 has been submitted. Accordingly, EAC asked PP to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022.

Thereafter, PP submitted the authenticated list of Flora and Fauna as per Wildlife Amendment Act 2022 issued by CWW of the ToR dated 14.02.2024. EAC is noted that PP has submitted the revised budget and revised Wildlife Conservation Plan as per the MoEF&CC reply dated 12.06.2025. PP has informed that the activities and budget outlined in the Wildlife Conservation Plan have been reviewed and duly incorporated into the EIA & EMP. Consequently, the budget has been revised from the earlier amount of Rs 12.5 lakhs to Rs.28.08 lakhs in the updated Wildlife Conservation Plan.

The total water requirement for the project is 900 KLD, of which 237.82 KLD will be sourced as fresh water and 662.18 KLD will be treated water. Rainwater and stormwater accumulated in the mine pit will be utilized for dust suppression, workshop needs, afforestation and greenbelt development purposes. Fresh water will be used for domestic requirements. The Office of the Executive Engineer and General Water Utilities, Water Resources Department, Govt of Goa has granted permission for water withdrawal, which is valid up to 05.08.2026. The permission has been allowed for the drawl of 5,150 cubic meter per day of ground water is required for scientific operation of mine as per the letter dated 16.04.2024. It has been mentioned that the NOC / permission for ground water abstraction is valid for a period of 02 years. EAC noted the presentation of PP and agreed to recommend the GoI's underground water for the project. EAC was of the opinion that PP can use the same for project activities.

Approval of Mine plan has been obtained from Indian Bureau of Mines on 23.08.2021

The Public Hearing was conducted on 29.01.2025 wherein various issues raised such as to address the cracks, overflow of water from mine pits, to provide drinking water facility for villagers and to provide safety on roads. Public Hearing budget Rs. 15.00Lakh for three consecutive years has been allocated to address the issues raised during Public Hearing.

The Project Proponent collected baseline data between March and May 2025. This included parameters related to ambient air quality (PM_{10}, $PM_{2.5}$, SO_2, NO_x, noise levels, and quality of water and soil. All recorded values were found to be within the permissible limits. Additionally, hazardous air pollutants such as arsenic, benzene, benzo(a)pyrene, mercury, and nickel were analyzed and found to be below detectable limits (BDL).

The Project Proponent has proposed the total EMP capital cost of Rs. 168.63 Lacs and Recurring Cost of Rs. 98.31Lacs.

The offline EAC deliberated the A-08 points under the Minutes of the 44th EAC meeting held during 15-16 May 2025.

Regarding the No Objection Certificate (NOC) from the Archaeological Survey of India (ASI) for the village temple in Devamol (Dukarkondi), situated 0.3 km from the project site, PP stated that the temple is not classified as a protected monument, hence NOC is not required. The PP provided a list of protected sites under the Goa Ancient Monuments and Archaeological Sites and Remains Act, 1958 (with Rules from 1960) along with information on protected sites from ASI records. According to this list, the Devamol Temple (Dukarkondi) is not designated as a protected monument. Additionally, the PP submitted an application to ASI on June 5, 2025. In reply, ASI issued a letter on June 18, 2025, verifying that the temple is not included among the protected monuments in the South Goa District. EAC noted the submission of PP and advised PP to protect the temple ensuring no disturbance/blasting activity within 300 m without special permission from DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/temple panchayat.

With regard to transportation of mined-out mineral and compliance of the Hon'ble High Court of Bombay at Goa order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 filed Mulakh Khajan Tanners Association vs The Directorate of Mines and Geology, PP submitted that Directorate of Mines and Geology, Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. Accordingly, they have prepared a transportation plan to transport the mined out iron ore from the Kuley Mineral Block to either the Sanvordem or Capxem jetties. Iterated approximately 12 to 14 km) to the port side, via State Highway-2 (SH-7). The transportation route includes an internal haul road of 2.5 km within the lease area and a public road stretch (SH-7) of about 11.5 km, which has a width ranging between 8 to 10 meters. Two route options have been proposed:

Route 1 – From: Kuley Mineral Block to Sanvordem-Capxem Jetty via Kankeuvoe and Sanvordem Junction;

Route 2 – From: Kuley Mineral Block to Sanvordem-Capxem Jetty via Bandoli and Sanvordem Junction.

PP also submitted that they will comply the directions of the Hon'ble High Court and follow the SOP by DMG and SPCB in this regard. EAC noted the submission of PP and advised to ensure proper load and covering of trucks with tarpaulin while transportation. EAC also asked PP to undertake regular sprinkling of the roads to mitigate dust generation and use road sweeping if necessary. Truck drivers, helpers, Operators, Supervisors, contractor personnel should be properly trained on environmental aspects. Record of above training of the personnel, supervisor/officials should be submitted to Regional office of MoEF&CC.

Concerning the issues of potential overflow of water from the open cast mine pit during heavy rainfall and other events where groundwater table has already intersected, PP submitted that they have prepared a comprehensive water management plan. The estimated rainfall volume in the watershed area is 5.00 million m³, while the mine pit offers a storage capacity of 5.58 million m³, thereby mitigating overflow risk. In extreme events, the available pumping capacity of 30,000 m³/day ensures safe discharge to prevent overflow of water from the open cast mine pit during heavy rainfall or other events.

PP also submitted that they have prepared a comprehensive plan for treatment and disposal of ground water and the same has been submitted to Water Resources Department(WRD), Govt. of Goa for their consultation vide letter dated 06.06.2025. EAC noted the submission of PP and asked about the proposed treatment plan. PP informed that proposed pumping in the pits shall be carried out during the non-monsoon period by way of engaging pumps in terms of the approved recorded quantity of water from WRD, Government of Goa.

The rainwater accumulated in the mining pit, if any, shall be treated through settling ponds and filter beds. Project Proponent will operate and maintain Effluent Treatment Plant (ETP) for the effluent generated from the Workshop. Domestic wastewater shall be treated in a properly designed septic tank and discharged on land by percolation through soak pit of adequate size within the mine premises. To prevent siltation of rivers/ nallahs/ lakes/ creek during rainy season, garland drains around the mine with adequate settling ponds shall be maintained at regular intervals for settlement of suspended particles and to prevent silt run. Pumping schedule for pumping the rain water accumulated in the mining pit shall be maintained and adequate measures shall be taken to implement suitable conservation measures to augment ground water resources wherever possible in the area. Monitoring the Ground Water level in the buffer zone in the established network

of ex-situ wells in the buffer zone will be monitored on monthly basis and submitted to Deputy Water Officer (WRD) And CGWB. EAC noted the submission of the PP and observed that existing number of settling ponds is inadequate and accordingly advised PP to increase the same in consultation with State WRD and SPCB. EAC also advised PP to obtain necessary permission of State WRD/ SGWA/ CGWA in this regard. An action taken report in this regard shall be submitted to Ministry's Regional office in Half-yearly compliance reports.

To safeguard Kaley River which flows at 0.0 km from the eastern boundary of the mine lease area at nearest place, PP presented a detailed safeguard plan which was submitted to Goa State pollution Control Board (GSPCB) & WRD, Govt of Goa for consideration vide letter dated 06/06/2025. PP stated that the distance of ultimate pit limit of PP no 1 from the Kaley River is 458 metres and the distance of ultimate pit limit of PP no 3 from the Kaley River is 350 metres. PP reported that GSPCB vide its letter dated 18/06/2025 has recommended additional measures in the safeguard plan which include keeping a buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falling in the lease area and will be maintained as no Mining zone. PP will comply with all safeguards and ensure water quality monitoring upstream and downstream of the Kaley River near discharge points.
Key features of the Kaley River safeguard plan include diversion of surface stormwater during monsoon to mine pits for sedimentation. Decanted stormwater, controlled discharge through settling ponds during the dry season, regular maintenance and desilting of drainage structures, use of velocity droppers and filter beds, plantation along pit edges to prevent erosion and regular water quality monitoring through NABL accredited or government-approved labs. No mining activity will occur within 100m of the Kaley River banks. EAC noted the submission of the PP and advised strict adherence of recommendations of GSPCB and State WRD. An action taken report in this regard shall be submitted to Ministry's Regional Office in Half-yearly compliance reports.

PP also obtained High Flood Level (HFL) data through State WRD for Kaley River and reported as high. The HFL for Kaley River is 36.6 MSL, while the pit's bank levels are 40.90 MSL (upstream) and 39.30 MSL (downstream), with the nearest point to the river at 45.5 MSL and 300 meters away from the lease boundary, ensuring any chance of reverse flow towards mining pits.
Regarding action plan for treatment and disposal of mine pit water, PP submitted that during monsoon, stormwater will be stored in mine pits for about four months to allow natural settlement and groundwater recharge. In the dry season, water will be treated with flocculants and passed through settling ponds before discharge. The treated waste water will be reused for dust suppression, and the mine void may primarily manages as rainwater due to runoff. Regular desilting and maintenance will be carried out post-monsoon. For water disposal, six centrifugal pumps will be used in the dry season. Most pit registration and pumping permissions have been obtained from Water Resources Department. Check dams will enhance filtration across the seasonal drain, with discharge water monitored and tested as per GSPCB norms. A comprehensive hydrogeological and impact assessment study was conducted by Mr. V.C. Berry, former Regional Director, Central Ground Water Board and NABET accredited expert. The report assessing surface water seepage into groundwater was submitted to WRD, and its recommendations will be implemented. An Effluent Treatment Plant (ETP) with oil and grease trap for around 15 lakhs, as planned under the Environment Management Plan, will be constructed within three months of obtaining permissions.

6. Based on the detailed discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC) in 46th EAC meeting held on 25-26th June 2025 under the provisions of the EIA Notification, 2006 and its subsequent amendments, recommended the proposal for the grant of Environmental Clearance for Kaley Mineral Block- Block IV (erstwhile Blocks of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.0074 Ha. located at Village Sonnora, Sanguem Taluka, South Goa District, Goa, along with certain specific conditions, in addition to the standard conditions applicable to Non-Coal mining projects (Annexure - I).

7. The details of the project as per the information submitted by the Project Proponent are enclosed as Annexure-II.

8. The Ministry has examined the proposal in accordance with the provisions of the Environmental Impact Assessment (EIA) Notification, 2006, and the subsequent amendments. Based on the recommendation of the Expert Appraisal Committee (EAC), Environmental Clearance (EC) is hereby granted to Kaley Mineral Block- Block IV (erstwhile Blocks of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.0074 Ha. located at Village Sonnora, Sanguem Taluka, South Goa District, Goa. The clearance is subject to strict compliance with the specific conditions prescribed for the project, in addition to the standard

stone) not applicable to non-coal mining projects, as detailed in Annexure I.

V. The Environmental Clearance to the above mentioned project is under provisions of EIA Notification, 2006, as amended. It does not tantamount to approvals/clearance/permissions etc required to be obtained under any other Act/Rule/regulation. The Project Proponent is/are obligated to obtain approvals/clearances under any other laws, Regulations or Statutes, as applicable, to the project.

vi. The Ministry reserves the right to stipulate additional conditions, if found necessary, as subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

vii. The above conditions will be enforced, inter alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent Amendments thereto.

viii. The PP is under obligation to implement all comments made in the Environment Management Plan, which forms part of this EC.

IX. General instructions:

a. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days stating that the project has been accorded environmental clearance and the details of MoEF&CC/SEIAA website where it is displayed.

b. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

c. The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Companies) or competent authority, duly prescribing standard operating procedures to meet proper checks and balances and to bring into focus any lapses/deficiencies/non-conformities of the environmental / forest / wildlife norms / conditions.

d. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity connection with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

e. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

f. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

g. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

h. PP needs to comply the OM dated 21.07.2023 of MoEFCC, where it is stated that the plantation of saplings shall be carried out in the earmarked 33% green belt as part of the tree plantation campaign "EK Ped Maa ke Naam" (एक पेड़ माँ के नाम) and the details of the same shall be uploaded to the MoEF&CC portal (https://merikheti.moef.gov.in).

i. This comes with the approval of the Competent Authority.

Copy to:

i. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.

ii. The Secretary, Department of Mines and Geology, Ground Floor of Fazenda Maravas Bungalow, Government of Goa.

iii. The Director, Department of Environment and Climate Change (DECC), Government of Goa.

v. The Secretary, Department of Forests, Government of Goa, Goa Van Bhavan, Goa

vi. Director General, Directorate General of Mines Safety, Hutgalpur Dhanbad, Jharkhand, 826001

vii. The Chief Wildlife Warden, Goa Van Bhavan, Forest Department, Altinho, Panaji, Goa, 403001.

viii. The Deputy Director General of Forests (C), Ministry of Env., Forest and Climate Change, Integrated Regional Office, Southern Section, 4th Floor, E&F Wing, 17th Main Road, Kendriya Sadan Complex II, Block-A, Bangalore - 560034.

ix. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi - 110 032

x. The Member Secretary, Central Ground Water Authority, 6th Floor, Jeevan Bharti Building, Tower-II, Connaught Circus, New Delhi-110001.

xi. The Member Secretary, Goa State Pollution Control Board, N. Dempo Industrial Estate, Opp. Saligao Secretary, Saligao, Goa 403 511.

xii. The Controller General, Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur 440 001.

xiii. The District Collector, South Goa District, Government of Goa.

xiv. Guard File.

xv. PARIVESH Portal.

Annexure 1

Specific EC Conditions for Mining Of Minerals

I. Specific Conditions

S. No	EC Conditions
1.1	The Project Proponent (PP) shall ensure effective storage of rainwater within the designated mine pit as per the approved comprehensive water management plan. Continuous monitoring of water levels during the monsoon period shall be carried out, and necessary preventive measures shall be in place to avoid any overflow under all circumstances. PP shall strictly follow the recommendations of SPCB and State WRD or CGWA beyond. Action taken report in this regard shall be submitted to Ministry's Regional Office in Bi-Annual compliance reports
1.2	PP must ensure that, under no circumstances, untreated water is permitted to overflow or be discharged from the mine pit into surrounding areas or nearby water bodies. Arrangements should be done accordingly in the project.
1.3	PP needs to strictly follow the groundwater treatment and disposal plan. The Project Proponent (PP) shall not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from the Central Ground Water Authority (CGWA) or the concerned State Ground Water Authority, State WRD. PP needs to submit the half-yearly report on water balance (rainwater received, stored, pumped out, and reused) to Regional office, MoEF&CC.
1.4	The Project Proponent (PP) needs to follow the recommendations issued by the Goa State Pollution Control Board as mentioned below. a. Barrier of soil (Bund) from the western side of the river towards the Mining lease on the South eastern side falls in the lease area and the same will be retained and no Mining done b. All the recommendations proposed in the report by the project proponent and by the local physical advisory committee shall be adhered to by the Project Proponent c. Monitoring of water quality at up stream and downstream of the Kalay River with respect to the discharge point shall be done by the Project Proponent d. No mining activity will occur within the prescribed distance set by CGWA for the Kalay River Other recommendations of SPCB in the legend should be followed by PP

S. No	EC Conditions
1.5	PP shall ensure that surface runoff generated during the proposed activity is effectively diverted into designated settling pits to facilitate the sedimentation of suspended solids before discharge. For reducing the sedimentation process, appropriate flocculants shall be applied as necessary. Action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.6	PP shall ensure that, during non-monsoon periods, accumulated rainwater and stormwater extracted from the mining areas are conveyed through a series of settling ponds. The water shall be discharged into the environment only after achieving adequate sedimentation and meeting prescribed quality standards. PP should increase the number of settling ponds in consultation with GSPCB and State WRD. Minimum 07 settling ponds should be provided of appropriate capacity so as to provide adequate settling time. Action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.7	PP shall carry out desilting, maintenance and de-silination of all settling ponds and garland drains immediately following the monsoon season. Action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.8	PP shall install retards/ droppers with gentle gradient and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. Action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.9	The Project Proponent shall undertake plantation activities along the seasonal Nullahs to prevent soil erosion.
1.10	The Project Proponent needs to carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Laboratories/ Laboratories. Report of the above monitoring and analysis should be submitted along with the six monthly compliance reports.
2.11	PP should strictly adhere to mine water treatment plan as submitted by them and action taken report in this regard will be submitted to Ministry's Regional Officer in Half-yearly compliance reports. The mine water treatment plan includes the following: Action plan for treatment:- a. The storm water diverted to mine pits will be stored for a period of over 6 months allowing natural seepage of ground water and settlement of suspended solids in the mining pits. b. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. c. There are no toxic elements in Ore and waste rock(s). The quality of the surface runoff water does not change except for increase in turbidity due to surface runoff. d. The pumped water will be passed through a series of settling ponds, where it undergoes a sequential filtration process. e. Water will be treated in mine pits & subsequent settling ponds by adding flocculants for fast settlement of suspended solids. f. Regular desilting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon. Action plan for disposal : a. Adequate number of contractual pumps will be engaged for pumping of water. Pumps will be carried out in the non-monsoon season. b. Permission for operation of Mine pit and pit up to 30m from the competent authority of Irrigation & Water Resource Department, Government of Goa.

S. No	EC Conditions
	c. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. d. Clear water will be discharged outside the mining lease area. e. Regular monitoring of discharge water will be undertaken to monitor the quality of water discharged from the pit. f. The mine pit water will be sampled and analyzed as per CPCB norms, before its discharge from the mine. g. The upstream and downstream of the sensonal nullah and Kalay river water will be analyzed as per CPCB norms.
1.12	PP to protect the temple ensuring no drilling/blasting activity within 500 m without prior permission from MoEFCC & DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.
1.13	No blasting shall be undertaken in the ML area without the prior permission from MoEF&CC.
1.14	PP needs to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022 to State Forest Department.
1.15	Project Proponent must comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology. PP must get its transportation plan approved by State DMG and SPCB. PP should strictly follow up the recommendation of DMG and SPCB.
1.16	PP shall ensure that there is no spillage of ore during transportation. All transportation trucks should be covered with tarapaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.
1.17	PP should undertake regular sprinkling of water to mitigate dust generation.
1.18	PP in consultation with Local Administration/Gram Panchayat/State Govt/DMG shall undertake plantation along the transportation route. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.19	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed.
1.20	The Project Proponent shall continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.
1.21	The Project Proponent should install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.
1.22	PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministry's Regional office within one month from the date of issue of EC

Assistant M. Director, Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan, Jor Bagh New Delhi - 110003

S. No	EC Conditions
	to the instant project.
1.23	Project Proponent should follow up with State Forest Department regarding implementation of WLCP Act 2022. An implementation report in this regard needs to be submitted to Ministry's Regional office in half yearly compliance report.
1.24	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
1.25	The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions.
1.26	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years in the project.
1.27	The Project Proponent should adopt the proper mitigation measures as proposed under EMP. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.
1.28	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.
1.29	The Project Proponent shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to RO, MoEF&CC.
1.30	The Project Proponent shall ensure the survival rate of 95% for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office. Density of plantation should be 2500 plants/ha. PP shall make provision for drip irrigation to conserve the water. PP should plant fruit bearing trees along with Sal and allied species within the ML area.
1.31	The Project Proponent shall provide the rainwater harvesting structure at mine offices and quarters/colonies to recharge the ground water.
1.32	PP needs to construct sedimentation ponds, check dam, gabion structures, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Lease area.
1.33	To address the concerns raised by the public in the public hearing, PP should complete its public hearing commitments within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under

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S. No	EC Conditions
	the public hearing is different from the CSR activities.
1.34	The Project Proponent needs to provide good quality drinking water supply and also by laying network of pipelines to the villages of Sirsali, at Yes or not
1.35	The Project Proponent shall also organize employment-based apprenticeship orientation training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly
1.36	The Project Proponent shall periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity
1.37	The Project Proponent needs to install the permanent water sprinklers in addition to roads water tankers along the haul road and the approach road. Further, 8 nos. of high/mist cannon sprayer of radius 40 m throw shall be provided at various locations i.e. mine and beneficiation plant area. Effective dust suppression system should be adopted at other parts of the mining lease to arrest the fugitive dust emission.
1.38	The mobile water tankers should be used in the ML area for dust suppression and control. A logbook of water sprayed should be maintained and appropriate mining hours, haulage roading, maintenance hours of water tankers for each shift. PP shall use the waste water for dust suppression in order to reduce the fresh water requirement.
1.39	The Project Proponent shall ensure that the transportation shall not occur through village road
1.40	The mining lease holder shall after ceasing mining operations, undertake reclaiming the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is apt for growth of indigenous flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Integrated Regional Office
1.41	Approval/ permission of the CGWA/SGWA shall be obtained before drawing ground water for the project activities, if applicable. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission
1.42	PP shall ensure to the use of fresh groundwater in the project. PP should use mine pit & sanitary good water for dust suppression, plantation & other project related activities
1.43	Project proponent shall take necessary other clearances permissions under various Act and Rules as may from time to time be applicable and obtain
1.44	PP needs to comply the GSI dated 2.07.2024 of MoEF&CC wherein it is stated that the phase wise plantation scheme (TIK Pvt Ltd/ML/KOL/2024/6563-99) and the details of the same shall be uploaded in the Monitorable portal (Vriksharopan).

S. No	EC Conditions
1.45	PP shall ensure that all type of plastic waste generated from the mines shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016 in presence of Ministry's OM dated 1.07.2022. PP shall also create awareness among the people working in the project premises as well as in the surrounding area on the ban on Single Use Plastic (SUP) to abide by to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall be submitted to Ministry's Regional Office.
1.46	PP needs to comply with the Hon'ble NGT's order dated 21.03.2018 in the OA No. 538/2015 and the recommendation of the CPCB report regarding distance of EPA.
1.47	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M Haridasan & Ors. Applicant (s) Versus State of Kerala & Ors. Resp.
1.48	Ministry's Regional Office shall undertake site visit within 18 months from the date of issue of EC to the project. PP should submit the site inspection report/CCR issued by Regional Office of Ministry with respect to the project to Compliance and Monitoring Division of the Ministry.
1.49	PP should obtain the EC (Forest Clearance) stage-II for 21.1538 ha before starting any mining operation within the ML area.

Standard EC Conditions for Mining of Minerals

I. Statutory Compliance

S. No	EC Conditions
1.1	The State Government concerned shall ensure that mining operations shall not be commenced till the entire compensation level, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology as stated/ mentioned in Hon'ble Supreme Court order 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.3	The Project Authorities should widely advertise about the grant of the EC letter by putting the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the mining project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board & can be seen on the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEF&CC Regional Office for compliance and record.
1.4	The project proponent shall obtain forest clearance under the provisions of Forest Conservation Act, 1980 in case of the shortfall of forest land for any forest purpose involved in the project.

S. No	EC Conditions
1.5	State Pollution Control Board Committee and be responsible for display of this EC letter at its Regional office, District Industries Centre and Tehsildar's Office for 30 days.
1.6	A copy of EC letter will be marked to concerned Panchayat / Local Body/ Municipal Corporation, if any fresh issue/ suggestion / representation has been received while processing the proposal
1.7	The Project Proponent shall follow the mitigation measures provided in MoEF&CC's Office Memorandum No. J-11015/77/2014-IA II (M), dated 29th October, 2014 titled "Impact of mining activities on Habitations Issues related to the mining Projects wherein Habitations and villages are the part of the lease area or Habitations and villages are surrounded by the mine lease area"
1.8	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (In case of the presence of Schedule I species in the study area)
1.9	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.10	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.11	This Environmental Clearance (EC) is subject to orders/ judgment of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, wherever Cases Pending as may be applicable.
1.12	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership of mining lease is transferred, PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification 2006 as amended from time to time
1.13	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of draw of ground water / from the competent authority concerned in case of draw of surface water required for the project
1.14	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time

2.

S. No	EC Conditions
2.1	The Project Proponent shall carryout plantation / afforestation in wasteland and reclaimed area of mine lease, around ore body, along the roadside, in consultation with the State Forest Department, Agriculture Department, local development department, Tribal welfare Department, Gram Panchayat etc. Local tree species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be followed. The density of the trees shall be around 2500 plants per Hectare. Advice of Botanist/

S. No	EC Conditions
	provision shall be made for protection and care of trees.
2.3	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The source does on rock grazing ground, which provide partial shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

3. Air Quality Monitoring And Preservation

S. No	EC Conditions
3.1	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for concentration/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the plant area in least of four locations (one within and three outside the plant) at an angle of 120 each covering upwind and downwind directions.
3.2	The project proponent shall instal 24x7 continuous emission monitoring system at process stacks to monitor stack emissions with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and real time data system from time to time according to the approved Supplier specifications through the recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories. Mist for fugitive emissions in the plant premises.
3.3	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels and/or mines, Oil Cellars
3.4	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
3.5	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and ambient monitoring of air quality alongwith solutions to Regional Office of MoEF&CC, Zonal Office of CPCB and Regional Office of SPCB along with six monthly compliance report.
3.6	Water sheltered tree and chemical spraying shall be provided on the ore material stock piles
3.7	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources so as to comply prescribed stack emission and fugitive emission standards
3.8	The project proponent shall monitor ambient noise levels in the plant premises at least once in every quarter through labs recognized under Environment (Protection) Act, 1986. The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for concentration/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and

S. No	EC Conditions
	outside the plant premises at four locations (one each in and three outside the plant area) along with 1 (one each) at entry, upwind and downwind locations
3.9	Effective safeguard measures for prevention of dust generation and suppression like regular water sprinkling, installed dust suppression etc.) shall be carried out at various points in the pollution where in high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The fugitive dust emission from all sources shall be regularly controlled by installation of required equipments/ dust arresters and preventive maintenance. The use of suitable water soluble chemical dust suppressing agents may be explored for better efficiency cost of dust control system. It shall be ensured that air pollution level confirms to the standards prescribed by the MoEF/CCC/Central Pollution Control Board
3.10	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 station in Cochin and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring stations to monitor critical parameters, relevant for mining operations of the pollutants viz. PM10, PM2.5, NOX, CO and SO2 etc. as per the notification No. S-29016/20/90/IA III dated 15.11.2009 covering the aspects of transportation and use of heavy machinery in the Open cast. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the wind direction to ascertain the exposure characteristics at sensitive places. The above data shall be digitally displayed within 03 months in front of the main Gate of the Quarry site.

4. Water Quality Monitoring And Preservation

S. No	EC Conditions
4.1	The water balance/water auditing shall be carried out immediate for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF/CCC and State Pollution Control Board/Committee.
4.2	Industrial waste water (workshop and waste water from the mines) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its final passage through Oil and grease trap
4.3	The project proponent shall provide the mine drainage facility with inspection lining and collection wells for seepage. The water collected from the mine pond shall be treated and recycled.
4.4	Sewage Treatment Plant shall be provided for treatment of domestic sewerage to meet the prescribed standards
4.5	Oil/grease collector/collection pits shall be provided for each dock pit to arrest the run off in the event of heavy rains and to check the water pollution due to surface run off
4.6	The project proponent shall practice rainwater harvesting to maximum possible extent
4.7	The project proponent shall make efforts to minimize water consumption in the steel plant complex by segregation of used water, practicing cascade reuse, and by reusing treated water

S. No	EC Conditions
4.8	Project Proponent shall regularly monitor and maintain records of ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezometer locations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in ground water level and quality shall be submitted on six monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department/ State Pollution Control Board
4.9	The project proponent shall submit monthly summary report of conditions effluent monitoring and results of biannual effluent testing and ground monitoring of groundwater quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report
4.10	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these systems from time to time according to equipment supplier specification through labs recognized under Environment (Protection) Act, 1986 or NABL accredited laboratories
4.11	The Project Proponent shall undertake regular monitoring of natural water courses/ water resources, springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of grill as shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality and its conservancy for usage as per CPCB criteria and their rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEF&CC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre-monsoon (April-May), monsoon (August), post monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and District Pollution Control Board clearly showing the trend analysis on six-monthly basis
4.12	Project Proponent shall plan, develop and implement rainwater harvesting measures at long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEF&CC annually
4.13	The project proponent shall monitor regularly ground water quality at least four times a year (pre and post monsoon) at sufficient numbers of piezometers/sampling well in the plant and adjacent areas through labs recognized under Environment (Protection) Act, 1986 and NABL accredited laboratories
4.14	Adherence to Zero Liquid Discharge
4.15	Quality of pollutes water generated from various operations which include Chemical Oxygen Demand (COD), mines run-off and mine drainage and metal contamination in soil shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain on a display board, at a suitable location near the main gate of the company. The circular No. J-20012/ 2/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

S. No	EC Conditions
4.15	In case, immediate mining scheme envisages interaction of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case mining operation involves intersection of ground water table in later stage, then PP shall obtain due prior approval from CGWA and MoEF&CC in this behalf before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

5. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
5.1	The illumination and sound at night at project site, details the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habituations have a right for darkness and minimal noise levels at night. PP must ensure that the biological clock of the residents is not disturbed by diverting the floodlights/ masks away from the residences and keeping the noise levels well within the prescribed limits for day/night hours.
5.2	The peak particle velocity at 50m distance or within the nearest habitation, whichever is closer, shall be monitored periodically as per applicable DGMS guidelines.
5.3	The Project Proponent to take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM etc. should be provided with ear plugs/ muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, instructions and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personnels/ laborers are working without personal protective equipment.

6. Noise Monitoring And Prevention

S. No	EC Conditions
6.1	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Office of the Ministry as a part of six monthly compliance report.
6.2	The ambient noise levels should conform to the standards prescribed under EPA Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

7. Mining Plan

S. No	EC Conditions
7.1	The limit of the quarry lease area at various stages of mining scheme as well as at the end of life shall be governed as per the approved Mining Plan. The excavation activity including in the inner lease area and overburden/ mining dumps to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and maintenance of reclaimed area until the vegetation becomes self-sustaining. The compliance of the same shall be submitted half-yearly to the MoEF&CC and its concerned Regional Office.

S. No	EC Conditions
7.2	The Project Proponent shall adhere to approved mining plan, mine machinery, and excavation quantum of mineral, waste, over burden, inter burden and top soil, deployment technology, lease area, scope of working, method of mining, excavation & dump management, OMS, dump height, mineral transportation mode, ultimate depth of mining, concurrent reclamation and restoration of mine closure, deployment of the mine machineries, various stages of mining scheme as well as the end-of-life, etc.,.

8 Energy Conservation Measures

S. No	EC Conditions
8.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking ground, project area and maintain the same regularly.
8.2	Provide LED lights in all offices and residential areas.

9 Land Reclamation

S. No	EC Conditions
9.1	The Overburden/OB/ waste/rejects generated during the mining operations shall be stacked at earmarked OB dump site only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by DGMS. The topsoil shall be used for land reclamation and plantation.
9.2	The slopes of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of land species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it may lead to overall instability of dumps. The dump toes should be consolidated with the help of dozer/ earthmovers, thereby ensuring proper filling, leveling of dump toes. In critical areas, use of geo-textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
9.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation ponds etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
9.4	Check dams of appropriate size, gradient and height shall be constructed across mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of dump structures over and above peak rainfall recorded in 50 years data and maximum discharge in the area due to adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

10. Waste Management

S. No	EC Conditions
10.1	Bio waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other Waste (Management & Transboundary Movement) Rules, 2016
10.2	Kitchen waste shall be composted or converted to biogas for further use (to be decided on case to case basis depending on type and size of plant)

11. Transportation

S. No	EC Conditions
11.1	No Transportation of the minerals shall be allowed in case of roads passing through villages habitations. In such cases, PP shall construct bypass road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All roads existing, for widening and strengthening of existing public road network shall be done by the PP in consultation with local State Govt. Department. Transportation of minerals through road movement in case of existing village road route, shall be allowed in consultation with local State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. (If applicable in case of road transport)
11.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be watered regularly with tanker mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material work etc. should favorably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

12. Green Belt And Trap

S. No	EC Conditions
12.1	Green belt shall be developed in an area equal to 33% of the plant area with native tree species in accordance with CPCB guidelines. The greenbelt shall also cover the entire periphery of the plant.
12.2	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation

13. Public Hearing And Human Health Issues

S. No	EC Conditions
13.1	Occupational health surveillance of the workers shall be carried out as per DGMS guidelines and records

S. No	EC Conditions
	manufacturers per the Factories Act
13.2	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented
13.3	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical healthcare, crèches etc. The housing may be in the form of temporary structures to be removed after the completion of the project
13.4	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
13.5	Project Proponent shall make provision for the housing for workers/labours or shall construct labour camps within/outside (company owned and with necessary basic infrastructure like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical healthcare, crèches for kid's etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project or as per requirements. The domestic waste water should be treated with STP in order to avoid contamination of underground water

14. Green Belt

S. No	EC Conditions
14.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution, stabilizing fugitive mining operations within the lease. The Whole Green Belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the capacity as approved mine plan.

15. Corporate Environment Responsibility

S. No	EC Conditions
15.1	Self environment audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
15.2	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any deficiencies/deviations/violation of the environmental norms/ permit conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wild life norms / conditions and / or shareholders / stake holders. The copy of the Board resolution in this regard shall be submitted to the MoEF&CC as a part of sustainability report
15.3	A separate Environmental Cell, both at the project and company head quarter level with qualified personnel shall be set up under the control of senior Executive who will directly to the head of the organization

S. No	EC Conditions
15.4	Action plan for implementation EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The earmarked funds committed for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry's Regional Office along with the Six Monthly Compliance Report.
15.5	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be complied with.
15.6	The Project Proponent shall submit the time bound action plan to the concerned Regional Office of the Ministry within 6 months from the date of issuance of environment clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC in terms of the provisions of the MoEF&CC Office Memorandum No 22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

16. Miscellaneous

S. No	EC Conditions
16.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed on the project proponents website permanently.
16.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
16.3	The project proponent shall submit the environmental statement for each financial year in Form V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
16.4	The project proponent shall, apply to all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and the undertaking their presentation to the Expert Appraisal Committee.
16.5	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
16.6	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
16.7	The project proponent shall submit the six monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the Ministry of Environment, Forest and Climate Change at environmentclearance.nic.in portal.

S. No	EC Conditions
16.8	Any appeal against this environment clearance shall be with the National Green Tribunal, if preferred, within a period of 30 days as provided under Section 16 of the National Green Tribunal Act, 2010.
16.9	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, and the date of start of land development work and start of production operation by the project
16.10	The project proponent shall regularly monitor the ambient air quality level namely, PM10, SO2, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a conspicuous location for the public and put on the website of the company
16.11	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.12	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
16.13	The Ministry or any other competent authority may stipulate any further condition in the interest of environment protection.
16.14	Concealing factual data or failure to comply with any of stipulations (vide item no. (ii) and (iii) and other conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986
16.15	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.16	A separate Environment Management Cell with suitable qualified manpower should be set up under the control of a senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC
16.17	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MoEF&CC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
16.18	The Project Authorities should inform to the Regional Office regarding date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work
16.19	Any appeal against this environmental clearance shall be with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal

S. No	EC Conditions
	Act, 2014
16.20	as pursued to Ministry's OM No 22-65/2018-IA.III dated 16.01.2020 to comply with the direction of Hon'ble Supreme Court in S.C. 7038 of W.P. (C)(L) No 114/2014 in the matter Common Cause vs. Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to mining activities and restore the land to a condition which is fit for practice of fodder, food, firewood etc.
16.21	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years progress of reclamation, land use pattern and submit a report to concerned Regional Office of the MoEF&CC
16.22	The concerned Regional Office of the MoEF&CC will periodically monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data/information/monitoring reports.

17 Corporate Environment Responsibility (CER)

S. No	EC Conditions
17.1	The project Proponent shall submit the time bound action plan to the concerned regional office of the Ministry within 6 month's from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC in terms of the provisions of the MoEF&CC Office Memorandum No 22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Additional EC Conditions

i. The above conditions will be enforced inter alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment Protection Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/Hon'ble Court and any other Court of Law relating to the subject matter.

FOMENTO RESOURCES

Date: 25/08/2025

To,
The Chief Wildlife Warden,
Office of the Principal Chief Conservator of Forests,
"Goa Van Bhawan" Forest Department,
Altinho, Panaji Goa – 403001.

Sub: Resubmission of site-specific Wildlife Conservation Plan for the listed Schedule-I species under Wildlife (Protection) Act, 1972 as amended 2022 and Soil Moisture Conservation Plan with respect to Block IV - Kalay Mineral Block of Fomento Resources Private Limited for approval.

Ref:

1) Our letter dated 06/05/2025 regarding submission of Wildlife Management & Conservation Plan for approval.
2) Your letter dated 08/08/2025 reg. guidelines for preparation of Wildlife Conservation Plan/ Soil Moisture Conservation Plan.

Sir/ Madam,

With reference to the above-mentioned subject, we were directed by your good office to prepare site specific Wildlife Conservation Plan/ Soil Moisture Conservation Plan as per the approved guidelines, communicated to us vide letter dated 08/08/2025.

Accordingly, we have prepared the site-specific Wildlife Conservation Plan for the listed Schedule-I species under Wildlife (Protection) Act, 1972 as amended 2022 and Soil Moisture Conservation Plan with respect to Block IV - Kalay Mineral Block, as per the approved guidelines.

FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis - I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001
Tel : +91 832 2441000 Email : fomento@fomento.com Website : www.fomento.com
CIN-U13209GA2010PTC006440

We are hereby resubmitting 2 copies of site-specific Wildlife Conservation Plan and Soil Moisture Conservation Plan for your kind consideration and approval. We also request your good office to kindly raise demand for the payment of levies, if any, in respect of implementation of Wild Conservation Plan.

Thanking You,
Yours faithfully,
For and on behalf of
Fomento Resources Private Limited

Sandeep Morajkar
(Authorized Representative)

FOMENTO RESOURCES PVT. LTD. FRPL GOA

Enclosed: As above

Annexure-2A

MOST URGENT

GOVERNMENT OF GOA
Office of the Principal Chief Conservator of Forests
"Goa Van Bhawan"Forest Department
Altinho, Panaji, Pin 403001

Ph: - 0832-2492548, 2492231 **Email: dcfme-forest.goa@nic.in**

No. 6-13(177)-2025-26-FD/3560 Dated: 18/11/2025

To
Shri. Sandeep Morazkar, (General Manager)
Fomento Resources Private Limited,
102, 1st Floor, Kamat Metropolis-I,
Behind Caculo Mall, St. Inej,
Panaji-Goa-403001.

Sub: Mining proposal under Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980 for diversion of 21.133 ha of forest area within Block-IV Kalay Mineral Block, in Sy. No. 26/1(p), 43/1(p), 27/p & 28/p of Santona Village, of Sanguem Taluka, South Goa District & Division in favour of Fomento Resources Pvt. Ltd.-**Approval of Wildlife Conservation Plan & Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies-reg**

Ref: 1. This office letter no. 6-13(177)-2024-25-FD/3447 dated 10.11.2025
2. Your office letter No. NIL dated 11.11.2025
3. Your office letter No. Nil dated 17.11.2025

Sir,

With reference to your letter dated 11.11.2025 & 17.11.2025 in the above mentioned subject, I am directed to convey the approval of the Competent Authority w.r.t. the Wildlife Conservation Plan, Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies submitted by you for the instant proposal with the following conditions.

1. The Wildlife Conservation Plan with the financial outlay of Rs. 161.31 Lakhs shall be executed by the DCF (WL&ET, South) / DCF (South).

2. The Soil Conservation Plan with the financial outlay of Rs. 50.825 Lakhs shall be executed by the Soil Conservation Division of this Department.

Further, as per the undertaking submitted by you, necessary compliance shall be ensured as per the approved items of works in Wildlife Conservation Plan, Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies in consultation with the concerned DCF's.

This is for information & necessary action.

Yours faithfully,

18.11.2021

Dy. Conservator of Forest
Monitoring & Evaluation.

Copy for information to:

1. The PA to PCCF, Goa for kind information to the PCCF, Goa.
2. The PA to APCCF / Nodal Officer (VSESA), O/o. PCCF, Goa Van Bhawan, Altinho-Panaji-Goa for kind information to the APCCF / Nodal officer VSESA.
3. The Dy. Conservator of Forests, South Goa Division for raising the demand note for payment of levies towards Wildlife Conservation Plan / Soil Conservation Plan, accordingly.

"Swachh Bharat, Swachh Goa"
"Clean India,Clean Goa"

FOMENTO RESOURCES PRIVATE LIMITED

BLOCK IV – KALAY MINERAL BLOCK

Transportation plan prepared in terms of SOP formulated by DMG & GSPCB and is appended below:

Transportation plan:

Brief Introduction:

The Project, Block IV - Kalay Mineral Block, having an area of 152.5073 ha, of Fomento Resources Private Limited, is situated at Santona Village, Sanguem Taluka, South Goa District, Goa State. The Mineral Block is granted vide Letter of Intent (LOI) dated 13/01/2023, read with letter dated 13/03/2023, subsequent to e-auction process carried out by the State Government of Goa through Directorate of Mines and Geology. The proposed annual production of iron ore is 0.75 MTPA. It is proposed to Transport the Iron Ore through the below mentioned Transport Routes.

Transportation Routes:

Route 1: Kalay Block to Sanvordem Jetty/Capxem Jetty via Ambeudoc, Sanvordem Junction.

Route 2: Kalay Block to Sanvordem Jetty/Capxem Jetty via Bandoli, Sanvordem junction.

In terms of Hon'ble High Court of Bombay at Goa and as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024, the following Standard Operating.

Procedure (SOP) devised by DMG and GSPCB will be followed by the Project Proponent:

1. The PP will first approach the Directorate of Mines and Geology or approval of the route of transportation.
2. Upon approval, the PP will apply to the GSPCB for setting up monitoring stations on the route. After the GSPCB sets up the stations, the PP will then apply to the DMG for transit permits.
3. The PP upon receiving transit permit shall ensure that all conditions of transportation are adhered and complied with.
4. All trucks carrying ore shall be registered with the Directorate of Mines & Geology and fitted with GPS.
5. The timing of the Ore Transportation along the designated route shall be from 8.00 am to 1.00 pm with a break from 1.00 pm to 2.00 pm and then transportation will continue from 2.00 pm to 5.45 pm from the source location.
6. Above transportation, timings along the designated routes will be strictly followed with.

In terms of recommendations made by Goa State Pollution Control Board Officials, the following safeguard measures will be taken by the Project Proponent for pollution control during transportation:

1. The truck/tippers engaged in transportation of ore will be kept with sufficient free board after filling the cargo box to avoid spillage.
2. All trucks/tippers engaged in the transportation of ore will be covered with tarpaulin.
3. In case of break down of loaded trucks/tippers unloading of ore at the road side shall be strictly avoided.
4. The roads within mining lease areas shall be sprinkled with water to suppress dust pollution.

5. Spillage of ore on the public roads shall be removed immediately on occurrence.
6. The PP will make suitable arrangement for sweeping of roads affected due to transportation of iron ore.
7. The PP will manage the daily trips in staggered manner in consultation with DMG, so that traffic congestion is avoided at major junctions.
8. Road sweeping machines will be jointly developed in hotspot areas/ stretches by the PP.
9. The shoulders of the mining transport roads will be tarred whenever needed.
10. The PP will carry out wheel washing in order to clean the wheels of the trucks and subdue dust arising out of it.

****

Block IV – Kalay Mineral Block Grant of Environmental Clearance Publicity on Newspapers

फोमेंतो रिसोर्सेस प्राईव्हेट लिमिटेड

102, पयलो माळो, कामत मेट्रोपोलिस – I, काकुलो मॉल फाटल्यान,
सेंट. इनेज, पणजी, उत्तर गोंय, 403001.
ईमेल: fomento@fomento.com

भौशीक सुचोवणी
पर्यावरणीय मंजुरी

भारत सरकारच्या पर्यावरण, रानां आनी हवामान बदल मंत्रालय (MoEF&CC), IA विभागान, मे. फोमेंतो रिसोर्सिस प्राईव्हेट लिमिटेड च्या 'ब्लॉक IV – काले मिनरल ब्लॉक' (क्षेत्र 152.5073हेक्टर), गोंय राज्याच्या, दक्षिण गोंय जिल्ह्यांतल्या, सांगे तालुक्यातल्या, गांव सांतोना, हांगा आशिल्ले ह्या प्रकल्पाक पर्यावरण मंजुरी दिल्या, तांचे फायल क्र. IA-J-11015/11/2023-IA-II(NCM) दिनांक 22/08/2025 दिसा 0.75 MTPA लो लोखण धातुक उत्पादन करपा खातीर, EIA अधिसुचोवण्यो, 2006 आनी उपरांतच्या दुरुस्ती प्रमाण.

पर्यावरण निवळणी पत्राची प्रत गोंय राज्याच्या प्रदुशण नियत्रंण मंडळा कडेन आनी MoEF&CC (PARIVESH), www.parivesh.nic.in या संकेतथळारय पळोवंक मेळटा.

दिनांक :- 25/08/2025

मे. फोमेंतो रिसोर्सिस प्राईव्हेट लिमिटेड
संदीप मोरजकर
अधिकृत प्रतिनिधी

Bhangar bhuin Dated 26th August 2025

FOMENTO RESOURCES PRIVATE LIMITED

102, 1st Floor, Kamat Metropolis – I, Behind Caculo Mall,
St. Inez, Panaji, North Goa, 403001.
Email: fomento@fomento.com

PUBLIC NOTICE
ENVIRONMENT CLEARANCE

It is hereby informed that the Ministry if Environment, Forest & Climate Change, IA Divivsion, Government of India, has accorded Environmental Clearance to the 'Block IV – Kalay Mineral Block (area 152.5073 Ha.) of M/s. Fomento Resources Private Limited', located at Village Santona of Sanguem Taluka, South Goa District, Goa State, vide its File No. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025 for the production of 0.75 MTPA of Iron Ore, as per the provisions of EIA Notifications, 2006 and subsequent amendments thereon.

Copy of the Environment Clearance letter is available with the Goa State Pollution Control Board and the same can also be seen on the website of MoEF&CC (PARIVESH), www.parivesh.nic.in.

Date: 25/08/2025

SD/-
For and on behalf of
Fomento Resources Private Limited
Sandeep Morajkar
Authorised Representative

The Goan 26th August 2025

फोमेंतो रिसोर्सेस प्राईव्हेट लिमिटेड

102, पहिला मजला, कामत मेट्रोपोलिस – I, काकुलो मॉलच्या मागे,
सेंट. इनेज, पणजी, उत्तर गोवा, 403001.
ईमेल: fomento@fomento.com

सार्वजनिक सूचना

पर्यावरणीय मंजुरी

सामान्य जनतेच्या माहितीसाठी कळविण्यात येत आहे की, पर्यावरण, वन आणि हवामान मंत्रालय (MoEF&CC), IA विभाग, यांनी मे. फोमेंतो रिसोर्सिस प्राईव्हेट लिमिटेड च्या 'ब्लॉक IV – काले मिनरल ब्लॉक' (क्षेत्र १५२.५०७३ हेक्टर), गाव सांतोना, तालुका सांगे, जि. दक्षिण गोवा, येथे स्थित प्रकल्पाला, त्यांचे कार्यालयीन फाईल क्र. IA-J-11015/11/2023-IA-II(NCM) दिनांक २२/०८/२०२५ द्वारे, 0.75 MTPA लोहखनिजाचे उत्पादन करण्याकरीता, EIA अधिसूचना- 2006 आणि त्यानंतरच्या सुधारणांच्या तरतुदींनुसार, पर्यावरणीय मंजुरी दिली आहे.

सदर पर्यावरणविषयक मंजुरी पत्राची प्रत गोवा राज्य प्रदूषण नियंत्रण मंडळाकडे उपलब्ध आहे आणि तसेच ती पर्यावरण, वन आणि हवामान बदल मंत्रालयाच्या MoEF&CC (PARIVESH), www.parivesh.nic.in या वेबसाइटवरही पाहता येईल.

दिनांक :- २५/०८/२०२५

मे. फोमेंतो रिसोर्सिस प्राईव्हेट लिमिटेड
संदीप मोरजकर
अधिकृत प्रतिनिधी

Goan Varta dated 26th August 2025

FOMENTO RESOURCES PRIVATE LIMITED

102, 1st Floor, Kamat Metropolis-I, Behind Caculo Mall,
St. Inez, Panaji, North Goa 403001 Email: fomento@fomento.com

PUBLIC NOTICE
ENVIRONMENT CLEARANCE

It is hereby informed that the Ministry of Environment, Forest & Climate Change, IA Divivsion, Government of India, has accorded Environmental Clearance to the 'Block IV – Kalay Mineral Block (area 152.5073 Ha.) of M/s. Fomento Resources Private Limited', located at Village Santona of Sanguem Taluka, South Goa District, Goa State, vide its File No.IA-J-11015/11/2023-iA-II(NCM) dated 22/08/2025 for the production of 0.75 MTPA of Iron Ore, as per the provisions of EIA Notifications, 2006 and subsequent amendments thereon.

Copy of the Environment Clearance letter is available with the Goa State Pollution Control Board and the same can also be seen on the website of MoEF&CC (PARIVESH), www.parivesh.nic.in.

Sd/- For and on behalf of
Fomento Resources Private Limited
Sandeep Morajkar (Authorised Representative)

Date: 25.08.2025

Navhind Times dated 26th August 2025

O/C

FOMENTO RESOURCES

Annexure-5

Date: 25/08/2025

To,

1. The Collector & District Magistrate,
Office of the District Collector & District Magistrate,
South Goa District,
Matanhy Saldhana Adminstrative Complex,
Margao – Goa.

Collectorate of South Goa
Margao
Date: 29/08/25
Inward No.: 22924
Section:

2. The Chairperson,
South Goa Zilla Panchayat Office,
Old Collectorate Building
Margao, Goa.

RECEIVED ON
29/8/25
South Goa Zilla Panchayat
Margao.

3. The Sarpanch,
Village Panchayat Sanvordem,
Sanguem Taluka,
South Goa District, Goa.

RECEIVED
V.P. Sanvordem
Sig. Dt. 29/08/2025

4. The Director,
Directorate of Mines and Geology,
Institute Menezes Braganza,
Government of Goa,
Panaji, Goa- 403001.

Received (sd.) 29/8/25
Directorate of Mines & Geology
Government of Goa

5. The Regional Controller,
Indian Bureau of Mines,
Fatorda,Margao, Goa.

29/08/2025

6. The Director,
Directorate of Mines Safety,
Goa Region, Margao, Goa.

RECEIVED
D.G.M.S.
GOA REGION, GOA-403602

7. The Member Secretary,
Goa State Pollution Control Board,
Near Pilerne Industrial Estate,
Opp. Saligao Seminary,
Saligao, Bardez, Goa – 403511.

26/08/2025
Goa State Pollution Control Board
Opp. Saligao Seminary
Saligao Goa 403 511

Sub: Submission of copy of Environmental Clearance with respect to Block IV – Kalay Mineral Block, located at Village Santona of Sanguem Taluka, South Goa District, Goa.

FOMENTO RESOURCES FRPL GOA

Sir,

The Directorate of Mines & Geology (DMG), Government of Goa, issued a Notice Inviting Tender (NIT) on 30/09/2022, in accordance with the Mineral (Auction) Rules, 2015, for the auctioning of Block IV – Kalay Mineral Block. Upon the successful conclusion of the said auction, Fomento Resources Private Limited (FRPL) was declared as Preferred Bidder for Block IV – Kalay Mineral Block on 22/12/2022. Pursuant to this declaration as the Preferred Bidder, DMG issued FRPL the Letter of Intent dated 13/01/2023 read with letter dated 13/03/2023.

The Project Proponent has obtained the necessary Environment Clearance from Ministry of Environment, Forest and Climate Change, IA Division, Government of India vide file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025 for subject Mineral Block under the provisions of EIA Notification 2006 and as amended thereof.

Condition no. 10.2 under heading "16. Miscelleneous" of the Environmental Clearance dated 22/08/2025, stipulated as under:

> *"The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt."*

In compliance with Clause No. 16.2 (Miscellaneous Conditions) of the Environmental Clearance dated 22/08/2025, we are submitting herewith a copy of Environmental Clearance (EC) for your information and needful.

Thanking you,
Yours faithfully,
For and on behalf of
Fomento Resources Private Limited

Sandeep Morajkar
Authorized Representative
Enclosed: As above

FOMENTO RESOURCES PVT. LTD. FRPL GOA

सत्यमेव जयते

File No.: IA-J-11015/11/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **22/08/2025**

To,

Mr. Sandeep Morajkar
M/s. FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis-I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001, Panaji, NORTH GOA, GOA, Behind Caculo Mall, St. Inez, Panaji, 403001
morazkar@ilpl.biz

Subject: **Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa - For Environmental Clearance-reg.**

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/GA/MIN/529454/2025 dated 05/05/2025 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25B0000GA5877178N
(ii) File No.	IA-J-11015/11/2023-IA-II(NCM)
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block IV – Kalay Mineral Block
(viii) Location of Project (District, State)	SOUTH GOA, GOA
(ix) Issuing Authority	MoEF&CC
(x) Applicability of General Conditions	No

3. In view of the particulars given in the Para 1 above, the project proposal *interalia* including Form-2 (Part A, B and C)/ EIA & EMP Reports were submitted to the MoEF&CC for an appraisal by the EAC under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by EAC in the meeting held on 25-26/06/2025. The minutes of the

meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above.

5. Observation and Recommendation of the Committee:-

The instant proposal is for Environmental Clearance for the Kalay Mineral Block – Block IV (Auction Block), submitted by M/s Fomento Resources Private Limited, for the mining of iron ore with a production capacity of 0.75 MTPA and waste generation of 3.0 MTPA, over a mine lease area of 152.5073 hectares. The project is located in Village Santona, Sanguem Taluka, South Goa District, Goa.

During the presentation, the Project Proponent and their consultant submitted the KML file to illustrate the site features within the 10 km study area. It was informed that there are three existing pits within the mine lease area. A seasonal nalla traverses the mineral block, flowing from west to east, while the Kalay River flows 0.005 km along the eastern boundary of the lease area at nearest distance. The mineral block is located within Santona village. Bandoli and Kalem villages are located at distances of 0.6 km and 0.7 km, respectively. Two government primary schools, one in Devnamol and the other in Ambeudak, are situated 0.83 km and 0.38 km away from the mine lease boundary. EAC also noted the presence of temple at a distance of 0.3 km from the mine lease area.

The nearest town, Sanvordem, is about 6 km away in the south-west direction. The State Highway SH-7 is situated approximately 1.27 km west of the project site. The Karnataka state boundary lies at an aerial distance of 10.03 km. Kalay Railway Station is 4 km to the east. The Bhagwan Mahaveer Wildlife Sanctuary lies 1.04 km from the eastern boundary. PP has submitted the letter dated 05.07.2023 issued by Deputy Conservator of Forests, Goa, wherein it has been stated that the mineral block located at Sanotana village, Goa, falls outside the notified ESZ boundary of the Bhagwan Wildlife Sanctuary and national Park. The Expert Appraisal Committee (EAC) noted that the final notification declaring the Eco-Sensitive Zone around the Bhagwan Mahaveer Wildlife Sanctuary and National Park in Goa was issued vide S.O. 221(E) dated 23.01.2015. Further vide letter dated 25.10.2023, Regional Office of the Ministry at Bengaluru stated that Kalay Mineral Block area (Auction Bloc) of M/s Fomento Resources Private Limited located at village Santona, Sanquem Taluka, South Goa District, Goa falls outside of ESZ of Bhagwan Mahaveer Wildlife Sanctuary and National Park and ESA of Western Ghats.

The Project Proponent was granted the Letter of Intent on 13.01.2023 for a total area of 179.1826 hectares. Subsequently, the Directorate of Mines and Geology, Government of Goa, through its letter dated 13.03.2023, revised the area of Block IV – Kalay Mineral Block to 152.5073 hectares by excluding 26.6753 hectares falling within the Eco-Sensitive Zone (ESZ).

The project area includes forest land, and the PP has received in-principle Stage-I Forest Clearance for 21.133 hectares of forest land under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, granted on 12.05.2025 by the competent authority following the Advisory Committee's recommendation on 16.04.2025.

EAC observed that PP has submitted the revised Wildlife Conservation Plan to Chief Wildlife Warden on 05.03.2024 which was also presented by the PP during the 44th EAC meeting (15-16 May 2025). The subject of the letter submitted to Chief Wildlife Warden on 05.03.2024 indicated that plan under Wildlife Act 1972 has been submitted. Accordingly, EAC asked PP to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022.

Thereafter, PP submitted the authenticated list of Flora and Fauna as per Wildlife Amendment Act 2022 issued by Office of the DCF dated 13.02.2024. EAC also noted that PP has submitted the revised budget and revised Wildlife Conservation Plan in its ADS reply dated 12.06.2025. PP has informed that the activities and budget outlined in the Wildlife Conservation Plan have been reviewed and duly incorporated into the EIA & EMP. Consequently, the budget has been revised from the earlier amount of Rs.12.5 lakhs to Rs.78.05 lakhs in the updated Wildlife Conservation Plan.

The total water requirement for the project is 300 KLD, of which 255 KLD will be sourced as fresh water and 45 KLD will be treated water. Rainwater and stormwater accumulated in the mine pit will be utilized for dust suppression, workshop needs, wheel wash systems, and greenbelt/plantation purposes. Well water will be used for domestic requirements. The Office of the Executive Engineer and Ground Water Officer, Water Resources Department, Govt of Goa, has granted permission for water withdrawal, which is valid up to 05.06.2026. The permission has been allowed for the drawl of 3,360 cubic meter per day of ground water as required for scientific operation of mine as per the letter dated 16.04.2024, it has been mentioned that the NoC / permission/ Ground water clearance is valid for a period of 02 years. EAC noted the submission of PP and asked to minimize the fresh underground water in the project. EAC was of the opinion that PP can use mine pit water for project activities.

Approval of Mine plan has been obtained from Indian Bureau of Mines on 23.08.2024.

The Public Hearing was conducted on 29.01.2025 wherein various issues raised such as to increase the trucks size, overflow of water from mine pits, to provide drinking water facility for villagers and to provide safety on roads. Public Hearing budget Rs. 33.60Lakh for three consecutive years has been allocated to address the issues raised during Public Hearing.

The Project Proponent collected baseline data between March and May 2023. This included parameters related to ambient air quality (PM_{10}, $PM_{2.5}$, SO_2, NO), noise levels, and quality of water and soil. All recorded values were found to be within the permissible limits. Additionally, hazardous air pollutants such as ammonia, benzene, benzo-(a)-pyrene, arsenic, and nickel were analyzed and found to be below detectable limits (BDL).

The Project Proponent has proposed the total EMP capital cost of Rs. 168.83 Lacs and Recurring Cost of Rs. 98.31Lacs.

Thereafter, EAC deliberated the ADS points raised vide minutes of the 44th EAC meeting held during 15-16 May 2025.

Regarding the No Objection Certificate (NOC) from the Archaeological Survey of India (ASI) for the village temple in Devnamol (Dukarkond), situated 0.3 km from the project site, PP stated that the temple is not classified as a protected monument, hence NOC is not required. The PP provided a list of protected sites under the Goa Ancient Monuments and Archaeological Sites and Remains Act, 1978 (with Rules from 1980), along with information on protected sites from ASI records. According to this list, the Devnamol Temple (Dukarkond) is not designated as a protected monument. Additionally, the PP submitted an application to ASI on June 5, 2025. In reply, ASI issued a letter on June 18, 2025, verifying that the temple is not included among the protected monuments in the South Goa District. EAC noted the submission of PP and advised PP to protect the temple ensuring no drilling/blasting activity within 500 m without special permission from DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.

With regard to transportation of mined out mineral and compliance of the Hon'ble High Court of Bombay at Goa, order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology, PP submitted that Directorate of Mines and Geology, Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. Accordingly, they have prepared a transportation plan to transport the mined out iron ore from the Kalay Mineral Block to either the Sanvordem or Capxem jetties, located approximately 12 to 14 km from the mine site, via State Highway-7 (SH-7). The transportation route includes an internal haul road of 2.5 km within the lease area and a public road stretch (SH-7) of about 11.5 km, which has a width ranging between 8 to 10 meters. Two route options have been proposed:

Route 1 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Ambeudoc and Sanvordem Junction;

Route 2 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Bandoli and Sanvordem Junction.

PP also submitted that they will comply the direction of the Hon'ble High Court and follow the SOP by DMG and SPCB in this regard. EAC noted the submission of PP and advised to ensure zero spillage and covering of trucks with tarpaulin while transportation. EAC also asked PP to undertake regular sprinkling of the route to mitigate dust generation and also road sweeping if necessary. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.

Concerning the issues of potential overflow of water from the open mine pit during heavy rainfall and other events since groundwater table has already intersected, PP submitted that they have prepared a comprehensive water management plan. The estimated rainfall volume in the watershed area is 5.00 million m^3, while the mine pit offers a storage capacity of 8.50 million m^3, eliminating any overflow risk. In extreme events, the available pumping capacity of 58,560 m^3/day emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events.

PP also submitted that they have prepared a Comprehensive plan for treatment and disposal of ground water and the same has been submitted to Water Resource Department(WRD), Govt. of Goa for their consultation vide letter dated 06.06.2025. EAC noted the submission of PP and asked about the proposed treatment plan, PP informed that proposed pumping in the pits shall be carried out during the non-monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa.

The rainwater accumulated in the mining pit, if any, should be routed through settling ponds and filter beds Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. Domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. Pumping schedule for pumping the rain accumulated water from the mining pit shall be maintained and action shall be taken to implement suitable conservation measures to augment ground water resources wherever possible in the area. Monitoring the Ground Water level in the buffer zone in the established network

of existing wells in the buffer zone will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. EAC noted the submission of the PP and observed that existing number of settling ponds is inadequate and accordingly advised PP to increase the same in consultation with State WRD and SPCB. EAC also advised PP to obtain necessary permission of State WRD/ SGWA/CGWA in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

To safeguard Kalay River which flows just 0.005 km from the eastern boundary of the mine lease area at nearest place, PP presented a detailed safeguard plan which was submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for consultation vide letter dated 06/06/2025. PP stated that the distance of ultimate pit limit of Pit no.1 from the Kalay River is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. PP reported that GSPCB vide its letter dated 18.06.2025 has recommended additional measures in the safeguard plan which include keeping a buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falling in the lease area and will be maintained as no Mining zone. PP will comply with all safeguards and ensure water quality monitoring upstream and downstream of the Kalay River near discharge points.
Key features of the Kalay River safeguard plan include diversion of surface rainwater during monsoon to mine pits for sedimentation, flocculant treatment, controlled discharge through settling ponds during the dry season, annual maintenance and de-silting of drainage structures, use of velocity droppers and filter beds, plantation along nallahs to prevent erosion, and regular water quality monitoring through NABL-accredited or government-approved labs. No mining activity will occur within 100m of the Kalay River banks. EAC noted the submission of the PP and advised strict adherence of recommendation of GSPCB and State WRD. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

PP also obtained High Flood Level (HFL) data through Stated WRD for Kalay River and seasonal nallah. The HFL for Kalay River is 36.6 MSL, while the nallah bank levels are 40.90 MSL (upstream) and 39.30 MSL (downstream), with its meeting point with the river at 35.3 MSL and 350 meters away from the lease boundary, eliminating any chance of reverse flow towards mining pits.
Regarding action plan for treatment and disposal of mine pit water PP submitted that during monsoon, stormwater will be stored in mine pits for over four months to allow natural settlement and groundwater recharge. In the dry season, water will be treated with flocculants and passed through settling ponds before discharge. The ore and waste material are non-toxic, and the water quality primarily changes in turbidity due to runoff. Regular desilting and maintenance will be carried out pre-monsoon. For water disposal, six centrifugal pumps will be used in the dry season. Mine pit registration and pumping permissions have been obtained from Water Resource Department. Check dams will enhance filtration across the seasonal drain, with discharge water monitored and tested as per CPCB norms. A comprehensive hydrogeological and impact assessment study was conducted by Mr. M.C. Reddy, former Regional Director, Central Ground Water Board and NABET-accredited expert. The report assessing surface water seepage into groundwater was submitted to WRD, and its recommendations will be implemented. An Effluent Treatment Plant (ETP) with an oil and grease trap, estimated at 15 lakhs, is planned under the Environment Management Plan and will be constructed within three months of obtaining permissions.

6. Based on aforesaid discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC), in 46th EAC meeting held on 25-26th June, 2025 under the provisions of the EIA Notification, 2006 and its subsequent amendments, recommended the proposal for the grant of Environmental Clearance for Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa along with certain specific conditions, in addition to the standard conditions applicable to Non-Coal mining projects (Annexure - I).

7. The details of the project as per the information submitted by the Project Proponent are enclosed as Annexure (II)

8. The Ministry has examined the proposal in accordance with the provisions of the Environmental Impact Assessment (EIA) Notification, 2006, and its subsequent amendments. Based on the recommendations of the Expert Appraisal Committee (EAC), Environmental Clearance (EC) is hereby granted to Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa. The clearance is subject to strict compliance with the specific conditions prescribed for this project, in addition to the standard

conditions applicable to non-coal mining projects, as detailed in Annexure I.

9. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006, as amended. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

10. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

11. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent amendments therein.

12. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

13. General Instructions:

a. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC/ SEIAA website where it is displayed.

b. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

c. The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/ forest / wildlife norms / conditions.

d. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

e. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

f. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

g. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

h. PP needs to comply the OM dated 24.07.2024 of MoEFCC, where it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma ke Naam" (एक पेड़ माँ के नाम (and the details of the same shall be uploaded in the MeriLife portal (https://merilife.nic.in).

14. This issues with the approval of the Competent Authority.

Copy To

i. **The Secretary,** Ministry of Mines, Government of India,ShastriBhawan, New Delhi.

ii. **The Secretary,** Department of Mines and Geology, Ground Floor of Institute Menezes Braganza, Government of Goa.

iii. **The Director,** Department of Environment and Climate Change (DoE and CC), Government of Goa.

iv. **The Secretary,** Department of Forests, Government of Goa, Goa Van Bhavan, Goa.
v. **Director General,** Directorate General of Mines Safety, Hirapur, Dhanbad, Jharkhand, 826001
vi. **The Chief Wildlife Warden,** GoaVan Bhavan, Forest Department, Altinho, Panaji Goa. 403001.
vii. **The Deputy Director General of Forests (C),** Ministry of Env., Forest and Climate Change, Integrated RegionalOffice,KendriyaSadan, 4thFloor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore - 560034.
viii. **The Member Secretary,** Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
ix. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
x. **The Member Secretary,**Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao, Goa 403511.
xi. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.
xii. **The District Collector,** South Goa District, Government of Goa.
xiii. **Guard File.**
xiv. **PARIVESH Portal.**

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Conditions

S. No	EC Conditions
1.1	The Project Proponent (PP) shall ensure effective storage of rainwater within the designated mine pit, as per the approved comprehensive water management plan. Continuous monitoring of water levels during the monsoon period shall be carried out, and necessary preventive measures shall be in place to avoid any overflow under all circumstances. PP shall strictly follow the recommendation of GSPCB and State WRD in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.2	PP must ensure that, under no circumstances, untreated water is permitted to overflow or be discharged from the mine pit into surrounding areas or nearby water bodies. Arrangements should be done accordingly in the project.
1.3	PP needs to strictly follow the groundwater treatment and disposal plan. The Project Proponent (PP) shall not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from the Central Ground Water Authority (CGWA) or the concerned State Ground Water Authority/State WRD. PP needs to submit the half-yearly report on water balance (rainwater received, stored, pumped out, and reused) to Regional office, MoEFCC.
1.4	The Project Proponent (PP) needs to follow the recommendations issued by the Goa State Pollution Control Board as mentioned below: a. Buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falls in the lease area and the same will be maintained as no Mining zone. b. All the safeguards proposed in the report by the project proponent, and by the technical advisory committee shall be adhered to by the Project Proponent. c. Monitoring of water quality in upstream and downstream of the Kalay River with respect to the discharge point shall be done by the Project Proponent. d. No mining activity will occur within the prescribed distance set by GSPCB for the Kalay River. Other recommendations of SPCB in this regard should also be followed by PP.

S. No	EC Conditions
1.5	PP shall ensure that surface runoff generated during the monsoon season is effectively diverted into designated mining pits to facilitate the sedimentation of suspended solid particles. To enhance the sedimentation process, appropriate flocculants shall be applied as necessary. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.6	PP shall ensure that, during non-monsoon periods, accumulated rainwater and stormwater extracted from the mining areas are conveyed through a series of settling ponds. The water shall be discharged into the environment only after achieving adequate sedimentation and meeting prescribed quality standards. PP should increase the number of settling ponds in consultation with GSPCB and State WRD. Minimum 07 settling ponds should be provided of appropriate area/volume so as to provide adequate settling time. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.7	PP shall carry out annual maintenance and de-siltation of all settling ponds and garland drains immediately following the monsoon season. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.8	PP shall install velocity droppers with gentle gradients and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.9	The Project Proponent shall undertake plantation activities along the seasonal Nallahs to prevent soil erosion.
1.10	The Project Proponent needs to carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Institutions/ Laboratories. Report of the above monitoring and analyisi should be submitted along with the six monthly compliance reports.
1.11	PP should strictly adhere to mine water treatment plan as submitted by them and action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports. The mine water treatment plan includes the following:- Action plan for treatment:- a. The storm water diverted to mine pits will be stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. b. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. c. There are no toxic elements in Ore and waste material. The quality of the surface runoff water does not change except for increase in turbidity due to surface runoff. d. The pumped water will be passed through a series of settling ponds, where it undergoes a sequential retention process. e. Water will be treated at mine pits & strategic settling ponds by adding flocculants for faster settlement of suspended solids. f. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon Action plan for disposal:- a. Six number of centrifugal pumps will be engaged for pumping of water and pumping will be carried out in the non-monsoon season. b. Permission for registration of Mine pit and pumping from the same has been obtained from Water Resource Department, Government of Goa.

S. No	EC Conditions
	c. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. d. Clear water will be discharged outside the mining lease area. e. Regular monitoring of discharge water will be undertaken to monitor the quality of water discharged from the pit. f. The mine pit water will be sampled and analyzed as per CPCB norms, before its discharge from the mine. g. The upstream and downstream of the seasonal nallah and Kalay river water will be analyzed as per CPCB norms.
1.12	PP to protect the temple ensuring no drilling/blasting activity within 500 m without prior permission from MoEFCC & DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.
1.13	No blasting shall be undertaken in the ML area without the prior permission from MoEF&CC.
1.14	PP needs to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022 to State Forest Department.
1.15	Project Proponent must comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology. PP must get its transportation plan approved by State DMG and SPCB. PP should strictly follow up the recommendation of DMG and SPCB.
1.16	PP shall ensure that there is no spillage of ore during transportation. All transportation trucks should be covered with tarapaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.
1.17	PP should undertake regular sprinkling of water to mitigate dust generation.
1.18	PP in consultation with Local Administration/Gram Panchayat/State Govt/DMG shall undertake plantation along the transportation route. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.19	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed.
1.20	The Project Proponent shall continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.
1.21	The Project Proponent should install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.
1.22	PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministry's Regional office within one month from the date of issue of EC

S. No	EC Conditions
	to the instant project.
1.23	Project Proponent should follow up with State Forest Department regarding implementation of WLCP Act 2022. An implementation report in this regard needs to be submitted to Ministry's Regional office in half yearly compliance report.
1.24	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
1.25	The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions.
1.26	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years in the project.
1.27	The Project Proponent should adopt the proper mitigation measures as proposed under EMP. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.
1.28	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.
1.29	The Project Proponent shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to RO, MoEF&CC.
1.30	The Project Proponent shall ensure the survival rate of 95% for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office. Density of plantation should be 2500 plants/ha. PP shall make provision for drip irrigation to conserve the water. PP should plant fruit bearing trees along with Sal and allied species within the ML area.
1.31	The Project Proponent shall provide the rainwater harvesting structure at mine offices and quarters/colonies to recharge the ground water.
1.32	PP needs to construct sedimentation ponds, check dam, gabion structures, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Lease area.
1.33	To address the concerns raised by the public in the public hearing, PP should complete its public hearing commitments within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under

S. No	EC Conditions
	the public hearing is different from the CSR activities.
1.34	The Project Proponent needs to provide good quality drinking water supply and also by laying network of pipelines to the villagers of santona, at free of cost.
1.35	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly.
1.36	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.
1.37	The Project Proponent needs to install the permanent water sprinklers in addition to mobile water tankers along the haul road and the approach road. Further, 8 nos. of fog/mist cannon sprayer of atleast 40 m throw shall be installed at various locations in the mine and beneficiation plant area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.
1.38	The mobile water tankers should be used in the ML area for dust suppression and control. A logbook of water tankers should be maintained mentioning running hours, kilometre reading, maintenance hours of water tankers for each shift. PP shall use non-toxic chemicals for dust suppression in order to reduce the total water requirement.
1.39	The Project Proponent shall ensure that the transportation shall not occur through village road.
1.40	The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Integrated Regional Office.
1.41	Approval/permission of the CGWA/SGWA shall be obtained before drawing ground water for the project activities, if applicable. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.
1.42	PP shall minimise the use of fresh underground water in the project. PP should use mine pit & settling pond water for dust suppression, plantation & other project related activities.
1.43	Project proponent shall take necessary other clearances/permissions under various Acts and Rules if any, from the respective authorities / department.
1.44	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma keNaam" (एकपेड़माँकेनाम) and the details of the same shall be uploaded inthe MeriLife portal(https://merilife.nic.in).

S. No	EC Conditions
1.45	PP shall ensure that all type of plastic waste generated from the mines shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. In pursuant to Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall be submitted to Ministry's Regional Office.
1.46	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
1.47	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg
1.48	Minstry's Regional Office shall undertake site visit within 18 months from the date of issue of EC to the project. PP should submit the site inspection report/CCR issued by Regional office of Ministry with respect to this project to Compliance and Monitoring Division of the Ministry.
1.49	PP should obtain the FC (Forest Clearance) stage-II for 21.1330 ha before starting any mining operation within the ML area.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.3	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
1.4	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

S. No	EC Conditions
1.5	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.6	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.7	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area."
1.8	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
1.9	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.10	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.11	This Environmental Clearance (EC) is subject to orders/ judgment of Honble Supreme Court of India, Honble High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.12	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
1.13	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
1.14	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

2.

S. No	EC Conditions
2.1	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary

S. No	EC Conditions
	provision shall be made for protection and care of trees.
2.2	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

3. Air Quality Monitoring And Preservation

S. No	EC Conditions
3.1	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each).covering upwind and downwind directions.
3.2	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
3.3	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
3.4	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
3.5	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
3.6	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
3.7	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
3.8	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and

S. No	EC Conditions
	outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each), covering upwind and downwind directions.
3.9	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
3.10	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

4. Water Quality Monitoring And Preservation

S. No	EC Conditions
4.1	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.
4.2	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
4.3	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
4.4	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
4.5	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
4.6	The project proponent shall practice rainwater harvesting to maximum possible extent.
4.7	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

S. No	EC Conditions
4.8	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
4.9	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
4.10	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
4.11	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
4.12	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
4.13	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
4.14	Adhere to Zero Liquid Discharge
4.15	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off, acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

S. No	EC Conditions
4.16	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

5. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
5.1	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
5.2	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
5.3	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

6. Noise Monitoring And Prevention

S. No	EC Conditions
6.1	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
6.2	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

7. Mining Plan

S. No	EC Conditions
7.1	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

S. No	EC Conditions
7.2	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).

8. Energy Conservation Measures

S. No	EC Conditions
8.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
8.2	Provide LED lights in their offices and residential areas.

9. Land Reclamation

S. No	EC Conditions
9.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
9.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
9.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
9.4	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

10. Waste Management

S. No	EC Conditions
10.1	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
10.2	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)

11. Transportation

S. No	EC Conditions
11.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
11.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

12. Green Belt And Emp

S. No	EC Conditions
12.1	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
12.2	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

13. Public Hearing And Human Health Issues

S. No	EC Conditions
13.1	Occupational health surveillance of the workers shall be done on a regular basis and records

S. No	EC Conditions
	maintained as per the Factories Act.
13.2	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
13.3	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
13.4	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
13.5	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

14. Green Belt

S. No	EC Conditions
14.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

15. Corporate Environment Responsibility

S. No	EC Conditions
15.1	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
15.2	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
15.3	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

S. No	EC Conditions
15.4	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
15.5	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
15.6	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

16. Miscellaneous

S. No	EC Conditions
16.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.
16.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
16.3	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
16.4	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
16.5	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
16.6	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
16.7	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

S. No	EC Conditions
16.8	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
16.9	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
16.10	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
16.11	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.12	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
16.13	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
16.14	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
16.15	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.16	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
16.17	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
16.18	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
16.19	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal

S. No	EC Conditions
	Act, 2010.
16.20	In pursuant to Ministrys O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
16.21	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
16.22	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.

17. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
17.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Additional EC Conditions

1. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.

Detail of the Project:

The details of the project as ascertained from the document submitted by the Project Proponent are given as under:

i. Project details:

<table>
<tr><td>Name of the Proposal</td><td colspan="2">Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa</td></tr>
<tr><td rowspan="6">Location</td><td>Village</td><td>Santona</td></tr>
<tr><td>Tehsil/Taluka</td><td>Sanguem</td></tr>
<tr><td>District</td><td>South Goa</td></tr>
<tr><td>State</td><td>Goa</td></tr>
<tr><td colspan="2">Latitudes & Longitudes</td></tr>
<tr><td colspan="2">All the co-ordinates of the lease boundary corner points as per the approved DGPS Plan from Directorate of Mines and Geology, Govt. of Goa are given as below:
<table>
<tr><th>Pillar No.</th><th>Pillar Latitude (dd:mm:ss.ss)</th><th>Pillar Longitude (dd:mm:ss.ss)</th></tr>
<tr><td>BP 1</td><td>15° 17' 58.2803"N</td><td>74° 09' 31.3905"E</td></tr>
<tr><td>BP 2</td><td>15° 18' 02.6197"N</td><td>74° 09' 29.8008"E</td></tr>
<tr><td>BP 3</td><td>15° 18' 08.7974"N</td><td>74° 08' 55.2583"E</td></tr>
<tr><td>BP 4</td><td>15° 17' 40.1839"N</td><td>74° 09' 03.3467"E</td></tr>
</table></td></tr>
</table>

	BP 5	15° 17' 30.9847"N	74° 09' 08.5955"E
	BP 6	15° 17' 01.6125"N	74° 09' 13.1548"E
	BP 7	15° 17' 12.4794"N	74° 09' 41.2969"E
	BP 8	15° 17' 13.0200"N	74° 09' 44.8333"E
	BP 9	15° 17' 16.8213"N	74° 09' 43.9885"E
	BP 10	15° 17' 19.1419"N	74° 09' 40.8072"E
	BP 11	15° 17' 23.3295"N	74° 09' 36.4971"E
	BP 12	15° 17' 26.7696"N	74° 09' 33.4331"E
	BP 13	15° 17' 30.5546"N	74° 09' 31.2826"E
	BP 14	15° 17' 36.0551"N	74° 09' 29.0348"E
	BP 15	15° 17' 40.9091"N	74° 09' 28.2686"E
	BP 16	15° 17' 44.5813"N	74° 09' 28.2599"E
	BP 17	15° 17' 49.1710"N	74° 09' 29.2119"E
	BP 18	15° 17' 54.4169"N	74° 09' 30.5870"E
	Sol Topo sheet No.		48 I/3 (D43C3)
Company's Name	Fomento Resources Private Limited		
Accredited Consultant and certificate no. and Validity	Accredited Consultant : Mineral Engineering Services Certificate No. : NABET/EIA/2326/RA 0296 Validity : 15/05/2026		
KML file	Submitted as a file named: Block IV - Kalay Mineral Block		
Seismic zone	III		

ii. Category details:

Category of the project	B1
Schedule No.	1(a) Mining of Minerals
Mining lease Area (MLA) (in ha.)	152.5073 Ha

General Conditions (if any)	Bhagwan Mahaveer Wildlife Sanctuary & National Park is within 5km from the boundary of the Block IV – Kalay Mineral Block

iii. ToR/EC Details:

- PP had obtained ToR on 08.01.2024 Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.
- PP further obtained Amendment of ToR on 19.11.2024 w.r.t to standard condition no. 2.1, i.e. PP shall submit a certificate from Chief Conservator of Forests regarding involvement of forest land in the mining lease area if any, In case forest land is involved. i) PP should submit a proof of application made for obtaining and ii) a map clearly showing the forest and non-forest area.

Date of application	Proposal No/ File No	Consideration by EAC	Details of EC	Date of accord
21/03/2025	IA/GA/MIN/529454/2025	16/06/2025	The proposal was considered & deferred in the 44th EAC meeting	15 to 16th May 2025
	IA/GA/MIN/529454/2025	25.06.2025	The proposal was re-considered in the 46th EAC meeting.	25 to 26th June 2025

iv. Details of Mine Lease in chronological manner:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major / Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Letter of Intent No. DMG/25/Auction cell/LOI-function/2023/2804, dated 13/01/2023 read with letter No.	13/01/2023	Iron Ore (Major)	LOI valid for 3 years	Directorate of Mines and Geology	152.5073

	03/18/2023/Major/Mines/3286 dated 13/03/2023					

v. Land Use/ Land Cover of the Mine Lease Area:

Private land	72.9675 Ha
Government land	58.4068 Ha
Forest land	21.1330 Ha
Total Mining lease area (MLA), ha	152.5073 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Mining Plan including Progressive Mine Closure Plan (approved by Indian Bureau of Mines/DMG)	Letter No.	MCDR-MPC0FE/6/2024-GOA-IBM_RO_GOA
	Date	23/08/2024
	Mineral & (Major/Minor)	Iron Ore (Major)
	Mine Lease Area, Ha	152.5073 Ha
	Validity	50 years
Mining Parameters	Quantitative Description	
Method of Mining	Mechanized Opencast Mining	
Drilling/Blasting	Not proposed	
Geological Reserves	16.731 Million Tonnes (Geological Reserves & Resources)	
Mineable Reserves	8.188 Million Tonnes	
Breakup of Total Excavation (Topsoil/ OB/ SB/ IB/ Mineral Rejects/ Waste, MTPA)	Breakup of Total Excavation ROM (Iron Ore) : 0.75MTPA Topsoil : Nil OB/SB/IB/Waste : 3.0 MTPA Mineral Rejects : Nil	
Life of mine	24 years	

Mine Bench Height & Bench Width	Mine Bench height : 6m Mine Bench width : 8m
No. of Mine Benches	13 (existing)
Existing Depth, m bgl	62 (average)
Ultimate Depth of Mining, m bgl	102
Ground Water Table, m bgl	5 to 10
Details of ground water intersection	Block IV - Kalay Mineral Block is already having broken mining pits and has intersected groundwater table at 39 MSL.
Individual bench slope	63°
Overall pit slope	30°
Details of existing/ proposed Crusher	There is no proposal for engaging crusher.
Mineral Beneficiation	Nil
RoM output size	- 80 mm.
Transportation details including capacity of dumper/ tipper, mode of transport and distance	The mode of transportation of ore from the Mine is by road engaging tipper trucks of 10.5 tonnes capacity. The distance proposed to be travelled for transportation of ore from Mine to the jetty/destination is about 14 Km.
Generation of Topsoil/OB & its Management during plan period & conceptual period	There is no generation of Topsoil as the working is proposed in already broken-up area. Waste (OB) generated will be dumped at the earmarked site as per Approved Mining plan within the mining lease area. Waste (OB) generated during the conceptual period will be backfilled in the exhausted pit and rehabilitated.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	There is no generation of Mineral Rejects.

vii. Water requirement:

Total water requirement	300LKD	Fresh water	255 KLD
		Treated water	45 KLD
Source	1. Rain & storm water accumulated in the Mine Pit will be used for dust suppression, workshop, wheel wash system and green belt/plantation. 2. Open well water will be used for domestic purpose.		
Permission for withdrawal/ intersection along with details of grant and its validity	The Water Resources Department, Goa, has issued permission for drawl of water vide letter No. 3682 and is valid upto 05/06/2026.		

viii. Nearest village/ town/ highway/ interstate boundary/ railway station/ water bodies/ monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Santona Village	The Mineral Block is located within Santona village.
Town	Sanvordem Town	6.0 km by road in the South-West direction.
Highway	State Highway SH-7	1.27 km by road in the West Direction.
Interstate Boundary	Karnataka	10.03 km
Railway Station/ Railway line	Kalay Railway station	4.0 km by road in the East Direction.
Water Bodies	Kalay River	5m from the Eastern boundary of the Mineral Block.
Forest	Bhagwan Mahaveer Wildlife Sanctuary	1.04 km from the Eastern Boundary of the Mineral Block.

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if	Yes	The proposal has been accorded *"In-principle"* approval for the Stage-I clearance for

yes) status of Forest Clearance		diversion of Forest land for an area of 21.133 ha vide letter dated 12/05/2025.
National Park	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block.
Wildlife Sanctuary	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block. Netravali Wildlife Sanctuary is at a distance of 6.42 km from the boundary of Mineral Block.
Elephant/ Tiger Reserve	No	Nil
Eco-Sensitive Zone(ESZ)/ Eco-Sensitive Area (ESA)	Yes	The Mineral Block does not fall within any of the Eco-Sensitive Areas of Western Ghats.
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	Details regarding Schedule-I species with authenticated letter is provided at page nos. 429 to 452 in the EIA report. Letter dated 13.02.2024 issued by Deputy conservator forests, Goa.
Wildlife Conservation Plan	Yes	A Wildlife Conservation Plan has been prepared and submitted to the Chief Wildlife Warden, Goa vide letter dated 05/03/2024. As directed by the EAC vide its Minutes dated 03/06/2025, the activities and budget in the Wildlife Conservation Plan has been reviewed and the same is incorporated in the EIA & EMP report. The budget of the previous plan of Rs. 12.5 Lakhs is revised to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan.

x. Green belt/ plantation details:

Proposed area for green belt/plantation	Proposed areas to be brought under plantation at conceptual stage, is as given below: 1. Greenbelt – 3.0288 Ha

and no. of saplings proposed	2. Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
Budget for green plant & plantation till the end of life of mine.	2.10 Crores
Budget for nursery	Saplings from Forest Department, Government of Goa will be procured for plantation.
Details of existing plantation and its survival rate	Details of existing plantation within the Mineral Block is given below: 1. Stabilized Dumps: 5.5992 Ha 2. Mined out area reclaimed & rehabilitated: 3.1150 Ha 3. Survival rate: 80% The plantation was carried out by the erstwhile Mining Lessee.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees which will be cut within the mining area is 1881. Felling of trees will be carried out after obtaining Stage-II Forest Clearance. The Project Proponent has committed and proposed to transfer an area of 21.1330 Ha bearing survey no. 11/1 of Antoriem Village of Sanguem Taluka, towards Compensatory Afforestation, in the name of Forest Department. Necessary funds (₹1.56Cr) will be provided to the Forest Department towards Compensatory Afforestation, for a period of 10 years.
Particulars for Green belt/ plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	Proposed areas to be brought under plantation at conceptual stage, is as given below: Greenbelt – 3.0288 Ha Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
50 m safety zone of nallah, roads, electric lines	

500 m safety zones of nearest habitation villages	Drilling and blasting activity is not proposed.

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	March 2023 to May 2023
Season (Summer/ Pre-monsoon/ Post-monsoon/ Winter)	Summer 2023
Predominant Wind direction (From)	West
Ambient Air Quality (no. of locations) and results	Ambient Air Quality No. of locations: 8 As per the NAAQS of Central Pollution Control Board (CPCB), levels of parameters such as Ammonia, Benze ne, Benzo-(a)-pyrene, Arsenic & Nickel analyzed were well below detectable limits (BDL), well within the standards. SO2- A maximum value of 15.0 µg/m3 was observed a t Kalay Mineral Block & SFIPL plant area and minimu m value of 6.0 µg/m3 was observed at the seven Monit oring stations, i.e., Costi, Kalay, Devanamol, Cormonem, Bandoli, Kalay Mineral Block and SFIPL Plant Office. Oxides of Nitrogen (NO2)- A maximum value of 18.0 µg/m3 was observed at Kalay and Cormonem Villages and minimum value of 8.0 µg/m3 was observed at CG L Plant Office. Particulate Matter (PM10)- A maximum value of 57 µ g/m3 was observed at Costi village and minimum value of 26.0 µg/m3 was observed at Cormonem village. Respirable Particulate Matter (PM2.5)

	A maximum value of 42.0 µg/m3 was observed at Bandoli Village and minimum value of 15.0 µg/m3 was ob served at Kalay, Cormonem and Bondli Villages. The Free Silica content in PM10 Filter paper was Belo w Detectable Level
Noise level (no. of locations) and results	Noise Levels No. of locations: 8 Ambient noise quality monitoring results for all the stations for the Summer season 2023. Noise monitoring in Leq for both Day & Night.
Water Quality (no. of locations) and results	Surface Water Quality The analysis results were compared to Stream Water Standards IS 2296, 1982 Class C norms for surface water bodies. Zuari River, the parameters TDS and Chlorides were exceeding the limits due to the influence of creek water. Surface water quality- Surface water samples were collected from 6 locations, of which one is pit water sample and the remaining 5 surface water samples were from buffer zone. All the parameters were found to be well within the permissible limits. Ground Water Quality No. of locations: 8 The open well samples were found to have slightly acidic pH. This is possibly due to the occurrence of lateritic soil. The soil is rich in Iron and Aluminum oxides and hence it makes the ground water slightly acidic in nature, while all other parameters were found to be within permissible limits
Soil Quality (no. of locations) and results	Soil Quality No. of locations: 7 The dominant soil type observed in the mining lease is red soil (Clay Loam). The results show that the pH of soil was between 6.19 to 6.22. Texture varied from sandy clay to clay loam. Electrical Conductivity ranged from 0.248 to 0. 363 mhos/cm, which is a measure of the soluble salts and ionic activity in the

	soil. All other parameters analysed were observed to be within permissible limits.
Hydro geological study and results	PP has submitted hydrogeological study report vide dated September 2023. PP has conducted the Hydrological study as per the guidelines issued by the Central Ground Water Authority
Traffic study (no. of locations) and results	PP has submitted the analysis of traffic counts provides an estimate of average daily traffic (ADT). As per guidelines for capacity of roads in rural areas of IRC, recommended design series volumes for two lane roads are 1 5000 PCU/day.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	Date of Advertisement for PH : 18.12.2024 Newspapers: Major national daily Newspapers: Times of India & Dhainik Bhaskar Mumbai Edition Regional Newspapers: Bhangarbhuim, Tarun Bharat
Date of PH	29.01.2025
Venue	Sarvajanik Ganesutsav Mandal Hall, Sanvordem, Sanguem Taluka, South Goa District, Goa.
Chaired by	Dy. Collector and Sub Divisional Magistrate Sanguem Taluka, South Goa District, Goa.
Main issues raised during PH	Main issues raised during Public Hearing are as below- - Support for education - Providing health care - Water resources & providing sanitation facilities - Support for Agriculture/ Horticulture/Plantation - Assistance to cultural/ religious activities - Assistance to sports and cultural clubs

Budget proposed for addressing issues raised during PH over 3 years	100.8 Lakhs

xiii. Details of CTE/ CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	Application for CTE will be filed after obtaining Environmental Clearance.

xiv. Rehabilitation & Resettlement (R&R):

R & R details	As per the EIA-EMP report submitted, this proposed project area does not have any habitation in the Mining Lease Area. Hence, no Rehabilitation & Resettlement Plan is required.

xv. Court case details:

Court Case, No and its present status	Writ Petition 592 of 2022 in Hon'ble High Court of Bombay at Goa stands dismissed vide order dated 12.02.2024. Nil Court Cases / Litigations pending
Undertaking by Project Proponent w.r.t court case	PP has submitted an undertaking vide letter dated 13.03.2025, stated that no litigation/ court case is pending against the project.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	PP has submitted an affidavit vide letter dated 05.03.2025 on its letter head as per the Ministry's OM dated 30.05.2018
Undertaking by Project Proponent in EIA/EMP report	PP has submitted an undertaking vide letter dated 09.05.2025
Undertaking by Consultant in EIA/EMP report	The Consultant has submitted an undertaking for preparation of EIA-EMP report in its letter head dated 05.03.2025
Plagiarism Certificate	PP has submitted software generated Plagiarism certificate (Plagiarism Checker X -Report) vide letter dated 11.03.2025

xvii. PP has submitted the point-wise reply on 05.05.2025 against the EDS raised on 21.04.2025 as mentioned below:

S. No	EDS Point	Reply by Project Proponent
1	PP needs to submit the stage I Forest Clearance for the Forest land of 21.133ha involved in the ML area	"In-principle" approval for the Stage- I Forest Clearance is recommended by Forest Advisory Committee vide minutes of the meeting held on 16/04/2025. A copy of abstract of the Minutes of Meeting dated 16/04/2025 showing the approval of Advisory Committee has been submitted.
2	PP needs to submit a tangible and monitorable Environment Management Plan (EMP)	PP has submitted a tangible and monitorable Environment Management Plan (EMP).
3	PP needs to submit a tangible and monitorable Public Hearing action plan	PP has submitted a tangible and monitorable Public Hearing action plan.

B. Project was considered in 44th EAC meeting held during 15-16th May 2025, the committee has raised the ADS. PP has submitted point wise reply vide letter dated 12.06.2025 against the ADS raised on 03.06.2025 as mentioned below:

S. No	ADS Point	Reply by Project Proponent
ADS 1 – dated : 03/06/2025		
i.	The Project Proponent may obtain a No Objection Certificate (NOC) from the Archaeological Survey of India for the village temple at Devnamol (Dukarkond), located at a distance of 0.3 km from the project site, if necessary.	The Archaeological Survey of India, Government of India, Goa Circle, Church Complex, Old Goa vide its letter dated 17/06/2025, has provided list of protected monuments of National importance under the jurisdiction of Archaeological Survey of India, Goa Circle. The village temple at Devnamol (Dukarkond) located at a distance of 0.3 km from the project site is not included in the list of protected monuments provided by the Archaeological Survey of India, Goa Circle. As village temple at Devnamol (Dukarkond) is not protected monument, NOC from Archaeological Survey of India is not necessary. A copy of letter dated 17/06/2025.
ii.	The Project Proponent must comply with the directions issued by the Hon'ble High	In terms of the directions of Hon'ble High Court of Bombay at Goa and as per the order dated 29.06.2024, in Writ Petition (PIL) No.

	Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology and prepare a transportation plan accordingly (PP to adhere to the report of DMG and GSPCB).	06/2024, Directorate of Mines and Geology Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. The salient points of the said SOP is enumerated as below: 1. The transporter will first approach the Directorate of Mines and Geology for approval of the route of transportation. 2. The Directorate of Mines and Geology will examine the applications and decide upon the route to be allowed for transportation. 3. Upon such approval, the transporter will apply to the GSPCB for setting up monitoring stations on the route. 4. After the GSPCB sets up the stations, the transporter will then apply to the DMG for transit permits, which shall be accordingly decided by DMG. 5. The transporter upon receiving transit permit shall ensure that all conditions of transportation are adhered and complied. 6. All trucks shall be registered with the Department and fitted with GPS. 7. GEL shall continuously monitor vehicle speed and any Violation 8. The timing of the Ore Transportation along the designated route should be from 8.00 am to 1.00 pm with a break from 1.00 pm to 2.00 pm and then transportation can continue from 2.00 pm to 5.45 pm from the source location. 9. GEL should ensure that no trip sheets are generated beyond the prescribed time so that transportation of Ore happens only within the specified time. 10. The truck/tippers engaged in transportation of ore shall have sufficient

		free board after filling the cargo box to avoid spillage. 11. All trucks/tippers engaged in the transportation of ore shall be covered with tarpaulin. 12. In case of breakdown of loaded trucks/tippers unloading of ore at the road side shall be strictly avoided. 13. The roads within mining lease areas shall be sprinkled with water to suppress dust pollution. 14. Spillage of ore on the public roads shall be removed immediately on occurrence. 15. The mining company should make suitable arrangement for sweeping of roads affected due to transportation of iron ore. 16. The mining firm should manage the daily trips in staggered manner in consultation with DMG, so that traffic congestion is avoided at major junctions. 17. Road sweeping machines may be jointly/severally developed in hotspot areas/ stretches. 18. The shoulders of the mining transport roads may be tarred whenever needed. A transportation plan prepared in accordance with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024. Further, the Project Proponent undertakes to comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology.

iii.	A comprehensive plan must be prepared by the Project Proponent to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. PP should submit a detailed plan for withdrawal intersection, flow of groundwater also need to be furnished and disposal of groundwater. Consultation in this regard should be done with CGWA/SGWB.	A comprehensive plan has been prepared to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. The brief summary of the comprehensive plan is enumerated as below: a. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. b. In any unlikely event of overflow, resources in terms of manpower and pumping capacity of 58,560 Cubic Meter per Day is available to deal any emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events. c. Therefore, the intersection of groundwater table has no role to play in the overflow of water from the mine pit during heavy rainfall. d. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. e. In any event, the project proponent has resources in terms of manpower and machinery (a set of 3 nos. of pumps of 500 Cum/Hr, 2 nos. of pump with 400 Cum/Hr along with1 no. of pump of 140 Cum/Hr to carryout pumping operations in case of any emergency so as to not allow the overflow of water from the open mine pit during heavy rainfall or other events.

		Therefore, the volume of storage capacity available in the mining pit is in excess of 3.5 million m3 (difference) and therefore has no potential overflow of water from the open mine pit during heavy rainfall or other events. The brief summary of plan for disposal of groundwater is as follows: 1. The water available in the mine pits are primarily from the storm water received by the Mineral Block during the monsoon season. 2. The proposed pumping in the pits is during the non monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa. 3. The rain accumulated mining pit water if any should be routed through settling ponds and filter beds. 3. The Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. 4. The domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. 5. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. 6. The Project Proponent will maintain the pumping schedule for pumping the rain accumulated water from the mining pit. 7. The Project Proponent will strive to implement suitable conservation measures to augment ground water resources wherever possible in the area. 8. The Project Proponent will not deviate in any

		way from specification regarding well, pump etc. mentioned above without approval of Water Resource Department, Government of Goa. 9. Care shall be taken that the drawl of water shall not interfere with the normal activities of the locality nor shall it cause any traffic hazard. 10. The Project Proponent has installed two Peizometers of type (DWLR with Telemetry System) for monitoring the Ground Water Levels within the core area of mining lease for observation & monitoring. 11. Monitoring the Ground Water level in the buffer zone in the established network of existing wells in the buffer zone (as per table 10 of the Hydrogeology report), will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. 12. The project proponent will monitor the water quality of the mines seepage and mine discharge through NABL accredited/ Government approved laboratory on monthly basis to WRD and CGWB, Bangalore. 13. Also, the water quality of the seasonal nallah in the upstream and downstream direction and the Kalay River in the upstream and downstream direction will be monitored on regular basis through NABL accredited/ Government approved laboratory on monthly basis and the same will be submitted to WRD Goa and CGWB, Bangalore. 14. The Project Proponent will ensure that the water available from the dewatering operations is properly treated and the quantity shall be utilized for supply to irrigation/dust suppression/mining process. 15. The Project Proponent will install digital water meter for measurement of the

<table>
<tr><td></td><td></td><td>quantity of water abstraction.
16. All activities committed in the report on ground water recharge and rainwater harvesting in the Hydrogeology report will be implemented satisfactorily.
Comprehensive plan for treatment and disposal of ground water has been prepared and submitted with ADS reply.

The Comprehensive plan has been submitted to WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>iv.</td><td>The Project Proponent must also prepare a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area. SPCB and State Water Resources Department should be consulted in this regard.</td><td>The Kalay River is situated outside the Block-IV Kalay Mineral Block on the eastern side of the Block and flows from South to North. The distance of the river from the boundary pillars adjoining the Kalay river is shown below:
<table><tr><th>Sr.No</th><th>Boundary Pillar</th><th>Distance (Km)</th></tr><tr><td>1</td><td>BP-1</td><td>0.120</td></tr><tr><td>2</td><td>BP-2</td><td>0.125</td></tr><tr><td>3</td><td>BP-8</td><td>0.017</td></tr><tr><td>4</td><td>BP-9</td><td>0.005</td></tr><tr><td>5</td><td>BP-10</td><td>0.085</td></tr><tr><td>6</td><td>BP-11</td><td>0.175</td></tr><tr><td>7</td><td>BP-12</td><td>0.245</td></tr><tr><td>8</td><td>BP-13</td><td>0.390</td></tr><tr><td>9</td><td>BP-14</td><td>0.350</td></tr><tr><td>10</td><td>BP-15</td><td>0.360</td></tr><tr><td>11</td><td>BP-16</td><td>0.425</td></tr><tr><td>12</td><td>BP-17</td><td>0.600</td></tr><tr><td>13</td><td>BP-18</td><td>0.146</td></tr></table>The distance of ultimate pit limit of Pit no.1 from the Kalay river is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay river is 350 metres.

The Project Proponent has prepared a detailed plan to safeguard the Kalay River, flows 0.005 km from the eastern boundary of the mining lease area and the nearest distance of ultimate pit limit of Pit no.1 from</td></tr>
</table>

		the Kalay River is 430 metres. The nearest distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. The Project Proponent has prepared a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area and the same is submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025. The salient features of the said detailed plan to safeguard the Kalay River is enumerated as below: a. The surface rainwater during monsoon will be diverted in the mining pits for sedimentation of solid suspended particles. Water will be treated with lime and flocculants for effective sedimentation. b. During fair season, pumped out accumulated rain and stormwater will be pumped out will be passed through series of settling ponds before final discharge. c. Plantation will be carried out along the seasonal nallah to prevent soil erosion. d. De-siltation activity will be carried out post monsoon each year from the settling ponds and garland drains and dumped the same at the designated places within the Block area. e. Mandatory annual cleaning of garland drains will be an integral part of the project, commencing before the post monsoons and no later than the end of May each year. f. Velocity droppers will be provided, if deemed necessary, particularly during monsoons. g. Routine maintenance including the periodic creation of bunds to optimize the

<table>
<tr><td></td><td></td><td>proper controlled flow of stormwater into garland drains.

h. Pre-monsoon maintenance of bunds in the nalla to ensure effectiveness.

i. Implementation of proposed drop structures to regulate the velocity of stormwater flow.

A detailed plan to safe guard Kalay River is prepared and consulted with the Goa State Pollution Control Board (GSPCB) and State Water Resources Department.

GSPCB vide letter dated 18/06/2025 has provided consulted report.</td></tr>
<tr><td>v.</td><td>The Project Proponent should consult the State Water Resources Department or an institute of National repute to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.</td><td>The Highest Flood Level (HFL) for the Kalay river is 36.6 MSL as declared and conspicuously displayed and maintained on the Railway bridge for the information of the general public.

Further, PP have already submitted a letter dated 06/06/2025 for consultation with WRD, Govt. of Goa to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.

A copy of the letter dated 06/06/2025 submitted to WRD, Govt. of Goa for obtaining High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease.</td></tr>
<tr><td>vi.</td><td>The Project Proponent needs to submit an action plan for the treatment and disposal of mine pit water.</td><td>As on date the approximate volume of water accumulated in Pit-1 is 2.45 million m3 (at 39.2 MSL) and in Pit-3 is 4.75 million m3(at 39.2 MSL).

1. As per the approved mining plan the mine working levels in the mine pits for the first five years are as follows:
<table>
<tr><th>Year</th><th>Pit 1 Max Depth of Workings (msl)</th><th>Pit 3 Max Depth of Workings (msl)</th></tr>
</table>
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</table>

Year 1	41	35
Year 2	35	29
Year 3	23	11
Year 4	23	5
Year 5	23	-7

2. Further, as per the approved mining plan the proposed maximum conceptual working depth in pit 1 and pit 3 is -37 msl and -37 msl respectively.

3. It should also be noted that as per the approved mining plan pit 2 is not proposed for any excavation and the present maximum depth of the pit is 36.2 msl.

4. The surface runoff water stored in these mining pits will be systematically and scientifically pumped to carry out mining operations as per the approved mining plan.

5. In terms of the Approved Mining Plan, the year wise volume of the water to be pumped is as follows:

Year	Volume of rain/ storm water to be pumped in million Cum		
	Pit 1	Pit 3	Total
Year 1	1.19	1.55	2.74
Year 2	2.73	2.64	5.37
Year 3	2.91	3.98	6.89
Year 4	1.92	1.94	3.86
Year 5	1.92	1.54	3.46

6. As you aware that, Hydrogeological Study was carried out by the qualified groundwater expert Mr. M.C. Reddy, Formerly Regional

		Director, Accredited Consultant of Central Ground Water Authority for Mining Projects & NABET and the final report after consultation was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, which was examined and permission for drawl of water was granted by WRD on 16/04/2024. The Project proponent has prepared an action plan for the treatment and disposal of mine pit water in terms of the permission explained herein above. A brief summary of the same is as follows: 1. The storm water diverted to mine pits where it is stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. 2. The accumulated mine pit water will be treated by adding lime and flocculants for faster settlement of suspended solids. 3. The mine pit water will be sampled and analysed as per schedule VI of Environmental (Protection) Act, 1986, before its discharge from the mine. 4. The upstream and downstream of the seasonal nallah and Kalay river water will be analysed as per IS: 2296 standards. 5. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. 6. The garland drain will be laid with tarpaulin or stone pitching to prevent wash-off of soil and erosion of garland drains by the pumped water.

		7. It is proposed to incorporate small pits at every 100m along the length of the garland drains as measures for velocity droppers. This provision facilitates the smooth entry of the pumped storm water into the settling ponds. 8. The storm water, pumped from will be passed through a series of settling ponds, where it undergoes a sequential retention process. These interconnected settling ponds play a crucial role in refining storm water for the Mineral Block. Gravity facilitates the flow between the settling ponds. 9. Water will be treated at strategic settling ponds by adding lime and flocculants for faster settlement of suspended solids. 10. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. 11. Only clear water will be allowed to be discharged outside the mining lease area. 12. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon. 13. Regular monitoring of surface water will be undertaken to monitor the quality of water discharged from the pit.
vii.	The Project Proponent must engage a qualified groundwater expert or any national Institute working in this domain to assess the seepage of surface water into the groundwater system, and submit a detailed report accordingly. Consultation with CGWA/ SGWB can also be taken in this regard.	As explained above, the Project Proponent in compliance with the conditions of ToR granted on 08/01/2024 had engaged a qualified groundwater expert Mr. M. C. Reddy, Former Regional Director, Central Ground Water Board and Accredited Expert of Central Ground Water Authority for mining projects & NABET (HG & GEO) to carry out a comprehensive hydrogeological and impact assessment studies including seepage of surface water into ground water system in and around the Block IV – Kalay Mineral Block. The copy of comprehensive

		hydrogeological studies in and around the Block IV – Kalay Mineral Block This Hydrogeological Study report was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, on 03/01/2024. The Hydrogeological report was examined by the Ground Water Cell during its 131st meeting dated 19/03/2024 and pursuant to the examination of Hydrogeological report our application for permission was granted by WRD on 16/04/2024. Further, the Project Proponent had also engaged Government of Goa, Goa College of Engineering, Farmagudi, Goa to carry out a comprehensive study on the engineering design for garland drains, settling tanks, check dams and their efficacy for Block IV - Kalay Mineral Block and likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for the prevention of seepage and in the event of seepage to drain out the water through settling tank along with measures to be taken for the protection of the river in the vicinity of the mine lease area due to mining activity. The copy of comprehensive study done by Government of Goa, Goa College of Engineering, Farmagudi, Based on the study done by the qualified ground water expert to assess the seepage of surface water into ground water, a detailed report has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025. A detailed report based on the study done by the qualified ground water expert to assess the seepage of surface water into ground

<table>
<tr><td></td><td></td><td>water, has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>viii.</td><td>PP should incorporate construction of ETP associated with Oil & Grease trap in its Environment Management Plan.</td><td>PP has incorporated the construction of ETP associated with Oil & Grease trap in its Environment Management Plan. The cost of setting up ETP associated with Oil & Grease trap is 15 lakhs and will be set up within 3 months after getting permissions.

A copy of the details of water treatment system associated with eco-tank, Oil & Grease trap.</td></tr>
<tr><td>ix.</td><td>PP should review the activities and budget in the Wildlife Conservation Plan.</td><td>PP has reviewed the activities and budget in the Wildlife Conservation Plan and also the same is incorporated in the EIA & EMP.

Accordingly, the PP has revised the budget of the previous plan of Rs. 12.5 Lakhs to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan. The revised Budget Layout for Implementation of Wildlife Management & Mitigation Plan is shown as below:
<table>
<tr><th>S.No</th><th>Measures</th><th>5 Year Cost (in Rupees)</th></tr>
<tr><td>1</td><td>A vehicle (2-Wheeler) with rescue equipment</td><td>1.50</td></tr>
<tr><td rowspan="5">2</td><td>Conservation measures</td><td rowspan="5">24.41</td></tr>
<tr><td>Wildlife census and monitoring</td></tr>
<tr><td>Fire prevention measures</td></tr>
<tr><td>Capacity building for mitigating human-wildlife conflicts</td></tr>
<tr><td>Nursery development</td></tr>
<tr><td>3</td><td>Veterinarian Support</td><td>3.07</td></tr>
<tr><td>4</td><td>Creation and maintenance of waterholes as per site conditions and habitat</td><td>9.17</td></tr>
</table>
</td></tr>
</table>

		5	Enrichment planting of native species such as Ficus, Eugenia, Emblica, etc., palatable to the wildlife in buffer areas	12.21
		6	Development and Maintenance of plantation in buffer zone	3.07
		7	Awareness programmes	3.07
		8	Watch and Ward	14.63
		9	Conservation measures within Project Areas	6.92
			Plantation/ greenbelt development within Project area.	
			Post –Plantation care	
			Total	78.05
		A copy of the revised Wildlife Conservation Plan along with the relevant page related to the new budgetary provision and the copy of the relevant portion of this revised Wildlife Conservation Plan shown in the Final EIA & EMP report.		

xviii. Details of the Environmental Management Plan (EMP):

S. No.	Activities	Proposed budget	
		Capital Cost (₹) in Crores	Recurring Cost (₹) in Lacs
1	Air Pollution control Measures		
A	Dust Suppression by water tankers	0.451	8.00
	No. of water tankers – 2 (10 m3 capacity)		
	No. of trips/day – 10 (@₹400/- per trip)		
	No. of working days – 200 = 10 x 400 x 200 = ₹ 8,00,000/-		
B	Road maintenance by Motor Grader		6.00

	Working hours – 300 (@₹2000/-)		
	No. of working days – 200 (8 month) = 2000 x 300 x 200 = ₹ 6,00,000/-		
C	Wheel washing system		8.00
	Capital - Installation cost – ₹25,00,000/-		
	Recurring - Maintenance cost – ₹10,000/- per month		
	- Operational cost - ₹90,000/- per month		
	- No. of working days – 200 (8 months) = 1,00,000 x 8 = ₹ 8,00,000/-		
D	Road washing with water tanker (Ambeaudoc)		2.00
	No. of water tankers – 1 (10 m3 capacity)		
	No. of trips – 2 trips/day (@ ₹500/- per trip)		
	No. of working days – 200 = 2 x 500 x 200 = ₹ 2,00,000/-		
E	Road sweeping machine		12.00
	Truck mounted sweeping machine – 1 (@₹3000/- per hour) (2hr daily)		
	No. of working days – 200 = 3000 x 2 x 200 = ₹ 12,00,000/-		
F	Permanent water sprinkler		1.20
	Sprinkler installation – ₹1000/- per meter		
	Length of pipeline – 1000m		
	Pump cost (2HP) – ₹50000/-		
	Operational cost – ₹1,20,000/- per year Capital Installation Cost – 1000 x 1000 = 100000 + 50000 = ₹ 10,50,000/- Recurring cost – 15000 x 8 = ₹ 1,20,000/-		
G	Green net along road (400 m)		0.10

	Installation cost with frame - ₹2400/m Capital Cost = 2400 x 400 = ₹ 9,60,000/- Recurring Maintenance Cost - ₹ 10,000/- per year		
2	Water Pollution Control Measures		
A	Settling ponds	0.4873	3.90
	No. of settling ponds - 7		
	Total capacity - 14,070 m3		
	Capital Construction cost (₹110/m3) = ₹ 15,47,700		
	Recurring Maintenance Cost – ₹3,90,000/-		
B	Drains and Trenches (6350 m)		6.35
	Capital Construction Cost – ₹300/ m = 6350 x 300 = ₹ 19,05,000/- Recurring Maintenance Cost – ₹ 100/m = 6350 x 100 = ₹6,35,000/- per year		
C	Protective Bunds (1225m) Construction cost – ₹1000/m =1225 x 1000 = ₹ 12,25,000/- Recurring Maintenance Cost – ₹ 100/m = 1225 x 100 = ₹ 1,22,500/- per year		1.20
D	Use of Coco Filters and other miscellaneous cost		0.10
E	ETP Associated with Oil and Grease trap for workshop	0.15	--
3	Fire protection systems	0.02	0.16
4	a. Continuous Air Quality monitoring CAAQMS (1 no)	0.10	7.00
5	Greenbelt along Boundary 7.5 Meter safety zone and Plantation within ML Area (5 years) Sapling and plantation cost @₹ 75/plant	0.35	1.75

	Maintenance cost @ ₹ 25/plant		
6	Solar energy (15kw) @ ₹ 40,000/kw Solar Street lights (30watts) @ ₹ 20,000/unit Annual maintenance cost @ ₹ 20,000/month	0.10	2.00
7	Sanitary Facility (4no)	0.03	0.20
8	Health check-up Total Staff - 127 @ ₹1200/person	---	1.50
9	Personal Protective Equipment (PPEs) Safety Shoes + Helmets + Gloves etc	---	1.20
10	Environmental awareness & training	---	0.25
11	Environment Monitoring Program Cost	---	16.40
12	Silpauline covering on ore stack	---	5.00
13	Traffic control	---	14.00
Total		1.6883	98.31
14	Budget for the Wildlife Conservation Plan (updated) for 5 years		78.05

xix. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	Capital Cost of EMP : 1.6883 Capital Cost of Public Hearing: 1.0080 Total : 2.5463
Project Cost	Rs.3680 Lakhs
Employment (Nos.)	327

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Signature Not Verified

Digitally Signed by : Rajeev Ranjan
Member Secretary, MoEFCC (EC)

Date: 22/08/2025

OIC

FOMENTO RESOURCES

Date: 25/08/2025

To,
The following authorities,

01	The Sarpanch, Collem Village Panchayat, Collem-Sigao, 403410.	Received 29/08/2025 VILLAGE PANCHAYAT COLLEM-SIGAO ★ DHARBANDORA-GOA ★
02	The Sarpanch, Dharbandora Village Panchayat, Dharbandora, 403406.	29/08/2025
03	The Sarpanch, Kirpal Dabal Village Panchayat, Dabal, Codli, 403410.	VILLAGE PANCHAYAT ★ DHARBANDORA GOA ★ KIRLAPAL DABAL ★ 30/8/25
04	The Sarpanch, Mollem Village Panchayat, Molle, 403410.	V.P. MOLEM ★ TAL. DHARBANDORA - GOA ★ Recd on 29/8/2025
05	The Sarpanch, Sancordem Village Panchayat, Sancordem, 403406.	Received 29/08/2025 VILLAGE PANCHAYAT ★ SANCORDEM ★

FRPL GOA

06	The Sarpanch, Bhati Village Panchayat, Sanguem, 403704.	RECEIVED Date 30/08/2025 VILLAGE PANCHAYAT BHATI
07	The Sarpanch, Calem Village Panchayat, Calem, Sanguem, 403704.	Recd 30/8/25 THE VILLAGE PANCHAYAT CALEM-JU KALAY GOA
08	The Sarpanch, Curdi Village Panchayat, Curdi-Vaddem, 403704.	RECEIVED
09	The Chief Officer, Sanguem Municipal Area, Sanguem, Goa, 403704.	1/9/2025
10	The Sarpanch, Uguem Village Panchayat, Sanguem, 403704.	Received V. P. Uguem
11	The Sarpanch, Bethora Village Panchayat, Betoda, Goa. 403401.	Recd V. P. BETHORA - BEADEM Date 30.08.2025

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FRPL
GOA

12	The Sarpanch, Panchawadi Village Panchayat, Panchavadi, Goa, 403706.	Office of the V. P. Panchawadi V. P. Clerk / Peon Date: 30/8/2025 Inward No.: 836
13	The Sarpanch, Shiroda Village Panchayat, Shiroda, Goa. 403401.	Received On 30/08/2025 Entry Clerk Village Panchayat Shiroda
14	The Sarpanch, Assolda Village Panchayat, Chandor, Assolda-403714.	RECEIVED V.P. ASSOLDA
15	The Chief Officer, Curchorem Cacora Municipal Area, Curchorem, 403706.	Curchorem Cacora Municipal Council कुडचडे, काकोडा नगरपालिका Curchorem - Goa कुडचडे - गोवा
16	The Sarpanch, Xeldem Village Panchayat, Tilamol, Sirvoi, 403705.	01/09/2025 RECEIVED V.P. XELDEM
17	The Sarpanch, Molcornem Village Panchayat, Quepem, 403704.	RECEIVED

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18	The Sarpanch, Guirodlim Village Panchayat, Guirdolim, Goa. 403714.	RECEIVED 29/08/2025 INWARD CLERK V.P. GUIRDOLIM SALCETE-GOA
19	The Sarpanch, Macasan Village Panchayat, Macasana, Goa, 403709.	V.P. MACASANA Inward No: 366 Date: 29/08/2025
20	The Sarpanch, Chandor Village Panchayat, Salcete, Goa. 403714	VILLAGE PANCHAYAT * CHANDOR-CAVORIM * Received 29/08/2025

Sub: Submission of copy of Environmental Clearance with respect to Block IV – Kalay Mineral Block, located at Village Santona of Sanguem Taluka, South Goa District, Goa.

Sir,

The Directorate of Mines & Geology (DMG), Government of Goa, issued a Notice Inviting Tender (NIT) on 30/09/2022, in accordance with the Mineral (Auction) Rules, 2015, for the auctioning of Block IV – Kalay Mineral Block. Upon the successful conclusion of the said auction, Fomento Resources Private Limited (FRPL) was declared as Preferred Bidder for Block IV – Kalay Mineral Block on 22/12/2022. Pursuant to this declaration as the Preferred Bidder, DMG issued FRPL the Letter of Intent dated 13/01/2023 read with letter dated 13/03/2023.

The Project Proponent has obtained the necessary Environment Clearance from Ministry of Environment, Forest and Climate Change, IA Division, Government of India vide file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025 for subject Mineral Block under the provisions of EIA Notification 2006 and as amended thereof.

FOMENTO RESOURCES FRPL GOA

Condition no. 10.2 under heading "16. Miscelleneous" of the Environmental Clearance dated 22/08/2025, stipulated as under:

> *"The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt."*

In compliance with Clause No. 16.2 (Miscellaneous Conditions) of the Environmental Clearance dated 22/08/2025, we are submitting herewith a copy of Environmental Clearance (EC) for your information and records.

Thanking you,
Yours faithfully,
For and on behalf of
Fomento Resources Private Limited

Sandeep Morajkar
Authorized Representative

FOMENTO RESOURCES PVT. LTD. FRPL GOA

Enclosed: As above

सत्यमेव जयते

File No.: IA-J-11015/11/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
****

Dated **22/08/2025**

To,

Mr. Sandeep Morajkar
M/s. FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis-I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001, Panaji, NORTH GOA, GOA, Behind Caculo Mall, St. Inez, Panaji, 403001
morazkar@ilpl.biz

Subject: **Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa - For Environmental Clearance-reg.**

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/GA/MIN/529454/2025 dated 05/05/2025 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25B0000GA5877178N
(ii) File No.	IA-J-11015/11/2023-IA-II(NCM)
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block IV – Kalay Mineral Block
(viii) Location of Project (District, State)	SOUTH GOA, GOA
(ix) Issuing Authority	MoEF&CC
(x) Applicability of General Conditions	No

3. In view of the particulars given in the Para 1 above, the project proposal *interalia* including Form-2 (Part A, B and C)/ EIA & EMP Reports were submitted to the MoEF&CC for an appraisal by the EAC under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by EAC in the meeting held on 25-26/06/2025. The minutes of the

meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above.

5. Observation and Recommendation of the Committee:-

The instant proposal is for Environmental Clearance for the Kalay Mineral Block – Block IV (Auction Block), submitted by M/s Fomento Resources Private Limited, for the mining of iron ore with a production capacity of 0.75 MTPA and waste generation of 3.0 MTPA, over a mine lease area of 152.5073 hectares. The project is located in Village Santona, Sanguem Taluka, South Goa District, Goa.

During the presentation, the Project Proponent and their consultant submitted the KML file to illustrate the site features within the 10 km study area. It was informed that there are three existing pits within the mine lease area. A seasonal nalla traverses the mineral block, flowing from west to east, while the Kalay River flows 0.005 km along the eastern boundary of the lease area at nearest distance. The mineral block is located within Santona village. Bandoli and Kalem villages are located at distances of 0.6 km and 0.7 km, respectively. Two government primary schools, one in Devnamol and the other in Ambeudak, are situated 0.83 km and 0.38 km away from the mine lease boundary. EAC also noted the presence of temple at a distance of 0.3 km from the mine lease area.

The nearest town, Sanvordem, is about 6 km away in the south-west direction. The State Highway SH-7 is situated approximately 1.27 km west of the project site. The Karnataka state boundary lies at an aerial distance of 10.03 km. Kalay Railway Station is 4 km to the east. The Bhagwan Mahaveer Wildlife Sanctuary lies 1.04 km from the eastern boundary. PP has submitted the letter dated 05.07.2023 issued by Deputy Conservator of Forests, Goa, wherein it has been stated that the mineral block located at Sanotana village, Goa, falls outside the notified ESZ boundary of the Bhagwan Wildlife Sanctuary and national Park. The Expert Appraisal Committee (EAC) noted that the final notification declaring the Eco-Sensitive Zone around the Bhagwan Mahaveer Wildlife Sanctuary and National Park in Goa was issued vide S.O. 221(E) dated 23.01.2015. Further vide letter dated 25.10.2023, Regional Office of the Ministry at Bengaluru stated that Kalay Mineral Block area (Auction Bloc) of M/s Fomento Resources Private Limited located at village Santona, Sanquem Taluka, South Goa District, Goa falls outside of ESZ of Bhagwan Mahaveer Wildlife Sanctuary and National Park and ESA of Western Ghats.

The Project Proponent was granted the Letter of Intent on 13.01.2023 for a total area of 179.1826 hectares. Subsequently, the Directorate of Mines and Geology, Government of Goa, through its letter dated 13.03.2023, revised the area of Block IV – Kalay Mineral Block to 152.5073 hectares by excluding 26.6753 hectares falling within the Eco-Sensitive Zone (ESZ).

The project area includes forest land, and the PP has received in-principle Stage-I Forest Clearance for 21.133 hectares of forest land under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, granted on 12.05.2025 by the competent authority following the Advisory Committee's recommendation on 16.04.2025.

EAC observed that PP has submitted the revised Wildlife Conservation Plan to Chief Wildlife Warden on 05.03.2024 which was also presented by the PP during the 44th EAC meeting (15-16 May 2025). The subject of the letter submitted to Chief Wildlife Warden on 05.03.2024 indicated that plan under Wildlife Act 1972 has been submitted. Accordingly, EAC asked PP to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022.

Thereafter, PP submitted the authenticated list of Flora and Fauna as per Wildlife Amendment Act 2022 issued by Office of the DCF dated 13.02.2024. EAC also noted that PP has submitted the revised budget and revised Wildlife Conservation Plan in its ADS reply dated 12.06.2025. PP has informed that the activities and budget outlined in the Wildlife Conservation Plan have been reviewed and duly incorporated into the EIA & EMP. Consequently, the budget has been revised from the earlier amount of Rs.12.5 lakhs to Rs.78.05 lakhs in the updated Wildlife Conservation Plan.

The total water requirement for the project is 300 KLD, of which 255 KLD will be sourced as fresh water and 45 KLD will be treated water. Rainwater and stormwater accumulated in the mine pit will be utilized for dust suppression, workshop needs, wheel wash systems, and greenbelt/plantation purposes. Well water will be used for domestic requirements. The Office of the Executive Engineer and Ground Water Officer, Water Resources Department, Govt of Goa, has granted permission for water withdrawal, which is valid up to 05.06.2026. The permission has been allowed for the drawl of 3,360 cubic meter per day of ground water as required for scientific operation of mine as per the letter dated 16.04.2024, it has been mentioned that the NoC / permission/ Ground water clearance is valid for a period of 02 years. EAC noted the submission of PP and asked to minimize the fresh underground water in the project. EAC was of the opinion that PP can use mine pit water for project activities.

Approval of Mine plan has been obtained from Indian Bureau of Mines on 23.08.2024.

The Public Hearing was conducted on 29.01.2025 wherein various issues raised such as to increase the trucks size, overflow of water from mine pits, to provide drinking water facility for villagers and to provide safety on roads. Public Hearing budget Rs. 33.60Lakh for three consecutive years has been allocated to address the issues raised during Public Hearing.

The Project Proponent collected baseline data between March and May 2023. This included parameters related to ambient air quality (PM_{10}, $PM_{2.5}$, SO_2, NO), noise levels, and quality of water and soil. All recorded values were found to be within the permissible limits. Additionally, hazardous air pollutants such as ammonia, benzene, benzo-(a)-pyrene, arsenic, and nickel were analyzed and found to be below detectable limits (BDL).

The Project Proponent has proposed the total EMP capital cost of Rs. 168.83 Lacs and Recurring Cost of Rs. 98.31Lacs.

Thereafter, EAC deliberated the ADS points raised vide minutes of the 44th EAC meeting held during 15-16 May 2025.

Regarding the No Objection Certificate (NOC) from the Archaeological Survey of India (ASI) for the village temple in Devnamol (Dukarkond), situated 0.3 km from the project site, PP stated that the temple is not classified as a protected monument, hence NOC is not required. The PP provided a list of protected sites under the Goa Ancient Monuments and Archaeological Sites and Remains Act, 1978 (with Rules from 1980), along with information on protected sites from ASI records. According to this list, the Devnamol Temple (Dukarkond) is not designated as a protected monument. Additionally, the PP submitted an application to ASI on June 5, 2025. In reply, ASI issued a letter on June 18, 2025, verifying that the temple is not included among the protected monuments in the South Goa District. EAC noted the submission of PP and advised PP to protect the temple ensuring no drilling/blasting activity within 500 m without special permission from DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.

With regard to transportation of mined out mineral and compliance of the Hon'ble High Court of Bombay at Goa, order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology, PP submitted that Directorate of Mines and Geology, Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. Accordingly, they have prepared a transportation plan to transport the mined out iron ore from the Kalay Mineral Block to either the Sanvordem or Capxem jetties, located approximately 12 to 14 km from the mine site, via State Highway-7 (SH-7). The transportation route includes an internal haul road of 2.5 km within the lease area and a public road stretch (SH-7) of about 11.5 km, which has a width ranging between 8 to 10 meters. Two route options have been proposed:

Route 1 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Ambeudoc and Sanvordem Junction;

Route 2 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Bandoli and Sanvordem Junction.

PP also submitted that they will comply the direction of the Hon'ble High Court and follow the SOP by DMG and SPCB in this regard. EAC noted the submission of PP and advised to ensure zero spillage and covering of trucks with tarpaulin while transportation. EAC also asked PP to undertake regular sprinkling of the route to mitigate dust generation and also road sweeping if necessary. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.

Concerning the issues of potential overflow of water from the open mine pit during heavy rainfall and other events since groundwater table has already intersected, PP submitted that they have prepared a comprehensive water management plan. The estimated rainfall volume in the watershed area is 5.00 million m^3, while the mine pit offers a storage capacity of 8.50 million m^3, eliminating any overflow risk. In extreme events, the available pumping capacity of 58,560 m^3/day emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events.

PP also submitted that they have prepared a Comprehensive plan for treatment and disposal of ground water and the same has been submitted to Water Resource Department(WRD), Govt. of Goa for their consultation vide letter dated 06.06.2025. EAC noted the submission of PP and asked about the proposed treatment plan, PP informed that proposed pumping in the pits shall be carried out during the non-monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa.

The rainwater accumulated in the mining pit, if any, should be routed through settling ponds and filter beds Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. Domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. Pumping schedule for pumping the rain accumulated water from the mining pit shall be maintained and action shall be taken to implement suitable conservation measures to augment ground water resources wherever possible in the area. Monitoring the Ground Water level in the buffer zone in the established network

of existing wells in the buffer zone will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. EAC noted the submission of the PP and observed that existing number of settling ponds is inadequate and accordingly advised PP to increase the same in consultation with State WRD and SPCB. EAC also advised PP to obtain necessary permission of State WRD/ SGWA/CGWA in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

To safeguard Kalay River which flows just 0.005 km from the eastern boundary of the mine lease area at nearest place, PP presented a detailed safeguard plan which was submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for consultation vide letter dated 06/06/2025. PP stated that the distance of ultimate pit limit of Pit no.1 from the Kalay River is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. PP reported that GSPCB vide its letter dated 18.06.2025 has recommended additional measures in the safeguard plan which include keeping a buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falling in the lease area and will be maintained as no Mining zone. PP will comply with all safeguards and ensure water quality monitoring upstream and downstream of the Kalay River near discharge points.
Key features of the Kalay River safeguard plan include diversion of surface rainwater during monsoon to mine pits for sedimentation, flocculant treatment, controlled discharge through settling ponds during the dry season, annual maintenance and de-silting of drainage structures, use of velocity droppers and filter beds, plantation along nallahs to prevent erosion, and regular water quality monitoring through NABL-accredited or government-approved labs. No mining activity will occur within 100m of the Kalay River banks. EAC noted the submission of the PP and advised strict adherence of recommendation of GSPCB and State WRD. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

PP also obtained High Flood Level (HFL) data through Stated WRD for Kalay River and seasonal nallah. The HFL for Kalay River is 36.6 MSL, while the nallah bank levels are 40.90 MSL (upstream) and 39.30 MSL (downstream), with its meeting point with the river at 35.3 MSL and 350 meters away from the lease boundary, eliminating any chance of reverse flow towards mining pits.
Regarding action plan for treatment and disposal of mine pit water PP submitted that during monsoon, stormwater will be stored in mine pits for over four months to allow natural settlement and groundwater recharge. In the dry season, water will be treated with flocculants and passed through settling ponds before discharge. The ore and waste material are non-toxic, and the water quality primarily changes in turbidity due to runoff. Regular desilting and maintenance will be carried out pre-monsoon. For water disposal, six centrifugal pumps will be used in the dry season. Mine pit registration and pumping permissions have been obtained from Water Resource Department. Check dams will enhance filtration across the seasonal drain, with discharge water monitored and tested as per CPCB norms. A comprehensive hydrogeological and impact assessment study was conducted by Mr. M.C. Reddy, former Regional Director, Central Ground Water Board and NABET-accredited expert. The report assessing surface water seepage into groundwater was submitted to WRD, and its recommendations will be implemented. An Effluent Treatment Plant (ETP) with an oil and grease trap, estimated at 15 lakhs, is planned under the Environment Management Plan and will be constructed within three months of obtaining permissions.

6. Based on aforesaid discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC), in 46th EAC meeting held on 25-26th June, 2025 under the provisions of the EIA Notification, 2006 and its subsequent amendments, recommended the proposal for the grant of Environmental Clearance for Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa along with certain specific conditions, in addition to the standard conditions applicable to Non-Coal mining projects (Annexure - I).

7. The details of the project as per the information submitted by the Project Proponent are enclosed as Annexure (II)

8. The Ministry has examined the proposal in accordance with the provisions of the Environmental Impact Assessment (EIA) Notification, 2006, and its subsequent amendments. Based on the recommendations of the Expert Appraisal Committee (EAC), Environmental Clearance (EC) is hereby granted to Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa. The clearance is subject to strict compliance with the specific conditions prescribed for this project, in addition to the standard

conditions applicable to non-coal mining projects, as detailed in Annexure I.

9. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006, as amended. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

10. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

11. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent amendments therein.

12. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

13. General Instructions:

a. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC/ SEIAA website where it is displayed.

b. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

c. The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/ forest / wildlife norms / conditions.

d. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

e. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

f. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

g. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

h. PP needs to comply the OM dated 24.07.2024 of MoEFCC, where it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma ke Naam" (एक पेड़ माँ के नाम (and the details of the same shall be uploaded in the MeriLife portal (https://merilife.nic.in).

14. This issues with the approval of the Competent Authority.

Copy To

i. **The Secretary,** Ministry of Mines, Government of India,ShastriBhawan, New Delhi.

ii. **The Secretary,** Department of Mines and Geology, Ground Floor of Institute Menezes Braganza, Government of Goa.

iii. **The Director,** Department of Environment and Climate Change (DoE and CC), Government of Goa.

iv. **The Secretary,** Department of Forests, Government of Goa, Goa Van Bhavan, Goa.
v. **Director General,** Directorate General of Mines Safety, Hirapur, Dhanbad, Jharkhand, 826001
vi. **The Chief Wildlife Warden**, GoaVan Bhavan, Forest Department, Altinho, Panaji Goa. 403001.
vii. **The Deputy Director General of Forests (C),** Ministry of Env., Forest and Climate Change, Integrated RegionalOffice,KendriyaSadan, 4thFloor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore - 560034.
viii. **The Member Secretary,** Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
ix. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
x. **The Member Secretary,**Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao, Goa 403511.
xi. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.
xii. **The District Collector,** South Goa District, Government of Goa.
xiii. **Guard File.**
xiv. **PARIVESH Portal.**

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Conditions

S. No	EC Conditions
1.1	The Project Proponent (PP) shall ensure effective storage of rainwater within the designated mine pit, as per the approved comprehensive water management plan. Continuous monitoring of water levels during the monsoon period shall be carried out, and necessary preventive measures shall be in place to avoid any overflow under all circumstances. PP shall strictly follow the recommendation of GSPCB and State WRD in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.2	PP must ensure that, under no circumstances, untreated water is permitted to overflow or be discharged from the mine pit into surrounding areas or nearby water bodies. Arrangements should be done accordingly in the project.
1.3	PP needs to strictly follow the groundwater treatment and disposal plan. The Project Proponent (PP) shall not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from the Central Ground Water Authority (CGWA) or the concerned State Ground Water Authority/State WRD. PP needs to submit the half-yearly report on water balance (rainwater received, stored, pumped out, and reused) to Regional office, MoEFCC.
1.4	The Project Proponent (PP) needs to follow the recommendations issued by the Goa State Pollution Control Board as mentioned below: a. Buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falls in the lease area and the same will be maintained as no Mining zone. b. All the safeguards proposed in the report by the project proponent, and by the technical advisory committee shall be adhered to by the Project Proponent. c. Monitoring of water quality in upstream and downstream of the Kalay River with respect to the discharge point shall be done by the Project Proponent. d. No mining activity will occur within the prescribed distance set by GSPCB for the Kalay River. Other recommendations of SPCB in this regard should also be followed by PP.

S. No	EC Conditions
1.5	PP shall ensure that surface runoff generated during the monsoon season is effectively diverted into designated mining pits to facilitate the sedimentation of suspended solid particles. To enhance the sedimentation process, appropriate flocculants shall be applied as necessary. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.6	PP shall ensure that, during non-monsoon periods, accumulated rainwater and stormwater extracted from the mining areas are conveyed through a series of settling ponds. The water shall be discharged into the environment only after achieving adequate sedimentation and meeting prescribed quality standards. PP should increase the number of settling ponds in consultation with GSPCB and State WRD. Minimum 07 settling ponds should be provided of appropriate area/volume so as to provide adequate settling time. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.7	PP shall carry out annual maintenance and de-siltation of all settling ponds and garland drains immediately following the monsoon season. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.8	PP shall install velocity droppers with gentle gradients and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.9	The Project Proponent shall undertake plantation activities along the seasonal Nallahs to prevent soil erosion.
1.10	The Project Proponent needs to carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Institutions/ Laboratories. Report of the above monitoring and analyisi should be submitted along with the six monthly compliance reports.
1.11	PP should strictly adhere to mine water treatment plan as submitted by them and action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports. The mine water treatment plan includes the following:- Action plan for treatment:- a. The storm water diverted to mine pits will be stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. b. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. c. There are no toxic elements in Ore and waste material. The quality of the surface runoff water does not change except for increase in turbidity due to surface runoff. d. The pumped water will be passed through a series of settling ponds, where it undergoes a sequential retention process. e. Water will be treated at mine pits & strategic settling ponds by adding flocculants for faster settlement of suspended solids. f. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon Action plan for disposal:- a. Six number of centrifugal pumps will be engaged for pumping of water and pumping will be carried out in the non-monsoon season. b. Permission for registration of Mine pit and pumping from the same has been obtained from Water Resource Department, Government of Goa.

S. No	EC Conditions
	c. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. d. Clear water will be discharged outside the mining lease area. e. Regular monitoring of discharge water will be undertaken to monitor the quality of water discharged from the pit. f. The mine pit water will be sampled and analyzed as per CPCB norms, before its discharge from the mine. g. The upstream and downstream of the seasonal nallah and Kalay river water will be analyzed as per CPCB norms.
1.12	PP to protect the temple ensuring no drilling/blasting activity within 500 m without prior permission from MoEFCC & DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.
1.13	No blasting shall be undertaken in the ML area without the prior permission from MoEF&CC.
1.14	PP needs to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022 to State Forest Department.
1.15	Project Proponent must comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology. PP must get its transportation plan approved by State DMG and SPCB. PP should strictly follow up the recommendation of DMG and SPCB.
1.16	PP shall ensure that there is no spillage of ore during transportation. All transportation trucks should be covered with tarapaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.
1.17	PP should undertake regular sprinkling of water to mitigate dust generation.
1.18	PP in consultation with Local Administration/Gram Panchayat/State Govt/DMG shall undertake plantation along the transportation route. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.19	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed.
1.20	The Project Proponent shall continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.
1.21	The Project Proponent should install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.
1.22	PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministry's Regional office within one month from the date of issue of EC

S. No	EC Conditions
	to the instant project.
1.23	Project Proponent should follow up with State Forest Department regarding implementation of WLCP Act 2022. An implementation report in this regard needs to be submitted to Ministry's Regional office in half yearly compliance report.
1.24	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
1.25	The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions.
1.26	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years in the project.
1.27	The Project Proponent should adopt the proper mitigation measures as proposed under EMP. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.
1.28	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.
1.29	The Project Proponent shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to RO, MoEF&CC.
1.30	The Project Proponent shall ensure the survival rate of 95% for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office. Density of plantation should be 2500 plants/ha. PP shall make provision for drip irrigation to conserve the water. PP should plant fruit bearing trees along with Sal and allied species within the ML area.
1.31	The Project Proponent shall provide the rainwater harvesting structure at mine offices and quarters/colonies to recharge the ground water.
1.32	PP needs to construct sedimentation ponds, check dam, gabion structures, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Lease area.
1.33	To address the concerns raised by the public in the public hearing, PP should complete its public hearing commitments within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under

S. No	EC Conditions
	the public hearing is different from the CSR activities.
1.34	The Project Proponent needs to provide good quality drinking water supply and also by laying network of pipelines to the villagers of santona, at free of cost.
1.35	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly.
1.36	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.
1.37	The Project Proponent needs to install the permanent water sprinklers in addition to mobile water tankers along the haul road and the approach road. Further, 8 nos. of fog/mist cannon sprayer of atleast 40 m throw shall be installed at various locations in the mine and beneficiation plant area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.
1.38	The mobile water tankers should be used in the ML area for dust suppression and control. A logbook of water tankers should be maintained mentioning running hours, kilometre reading, maintenance hours of water tankers for each shift. PP shall use non-toxic chemicals for dust suppression in order to reduce the total water requirement.
1.39	The Project Proponent shall ensure that the transportation shall not occur through village road.
1.40	The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Integrated Regional Office.
1.41	Approval/permission of the CGWA/SGWA shall be obtained before drawing ground water for the project activities, if applicable. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.
1.42	PP shall minimise the use of fresh underground water in the project. PP should use mine pit & settling pond water for dust suppression, plantation & other project related activities.
1.43	Project proponent shall take necessary other clearances/permissions under various Acts and Rules if any, from the respective authorities / department.
1.44	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma keNaam" (एकपेड़माँकेनाम) and the details of the same shall be uploaded inthe MeriLife portal(https://merilife.nic.in).

S. No	EC Conditions
1.45	PP shall ensure that all type of plastic waste generated from the mines shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. In pursuant to Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall be submitted to Ministry's Regional Office.
1.46	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
1.47	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg
1.48	Minstry's Regional Office shall undertake site visit within 18 months from the date of issue of EC to the project. PP should submit the site inspection report/CCR issued by Regional office of Ministry with respect to this project to Compliance and Monitoring Division of the Ministry.
1.49	PP should obtain the FC (Forest Clearance) stage-II for 21.1330 ha before starting any mining operation within the ML area.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.3	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
1.4	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

S. No	EC Conditions
1.5	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.6	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.7	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area."
1.8	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
1.9	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.10	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.11	This Environmental Clearance (EC) is subject to orders/ judgment of Honble Supreme Court of India, Honble High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.12	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
1.13	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
1.14	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

2.

S. No	EC Conditions
2.1	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary

S. No	EC Conditions
	provision shall be made for protection and care of trees.
2.2	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

3. Air Quality Monitoring And Preservation

S. No	EC Conditions
3.1	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each).covering upwind and downwind directions.
3.2	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
3.3	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
3.4	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
3.5	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
3.6	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
3.7	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
3.8	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and

S. No	EC Conditions
	outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each). covering upwind and downwind directions.
3.9	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
3.10	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

4. Water Quality Monitoring And Preservation

S. No	EC Conditions
4.1	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.
4.2	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
4.3	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
4.4	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
4.5	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
4.6	The project proponent shall practice rainwater harvesting to maximum possible extent.
4.7	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

S. No	EC Conditions
4.8	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
4.9	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
4.10	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
4.11	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
4.12	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
4.13	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
4.14	Adhere to Zero Liquid Discharge
4.15	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off; acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

S. No	EC Conditions
4.16	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

5. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
5.1	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
5.2	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
5.3	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

6. Noise Monitoring And Prevention

S. No	EC Conditions
6.1	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
6.2	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

7. Mining Plan

S. No	EC Conditions
7.1	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

S. No	EC Conditions
7.2	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).

8. Energy Conservation Measures

S. No	EC Conditions
8.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
8.2	Provide LED lights in their offices and residential areas.

9. Land Reclamation

S. No	EC Conditions
9.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
9.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
9.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
9.4	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

10. Waste Management

S. No	EC Conditions
10.1	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
10.2	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)

11. Transportation

S. No	EC Conditions
11.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
11.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

12. Green Belt And Emp

S. No	EC Conditions
12.1	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
12.2	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

13. Public Hearing And Human Health Issues

S. No	EC Conditions
13.1	Occupational health surveillance of the workers shall be done on a regular basis and records

S. No	EC Conditions
	maintained as per the Factories Act.
13.2	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
13.3	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
13.4	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
13.5	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

14. Green Belt

S. No	EC Conditions
14.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

15. Corporate Environment Responsibility

S. No	EC Conditions
15.1	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
15.2	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
15.3	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

S. No	EC Conditions
15.4	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
15.5	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
15.6	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

16. Miscellaneous

S. No	EC Conditions
16.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.
16.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
16.3	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
16.4	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
16.5	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
16.6	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
16.7	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

S. No	EC Conditions
16.8	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
16.9	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
16.10	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
16.11	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.12	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
16.13	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
16.14	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
16.15	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.16	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
16.17	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
16.18	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
16.19	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal

S. No	EC Conditions
	Act, 2010.
16.20	In pursuant to Ministrys O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
16.21	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
16.22	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.

17. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
17.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Additional EC Conditions

1. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.

Detail of the Project:

The details of the project as ascertained from the document submitted by the Project Proponent are given as under:

i. Project details:

<table>
<tr><td>Name of the Proposal</td><td colspan="2">Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa</td></tr>
<tr><td rowspan="6">Location</td><td>Village</td><td>Santona</td></tr>
<tr><td>Tehsil/Taluka</td><td>Sanguem</td></tr>
<tr><td>District</td><td>South Goa</td></tr>
<tr><td>State</td><td>Goa</td></tr>
<tr><td colspan="2">Latitudes & Longitudes</td></tr>
<tr><td colspan="2">All the co-ordinates of the lease boundary corner points as per the approved DGPS Plan from Directorate of Mines and Geology, Govt. of Goa are given as below:
<table>
<tr><th>Pillar No.</th><th>Pillar Latitude (dd:mm:ss.ss)</th><th>Pillar Longitude (dd:mm:ss.ss)</th></tr>
<tr><td>BP 1</td><td>15° 17′ 58.2803″N</td><td>74° 09′ 31.3905″E</td></tr>
<tr><td>BP 2</td><td>15° 18′ 02.6197″N</td><td>74° 09′ 29.8008″E</td></tr>
<tr><td>BP 3</td><td>15° 18′ 08.7974″N</td><td>74° 08′ 55.2583″E</td></tr>
<tr><td>BP 4</td><td>15° 17′ 40.1839″N</td><td>74° 09′ 03.3467″E</td></tr>
</table>
</td></tr>
</table>

	BP 5	15° 17′ 30.9847″N	74° 09′ 08.5955″E
	BP 6	15° 17′ 01.6125″N	74° 09′ 13.1548″E
	BP 7	15° 17′ 12.4794″N	74° 09′ 41.2969″E
	BP 8	15° 17′ 13.0200″N	74° 09′ 44.8333″E
	BP 9	15° 17′ 16.8213″N	74° 09′ 43.9885″E
	BP 10	15° 17′ 19.1419″N	74° 09′ 40.8072″E
	BP 11	15° 17′ 23.3295″N	74° 09′ 36.4971″E
	BP 12	15° 17′ 26.7696″N	74° 09′ 33.4331″E
	BP 13	15° 17′ 30.5546″N	74° 09′ 31.2826″E
	BP 14	15° 17′ 36.0551″N	74° 09′ 29.0348″E
	BP 15	15° 17′ 40.9091″N	74° 09′ 28.2686″E
	BP 16	15° 17′ 44.5813″N	74° 09′ 28.2599″E
	BP 17	15° 17′ 49.1710″N	74° 09′ 29.2119″E
	BP 18	15° 17′ 54.4169″N	74° 09′ 30.5870″E
	Sol Topo sheet No.		48 I/3 (D43C3)
Company's Name	Fomento Resources Private Limited		
Accredited Consultant and certificate no. and Validity	Accredited Consultant : Mineral Engineering Services Certificate No. : NABET/EIA/2326/RA 0296 Validity : 15/05/2026		
KML file	Submitted as a file named: Block IV - Kalay Mineral Block		
Seismic zone	III		

ii. Category details:

Category of the project	B1
Schedule No.	1(a) Mining of Minerals
Mining lease Area (MLA) (in ha.)	152.5073 Ha

General Conditions (if any)	Bhagwan Mahaveer Wildlife Sanctuary & National Park is within 5km from the boundary of the Block IV – Kalay Mineral Block

iii. ToR/EC Details:

- PP had obtained ToR on 08.01.2024 Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.
- PP further obtained Amendment of ToR on 19.11.2024 w.r.t to standard condition no. 2.1, i.e. PP shall submit a certificate from Chief Conservator of Forests regarding involvement of forest land in the mining lease area if any, In case forest land is involved. i) PP should submit a proof of application made for obtaining and ii) a map clearly showing the forest and non-forest area.

Date of application	Proposal No/ File No	Consideration by EAC	Details of EC	Date of accord
21/03/2025	IA/GA/MIN/529454/2025	16/06/2025	The proposal was considered & deferred in the 44th EAC meeting	15 to 16th May 2025
	IA/GA/MIN/529454/2025	25.06.2025	The proposal was re-considered in the 46th EAC meeting.	25 to 26th June 2025

iv. Details of Mine Lease in chronological manner:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major / Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Letter of Intent No. DMG/25/Auction cell/LOI-function/2023/2804, dated 13/01/2023 read with letter No.	13/01/2023	Iron Ore (Major)	LOI valid for 3 years	Directorate of Mines and Geology	152.5073

	03/18/2023/Major/Mines/3286 dated 13/03/2023					

v. Land Use/ Land Cover of the Mine Lease Area:

Private land	72.9675 Ha
Government land	58.4068 Ha
Forest land	21.1330 Ha
Total Mining lease area (MLA), ha	152.5073 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Mining Plan including Progressive Mine Closure Plan (approved by Indian Bureau of Mines/DMG)	Letter No.	MCDR-MPC0FE/6/2024-GOA-IBM_RO_GOA
	Date	23/08/2024
	Mineral & (Major/Minor)	Iron Ore (Major)
	Mine Lease Area, Ha	152.5073 Ha
	Validity	50 years
Mining Parameters	Quantitative Description	
Method of Mining	Mechanized Opencast Mining	
Drilling/Blasting	Not proposed	
Geological Reserves	16.731 Million Tonnes (Geological Reserves & Resources)	
Mineable Reserves	8.188 Million Tonnes	
Breakup of Total Excavation (Topsoil/ OB/ SB/ IB/ Mineral Rejects/ Waste, MTPA)	Breakup of Total Excavation ROM (Iron Ore) : 0.75MTPA Topsoil : Nil OB/SB/IB/Waste : 3.0 MTPA Mineral Rejects : Nil	
Life of mine	24 years	

Mine Bench Height & Bench Width	Mine Bench height : 6m Mine Bench width : 8m
No. of Mine Benches	13 (existing)
Existing Depth, m bgl	62 (average)
Ultimate Depth of Mining, m bgl	102
Ground Water Table, m bgl	5 to 10
Details of ground water intersection	Block IV - Kalay Mineral Block is already having broken mining pits and has intersected groundwater table at 39 MSL.
Individual bench slope	63°
Overall pit slope	30°
Details of existing/ proposed Crusher	There is no proposal for engaging crusher.
Mineral Beneficiation	Nil
RoM output size	- 80 mm.
Transportation details including capacity of dumper/ tipper, mode of transport and distance	The mode of transportation of ore from the Mine is by road engaging tipper trucks of 10.5 tonnes capacity. The distance proposed to be travelled for transportation of ore from Mine to the jetty/destination is about 14 Km.
Generation of Topsoil/OB & its Management during plan period & conceptual period	There is no generation of Topsoil as the working is proposed in already broken-up area. Waste (OB) generated will be dumped at the earmarked site as per Approved Mining plan within the mining lease area. Waste (OB) generated during the conceptual period will be backfilled in the exhausted pit and rehabilitated.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	There is no generation of Mineral Rejects.

vii. Water requirement:

Total water requirement	300LKD	Fresh water	255 KLD
		Treated water	45 KLD
Source	1. Rain & storm water accumulated in the Mine Pit will be used for dust suppression, workshop, wheel wash system and green belt/plantation. 2. Open well water will be used for domestic purpose.		
Permission for withdrawal/ intersection along with details of grant and its validity	The Water Resources Department, Goa, has issued permission for drawl of water vide letter No. 3682 and is valid upto 05/06/2026.		

viii. Nearest village/ town/ highway/ interstate boundary/ railway station/ water bodies/ monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Santona Village	The Mineral Block is located within Santona village.
Town	Sanvordem Town	6.0 km by road in the South-West direction.
Highway	State Highway SH-7	1.27 km by road in the West Direction.
Interstate Boundary	Karnataka	10.03 km
Railway Station/ Railway line	Kalay Railway station	4.0 km by road in the East Direction.
Water Bodies	Kalay River	5m from the Eastern boundary of the Mineral Block.
Forest	Bhagwan Mahaveer Wildlife Sanctuary	1.04 km from the Eastern Boundary of the Mineral Block.

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if	Yes	The proposal has been accorded *"In-principle"* approval for the Stage-I clearance for

yes) status of Forest Clearance		diversion of Forest land for an area of 21.133 ha vide letter dated 12/05/2025.
National Park	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block.
Wildlife Sanctuary	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block. Netravali Wildlife Sanctuary is at a distance of 6.42 km from the boundary of Mineral Block.
Elephant/ Tiger Reserve	No	Nil
Eco-Sensitive Zone(ESZ)/ Eco-Sensitive Area (ESA)	Yes	The Mineral Block does not fall within any of the Eco-Sensitive Areas of Western Ghats.
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	Details regarding Schedule-I species with authenticated letter is provided at page nos. 429 to 452 in the EIA report. Letter dated 13.02.2024 issued by Deputy conservator forests, Goa.
Wildlife Conservation Plan	Yes	A Wildlife Conservation Plan has been prepared and submitted to the Chief Wildlife Warden, Goa vide letter dated 05/03/2024. As directed by the EAC vide its Minutes dated 03/06/2025, the activities and budget in the Wildlife Conservation Plan has been reviewed and the same is incorporated in the EIA & EMP report. The budget of the previous plan of Rs. 12.5 Lakhs is revised to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan.

x. Green belt/ plantation details:

Proposed area for green belt/plantation	Proposed areas to be brought under plantation at conceptual stage, is as given below: 1. Greenbelt – 3.0288 Ha

and no. of saplings proposed	2. Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
Budget for green plant & plantation till the end of life of mine.	2.10 Crores
Budget for nursery	Saplings from Forest Department, Government of Goa will be procured for plantation.
Details of existing plantation and its survival rate	Details of existing plantation within the Mineral Block is given below: 1. Stabilized Dumps: 5.5992 Ha 2. Mined out area reclaimed & rehabilitated: 3.1150 Ha 3. Survival rate: 80% The plantation was carried out by the erstwhile Mining Lessee.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees which will be cut within the mining area is 1881. Felling of trees will be carried out after obtaining Stage-II Forest Clearance. The Project Proponent has committed and proposed to transfer an area of 21.1330 Ha bearing survey no. 11/1 of Antoriem Village of Sanguem Taluka, towards Compensatory Afforestation, in the name of Forest Department. Necessary funds (₹1.56Cr) will be provided to the Forest Department towards Compensatory Afforestation, for a period of 10 years.
Particulars for Green belt/ plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	Proposed areas to be brought under plantation at conceptual stage, is as given below: Greenbelt – 3.0288 Ha Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
50 m safety zone of nallah, roads, electric lines	

500 m safety zones of nearest habitation villages	Drilling and blasting activity is not proposed.

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	March 2023 to May 2023
Season (Summer/ Pre-monsoon/ Post-monsoon/ Winter)	Summer 2023
Predominant Wind direction (From)	West
Ambient Air Quality (no. of locations) and results	Ambient Air Quality No. of locations: 8 As per the NAAQS of Central Pollution Control Board (CPCB), levels of parameters such as Ammonia, Benze ne, Benzo-(a)-pyrene, Arsenic & Nickel analyzed were well below detectable limits (BDL), well within the standards. SO2- A maximum value of 15.0 µg/m3 was observed a t Kalay Mineral Block & SFIPL plant area and minimu m value of 6.0 µg/m3 was observed at the seven Monit oring stations, i.e., Costi, Kalay, Devanamol, Cormonem, Bandoli, Kalay Mineral Block and SFIPL Plant Office. Oxides of Nitrogen (NO2)- A maximum value of 18.0 µg/m3 was observed at Kalay and Cormonem Villages and minimum value of 8.0 µg/m3 was observed at CG L Plant Office. Particulate Matter (PM10)- A maximum value of 57 µ g/m3 was observed at Costi village and minimum value of 26.0 µg/m3 was observed at Cormonem village. Respirable Particulate Matter (PM2.5)

	A maximum value of 42.0 µg/m3 was observed at Bandoli Village and minimum value of 15.0 µg/m3 was ob served at Kalay, Cormonem and Bondli Villages. The Free Silica content in PM10 Filter paper was Belo w Detectable Level
Noise level (no. of locations) and results	Noise Levels No. of locations: 8 Ambient noise quality monitoring results for all the stations for the Summer season 2023. Noise monitoring in Leq for both Day & Night.
Water Quality (no. of locations) and results	Surface Water Quality The analysis results were compared to Stream Water Standards IS 2296, 1982 Class C norms for surface water bodies. Zuari River, the parameters TDS and Chlorides were exceeding the limits due to the influence of creek water. Surface water quality- Surface water samples were collected from 6 locations, of which one is pit water sample and the remaining 5 surface water samples were from buffer zone. All the parameters were found to be well within the permissible limits. Ground Water Quality No. of locations: 8 The open well samples were found to have slightly acidic pH. This is possibly due to the occurrence of lateritic soil. The soil is rich in Iron and Aluminum oxides and hence it makes the ground water slightly acidic in nature, while all other parameters were found to be within permissible limits
Soil Quality (no. of locations) and results	Soil Quality No. of locations: 7 The dominant soil type observed in the mining lease is red soil (Clay Loam). The results show that the pH of soil was between 6.19 to 6.22. Texture varied from sandy clay to clay loam. Electrical Conductivity ranged from 0.248 to 0. 363 mhos/cm, which is a measure of the soluble salts and ionic activity in the

	soil. All other parameters analysed were observed to be within permissible limits.
Hydro geological study and results	PP has submitted hydrogeological study report vide dated September 2023. PP has conducted the Hydrological study as per the guidelines issued by the Central Ground Water Authority
Traffic study (no. of locations) and results	PP has submitted the analysis of traffic counts provides an estimate of average daily traffic (ADT). As per guidelines for capacity of roads in rural areas of IRC, recommended design series volumes for two lane roads are 1 5000 PCU/day.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	Date of Advertisement for PH : 18.12.2024 Newspapers: Major national daily Newspapers: Times of India & Dhainik Bhaskar Mumbai Edition Regional Newspapers: Bhangarbhuim, Tarun Bharat
Date of PH	29.01.2025
Venue	Sarvajanik Ganesutsav Mandal Hall, Sanvordem, Sanguem Taluka, South Goa District, Goa.
Chaired by	Dy. Collector and Sub Divisional Magistrate Sanguem Taluka, South Goa District, Goa.
Main issues raised during PH	Main issues raised during Public Hearing are as below- - Support for education - Providing health care - Water resources & providing sanitation facilities - Support for Agriculture/ Horticulture/Plantation - Assistance to cultural/ religious activities - Assistance to sports and cultural clubs

Budget proposed for addressing issues raised during PH over 3 years	100.8 Lakhs

xiii. Details of CTE/ CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	Application for CTE will be filed after obtaining Environmental Clearance.

xiv. Rehabilitation & Resettlement (R&R):

R & R details	As per the EIA-EMP report submitted, this proposed project area does not have any habitation in the Mining Lease Area. Hence, no Rehabilitation & Resettlement Plan is required.

xv. Court case details:

Court Case, No and its present status	Writ Petition 592 of 2022 in Hon'ble High Court of Bombay at Goa stands dismissed vide order dated 12.02.2024. Nil Court Cases / Litigations pending
Undertaking by Project Proponent w.r.t court case	PP has submitted an undertaking vide letter dated 13.03.2025, stated that no litigation/ court case is pending against the project.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	PP has submitted an affidavit vide letter dated 05.03.2025 on its letter head as per the Ministry's OM dated 30.05.2018
Undertaking by Project Proponent in EIA/EMP report	PP has submitted an undertaking vide letter dated 09.05.2025
Undertaking by Consultant in EIA/EMP report	The Consultant has submitted an undertaking for preparation of EIA-EMP report in its letter head dated 05.03.2025
Plagiarism Certificate	PP has submitted software generated Plagiarism certificate (Plagiarism Checker X -Report) vide letter dated 11.03.2025

xvii. PP has submitted the point-wise reply on 05.05.2025 against the EDS raised on 21.04.2025 as mentioned below:

S. No	EDS Point	Reply by Project Proponent
1	PP needs to submit the stage I Forest Clearance for the Forest land of 21.133ha involved in the ML area	"In-principle" approval for the Stage- I Forest Clearance is recommended by Forest Advisory Committee vide minutes of the meeting held on 16/04/2025. A copy of abstract of the Minutes of Meeting dated 16/04/2025 showing the approval of Advisory Committee has been submitted.
2	PP needs to submit a tangible and monitorable Environment Management Plan (EMP)	PP has submitted a tangible and monitorable Environment Management Plan (EMP).
3	PP needs to submit a tangible and monitorable Public Hearing action plan	PP has submitted a tangible and monitorable Public Hearing action plan.

B. Project was considered in 44th EAC meeting held during 15-16th May 2025, the committee has raised the ADS. PP has submitted point wise reply vide letter dated 12.06.2025 against the ADS raised on 03.06.2025 as mentioned below:

S. No	ADS Point	Reply by Project Proponent
ADS 1 – dated : 03/06/2025		
i.	The Project Proponent may obtain a No Objection Certificate (NOC) from the Archaeological Survey of India for the village temple at Devnamol (Dukarkond), located at a distance of 0.3 km from the project site, if necessary.	The Archaeological Survey of India, Government of India, Goa Circle, Church Complex, Old Goa vide its letter dated 17/06/2025, has provided list of protected monuments of National importance under the jurisdiction of Archaeological Survey of India, Goa Circle. The village temple at Devnamol (Dukarkond) located at a distance of 0.3 km from the project site is not included in the list of protected monuments provided by the Archaeological Survey of India, Goa Circle. As village temple at Devnamol (Dukarkond) is not protected monument, NOC from Archaeological Survey of India is not necessary. A copy of letter dated 17/06/2025.
ii.	The Project Proponent must comply with the directions issued by the Hon'ble High	In terms of the directions of Hon'ble High Court of Bombay at Goa and as per the order dated 29.06.2024, in Writ Petition (PIL) No.

	Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology and prepare a transportation plan accordingly (PP to adhere to the report of DMG and GSPCB).	06/2024, Directorate of Mines and Geology Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. The salient points of the said SOP is enumerated as below: 1. The transporter will first approach the Directorate of Mines and Geology for approval of the route of transportation. 2. The Directorate of Mines and Geology will examine the applications and decide upon the route to be allowed for transportation. 3. Upon such approval, the transporter will apply to the GSPCB for setting up monitoring stations on the route. 4. After the GSPCB sets up the stations, the transporter will then apply to the DMG for transit permits, which shall be accordingly decided by DMG. 5. The transporter upon receiving transit permit shall ensure that all conditions of transportation are adhered and complied. 6. All trucks shall be registered with the Department and fitted with GPS. 7. GEL shall continuously monitor vehicle speed and any Violation 8. The timing of the Ore Transportation along the designated route should be from 8.00 am to 1.00 pm with a break from 1.00 pm to 2.00 pm and then transportation can continue from 2.00 pm to 5.45 pm from the source location. 9. GEL should ensure that no trip sheets are generated beyond the prescribed time so that transportation of Ore happens only within the specified time. 10. The truck/tippers engaged in transportation of ore shall have sufficient

		free board after filling the cargo box to avoid spillage. 11. All trucks/tippers engaged in the transportation of ore shall be covered with tarpaulin. 12. In case of breakdown of loaded trucks/tippers unloading of ore at the road side shall be strictly avoided. 13. The roads within mining lease areas shall be sprinkled with water to suppress dust pollution. 14. Spillage of ore on the public roads shall be removed immediately on occurrence. 15. The mining company should make suitable arrangement for sweeping of roads affected due to transportation of iron ore. 16. The mining firm should manage the daily trips in staggered manner in consultation with DMG, so that traffic congestion is avoided at major junctions. 17. Road sweeping machines may be jointly/severally developed in hotspot areas/ stretches. 18. The shoulders of the mining transport roads may be tarred whenever needed. A transportation plan prepared in accordance with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024. Further, the Project Proponent undertakes to comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology.

iii.	A comprehensive plan must be prepared by the Project Proponent to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. PP should submit a detailed plan for withdrawal intersection, flow of groundwater also need to be furnished and disposal of groundwater. Consultation in this regard should be done with CGWA/SGWB.	A comprehensive plan has been prepared to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. The brief summary of the comprehensive plan is enumerated as below: a. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. b. In any unlikely event of overflow, resources in terms of manpower and pumping capacity of 58,560 Cubic Meter per Day is available to deal any emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events. c. Therefore, the intersection of groundwater table has no role to play in the overflow of water from the mine pit during heavy rainfall. d. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. e. In any event, the project proponent has resources in terms of manpower and machinery (a set of 3 nos. of pumps of 500 Cum/Hr, 2 nos. of pump with 400 Cum/Hr along with1 no. of pump of 140 Cum/Hr to carryout pumping operations in case of any emergency so as to not allow the overflow of water from the open mine pit during heavy rainfall or other events.

		Therefore, the volume of storage capacity available in the mining pit is in excess of 3.5 million m3 (difference) and therefore has no potential overflow of water from the open mine pit during heavy rainfall or other events. The brief summary of plan for disposal of groundwater is as follows: 1. The water available in the mine pits are primarily from the storm water received by the Mineral Block during the monsoon season. 2. The proposed pumping in the pits is during the non monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa. 3. The rain accumulated mining pit water if any should be routed through settling ponds and filter beds. 3. The Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. 4. The domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. 5. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. 6. The Project Proponent will maintain the pumping schedule for pumping the rain accumulated water from the mining pit. 7. The Project Proponent will strive to implement suitable conservation measures to augment ground water resources wherever possible in the area. 8. The Project Proponent will not deviate in any

		way from specification regarding well, pump etc. mentioned above without approval of Water Resource Department, Government of Goa. 9. Care shall be taken that the drawl of water shall not interfere with the normal activities of the locality nor shall it cause any traffic hazard. 10. The Project Proponent has installed two Peizometers of type (DWLR with Telemetry System) for monitoring the Ground Water Levels within the core area of mining lease for observation & monitoring. 11. Monitoring the Ground Water level in the buffer zone in the established network of existing wells in the buffer zone (as per table 10 of the Hydrogeology report), will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. 12. The project proponent will monitor the water quality of the mines seepage and mine discharge through NABL accredited/ Government approved laboratory on monthly basis to WRD and CGWB, Bangalore. 13. Also, the water quality of the seasonal nallah in the upstream and downstream direction and the Kalay River in the upstream and downstream direction will be monitored on regular basis through NABL accredited/ Government approved laboratory on monthly basis and the same will be submitted to WRD Goa and CGWB, Bangalore. 14. The Project Proponent will ensure that the water available from the dewatering operations is properly treated and the quantity shall be utilized for supply to irrigation/dust suppression/mining process. 15. The Project Proponent will install digital water meter for measurement of the

<table>
<tr><td></td><td></td><td>quantity of water abstraction.
16. All activities committed in the report on ground water recharge and rainwater harvesting in the Hydrogeology report will be implemented satisfactorily.
Comprehensive plan for treatment and disposal of ground water has been prepared and submitted with ADS reply.

The Comprehensive plan has been submitted to WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>iv.</td><td>The Project Proponent must also prepare a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area. SPCB and State Water Resources Department should be consulted in this regard.</td><td>The Kalay River is situated outside the Block-IV Kalay Mineral Block on the eastern side of the Block and flows from South to North. The distance of the river from the boundary pillars adjoining the Kalay river is shown below:
<table>
<tr><th>Sr.No</th><th>Boundary Pillar</th><th>Distance (Km)</th></tr>
<tr><td>1</td><td>BP-1</td><td>0.120</td></tr>
<tr><td>2</td><td>BP-2</td><td>0.125</td></tr>
<tr><td>3</td><td>BP-8</td><td>0.017</td></tr>
<tr><td>4</td><td>BP-9</td><td>0.005</td></tr>
<tr><td>5</td><td>BP-10</td><td>0.085</td></tr>
<tr><td>6</td><td>BP-11</td><td>0.175</td></tr>
<tr><td>7</td><td>BP-12</td><td>0.245</td></tr>
<tr><td>8</td><td>BP-13</td><td>0.390</td></tr>
<tr><td>9</td><td>BP-14</td><td>0.350</td></tr>
<tr><td>10</td><td>BP-15</td><td>0.360</td></tr>
<tr><td>11</td><td>BP-16</td><td>0.425</td></tr>
<tr><td>12</td><td>BP-17</td><td>0.600</td></tr>
<tr><td>13</td><td>BP-18</td><td>0.146</td></tr>
</table>
The distance of ultimate pit limit of Pit no.1 from the Kalay river is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay river is 350 metres.

The Project Proponent has prepared a detailed plan to safeguard the Kalay River, flows 0.005 km from the eastern boundary of the mining lease area and the nearest distance of ultimate pit limit of Pit no.1 from</td></tr>
</table>

		the Kalay River is 430 metres. The nearest distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. The Project Proponent has prepared a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area and the same is submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025. The salient features of the said detailed plan to safeguard the Kalay River is enumerated as below: a. The surface rainwater during monsoon will be diverted in the mining pits for sedimentation of solid suspended particles. Water will be treated with lime and flocculants for effective sedimentation. b. During fair season, pumped out accumulated rain and stormwater will be pumped out will be passed through series of settling ponds before final discharge. c. Plantation will be carried out along the seasonal nallah to prevent soil erosion. d. De-siltation activity will be carried out post monsoon each year from the settling ponds and garland drains and dumped the same at the designated places within the Block area. e. Mandatory annual cleaning of garland drains will be an integral part of the project, commencing before the post monsoons and no later than the end of May each year. f. Velocity droppers will be provided, if deemed necessary, particularly during monsoons. g. Routine maintenance including the periodic creation of bunds to optimize the

<table>
<tr><td></td><td></td><td>proper controlled flow of stormwater into garland drains.

h. Pre-monsoon maintenance of bunds in the nalla to ensure effectiveness.

i. Implementation of proposed drop structures to regulate the velocity of stormwater flow.

A detailed plan to safe guard Kalay River is prepared and consulted with the Goa State Pollution Control Board (GSPCB) and State Water Resources Department.

GSPCB vide letter dated 18/06/2025 has provided consulted report.</td></tr>
<tr><td>v.</td><td>The Project Proponent should consult the State Water Resources Department or an institute of National repute to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.</td><td>The Highest Flood Level (HFL) for the Kalay river is 36.6 MSL as declared and conspicuously displayed and maintained on the Railway bridge for the information of the general public.

Further, PP have already submitted a letter dated 06/06/2025 for consultation with WRD, Govt. of Goa to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.

A copy of the letter dated 06/06/2025 submitted to WRD, Govt. of Goa for obtaining High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease.</td></tr>
<tr><td>vi.</td><td>The Project Proponent needs to submit an action plan for the treatment and disposal of mine pit water.</td><td>As on date the approximate volume of water accumulated in Pit-1 is 2.45 million m3 (at 39.2 MSL) and in Pit-3 is 4.75 million m3(at 39.2 MSL).

1. As per the approved mining plan the mine working levels in the mine pits for the first five years are as follows:
<table>
<tr><th>Year</th><th>Pit 1 Max Depth of Workings (msl)</th><th>Pit 3 Max Depth of Workings (msl)</th></tr>
</table>
</td></tr>
</table>

Year 1	41	35
Year 2	35	29
Year 3	23	11
Year 4	23	5
Year 5	23	-7

2. Further, as per the approved mining plan the proposed maximum conceptual working depth in pit 1 and pit 3 is -37 msl and -37 msl respectively.

3. It should also be noted that as per the approved mining plan pit 2 is not proposed for any excavation and the present maximum depth of the pit is 36.2 msl.

4. The surface runoff water stored in these mining pits will be systematically and scientifically pumped to carry out mining operations as per the approved mining plan.

5. In terms of the Approved Mining Plan, the year wise volume of the water to be pumped is as follows:

Year	Volume of rain/ storm water to be pumped in million Cum		
	Pit 1	Pit 3	Total
Year 1	1.19	1.55	2.74
Year 2	2.73	2.64	5.37
Year 3	2.91	3.98	6.89
Year 4	1.92	1.94	3.86
Year 5	1.92	1.54	3.46

6. As you aware that, Hydrogeological Study was carried out by the qualified groundwater expert Mr. M.C. Reddy, Formerly Regional

		Director, Accredited Consultant of Central Ground Water Authority for Mining Projects & NABET and the final report after consultation was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, which was examined and permission for drawl of water was granted by WRD on 16/04/2024. The Project proponent has prepared an action plan for the treatment and disposal of mine pit water in terms of the permission explained herein above. A brief summary of the same is as follows: 1. The storm water diverted to mine pits where it is stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. 2. The accumulated mine pit water will be treated by adding lime and flocculants for faster settlement of suspended solids. 3. The mine pit water will be sampled and analysed as per schedule VI of Environmental (Protection) Act, 1986, before its discharge from the mine. 4. The upstream and downstream of the seasonal nallah and Kalay river water will be analysed as per IS: 2296 standards. 5. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. 6. The garland drain will be laid with tarpaulin or stone pitching to prevent wash-off of soil and erosion of garland drains by the pumped water.

		7. It is proposed to incorporate small pits at every 100m along the length of the garland drains as measures for velocity droppers. This provision facilitates the smooth entry of the pumped storm water into the settling ponds. 8. The storm water, pumped from will be passed through a series of settling ponds, where it undergoes a sequential retention process. These interconnected settling ponds play a crucial role in refining storm water for the Mineral Block. Gravity facilitates the flow between the settling ponds. 9. Water will be treated at strategic settling ponds by adding lime and flocculants for faster settlement of suspended solids. 10. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. 11. Only clear water will be allowed to be discharged outside the mining lease area. 12. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon. 13. Regular monitoring of surface water will be undertaken to monitor the quality of water discharged from the pit.
vii.	The Project Proponent must engage a qualified groundwater expert or any national Institute working in this domain to assess the seepage of surface water into the groundwater system, and submit a detailed report accordingly. Consultation with CGWA/ SGWB can also be taken in this regard.	As explained above, the Project Proponent in compliance with the conditions of ToR granted on 08/01/2024 had engaged a qualified groundwater expert Mr. M. C. Reddy, Former Regional Director, Central Ground Water Board and Accredited Expert of Central Ground Water Authority for mining projects & NABET (HG & GEO) to carry out a comprehensive hydrogeological and impact assessment studies including seepage of surface water into ground water system in and around the Block IV – Kalay Mineral Block. The copy of comprehensive

		hydrogeological studies in and around the Block IV – Kalay Mineral Block This Hydrogeological Study report was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, on 03/01/2024. The Hydrogeological report was examined by the Ground Water Cell during its 131st meeting dated 19/03/2024 and pursuant to the examination of Hydrogeological report our application for permission was granted by WRD on 16/04/2024. Further, the Project Proponent had also engaged Government of Goa, Goa College of Engineering, Farmagudi, Goa to carry out a comprehensive study on the engineering design for garland drains, settling tanks, check dams and their efficacy for Block IV - Kalay Mineral Block and likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for the prevention of seepage and in the event of seepage to drain out the water through settling tank along with measures to be taken for the protection of the river in the vicinity of the mine lease area due to mining activity. The copy of comprehensive study done by Government of Goa, Goa College of Engineering, Farmagudi, Based on the study done by the qualified ground water expert to assess the seepage of surface water into ground water, a detailed report has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025. A detailed report based on the study done by the qualified ground water expert to assess the seepage of surface water into ground

<table>
<tr><td></td><td></td><td>water, has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>viii.</td><td>PP should incorporate construction of ETP associated with Oil & Grease trap in its Environment Management Plan.</td><td>PP has incorporated the construction of ETP associated with Oil & Grease trap in its Environment Management Plan. The cost of setting up ETP associated with Oil & Grease trap is 15 lakhs and will be set up within 3 months after getting permissions.

A copy of the details of water treatment system associated with eco-tank, Oil & Grease trap.</td></tr>
<tr><td>ix.</td><td>PP should review the activities and budget in the Wildlife Conservation Plan.</td><td>PP has reviewed the activities and budget in the Wildlife Conservation Plan and also the same is incorporated in the EIA & EMP.

Accordingly, the PP has revised the budget of the previous plan of Rs. 12.5 Lakhs to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan. The revised Budget Layout for Implementation of Wildlife Management & Mitigation Plan is shown as below:
<table>
<tr><th>S.No</th><th>Measures</th><th>5 Year Cost (in Rupees)</th></tr>
<tr><td>1</td><td>A vehicle (2-Wheeler) with rescue equipment</td><td>1.50</td></tr>
<tr><td rowspan="5">2</td><td>Conservation measures</td><td rowspan="5">24.41</td></tr>
<tr><td>Wildlife census and monitoring</td></tr>
<tr><td>Fire prevention measures</td></tr>
<tr><td>Capacity building for mitigating human-wildlife conflicts</td></tr>
<tr><td>Nursery development</td></tr>
<tr><td>3</td><td>Veterinarian Support</td><td>3.07</td></tr>
<tr><td>4</td><td>Creation and maintenance of waterholes as per site conditions and habitat</td><td>9.17</td></tr>
</table>
</td></tr>
</table>

		5	Enrichment planting of native species such as Ficus, Eugenia, Emblica, etc., palatable to the wildlife in buffer areas	12.21
		6	Development and Maintenance of plantation in buffer zone	3.07
		7	Awareness programmes	3.07
		8	Watch and Ward	14.63
		9	Conservation measures within Project Areas	6.92
			Plantation/ greenbelt development within Project area.	
			Post –Plantation care	
			Total	78.05
		A copy of the revised Wildlife Conservation Plan along with the relevant page related to the new budgetary provision and the copy of the relevant portion of this revised Wildlife Conservation Plan shown in the Final EIA & EMP report.		

xviii. Details of the Environmental Management Plan (EMP):

S. No.	Activities	Proposed budget	
		Capital Cost (₹) in Crores	Recurring Cost (₹) in Lacs
1	Air Pollution control Measures		
A	Dust Suppression by water tankers	0.451	8.00
	No. of water tankers – 2 (10 m3 capacity)		
	No. of trips/day – 10 (@₹400/- per trip)		
	No. of working days – 200 = 10 x 400 x 200 = ₹ 8,00,000/-		
B	Road maintenance by Motor Grader		6.00

	Working hours – 300 (@₹2000/-)		
	No. of working days – 200 (8 month) = 2000 x 300 x 200 = ₹ 6,00,000/-		
C	Wheel washing system		8.00
	Capital - Installation cost – ₹25,00,000/-		
	Recurring - Maintenance cost – ₹10,000/- per month		
	- Operational cost - ₹90,000/- per month		
	- No. of working days – 200 (8 months) = 1,00,000 x 8 = ₹ 8,00,000/-		
D	Road washing with water tanker (Ambeaudoc)		2.00
	No. of water tankers – 1 (10 m3 capacity)		
	No. of trips – 2 trips/day (@ ₹500/- per trip)		
	No. of working days – 200 = 2 x 500 x 200 = ₹ 2,00,000/-		
E	Road sweeping machine		12.00
	Truck mounted sweeping machine – 1 (@₹3000/- per hour) (2hr daily)		
	No. of working days – 200 = 3000 x 2 x 200 = ₹ 12,00,000/-		
F	Permanent water sprinkler		1.20
	Sprinkler installation – ₹1000/- per meter		
	Length of pipeline – 1000m		
	Pump cost (2HP) – ₹50000/-		
	Operational cost – ₹1,20,000/- per year Capital Installation Cost – 1000 x 1000 = 100000 + 50000 = ₹ 10,50,000/- Recurring cost – 15000 x 8 = ₹ 1,20,000/-		
G	Green net along road (400 m)		0.10

	Installation cost with frame - ₹2400/m Capital Cost = 2400 x 400 = ₹ 9,60,000/- Recurring Maintenance Cost - ₹ 10,000/- per year		
2	Water Pollution Control Measures		
A	Settling ponds	0.4873	3.90
	No. of settling ponds - 7		
	Total capacity - 14,070 m3		
	Capital Construction cost (₹110/m3) = ₹ 15,47,700		
	Recurring Maintenance Cost – ₹3,90,000/-		
B	Drains and Trenches (6350 m)		6.35
	Capital Construction Cost – ₹300/ m = 6350 x 300 = ₹ 19,05,000/- Recurring Maintenance Cost – ₹ 100/m = 6350 x 100 = ₹6,35,000/- per year		
C	Protective Bunds (1225m) Construction cost – ₹1000/m =1225 x 1000 = ₹ 12,25,000/- Recurring Maintenance Cost – ₹ 100/m = 1225 x 100 = ₹ 1,22,500/- per year		1.20
D	Use of Coco Filters and other miscellaneous cost		0.10
E	ETP Associated with Oil and Grease trap for workshop	0.15	--
3	Fire protection systems	0.02	0.16
4	a. Continuous Air Quality monitoring CAAQMS (1 no)	0.10	7.00
5	Greenbelt along Boundary 7.5 Meter safety zone and Plantation within ML Area (5 years) Sapling and plantation cost @₹ 75/plant	0.35	1.75

	Maintenance cost @ ₹ 25/plant		
6	Solar energy (15kw) @ ₹ 40,000/kw Solar Street lights (30watts) @ ₹ 20,000/unit Annual maintenance cost @ ₹ 20,000/month	0.10	2.00
7	Sanitary Facility (4no)	0.03	0.20
8	Health check-up Total Staff - 127 @ ₹1200/person	---	1.50
9	Personal Protective Equipment (PPEs) Safety Shoes + Helmets + Gloves etc	---	1.20
10	Environmental awareness & training	---	0.25
11	Environment Monitoring Program Cost	---	16.40
12	Silpauline covering on ore stack	---	5.00
13	Traffic control	---	14.00
Total		1.6883	98.31
14	Budget for the Wildlife Conservation Plan (updated) for 5 years		78.05

xix. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	Capital Cost of EMP : 1.6883 Capital Cost of Public Hearing: 1.0080 Total : 2.5463
Project Cost	Rs.3680 Lakhs
Employment (Nos.)	327

****

Signature Not Verified

Digitally Signed by : Rajeev Ranjan
Member Secretary, MoEFCC (EC)

Date: 22/08/2025

O/C

FOMENTO RESOURCES

Date: 25/08/2025

To,

1. The Collector & District Magistrate,
Office of the District Collector & District Magistrate,
South Goa District,
Matanhy Saldhana Adminstrative Complex,
Margao – Goa.

Collectorate of South Goa
Margao
Date: 29/08/25
Inward No.: 22924
Section:

2. The Chairperson,
South Goa Zilla Panchayat Office,
Old Collectorate Building
Margao, Goa.

RECEIVED ON
29/8/25
South Goa Zilla Panchayat
Margao.

3. The Sarpanch,
Village Panchayat Sanvordem,
Sanguem Taluka,
South Goa District, Goa.

RECEIVED
V.P. Sanvordem
Sig. Dt. 29/08/2025

4. The Director,
Directorate of Mines and Geology,
Institute Menezes Braganza,
Government of Goa,
Panaji, Goa- 403001.

Received (sd.) 29/8/25
Directorate of Mines & Geology
Government of Goa

5. The Regional Controller,
Indian Bureau of Mines,
Fatorda,Margao, Goa.

29/08/2025

6. The Director,
Directorate of Mines Safety,
Goa Region, Margao, Goa.

RECEIVED
D.G.M.S.
GOA REGION, GOA-403602

7. The Member Secretary,
Goa State Pollution Control Board,
Near Pilerne Industrial Estate,
Opp. Saligao Seminary,
Saligao, Bardez, Goa – 403511.

26/08/2025
Goa State Pollution Control Board
Opp. Saligao Seminary
Saligao Goa 403 511

Sub: Submission of copy of Environmental Clearance with respect to Block IV – Kalay Mineral Block, located at Village Santona of Sanguem Taluka, South Goa District, Goa.

FOMENTO RESOURCES FRPL GOA

Sir,

The Directorate of Mines & Geology (DMG), Government of Goa, issued a Notice Inviting Tender (NIT) on 30/09/2022, in accordance with the Mineral (Auction) Rules, 2015, for the auctioning of Block IV – Kalay Mineral Block. Upon the successful conclusion of the said auction, Fomento Resources Private Limited (FRPL) was declared as Preferred Bidder for Block IV – Kalay Mineral Block on 22/12/2022. Pursuant to this declaration as the Preferred Bidder, DMG issued FRPL the Letter of Intent dated 13/01/2023 read with letter dated 13/03/2023.

The Project Proponent has obtained the necessary Environment Clearance from Ministry of Environment, Forest and Climate Change, IA Division, Government of India vide file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025 for subject Mineral Block under the provisions of EIA Notification 2006 and as amended thereof.

Condition no. 10.2 under heading "16. Miscelleneous" of the Environmental Clearance dated 22/08/2025, stipulated as under:

> *"The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt."*

In compliance with Clause No. 16.2 (Miscellaneous Conditions) of the Environmental Clearance dated 22/08/2025, we are submitting herewith a copy of Environmental Clearance (EC) for your information and needful.

Thanking you,
Yours faithfully,
For and on behalf of
Fomento Resources Private Limited

Sandeep Morajkar
Authorized Representative
Enclosed: As above

FOMENTO RESOURCES PVT. LTD. FRPL GOA

सत्यमेव जयते

File No.: IA-J-11015/11/2023-IA-II(NCM)
Government of India
Ministry of Environment, Forest and Climate Change
IA Division
***

Dated **22/08/2025**

To,

Mr. Sandeep Morajkar
M/s. FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis-I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001, Panaji, NORTH GOA, GOA, Behind Caculo Mall, St. Inez, Panaji, 403001
morazkar@ilpl.biz

Subject: **Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa - For Environmental Clearance-reg.**

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/GA/MIN/529454/2025 dated 05/05/2025 for grant of prior Environmental Clearance (EC) to the project under the provision of the EIA Notification 2006-and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC25B0000GA5877178N
(ii) File No.	IA-J-11015/11/2023-IA-II(NCM)
(iii) Clearance Type	Fresh EC
(iv) Category	B1
(v) Project/Activity Included Schedule No.	1(a) Mining of minerals
(vi) Sector	Non-Coal Mining
(vii) Name of Project	Block IV – Kalay Mineral Block
(viii) Location of Project (District, State)	SOUTH GOA, GOA
(ix) Issuing Authority	MoEF&CC
(x) Applicability of General Conditions	No

3. In view of the particulars given in the Para 1 above, the project proposal *interalia* including Form-2 (Part A, B and C)/ EIA & EMP Reports were submitted to the MoEF&CC for an appraisal by the EAC under the provision of EIA notification 2006 and its subsequent amendments.

4. The above-mentioned proposal has been considered by EAC in the meeting held on 25-26/06/2025. The minutes of the

meeting and all the project documents are available on PARIVESH portal which can be accessed from the PARIVESH portal by scanning the QR Code above.

5. Observation and Recommendation of the Committee:-

The instant proposal is for Environmental Clearance for the Kalay Mineral Block – Block IV (Auction Block), submitted by M/s Fomento Resources Private Limited, for the mining of iron ore with a production capacity of 0.75 MTPA and waste generation of 3.0 MTPA, over a mine lease area of 152.5073 hectares. The project is located in Village Santona, Sanguem Taluka, South Goa District, Goa.

During the presentation, the Project Proponent and their consultant submitted the KML file to illustrate the site features within the 10 km study area. It was informed that there are three existing pits within the mine lease area. A seasonal nalla traverses the mineral block, flowing from west to east, while the Kalay River flows 0.005 km along the eastern boundary of the lease area at nearest distance. The mineral block is located within Santona village. Bandoli and Kalem villages are located at distances of 0.6 km and 0.7 km, respectively. Two government primary schools, one in Devnamol and the other in Ambeudak, are situated 0.83 km and 0.38 km away from the mine lease boundary. EAC also noted the presence of temple at a distance of 0.3 km from the mine lease area.

The nearest town, Sanvordem, is about 6 km away in the south-west direction. The State Highway SH-7 is situated approximately 1.27 km west of the project site. The Karnataka state boundary lies at an aerial distance of 10.03 km. Kalay Railway Station is 4 km to the east. The Bhagwan Mahaveer Wildlife Sanctuary lies 1.04 km from the eastern boundary. PP has submitted the letter dated 05.07.2023 issued by Deputy Conservator of Forests, Goa, wherein it has been stated that the mineral block located at Sanotana village, Goa, falls outside the notified ESZ boundary of the Bhagwan Wildlife Sanctuary and national Park. The Expert Appraisal Committee (EAC) noted that the final notification declaring the Eco-Sensitive Zone around the Bhagwan Mahaveer Wildlife Sanctuary and National Park in Goa was issued vide S.O. 221(E) dated 23.01.2015. Further vide letter dated 25.10.2023, Regional Office of the Ministry at Bengaluru stated that Kalay Mineral Block area (Auction Bloc) of M/s Fomento Resources Private Limited located at village Santona, Sanquem Taluka, South Goa District, Goa falls outside of ESZ of Bhagwan Mahaveer Wildlife Sanctuary and National Park and ESA of Western Ghats.

The Project Proponent was granted the Letter of Intent on 13.01.2023 for a total area of 179.1826 hectares. Subsequently, the Directorate of Mines and Geology, Government of Goa, through its letter dated 13.03.2023, revised the area of Block IV – Kalay Mineral Block to 152.5073 hectares by excluding 26.6753 hectares falling within the Eco-Sensitive Zone (ESZ).

The project area includes forest land, and the PP has received in-principle Stage-I Forest Clearance for 21.133 hectares of forest land under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, granted on 12.05.2025 by the competent authority following the Advisory Committee's recommendation on 16.04.2025.

EAC observed that PP has submitted the revised Wildlife Conservation Plan to Chief Wildlife Warden on 05.03.2024 which was also presented by the PP during the 44th EAC meeting (15-16 May 2025). The subject of the letter submitted to Chief Wildlife Warden on 05.03.2024 indicated that plan under Wildlife Act 1972 has been submitted. Accordingly, EAC asked PP to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022.

Thereafter, PP submitted the authenticated list of Flora and Fauna as per Wildlife Amendment Act 2022 issued by Office of the DCF dated 13.02.2024. EAC also noted that PP has submitted the revised budget and revised Wildlife Conservation Plan in its ADS reply dated 12.06.2025. PP has informed that the activities and budget outlined in the Wildlife Conservation Plan have been reviewed and duly incorporated into the EIA & EMP. Consequently, the budget has been revised from the earlier amount of Rs.12.5 lakhs to Rs.78.05 lakhs in the updated Wildlife Conservation Plan.

The total water requirement for the project is 300 KLD, of which 255 KLD will be sourced as fresh water and 45 KLD will be treated water. Rainwater and stormwater accumulated in the mine pit will be utilized for dust suppression, workshop needs, wheel wash systems, and greenbelt/plantation purposes. Well water will be used for domestic requirements. The Office of the Executive Engineer and Ground Water Officer, Water Resources Department, Govt of Goa, has granted permission for water withdrawal, which is valid up to 05.06.2026. The permission has been allowed for the drawl of 3,360 cubic meter per day of ground water as required for scientific operation of mine as per the letter dated 16.04.2024, it has been mentioned that the NoC / permission/ Ground water clearance is valid for a period of 02 years. EAC noted the submission of PP and asked to minimize the fresh underground water in the project. EAC was of the opinion that PP can use mine pit water for project activities.

Approval of Mine plan has been obtained from Indian Bureau of Mines on 23.08.2024.

The Public Hearing was conducted on 29.01.2025 wherein various issues raised such as to increase the trucks size, overflow of water from mine pits, to provide drinking water facility for villagers and to provide safety on roads. Public Hearing budget Rs. 33.60Lakh for three consecutive years has been allocated to address the issues raised during Public Hearing.

The Project Proponent collected baseline data between March and May 2023. This included parameters related to ambient air quality (PM_{10}, $PM_{2.5}$, SO_2, NO), noise levels, and quality of water and soil. All recorded values were found to be within the permissible limits. Additionally, hazardous air pollutants such as ammonia, benzene, benzo-(a)-pyrene, arsenic, and nickel were analyzed and found to be below detectable limits (BDL).

The Project Proponent has proposed the total EMP capital cost of Rs. 168.83 Lacs and Recurring Cost of Rs. 98.31Lacs.

Thereafter, EAC deliberated the ADS points raised vide minutes of the 44th EAC meeting held during 15-16 May 2025.

Regarding the No Objection Certificate (NOC) from the Archaeological Survey of India (ASI) for the village temple in Devnamol (Dukarkond), situated 0.3 km from the project site, PP stated that the temple is not classified as a protected monument, hence NOC is not required. The PP provided a list of protected sites under the Goa Ancient Monuments and Archaeological Sites and Remains Act, 1978 (with Rules from 1980), along with information on protected sites from ASI records. According to this list, the Devnamol Temple (Dukarkond) is not designated as a protected monument. Additionally, the PP submitted an application to ASI on June 5, 2025. In reply, ASI issued a letter on June 18, 2025, verifying that the temple is not included among the protected monuments in the South Goa District. EAC noted the submission of PP and advised PP to protect the temple ensuring no drilling/blasting activity within 500 m without special permission from DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.

With regard to transportation of mined out mineral and compliance of the Hon'ble High Court of Bombay at Goa, order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology, PP submitted that Directorate of Mines and Geology, Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. Accordingly, they have prepared a transportation plan to transport the mined out iron ore from the Kalay Mineral Block to either the Sanvordem or Capxem jetties, located approximately 12 to 14 km from the mine site, via State Highway-7 (SH-7). The transportation route includes an internal haul road of 2.5 km within the lease area and a public road stretch (SH-7) of about 11.5 km, which has a width ranging between 8 to 10 meters. Two route options have been proposed:

Route 1 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Ambeudoc and Sanvordem Junction;

Route 2 – From Kalay Mineral Block to Sanvordem/Capxem Jetty via Bandoli and Sanvordem Junction.

PP also submitted that they will comply the direction of the Hon'ble High Court and follow the SOP by DMG and SPCB in this regard. EAC noted the submission of PP and advised to ensure zero spillage and covering of trucks with tarpaulin while transportation. EAC also asked PP to undertake regular sprinkling of the route to mitigate dust generation and also road sweeping if necessary. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.

Concerning the issues of potential overflow of water from the open mine pit during heavy rainfall and other events since groundwater table has already intersected, PP submitted that they have prepared a comprehensive water management plan. The estimated rainfall volume in the watershed area is 5.00 million m^3, while the mine pit offers a storage capacity of 8.50 million m^3, eliminating any overflow risk. In extreme events, the available pumping capacity of 58,560 m^3/day emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events.

PP also submitted that they have prepared a Comprehensive plan for treatment and disposal of ground water and the same has been submitted to Water Resource Department(WRD), Govt. of Goa for their consultation vide letter dated 06.06.2025. EAC noted the submission of PP and asked about the proposed treatment plan, PP informed that proposed pumping in the pits shall be carried out during the non-monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa.

The rainwater accumulated in the mining pit, if any, should be routed through settling ponds and filter beds Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. Domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. Pumping schedule for pumping the rain accumulated water from the mining pit shall be maintained and action shall be taken to implement suitable conservation measures to augment ground water resources wherever possible in the area. Monitoring the Ground Water level in the buffer zone in the established network

of existing wells in the buffer zone will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. EAC noted the submission of the PP and observed that existing number of settling ponds is inadequate and accordingly advised PP to increase the same in consultation with State WRD and SPCB. EAC also advised PP to obtain necessary permission of State WRD/ SGWA/CGWA in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

To safeguard Kalay River which flows just 0.005 km from the eastern boundary of the mine lease area at nearest place, PP presented a detailed safeguard plan which was submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for consultation vide letter dated 06/06/2025. PP stated that the distance of ultimate pit limit of Pit no.1 from the Kalay River is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. PP reported that GSPCB vide its letter dated 18.06.2025 has recommended additional measures in the safeguard plan which include keeping a buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falling in the lease area and will be maintained as no Mining zone. PP will comply with all safeguards and ensure water quality monitoring upstream and downstream of the Kalay River near discharge points.
Key features of the Kalay River safeguard plan include diversion of surface rainwater during monsoon to mine pits for sedimentation, flocculant treatment, controlled discharge through settling ponds during the dry season, annual maintenance and de-silting of drainage structures, use of velocity droppers and filter beds, plantation along nallahs to prevent erosion, and regular water quality monitoring through NABL-accredited or government-approved labs. No mining activity will occur within 100m of the Kalay River banks. EAC noted the submission of the PP and advised strict adherence of recommendation of GSPCB and State WRD. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.

PP also obtained High Flood Level (HFL) data through Stated WRD for Kalay River and seasonal nallah. The HFL for Kalay River is 36.6 MSL, while the nallah bank levels are 40.90 MSL (upstream) and 39.30 MSL (downstream), with its meeting point with the river at 35.3 MSL and 350 meters away from the lease boundary, eliminating any chance of reverse flow towards mining pits.
Regarding action plan for treatment and disposal of mine pit water PP submitted that during monsoon, stormwater will be stored in mine pits for over four months to allow natural settlement and groundwater recharge. In the dry season, water will be treated with flocculants and passed through settling ponds before discharge. The ore and waste material are non-toxic, and the water quality primarily changes in turbidity due to runoff. Regular desilting and maintenance will be carried out pre-monsoon. For water disposal, six centrifugal pumps will be used in the dry season. Mine pit registration and pumping permissions have been obtained from Water Resource Department. Check dams will enhance filtration across the seasonal drain, with discharge water monitored and tested as per CPCB norms. A comprehensive hydrogeological and impact assessment study was conducted by Mr. M.C. Reddy, former Regional Director, Central Ground Water Board and NABET-accredited expert. The report assessing surface water seepage into groundwater was submitted to WRD, and its recommendations will be implemented. An Effluent Treatment Plant (ETP) with an oil and grease trap, estimated at 15 lakhs, is planned under the Environment Management Plan and will be constructed within three months of obtaining permissions.

6. Based on aforesaid discussions and presentation made by the Project Proponent and the Consultant, the Expert Appraisal Committee (EAC), in 46th EAC meeting held on 25-26th June, 2025 under the provisions of the EIA Notification, 2006 and its subsequent amendments, recommended the proposal for the grant of Environmental Clearance for Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa along with certain specific conditions, in addition to the standard conditions applicable to Non-Coal mining projects (Annexure - I).

7. The details of the project as per the information submitted by the Project Proponent are enclosed as Annexure (II)

8. The Ministry has examined the proposal in accordance with the provisions of the Environmental Impact Assessment (EIA) Notification, 2006, and its subsequent amendments. Based on the recommendations of the Expert Appraisal Committee (EAC), Environmental Clearance (EC) is hereby granted to Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa. The clearance is subject to strict compliance with the specific conditions prescribed for this project, in addition to the standard

conditions applicable to non-coal mining projects, as detailed in Annexure I.

9. The Environmental Clearance to the aforementioned project is under provisions of EIA Notification, 2006, as amended. It does not tantamount to approvals/consent/permissions etc. required to be obtained under any other Act/Rule/regulation. The Project Proponent is under obligation to obtain approvals /clearances under any other Acts/ Regulations or Statutes, as applicable, to the project.

10. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

11. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent amendments therein.

12. The PP is under obligation to implement commitments made in the Environment Management Plan, which forms part of this EC.

13. General Instructions:

a. The project proponent shall prominently advertise it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days indicating that the project has been accorded environment clearance and the details of MoEF&CC/ SEIAA website where it is displayed.

b. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

c. The project proponent shall have a well laid down environmental policy duly approved by the Board of Directors (in case of Company) or competent authority, duly prescribing standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/ forest / wildlife norms / conditions.

d. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the project proponent (during construction phase) and authorized entity mandated with compliance of conditions (during operational phase) shall be prepared. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Six monthly progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six-Monthly Compliance Report.

e. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

f. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.

g. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

h. PP needs to comply the OM dated 24.07.2024 of MoEFCC, where it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma ke Naam" (एक पेड़ माँ के नाम (and the details of the same shall be uploaded in the MeriLife portal (https://merilife.nic.in).

14. This issues with the approval of the Competent Authority.

Copy To

i. **The Secretary,** Ministry of Mines, Government of India,ShastriBhawan, New Delhi.

ii. **The Secretary,** Department of Mines and Geology, Ground Floor of Institute Menezes Braganza, Government of Goa.

iii. **The Director,** Department of Environment and Climate Change (DoE and CC), Government of Goa.

iv. **The Secretary,** Department of Forests, Government of Goa, Goa Van Bhavan, Goa.
v. **Director General,** Directorate General of Mines Safety, Hirapur, Dhanbad, Jharkhand, 826001
vi. **The Chief Wildlife Warden,** GoaVan Bhavan, Forest Department, Altinho, Panaji Goa. 403001.
vii. **The Deputy Director General of Forests (C),** Ministry of Env., Forest and Climate Change, Integrated RegionalOffice,KendriyaSadan, 4thFloor, E&F Wings, 17th Main Road, Koramangala II Block, Bangalore - 560034.
viii. **The Member Secretary,** Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
ix. **The Member Secretary,** Central Ground Water Authority, 18/11, Jam Nagar House, Man Singh Road, New Delhi-110011.
x. **The Member Secretary,**Goa State Pollution Control Board, Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao, Goa 403511.
xi. **The Controller General,** Indian Bureau of Mines, Indira Bhavan, Civil Lines, Nagpur- 440 001.
xii. **The District Collector,** South Goa District, Government of Goa.
xiii. **Guard File.**
xiv. **PARIVESH Portal.**

Annexure 1

Specific EC Conditions for (Mining Of Minerals)

1. Specific Conditions

S. No	EC Conditions
1.1	The Project Proponent (PP) shall ensure effective storage of rainwater within the designated mine pit, as per the approved comprehensive water management plan. Continuous monitoring of water levels during the monsoon period shall be carried out, and necessary preventive measures shall be in place to avoid any overflow under all circumstances. PP shall strictly follow the recommendation of GSPCB and State WRD in this regard. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.2	PP must ensure that, under no circumstances, untreated water is permitted to overflow or be discharged from the mine pit into surrounding areas or nearby water bodies. Arrangements should be done accordingly in the project.
1.3	PP needs to strictly follow the groundwater treatment and disposal plan. The Project Proponent (PP) shall not undertake any abstraction of groundwater beyond the permitted limits without obtaining prior approval from the Central Ground Water Authority (CGWA) or the concerned State Ground Water Authority/State WRD. PP needs to submit the half-yearly report on water balance (rainwater received, stored, pumped out, and reused) to Regional office, MoEFCC.
1.4	The Project Proponent (PP) needs to follow the recommendations issued by the Goa State Pollution Control Board as mentioned below: a. Buffer of 50m (Part) from the western side of the river towards the Mining lease on the South eastern side falls in the lease area and the same will be maintained as no Mining zone. b. All the safeguards proposed in the report by the project proponent, and by the technical advisory committee shall be adhered to by the Project Proponent. c. Monitoring of water quality in upstream and downstream of the Kalay River with respect to the discharge point shall be done by the Project Proponent. d. No mining activity will occur within the prescribed distance set by GSPCB for the Kalay River. Other recommendations of SPCB in this regard should also be followed by PP.

S. No	EC Conditions
1.5	PP shall ensure that surface runoff generated during the monsoon season is effectively diverted into designated mining pits to facilitate the sedimentation of suspended solid particles. To enhance the sedimentation process, appropriate flocculants shall be applied as necessary. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.6	PP shall ensure that, during non-monsoon periods, accumulated rainwater and stormwater extracted from the mining areas are conveyed through a series of settling ponds. The water shall be discharged into the environment only after achieving adequate sedimentation and meeting prescribed quality standards. PP should increase the number of settling ponds in consultation with GSPCB and State WRD. Minimum 07 settling ponds should be provided of appropriate area/volume so as to provide adequate settling time. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.7	PP shall carry out annual maintenance and de-siltation of all settling ponds and garland drains immediately following the monsoon season. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.8	PP shall install velocity droppers with gentle gradients and suitably designed filter beds at appropriate locations to reduce the velocity of water flow and facilitate effective sediment control. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.9	The Project Proponent shall undertake plantation activities along the seasonal Nallahs to prevent soil erosion.
1.10	The Project Proponent needs to carry out regular monitoring of the water quality of the Kalay River at both upstream and downstream locations through Government Institutions/ Laboratories. Report of the above monitoring and analyisi should be submitted along with the six monthly compliance reports.
1.11	PP should strictly adhere to mine water treatment plan as submitted by them and action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports. The mine water treatment plan includes the following:- Action plan for treatment:- a. The storm water diverted to mine pits will be stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. b. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. c. There are no toxic elements in Ore and waste material. The quality of the surface runoff water does not change except for increase in turbidity due to surface runoff. d. The pumped water will be passed through a series of settling ponds, where it undergoes a sequential retention process. e. Water will be treated at mine pits & strategic settling ponds by adding flocculants for faster settlement of suspended solids. f. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon Action plan for disposal:- a. Six number of centrifugal pumps will be engaged for pumping of water and pumping will be carried out in the non-monsoon season. b. Permission for registration of Mine pit and pumping from the same has been obtained from Water Resource Department, Government of Goa.

S. No	EC Conditions
	c. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. d. Clear water will be discharged outside the mining lease area. e. Regular monitoring of discharge water will be undertaken to monitor the quality of water discharged from the pit. f. The mine pit water will be sampled and analyzed as per CPCB norms, before its discharge from the mine. g. The upstream and downstream of the seasonal nallah and Kalay river water will be analyzed as per CPCB norms.
1.12	PP to protect the temple ensuring no drilling/blasting activity within 500 m without prior permission from MoEFCC & DGMS. PP was also asked to undertake dense plantation around the temple in consultation with local administration/gram panchayat.
1.13	No blasting shall be undertaken in the ML area without the prior permission from MoEF&CC.
1.14	PP needs to submit the proof of submission of Wildlife Conservation Plan as per Wildlife Amendment Act 2022 to State Forest Department.
1.15	Project Proponent must comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology. PP must get its transportation plan approved by State DMG and SPCB. PP should strictly follow up the recommendation of DMG and SPCB.
1.16	PP shall ensure that there is no spillage of ore during transportation. All transportation trucks should be covered with tarapaulin. Truck drivers, helpers, Operators, Supervisors, contractor personal should be properly trained on environmental aspects. Record of above training of the personal, supervisor/officials should be submitted to Regional office of MoEF&CC.
1.17	PP should undertake regular sprinkling of water to mitigate dust generation.
1.18	PP in consultation with Local Administration/Gram Panchayat/State Govt/DMG shall undertake plantation along the transportation route. An action taken report in this regard shall be submitted to Ministry's Regional Officer in Half-yearly compliance reports.
1.19	The natural water bodies and or streams which are flowing in and around the mine lease area should not be disturbed.
1.20	The Project Proponent shall continue to monitor the air quality, noise level, water quality, water level at the edge of the mine, near the village, and at other sensitive receptors and such collected data shall be submitted quarterly to the Ministry's Regional Office.
1.21	The Project Proponent should install Continuous Ambient Air Quality Monitoring Stations (CAAQMS) as per the scientific study and in consultation with CPCB/SPCB. The real time data so generated should be displayed digitally at entry and exit gate of mine lease area for public display and shall be linked to server of CPCB/SPCB.
1.22	PP needs to submit the proof of submission of Wildlife conservation plan as per Wildlife Protection Amendment Act 2022 to Ministry's Regional office within one month from the date of issue of EC

S. No	EC Conditions
	to the instant project.
1.23	Project Proponent should follow up with State Forest Department regarding implementation of WLCP Act 2022. An implementation report in this regard needs to be submitted to Ministry's Regional office in half yearly compliance report.
1.24	The Project Proponent needs to use modern equipment's such as Camera Traps for ensuring presence and movement of wild animals in the study area in consultation with Wildlife Wing of Forest Department. Appropriate interventions shall be taken to minimise stress conditions for wild animals and to avoid Man-Animal conflict.
1.25	The air pollution control equipment's like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at areas prone to air pollution. PP shall take necessary measures to avoid generation of fugitive dust emissions.
1.26	The Project Proponent shall explore the possibility of using atleast 20% of Electric vehicles/CNG/Solar instead of diesel operation within three years in the project.
1.27	The Project Proponent should adopt the proper mitigation measures as proposed under EMP. The adoption of mitigation measures and monitoring of the same as proposed in the EMP shall be done under the supervision of the qualified environmental personnel. The implementation status of the same shall be submitted to the Ministry's Regional Office.
1.28	The Project Proponent should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground). A dedicated team to oversee environment management shall be setup at site which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis instead of engaging environment monitoring laboratories/consultants. Any non-compliance or infringement should be reported to the concerned authority.
1.29	The Project Proponent shall conduct third party audit of compliance of EC condition at an interval one year and its report shall be submitted to RO, MoEF&CC.
1.30	The Project Proponent shall ensure the survival rate of 95% for planting the gap plantation and new plantation. The Project Proponent shall make the actual count on the saplings planted and its survival rate and in case of failure of achievement of 95% survival rate, action plan for achieving the target survival rate shall be submitted to the Ministry's Integrated Regional Office. Density of plantation should be 2500 plants/ha. PP shall make provision for drip irrigation to conserve the water. PP should plant fruit bearing trees along with Sal and allied species within the ML area.
1.31	The Project Proponent shall provide the rainwater harvesting structure at mine offices and quarters/colonies to recharge the ground water.
1.32	PP needs to construct sedimentation ponds, check dam, gabion structures, retaining wall, garland drain etc to safeguard the natural Streams/Nallahs flowing in and around the Lease area.
1.33	To address the concerns raised by the public in the public hearing, PP should complete its public hearing commitments within 3 years from the date of start of mining operations. PP shall comply with all action plans made for public hearing concerns and make regular maintenance and record the progressive activity outcomes. The Project proponent shall ensure that the activities proposed under

S. No	EC Conditions
	the public hearing is different from the CSR activities.
1.34	The Project Proponent needs to provide good quality drinking water supply and also by laying network of pipelines to the villagers of santona, at free of cost.
1.35	The Project Proponent shall also organize employment-based apprenticeship/ internship training program every year with appropriate stipend for the youth and other programs to enhance the skill of the local people. The data should be maintained for the training imparted to the persons and the outcome of the training, for the assessment of the training program should be analyzed periodically and improved accordingly.
1.36	The Project Proponent should periodically monitor and maintain the health records of the mine workers digitally prior to mining operations, at the time of operation of mine and post mining operations. Regular surveillance shall be carried through regular occupational health check-up every year for mine workers. PP shall also organize medical camp for the benefit of the local people and also the monitor the health impacts due to mining activity.
1.37	The Project Proponent needs to install the permanent water sprinklers in addition to mobile water tankers along the haul road and the approach road. Further, 8 nos. of fog/mist cannon sprayer of atleast 40 m throw shall be installed at various locations in the mine and beneficiation plant area. Effective dust suppression system shall also be adopted at other parts of the mining lease to arrest the fugitive dust emission.
1.38	The mobile water tankers should be used in the ML area for dust suppression and control. A logbook of water tankers should be maintained mentioning running hours, kilometre reading, maintenance hours of water tankers for each shift. PP shall use non-toxic chemicals for dust suppression in order to reduce the total water requirement.
1.39	The Project Proponent shall ensure that the transportation shall not occur through village road.
1.40	The mining lease holders shall, after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. The implementation report of the above said condition shall be submitted to the Ministry's Integrated Regional Office.
1.41	Approval/permission of the CGWA/SGWA shall be obtained before drawing ground water for the project activities, if applicable. State Pollution Control Board (SPCB) concerned shall not issue Consent to Operate (CTO) till the project proponent obtains such permission.
1.42	PP shall minimise the use of fresh underground water in the project. PP should use mine pit & settling pond water for dust suppression, plantation & other project related activities.
1.43	Project proponent shall take necessary other clearances/permissions under various Acts and Rules if any, from the respective authorities / department.
1.44	PP needs to comply the OM dated 24.07.2024 of MoEFCC, wherein it is stated that the plantation of saplings shall be carried out in the earmarked 33% greenbelt area as part of the tree plantation campaign " EK Ped Ma keNaam" (एकपेड़माँकेनाम) and the details of the same shall be uploaded inthe MeriLife portal(https://merilife.nic.in).

S. No	EC Conditions
1.45	PP shall ensure that all type of plastic waste generated from the mines shall be stored separately in isolated area and disposed of strictly adhering to the Plastic Waste Management Rules 2016. In pursuant to Ministry's OM dated 18/07/2022 PP shall also create awareness among the people working in the project area as well as in its surrounding area on the ban on Single Use Plastic (SUP) in order to ensure compliance of Ministry's Notification published by the Ministry on 12/08/2021. A report along with photograph on the measures taken shall be submitted to Ministry's Regional Office.
1.46	PP needs to comply with the Hon'ble NGT's order dated 21.07.2020 in the OA No. 304/2019 and the recommendation of the CPCB report regarding distance criteria.
1.47	PP shall comply with all the Judgement/ Orders of Hon'ble NGT in the OA No. 304/2019 in the matter of M.Haridasan & Ors. Applicant (s) versus State of Kerala & Ors. Reg
1.48	Minstry's Regional Office shall undertake site visit within 18 months from the date of issue of EC to the project. PP should submit the site inspection report/CCR issued by Regional office of Ministry with respect to this project to Compliance and Monitoring Division of the Ministry.
1.49	PP should obtain the FC (Forest Clearance) stage-II for 21.1330 ha before starting any mining operation within the ML area.

Standard EC Conditions for (Mining of minerals)

1. Statutory Compliance

S. No	EC Conditions
1.1	The State Government concerned shall ensure that mining operation shall not be commenced till the entire compensation levied, if any, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of Judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India & Ors.
1.2	The Project proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in matter of Common Cause versus Union of India &Ors before commencing the mining operations.
1.3	The Project Authorities should widely advertise about the grant of this EC letter by printing the same in at least two local newspapers, one of which shall be in vernacular language of the concerned area. The advertisement shall be done within 7 days of the issue of the clearance letter mentioning that the instant project has been accorded EC and copy of the EC letter is available with the State Pollution Control Board/Committee and web site of the Ministry of Environment, Forest and Climate Change (www.parivesh.nic.in). A copy of the advertisement may be forwarded to the concerned MoEFCC Regional Office for compliance and record.
1.4	The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

S. No	EC Conditions
1.5	State Pollution Control Board/Committee shall be responsible for display of this EC letter at its Regional office, District Industries Centre and Collector's office/ Tehsildar's Office for 30 days.
1.6	A copy of EC letter will be marked to concerned Panchayat / local NGO etc. if any, from whom suggestion / representation has been received while processing the proposal.
1.7	The Project Proponent shall follow the mitigation measures provided in MoEFCC's Office Memorandum No. Z-11013/57/2014-IA.II (M), dated 29th October, 2014, titled "Impact of mining activities on Habitations-Issues related to the mining Projects wherein Habitations and villages are the part of mine lease areas or Habitations and villages are surrounded by the mine lease area."
1.8	The project proponent shall prepare a Site-Specific Conservation Plan & Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of Schedule-I species in the study area).
1.9	The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
1.10	The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
1.11	This Environmental Clearance (EC) is subject to orders/ judgment of Honble Supreme Court of India, Honble High Court, Honble NGT and any other Court of Law, Common Cause Conditions as may be applicable.
1.12	The Project Proponent shall inform the MoEF&CC for any change in ownership of the mining lease. In case there is any change in ownership or mining lease is transferred. PP needs to apply for transfer of EC as per provisions of the para 11 of EIA Notification, 2006 as amended from time to time.
1.13	The project proponent shall obtain the necessary permission from the Central Ground Water Authority, in case of drawl of ground water / from the competent authority concerned in case of drawl of surface water required for the project.
1.14	The project proponent shall obtain authorization under the Hazardous and other Waste Management Rules, 2016 as amended from time to time.

2.

S. No	EC Conditions
2.1	The Project Proponent shall carryout plantation/ afforestation in backfilled and reclaimed area of mining lease, around water body, along the roadsides, in community areas etc. by planting the native species in consultation with the State Forest Department/ Agriculture Department/ Rural development department/ Tribal Welfare Department/ Gram Panchayat such that only those species be selected which are of use to the local people. The CPCB guidelines in this respect shall also be adhered. The density of the trees should be around 2500 saplings per Hectare. Adequate budgetary

S. No	EC Conditions
	provision shall be made for protection and care of trees.
2.2	The Project Proponent shall make necessary alternative arrangements for livestock feed by developing grazing land with a view to compensate those areas which are coming within the mine lease. The development of such grazing land shall be done in consultation with the State Government. In this regard, Project Proponent should essentially implement the directions of the Hon'ble Supreme Court with regard to acquisition of grazing land. The sparse trees on such grazing ground, which provide mid-day shelter from the scorching sun, should be scrupulously guarded/ protected against felling and plantation of such trees should be promoted.

3. Air Quality Monitoring And Preservation

S. No	EC Conditions
3.1	The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each).covering upwind and downwind directions.
3.2	The project proponent shall install 24x7 continuous emission monitoring system at process stacks to monitor stack emission with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories. Monitor fugitive emissions in the plant premises.
3.3	Design the ventilation system for adequate air changes as per ACGIH document for all tunnels, motor houses, Oil Cellars.
3.4	The project proponent use leak proof trucks/dumpers carrying ore and other raw materials and cover them with tarpaulin.
3.5	The project proponent shall submit monthly summary report of continuous stack emission and air quality monitoring and results of manual stack monitoring and manual monitoring of air quality /fugitive emissions to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
3.6	Wind shelter fence and chemical spraying shall be provided on the raw material stock piles.
3.7	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed stack emission and fugitive emission standards.
3.8	The project proponent shall monitor fugitive emissions in the plant premises at least once in every quarter through labs recognised under Environment (Protection) Act, 1986. 9) The project proponent shall install system to carryout Continuous Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g., PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to S02 and NOx emissions) within and

S. No	EC Conditions
	outside the plant area at least at four locations (one within and three outside the plant area at an angle of 120 each), covering upwind and downwind directions.
3.9	Effective safeguard measures for prevention of dust generation and subsequent suppression (like regular water sprinkling, metalled road construction etc.) shall be carried out in areas prone to air pollution wherein high levels of PM10 and PM2.5 are evident such as haul road, loading and unloading point and transfer points. The Fugitive dust emissions from all sources shall be regularly controlled by installation of required equipments/ machineries and preventive maintenance. Use of suitable water-soluble chemical dust suppressing agents may be explored for better effectiveness of dust control system. It shall be ensured that air pollution level conform to the standards prescribed by the MoEFCC/ Central Pollution Control Board.
3.10	The Project Proponent shall install a minimum of 3 (three) online Ambient Air Quality Monitoring Stations with 1 (one) in upwind and 2 (two) in downwind direction based on long term climatological data about wind direction such that an angle of 120° is made between the monitoring locations to monitor critical parameters, relevant for mining operations, of air pollution viz. PM10, PM2.5, NO2, CO and SO2 etc. as per the methodology mentioned in NAAQS Notification No. B-29016/20/90/PCI/I, dated 18.11.2009 covering the aspects of transportation and use of heavy machinery in the impact zone. The ambient air quality shall also be monitored at prominent places like office building, canteen etc. as per the site condition to ascertain the exposure characteristics at specific places. The above data shall be digitally displayed within 03 months in front of the main Gate of the mine site.

4. Water Quality Monitoring And Preservation

S. No	EC Conditions
4.1	The water balance/water auditing shall be carried out and measure for reducing the consumption of water shall be taken up and reported to the Regional Office of the MoEF&CC and State Pollution Control Board/Committee.
4.2	Industrial waste water (workshop and waste water from the mine) should be properly collected and treated so as to conform to the notified standards prescribed from time to time. The standards shall be prescribed through Consent to Operate (CTO) issued by concerned State Pollution Control Board (SPCB). The workshop effluent shall be treated after its initial passage through Oil and grease trap.
4.3	The project proponent shall provide the slime disposal facility with impervious lining and collection wells for seepage. The water collected from the slime pond shall be treated and recycled.
4.4	Sewage Treatment Plant shall be provided for treatment of domestic wastewater to meet the prescribed standards.
4.5	Garland drains and collection pits shall be provided for each stock pile to arrest the run-off in the event of heavy rains and to check the water pollution due to surface run off.
4.6	The project proponent shall practice rainwater harvesting to maximum possible extent.
4.7	The project proponent shall make efforts to minimise water consumption in the steel plant complex by segregation of used water, practicing cascade use and by recycling treated water.

S. No	EC Conditions
4.8	Project Proponent shall regularly monitor and maintain records w.r.t. ground water level and quality in and around the mine lease by establishing a network of existing wells as well as new piezo-meter installations during the mining operation in consultation with Central Ground Water Authority/ State Ground Water Department. The Report on changes in Ground water level and quality shall be submitted on six-monthly basis to the Regional Office of the Ministry, CGWA and State Groundwater Department / State Pollution Control Board.
4.9	The project proponent shall submit monthly summary report of continuous effluent monitoring and results of manual effluent testing and manual monitoring of ground water quality to Regional Office of MoEF&CC, Zonal office of CPCB and Regional Office of SPCB along with six-monthly monitoring report.
4.10	The project proponent shall install 24x7 continuous effluent monitoring system with respect to standards prescribed in Environment (Protection) Rules 1986 as amended from time to time and connected to SPCB and CPCB online servers and calibrate these system from time to time according to equipment supplier specification through labs recognised under Environment (Protection) Act, 1986 or NABL accredited laboratories.
4.11	The Project Proponent shall undertake regular monitoring of natural water course/ water resources/ springs and perennial nallahs existing/ flowing in and around the mine lease including upstream and downstream. Sufficient number of gullies shall be provided at appropriate places within the lease for management of water. The parameters to be monitored shall include their water quality vis-à-vis suitability for usage as per CPCB criteria and flow rate. It shall be ensured that no obstruction and/ or alteration be made to water bodies during mining operations without justification and prior approval of MoEFCC. The monitoring of water courses/ bodies existing in lease area shall be carried out four times in a year viz. pre- monsoon (April May), monsoon (August), post-monsoon (November) and winter (January) and the record of monitored data may be sent regularly to Ministry of Environment, Forest and Climate Change and its Regional Office, Central Ground Water Authority and Regional Director, Central Ground Water Board, State Pollution Control Board and Central Pollution Control Board. Clearly showing the trend analysis on six-monthly basis.
4.12	Project Proponent shall plan, develop and implement rainwater harvesting measures on long term basis to augment ground water resources in the area in consultation with Central Ground Water Board/ State Groundwater Department. A report on amount of water recharged needs to be submitted to Regional Office MoEFCC annually.
4.13	The project proponent shall monitor regularly ground water quality at least twice a year (pre and post monsoon) at sufficient numbers of piezometers/sampling wells in the plant and adjacent areas through labs recognised under Environment (Protection) Act, 1986 and NABL accredited laboratories.
4.14	Adhere to Zero Liquid Discharge
4.15	Quality of polluted water generated from mining operations which include Chemical Oxygen Demand (COD) in mines run-off, acid mine drainage and metal contamination in runoff shall be monitored along with Total Suspended Solids (TDS), Dissolved Oxygen (DO), pH and Total Suspended Solids (TSS). The monitored data shall be uploaded on the website of the company as well as displayed at the project site in public domain, on a display board, at a suitable location near the main gate of the Company. The circular No. J- 20012/1/2006-IA.II (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change may also be referred in this regard.

S. No	EC Conditions
4.16	In case, immediate mining scheme envisages intersection of ground water table, then Environmental Clearance shall become operational only after receiving formal clearance from CGWA. In case, mining operation involves intersection of ground water table at a later stage, then PP shall ensure that prior approval from CGWA and MoEFCC is in place before such mining operations. The permission for intersection of ground water table shall essentially be based on detailed hydro-geological study of the area.

5. Noise And Vibration Monitoring And Prevention

S. No	EC Conditions
5.1	The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day /night hours.
5.2	The peak particle velocity at 500m distance or within the nearest habitation, whichever is closer shall be monitored periodically as per applicable DGMS guidelines.
5.3	The Project Proponent shall take measures for control of noise levels below 85 dBA in the work environment. The workers engaged in operations of HEMM, etc. should be provided with ear plugs /muffs. All personnel including laborers working in dusty areas shall be provided with protective respiratory devices along with adequate training, awareness and information on safety and health aspects. The PP shall be held responsible in case it has been found that workers/ personals/ laborers are working without personal protective equipment.

6. Noise Monitoring And Prevention

S. No	EC Conditions
6.1	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
6.2	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

7. Mining Plan

S. No	EC Conditions
7.1	The land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life shall be governed as per the approved Mining Plan. The excavation vis-à-vis backfilling in the mine lease area and corresponding afforestation to be raised in the reclaimed area shall be governed as per approved mining plan. PP shall ensure the monitoring and management of rehabilitated areas until the vegetation becomes self-sustaining. The compliance status shall be submitted half-yearly to the MoEFCC and its concerned Regional Office.

S. No	EC Conditions
7.2	The Project Proponent shall adhere to approved mining plan, inter alia, including, total excavation (quantum of mineral, waste, over burden, inter burden and top soil etc.); mining technology; lease area; scope of working (method of mining, overburden & dump management, O.B& dump mining, mineral transportation mode, ultimate depth of mining, concurrent reclamation and reclamation at mine closure; land-use of the mine lease area at various stages of mining scheme as well as at the end-of-life; etc.).

8. Energy Conservation Measures

S. No	EC Conditions
8.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
8.2	Provide LED lights in their offices and residential areas.

9. Land Reclamation

S. No	EC Conditions
9.1	The Overburden (O.B.), waste and topsoil generated during the mining operations shall be stacked at earmarked OB dump site(s) only and it should not be kept active for a long period of time. The physical parameters of the OB / waste dumps / topsoil dump like height, width and angle of slope shall be governed as per the approved Mining Plan and the guidelines/circulars issued by D.G.M.S. The topsoil shall be used for land reclamation and plantation.
9.2	The slope of dumps shall be vegetated in scientific manner with suitable native species to maintain the slope stability, prevent erosion and surface run off. The selection of local species regulates local climatic parameters and help in adaptation of plant species to the microclimate. The gullies formed on slopes should be adequately taken care of as it impacts the overall stability of dumps. The dump mass should be consolidated with the help of dozer/ compactors thereby ensuring proper filling/ leveling of dump mass. In critical areas, use of geo textiles/ geo-membranes / clay liners / Bentonite etc. shall be undertaken for stabilization of the dump.
9.3	Catch drains, settling tanks and siltation ponds of appropriate size shall be constructed around the mine working, mineral yards and Top Soil/OB/Waste dumps to prevent run off of water and flow of sediments directly into the water bodies (Nallah/ River/ Pond etc.). The collected water should be utilized for watering the mine area, roads, green belt development, plantation etc. The drains/ sedimentation sumps etc. shall be de-silted regularly, particularly after monsoon season, and maintained properly.
9.4	Check dams of appropriate size, gradient and length shall be constructed around mine pit and OB dumps to prevent storm run-off and sediment flow into adjoining water bodies. A safety margin of 50% shall be kept for designing of sump structures over and above peak rainfall (based on 50 years data) and maximum discharge in the mine and its adjoining area which shall also help in providing adequate retention time period thereby allowing proper settling of sediments/ silt material. The sedimentation pits/ sumps shall be constructed at the corners of the garland drains.

10. Waste Management

S. No	EC Conditions
10.1	The waste oil, grease and other hazardous waste shall be disposed of as per the Hazardous & Other waste (Management & Transboundary Movement) Rules, 2016.
10.2	Kitchen waste shall be composted or converted to biogas for further use.(to be decided on case to case basis depending on type and size of plant)

11. Transportation

S. No	EC Conditions
11.1	No Transportation of the minerals shall be allowed in case of roads passing through villages/ habitations. In such cases, PP shall construct a 'bypass' road for the purpose of transportation of the minerals leaving an adequate gap (say at least 200 meters) so that the adverse impact of sound and dust along with chances of accidents could be mitigated. All costs resulting from widening and strengthening of existing public road network shall be borne by the PP in consultation with nodal State Govt. Department. Transportation of minerals through road movement in case of existing village/ rural roads shall be allowed in consultation with nodal State Govt. Department only after required strengthening such that the carrying capacity of roads is increased to handle the traffic load. The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly. Vehicular emissions shall be kept under control and regularly monitored. Project should obtain Pollution Under Control (PUC) certificate for all the vehicles from authorized pollution testing centers. [If applicable in case of road transport].
11.2	The Main haulage road within the mine lease should be provided with a permanent water sprinkling arrangement for dust suppression. Other roads within the mine lease should be wetted regularly with tanker-mounted water sprinkling system. The other areas of dust generation like crushing zone, material transfer points, material yards etc. should invariably be provided with dust suppression arrangements. The air pollution control equipments like bag filters, vacuum suction hoods, dry fogging system etc. shall be installed at Crushers, belt-conveyors and other areas prone to air pollution. The belt conveyor should be fully covered to avoid generation of dust while transportation. PP shall take necessary measures to avoid generation of fugitive dust emissions.

12. Green Belt And Emp

S. No	EC Conditions
12.1	Green belt shall be developed in an area equal to 33% of the plant area with a native tree species in accordance with CPCB guidelines. The greenbelt shall inter alia cover the entire periphery of the plant
12.2	The project proponent shall prepare GHG emissions inventory for the plant and shall submit the programme for reduction of the same including carbon sequestration including plantation.

13. Public Hearing And Human Health Issues

S. No	EC Conditions
13.1	Occupational health surveillance of the workers shall be done on a regular basis and records

S. No	EC Conditions
	maintained as per the Factories Act.
13.2	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
13.3	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
13.4	The project proponent shall carry out heat stress analysis for the workmen who work in high temperature work zone and provide Personal Protection Equipment (PPE) as per the norms of Factory Act.
13.5	Project Proponent shall make provision for the housing for workers/labors or shall construct labor camps within/outside (company owned land) with necessary basic infrastructure/ facilities like fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche for kids etc. The housing may be provided in the form of temporary structures which can be removed after the completion of the project related infrastructure. The domestic waste water should be treated with STP in order to avoid contamination of underground water.

14. Green Belt

S. No	EC Conditions
14.1	The Project Proponent shall develop greenbelt in 7.5m wide safety zone all along the mine lease boundary as per the guidelines of CPCB in order to arrest pollution emanating from mining operations within the lease. The whole Green belt shall be developed within first 5 years starting from windward side of the active mining area. The development of greenbelt shall be governed as per the EC granted by the Ministry irrespective of the stipulation made in approved mine plan.

15. Corporate Environment Responsibility

S. No	EC Conditions
15.1	Self-environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
15.2	The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest I wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
15.3	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

S. No	EC Conditions
15.4	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
15.5	All the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) for the Mineral Beneficiation plants shall be implemented.
15.6	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

16. Miscellaneous

S. No	EC Conditions
16.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponents website permanently.
16.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
16.3	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
16.4	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
16.5	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
16.6	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
16.7	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

S. No	EC Conditions
16.8	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.
16.9	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities, commencing the land development work and start of production operation by the project.
16.10	The project proponent shall monitor the criteria pollutants level namely; PM10, S02, NOx (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
16.11	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.12	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
16.13	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.
16.14	Concealing factual data failure to comply with any or submission of false/ fabricated data and of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
16.15	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.
16.16	A separate 'Environmental Management Cell' with suitable qualified manpower should be set-up under the control of a Senior Executive. The Senior Executive shall directly report to Head of the Organization. Adequate number of qualified Environmental Scientists and Mining Engineers shall be appointed and submit a report to RO, MoEF&CC.
16.17	The Project Proponent shall submit six monthly compliance reports on the status of the implementation of the stipulated environmental safeguards to the MOEFCC & its concerned Regional Office, Central Pollution Control Board and State Pollution Control Board.
16.18	The Project Authorities should inform to the Regional Office regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.
16.19	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal

S. No	EC Conditions
	Act, 2010.
16.20	In pursuant to Ministrys O.M No 22-34/2018-IA.III dated 16.01.2020 to comply with the direction made by Honble Supreme Court on 8.01.2020 in W.P. (Civil) No 114/2014 in the matter Common Cause vs Union of India, the mining lease holder shall after ceasing mining operations, undertake regrassing the mining area and any other area which may have been disturbed due to other mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc.
16.21	The Project Proponent shall prepare digital map (land use & land cover) of the entire lease area once in five years purpose of monitoring land use pattern and submit a report to concerned Regional Office of the MoEF&CC.
16.22	The concerned Regional Office of the MoEF&CC shall randomly monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the MoEF&CC officer(s) by furnishing the requisite data / information / monitoring reports.

17. Corporate Environment Responsibility (Cer)

S. No	EC Conditions
17.1	The Project Proponent shall submit the time- bound action plan to the concerned regional office of the Ministry within 6 months from the date of issuance of environmental clearance for undertaking the activities committed during public consultation by the project proponent and as discussed by the EAC, in terms of the provisions of the MoEF&CC Office Memorandum No.22-65/2017-IA.III dated 30 September, 2020. The action plan shall be implemented within three years of commencement of the project.

Additional EC Conditions

1. The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules made there under and also any other orders passed by the Hon'ble Supreme Court of India/High Court and any other Court of Law relating to the subject matter.

Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.

Detail of the Project:

The details of the project as ascertained from the document submitted by the Project Proponent are given as under:

i. Project details:

<table>
<tr><td>Name of the Proposal</td><td colspan="2">Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa</td></tr>
<tr><td rowspan="6">Location</td><td>Village</td><td>Santona</td></tr>
<tr><td>Tehsil/Taluka</td><td>Sanguem</td></tr>
<tr><td>District</td><td>South Goa</td></tr>
<tr><td>State</td><td>Goa</td></tr>
<tr><td colspan="2">Latitudes & Longitudes</td></tr>
<tr><td colspan="2">All the co-ordinates of the lease boundary corner points as per the approved DGPS Plan from Directorate of Mines and Geology, Govt. of Goa are given as below:
<table>
<tr><th>Pillar No.</th><th>Pillar Latitude (dd:mm:ss.ss)</th><th>Pillar Longitude (dd:mm:ss.ss)</th></tr>
<tr><td>BP 1</td><td>15° 17' 58.2803"N</td><td>74° 09' 31.3905"E</td></tr>
<tr><td>BP 2</td><td>15° 18' 02.6197"N</td><td>74° 09' 29.8008"E</td></tr>
<tr><td>BP 3</td><td>15° 18' 08.7974"N</td><td>74° 08' 55.2583"E</td></tr>
<tr><td>BP 4</td><td>15° 17' 40.1839"N</td><td>74° 09' 03.3467"E</td></tr>
</table></td></tr>
</table>

	BP 5	15° 17' 30.9847"N	74° 09' 08.5955"E
	BP 6	15° 17' 01.6125"N	74° 09' 13.1548"E
	BP 7	15° 17' 12.4794"N	74° 09' 41.2969"E
	BP 8	15° 17' 13.0200"N	74° 09' 44.8333"E
	BP 9	15° 17' 16.8213"N	74° 09' 43.9885"E
	BP 10	15° 17' 19.1419"N	74° 09' 40.8072"E
	BP 11	15° 17' 23.3295"N	74° 09' 36.4971"E
	BP 12	15° 17' 26.7696"N	74° 09' 33.4331"E
	BP 13	15° 17' 30.5546"N	74° 09' 31.2826"E
	BP 14	15° 17' 36.0551"N	74° 09' 29.0348"E
	BP 15	15° 17' 40.9091"N	74° 09' 28.2686"E
	BP 16	15° 17' 44.5813"N	74° 09' 28.2599"E
	BP 17	15° 17' 49.1710"N	74° 09' 29.2119"E
	BP 18	15° 17' 54.4169"N	74° 09' 30.5870"E
	Sol Topo sheet No.		48 I/3 (D43C3)
Company's Name	Fomento Resources Private Limited		
Accredited Consultant and certificate no. and Validity	Accredited Consultant : Mineral Engineering Services Certificate No. : NABET/EIA/2326/RA 0296 Validity : 15/05/2026		
KML file	Submitted as a file named: Block IV - Kalay Mineral Block		
Seismic zone	III		

ii. Category details:

Category of the project	B1
Schedule No.	1(a) Mining of Minerals
Mining lease Area (MLA) (in ha.)	152.5073 Ha

General Conditions (if any)	Bhagwan Mahaveer Wildlife Sanctuary & National Park is within 5km from the boundary of the Block IV – Kalay Mineral Block

iii. ToR/EC Details:

- PP had obtained ToR on 08.01.2024 Kalay Mineral Block- Block IV (Auction Block) of M/s Fomento Resources Private Limited for mining of Iron Ore with production capacity of 0.75 MTPA, Waste 3.0 MTPA in the mine lease area of 152.5073 Ha, located at Village Santona, Sanguem Taluka, South Goa District, Goa.
- PP further obtained Amendment of ToR on 19.11.2024 w.r.t to standard condition no. 2.1, i.e. PP shall submit a certificate from Chief Conservator of Forests regarding involvement of forest land in the mining lease area if any, In case forest land is involved. i) PP should submit a proof of application made for obtaining and ii) a map clearly showing the forest and non-forest area.

Date of application	Proposal No/ File No	Consideration by EAC	Details of EC	Date of accord
21/03/2025	IA/GA/MIN/529454/2025	16/06/2025	The proposal was considered & deferred in the 44th EAC meeting	15 to 16th May 2025
	IA/GA/MIN/529454/2025	25.06.2025	The proposal was re-considered in the 46th EAC meeting.	25 to 26th June 2025

iv. Details of Mine Lease in chronological manner:

S.no	Prospecting License/ Letter of Intent (LoI)/ Grant of Mine lease and Lr No	Date of the grant	Name of the Mineral & (Major / Minor)	Period of Grant	Granted by	Mine lease area in Ha
1	Letter of Intent No. DMG/25/Auction cell/LOI-function/2023/2804, dated 13/01/2023 read with letter No.	13/01/2023	Iron Ore (Major)	LOI valid for 3 years	Directorate of Mines and Geology	152.5073

	03/18/2023/Major/Mines/3286 dated 13/03/2023					

v. Land Use/ Land Cover of the Mine Lease Area:

Private land	72.9675 Ha
Government land	58.4068 Ha
Forest land	21.1330 Ha
Total Mining lease area (MLA), ha	152.5073 Ha
Private land for crusher, workshop & other infrastructure outside the MLA	Nil

vi. Mining plan details:

Mining Plan including Progressive Mine Closure Plan (approved by Indian Bureau of Mines/DMG)	Letter No.	MCDR-MPC0FE/6/2024-GOA-IBM_RO_GOA
	Date	23/08/2024
	Mineral & (Major/Minor)	Iron Ore (Major)
	Mine Lease Area, Ha	152.5073 Ha
	Validity	50 years
Mining Parameters	Quantitative Description	
Method of Mining	Mechanized Opencast Mining	
Drilling/Blasting	Not proposed	
Geological Reserves	16.731 Million Tonnes (Geological Reserves & Resources)	
Mineable Reserves	8.188 Million Tonnes	
Breakup of Total Excavation (Topsoil/ OB/ SB/ IB/ Mineral Rejects/ Waste, MTPA)	Breakup of Total Excavation ROM (Iron Ore) : 0.75MTPA Topsoil : Nil OB/SB/IB/Waste : 3.0 MTPA Mineral Rejects : Nil	
Life of mine	24 years	

Mine Bench Height & Bench Width	Mine Bench height : 6m Mine Bench width : 8m
No. of Mine Benches	13 (existing)
Existing Depth, m bgl	62 (average)
Ultimate Depth of Mining, m bgl	102
Ground Water Table, m bgl	5 to 10
Details of ground water intersection	Block IV - Kalay Mineral Block is already having broken mining pits and has intersected groundwater table at 39 MSL.
Individual bench slope	63°
Overall pit slope	30°
Details of existing/ proposed Crusher	There is no proposal for engaging crusher.
Mineral Beneficiation	Nil
RoM output size	- 80 mm.
Transportation details including capacity of dumper/ tipper, mode of transport and distance	The mode of transportation of ore from the Mine is by road engaging tipper trucks of 10.5 tonnes capacity. The distance proposed to be travelled for transportation of ore from Mine to the jetty/destination is about 14 Km.
Generation of Topsoil/OB & its Management during plan period & conceptual period	There is no generation of Topsoil as the working is proposed in already broken-up area. Waste (OB) generated will be dumped at the earmarked site as per Approved Mining plan within the mining lease area. Waste (OB) generated during the conceptual period will be backfilled in the exhausted pit and rehabilitated.
Generation of Mineral Rejects/ Waste & its Management during plan period & conceptual period	There is no generation of Mineral Rejects.

vii. Water requirement:

Total water requirement	300LKD	Fresh water	255 KLD
		Treated water	45 KLD
Source	1. Rain & storm water accumulated in the Mine Pit will be used for dust suppression, workshop, wheel wash system and green belt/plantation. 2. Open well water will be used for domestic purpose.		
Permission for withdrawal/ intersection along with details of grant and its validity	The Water Resources Department, Goa, has issued permission for drawl of water vide letter No. 3682 and is valid upto 05/06/2026.		

viii. Nearest village/ town/ highway/ interstate boundary/ railway station/ water bodies/ monument/ forest

Particulars	Particular's Name	Distance & Directions
Village	Santona Village	The Mineral Block is located within Santona village.
Town	Sanvordem Town	6.0 km by road in the South-West direction.
Highway	State Highway SH-7	1.27 km by road in the West Direction.
Interstate Boundary	Karnataka	10.03 km
Railway Station/ Railway line	Kalay Railway station	4.0 km by road in the East Direction.
Water Bodies	Kalay River	5m from the Eastern boundary of the Mineral Block.
Forest	Bhagwan Mahaveer Wildlife Sanctuary	1.04 km from the Eastern Boundary of the Mineral Block.

ix. Presence of Environmentally Sensitive areas in the study area

Forest Land/ Protected Area/ Environmental Sensitivity Zone	Yes/No	Details of Certificate/letter issued by the concerned Department mentioning the Lr no, date of grant and remarks
Forest Land within the mine lease area and (if	Yes	The proposal has been accorded *"In-principle"* approval for the Stage-I clearance for

yes) status of Forest Clearance		diversion of Forest land for an area of 21.133 ha vide letter dated 12/05/2025.
National Park	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block.
Wildlife Sanctuary	Yes	Bhagwan Mahaveer Wildlife Sanctuary & National Park is at a distance of 1.04 Km from the boundary of Mineral Block. Netravali Wildlife Sanctuary is at a distance of 6.42 km from the boundary of Mineral Block.
Elephant/ Tiger Reserve	No	Nil
Eco-Sensitive Zone(ESZ)/ Eco-Sensitive Area (ESA)	Yes	The Mineral Block does not fall within any of the Eco-Sensitive Areas of Western Ghats.
Coastal Regulation Zone (CRZ)	No	--
Schedule-I species (No.s and name of schedule-I species with authenticated letter)	Yes	Details regarding Schedule-I species with authenticated letter is provided at page nos. 429 to 452 in the EIA report. Letter dated 13.02.2024 issued by Deputy conservator forests, Goa.
Wildlife Conservation Plan	Yes	A Wildlife Conservation Plan has been prepared and submitted to the Chief Wildlife Warden, Goa vide letter dated 05/03/2024. As directed by the EAC vide its Minutes dated 03/06/2025, the activities and budget in the Wildlife Conservation Plan has been reviewed and the same is incorporated in the EIA & EMP report. The budget of the previous plan of Rs. 12.5 Lakhs is revised to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan.

x. Green belt/ plantation details:

Proposed area for green belt/plantation	Proposed areas to be brought under plantation at conceptual stage, is as given below: 1. Greenbelt – 3.0288 Ha

and no. of saplings proposed	2. Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
Budget for green plant & plantation till the end of life of mine.	2.10 Crores
Budget for nursery	Saplings from Forest Department, Government of Goa will be procured for plantation.
Details of existing plantation and its survival rate	Details of existing plantation within the Mineral Block is given below: 1. Stabilized Dumps: 5.5992 Ha 2. Mined out area reclaimed & rehabilitated: 3.1150 Ha 3. Survival rate: 80% The plantation was carried out by the erstwhile Mining Lessee.
No. of tree cuts in the mine lease area and compensatory afforestation	No. of trees which will be cut within the mining area is 1881. Felling of trees will be carried out after obtaining Stage-II Forest Clearance. The Project Proponent has committed and proposed to transfer an area of 21.1330 Ha bearing survey no. 11/1 of Antoriem Village of Sanguem Taluka, towards Compensatory Afforestation, in the name of Forest Department. Necessary funds (₹1.56Cr) will be provided to the Forest Department towards Compensatory Afforestation, for a period of 10 years.
Particulars for Green belt/ plantation	Area covered (in Ha)
7.5 m barrier & non-mineralized zone	Proposed areas to be brought under plantation at conceptual stage, is as given below: Greenbelt – 3.0288 Ha Plantation – 86.9390 Ha Total – 89.9678 Ha Plantation of around 2500 saplings per hectare is proposed.
50 m safety zone of nallah, roads, electric lines	

500 m safety zones of nearest habitation villages	Drilling and blasting activity is not proposed.

xi. Baseline detail:

Baseline Data (Air / Water / Noise / Soil / Hydro geological study/ Traffic Study/ others)	
Period of baseline data collection	March 2023 to May 2023
Season (Summer/ Pre-monsoon/ Post-monsoon/ Winter)	Summer 2023
Predominant Wind direction (From)	West
Ambient Air Quality (no. of locations) and results	Ambient Air Quality No. of locations: 8 As per the NAAQS of Central Pollution Control Board (CPCB), levels of parameters such as Ammonia, Benze ne, Benzo-(a)-pyrene, Arsenic & Nickel analyzed were well below detectable limits (BDL), well within the standards. SO2- A maximum value of 15.0 µg/m3 was observed a t Kalay Mineral Block & SFIPL plant area and minimu m value of 6.0 µg/m3 was observed at the seven Monit oring stations, i.e., Costi, Kalay, Devanamol, Cormonem, Bandoli, Kalay Mineral Block and SFIPL Plant Office. Oxides of Nitrogen (NO2)- A maximum value of 18.0 µg/m3 was observed at Kalay and Cormonem Villages and minimum value of 8.0 µg/m3 was observed at CG L Plant Office. Particulate Matter (PM10)- A maximum value of 57 µ g/m3 was observed at Costi village and minimum value of 26.0 µg/m3 was observed at Cormonem village. Respirable Particulate Matter (PM2.5)

	A maximum value of 42.0 µg/m3 was observed at Bandoli Village and minimum value of 15.0 µg/m3 was ob served at Kalay, Cormonem and Bondli Villages. The Free Silica content in PM10 Filter paper was Belo w Detectable Level
Noise level (no. of locations) and results	Noise Levels No. of locations: 8 Ambient noise quality monitoring results for all the stations for the Summer season 2023. Noise monitoring in Leq for both Day & Night.
Water Quality (no. of locations) and results	Surface Water Quality The analysis results were compared to Stream Water Standards IS 2296, 1982 Class C norms for surface water bodies. Zuari River, the parameters TDS and Chlorides were exceeding the limits due to the influence of creek water. Surface water quality- Surface water samples were collected from 6 locations, of which one is pit water sample and the remaining 5 surface water samples were from buffer zone. All the parameters were found to be well within the permissible limits. Ground Water Quality No. of locations: 8 The open well samples were found to have slightly acidic pH. This is possibly due to the occurrence of lateritic soil. The soil is rich in Iron and Aluminum oxides and hence it makes the ground water slightly acidic in nature, while all other parameters were found to be within permissible limits
Soil Quality (no. of locations) and results	Soil Quality No. of locations: 7 The dominant soil type observed in the mining lease is red soil (Clay Loam). The results show that the pH of soil was between 6.19 to 6.22. Texture varied from sandy clay to clay loam. Electrical Conductivity ranged from 0.248 to 0. 363 mhos/cm, which is a measure of the soluble salts and ionic activity in the

	soil. All other parameters analysed were observed to be within permissible limits.
Hydro geological study and results	PP has submitted hydrogeological study report vide dated September 2023. PP has conducted the Hydrological study as per the guidelines issued by the Central Ground Water Authority
Traffic study (no. of locations) and results	PP has submitted the analysis of traffic counts provides an estimate of average daily traffic (ADT). As per guidelines for capacity of roads in rural areas of IRC, recommended design series volumes for two lane roads are 1 5000 PCU/day.

xii. Public Hearing (PH) Details:

Advertisement for PH with date (name of major national daily and one regional vernacular daily newspaper)	Date of Advertisement for PH : 18.12.2024 Newspapers: Major national daily Newspapers: Times of India & Dhainik Bhaskar Mumbai Edition Regional Newspapers: Bhangarbhuim, Tarun Bharat
Date of PH	29.01.2025
Venue	Sarvajanik Ganesutsav Mandal Hall, Sanvordem, Sanguem Taluka, South Goa District, Goa.
Chaired by	Dy. Collector and Sub Divisional Magistrate Sanguem Taluka, South Goa District, Goa.
Main issues raised during PH	Main issues raised during Public Hearing are as below- - Support for education - Providing health care - Water resources & providing sanitation facilities - Support for Agriculture/ Horticulture/Plantation - Assistance to cultural/ religious activities - Assistance to sports and cultural clubs

Budget proposed for addressing issues raised during PH over 3 years	100.8 Lakhs

xiii. Details of CTE/ CTO, Certified Compliance Report, Certified Production Details from the inception of the mine:

Particulars	Details of Letter along with date of grant and validity
Consent to Establish	Application for CTE will be filed after obtaining Environmental Clearance.

xiv. Rehabilitation & Resettlement (R&R):

R & R details	As per the EIA-EMP report submitted, this proposed project area does not have any habitation in the Mining Lease Area. Hence, no Rehabilitation & Resettlement Plan is required.

xv. Court case details:

Court Case, No and its present status	Writ Petition 592 of 2022 in Hon'ble High Court of Bombay at Goa stands dismissed vide order dated 12.02.2024. Nil Court Cases / Litigations pending
Undertaking by Project Proponent w.r.t court case	PP has submitted an undertaking vide letter dated 13.03.2025, stated that no litigation/ court case is pending against the project.

xvi. Affidavit/Undertaking details:

Affidavit as per Ministry's OM dated 30.05.2018	PP has submitted an affidavit vide letter dated 05.03.2025 on its letter head as per the Ministry's OM dated 30.05.2018
Undertaking by Project Proponent in EIA/EMP report	PP has submitted an undertaking vide letter dated 09.05.2025
Undertaking by Consultant in EIA/EMP report	The Consultant has submitted an undertaking for preparation of EIA-EMP report in its letter head dated 05.03.2025
Plagiarism Certificate	PP has submitted software generated Plagiarism certificate (Plagiarism Checker X -Report) vide letter dated 11.03.2025

xvii. PP has submitted the point-wise reply on 05.05.2025 against the EDS raised on 21.04.2025 as mentioned below:

S. No	EDS Point	Reply by Project Proponent
1	PP needs to submit the stage I Forest Clearance for the Forest land of 21.133ha involved in the ML area	"In-principle" approval for the Stage- I Forest Clearance is recommended by Forest Advisory Committee vide minutes of the meeting held on 16/04/2025. A copy of abstract of the Minutes of Meeting dated 16/04/2025 showing the approval of Advisory Committee has been submitted.
2	PP needs to submit a tangible and monitorable Environment Management Plan (EMP)	PP has submitted a tangible and monitorable Environment Management Plan (EMP).
3	PP needs to submit a tangible and monitorable Public Hearing action plan	PP has submitted a tangible and monitorable Public Hearing action plan.

B. Project was considered in 44th EAC meeting held during 15-16th May 2025, the committee has raised the ADS. PP has submitted point wise reply vide letter dated 12.06.2025 against the ADS raised on 03.06.2025 as mentioned below:

S. No	ADS Point	Reply by Project Proponent
ADS 1 – dated : 03/06/2025		
i.	The Project Proponent may obtain a No Objection Certificate (NOC) from the Archaeological Survey of India for the village temple at Devnamol (Dukarkond), located at a distance of 0.3 km from the project site, if necessary.	The Archaeological Survey of India, Government of India, Goa Circle, Church Complex, Old Goa vide its letter dated 17/06/2025, has provided list of protected monuments of National importance under the jurisdiction of Archaeological Survey of India, Goa Circle. The village temple at Devnamol (Dukarkond) located at a distance of 0.3 km from the project site is not included in the list of protected monuments provided by the Archaeological Survey of India, Goa Circle. As village temple at Devnamol (Dukarkond) is not protected monument, NOC from Archaeological Survey of India is not necessary. A copy of letter dated 17/06/2025.
ii.	The Project Proponent must comply with the directions issued by the Hon'ble High	In terms of the directions of Hon'ble High Court of Bombay at Goa and as per the order dated 29.06.2024, in Writ Petition (PIL) No.

	Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology and prepare a transportation plan accordingly (PP to adhere to the report of DMG and GSPCB).	06/2024, Directorate of Mines and Geology Goa and Goa State Pollution Control Board have devised a Standard Operating Procedure (SOP) to be followed by the Project Proponent. The salient points of the said SOP is enumerated as below: 1. The transporter will first approach the Directorate of Mines and Geology for approval of the route of transportation. 2. The Directorate of Mines and Geology will examine the applications and decide upon the route to be allowed for transportation. 3. Upon such approval, the transporter will apply to the GSPCB for setting up monitoring stations on the route. 4. After the GSPCB sets up the stations, the transporter will then apply to the DMG for transit permits, which shall be accordingly decided by DMG. 5. The transporter upon receiving transit permit shall ensure that all conditions of transportation are adhered and complied. 6. All trucks shall be registered with the Department and fitted with GPS. 7. GEL shall continuously monitor vehicle speed and any Violation 8. The timing of the Ore Transportation along the designated route should be from 8.00 am to 1.00 pm with a break from 1.00 pm to 2.00 pm and then transportation can continue from 2.00 pm to 5.45 pm from the source location. 9. GEL should ensure that no trip sheets are generated beyond the prescribed time so that transportation of Ore happens only within the specified time. 10. The truck/tippers engaged in transportation of ore shall have sufficient

		free board after filling the cargo box to avoid spillage. 11. All trucks/tippers engaged in the transportation of ore shall be covered with tarpaulin. 12. In case of breakdown of loaded trucks/tippers unloading of ore at the road side shall be strictly avoided. 13. The roads within mining lease areas shall be sprinkled with water to suppress dust pollution. 14. Spillage of ore on the public roads shall be removed immediately on occurrence. 15. The mining company should make suitable arrangement for sweeping of roads affected due to transportation of iron ore. 16. The mining firm should manage the daily trips in staggered manner in consultation with DMG, so that traffic congestion is avoided at major junctions. 17. Road sweeping machines may be jointly/severally developed in hotspot areas/ stretches. 18. The shoulders of the mining transport roads may be tarred whenever needed. A transportation plan prepared in accordance with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024. Further, the Project Proponent undertakes to comply with the directions issued by the Hon'ble High Court of Bombay at Goa, as per the order dated 29.06.2024, in Writ Petition (PIL) No. 06/2024 titled Mulakh Khajan Farmers Association vs The Directorate of Mines and Geology.

iii.	A comprehensive plan must be prepared by the Project Proponent to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. PP should submit a detailed plan for withdrawal intersection, flow of groundwater also need to be furnished and disposal of groundwater. Consultation in this regard should be done with CGWA/SGWB.	A comprehensive plan has been prepared to address potential overflow of water from the open mine pit during heavy rainfall or other events since groundwater table has already intersected. The brief summary of the comprehensive plan is enumerated as below: a. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. b. In any unlikely event of overflow, resources in terms of manpower and pumping capacity of 58,560 Cubic Meter per Day is available to deal any emergency so as to disallow the overflow of water from the open mine pit during heavy rainfall or other events. c. Therefore, the intersection of groundwater table has no role to play in the overflow of water from the mine pit during heavy rainfall. d. As per the data, the volume of water received as rain precipitation in the watershed area of the Mineral Block during monsoon is about 5.00 million m3 and the volume of storage capacity available in form of mine pits is 8.50 million m3 and therefore, no chance of overflow. e. In any event, the project proponent has resources in terms of manpower and machinery (a set of 3 nos. of pumps of 500 Cum/Hr, 2 nos. of pump with 400 Cum/Hr along with1 no. of pump of 140 Cum/Hr to carryout pumping operations in case of any emergency so as to not allow the overflow of water from the open mine pit during heavy rainfall or other events.

		Therefore, the volume of storage capacity available in the mining pit is in excess of 3.5 million m3 (difference) and therefore has no potential overflow of water from the open mine pit during heavy rainfall or other events. The brief summary of plan for disposal of groundwater is as follows: 1. The water available in the mine pits are primarily from the storm water received by the Mineral Block during the monsoon season. 2. The proposed pumping in the pits is during the non monsoon period by way of engaging pumps in terms of the approval accorded for drawl of water from WRD, Government of Goa. 3. The rain accumulated mining pit water if any should be routed through settling ponds and filter beds. 3. The Project Proponent will operate and maintain Oil and Grease Trap (ETP) for the effluent generated from the Workshop. 4. The domestic wastewater shall be treated in a properly designed septic tank and discharged on land for percolation through soak pit of adequate size within the unit premises. 5. To prevent siltation of rivers/ nallahs/ fields catch drains, toe wall, filter bed, check dam, garland drains, arrest wall and siltation/settling ponds shall be maintained around reject dumps for settlement of suspended particles and to prevent siltation. 6. The Project Proponent will maintain the pumping schedule for pumping the rain accumulated water from the mining pit. 7. The Project Proponent will strive to implement suitable conservation measures to augment ground water resources wherever possible in the area. 8. The Project Proponent will not deviate in any

		way from specification regarding well, pump etc. mentioned above without approval of Water Resource Department, Government of Goa. 9. Care shall be taken that the drawl of water shall not interfere with the normal activities of the locality nor shall it cause any traffic hazard. 10. The Project Proponent has installed two Peizometers of type (DWLR with Telemetry System) for monitoring the Ground Water Levels within the core area of mining lease for observation & monitoring. 11. Monitoring the Ground Water level in the buffer zone in the established network of existing wells in the buffer zone (as per table 10 of the Hydrogeology report), will be monitored on monthly basis and submitted to Ground Water Officer (WRD) and CGWB. 12. The project proponent will monitor the water quality of the mines seepage and mine discharge through NABL accredited/ Government approved laboratory on monthly basis to WRD and CGWB, Bangalore. 13. Also, the water quality of the seasonal nallah in the upstream and downstream direction and the Kalay River in the upstream and downstream direction will be monitored on regular basis through NABL accredited/ Government approved laboratory on monthly basis and the same will be submitted to WRD Goa and CGWB, Bangalore. 14. The Project Proponent will ensure that the water available from the dewatering operations is properly treated and the quantity shall be utilized for supply to irrigation/dust suppression/mining process. 15. The Project Proponent will install digital water meter for measurement of the

<table>
<tr><td></td><td></td><td>quantity of water abstraction.
16. All activities committed in the report on ground water recharge and rainwater harvesting in the Hydrogeology report will be implemented satisfactorily.
Comprehensive plan for treatment and disposal of ground water has been prepared and submitted with ADS reply.

The Comprehensive plan has been submitted to WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>iv.</td><td>The Project Proponent must also prepare a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area. SPCB and State Water Resources Department should be consulted in this regard.</td><td>The Kalay River is situated outside the Block-IV Kalay Mineral Block on the eastern side of the Block and flows from South to North. The distance of the river from the boundary pillars adjoining the Kalay river is shown below:
<table><tr><th>Sr.No</th><th>Boundary Pillar</th><th>Distance (Km)</th></tr><tr><td>1</td><td>BP-1</td><td>0.120</td></tr><tr><td>2</td><td>BP-2</td><td>0.125</td></tr><tr><td>3</td><td>BP-8</td><td>0.017</td></tr><tr><td>4</td><td>BP-9</td><td>0.005</td></tr><tr><td>5</td><td>BP-10</td><td>0.085</td></tr><tr><td>6</td><td>BP-11</td><td>0.175</td></tr><tr><td>7</td><td>BP-12</td><td>0.245</td></tr><tr><td>8</td><td>BP-13</td><td>0.390</td></tr><tr><td>9</td><td>BP-14</td><td>0.350</td></tr><tr><td>10</td><td>BP-15</td><td>0.360</td></tr><tr><td>11</td><td>BP-16</td><td>0.425</td></tr><tr><td>12</td><td>BP-17</td><td>0.600</td></tr><tr><td>13</td><td>BP-18</td><td>0.146</td></tr></table>The distance of ultimate pit limit of Pit no.1 from the Kalay river is 430 metres and the distance of ultimate pit limit of Pit no.3 from the Kalay river is 350 metres.

The Project Proponent has prepared a detailed plan to safeguard the Kalay River, flows 0.005 km from the eastern boundary of the mining lease area and the nearest distance of ultimate pit limit of Pit no.1 from</td></tr>
</table>

		the Kalay River is 430 metres. The nearest distance of ultimate pit limit of Pit no.3 from the Kalay River is 350 metres. The Project Proponent has prepared a detailed plan to safeguard the Kalay River, which flows just 0.005 km from the eastern boundary of the mining lease area and the same is submitted to Goa State pollution Control Board (GSPCB) and WRD, Govt. of Goa for their consultation vide our letter dated 06/06/2025. The salient features of the said detailed plan to safeguard the Kalay River is enumerated as below: a. The surface rainwater during monsoon will be diverted in the mining pits for sedimentation of solid suspended particles. Water will be treated with lime and flocculants for effective sedimentation. b. During fair season, pumped out accumulated rain and stormwater will be pumped out will be passed through series of settling ponds before final discharge. c. Plantation will be carried out along the seasonal nallah to prevent soil erosion. d. De-siltation activity will be carried out post monsoon each year from the settling ponds and garland drains and dumped the same at the designated places within the Block area. e. Mandatory annual cleaning of garland drains will be an integral part of the project, commencing before the post monsoons and no later than the end of May each year. f. Velocity droppers will be provided, if deemed necessary, particularly during monsoons. g. Routine maintenance including the periodic creation of bunds to optimize the

<table>
<tr><td></td><td></td><td>proper controlled flow of stormwater into garland drains.

h. Pre-monsoon maintenance of bunds in the nalla to ensure effectiveness.

i. Implementation of proposed drop structures to regulate the velocity of stormwater flow.

A detailed plan to safe guard Kalay River is prepared and consulted with the Goa State Pollution Control Board (GSPCB) and State Water Resources Department.

GSPCB vide letter dated 18/06/2025 has provided consulted report.</td></tr>
<tr><td>v.</td><td>The Project Proponent should consult the State Water Resources Department or an institute of National repute to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.</td><td>The Highest Flood Level (HFL) for the Kalay river is 36.6 MSL as declared and conspicuously displayed and maintained on the Railway bridge for the information of the general public.

Further, PP have already submitted a letter dated 06/06/2025 for consultation with WRD, Govt. of Goa to obtain High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease area.

A copy of the letter dated 06/06/2025 submitted to WRD, Govt. of Goa for obtaining High Flood Level (HFL) data for the Kalay River and the seasonal nallah that flows within the mining lease.</td></tr>
<tr><td>vi.</td><td>The Project Proponent needs to submit an action plan for the treatment and disposal of mine pit water.</td><td>As on date the approximate volume of water accumulated in Pit-1 is 2.45 million m3 (at 39.2 MSL) and in Pit-3 is 4.75 million m3(at 39.2 MSL).

1. As per the approved mining plan the mine working levels in the mine pits for the first five years are as follows:
<table>
<tr><th>Year</th><th>Pit 1 Max Depth of Workings (msl)</th><th>Pit 3 Max Depth of Workings (msl)</th></tr>
</table>
</td></tr>
</table>

Year 1	41	35
Year 2	35	29
Year 3	23	11
Year 4	23	5
Year 5	23	-7

2. Further, as per the approved mining plan the proposed maximum conceptual working depth in pit 1 and pit 3 is -37 msl and -37 msl respectively.

3. It should also be noted that as per the approved mining plan pit 2 is not proposed for any excavation and the present maximum depth of the pit is 36.2 msl.

4. The surface runoff water stored in these mining pits will be systematically and scientifically pumped to carry out mining operations as per the approved mining plan.

5. In terms of the Approved Mining Plan, the year wise volume of the water to be pumped is as follows:

Year	Volume of rain/ storm water to be pumped in million Cum		
	Pit 1	Pit 3	Total
Year 1	1.19	1.55	2.74
Year 2	2.73	2.64	5.37
Year 3	2.91	3.98	6.89
Year 4	1.92	1.94	3.86
Year 5	1.92	1.54	3.46

6. As you aware that, Hydrogeological Study was carried out by the qualified groundwater expert Mr. M.C. Reddy, Formerly Regional

		Director, Accredited Consultant of Central Ground Water Authority for Mining Projects & NABET and the final report after consultation was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, which was examined and permission for drawl of water was granted by WRD on 16/04/2024. The Project proponent has prepared an action plan for the treatment and disposal of mine pit water in terms of the permission explained herein above. A brief summary of the same is as follows: 1. The storm water diverted to mine pits where it is stored for a period of over 4 months allowing recharging of ground water and settlement of suspended solids in the mining pits. 2. The accumulated mine pit water will be treated by adding lime and flocculants for faster settlement of suspended solids. 3. The mine pit water will be sampled and analysed as per schedule VI of Environmental (Protection) Act, 1986, before its discharge from the mine. 4. The upstream and downstream of the seasonal nallah and Kalay river water will be analysed as per IS: 2296 standards. 5. During non-monsoon season, the mine pit water will be pumped and allowed to pass through network of garland drains, trenches and Settling Ponds. 6. The garland drain will be laid with tarpaulin or stone pitching to prevent wash-off of soil and erosion of garland drains by the pumped water.

		7. It is proposed to incorporate small pits at every 100m along the length of the garland drains as measures for velocity droppers. This provision facilitates the smooth entry of the pumped storm water into the settling ponds. 8. The storm water, pumped from will be passed through a series of settling ponds, where it undergoes a sequential retention process. These interconnected settling ponds play a crucial role in refining storm water for the Mineral Block. Gravity facilitates the flow between the settling ponds. 9. Water will be treated at strategic settling ponds by adding lime and flocculants for faster settlement of suspended solids. 10. To further enhance water quality, multiple check dams will be strategically positioned across the seasonal drain, functioning as effective filter barriers. 11. Only clear water will be allowed to be discharged outside the mining lease area. 12. Regular de-silting of all the garland drains and settling ponds will be carried out every year before the onset of monsoon. 13. Regular monitoring of surface water will be undertaken to monitor the quality of water discharged from the pit.
vii.	The Project Proponent must engage a qualified groundwater expert or any national Institute working in this domain to assess the seepage of surface water into the groundwater system, and submit a detailed report accordingly. Consultation with CGWA/ SGWB can also be taken in this regard.	As explained above, the Project Proponent in compliance with the conditions of ToR granted on 08/01/2024 had engaged a qualified groundwater expert Mr. M. C. Reddy, Former Regional Director, Central Ground Water Board and Accredited Expert of Central Ground Water Authority for mining projects & NABET (HG & GEO) to carry out a comprehensive hydrogeological and impact assessment studies including seepage of surface water into ground water system in and around the Block IV – Kalay Mineral Block. The copy of comprehensive

		hydrogeological studies in and around the Block IV – Kalay Mineral Block This Hydrogeological Study report was submitted to Sr. Hydrogeologist & Member Secretary Goa Ground Water Cell, Office of Sr. Hydrogeologist, Water Resources Department, Porvorim Goa, on 03/01/2024. The Hydrogeological report was examined by the Ground Water Cell during its 131st meeting dated 19/03/2024 and pursuant to the examination of Hydrogeological report our application for permission was granted by WRD on 16/04/2024. Further, the Project Proponent had also engaged Government of Goa, Goa College of Engineering, Farmagudi, Goa to carry out a comprehensive study on the engineering design for garland drains, settling tanks, check dams and their efficacy for Block IV - Kalay Mineral Block and likelihood of river water entering into the mine pit below the RL of the HFL and the measures that are required to be taken for the prevention of seepage and in the event of seepage to drain out the water through settling tank along with measures to be taken for the protection of the river in the vicinity of the mine lease area due to mining activity. The copy of comprehensive study done by Government of Goa, Goa College of Engineering, Farmagudi, Based on the study done by the qualified ground water expert to assess the seepage of surface water into ground water, a detailed report has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025. A detailed report based on the study done by the qualified ground water expert to assess the seepage of surface water into ground

<table>
<tr><td></td><td></td><td>water, has been prepared and submitted to WRD, Govt of Goa for their consultation vide our letter dated 06/06/2025.</td></tr>
<tr><td>viii.</td><td>PP should incorporate construction of ETP associated with Oil & Grease trap in its Environment Management Plan.</td><td>PP has incorporated the construction of ETP associated with Oil & Grease trap in its Environment Management Plan. The cost of setting up ETP associated with Oil & Grease trap is 15 lakhs and will be set up within 3 months after getting permissions.

A copy of the details of water treatment system associated with eco-tank, Oil & Grease trap.</td></tr>
<tr><td>ix.</td><td>PP should review the activities and budget in the Wildlife Conservation Plan.</td><td>PP has reviewed the activities and budget in the Wildlife Conservation Plan and also the same is incorporated in the EIA & EMP.

Accordingly, the PP has revised the budget of the previous plan of Rs. 12.5 Lakhs to Rs. 78.05 Lakhs in the new revised Wildlife Conservation Plan. The revised Budget Layout for Implementation of Wildlife Management & Mitigation Plan is shown as below:
<table>
<tr><th>S.No</th><th>Measures</th><th>5 Year Cost (in Rupees)</th></tr>
<tr><td>1</td><td>A vehicle (2-Wheeler) with rescue equipment</td><td>1.50</td></tr>
<tr><td rowspan="5">2</td><td>Conservation measures</td><td rowspan="5">24.41</td></tr>
<tr><td>Wildlife census and monitoring</td></tr>
<tr><td>Fire prevention measures</td></tr>
<tr><td>Capacity building for mitigating human-wildlife conflicts</td></tr>
<tr><td>Nursery development</td></tr>
<tr><td>3</td><td>Veterinarian Support</td><td>3.07</td></tr>
<tr><td>4</td><td>Creation and maintenance of waterholes as per site conditions and habitat</td><td>9.17</td></tr>
</table>
</td></tr>
</table>

		5	Enrichment planting of native species such as Ficus, Eugenia, Emblica, etc., palatable to the wildlife in buffer areas	12.21
		6	Development and Maintenance of plantation in buffer zone	3.07
		7	Awareness programmes	3.07
		8	Watch and Ward	14.63
		9	Conservation measures within Project Areas	6.92
			Plantation/ greenbelt development within Project area.	
			Post –Plantation care	
			Total	78.05
		A copy of the revised Wildlife Conservation Plan along with the relevant page related to the new budgetary provision and the copy of the relevant portion of this revised Wildlife Conservation Plan shown in the Final EIA & EMP report.		

xviii. Details of the Environmental Management Plan (EMP):

S. No.	Activities	Proposed budget	
		Capital Cost (₹) in Crores	Recurring Cost (₹) in Lacs
1	Air Pollution control Measures		
A	Dust Suppression by water tankers	0.451	8.00
	No. of water tankers – 2 (10 m3 capacity)		
	No. of trips/day – 10 (@₹400/- per trip)		
	No. of working days – 200 = 10 x 400 x 200 = ₹ 8,00,000/-		
B	Road maintenance by Motor Grader		6.00

	Working hours – 300 (@₹2000/-)		
	No. of working days – 200 (8 month) = 2000 x 300 x 200 = ₹ 6,00,000/-		
C	Wheel washing system		8.00
	Capital - Installation cost – ₹25,00,000/-		
	Recurring - Maintenance cost – ₹10,000/- per month		
	- Operational cost - ₹90,000/- per month		
	- No. of working days – 200 (8 months) = 1,00,000 x 8 = ₹ 8,00,000/-		
D	Road washing with water tanker (Ambeaudoc)		2.00
	No. of water tankers – 1 (10 m3 capacity)		
	No. of trips – 2 trips/day (@ ₹500/- per trip)		
	No. of working days – 200 = 2 x 500 x 200 = ₹ 2,00,000/-		
E	Road sweeping machine		12.00
	Truck mounted sweeping machine – 1 (@₹3000/- per hour) (2hr daily)		
	No. of working days – 200 = 3000 x 2 x 200 = ₹ 12,00,000/-		
F	Permanent water sprinkler		1.20
	Sprinkler installation – ₹1000/- per meter		
	Length of pipeline – 1000m		
	Pump cost (2HP) – ₹50000/-		
	Operational cost – ₹1,20,000/- per year Capital Installation Cost – 1000 x 1000 = 100000 + 50000 = ₹ 10,50,000/- Recurring cost – 15000 x 8 = ₹ 1,20,000/-		
G	Green net along road (400 m)		0.10

	Installation cost with frame - ₹2400/m Capital Cost = 2400 x 400 = ₹ 9,60,000/- Recurring Maintenance Cost - ₹ 10,000/- per year		
2	Water Pollution Control Measures		
A	Settling ponds	0.4873	3.90
	No. of settling ponds - 7		
	Total capacity - 14,070 m3		
	Capital Construction cost (₹110/m3) = ₹ 15,47,700		
	Recurring Maintenance Cost – ₹3,90,000/-		
B	Drains and Trenches (6350 m)		6.35
	Capital Construction Cost – ₹300/ m = 6350 x 300 = ₹ 19,05,000/- Recurring Maintenance Cost – ₹ 100/m = 6350 x 100 = ₹6,35,000/- per year		
C	Protective Bunds (1225m) Construction cost – ₹1000/m =1225 x 1000 = ₹ 12,25,000/- Recurring Maintenance Cost – ₹ 100/m = 1225 x 100 = ₹ 1,22,500/- per year		1.20
D	Use of Coco Filters and other miscellaneous cost		0.10
E	ETP Associated with Oil and Grease trap for workshop	0.15	--
3	Fire protection systems	0.02	0.16
4	a. Continuous Air Quality monitoring CAAQMS (1 no)	0.10	7.00
5	Greenbelt along Boundary 7.5 Meter safety zone and Plantation within ML Area (5 years) Sapling and plantation cost @₹ 75/plant	0.35	1.75

	Maintenance cost @ ₹ 25/plant		
6	Solar energy (15kw) @ ₹ 40,000/kw Solar Street lights (30watts) @ ₹ 20,000/unit Annual maintenance cost @ ₹ 20,000/month	0.10	2.00
7	Sanitary Facility (4no)	0.03	0.20
8	Health check-up Total Staff - 127 @ ₹1200/person	---	1.50
9	Personal Protective Equipment (PPEs) Safety Shoes + Helmets + Gloves etc	---	1.20
10	Environmental awareness & training	---	0.25
11	Environment Monitoring Program Cost	---	16.40
12	Silpauline covering on ore stack	---	5.00
13	Traffic control	---	14.00
Total		1.6883	98.31
14	Budget for the Wildlife Conservation Plan (updated) for 5 years		78.05

xix. Details of project cost and employment:

Particulars	(Rs. In Crore)
Total cost of EMP (Capital Cost of EMP + capital cost of Public hearing)	Capital Cost of EMP : 1.6883 Capital Cost of Public Hearing: 1.0080 Total : 2.5463
Project Cost	Rs.3680 Lakhs
Employment (Nos.)	327

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Signature Not Verified

Digitally Signed by : Rajeev Ranjan
Member Secretary, MoEFCC (EC)

Date: 22/08/2025

MOST URGENT

GOVERNMENT OF GOA
Office of the Principal Chief Conservator of Forests
"Goa Van Bhawan"Forest Department
Altinho, Panaji, Pin 403001

Ph: - 0832-2492548, 2492231 **Email: dcfme-forest.goa@nic.in**

No. 6-13(177)-2025-26-FD/3560 Dated: 18/11/2025

To
Shri. Sandeep Morazkar, (General Manager)
Fomento Resources Private Limited,
102, 1st Floor, Kamat Metropolis-I,
Behind Caculo Mall, St. Inej,
Panaji-Goa-403001.

Sub: Mining proposal under Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980 for diversion of 21.133 ha of forest area within Block-IV Kalay Mineral Block, in Sy. No. 26/1(p), 43/1(p), 27/p & 28/p of Santona Village, of Sanguem Taluka, South Goa District & Division in favour of Fomento Resources Pvt. Ltd.-**Approval of Wildlife Conservation Plan & Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies-reg**

Ref: 1. This office letter no. 6-13(177)-2024-25-FD/3447 dated 10.11.2025
2. Your office letter No. NIL dated 11.11.2025
3. Your office letter No. Nil dated 17.11.2025

Sir,

With reference to your letter dated 11.11.2025 & 17.11.2025 in the above mentioned subject, I am directed to convey the approval of the Competent Authority w.r.t. the Wildlife Conservation Plan, Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies submitted by you for the instant proposal with the following conditions.

1. The Wildlife Conservation Plan with the financial outlay of Rs. 161.31 Lakhs shall be executed by the DCF (WL&ET, South) / DCF (South).

2. The Soil Conservation Plan with the financial outlay of Rs. 50.825 Lakhs shall be executed by the Soil Conservation Division of this Department.

Further, as per the undertaking submitted by you, necessary compliance shall be ensured as per the approved items of works in Wildlife Conservation Plan, Soil Conservation Plan and Action Plan for Desilting of Identified Village Tanks & Water Bodies in consultation with the concerned DCF's.

This is for information & necessary action.

Yours faithfully,

18.11.2016

Dy. Conservator of Forest
Monitoring & Evaluation.

Copy for information to:

1. The PA to PCCF, Goa for kind information to the PCCF, Goa.
2. The PA to APCCF / Nodal Officer (VSESA), O/o. PCCF, Goa Van Bhawan, Altinho-Panaji-Goa for kind information to the APCCF / Nodal officer VSESA.
3. The Dy. Conservator of Forests, South Goa Division for raising the demand note for payment of levies towards Wildlife Conservation Plan / Soil Conservation Plan, accordingly.

WILDLIFE CONSERVATION PLAN

of

Block IV – Kalay Mineral Block

Area : 152.5073 Ha
located in Santona Village,
Sanguem Taluka, South
Goa District, Goa

PROPONENT

Fomento Resources Private Limited,
1st Floor, 102, Kamat metropolis -1,
Behind Caculo Mall, St. Inez
Goa- 403001

November - 2025

Approved.

Addl. Pr. Chief Conservator of Forests &
Chief Wildlife Warden,
Panaji - Goa

EIA Consultant

MINERAL ENGINEERING SERVICES
25/XXV, Club Road, BALLARI-583103, Karnataka
email : mes_msraju@yahoo.co.uk
Tel: 08392-267421/9448367421

Preface

Wildlife is an integral part of our planet's natural heritage, sustaining ecological balance, cultural identity, and the health of ecosystems upon which human life depends. However, rapid urbanization, habitat loss, climate change, and unsustainable resource use have placed unprecedented pressures on biodiversity.

This Wildlife Conservation Plan with respect to Block IV – Kalay Mineral Block has been proposed as a strategic framework to protect, restore, and sustainably manage wildlife populations and their habitats with the assistance of the local Forest Department and local community. It draws upon scientific research, community knowledge, and conservation best practices to address both current challenges and future threats.

The plan emphasizes a multi-stakeholder approach, recognizing that effective conservation requires the active participation of government agencies, local communities, researchers, industry, and civil society. It outlines targeted actions, measurable goals, and monitoring mechanisms to ensure that conservation efforts remain adaptive and effective over time.

By safeguarding our wildlife today, we are investing in a healthier and more resilient environment for generations to come

ACKNOWLEDGEMENTS

The successful development and completion of the Wildlife Conservation Plan and Soil and Moisture and Conservation Plan is a testament to the dedication and collaboration of numerous individuals and organizations. We extend our deepest gratitude to all who contributed their time, resources, and expertise.

Partners and Collaborators We acknowledge the invaluable partnerships with federal, state, and non-governmental agencies that provided critical data, logistical support, and strategic direction:

- The Forest Department, Government of Goa.
- Fomento Resources Private Limited, for providing opportunity for preparing the plan.
- The local bodies/communities for their on-the-ground support and community outreach.
- **Technical and Scientific Guidance** Special thanks are due to the scientists and technical experts who guided the plan's methodology and analysis:
- Dr. H. Chetan for his/her ecological review.

We are grateful to the community members and stakeholders who participated in public forums and provided constructive feedback, ensuring this plan reflects the collective conservation vision of the region.

This conservation plan is truly a collaborative achievement, and we look forward to working with all of our partners to implement its goals for the long-term benefit at Core Zone and Buffer zone of Block IV – Kalay Mineral Block wildlife and natural habitats.

MINERAL ENGINEERING SERVICES

Consulting Mining & Environmental Engineers, 25/XXV, Club Road, Ballari -583103.
Phone : 08392-267421/268365, Mobile : 9448367421

PAN No. ACBPR9146B GST No. 29ACBPR9146B1ZI

M.S. Raju, M.Tech., M.I.E.
Consultant

UNDERTAKING

We Mineral Engineering Services having a registered office address 25/XXV, club road, Ballari, hereby undertake the following in respect of the wildlife conservation plan prepared for Block-IV Kalya Mineral Block located in Santona Village, Sanguem Taluka, South Goa District, Goa State.

1. *That the Wildlife conservation plan has been prepared as per the guidelines issued by Goa Forest department.*
2. *That all schedules of species (as per Wildlife Protection Act, 1972 as amended 2022) occurring in and around the project have been duly considered. The plan includes site specific conservation measures, Budget estimates, monitoring and reporting framework. . The information data, maps and recommendations provided in the WLCP are true and are based on field survey authenticated secondary sources and expert consultant.*

Declaration

We declare that the above statements are true to the best of our knowledge and belief and that no material information has been concerned

Signature:

Name : **M S Raju**

Designation : ***(QCI)*** **- NABET Consultant**

Date: 26.08.2025
Place: Ballari

Website : www.envtest.com Email : mes_msraju@yahoo.co.uk / mesblr25@gmail.com

BANGALORE : 948,2nd Cross, Kammanahalli Main Road, Behind Super Stores,
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GOA : 22/120/2, Bay View Colony, Near Ocean Heights, Donapaula, Goa-403004 , Cell : 9234537S4.

FOMENTO RESOURCES

Undertaking

I, Sandeep Morajkar, authorised representative of Fomento Resources Private Limited, hereby undertake that we have prepared the Wildlife Conservation Plan and Soil Moisture Conservation Plan for Block IV – Kalay Mineral Block, located at Village Santona of Sanguem Taluka, South Goa District, Goa, ad that we will adhere to the Guidelines issued by the State Forest Department, Government of Goa for preparation of Site-Specific Wildlife Conservation Plan and Soil Moisture Conservation Plan and the report.

Date: 03/10/2025

Place: Panaji, Goa

Sandeep Morajkar

(Authorised Representative)

FOMENTO RESOURCES PVT. LTD. FRPL GOA

National Accreditation Board for Education and Training

Certificate of Accreditation

Mineral Engineering Services

2S/ XXV, Club Road, Bellary, Karnataka – 583103

The organization is accredited as Category-A under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA/EMP reports in the following Sectors-

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	A
2	Mineral Beneficiation including pelletisation	7	2 (b)	A

Note: Scopes of approved EIA Coordinators and Functional Area Experts are mentioned in their names dated May 30, 2025, posted on QCI-NABET website.

The accreditation shall remain in force subject to continued compliance to the terms and conditions as mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/EIA/FEB25/0048 dated May 30, 2025. The surveillance visit is to be ensured before the expiry date. Mineral Engineering Services, Bellary following due process of assessment.

Valid up to
May 29, 2028

Issue Date
May 30, 2025

Certificate No.
NABET/EIA/2528/SA 0244

Prof (Dr.) Virender S Kanwar
CEO - NABET

For the update of list of accredited EIA Consultant Organizations with approved Sectors, please refer to QCI-NABET website

Annexure II:- Minutes of the Meeting

NATIONAL ACCREDITATION BOARD FOR EDUCATION & TRAINING
QUALITY COUNCIL OF INDIA
Scheme for Accreditation of EIA Consultant Organizations
Accreditation Committee Meeting for Surveillance Assessment held on May 27, 2025 (Virtual Mode)

The following members were present during the meeting:

1.	Dr. P L Ahujarai	Chairperson
2.	Prof. C P Kaushik	Member
3.	Dr. Gurdeep Singh	Member
4.	Dr. Sarala Balachandran	Member
5.	Prof. Arun K Srivastava	Member
6.	Dr. V P Upadhyay	Member
7.	Dr Siby John	Member
8.	Dr. Satya Prakash Pandey	Member

Sh. Jagminder Kataria- Joint Director, Dr. Yati Kachhawa- Deputy Director, Ms. Chinmayi Salooja - Accreditation Officer from NABET-QCI were present in the meeting.

1.0 Case for Surveillance Assessment

The following cases were discussed, and decisions were taken as noted below.

1.1 Mineral Engineering Services, Bellary

The ACO has been assessed as per Version 3 of the Scheme, the assessment was conducted through Video Conference mode from 5-6 May 2025. The result of the Surveillance assessment (SAS) is given below:

Assessment conducted by:

- PA: Mr. Virendra Misra; CA: Mr. A. B. Harapanahalli

1.1.1 Sectors approved for EIA Coordinators (ECs):

a. Assessed as per SA norms – for ECs approved earlier:

Sl. No.	Name	Earlier approval status (in RA/subsequently)		Approval status (after SA)		Remarks
		Sectors approved	Cat.	Sectors approved	Cat.	
In-house						
1.	Mandapati Sachin Raju	1	A	CA	A	None
2.	Mandapati Satyanarayana Raju	1	A	CA	A	None
Empanelled-None						

b. Assessed as per IA norms – for new Sectors of approved ECs and fresh ECs proposed:

Sl. No.	Name	Sectors			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1.	Mandapati Sachin Raju	7	No	No	-	Not Recommended as not meeting the EIA related experience. Accepted as Team Member
2.	Mandapati Satyanarayana Raju	7	Yes	Yes	A	Including palletisation
Empanelled						

1.1.2 Functional Areas (FA) approved for Functional Area Experts (FAEs)

a. Assessed as per SA norms – for FAEs approved earlier:

Sl. No.	Name	Earlier approval status (in RA /subsequently)		Approval status (after SA)		Remarks
		FAs approved	Cat.	FAs approved	Cat.	
In-house						

Sl. No.	Name	Earlier approval status (in RA /subsequently)		Approval status (after SA)		Remarks
		FAs approved	Cat.	FAs approved	Cat.	
1.	Kankipati Narayana Murthy	SE	A	CA	A	None
2.	Mandapati Sachin Raju	AP	A	CA	A	None
		AQ	A	CA	A	None
		WP	A	CA	A	None
3.	Mandapati Satyanarayana Raju	Geo	A	CA	A	None
		NV	A	CA	A	None
		RH	A	CA	A	None
		SHW	-	-	-	Candidature Withdrawn
4.	H C Chetan	EB	A	CA	A	None
Empanelled						
5.	B C Nagaraja	LU	A	CA	A	None
		SC	A	CA	A	None
6.	Neeraj Kumar Sharma	HG	A	CA	A	None
		LU	A	CA	A	None

b. Assessed as per IA norms – approved experts for new functional areas and fresh FAEs proposed:

Sl. No.	Name	Functional Area			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1.	Mandapati Sachin Raju	SHW	Yes	Yes	A	None
2.	B C Nagaraja	EB	Yes	Yes	A	None
3.	Durga Prasad M R	AP	Yes	Yes	B	None
		LU	Yes	Yes	B	None
		SC	No	No	-	Not Recommended due to lack EIA related experience. Accepted as Team Member
4.	K Janaki	WP	Yes	Yes	B	None
Empanelled						

Sl. No.	Name	Functional Area			Cat.	Remarks
		Applied	Recommended	Approved		
5.	Neeraj Kumar Sharma	Geo	Yes	Yes	A	None

1.1.3 Functional Area Associates (FAA):

a. FAA Proposed:

Sl.No.	Name	FA Applied	Approved	FAE/Mentor	Remarks
In-house					
1.	K Janaki	EB	Yes	H C Chetan	None
		RH	No	-	Not meeting the Educational qualification as per the scheme

1.1.4 Team Members (TM):

a. As EC:

Sl.No.	Name	Sector Applied	Accepted	Approved EC (to work under)	Remarks
In-house					
1.	Mandapati Sachin Raju	7	Yes	Mandapati Satyanarayana Raju	None

b. As FAE:

Sl.No.	Name	FA Applied	Accepted	Approved FAE (to work under)	Remarks
In-house					
1.	Durga Prasad M R	SC	Yes	B C Nagaraja	None

Non-Conformances (NC)/ Observations (Obs)/ Opportunity for Improvement (OFI):

- **Quality Management System (QMS):**

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CHAPTER -1
INTRODUCTION

1.1 INTRODUCTION

1.1.1 BRIEF NOTE ON THE PROJECT

Block IV – Kalay Mineral Block, having an area of 152.5073 Ha is located in Santona Village, Sanguem Taluka, South Goa District, Goa State.

Government of Goa, through Directorate of Mines and Geology (DMG), issued Notice Inviting Tender (NIT) on 30/09/2022 in accordance with the Mineral (Auction) Rules, 2015. As per the said NIT, the auction process for Block IV – Kalay Mineral Block for Iron Ore mineral was conducted. Upon conclusion of the aforesaid auction, DMG, Government of Goa, declared Fomento Resources Private Limited as Preferred Bidder on 22/12/2022. Pursuant to the declaration as Preferred Bidder, DMG was pleased to issue the Letter of Intent (LOI) dated 13/01/2023 for an area of 179.1826 Ha. Further, vide letter dated 13/03/2023, DMG, Government of Goa revised the area of the Block from 179.1826 Ha. to 152.5073 Ha., excluding the Eco Sensitive Zone (ESZ) with respect to Bhagwan Mahaveer Wildlife Sanctuary and National Park for the grant of Mining Lease for Block IV - Kalay Mineral Block for Iron Ore Mineral.

Furtherance to the issuance of LOI dated 13/01/2023 read with letter dated 13/03/2023, the Project Proponent is in the process of obtaining various Consents, Approvals, Permits, No Objection Certificates (NOC) as required under applicable laws for commencement of mining operations.

Upon obtaining all the requisite Consents, Approvals, Permits, No Objection Certificates (NOC), Mine Development Production Agreement (MDPA) will be signed and subsequently Mining Lease Deed will be executed. The Mining Lease will be valid for a period of 50 years from the date of registration of executed Mining Lease Deed.

1.1.2 STATUTORY CLEARANCES

a. **Mining Plan**

Mining Plan was prepared and submitted to Indian Bureau of Mines for its approval for the proposed production capacity of 0.75 MTPA under the provisions of Rule 16(1) of MCR 2016. Mining Plan was approved by the Indian Bureau of Mines (IBM), Goa Region vide letter No. MCDR-MPC0FE/2/2023-GOA-IBM_RO_GOA dated 30/06/2023. Subsequently, in view of the involvement of forest area of 21.1330 Ha. (Unclassed Forest having an area of 18.2210 Ha. and an area of 2.912 Ha. as prospective Private Forest), confirmed by the Office of the Principal Chief Conservator of Forest, Forest Department, Goa vide their letter dated 19/06/2024, the Mining Plan was accordingly modified and approved by the IBM, vide letter No. MCDR-MPC0FE/6/2024-GOAIBM_RO_GOA dated 23/08/2024.

b. **Environmental Clearance**

Block IV - Kalay Mineral Block has been granted Environmental Clearance for the production of 0.75 Million Tonnes Per Annum (MTPA) of Iron Ore, by MoEF&CC vide its file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025.

c. **Forest Clearance:**

An online application was filed under Section 2 of the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, bearing proposal no. FP/GA/MIN/QRY /472990/2024 dated 15/05/2024, for diversion of the Forest land admeasuring an area of 21.1330 Ha.

for non-forestry use and was granted Stage-I "In-Principle" approval vide letter dated 12/05/2025.

1.1.3 PROJECT PROPONENT & ADDRESS

Fomento Resources Private Limited is the project proponent; details are provided herein below:

Registered Address: Fomento Resources Private Limited
1st Floor, 102, Kamat Metropolis -I
Behind Caculo Mall, St. Inez
Panaji, Goa- 403001

Email : fomento@fomento.com
Phone no. : 0832 7141000

1.1.4 LOCATION OF THE PROJECT

The proposed project is located in Santona Village, Sanguem Taluka, South Goa District, Goa State. The boundary pillars of the Mineral Block are given below in Table 1.1. The project falls in the Survey of India Toposheet No. D43C3 (48 I/3) as shown in **Map-1**.

Table 1.1: Boundary co-ordinates of the Mineral Block as per DGPS plan

Mineral Block Boundary Pillar Nos.	Co-ordinates (Datum: WGS84)	
	Latitude (Northing)	Longitude (Easting)
BP-1	15° 17' 58.2803"	74° 09' 31.3905"
BP-2	15° 18' 02.6197"	74° 09' 29.6008"
BP-3	15° 18' 08.7974"	74° 08' 55.2583"
BP-4	15° 17' 40.1839"	74° 09' 03.3467"
BP-5	15° 17' 30.9847"	74° 09' 08.5955"
BP-6	15° 17' 01.6125"	74° 09' 13.1548"
BP-7	15° 17' 12.4794"	74° 09' 41.2969"
BP-8	15° 17' 13.0200"	74° 09' 44.0333"
BP-9	15° 17' 16.8213"	74° 09' 43.9885"
BP-10	15° 17' 19.1419"	74° 09' 40.8072"
BP-11	15° 17' 23.3295"	74° 09' 36.4971"
BP-12	15° 17' 26.7696"	74° 09' 33.4331"
BP-13	15° 17' 30.5546"	74° 09' 31.2826"
BP-14	15° 17' 36.0551"	74° 09' 29.0348"
BP-15	15° 17' 40.9091"	74° 09' 28.2686"
BP-16	15° 17' 44.5813"	74° 09' 28.2599"
BP-17	15° 17' 49.1710"	74° 09' 29.2119"
BP-18	15° 17' 54.4169"	74° 09' 30.5870"

A Google Earth Image showing the lease boundary of the Mineral Block is given in **Fig-1**.



Fig-1: Google Earth Image showing the lease boundary of the Mineral Block

The Mineral Block is located 1.27 Km from State Highway Road No. SH-7 (Sanvordem-Dabal-Dharbandora Road). National Highway NH748 connecting the States of Karnataka and Goa runs on the North-North East side of the Mineral Block at an aerial distance of approximately 7.0 Km. Jetties are accessible via State Highway SH-6 & SH-7 and gives access to Zuari River, one of the major waterways, which opens into Arabian Sea.

1.1.5 BRIEF DESCRIPTION OF NATURE AND SIZE OF THE PROJECT

The proposed project is a fully mechanized opencast mine having an area of 152.5073 Ha. The project is of standalone type and will involve extraction of Iron Ore.

Based on the exploration details provided in the Geological Report by the Directorate of Mines and Geology, Govt. of Goa, the total mineral reserves/resources of Iron Ore as on 01.02.2023 is 16.731 Million Tonnes. The proposed extraction capacity of Iron Ore is 0.75 MTPA.

Survey of India Toposheet (open series map), RESOURCESAT-2 LISS IV were used for preparing the Wildlife Conservation plan.

1.2 GEOMORPHOLOGY & TOPOGRAPHY

1.2.1 TOPOGRAPHY

The topography of the Study area is undulating & hilly with gentle gradient of 10 to 20 degrees towards east. Highest elevation in the study area is 640 m MSL in South East direction.

In the core zone the highest level is 102 m MSL towards North East of lease on Dump no. 1 and lowest level is -0.5 m MSL towards North of lease in pit no.3. There is a seasonal nalla flowing across the block from west to east and joins Kalay River flowing towards the eastern side of the block boundary.

1.2.2 CLIMATE

The climate of the area is tropical and is largely influenced by the Arabian Sea. The area experiences three seasons viz. Summer (March to May), Monsoon (June to October) and Winter (November to February). Average rainfall of about 4000mm is observed during the monsoon season in the area. The temperature varies from a minimum of about 16°C during Winter season to a maximum of 36°C during Summer season. Relative humidity has been observed between 60% to 100% during the year. Average wind velocity has been observed around 0.3 Km/hr with the predominant wind direction being in the SW-NE.

1.2.3 GEOMORPHOLOGY

Geomorphologically, the state is divided into four morphological units namely;

1. The coastal plains with dominant marine land forms on the west,
2. Vast etch plain,
3. Low dissected denudational hills with valleys
4. Deeply dissected high Western Ghats with denudational hills rising to a maximum of 832m amsl and occurring all along the eastern part of the state.

The 10km buffer zone study area comprises of stretched low lying plains, hills and valleys along with the deeply dissecting high Western Ghats with denudational hills. Many first order streams originate from the hilltop downwards forming a dendritic drainage pattern. The Geomorphology Map of the study area is given vide **Map-2.**

1.2.4 DRAINAGE PATTERN

Regionally, dendritic drainage pattern is observed in the 10km buffer zone with many first order streams originating from the hilltop downwards flowing into major rivers. The study area comprises of the rivers such Kalay River, Zuari River and Dhudsagar River. The main drainage for this Mineral Block is the Kalay River flowing from South to North towards the eastern side of the block boundary.

The catchment area of Kalay River is all high ground towards eastern of the block to a distance of 5 to 6 kms from the Kalay River.

Also a second order seasonal drainage exists outside the Mineral Block which flows from the north west of the block towards the south and flows across the Mineral Block from west to east, ultimately joining Kalay River. The catchment area for the seasonal drainage is all high ground towards west of the lease to a distance of 300 to 600 meters from the drainage.

Distances & directions to some of the important rivers and reservoirs from the Mineral Block in the buffer zone are given in **Table 1.2 & 1.3** respectively.

Table 1.2: Distance & Direction of Rivers within buffer zone

Name of the River/Stream/Nallah	Distance from Project Site (Km)	Direction from Project Site
Kalay River	0.005	East
Dhudsagar River	4.00	North – North East
Mahadayi River	4.3	North
Zuari River	3.79	South
Sanguem River	5.66	South
Panduranga Nala	6.55	West - North West
Ugem River	5.57	South
Udani River	8.80	North West
Guloli River	7.20	South
Paroda River	8.60	South West

Table 1.3: Distance & Direction of Reservoirs within buffer zone

Name of the Reservoir	Distance from Project Site (Km)	Direction from Project Site
Salaulim Dam	7.83	South
Moissal Dam	4.32	West

1.2.5 Existing and proposed infrastructure

The Block IV - Kalay Mineral Block is an e-auctioned block. Mineral Block was in operation from the late 1950s until 2018. Since the mine was in operation prior to 2018, much of the mining lease area has already been developed into mine pits and dumps, wherein, mine benches, haul roads, and boundary pillars are already in place. Further, infrastructure such as office, workshop, etc. already exists and only need maintenance.

Project Proponent will engage workmen from the local villages and do not have any labour camp within the forest land and also have no future proposals for such labour camps in the forest land.

Transportation of products from the project area to the jetties will be carried through already existing State Highways SH-7 and SH-6 and internal mine roads which is about 12km to 14km.

1.3 DEMOGRAPHIC STATUS AS PER 2011 CENSUS

1.3.1 DEMOGRAPHIC DETAILS

There are 51 villages in the buffer zone. These villages are in Sanguem, Dharbandora, Ponda, Quepem & Salcete Talukas of Goa state. The total population of these villages is 113340 according to the 2011 census. As per Census 2011 villages Antortem and Salaulim are uninhabited. The village population size varies widely as it ranges from a minimum of 8 persons in Moissal to a maximum of 22,730 persons in Curchorem-Cacora (Municipal Council). The sex ratio is 993 males per 1000 females according to 2011 census. List of villages in the study area and its population as per census 2011 is given in Table 1.4 and total population distribution is given in Fig-2.

Table 1.4: Population as per census 2011

S. No.	Name	No_HH	TOT_P	TOT_M	TOT_F
1	Colem	995	4195	2092	2103
2	Sigao	405	1724	879	845
3	Sangod	236	1083	557	526
4	Cormonem	152	645	358	287
5	Codli	884	3801	1955	1846
6	Camarconda	173	793	395	398
7	Moissal	2	8	5	3

8	Bandoli	231	1060	512	548
9	Rumbrem	131	646	300	346
10	Santona	343	1403	739	664
11	Calem	574	2683	1316	1367
12	Maulinguem	72	354	178	176
13	Dudal	97	446	229	217
14	Costi	196	881	503	378
15	Coranginim	9	32	14	18
16	Comprol	150	620	301	319
17	Mugali	119	508	225	283
18	Uguem	608	2557	1248	1309
19	Sanguem (M Cl)	1545	6444	3162	3282
20	Sanvordem (CT)	1187	5103	2552	2551
21	Assolda	309	1257	634	623
22	Bati	438	1933	959	974
23	Chandor	184	707	307	400
24	Conxem	39	186	94	92
25	Cotarli	258	1121	563	558
26	Curchorem-Cacora (M Cl)	5667	22730	11601	11129
27	Darbandora	672	2991	1493	1498
28	Dongurli	339	1534	753	781
29	Gulrdolim	909	3622	1736	1886
30	Macasana	503	1972	880	1092
31	Molcorona	93	457	224	233
32	Molcarnem	347	1507	707	800
33	Molem	383	1715	883	832
34	Nagvem	100	475	238	237
35	Nirancal	406	1772	880	892
36	Odar	143	569	284	285
37	Oxel	633	2794	1329	1465
38	Padem	60	292	158	134
39	Ponchavadi	931	4295	2140	2155
40	Sancordem	273	1233	624	609
41	Siroda	3197	14041	6886	7155
42	Sirvol	281	1129	559	570
43	Tudou	9	35	17	18
44	Undorna	53	176	93	83
45	Xeldem (CT)	1815	7434	3693	3741
46	Xelpem	66	255	122	133
47	Xelvona	418	1725	870	855
48	Xic-Xelvona	28	125	67	58
49	Zanodem	61	272	138	134
	Total	26724	113340	56452	56888



Fig-2: Total population distribution

1.3.2 DEPENDENCY ON THE FOREST RESOURCES

Project Proponent will engage workmen from the local villages outside the lease area and have their own source of fuel and not dependent on forest resources. The Project Proponent will depute watch & ward in the lease area to avoid any damage and pressure on the nearby forest areas.

1.4 LAND USE AND LAND COVER OF THE STUDY AREA

Study of existing land use was carried out through satellite image processing. The data used for analysis was sourced from RESOURCESAT-2 LISS IV with 5.0 m resolution, dated 08/03/2023.

Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features are indicated. Land use plan of the Mineral Block area is prepared to encompass pre-operational, operational and post operational phases and submitted.

Table 1.5: Land Use pattern of buffer zone

S. No.	Description	Area (Ha)	%
1	Dense Reserve Forest	5227.0	13.99
2	Reserve Forest	12638.1	33.83
3	Vegetation	8416.0	22.53
4	Settlements	1714.3	4.59
5	Water Bodies	772.0	2.07
6	Broken up Area & Pit Water Bodies	1426.9	3.82
7	Agricultural Land	1304.0	3.49
8	Barren/Grass Land	5810.2	15.55
9	Industry	46.7	0.13
	Total	**37356.0**	**100**

The existing land use map of the study area is given vide **Map-3.**

Table 1.6: Existing Land Use of the Mineral Block

Pre Mining Use	Area (Ha)
Mining Pit	76.3847
Mined out Area fully Rehabilitated & Reclaimed	3.1150
Waste Dump area	23.0618
Dump area Rehabilitated	5.5992
Road	4.9058
Existing Infrastructure	4.8326
Protective Measures & Other Mining Utilities	9.9136
Unused	24.6946
Total	**152.5073**

Table.1.7: Land Use of the Mineral Block at Conceptual Stage

Post Mining Use (Conceptual)	Area (Ha.)
Mining Pit	29.0675
Mined out Area fully Rehabilitated & Reclaimed	26.2555
Water Reservoir	44.1356
Waste Dump Rehabilitated	21.2162
Road	2.8234
Existing Infrastructure	1.1398
Protective Measures	10.3998
Greenbelt (7.5 m Statutory Barrier) & Additional area proposed for Plantation	17.4695
Total	**152.5073**

1.5 ENVIRONMENTAL SENSITIVITY

Table 1.8: Environmental Sensitivity

Particulars	Details	Aerial Distance and direction
Topography of project site	Gradually Sloping from East to West	-
Sanctuary/ National Park / Tiger Reserve/ Elephant / any other Reserve Forest	Bhagwan Mahaveer Wildlife Sanctuary & National Park Biodiversity Park Mollem Guddemal RF Ambeudeak RF RF Near Kashti RF Near Pertudak RF Near Bandoli Vasali Dongar RF	1.04 Km (E direction) 8.32 Km 0.94 Km ((West) 0.45 Km (West) 0.79 Km (South) 0.25 km (West) 2.49 Km (West) 7.84 km (South-West)
Biosphere Reserve	None	-
Ramsar site	Nanda Lake	7.0 km
Water Bodies	Seasonal Nalla Flows W-E across the Mineral Block. Kalay River runs along Eastern Boundary of the Mineral Block from S-N. Dudhsagar River Mahadayi River Sanguem River Panduranga Nala Ugem River Zuari River Udaul River Guloli River Paroda River Salaulim Dam Moissal Dam	Seasonal Nalla - within Mineral Block Kalay River - 0.005 km (E direction) 4.0 km (North-North East)) 4.3 Km (North) 5.66 km (South) 6.55 km (West North West) 5.57 km (South) 3.79 km (South) 8.80 km (North West) 7.20 km (South) 8.6 km (South West) 7.83 km (South) 4.32 km (West)
Wet Land	Xeldem lake	8.0 km (South West)
Defense Installation	None	-
Nearest airport	Dabolim Airport	35km (South West)
Nearest Railway Station	Kalay Railway Station	2.4 km (South East)
Nearest Highway	State Highway (SH7)	1.3 km (West)
Seismic Zone	III	As per IS 1893 (Part-I): 2016
Nearest Habitat	Within the lease	Min. Buffer of 50 m will be provided and no drilling and blasting will be carried out.
Archaeological monuments	Mahadev Temple in Curdi Village	8.89 km (South)
Protected Monuments	Shigao Caves	5.3 km (North East)
Public utilities	None	
Coastal Regulation Zone (CRZ)	Not Applicable	-
Distance from the HFL of the river in m	Kalay River	5 m from eastern Boundary. There is enough elevation difference.
Nearest School	Shree Somnath Pre-Primary, Primary & Secondary School, Savargal, Kirlapal, Dharbandora, Goa.	1.57 km (North NorthWest)

CHAPTER -2
BIODIVERSITY ASSESSMENT

2.1 BIODIVERSITY SURVEY

2.1.1 STUDY REGION

The biodiversity study was undertaken to assess the biodiversity of Mineral Block Area and its buffer area of 10 Km radius with the following objectives.

1. Collection and synthesis of secondary information on the status of biodiversity in study region
2. Field survey to assess the status of flora and fauna component in core and buffer areas of project site
3. Identification and listing of flora and fauna which are important as per the Wildlife (protection) Act 1972 & Amendment 2022 for Schedule – I species.

The Toposheet showing the identified Reserve & Protected Forests is attached as **Map-1.**

There are no Wildlife Corridors within the Mineral Block area. There are no available notifications published in the National or State Gazettes with respect to Wildlife Corridors falling within the 10km study area.

2.1.2 BIODIVERSITY STUDY APPROACH

A participatory and consultative approach was followed in executing the assignment on Ecology & Biodiversity assessment of the mining lease and 10-km buffer region.

We have consulted officials of forest department and local villagers about biodiversity. Literature survey included a review of the forest working plan, Census hand book, Gazetteer and other records related to the ecology of the region.

A team comprising flora and fauna specialist from Mineral Engineering Services along with Mr. M.S. Raju (EIA coordinator) have visited the Block IV - Kalay Mineral Block and its 10 km buffer area during 6th to 9th April 2023.



Photo 1: Photograph showing Biodiversity study sampling point EB 18



Photo 2: Photograph showing Biodiversity study sampling point EB 5



Photo 3: Photograph showing Biodiversity study sampling point EB 19



Photo 4: Photograph showing Biodiversity study sampling point EB 12

The Project Proponent has highlighted the mining history, shown us the mine lease boundary. They have also shown us the surrounding land use, villages and agro biodiversity area such as Mango and Cashew and orchards falling within the 10Km radius area of project. The visit, however, was restricted to core zone and areas outside the Wildlife Sanctuary, since entry into the Wildlife Sanctuary is prohibited. Also, Sufficient information with respect to the biodiversity of within the WLS is available on different portals (e.g. www.gsbb.goa.gov.in, www.biomis.nic.in), that were used in preparation of the plan and list of flora & fauna which was used as secondary data.

2.1.3 FLORA STUDIES

Forest Types: Forest types were closely observed on the ground and identified using Champion & Sheth (1978), forest classification of India. The forest types are based on the composition of the forests and the dominant species found in them. The identified forest types have been verified, and confirmed from forest working plan for the south Goa Forest Division with specific emphasis on Ponda and Mollem forest ranges, published and other authenticated sources.

Quartile Approach: In order to provide representative ecological status 10-km buffer has been divided into four quartiles for biodiversity sampling, i.e., NE (Q-1), NW (Q-2) SW (Q-3) and SE (Q-4) is given in Fig. 3.1 Each of the quartiles have been examined for representative flora on randomly sampled quadrats for trees (25x25-m), shrubs (10x10-m) and herbs (2x2-m) depending upon prevailing geographical conditions and bio-diversity aspects of study area.

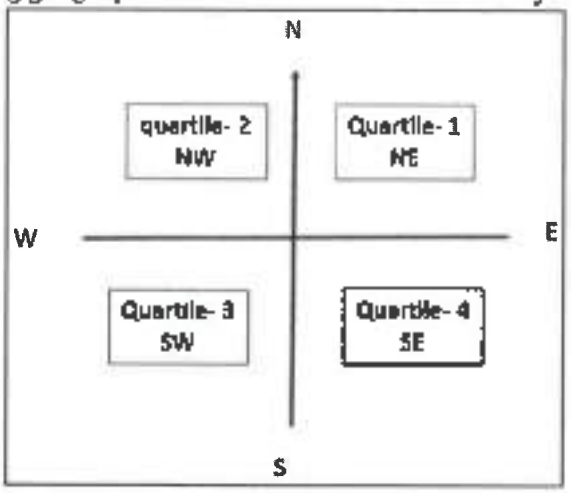


Fig. 2.1. Schematic diagram shown 10- km radius buffer area representation under four quartiles for ecology and biodiversity sampling.

Phyto-sociological parameters, viz., Abundance, Density, Frequency (%) were measured as given below. A total of 10 quadrats were laid down randomly within core area and 40 quadrats were laid down within four quartiles randomly (10/quartile) in buffer area each quadrat trees, shrubs, and herbs as per the Fig. 2.1.

Quadrats method: Quadrats of 25 × 25 m were laid down randomly within core and 10 km buffer area; each quadrat was laid to assess the trees (>5 cm GBH) and one, 10 × 10 m sub-quadrat nested within the quadrat for shrubs, and two, plots 2 × 2 m for herbs, climbers & grass is given in Fig. 2.2.

The quadrats were laid randomly to cover the area to maximize the sampling efforts and minimize the species homogeneity, such as small stream area, trees in agricultural bunds, tank bunds, farm forestry plantations, wildlife areas, natural forest area, avenue plantations, house backyards, etc.

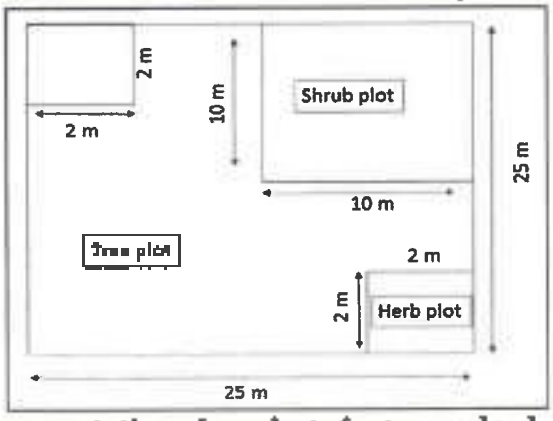


Figure.2.2. Schematic representation of quadrats for trees, shrubs, herbs & grass.



Fig. 2.3: Sampling points of flora and fauna study in Core Zone & Buffer Zone

Table 2.1: Co-ordinates of the sampling points of flora and fauna study

Sampling Points	Latitude	Longitude	Latitude (KML)	Longitude (KML)
EB 1	15° 17' 47.76" N	74° 9' 22.68" E	15° 17' 47.84" N	74° 9' 22.83" E
EB 2	15° 17' 37.32" N	74° 9' 15.12" E	15° 17' 37.44" N	74° 9' 15.23" E
EB 3	15° 17' 23.28" N	74° 9' 31.32" E	15° 17' 23.13" N	74° 9' 31.42" E
EB 4	15° 17' 11.04" N	74° 9' 30.6" E	15° 17' 10.90" N	74° 9' 30.53" E
EB 5	15° 17' 43.44" N	74° 9' 27" E	15° 17' 43.50" N	74° 9' 27.14" E
EB 6	15° 17' 32.64" N	74° 9' 24.48" E	15° 17' 32.75" N	74° 9' 24.34" E
EB 7	15° 17' 39.84" N	74° 9' 5.4" E	15° 17' 40.00" N	74° 9' 5.32" E
EB 8	15° 17' 16.8" N	74° 9' 33.48" E	15° 17' 16.67" N	74° 9' 33.63" E
EB 9	15° 17' 28.32" N	74° 9' 28.44" E	15° 17' 28.37" N	74° 9' 28.61" E
EB 10	15° 17' 39.12" N	74° 9' 24.12" E	15° 17' 39.04" N	74° 9' 23.95" E
EB 11	15° 23' 13.2" N	74° 7' 38.64" E	15° 23' 13.24" N	74° 7' 38.57" E
EB 12	15° 21' 27.36" N	74° 7' 29.28" E	15° 21' 27.39" N	74° 7' 29.34" E
EB 13	15° 21' 58.68" N	74° 10' 15.24" E	15° 21' 58.76" N	74° 10' 15.18" E
EB 14	15° 16' 23.16" N	74° 5' 2.4" E	15° 16' 23.01" N	74° 5' 2.44" E
EB 15	15° 16' 3.72" N	74° 6' 32.4" E	15° 16' 3.84" N	74° 6' 32.49" E
EB 16	15° 14' 28.68" N	74° 6' 16.56" E	15° 14' 28.67" N	74° 6' 16.53" E
EB 17	15° 21' 34.2" N	74° 11' 13.56" E	15° 21' 34.27" N	74° 11' 13.41" E
EB 18	15° 19' 31.8" N	74° 9' 27" E	15° 19' 31.78" N	74° 9' 27.05" E
EB 19	15° 19' 31.8" N	74° 9' 11.88" E	15° 19' 31.65" N	74° 9' 11.98" E
EB 20	15° 13' 19.92" N	74° 10' 28.2" E	15° 13' 20.09" N	74° 10' 28.23" E
EB 21	15° 13' 19.56" N	74° 9' 48.24" E	15° 13' 19.73" N	74° 9' 48.13" E
EB 22	15° 13' 46.56" N	74° 8' 9.24" E	15° 13' 46.51" N	74° 8' 9.24" E
EB 23	15° 16' 59.88" N	74° 9' 10.08" E	15° 16' 59.82" N	74° 9' 10.21" E
EB 24	15° 21' 5.4" N	74° 11' 24.72" E	15° 21' 5.33" N	74° 11' 24.70" E
EB 25	15° 21' 30.24" N	74° 6' 10.08" E	15° 21' 30.35" N	74° 6' 9.93" E
EB 26	15° 18' 32.76" N	74° 9' 28.08" E	15° 18' 32.77" N	74° 9' 28.01" E
EB 27	15° 18' 32.76" N	74° 8' 54.6" E	15° 18' 32.93" N	74° 8' 54.53" E
EB 28	15° 19' 9.12" N	74° 9' 30.24" E	15° 19' 9.03" N	74° 9' 30.41" E
EB 29	15° 19' 23.88" N	74° 11' 27.24" E	15° 19' 23.73" N	74° 11' 27.17" E
EB 30	15° 17' 46.32" N	74° 4' 14.88" E	15° 17' 46.35" N	74° 4' 14.85" E
EB 31	15° 13' 14.88" N	74° 11' 44.16" E	15° 13' 14.98" N	74° 11' 44.05" E
EB 32	15° 15' 37.08" N	74° 7' 34.68" E	15° 15' 37.05" N	74° 7' 34.64" E
EB 33	15° 18' 31.68" N	74° 10' 28.92" E	15° 18' 31.70" N	74° 10' 28.74" E
EB 34	15° 18' 17.64" N	74° 10' 56.28" E	15° 18' 17.58" N	74° 10' 56.19" E
EB 35	15° 19' 18.48" N	74° 10' 27.84" E	15° 19' 18.35" N	74° 10' 27.73" E
EB 36	15° 18' 12.96" N	74° 5' 58.56" E	15° 18' 13.11" N	74° 5' 59.63" E
EB 37	15° 17' 9.24" N	74° 5' 10.68" E	15° 17' 9.40" N	74° 5' 10.68" E
EB 38	15° 14' 21.62" N	74° 6' 28.78" E	15° 14' 21.62" N	74° 6' 28.75" E
EB 39	15° 14' 50.52" N	74° 12' 49.29" E	15° 14' 50.52" N	74° 12' 49.29" E
EB 40	15° 15' 8.9" N	74° 7' 50.63" E	15° 15' 8.91" N	74° 7' 50.63" E

Following formulae was used for calculating the frequency (%), abundance and density of the floral species

$$\% \text{ Frequency of species } A = \frac{\text{Number of quadrats of occurrence of species } A}{\text{Total number of quadrats studied}} \times 100$$

$$\text{Abundance of species A} = \frac{\text{Number of individuals of species A in total quadrats studied}}{\text{Number of quadrats of occurrence of species A}}$$

$$\text{Density of species A} = \frac{\text{Number of individuals of species A in total quadrats studied}}{\text{Total area studied}}$$

Biodiversity Analysis using index: Species diversity will be calculated by using Shannon and Wiener (1963) formula as follows:

$$H' = -\sum_{i=1}^{R} p_i \ln p_i$$

Whereas H' is Shannon index of general diversity, P_i is often the proportion of individuals belonging to the i^{th} species in the dataset of interest.

Screening IUCN and other sources for species Conservation status: Besides measuring these parameters, other biodiversity aspects in the form of endemic status, keystone species, threatened status, and The International Union for Conservation of Nature (IUCN), Red-data books of the Botanical Survey of India (BSI), have been verified for their conservation status (see http://www.iucnredlist.org/static/categories_criteria_3_1).

Keystone species: Species that has a disproportionately large effect on its environment relative to its abundance. Such species are described as playing a critical role in maintaining the structure of an ecological community, affecting many other organisms in an ecosystem and helping to determine the types and numbers of various other species in the community.

The IUCN Species Programme of the IUCN Species Survival Commission (SSC) has for more than four decades been assessing the conservation status of species, subspecies, varieties, and even selected sub-populations on a global scale in order to highlight taxa threatened with extinction, and therefore promote their conservation.

The IUCN Red List of Threatened Species provides taxonomic, conservation status and distribution information on plants and animals that have been globally evaluated using the IUCN Red List Categories and Criteria (**Fig. 2.4**). This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those plants and animals that are facing a higher risk of global extinction (i.e., those listed as *Critically Endangered, Endangered,* and *Vulnerable*).

The IUCN Red List also includes information on plants and animals that are categorised as *Extinct* or *Extinct in the Wild;* on taxa that cannot be evaluated because of insufficient information (i.e., are *Data Deficient*); and on plants and animals that are either close to meeting the threatened thresholds or that would be *threatened* if not considered for an ongoing taxon-specific conservation programme (i.e., *Near Threatened*).

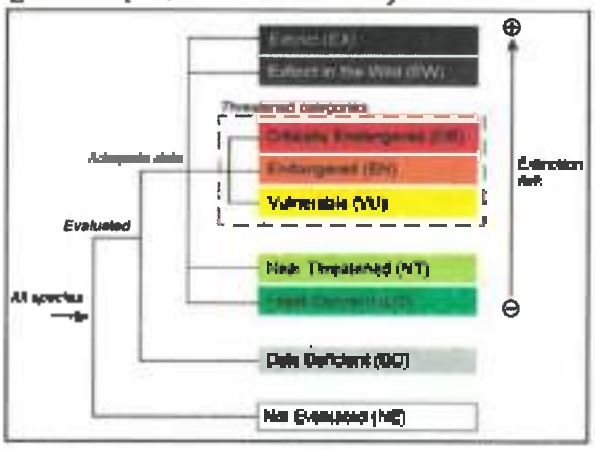


Figure 2.4 IUCN categories showing threatened species categories

2.1.4 FAUNAL DIVERSITY

Mammals: Mammals were observed using indirect methods such as faucal matter (i.e., scat) and pug mark by establishing 10 × 100-m linear transects depending on the habitat (i.e., existing wildlife game routes/forest trails used). We have also documented few mammals by direct sighting.

Birds: We have used point count method for bird documentation as per standard method by Sutherland (1996), which involved 10-minute observation in each point during early morning hours (6.00 to 10.00 AM). We have enumerated 20 point-counts in each quartile, which constitute a total of 80 points-counts (20 × 4) within 10-km radius area.

Butterfly: The butterfly was enumerated by two linear transects, of 10 × 100 m were laid at each quartile at an interval of 1 km. Further, reptiles and fishes documented in existing literature and secondary information in consultation with local people and wildlife experts were recorded. Apart from field observation, consultations were held with knowledgeable persons of the villages, and frontline forest department officials to validate the field observation and information cited in the literature.

To know the endemic or conservation status of the fauna, Schedule 1 of the Wildlife Preservation Act (1972) has been screened.

2.2 OBSERVATIONS AND ASSESSMENTS

2.2.1 OVERVIEW OF STUDY AREAS

The forest of the region was categorised as Southern moist deciduous mixed forests and Southern secondary moist mixed deciduous forests (Champion & Seth, 1968), in *'A revised survey of the forest types of India'*.

The region presents a wide range of altitudes, aspects, slopes, drainage, and spills giving rise to a variety of locality factors reflected in the occurrence of number of forest types from tropical semi-evergreen to mangrove forests. These types are broadly differentiated and described here as per recognized and revised forest classification of Champion & Seth.

- 1A/C4 West Coast Tropical Ever Green Forest
- 2A/C2 Southern Moist Deciduous Forest
- 3B/C2 Southern Moist Mixed Deciduous Forest

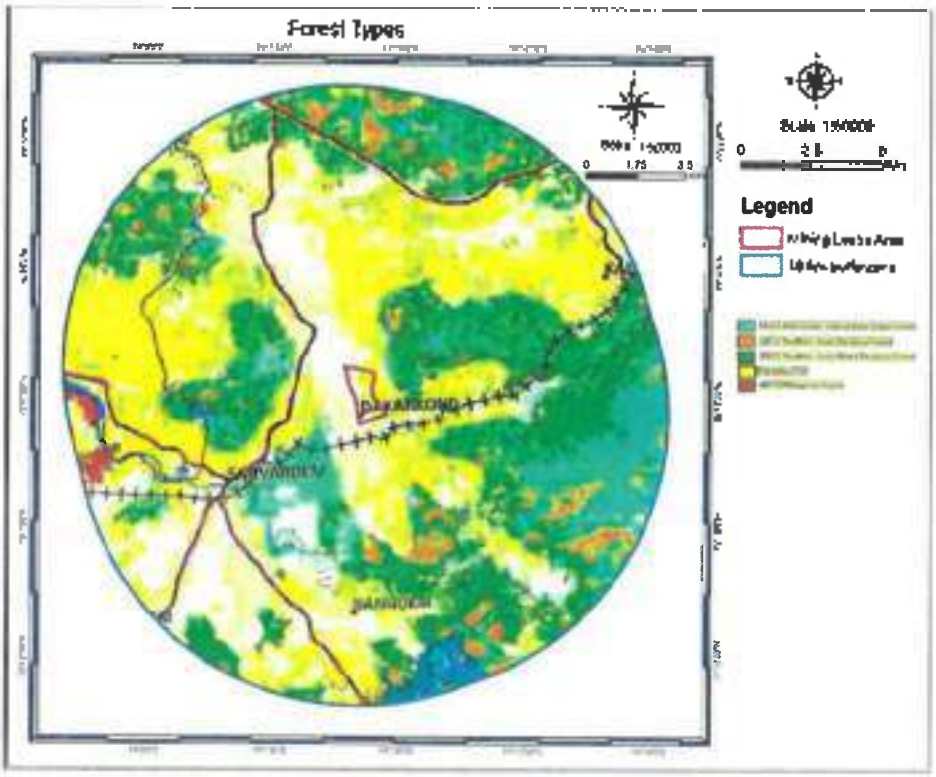


Fig. 2.5: Forest Types

Source - https://forest.goa.gov.in/index.php/forest-%26-tree-cover

These forest types have essentially a deciduous vegetation over a period of the year. However, few evergreen species occur sporadically due to favourable soil and moisture conditions along the rivulet and depressions.

2.2.2 *CORE ZONE*

FLORA: Total 45 species were recorded within core area, of which 21 species trees, 11 species shrubs and 13 species herbs recorded **(Table 2.1)**

Table 2.2: Flora species recorded within core zone

S. No	Species name	Family	Common Name
TREE			
1	*Anacardium occidentale*	Anacardiaceae	Cashew
2	*Acacia auriculiformis* *	Fabaceae	Acacia
3	*Casurina equisetifolia*	Casuarinaceae	Suru
4	*Alstonia scholaris*	Apocynaceae	Saten
5	*Bauhinia racemose*	Fabaceae	Apta
6	*Artocarpus heterophyllus*	Moraceae	Phanas
7	*Bombax ceiba*	Bombacaceae	Sanwar
8	*Delonix regia*	Fabaceae	Gulmohar
9	*Emblica officinalis*	Phyllanthaceae	Aonla
10	*Garcinia indica*	Clusiaceae	Kokum
11	*Gmelina arborea*	Lamiaceae	Shivan
12	*Leucaena leucocephala*	Fabaceae	Subabul
13	*Mangifera indica*	Anacardiaceae	Mango
14	*Trema orientalis*	Cannabaceae	Charcoal tree
15	*Canthium dicoccum*	Rubiaceae	Ceylon boxwood
16	*Ziziphus mauritiana*	Rhamnaceae	Indian jujube
17	*Holigarna arnottiana*	Anacardiaceae	Black varnish tree

18	*Carryota urens*	Arecaceae	foxtail palm
19	*Grewia tiliifolia*	malvaceae	Dhman
20	*Macaranga peltata*	Euphorbiaceae	Chandada
21	*Psidium guajava*	Myrtaceae	Guava
SHRUBS			
22	*Acacia paniculata*	Mimosaceae	sickle wattle
23	*Calotropis gigantean*	Asclepidiaceae	crown flower
24	*Carisso congesta*	Apocynaceae	Karamda
25	*Helicteris isora*	Malvaceae	Marodphali
26	*Lantana camara**	Verbenaceae	Lantana
27	*Ixora coccinea*	Rubiaceae	Jungel gerenium
28	*Ziziphus oenoplea*	Rhamnaceae	Jackal jujube
29	*Musaaanda glabrata*	Rubiaceae	Dhobi tree
30	*Getonia floribunda*	Combrataceae	Paper flower
31	Antidesma acidum	Euphotbiaceae	Black berry
32	*Breyania retusa*	Euphotbiaceae	Cup and soucer
HERBS AND CLIMBERS			
33	*Asparagus racemosa*	Asparagaceae	Satavar
34	*Bidens bitemata*	Asteraceae	Chirchitta
35	*Ipomea emuricata*	Convolvulaceae	Bhingari
36	*Ocimum sanctum*	Lamiaceae	Tulsi
37	*Commelina adoreta*	Asteraceae	Slam weed
38	*Smilax zeylanica*	Smilacaceae	Kumarika
39	*Momordica diocia*	Cucurbitaceae	Spiny guard
40	*Dioscorea bulbifera*	Dioscoreaceae	air potato
41	*Impatiens balsmina*	Balsaminaceae	Spotted snapweed
42	*Impatiens minor*	Balsamaceae	lesser balsam
43	*Begonia crenata*	Begoniaceae	common begonia
44	Curculigo orchioides	Hycinthacieae	
45	*Curcuma sp.*	Zingiberaceae	wild ginger

NOTE:** * Invasive species

FAUNA: Total 16 species were observed within the core area, of which 9 species are birds, 3 species of mammals and 4 species of reptiles **(Table 2.2).**

Table 2.3: List of faunal species within core zone

S. No.	Common name	Scientific name	Family	IUCN / WPA status
	BIRDS			
1	Common Iora	*Aegithina tiphia*	Irenidae	LC/II
2	Green Bee Eater	*Merops orientalis*	Meropidae	LC/II
3	House Crow	*Corvus splendens*	Corvidae	LC/II
4	House Sparrow	*Passer domesticus*	Passeridae	LC/II
5	House Swift	*Apus affinis*	Apodidae	LC/II
6	Indian Robin	*Saxicoloides fulicata*	Turdinae	LC/IV
7	Jungle Crow	*Corvus macrorhynchos*	Corvidae	LC/II
8	Jungle Myna	*Acridotheres fuscus*	Sturnidae	LC/II
9	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	LC/II
	MAMMALS			
10	Indian Hare	*Lepus nigricollis*	Leporidae	LC/II
11	Rat	*Rattus rattus*	Muridae	LC/IV
12	Striped squirrel	*Funambulus palmarum*	Sciuridae	LC/IV
	REPTILES			
13	Green Forest lizard	*Calotes calotes*	Agamidae	LC/IV
14	Roux's Forest lizard	*Calotes rouxii*	Agamidae	LC/IV
15	Garden lizard	*Calotes elioti*	Agamidae	LC/IV
16	Russell's Viper	*Daboia russelii*	Viperidae	Schedule I

2.2.3 *BUFFER ZONE*

Overview of buffer area (10-km radius) in all 4 directtonal quartiles - eco-sensitive areas, plantations and development activities so on (Table 2.3).

Table 2.4: General description of landscape within 10 km radius from core area (all 4 directions of North, East, West and South).

Quartiles	Trees/ Shrubs	Species richness	Density/ ha	Species diversity (H')	Habitat Characteristics **
Quartile 1 North-East	Trees	42	1834	2.37	Bhagavan Mahavir WLS; Reserve Forest Open mixed forest, Main Power line; Dudhsagar River
	Shrubs	13	4710	2.14	
	Herbs	10	86500	2.16	
Quartile 2 North-West	Trees	35	1714	2.70	Dense Forest; Cashew mixed forest RF, Zuari River, Mahadayi River, Udnal Nadi. Carmonem RF, Comarconda RF
	Shrubs	9	2120	1.84	
	Herbs	9	2050	2.36	
Quartile 3 South-West	Trees	54	234	1.87	Reserve Forest; Zuvari River; South Central Railway Track; Zuari River.
	Shrubs	8	1220	1.84	
	Herbs	10	2500	1.36	
Quartile 4 South-East	Trees	44	734	2.17	Solaulim dam reservoir, Reserve Forest , Bhagavan Mahveer WLS, Netravali WLS, Ugem Nadi, Salauli dam back water, Gouli Nadi
	Shrubs	11	3820	2.64	
	Herbs	9	11500	2.06	

Detailed Eco-Sensitive Areas

Table 2.5: Ecologically Important habitat from the core area boundary

S. No	Quartile	Importance ecosystem	Direction	Aerial distance from Lease Area (in km)
1	Q1	Bhagavan mahveer WLS	E	1.04
2		Dudsagar River	N	4.00
3		Kalay River	E	0.005
4		Dongarwada RF	N	8.80
5	Q2	Mahadayi River	N	4.30
6		Udnai Nadi	NW	8.80
7		CARMONEM RF	N	0.75
8		Comarconda RF	W	3.43
9	Q3	Barazona Dongor RF	SW	0.80
10		Molsal dam	W	4.80
11		Guddemal RF	SW	0.88
12		Zuvari River	SW	3.80
13		Ambeudhok RF	SW	0.18
14		Kushavathi River	SSW	9.00
15		Odsorvo RF	SW	0.80
16	Q4	Netravali WLS	SE	9.34
17		Ugem Nadi	SE	6.10
18		Salauli dam	SE	7.90
19		Guloli Nadi	S	7.20

FLORA DIVERSITY

TREE: Overall, 128, of which 89 species from the primary survey and 39 species from the report by Biodiversity Board. The results show that the buffer area recorded 89 tree species compared to 7 species of the core area.

Again, we can see that exotic species Acacia auriculiformis and Anacardium occidentale have dominated in the core area. In addition, 39 species reported as secondary information from

Biodiversity Board, Goa (https://gsbb.goa.gov.in/wp-content/uploads/2020/05/List-of-plants.pdf)

Table 2.6: Trees growing in core and buffer area of 10-km radius.

S. No.	Species name	Family	Frequency %	Abundance No./Quadrant	Density No./sq. km
1	*Acacia auriculiformis*	Mimosaceae	21	1.7	5.7
2	*Albizia odoratissima* Benth.	Mimosaceae	21	3.0	10.3
3	*Anacardium occidentale* L.	Anacardiaceae	21	3.0	10.3
4	*Anogeissus latifolia* (Roxb. ex DC.)	Combretaceae	29	2.8	12.6
5	*Ardisia solanacea Roxb.*	Myrsinaceae	29	2.5	11.4
6	*Areca catechu* L.	Arecaceae	29	2.0	9.1
7	*Artocarpus heterophyllus* Lam.	Moraceae	29	2.5	11.4
8	*Bauhinia malabarica* Roxb.	Fabaceae	29	3.8	17.1
9	*Bauhinia racemosa* Lam.	Fabaceae	29	2.3	10.3
10	*Bischofia javanica* Bl.	Phyllanthaceae	29	4.0	18.3
11	*Bombax malabaricum* DC.	Bombacaceae	14	3.0	6.9
12	*Bridelia retusa* Spreng.	Euphorbiaceae	14	2.5	5.7
13	*Buchanania lanzan*	Anacardiaceae	14	3.0	6.9
14	*Buchanania latifolia Roxb.*	Anacardiaceae	14	2.5	5.7
15	*Caesalpinia bonducella* (L.) Fleming	Caesalpinaceae	14	3.0	6.9
16	*Callicarpa tomentosa* (L.) Murr.	Verbinaceae	14	2.0	4.6
17	*Canthium dicoccum* (Gaert.) T. & B.	Rubiaceae	29	3.0	13.7
18	*Canarium strictum* Roxb.	Burseraceae	29	2.3	10.3
19	*Careya arborea* Roxb.	Lecythidaceae	29	3.5	16.0
20	*Caryota urens* L. (Kithul) sap.	Arecaceae	29	3.5	16.0
21	*Cassia fistula* L.	Fabaceae	29	2.5	11.4
22	*Casearia ovoidea* Sleumer.	Flacourtiaceae	29	2.8	12.6
23	*Cassia siamea* Lam.	Fabaceae	21	3.7	12.6
24	*Clerodendrum viscosum* Vent.	Euphorbiaceae	21	3.0	10.3
25	*Crotalaria retusa* L.	Fabaceae	21	4.0	13.7
26	*Dalbergia lanceolaria*	Fabaceae	21	2.0	6.9
27	*Dalbergia latifolia* Roxb	Fabaceae	21	2.7	9.1
28	*Dalbergia volubilis* Roxb.	Fabaceae	21	2.7	9.1
29	*Delonix regia* (Hk.) Raf.	Fabaceae	21	2.7	9.1
30	*Diospyros ebenum* Koenig.	Ebenaceae	21	1.0	3.4
31	*Diospyros montana Roxb.*	Ebenaceae	21	3.7	12.6
32	*Diospyros paniculata* Dalz.	Ebenaceae	21	2.0	6.9
33	*Emblica officinalis* Gaertn.	Euphorbiaceae	21	2.3	8.0
34	*Erythrina indica* L.	Fabaceae	21	4.0	13.7
35	*Ficus urnatiana* (Miq.) Miq.	Moraceae	21	2.0	6.9
36	*Ficus microcarpa* L.f.	Moraceae	21	2.7	9.1
37	*Ficus virens* L.	Moraceae	21	3.0	10.3
38	*Gardenia tergida*	Rubiaceae	14	3.0	6.9
39	*Glirictidia sepium* (Jacq.) Kunth	Fabaceae	14	2.5	5.7
40	*Gmelina arborea* Roxb.	Verbenaceae	14	3.5	8.0
41	*Grewia robusta*	Malvaceae	14	3.0	6.9
42	*Grewia tiliifolia* Vahl.	Malvaceae	14	3.0	6.9
43	*Hardwickia binata* Roxb.	Cesalpinaceae	14	2.5	5.7
44	*Holoptelea integrifolia* (Roxb.) Planch.	Ulmaceae	14	3.0	6.9
45	*Holigarna nigar* Bourd.	Anacardiaceae	14	3.0	6.9
46	*Holarrhena pubescens* (Buch.-Ham.)	Apocynaceae	14	3.5	8.0
47	*Hopea acuminata* Merr.	Dipterocarpaceae	14	1.5	3.4
48	*Ixora brachiata* L.	Rubiaceae	14	3.5	8.0
49	*Lagerstroemia lanceolata* Clarke	Lythraceae	14	2.0	4.6
50	*Lannea coromandelica*	Anacardiaceae	14	1.0	2.3
51	*Leucaena leucocephala* (Lam.) de Wit.	Mimosaceae	14	2.0	4.6

52	*Litsea glabrata*	Lauraceae	14	5.0	11.4
53	*Litsea zeylanica* Nees & T. Nees.	Lauraceae	14	2.5	5.7
54	*Maesa indica Roxb.*	Myrsinaceae	14	3.5	8.0
55	*Mallotus philippensis* (Lam.) Muell.	Euphorbiaceae	14	2.5	5.7
56	*Mangifera indica* L.	Anacardiaceae	14	3.0	6.9
57	*Mecranga peltata* (Roxb.) Muell.	Euphorbiaceae	14	3.5	8.0
58	*Melia composita Willd.*	Meliaceae	14	1.0	2.3
59	*Memecylon umbellatum Burm.*	Melastomataceae	14	3.0	6.9
60	*Mitragyna parviflora (Roxb.) Korth.*	Rubiaceae	14	2.0	4.6
61	*Murraya keenigii (Linn.) Spreng*	Rutaceae	14	3.0	6.9
62	*Musa paradisiaca Auct.*	Musaceae	14	3.5	8.0
63	*Myristica sp.*	Myristicaceae	14	3.0	6.9
64	*Nothopegia colebrookiana (Wight)*	Anacardiaceae	14	3.5	8.0
65	*Olea dioica Roxb.*	Oleaceae	14	4.0	9.1
66	*Peltophorum pterocarpum (DC.)*	Fabaceae	14	3.5	8.0
67	*Pogostemon cablin (Blanco) Benth.*	Lamiaceae	14	2.0	4.6
68	*Pongamia pinnata* (L.) Pierre	Fabiaceae	14	1.5	3.4
69	*Pterocarpus marsupium Roxb.*	Fabaceae	14	3.5	8.0
70	*Randia dumetorum L.*	Rubiaceae	14	3.5	8.0
71	*Randia malabarica Lam.*	Rubiaceae	14	3.0	6.9
72	*Samanea saman (Jacq.) Merr*	Cesalpinaceae	14	4.5	10.3
73	*Sapindus emarginatus L.*	Sapindaceae	14	2.5	5.7
74	*Saraca indica Auct.*	Cesalpinaceae	14	1.5	3.4
75	*Schleichera oleosa (Lour.) Oken*	Sapindaceae	14	3.0	6.9
76	*Scolopia crenulata*	Flacourtiaceae	14	2.5	5.7
77	*Spondias acuminata Roxb.*	Sapindaceae	14	4.0	9.1
78	*Sterospermum personatum (Hassk.)*	Bignoniaceae	14	2.5	5.7
79	*Strychnos nux vomica L.*	Loganiaceae	14	4.0	9.1
80	*Syzygium calophyllum (L.) Alton*	Myrtaceae	14	1.0	2.3
81	*Syzygium cumini (L.) Skeels*	Myrtaceae	14	4.0	9.1
82	*Tectona grandis L.f.*	Verbinaceae	14	3.0	6.9
83	*Terminalia bellerica (Gaertn.) Roxb.*	Combretaceae	14	4.5	10.3
84	*Terminalia paniculata Roth* *	Combretaceae	14	2.5	5.7
85	*Terminalia tomentosa (DC.) W. & A.**	Combretaceae	14	3.0	6.9
86	*Trema orientalis (L.) Bl.*	Ulmaceae	14	4.0	9.1
87	*Veteria indica L.*	Cannabaceae	14	1.5	3.4
88	*Vitex altissima L.f*	Verbinaceae	14	2.5	5.7
89	*Ziziphus mauritiana Lam.*	Rhamnaceae	14	4.5	10.3

Table 2.7: List of Secondary tree species documented by Biodiversity Board, Goa

S. No.	Scientific Name *	Common Name
1	*Aegle marmelos*	Bel
2	*Albizia lebbeck*	Siris
3	*Alstonia scholaris*	Santvin
4	*Annona muricata*	Palpanas
5	*Annona squamosa*	Sitaphal
6	*Anthocephalus cadamba*	Kadamb
7	*Artocarpus altilis*	Nirpanas
8	*Artocarpus heterocarpus*	Phanas
9	*Averrhoa carambola*	Karmal
10	*Averrhoea bilimbi*	Bimbal, bilimbi
11	*Azadirachta indica*	Neem
12	*Bauhinia variegate*	Kachnar
13	*Bombax ceiba*	Savar
14	*Butea monosperma*	Pales
15	*Cinnamomum zeylanicum*	Tikhi
16	*Cocos nucifera*	Mad
17	*Dalbergia sissoo*	Shisam

18	*Ficus bengalensis*	Vad tree
19	*Ficus glomerata/racemosa*	Rumad
20	*Flacourtia jangomas*	Jagma
21	*Flacourtia montana*	Chafra
22	*Garcinia gummigutta*	Malabar tamarind
23	*Garcinia indica*	Bhirand
24	*Gmelina arborea*	Shivan
25	*Hardwickia binata*	Anjan
26	*Mesua ferrea*	Nagkesar
27	*Millingtonia hortensis*	Neem Chameli
28	*Millettia pinnata*	Karanjel
29	*Mimusops elengi*	Ovala
30	*Myristica fragrans*	Jaiphal
31	*Nothaphodytes nimmoniana*	Narkya, Ghaneri
32	*Peltophorum pterocarpum*	Copperpod tree
33	*Pouteria campechiana*	Egg fruit
34	*Psidium guajava*	Guava
35	*Sapindustaurifolius/ mukorossi*	Ritho
36	*Saraca asoca*	Sita Asbok
37	*Stercularia urens*	Dhavorukh/ Arjun
38	*Syzygium aqueum*	Zam
39	*Terminalia elliptica*	Madat

*Note: * Secondary information from Biodiversity Board, Goa, (https://gsbb.goa.gov.in/wp-content/uploads/2020/05/List-of-plants.pdf) and published literature and is enclosed as Annexure – 1.*

SHRUBS: In buffer region recorded 42 shrubs species recorded. Overall, from this data we can interpret that the mining site possesses the less shrubs species and commonly overgrown exotic species such as *Lantana camara*, and *Chromolina odorata*, and less native species abundance, whereas the buffer area recorded higher number of native species .

Table 2.8. Shrubs growing in core and buffer zone

S. No.	Species name	Family	Frequency %	Abundance	Density
1	*Abrus precatorius L.*	Ceasalpinaceae	21	1.7	35.7
2	*Acacia paniculata Willd.*	Mimosaceae	21	2.7	57.1
3	*Adathoda vasica L.*	Acanthaceae	7	1.0	7.1
4	*Amaranthus spinosus L.*	Amaranthaceae	21	1.7	35.7
5	*Annona muricata L.*	Annonaceae	14	1.5	21.4
6	*Antidesma menasu (Tul. Müll.Arg)*	Euphorbiaceae	7	3.0	21.4
7	*Aphanamixis polystachya (wall.)*	Rosaceae	7	4.0	28.6
8	*Apnomixis polystachia*	Rosaceae	14	1.0	14.3
9	*Bryneya species*	Euphorbiaceae	7	1.0	7.1
10	*Calotropis gigantean L.*	Asclepidiaceae	14	1.5	21.4
11	*Canthium parviflorum Lam.*	Rubiaceae	14	2.5	35.7
12	*Carissa carandas L.*	Apocynaceae	14	2.0	28.6
13	*Carissa congesta L.*	Apocynaceae	21	2.0	42.9
14	*Cassia hirsuta L.**	Ceasalpinaceae	21	2.3	50.0
15	*Chromolaena odorata (L.) K.R.*	Astraceae	21	2.3	50.0
16	*Croton laceiferus L.*	Euphorbiaceae	29	2.0	57.1
17	*Crotolaria virosa (Roxb.) Baks.*	Fabaceae	21	1.3	28.6
18	*Dendrocalamus strictus*	Poaceae	29	1.3	35.7
19	*Euphorbia tattrcornis L.*	Euphorbiaceae	7	1.0	7.1
20	*Gossyptum arboretum L.*	Malvaceae	7	4.0	28.6
21	*Helicteris isora L.*	Malvaceae	29	2.8	78.6
22	*Hibiscus tiliaceus Wild.*	Malvaceae	7	1.0	7.1
23	*Ixora brachiata Roxb. ex DC*	Rubiaceae	21	1.7	35.7
24	*Ixora javanica DC, Preodr.*	Rubiaceae	7	1.0	7.1
25	*Jatropha gossypifolia*	Euphorbiaceae	21	2.0	42.9

26	*Lantana camara L.*	Verbenaceae	29	2.0	57.1
27	*Lesa indica (Burm.f.) Merr.*	Leaceae	29	2.5	71.4
28	*Nilgirianthus barbatus (Nees)*	Acanthaceae	7	1.0	7.1
29	*Pandanus odoratissimus L.*	Pandanaceae	7	1.0	7.1
30	*Pavetta indica L.*	Rubiaceae	7	1.0	7.1
31	*Psychotria bisulcata Wight &Arn.*	Rubiaceae	7	1.0	7.1
32	*Ricinus communis L.*	Euphorbiaceae	7	3.0	21.4
33	*Rosa chinensis Jacq.*	Rosaceae	29	1.8	50.0
34	*Saprosma ceylanicum (Gardner)*	Rubiaceae	7	1.0	7.1
35	*Sida acuta N.L. Burman.*	Malvaceae	29	2.3	64.3
36	*Solanum indicum L.*	Solanaceae	29	1.8	50.0
37	*Techoma stans (L.) Juss. Ex Kunth.*	Bignoniaceae	7	4.0	28.6
38	*Tephrosia purpuria (L.) Pers.*	Fabaceae	21	1.3	28.6
39	*Vitex sp*	Verbenaceae	14	1.0	14.3
40	*Vitex nigundo L.*	Verbenaceae	7	3.0	21.4
41	*Ziziphus oenoplea Miller.*	Rhamnaceae	21	2.3	50.0
42	*Trema orientalis*	Cannabaceae	14	1.5	32.0

Note: ** Secondary information from forest working plan and published literature*

HERBS: Total 28 Species of herbs reported from the buffer zone.

Table 2.9. List of Herbs and Climbers within the reserve forest and sanctuary of buffer area

S. No.	Species name	Family	Frequency %	Abundance	Density
1	*Acrostichum aureum*	Pteridaceae	25	4.7	2946
2	*Ageratum conyzoides*	Astraceae	4	1.0	89
3	*Alternathera sessilis*	Amaranthaceae	18	5.8	2589
4	*Andropogon annulatus*	Poaceae	7	4.5	804
5	*Asparagus racemose*	Asparagaceae	11	3.3	893
6	*Atlantia species*	Rutaceae	29	3.4	2411
7	*Bidens biternata*	Asteraceae	7	2.5	446
8	*Bidens comosa*	Asteraceae	4	6.0	536
9	*Borreria articulata*	Rubiaceae	39	3.7	3661
10	*Cassia tora*	Caesalpinaceae	7	1.5	268
11	*Clematis gouriana*	Ranunculaceae	29	4.9	3482
12	*Clerodendron inerme*	Lamiaceae	22	4.2	1429
13	*Cordia myxa*	Boraginaceae	39	2.9	2857
14	*Crotolaria virosa*	Fabacaeae	14	2.0	714
15	*Cymbopogon citratus*	Poaceae	36	2.6	2321
16	*Cyperus difformis**	Cyperaceae	21	3.0	1607
17	*Desmodium triflorum*	Fabaceae	39	3.5	3393
18	*Ipomea cmuricata*	Convolvulaceae	14	4.3	1518
19	*Ocimum sanctum*	Lamiaceae	32	3.1	2500
20	*Parthenium spp**	Asteraceae	7	3.0	536
21	*Premna corlacea*	Verbenaceae	7	2.5	446
22	*Sida acuta*	Malvaceae	29	4.9	3482
23	*Sida cordifolia*	Malvaceae	36	4.8	4286
24	*Smilax zeylanica**	Smilacaceae	7	8.5	1518
25	*Solanum indicum*	Solanaceae	14	2.0	714
26	*Spermacoce sp.*	Rubiaceae	36	3.0	2679
27	*Stylosanthus sp.*	Fabaceae	39	3.3	3214
28	*Urena lobate*	Malvaceae	36	3.8	3393

Note: ** Secondary information from Goa forest & Biodiversity deparment and published literature*

FARMLAND/ ROAD SIDE: Total 20 species recorded within the buffer area from the Avenue trees, farmlands/private lands and riparian river streams.

Table 2.10: Farmlands/road side species recorded within buffer zone

S. No.	Species name	Common name	Family	Habit
1	*Tamarindus indica*	Tamrind/imli	Cesalpinaceae	Tree
2	*Annona reticulata*	Ramphal	Annonaceae	Tree
3	*Bambusa sp*	Bamboo	Bambocaceae	Tree
4	*Bougainvillea spectabilis*	Bouganvilla	Nyctaginaceae	Tree
5	*Cassia fistula*	Amaltas	Fabaceae	Tree
6	*Dalbergia latifolia*	Shisam/ Shisoo	Fabaceae	Tree
7	*Delonix regia*	Gulmohar	Fabaceae	Tree
8	*Phyllanthus emblica*	Awala/. Avala	Phyllanthaceae	Tree
9	*Psidium guajava*	Peru/Gauva	Myrtaceae	Tree
10	*Samanea saman*	Rain tree	Fabaceae	Tree
11	*Sapindus mukorossi*	Ritha/Reetha	Sapindaceae	Tree
12	*Swetenia mahagoni*	Mohagony	Meliaceae	Tree
13	*Syzygium cumini*	Jamun	Myrtaceae	Tree
14	*Terminalia bellerica*	Ghoting/bebada	Combretaceae	Tree
15	*Acacia auriculiformis*		Mimosaceae	Tree
16	*Garcinia indica*		Clusiaceae	Tree
17	*Pongamia pinnata*		Fabaceae	Tree
18	*Ficus benghalensis*		Moraceae	Tree
19	*Ficus religiosa*		Moraceae	Tree
20	*Ixora coccinea*		Rubiaceae	Shrub

DOMESTICATED / CULTIVATED SPECIES: Total of 13 different crops and commercial species observed from the buffer area

Table 2.11: Domesticated and cultivates species recorded within buffer zone

S. No.	Species name	Common name	Family	Habit
1	*Annona reticulata*	Ramphal	Annonaceae	Tree
2	*Phyllanthus emblica*	Awala/Avala	Phyllanthaceae	Tree
3	*Psidium guajava*	Peru/Gauva	Myrtaceae	Tree
4	*Carica papaya*	Caricaceae	Caricaceae	Tree
5	*Musa paradisiaca*	Bannana	Musaceae	Tree
6	*Acacia auriculiformis*		Mimosaceae	Tree
7	*Anacardium occidentale*		Anacardiaceae	Tree
8	*Areca catechu*		Arecaceae	Tree
9	*Cocos nucifera*		Arecaceae	Tree
10	*Garcinia indica*		Clusiaceae	Tree
11	*Tamarindus indica*		Cesalpinaceae	Tree
12	*Oryza sativa*	Paddy	Poaceae	herb
13	Vegetable cultivation			herb

***FAUNA*:** Total 260 faunal species were reported by secondary and primary observation from the core and buffer area, of which 21 species of mammals; 24 species of reptiles, 17 species of amphibians and toads; 153 species of birds, 27 species of butterflies, and 18 species of crabs and fishes.

Total 21 species mammals were recorded within the 10 km radius; of which four arboreal mammals such as Flying fox, Squirrel, macaque, Wronghto's Gaint Mastiff Bat and remaining were ground dwellers. The Malabar giant squirrel encounter only within the Wildlife Sanctuaries (WLs). Further one carnivore Leopard, omnivore Mongoose, Indian muntjac, and Jackal as hinted by rural communities. The most common species sighted by us and local communities are Indian hare, Rats, Wild boar. List of mammals within the buffer zone (10 km radius) is provided in **Table 2.32.**

Table 2.12. List of the mammal species recorded within 10km radius.

S. No.	Local Name	Scientific name	Family	IUCN / WPA 1972 & Amnd. 2022
1	Common grey mongoose *	*Urva edwardsii*	Herpestidae	LC/I
2	Indian porcupine *	*Hystrix indica*	Hystricidae	LC/I
3	Malabar giant squirrel *	*Ratufa indica*	Sciuridae	LC/I
4	Common leopard **	*Panthera pardus*	Felidae	VU/I
5	Leopard cat *	*Prionailurus bengalensis*	Felidae	LC/I
6	Wroughto's Gaint Mastiff Bat *	*Otomops wroughtoni*	Molossidae	LC/I
7	Slender Loris *	*Loris lydekkerianus*	Lorisidae	NT/I
8	Mouse Deer ***	*Moschiola indica*	Tragulidae	LC/I
9	Four Horned *Antelope* *	*Tetracerus quadricornis*	Bovidae	VU/I
10	Gaur or Indian Bison***	*Bos gaurus*	Bovidae	VU/I
11	Indian Pangolin*	*Manis crassicaudata*	Manidae	EN/I
12	Sloth bear ***	*Melursus ursinus*	Ursidae	VU/I
13	Small Indian civet*	*Viverricula indica*	Viverridae	LC/I
14	Bonnet macaque *	*Macaca radiata*	Cercopithecidae	LC/I
15	Wild dog ***	*Cuon alpines*	Canidae	EN/I
16	Indian Hare *	*Lepus nigricollis*	Leporidae	LC/II
17	Flying fox bat *	*Pteropus Giganteus*	Pteropodidae	LC/II
18	Rat *	*Rattus rattus*	Muridae	LC/IV
19	Wild boar *	*Sus scrofa*	Suidae	LC/II
20	Striped squirrel *	*Funambulus palmarum*	Sciuridae	LC/IV
21	Indian muntjac *^	*Muntiacus muntjac*	Cervidae	LC/IV

Note:

** Small mammals of Goa(https://forest.goa.gov.in/sites/default/files/2022-06/smallm.pdf)*

***Secondary information from the Bhagawan Mahavir WLs report from Goa forest department (https://forest.goa.gov.in/node/1187).*

**** Gazette Notification of Bhagwan wildlife Sanctuary dated 23.01.2015 enclosed as Annexure – 1.*

** https://forest.goa.gov.in/sites/default/files/2022-06/ffsouth.pdf*

^https://biomis.nic.in/resources/pbrpdf_yearwise/PBR_Format_Kalay.pdf

REPTILES: Total 24 reptile species were recorded within the buffer areas (Table 3.32), out of 19 species of snakes and 5 species of lizards were recorded. Indian rock python, Krait, Cobra and King cobras identified has rare species under the IUCN status and most of them were common as per the IUCN status.

As per the Wildlife Protection act 4 Schedule I, 5 Schedule II, and 2 Schedule IV were recorded within the 10-km radius of the Mineral Block.

Table 2.13. list of Reptiles' reported from the Study Area.

S. No.	Common name	Scientific name	Family	IUCN / WPA 1972 & Amnd. 2022
1	Indian Rock Python*	*Python molurus molurus*	Pythonidae	NT/I
2	Marsh Crocodile	*Crocodylus palustris*	Crocodylidae	VU/I
3	Indian Falpshell Turtle	*Lissemys punctata*	Trionychidae	VU/I
4	Common Indian Monitor Lizard	*Varanus bengalensis*	Varanidae	NT/I
5	Russell's Viper	*Daboia russelii*	Viperidae	LC/I
6	Cobra	*Naja naja*	Elapidae	LC/I
7	King cobra*	*Ophiophagus hannah*	Elapidae	VU/I
8	Green Forest lizard	*Calotes calotes*	*Agamidae*	LC/I
9	Checkered Keelback	*Fowlea piscator*	*Colubridae*	LC/I
10	Common Kukri Snake*	*Oligodon arnensis*	Colubridae	LC/I
11	Whitaker's Boa*	*Eryx whitakeri*	Boidae	NT/I
13	Common Sand Boa*	*Gongylophis conicus*	Boidae	LC/IV

14	Montane trinket snake*	*Coelognathus helena monticollaris*	Colubridae	LC/IV
15	Indian rat Snake*	*Ptyas mucosa*	Colubridae	LC/IV
16	Western Kukri Snake*	*Oligodon affinis*	Colubridae	LC/IV
17	Striped Keelback*	*Amphiesma stolatum*	Colubridae	LC/IV
18	Hill keelback	*Amphiesma monticola*	Colubridae	LC/IV
19	Saw scaled Viper*	*Echis carinathus*	Viperidae	LC/IV
20	Common krait*	*Bungarus caeruleus*	Elapidae	LC/IV
21	Ceylon Cat Snake*	*Boiga ceylonensis*	Colubridae	LC/IV
22	Common Indian cat snake*	*Boiga trigonata*	Colubridae	LC/IV
23	Bamboo Pit Viper*	*Trimeresurus gramineus*	Viperidae	LC/IV
24	Bark/Marbled Tree gecko	*Hemidactylus leschenaultia*	Gekkonidae	LC/IV

*Note * Secondary information from the Bhagawan Mahavir WLs report – Annexure – 1.*

TOADS AND AMPHIBIANS: Total 17 species of frogs were recorded within the various habitat ranges from paddy field, scrub jungle, riparian forest, streams, and evergreen forest patches. The Jerdon's narrow mouthed frog and Bronzed frog are near threatened and one Konkan bush frog vulnerable under IUCN and the rest of all were under the least concern category. As per WPA 9 species were recorded under Schedule IV.

Table 2.14: List of toads and amphibians reported within buffer zone

S. No.	Common name	Scientific name	Family	IUCN / WPA 1972 & Amnd. 2022
1	Common Indian toad	*Bufo melanostictus*	Bufonidae	LC/IV
2	Jerdon's narrow mouthed frog*	*Ramanella montana*	Microhylidae	LC/IV
3	Konkan bush frog*	*Philautus bombayensis*	Rhacophoridae	LC/IV
4	Marten's bush frog*	*Philautus leucorhinus*	Rhacophoridae	LC/IV
5	Bamboo tree frog*	*Polypedates leucomystax*	Rhacophoridae	LC/IV
6	Common tree frog*	*Polypedates maculatus*	Rhacophoridae	LC/IV
7	Malabar gliding frog	*Rhacophorus malabaricus*	Rhacophoridae	LC/IV
8	Skipper frog*	*Euphlyctis cyanophlyctis*	Ranidae	LC/II
9	Jerdon's bull frog*	*Hoplobatrachus crassus*	Ranidae	LC/IV
10	Indian bull frog*	*Hoplobatrachus tigerinus*	Ranidae	LC/II
11	Brown leaping frog	*Indirana semipalmata*	Ranidae	LC/IV
12	Paddyfield frog*	*Limnonectes limnocharis*	Ranidae	LC/IV
13	Hill cricket frog	*Limnonectes syhadrensis*	Ranidae	LC/IV
14	Fungoid frog	*Rana malabaricus*	Ranidae	LC/IV
15	Bronzed frog*	*Rana temporalis*	Ranidae	LC/IV
16	Indian burrowing frog	*Tomopterna breviceps*	Ranidae	LC/IV
17	Dobson's burrowing frog*	*Tomopterna dobsoni*	Dicroglossidae	LC/IV

*Note: LC - Least concern, NT - near threaten, VU - Vulnerable, Wildlife Protection Act –Schedule -IV; * Secondary information from the Bhagawan Mahavir WLs report – Annexure – 1.*

BIRDS : Total 153 species of birds were recorded within the habitat ranges from paddy field to evergreen forest. About 123 species were resident locally. Out of 2 were endemic to the Western Ghats, 7 species were locally migratory and 2 were vulnerable species. As per the Wildlife Protection Act, 4- species Schedule I and 124 species Schedule IV. About 21 species recorded migratory birds within these habitats and one threatened species recorded.

Table 2.15. List of birds recorded within buffer zone

S. No	Common name	Scientific name	Family	IUCN / WPA 1972 & Amnd. 2022
1	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Accipitridae	LC/I
2	Indian Peafowl	*Pavo cristatus*	Phasianidae	LC/I

3	Shikra	*Accipiter badius*	Accipitridae	LC/I
4	Osprey	*Pandion haliaetus*	Pandionidae	LC/I
5	Chestnut Bittern*	*Ixobrychus cinnamomeus*	Ardeidae	LC/I
6	Cotton Teal	*Nettapus coromandelianus*	Anatidae	LC/I
7	Brahminy Kite	*Haliastur Indus*	Accipitridae	LC/I
8	Crested Serpent Eagle*	*Spilornis cheela*	Accipitridae	LC/I
9	Eurasian Marsh Harrier	*Circus aeruginosus*	Accipitridae	LC/I
10	Crested Goshawk	*Accipiter trivirgatus*	Accipitridae	LC/I
11	Besra Sparrowhawk	*Accipiter virgatus*	Accipitridae	LC/I
12	Black Eagle*	*Ictinaetus malayensis*	Accipitridae	LC/I
13	Crested Tree-swift	*Hemiprocne coronate*	Hemiprocnidae	LC/I
14	Brown Wood Owl	*Strix leptogrammica*	Strigidae	LC/I
15	Common Hill-Myna	*Gracula religiosa*	Sturnidae	LC/I
16	Grey Junglefowl	*Gallus sonneratii*	Phasianidae	LC/I
17	Nilgiri Wood Pigeon	*Columba elphinstonii*	Columbidae	VU/I
18	Small Minivet*	*Pericrocotus cinnamomeus*	Campephagidae	LC/I
19	Forest Eagle-Owl	*Bubo nipalensis*	Strigidae	LC/I
20	Little Grebe	*Tachybaptus ruficollis*	Podicipedidae	LC/II
21	Little Cormorant	*Phalacrocorax niger*	Phalacrocoracidae	LC/II
22	Indian Shag	*Phalacrocorax fuscicollis*	Phalacrocoracidae	LC/II
23	Great Cormorant	*Phalacrocorax carbo*	Phalacrocoracidae	LC/IV
24	Darter	*Anhinga melanogaster*	Phalacrocoracidae	LC/II
25	Little Egret	*Egretta garzetta*	Ardeidae	LC/II
26	Western Reef Egret	*Egretta gularis*	Ardeidae	LC/II
27	Grey Heron	*Ardea cinerea*	Ardeidae	LC/II
28	Purple Heron	*Ardea purpurea*	Ardeidae	LC/II
29	Large Egret	*Casmerodius albus*	Ardeidae	LC/II
30	Median Egret	*Mesophoyx intermedia*	Ardeidae	LC/II
31	Cattle Egret	*Bubulcus ibis*	Ardeidae	LC/II
32	Indian Pond-Heron	*Ardeola grayii*	Ardeidae	LC/II
33	Little Green Heron	*Butorides striatus*	Ardeidae	LC/IV
34	Black-crowned Night Heron	*Nycticorax nycticorax*	Ardeidae	LC/II
35	Malayan Night Heron*	*Gorsachius melanocephalus*	Ardeidae	LC/II
36	Black Bittern	*Dupetor flavicollis*	Ardeidae	LC/IV
37	Painted Stork*	*Mycteria leucocephala*	Ciconiidae	LC/II
38	Lesser Whistling-Duck	*Dendrocygna javanica*	Anatidae	LC/II
39	Spot-billed Duck*	*Anas poecilorhyncha*	Anatidae	LC/II
40	Oriental Honey-buzzard	*Pernis ptilorhyncus*	Accipitridae	LC/II
41	Black Kite*	*Milvus migrans*	Accipitridae	LC/II
42	Jungle Rush Quail*	*Perdicula asiatica*	Phasianidae	LC/II
43	Red Spurfowl*	*Galloperdix spadicea*	Phasianidae	LC/II
44	Common Buttonquail	*Turnix suscitator*	Turnicidae	LC/II
45	Blue-breasted Rail	*Gallirallus striatus*	Rallidae	LC/IV
46	White-breasted Waterhen*	*Amaurornis phoenicurus*	Rallidae	LC/II
47	Purple Moorhen	*Porphyrio porphyrio*	Rallidae	LC/IV
48	Pheasant-tailed*	*Hydrophasianus chirurgus*	Jacanidae	LC/II
49	Bronze-winged Jacana	*Metopidius indicus*	Jacanidae	LC/II
50	Common Ringed Plover	*Charadrius hiaticula*	Charadriidae	LC/II
51	Little Ringed Plover	*Charadrius dubius*	Charadriidae	LC/II
52	Kentish Plover*	*Charadrius alexandrines*	Charadriidae	LC/II
53	Yellow-wattled Lapwing	*Vanellus malarbaricus*	Charadriidae	LC/IV
54	Red-wattled Lapwing	*Vanellus indicus*	Charadriidae	LC/II
55	Eurasian Woodcock	*Scolopax rusticola*	Scolopacidae	LC/II
56	Spotted Dove	*Streptopelia chinensis*	Columbidae	LC/II
57	Emerald Dove*	*Chalcophaps indica*	Columbidae	LC/II
58	Green Imperial Pigeon	*Ducula aenea*	Columbidae	LC/II
59	Mountain Imperial-Pigeon	*Ducula badia*	Columbidae	LC/II
60	Indian Hanging-Parrot	*Parrot Loriculus vernalis*	Psittacidae	LC/IV

61	Rose-ringed Parakeet	*Psittacula krameria*	Psittacidae	LC/II
62	Plum-headed Parakeet	*Psittacula cyanocephala*	Psittacidae	LC/II
63	Blue-winged Parakeet	*Psittacula columboides*	Psittacidae	LC/II
64	Brainfever Bird	*Hierococcyx varius*	Cuculidae	LC/II
65	Indian Cuckoo	*Cuculus Micropterus*	Cuculidae	LC/II
66	Common Cuckoo	*Cuculus Micropterus*	Cuculidae	LC/II
67	Banded Bay Cuckoo	*Cacomantis sonneratii*	Cuculidae	LC/II
68	Indian Plaintve Cuckoo	*Cacomantis passerinus*	Cuculidae	LC/II
69	Drongo Cuckoo	*Surniculus lugubris*	Cuculidae	LC/II
70	Asian Koel	*Eudynamys scolopacea*	Cuculidae	LC/II
71	Small Green-billed Malkoha	*Phaenicophaeus viridirostris*	Cuculidae	LC/II
72	Greater Coucal*	*Centropus sinensis*	Cuculidae	LC/II
73	Lesser Coucal *	*Centropus bengalensis*	Cuculidae	LC/II
74	Oriental Scops-Owl	*Otus sunia*	Strigidae	LC/II
75	Ketupa zeylonensis	*Brown Fish-Owl*	Strigidae	LC/IV
76	Glaucidium radiatum	*Jungle Owlet*	Strigidae	LC/IV
77	Spotted Owlet	*Athene brama*	Strigidae	LC/II
78	Indian Jungle Nightjar*	*Caprimulgus indicus*	Caprimulgidae	LC/II
79	Indian Edible-nest Swiftlet	*Collocalia unicolor*	Apodidae	LC/IV
80	White-rumped Needletail-Swift	*Zoonavena sylvatica*	Apodidae	LC/II
81	Brown-backed Needletail-Swift	*Hirundapus giganteus*	Apodidae	LC/II
82	Asian Palm Swift	*Cypsiurus balasiensis*	Apodidae	LC/II
83	Alpine Swift	*Tachymarptis melba*	Apodidae	LC/II
84	Pacific Swift	*Apus pacificus*	Apodidae	LC/II
85	House Swift	*Apus affinis*	Apodidae	LC/II
86	Malabar Trogon*	*Harpactes fasciatus*	Trogonidae	LC/II
87	Small Blue Kingfisher	*Alcedo atthis*	Alcedinidae	LC/II
88	Oriental Dwarf Kingfisher	*Ceyx Erithacus*	Alcedinidae	LC/II
89	Stork-billed Kingfisher	*Halcyon capensis*	Alcedinidae	LC/IV
90	White-breasted Kingfisher	*Halcyon smyrnensis*	Alcedinidae	LC/IV
91	Black-capped Kingfisher	*Halcyon pileate*	Alcedinidae	LC/II
92	Collared Kingfisher *	*Todiramphus chloris*	Alcedinidae	LC/II
93	Blue-eared Kingfisher	*Alcedo meningting*	Alcedinidae	LC/II
94	Ceryle rudis *	*Lesser Pied Kingfisher*	Alcedinidae	LC/IV
95	Blue-bearded Bee-eater	*Nyctyornis athertoni*	Meropidae	LC/II
96	Small Bee-eater	*Merops orientalis*	Meropidae	LC/II
97	Blue-tailed Bee-eater	*Merops philippinus*	Meropidae	LC/II
98	Chestnut-headed Bee-eater*	*Merops leschenaultia*	Meropidae	LC/II
99	Brown-headed Barbet	*Megalaima zeylanica*	Capitonidae	LC/II
100	Crimson-throated Barbet	*Megalaima rubricapilla*	Capitonidae	LC/IV
101	Coppersmith Barbet	*Megalaima haemocephala*	Capitonidae	LC/II
102	Brown-capped Pygmy woodpecker	*Dendrocopos nanus*	Picidae	LC/IV
103	Yellow-fronted Pied woodpecker	*Dendrocopos mahrattensis*	Picidae	LC/IV
104	Wire-tailed Swallow	*Hirundo smithii*	Hirudinidae	LC/II
105	Red-rumped Swallow	*Hirundo daurica*	Hirudinidae	LC/IV
106	Large Pied Wagtail*	*Motacilla maderaspatensis*	Motacillidae	LC/II
107	Yellow Wagtail	*Motacilla flava*	Motacillidae	LC/IV
108	Paddyfield Pipit	*Anthus rufulus*	Motacillidae	LC/II
109	Large Cuckoo-shrike	*Coracina macei*	Campephagidae	LC/II
110	Scarlet Minivet	*Pericrocotus flammeus*	Campephagidae	LC/II
111	Red-whiskered Bulbul	*Pycnonotus jocosus*	Pycnonotidae	LC/II
112	Red-vented Bulbul *	*Pycnonotus cafer*	Pycnonotidae	LC/II
113	White-browed Bulbul	*Pycnonotus luteolus*	Pycnonotidae	LC/II
114	Yellow-browed Bulbul	*Iole indica*	Pycnonotidae	LC/IV
115	Common Iora	*Aegithina tiphia*	Irenidae	LC/II
116	Asian Fairy-Bluebird	*Irena puella*	Irenidae	LC/IV
117	Jerdon's Chloropsis *	*Chloropsis cochinchinensis*	Irenidae	LC/II
118	Malabar Whistling Thrush	*Myophonus horsfieldii*	Turdinae	LC/II

119	Orange-headed Thrush	*Zoothera citrinocyanotus*	Turdinae	LC/II
120	Oriental Magpie-Robin	*Copsychus saularis*	Turdinae	LC/II
121	White-rumped Shama	*Copsychus malabaricus*	Turdinae	LC/IV
122	Indian Robin	*Saxicoloides fulicata*	Turdinae	LC/IV
123	Pied Bushchat	*Saxicola caprata*	Turdinae	LC/II
124	Spotted Babbler	*Pellorneum ruficeps*	Timaliinae	LC/II
125	Indian Scimitar Babbler	*Pomatorhinus horsfieldii*	Timaliinae	LC/II
126	Rufous-bellied Babbler*	*Dumetia hyperythra*	Timaliinae	LC/IV
127	Black-headed Babbler	*Rhopocichla atriceps*	Timaliinae	LC/IV
128	Yellow-eyed Babbler	*Chrysomma sinense*	Timaliinae	LC/IV
129	Rufous Babbler	*Turdoides subrufus*	Timaliinae	LC/IV
130	Jungle Babbler	*Turdoides striatus*	Timaliinae	LC/II
131	Quaker Tit-Babbler	*Alcippe poioicephala*	Timaliinae	LC/II
132	Streaked Fantail-Warbler	*Cisticola juncidis*	Sylviinae	LC/II
133	Franklin's Prinia	*Prinia hodgsonii*	Sylviinae	LC/II
134	Ashy Prinia	*Prinia socialis*	Sylviinae	LC/II
135	Plain Prinia *	*Prinia inornata*	Sylviinae	LC/II
136	Common Tailorbird	*Orthotomus sutorius*	Sylviinae	LC/II
137	Tickell's Blue-Flycatcher	*Cyornis tickelliae*	Muscicapinae	LC/II
138	Tickell's Flowerpecker	*Dicaeum erythrorynchos*	Dicaeidae	LC/II
139	Plain Flowerpecker	*Dicaeum concolor*	Dicaeidae	LC/II
140	Purple-rumped Sunbird	*Nectarinia zeylonica*	Nectariniidae	LC/IV
141	Black-headed Munia	*Lonchura malacca*	Estrildidae	LC/II
142	House Sparrow	*Passer domesticus*	Passeridae	LC/II
143	Yellow-throated Sparrow	*Petronia xanthocollis*	Passeridae	LC/IV
144	Common Myna	*Acridotheres tristis*	Sturnidae	LC/II
145	Jungle Myna	*Acridotheres fuscus*	Sturnidae	LC/II
146	Black Drongo	*Dicrurus macrocercus*	Dicruridae	LC/II
147	Ashy Drongo	*Dicrurus leucophaeus*	Dicruridae	LC/II
148	Bronzed Drongo	*Dicrurus aeneus*	Dicruridae	LC/II
149	Greater Racket-tailed Drongo	*Dicrurus paradiseus*	Dicruridae	LC/II
150	Indian Treepie	*Dendrocitta vagabunda*	Corvidae	LC/II
151	White-bellied Tree Pie	*Dendrocitta leucogaster*	Corvidae	LC/II
152	House Crow	*Corvus splendens*	Corvidae	LC/II
153	Jungle Crow	*Corvus macrorhynchos*	Corvidae	LC/II

Note : *M - Migratory, R - Resident, U - unclear, E - Endemic, CR - Critically endangered, NT - Near threatened, V - Vulnerable. WPA Schedule –I – IV,* * Secondary information from the Bhagawan Mahavir WLs report *Annexure – 1.*

BUTTERFLIES: **Total 27 species of butterfly were recorded within various habitats such as Paddy field, degraded habitat, scrub forest, open grassland, evergreen forest, and near settlements. Out of 27 species there are 2 species were under Schedule-I, 4 were Schedule-II and one in Schedule-IV, and 22 were common in these habitats.**

Table 2.16. List of butterfly species recorded within buffer zone

S. No.	Common name	Scientific name	Family	IUCN / WPA 1972 & Amnd. 2022
1	Crimson rose	*Pachliopta hector Linnaeus*	Papilionidae	LC/II
2	Danaid Eggfly	*Hypolimnas misippus*	Nymphalidae	LC/II
3	Spot swordtail*	*Graphium nomius Esper*	Papilionidae	LC/IV
4	Southern birdwing	*Troides minos Cramer*	Papilionidae	LC/II
5	Red helan	*Princepes helenus helenus Hampson*	Papilionidae	LC/IV
6	Malabar banded peacock*	*Papilio buddh Westwood*	Papilionidae	LC/II
7	Lime butterfly	*Papilio demoleus Linnaeus*	Papilionidae	LC/IV
8	Chocolate albatross	*Appias lyncida Cramer*	Pierinae	LC/II
9	Common Jezebel	*Delias eucharis Drury*	Pierinae	LC/IV

10	Common emigrant*	*Catopsilia pomona Fabricius*	Colladinae	LC/IV
11	Common grass Yellow	*Eurema hecabe contubernalis Moore*	Colladinae	LC/IV
12	Angled Sunbeam*	*Curetis dentata Moore*	Curetinae	LC/IV
13	Common Silverline	*Spindasis vulcans fusca Moore*	Theclinae	LC/IV
14	Angled pierrot*	*Caleta caleta decidia Cramer*	Polyommatinae	LC/IV
15	Pea Blue	*Lampides boeticus*	Polyommatinae	LC/IV
16	Dark pierrot	*Tarucus Ananda*	Polyommatinae	LC/IV
17	Common four ring	*Ypthima huberni huberni Fabricius*	Polyommatinae	LC/IV
18	Common nawab*	*Polyura athamas athamas Drury*	Charaxinae	LC/II
19	Angled Castor*	*Ariadne ariadne pallidior Frusthorfer*	Nymphalinae	LC/IV
20	Common castor	*Ariadne merione assama Evans*	Nymphalinae	LC/IV
21	Lemon pansy *	*Precis lemonias lemonias L*	Nymphalinae	LC/IV
22	Commander	*Moduza procis procis Cramer*	Nymphalinae	LC/IV
23	Tree Nymph	*Idea malabarica Moore*	Danainae	LC/II
24	Common Indian Crow	*Euploea core Cramer*	Danainae	LC/IV
25	Plain Tiger*	*Danaus (Anosia) chrysippus L*	Danainae	LC/IV
26	Grass demon *	*Edaspes folcus Cramer*	Hesperiidae	LC/IV
27	Common dart*	*Pocanchus spp Fabricius*	Hesperiidae	LC/IV

***Note:** * Secondary information from the Bhagawan Mahavir WLs report – Annexure -1.*

AQUATIC SPECIES (CRAB/FISHES): Total 16 species of fishes were recorded within the regions and 2 species of crabs in the streams, rivers, and estuaries. The species *Thunnus albacares* under near threatened and *Thunnus obesus* are Vulnerable, and most of them were not being evaluated IUCN status

Table 2.17. List of fishes and crab species reported within buffer zone

S. No.	Common name	Scientific name	Family	IUCN status/ WPA Schedule
1	Spangled emperor	*Lethrinus nebulosus*	Lethrinidae	Not evaluated
2	Mangrove red snapper	*Lutjanus argentimaculatus*	Lutjanidae	Not evaluated
3	Malabar blood snapper	*Lutjanus malabaricus*	Lutjanidae	Not evaluated
4	John's snapper	*Lutjanus johni*	Lutjanidae	Not evaluated
5	Yellowfin tuna	*Thunnus albacares*	Lutjanidae	Least Concern
6	Bigeye tuna	*Thunnus obesus*	Lutjanidae	Vulnerable
7	Indian mackerel	*Rastrelliger kanagurta*	Lutjanidae	Data Deficient
8	Black marlin	*Makaira indica*	Lutjanidae	Data Deficient
9	Goatee croaker	*Dendrophysa russelli*	Sciaenidae	Not evaluated
10	Blotched croaker	*Nibea maculata*	Sciaenidae	Not evaluated
11	Indian oil-Sardinella	*Sardinella longiceps*	Sciaenidae	Least Concern
12	Indian spiny turbot	*Psettodes erumei*	Psettodidae	Not evaluated
13	Malabar tonguesole	*Cynoglossus macrostomus*	Cynoglossidea	Not evaluated
14	Dorab wolf-herrings	*Chirocentrus dorab*	Chirocentridae	Not evaluated
15	Chacunda gizzard-shad	*Anodontostoma Chacunda*	Clupeidae	Not evaluated
16	Engraved catfish	*Arius caelatus*	Ariidae	Not evaluated
17	Christian crabs	*Charybdis cruciata*	Portunidae	Not evaluated
18	Blue swimming crab	*Portunus Pelagicus*	Portunidae	Not evaluated

***Note:** * Secondary information from the Bhagawan Mahavir WLs report & Atkore, Vidyadhar PhD work on fish diversity and turnover across multiple spatial scales in the Western ghats – Annexure – 1.*

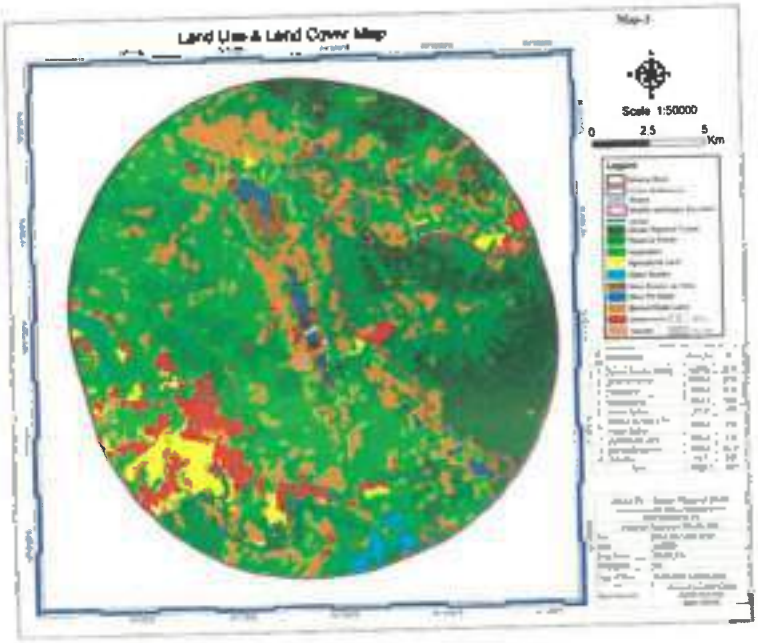
Wildlife management is complex and need to be considered multifaceted factors such as food-web, resources competitions, anthropogenic, forest fragmentation, and sociological issues such community livelihoods, culture, ethics and forest dependency etc. Total of 48 species of fauna falls within the category of Wildlife Protection Act 1972 under Schedule I. The details of each species ecology and conservation issues given below.

Table 2.18: List of Scheduled-I Wildlife species

S. No.	Local Name	Scientific name	Family	WPA-Schedule
Mammals				
1	Common grey mongoose	*Urva edwardsii*	Herpestidae	LC/I
2	Indian porcupine	*Hystrix indica*	Hystricidae	LC/I
3	Malabar gain squirrel	*Ratufa indica*	Sciuridae	VU/I
4	Common leopard	*Panthera pardus*	Felidae	VU/I
5	Leopard cat	*Prionailurus bengalensis*	Felidae	LC/I
6	Wroughto's Gaint Mastiff Bat	*Otomops wroughtoni*	Molossidae	LC/I
7	Slender Loris	*Loris lydekkerianus*	Lorisidae	NT/I
8	Mouse Deer	*Moschiola indica*	Tragulidae	LC/I
9	Four Horned Antelope	*Tetracerus quadricornis*	Bovidae	VU/I
10	Gaur or Indian Bison	*Bos gaurus*	Bovidae	VU/I
11	Indian Pangolin	*Manis crassicaudata*	Manidae	EN/I
12	Sloth bear	*Melursus ursinus*	Ursidae	VU/I
13	Small Indian civet	*Viverricula indica*	Viverridae	LC/I
14	Bonnet macaque	*Macaca radiata*	Cercopithecidae	LC/I
15	Wild dog	*Cuon alpines*	Canidae	EN/I
Birds				
16	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Accipitridae	LC/I
17	Indian Peafowl	*Pavo cristatus*	Phasianidae	LC/I
18	Shikra	*Accipiter badius*	Accipitridae	LC/I
19	Osprey	*Pandion haliaetus*	Pandionidae	LC/I
20	Chestnut Bittern	*Ixobrychus cinnamomeus*	Ardeidae	LC/I
21	Cotton Teal	*Nettapus coromandelianus*	Anatidae	LC/I
22	Brahminy Kite	*Haliastur indus*	Accipitridae	LC/I
23	Crested Serpent Eagle	*Spilornis cheela*	Accipitridae	LC/I
24	Eurasian Marsh Harrier	*Circus aeruginosus*	Accipitridae	LC/I
25	Crested Goshawk	*Accipiter trivirgatus*	Accipitridae	LC/I
26	Besra Sparrowhawk	*Accipiter virgatus*	Accipitridae	LC/I
27	Black Eagle	*Ictinaetus malayensis*	Accipitridae	LC/I
28	Crested Tree-swift	*Hemiprocne coronata*	Hemiprocnidae	LC/I
29	Brown Wood Owl	*Strix leptogrammica*	Strigidae	LC/I
30	Common Hill-Myna	*Gracula religiosa*	Sturnidae	LC/I
31	Grey Junglefowl	*Gallus sonneratii*	Phasianidae	LC/I
32	Nilgiri Wood Pigeon	*Columba elphinstonii*	Columbidae	VU/I
33	Small Minivet	*Pericrocotus cinnamomeus*	Campephagidae	LC/I
34	Forest Eagle-Owl	*Bubo nipalensis*	Strigidae	LC/I
Reptiles				
35	Indian Rock Python	*Python molurus molurus*	Pythonidae	NT/I
36	Marsh Crocodile	*Crocodylus palustris*	Crocodylidae	VU/I
37	Indian Falpshell Turtle	*Lissemys punctata*	Trionychidae	VU/I
38	Common Indian Monitor Lizard	*Varanus bengalensis*	Varanidae	NT/I
39	Russell's Viper	*Daboia russelii*	Viperidae	LC/I
40	Cobra	*Naja naja*	Elapidae	LC/I
41	King cobra	*Ophiophagus hannah*	Elapidae	VU/I
42	Green Forest lizard	*Calotes calotes*	*Agamidae*	LC/I
43	Checkered Keelback	*Fowlea piscator*	*Colubridae*	LC/I
44	Common Kukri Snake	*Oligodon arnensis*	Colubridae	LC/I
45	Whitaker's Boa	*Eryx whitaker*	Boidae	NT/I
46	Common Indian monitor lizard	*Varanus bengalensis*	*Varanidae*	NT/I

https://www.iucnredlist.org/

2.3 Plan showing land details of the study area



2.2 Assessment of RET (Rare, Endangered and Threatened) species

The biodiversity study was undertaken to assess the biodiversity of Mineral Block Area and its buffer area of 10 Km radius with the following objectives.

1. Collection and synthesis of secondary information on the status of biodiversity in study region
2. Field survey to assess the status of flora and fauna component in core and buffer areas of project site
3. Identification and listing of flora and fauna which are important as per the Wildlife (protection) Act 1972 & Amendment 2022 for Schedule – I species.

Study Approach

A participatory and consultative approach was followed in executing the assignment on Ecology & Biodiversity assessment of the mining lease and 10-km buffer region.

We have consulted officials of forest department and local villagers about biodiversity. Literature survey included a review of the forest working plan, Census hand book, Gazetteer and other records related to the ecology of the region.
A team comprising flora and fauna specialist from Mineral Engineering Services along with Mr. M.S. Raju (EIA coordinator) have visited the Block IV - Kalay Mineral Block and its 10 km buffer area during 6th to 9th April 2023.

The visit, however, was restricted to core zone and areas outside the Wildlife Sanctuary, since entry into the Wildlife Sanctuary is prohibited. Also, Sufficient information with respect to the biodiversity of within the WLS is available on different portals (e.g. www.forest.gov.gov.in, www.bioinfo.nic.in) were used in preparation of the plan and list of flora & fauna.

Fauna

The Fauna species recorded in the study area given in table below. Overall, 15 important species recorded within the study area.

Table 2.19: List of Schedule I species in 10 km radius area

S. No.	Local Name	Scientific name	Family	IUCN/WPA-Schedule
1	Malabar gain squirrel	*Ratufa indica*	Sciuridae	VU/I
2	Common leopard	*Panthera pardus*	Felidae	VU/I
3	Slender Loris	*Loris lydekkerianus*	Lorisidae	NT/I
4	Four Horned Antelope	*Tetracerus quadricornis*	Bovidae	VU/I
5	Gaur or Indian Bison	*Bos gaurus*	Bovidae	VU/I
6	Indian Pangolin	*Manis crassicaudata*	Manidae	EN/I
7	Sloth bear	*Melursus ursinus*	Ursidae	VU/I
8	Wild dog	*Cuon alpines*	Canidae	EN/I
9	Long-billed Vulture	*Gyps indicus*	Accipitridae	CR/I
10	Nilgiri Wood Pigeon	*Columba elphinstonii*	Columbidae	VU/I
11	Indian Rock Python	*Python molurus molurus*	Pythonidae	NT/I
12	Marsh Crocodile	*Crocodylus palustris*	Crocodylidae	VU/I
13	Indian Falpshell Turtle	*Lissemys punctata*	Trionychidae	VU/I
14	King cobra	*Ophiophagus hannah*	Elapidae	VU/I
15	Whitaker's Boa	*Eryx whitakeri*	Boidae	NT/I
16	Common Indian monitor lizard	*Varanus bengalensis*	*Varanidae*	NT/I

***FLORA*:**

The plant species recorded in the study area was grouped into three categories i.e., endemic, rare, threatened and keystone species were given in below Table 2.31

Table 2.20. Endemic, Keystone and Threatened species recorded in 10-km radius area

S. No.	Species	Family	Core/buffer	Habitat	Status
1	*Artocarpus heterophyllus* Lam.	Moraceae	Buffer	Tree	Endemic
2	*Ficus arnottiana* (Miq.) Miq.	Moraceae	Core/ Buffer	Open	Keystone
3	*Ficus microcarpa* L. f.	Moraceae	Buffer	Open/ Rivulets	Keystone
4	*Ficus virens* L.	Moraceae	Core	Open	Keystone
5	*Holigarna nigra* Bourd.	Anacardiaceae	Buffer	Rivulets	Endemic
6	*Strychnos nux- vomica* L.	Loganiaceae	Core/buffer	Open	Rare
7	*Terminalia paniculata* Roth	Combretaceae	Core / Buffer	Open / Scrub forest	Endemic

CHAPTER -3

WILDLIFE AND HABITAT IMPROVEMENT MANAGEMENT STRATEGIES

3.1 PROBABLE IMPACTS DUE TO PROJECT ACTIVITIES

The developmental programs, policies and projects operated or managed by government or private bodies can cause significant changes in the physical, biological and socio-economic environment. In some cases, the changes may be beneficial while in other it may be detrimental to the environment. Accordingly, environmental impact studies are required for systematic identification, qualification and interpretation of the anticipated changes.

Generally, the projects have two distinct phases viz. Construction Phase and Operation Phase. The Proposed Project is an e-auctioned Mineral Block, which was operated by the erstwhile lessee, hence the Project, will have only Operational Phase.

The environmental impacts associated with mining during the operational phase are deforestation, land degradation (change in topography, soil erosion), visual intrusion, disturbance to hydrological system, water, air and noise pollution, all of which ultimately impacts the flora and fauna of the project area. However, occurrence and magnitude of these impacts entirely depends on project location, mode of operation and adoption of latest technologies. The probable impacts are listed herein below:

i. Impact on flora

Vegetation in the core area is observed to be is mostly sparse and scanty. Fugitive emissions involve generation of dust during various mining operations such as ripping and dozing for ground preparation, excavation of ore, loading, transportation of waste and Iron Ore, unloading and stacking of Iron Ore and waste. It is observed that dust usually settles down within a distance of 200-300 m from the activity area. Settlement of dust on the laminar surfaces of plants can impede the efficiency of phototransduction and thereby affect photosynthesis and productivity in plants. In some of the plants, it may smother the leaf surface blocking stomata, resulting in reduced transpiration.

Since there is no substantial vegetation in the active mining area, impacts on this account is not expected to be significant. Adequate measures shall be recommended as a part of the Environmental Management Plan (EMP) to control fugitive dust. Thus, adverse impacts on ecology and biodiversity are not expected to be significant.

ii. Impact on wildlife fauna:

The Mineral Block area is located at 1.04 km away from Bhagwan Mahavir Wildlife Sanctuary and Kalay River exists on the eastern side of the Mineral Block, which forms a natural barrier. Thus, there is no crossing over of wild animals from Wildlife Sanctuary located on the Eastern side of Kalay River. Hence, the anticipated impact of the Project on the wildlife in the Wildlife Sanctuary will be negligible.

iii. Impact on Water bodies:

Surface Water: A seasonal drainage exists within the Mineral Block and Kalay River flows from South to North adjacent to the Mineral Block area towards the eastern side. The seasonal drainage ultimately joins Kalay River in the eastern side outside the Mineral Block.

The average annual rainfall in the area is about 4000 mm. The maximum surface water run-off in the core zone will be diverted into the mining pits and settling ponds where adequate treatment will be undertaken and clear water will be discharged from the Mineral Block.

The suspended solids in the surface water run-off samples will be brought well within the permissible limits and therefore shall not affect the aquatic life.

Ground Water: The average depth of Groundwater level within the Mineral Block is about 39m MSL. The mining operations shall intersect the ground water table, as the deepest mine workings in the first five years of the mining plan period is -7 m MSL.

As per Hydrogeological study conducted at the Mineral Block the Taluka in general and study area of Block IV - Kalay Mineral Block falls in SAFE category in ground water development point of view.

iv. Impact on land environment

At the conceptual stage around 136.5289 Ha. of the Mineral Block area will be degraded due to pits, dumps and other allied activities. Area of around 89.9678 Ha. will be reclaimed and rehabilitated by plantation. An area of about 44.14 Ha. will be maintained as a water reservoir. This water reservoir will serve in augmenting the ground water condition of the region and can benefit the local villagers for various gainful purposes.

Changes in soil texture is anticipated due to settling of air borne dust or due to wash off of solid particulates by surface water. This will lead to change in porosity, permeability and other physical characteristics of soil.

Deposition of dust due to loading & unloading of Iron Ore and its transportation, may cause alteration of soil chemistry.

v. Impact on Ecology

Issues	Observations
Proximity to national park / wildlife sanctuary/ reserve forest/mangroves/ coastline/estuary/sea	Bhagwan Mahavir WLS is 1.04 km from boundary of the core zone (East direction) **Eco-sensitive scale range - 1**
	The 1st, 2nd & 3rd order streams, Dudhsagar River – 3.5 km, Kalay River – 0.005 km. **Eco-sensitive scale range - 1**
	Zuari River flows at a distance of 3.8 km. **Eco-sensitive Scale range- 3**
Activities of the Project affects the breeding/nesting sites of birds and animals	Migratory bird species may be affected due to the noise and dust from the vehicles etc. Further, birds which prefer the ground for their nesting may be affected only closer to the core areas. **Eco-sensitive scale ranges - 8-10**
	The reptiles may be affected due to the excavation of the core area. **Eco-sensitive scale ranges - 8-10**
	Fish and crabs may be affected due to nearby mining which provide nutritional demands of people. **Eco-sensitive scale ranges - 8-10**
Located near an area populated by rare or endangered species	Rare plant species *Strychnos nux vomica*, reported in buffer zone and not in core zone. **Eco-sensitive scale ranges - 10**
	Amongst the fauna species, very few species were migratory, while many of them are local species. **Eco-sensitive scale ranges - 8**
Proposed project restricts access to waterholes for wildlife.	Kalay river exists on the eastern side of the Mineral Block, which forms a natural barrier between the Mineral Block and Wildlife Sanctuary. There are no waterholes within the Mineral Block. Thus, there will be no restriction to access to waterholes for wildlife. Also, there will be no crossing over of wild animals

	from wildlife sanctuary towards the Mineral Block. **Eco-sensitive scale ranges - 8**
The proposed mining project impacts surface water quality that also provide water to wildlife	Maximum surface water run-off in the core zone will be diverted into the mining pits and settling ponds where adequate treatment will be undertaken and clear water will be discharged from the Mineral Block and it will be ensured that the quality of water discharged from the Mineral Block will be well within the permissible limits. Hence, there shall be no affect on the surface water quality due to the Project activities. **Eco-sensitive scale ranges - 8**
Proposed mining project increase siltation that would affect nearby Biodiversity area.	Environmental protective measures such as retention walls, trenches, settling ponds will facilitate sedimentation of any sediment runoff within the Mineral Block. Such measures will prevent siltation of nearby rivers and Biodiversity area. **Eco-sensitive scale ranges - 8**
Risk of fall/slip or cause death to wild animals due to project activities	The mining activities will be carried out within the Mineral Block. The boundary of the Mineral Block area will be fenced. Watch and ward will be provided at ingress and egress. These provisions will prevent crossing over of any wildlife into the Project area preventing any such deaths to wild animals. Apart from the provisions suggested Kalay River existing on the eastern side of the Mineral Block, forms a natural barrier between Mineral Block and the Wildlife Sanctuary. In case of any such incident, assistance will be taken from veterinary doctors and wildlife experts. **Eco-sensitive scale ranges - 8**
The project releases effluents into a water body that also supplies water to wildlife	Waste water generated from workshop and wheel washing system will be recycled and reused. Effluents generated due to the mining activities such as used oil, grease will be properly stored in the designated areas and will be disposed through authorized recyclers registered with the GSPCB and will not be released in the water bodies from the project area. As it is a mining project Industrial effluents will not be generated. **Eco-sensitive scale ranges - 9**
Mining projects affect the forest-based livelihood/ any specific forest product on which local livelihood depended	The proposed mine does not have any timber based or any forest product on which the local livelihood depends. **Eco-sensitive scale ranges - 9**
Project likely to affect migration routes	The Project area does not have any migration routes. As the mining activities will be carried out within the project area it will not affect any migration routes. **Eco-sensitive scale ranges - 9**
Project likely to affect flora of an area, which have medicinal value.	No such significantly important medicinal value species exists within the Mineral Block. **Eco-sensitive scale ranges - 9**
Forestland is to be diverted, has carbon-high sequestration	An application has been filed for the diversion of the forest land existing within the Mineral Block. As the Mineral Block is already broken up, the vegetation in the core area is observed to be mostly sparse and scanty. Plantation of trees with high carbon sequestration will be carried out every year as per the approved mining plan and conceptually 89.9678 Ha. of land will be brought under plantation within the Mineral Block. Alternatively, land with crown density of greater than 0.4 and land equivalent to the area of land to be diverted is given under Compensatory Afforestation which is also within the Buffer Zone. **Eco-sensitive scale ranges - 9**
The project likely to affect wetlands, fish breeding grounds, marine ecology	Clear water will be discharged from the Mineral Block after treatment. The nearest wetland (Nanda Lake) is at a distance of 7 Km from the project boundary and the mining operations directly or indirectly do not affect Nanda Lake. Hence, wetlands, fish breeding grounds, marine ecology will not be affected by the proposed project. **Eco-sensitive scale ranges - 9**

vi. Probable increase in the vehicular traffic

Transportation of Iron Ore is by road. The road traffic to and from the Mineral Block during operation phase would not be so overtly intensive. Based on the study carried out at Guddemol junction, it was found that the original traffic density recorded PUC per day was 2317.5, and the estimated final traffic density due to the project would be 4465.5 PUC/ day. As per the Loss of Service (LOS) under the Indian Road Congress, the traffic situation falls under 'very good'.

vii. Impact on Air Environment:

During mining operations, air pollution in envisaged due to the following activities -

- Dust generation during handling of waste and Iron Ore, activities such as loading/unloading, conveyance and transfer points.
- Air pollution due to generation of NOx, SO2 and CO from burning of fossil fuel by machineries that includes HEMM and transport trucks.
- The dust can cause respiratory distress in human and fauna due to inhalation.

The Environmental Management Plan to mitigate the impact on air environment, water environment, land environment, flora & fauna, as prepared in the Environmental Impact Assessment Report is enclosed as **Annexure - 2.**

viii. Human - Wildlife conflicts and depredation caused by the wild animals in the WCP area

Kalay River flows from South to North existing outside the Mineral Block on the Eastern Boundary of the Project area, separating it from the WLS, thereby acting as a natural barrier. Kalay River thus restricts the animal movement from WLS towards the Project.

No man-animal conflict was reported during field interactions with local communities. Also, no animal kill/ injury were reported in the study area.

In view of the above observations, there is minimal chances of human-wildlife conflicts in the area. Therefore, there will be no change reflected in the study area due to project implementation as the operation will be done within the Mineral Block premises following effective management and conservation plan.

3.1.1 HAZARDS & RISK ASSESSMENT

Hazard analysis involves the identification and quantification of the various hazards (unsafe conditions). On the other hand, risk assessment deals with recognition and computation of risks, the equipment in the Mineral Block area and personnel are prone to, due to accidents resulting from the hazards present in the Mineral Block area.

This section looks into various construction/operation activity induced hazards vis-à-vis the flora & fauna in core and buffer zone. Risks with respect to the hazards identified will be assessed through a scoring system. Further, various mitigation measures will be proposed in subsequent chapters.

3.1.2 IDENTIFICATION OF HAZARDS

Probable hazards to the flora & fauna identified due to various activities during operation phases that are proposed to be carried out, are listed below:

1. Operation Phase

a. Excavation

b. Transportation of waste and Iron Ore by engaging tipper trucks
c. Storage of waste and Iron Ore
d. Open nature of settling ponds
e. Transportation of product.
f. Fire hazards

3.1.3 CONSEQUENCE SCORING WITH RESPECT TO LIKELIHOOD OF IMPACT

The consequences of the identified impacts on various ecological components have been ranked into 5 levels ranging from insignificant consequence to extensive consequence and the same are shown in Table 3.1, which covers the effects of impacts on Flora, fauna and habitat / ecosystem.

Table 3.1a: Impact Scoring System – Consequence Assessment

S. No.	Environmental Component Impacted	Impact Severity Levels and Scores				
		Severity Level: Acceptable Points: + 1	Severity Level: Minor Points: + 2	Severity Level: Moderate Points: + 3	Severity Level: Major Points: + 4	Severity Level: Unacceptable Points: + 5
C1	C2	C3	C4	C5	C6	C7
1	Flora / Fauna Habitat/ Ecosystem	• Site specific loss (removal) of common floral species (but not any tree or trees). • Vegetation composition does not form a habitat character for any species of conservation significance. • No short term or long term impacts are likely to adversely affect the surrounding habitat / ecosystem. • Site specific disturbance to common / general faunal species (e.g. movement pattern, displacement etc.). • No negative impacts on surrounding ecosystem functioning or habitat ecology.	• Site specific loss (removal) of some saplings of trees. • Minor temporary impacts on ecosystem functioning or habitat ecology of common / general species. • Minor short term / long term impacts on surrounding / immediate/adjacent habitats and are resilient to changes in habitat structure or condition. • Impact on surrounding agro-ecosystem /agriculture when environmental data / parameters are within permissible limits.	• Site specific loss (removal) of some common well grown tree / trees species. • Site specific loss of nesting / breeding habitat of common /general species of flora-fauna but will not result in permanent loss of habitat. • Short term or long term impacts are likely to adversely affect the surrounding habitat character/ habitat ecology/ functioning of ecosystem. • Impact on surrounding agro-ecosystem / agriculture when physical parameters with marginal increase but can be mitigated.	• Site specific impact on threatened species but impacted species are widely distributed outside the project site. Short term impacts may lead to loss of abundance or extent, but unlikely to cause local population extinction. • Site specific habitat loss of fauna listed in IUCN, WCMC, Birdlife International, or any other international literature - secondary information. • Impacts on habitats / ecosystems of international importance.	• Impact on threatened species listed in as an endemic / Schedule-I as per IWPA 1972, Red Data Book, ZSI, BSI or literature published by any State Govt. Institute, University and College etc. Loss of habitat of above said flora-fauna. • Impact on genetic diversity of NP /PF /WLS /ESZ /IBA / tiger reserve / elephant corridor/wild life corridor. • Impact on ecosystem like river, forest, wetland (e.g. RAMSAR site etc.) etc.

Table 3.1b: Impact Scoring System – Consequence Assessment

S. No.	Environmental Component Impacted	Impact Severity Levels and Scores				
		Severity Level: Acceptable Points: + 1	Severity Level: Minor Points: + 2	Severity Level: Moderate Points: + 3	Severity Level: Major Points: + 4	Severity Level: Unacceptable Points: + 5
C1	C2	C3	C4	C5	C6	C7
2	Aquatic Ecosystem	• Occasional short term impact and / or disruption to aquatic flora and fauna.	• Impact on aquatic ecosystem, including flora, fauna and habitat but not destruction of species diversity or density.	• Significant localised impacts but without long term impact on Phytoplankton, zooplankton habitat. • Temporary impact on benthos ecosystem or fisheries ecosystem. • Some loss of fisheries ecosystem.	• Significant widespread impact on protected wildlife (corals/mangroves/turtles/any marine mammals). • Significant impact on mangroves habitat	• Damage to an extensive portion of aquatic ecosystem resulting in severe impacts on aquatic population and habitats and / or long term impact on aquatic habitat. • Permanent or long term impact on protected wildlife (corals/mangroves/turtles/any marine mammals) and mangroves.

Source/study material:

1. *https://its.wsu.edu/information-security-services/policies-standards-and-guidelines/how-to-rate-impact-for-risk-assessments/*
2. *Conservation Plan of Schedule I species located in study area of Proposed Expansion in Existing Facility by adding Synthetic Organic Chemicals Plant at Survey No. 31, 34, 36, 37/1, 207, 208, 209, 210 Gandhidham – Mandvi Highway, Nr. Pragapar Chokadi, Village Pragapar, Taluka Mundra, District Kutch, State Gujarat, August 2022*

3.1.4 QUANTIFYING THE LIKELIHOOD OF OCCURRENCE OF THE IMPACT

Severity of likelihood of the above mentioned occurrence is estimated in order to arrive at a complete picture of environmental impact significance. The severity of the likelihood of occurrence is rated on a scale of 1 to 5 based on the frequency of such occurrence. Likelihood of occurrence is shown in Table 3.2.

Table 3.2: Likelihood of Occurrence

Description	Environment/Health and Safety	Likelihood of occurrence
Frequent	Continuous occurrence or each day during the project life cycle	5
Regular	Occurs several times each year during the project life cycle	4
Periodic	Might occur annually during the project life cycle	3
Occasional	Might happen few times during the project life cycle	2
Rare	One time or one-off event during the project life cycle	1

Quantifying Environmental Impact significance with respect to Biological component.

The level of environmental impact significance is calculated by multiplying the consequence score and the probability of occurrence.

Thus,

Significance of Impact = Severity Score × Likelihood of Occurrence

The final score is in relative point score, rather than actual impact. The impact estimation is carried out on the assumption that all operations are carried out with standard safety measures.

Environmental Impact Significance Criteria, shown in Table 3.3, rates the overall Significance of Impact on the scale of 1-25. Such rating facilitates, and is used, for prioritizing the mitigation measures for reducing the environmental impact significance, thereafter, formulating and implementing Environmental Management Plans.

The Significance of Impact is calculated as mentioned above, and the value arrived at is compared to the Table 3.3, which indicates the severity of the impact.

Table 3.3: Environmental Impact Significance Criteria

Probability	Impact Significance				
	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Rare (1)	1	2	3	4	5
Occasional (2)	2	4	6	8	10
Periodic (3)	3	6	9	12	15
Regular (4)	4	8	12	16	20
Frequent (5)	5	10	15	20	25

Categorizing Environmental Impact Significance

Based on the score rating indicated in Table 3.3 above, Impact significance is colour coded based on the severity. Impact Significance are classified into five categories ranging from extreme significance to low significance. Table 3.4 depicts the Rating, Colour code, Impact significance and inference defined for each category. For instance, activities falling under the category of Extremely Significant are unacceptable and therefore need to be either stopped or modified in a way that they are brought to a lower level of Impact Significance. Further, activities resulting into

High and moderately severe impacts, although acceptable, require being evaluated and mitigated in a manner that significance of their impacts is lowered. Activities resulting into Low severe significant impacts do not require further mitigation.

Table 3.4: Categorization of Impact Significance

Scoring Impacts		
Colour Code and Score Range	Type of Risk	Inference
21 – 25	Extremely Significant	Activity should not proceed in current form
15 – 20	Highly Significant	Activity should be modified to include remedial planning and actions and be subject to detailed ecological assessment
9 – 14	Moderately Significant	Activity can operate subject to management and / or modification
4 – 8	Less Significant	No action required unless escalation of risk is possible
1 – 3	Minor / Negligible	Negligible Risk of activity

Table 3.5: Impact Scoring and Mitigation measures of Ecology and Biodiversity

S. No.	Aspect Description	Likely Impacts on Ecology and Biodiversity (EB)	Justification	Impact Scoring			Remarks	Mitigation measures
				S	L	S x L		
C1	C2	C3	C4	C3	C4	C5	C6	C7
I	*Project Operation*							
1.1	Transportation of Waste Material and Iron Ore from pit to stacking areas (No. of trips/day: 1567)	Air pollution in the form of dust (fugitive emissions) can cause coating of flora with dust. Thus, disturbance of site associated flora.	The flora found in the project area is local commonly found shrubs and trees majorly of species *Acacia auriculiformis*. Hence the flora will not be affected.	1	4	4	Less Significance	It is proposed to supress dust generation by sprinkling water on roads, stacking areas.
1.2	Operation and maintenance of HEMM (16 hrs /day)	Noise and vibration will affect fauna	Common fauna species found within the core zone are Indian Hare, Rat and Stripped Squirrel, uses local habitats around the Mineral Block area, hence there is no threat to the faunal biodiversity. Further, existing plantation will attenuate the noise propagation. Hence, there is no threat to the faunal biodiversity.	2	4	8	Moderately Significant	• Daily checking and periodic maintenance of equipment. • Training to operators. • Regular noise and vibration monitoring • Maintaining effective greenbelt.
1.3	Storage and handling Iron Ore	Air pollution in the form of airborne dust (fugitive emissions) due to wind action can affect flora and fauna.	The flora found in the Mineral Block area is local commonly found shrubs and trees majorly of species Acacia auriculiformis. Hence the flora will not be affected.	2	4	8	Moderately Significant	• Adequate fencing shall be maintained along the boundary of the project area. • The area will be manned to prevent inadvertent entries. • Adequate environmental protective measures will be provided.
1.4	Domestic waste water	Contamination of nearby water bodies	The domestic wastewater is treated in soak pit and septic tanks and hence there is no release of such wastewater.	1	3	3	Negligible	No specific mitigative measures needed.
1.5	Rainwater runoff during monsoon	Contamination of nearby water bodies affecting the aquatic fauna	During monsoon, rainwater runoff is channelized into the mining pit and a series of settling ponds, treated and clear water is discharged. Hence rainwater water from the Mineral	3	3	9	Moderately Significant	• Rainwater runoff will be channelized to series of settling pond through a system of trenches and drains to settling ponds. Clear water will be discharged from the premises.

			Block will not affect the aquatic fauna.					
1.6	Transportation of Iron Ore to jetties in the buffer zone. (About 357 trips/day)	• The flora found along the transportation road will be covered with dust. • Speeding trucks can cause accidents with animals on transport route.	The ore carrying trucks are covered with tarpaulin so as to prevent the dust getting airborne. Speed of the trucks are regulated. However, negligent driving can cause accidents	3	4	12	Moderately Significant	• The Department of Mines and Geology, Govt. of Goa (DMG), has notified The Goa (Prevention of Illegal Mining, Storage and Transportation of Minerals) Rules, 2013. The same will be strictly followed. • The PP will first approach the Directorate of Mines and Geology for approval of the route of transportation. • Upon approval, the PP will apply to the GSPCB for setting up monitoring stations on the route. After the GSPCB sets up the stations, the PP will then apply to the DMG for transit permits. • The PP upon receiving transit permit shall ensure that all conditions of transportation are adhered and complied with. • All trucks carrying ore shall be registered with the Directorate of Mines & Geology and fitted with GPS. • The timing of the Ore Transportation along the designated route shall be from 8.00 am to 1.00 pm with a break from 1.00 pm to 2.00 pm and then transportation will continue from 2.00 pm to 5.45 pm from the source location. • Above transportation, timings along the designated routes will be strictly followed with. • The truck/tippers engaged in transportation of ore will be kept with sufficient free board after filling the cargo box to avoid spillage.

								• All trucks/tippers engaged in the transportation of ore will be covered with tarpaulin. • In case of break down of loaded trucks/tippers unloading of ore at the road side shall be strictly avoided. • The roads within mining lease areas shall be sprinkled with water to suppress dust pollution. • Spillage of ore on the public roads shall be removed immediately on occurrence. • The PP will make suitable arrangement for sweeping of roads affected due to transportation of iron ore. • The PP will manage the daily trips in staggered manner in consultation with DMG, so that traffic congestion is avoided at major junctions. • Road sweeping machines will be jointly developed in hotspot areas/ stretches by the PP. • The shoulders of the mining transport roads will be tarred whenever needed. • The PP will carry out wheel washing in order to clean the wheels of the trucks and subdue dust arising out of it.
2	***General & Utilities***							
2.1	Fall of fauna in tailing/settling ponds	There is a probability of domestic cattle to accidently fall into settling ponds/tailing ponds.	Although the entry is guarded, there is a small chance of domestic cattle falling into settling ponds / tailing ponds.	1	5	5	Less Significant	• Safety bunds will be provided around the periphery of the settling ponds. Plantation existing on the safety bunds will prevent animals from accidental tripping in to tailing / settling ponds. • Regular monitoring and supervision by statutory officials.
2.2	Soil Degradation	• Changes in soil texture due to settling of air	The soil of the area may get affected due to operational	3	3	9	Moderately Significant	• Adequate stacking height helps to control dust emissions.

		borne dust or due to wash off of solid particulates by surface water. This will lead to change in porosity, permeability and other physical characteristics of soil of the area. • Changes in soil chemistry due to addition of foreign material from polluted air and water due to mining activities in the area.	activities, if proper care is not taken. Degradation of soil quality will take place due to settling of airborne dust.					• Surface run-off will not be directly discharged outside the project boundary. • Soil conservation measures will be taken up in the non-active areas within the project site to retain / maintain soil fertility. • Soil samples will be collected and tested at regular intervals from the nearby areas. This will help in mitigation of any harmful impact on soil due to the project activity.

3.2 RET (Rare, Endangered, Threatened) Species Specific Conservation Plan

The Biodiversity study in the core and Buffer area was undertaken by field survey to assess flora & fauna components and collection & synthesis of secondary information. Based on the study, RET Species of flora and fauna were identified as given in Table 2.19 & 2.20.

3.2.1 COMMON LEOPARD*

Kingdom:	Animalia
Phylum:	Chordata
Class :	Mammalia
Order:	Carnivora
Family:	Felidae
Genus:	Panthera
Species:	P. pardus
IUCN Status :	Vulnerable

Habitat

- Leopards are found in the moist mixed deciduous and southern tropical semi-evergreen forests of the Western Ghats.
- Agricultural and human-dominated areas: They also inhabit cashew plantations and other areas that border forested landscapes.
- Rocky outcrops: Leopards often shelter in rocky caves on hillocks.

3.2.2 SLENDER LORIS*

Kingdom:	Animalia
Phylum:	Chordata
Class :	Mammalia
Order:	Primates
Suborder:	Strepsirrhini
Family:	Lorisidae
Subfamily:	Lorinae
Genus:	Loris
IUCN Status :	Near Threatened

Habitat

- Forests and Sanctuaries: Slender lorises have been sighted in the forests of the Bhagwan Mahavir Wildlife Sanctuary and Mhadei Sanctuaries in Goa, indicating these are important habitats.
- Vegetation Types: They are found in various forest types across the Western Ghats, which include dry evergreen and wet evergreen forests, but also in dry deciduous forests.
- Other Areas: Sightings also occur in private forests and areas like Mollem, and rescues have been reported from North Goa.

3.2.3 FOUR HORNED ANTELOPE *

Kingdom:	Animalia
Phylum:	Chordata
Class:	Mammalia
Order:	Artiodactyla

Family: Bovidae
Subfamily: Bovinae
Tribe : Boselaphini
Genus: Tetracerus
IUCN Status : Vulnerable

Habitat

- Dry Deciduous Forests: The Four-horned Antelope (Chousingha) is found in dry deciduous forests and open habitats with a mix of thorny scrub and grassland.
- Preferred Areas: Studies in other parts of India have shown they prefer open, tree-savanna-type habitats.
- Distribution: While the species is endemic to the Indian subcontinent, its current distribution in Goa and elsewhere is not fully mapped, and there is a need for more surveys to determine its presence and abundance.

3.2.4 GAUR or INDIAN BISON

Kingdom: Animalia
Phylum: Chordata
Class : Mammalia
Order: Artiodactyla
Family: Bovidae
Subfamily: Bovinae
Genus: Bos
Species: B.gaurus
IUCN Status : Vulnerable

Habitat

- Preferred environments: Gaurs prefer forests with moderate to high canopy cover and areas dominated by Shorea robusta. They are also found in riverine forests.
- Proximity to resources: Their probability of occurrence increases closer to riverine areas and with greater distance from roads and fire lines.
- Resting behaviour: During the hottest parts of the day, gaurs rest in the shade of large trees.

3.2.5 INDAIN PANGOLIN *

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Pholidota
Family: Manidae
Genus: Manis
Species: M. crassicaudata
IUCN Status : Endangered

Habitat

- Types of habitats: Indian pangolins are found in subtropical and tropical shrublands and dry forests, with a strong presence in these areas.

- Goa's sanctuaries: They can be found in Goa's wildlife sanctuaries, as shown by instances of injured pangolins being rescued and released in these areas.

3.2.6 NILGIRI WOOD PIGEON

Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Columbiformes
Family: Columbidae
Genus: Columba
Species: C. elphinstonii
IUCN Status : Vulnerable

Habitat

- Evergreen and Closed Forests: The Nilgiri Wood Pigeon is a forest-dwelling species, found in evergreen and closed forest types within the Western Ghats region.
- High Canopy Cover: It prefers habitats with high canopy cover, typically foraging in the upper and middle canopy of the forest.

3.2.7 MONITOR LIZARD

Kingdom: Animalia
Phylum: Chordata
Class : Reptilia
Family: Varanidae
Genus: Varanus
Species: V. bengalensis
IUCN Status : Near Threatened

Description: Monitor lizards are large lizards with long necks, tails, and powerful legs. They have forked tongues and sharp teeth. The adult length of extant species ranges from 20 cm in some species such as Varanus sparnus, to over 3 m in the case of the Komodo dragon, though the extinct megalania (Varanus priscus) may have reached lengths of more than 7 m Most monitor species are terrestrial, but many are also arboreal or semiaquatic. While most monitor lizards are carnivorous, eating smaller reptiles, fish, birds, insects, small mammals, and eggs, a few species also eat fruit and vegetation.

3.2.8 MARSH CROCODILE

Kingdom: Animalia
Phylum: Chordata
Class : Reptilia
Order: Crocodilia
Family: Crocodylidae
Genus: Crocodylus
Species: C. palustris
IUCN Status : Vulnerable

Habitat

- Freshwater Systems : Marsh crocodiles (also known as mugger crocodiles) thrive in rivers such as the Zuari River and its tributaries, as well as in lakes and reservoirs like the Salaulim Reservoir.
- Estuarine Areas : They also inhabit the Mandovi-Zuari estuarine complex, a large coastal area with mudflats, swampy marshes, and freshwater streams.

3.2.9 INDIAN ROCK PYTHON

Kingdom:	Animalia
Phylum:	Chordata
Class:	Reptilia
Order:	Squamata
Suborder:	Serpentes
Family:	Pythonidae
Genus:	Python
Species:	P. sebae
IUCN Status :	Near Threatened

Habitat

- Forests and Woodlands : Indian Rock Pythons are found in forested areas, which provide essential cover and resources.
- Mangroves : These snakes can also be found in mangrove systems, highlighting their adaptability.
- Semi-Arid Regions : They also inhabit semi-arid areas, particularly those with a good presence of rocky foothills and cover.
- Proximity to Water : A key element of their habitat is proximity to fresh or inland water sources.

3.2.10 KING COBRA

Kingdom:	Animalia
Phylum:	Chordata
Class:	Reptilia
Order:	Squamata
Suborder:	Serpentes
Family:	Pythonidae
Genus:	Python
Species:	P. sebae
IUCN Status :	Near Threatened

Habitat

- Western Ghats Rainforests: King cobras are found in the dense evergreen forests of the Western Ghats, with a distinct lineage unique to this region.
- Wildlife Sanctuaries : The area around the Mhadei Wildlife Sanctuary is a key habitat, with a significant number of king cobras found in adjoining cashew plantations.

Conservation plan:

The following measures will be implemented for the conservation of RET Species

1. A safety zone of 7.5 m along with fencing will be maintained all along the periphery of the Mineral Block to prevent straying of fauna in the Mineral Block.
2. Avoid any Air, Noise and water pollution due to mining operations by implementing appropriate mitigative measures.
3. Encounters with respect to floral and faunal RET species, if any, will be reported to the forest department officials immediately, for further necessary action.

The Project Proponent will provide support and funds to the forest department to implement scheme for conservation of wildlife in the protected and forest areas.

3.2.11 Fauna (Connectivity and Safe Corridors for RET Species)

There are no wildlife corridors within the Mineral Block. However, arrangements such as fencing around the Mineral Block will be provided to prevent straying of fauna in the Mineral Block.
Kalay river exists on the eastern side of the Mineral Block, which forms a natural barrier between the Mineral Block and the Wildlife Sanctuary. Thus, there is no crossing over of wild animals from wildlife sanctuary located at the Eastern side of the Kalay River towards the Mineral Block.

3.3 Habitat Improvement Measures Through Spatial Distribution/ Thematic Mapping

3.3.1 Plantations

The Project Proponent proposes to implement various conservation activities within the Core Zone and ensure that good air, water, noise environment is maintained, greenbelt/plantation will be developed. In other words, all such activities and mitigating measures will be implemented so that good environment within and surrounding the Mineral Block is maintained. Plantation will be carried out within the Mineral Block as per the approved mining plan during the first five years.

Out of the total Mineral Block area of 152.5073 Ha., an area of 136.5289 Ha. is proposed to be utilised for mining and allied activities by the end of conceptual stage. Of the total degraded area of 136.5289 Ha., an area of 89.9678 Ha will be reclaimed by planting 2500 saplings /Ha of native plants and fruit bearing species and an area of 44.1356 Ha. will be converted into a water reservoir which will be beneficial to society and also to the migratory avifauna. The conceptual land use proposed is prepared based on the current Mineral Reserves & Resources. Plan showing the proposed plantation at the end of conceptual stage within the core zone is given as Map 4.

List of native flora species proposed for plantation and green belt development is provided in **Table 4.2.**

Table 4.2 List of Species suggested for future Greenbelt development

S. No	Botanical Name	Family	Common Name
Grasses			
1	*Arundinella pumila* *	Poaceae	Karad
2	*Fimbristylis ferruginea* *	Cyperaceae	Karad
3	*Isachne globose* *	Poaceae	Karad
4	*Ischaemum indicum* *	Poaceae	Karad
5	*Ischaemum semisagittatum*	Poaceae	Karad/Gawat
6	*Chrysopogon zizanoides*	Graminese	Khus
Herbs			
7	*Ixora coccinea*	Rubiaceae	Jungle Geranium
8	*Portulaca grandiflora*	Portulacaceae	Ramulo

10	*Murraya paniculata*	Rutaceae	Orange Jasmine
11	*Mentha arvensis*	Lamiaceae	Mint
12	*Bryophyllus*	Crassulaceae	Paanfuti
13	*Asparagus racemosus*	Asparagaceae	Shatavari
Shrubs			
14	*Zizhuphus rugosa*	Rhamnaceae	Churna
15	*Duranta erecta*	Verbenaceae	Golden duranata
16	*Phyllanthus myrtifolius*	Phyllanthaceae	Tupi Duranda
17	*Alamanda cathartica*	Apocynaceae	Karno
18	*Hibiscus rosa-sinensis*	Malvaceae	Dajwanti
19	*Thevetia peruviana*	Apocynaceae	Mexican Oleander
Trees			
20	*Aegle marmelos*	Rutaceae	Bel
21	*Artocarpus integrifolia*	Moraceae	Jack fruit
22	*Ficus religiosa*	Moraceae	Pimpal
23	*Mimusops elengi*	Sapotaceae	Oval
24	*Syzygium cumini*	Myrtaceae	Jambal
19	*Terminalia bellirica*	Combretaceae	Ghoting
20	*Artocarpus lacucha*	Moraceae	Ottam
21	*Bauhinia racemosa*	Fabaceae	Aapta
22	*Garcinia indica*	Clusiaceae	Bhirand (Kokum)
23	*Sapindus laurifolius*	Sapindaceae	Rito
24	*Ficus glomerata*	Moraceae	Rumod

*https://forest.goa.gov.in/sites/default/files/2024-04/Study%20to%20Document%20Diversity%20of%20Grasses.pdf

The plantation in the 10km buffer zone is indicated in the Normalised Difference Vegetation Index map of the buffer zone derived from IRS R-2, Mx. As shown in the Normalised Difference Vegetation Index map, major portion of the buffer zone is thickly vegetated, while the portion depicted in blue color is occupied by water bodies. Vegetation Index Map of the buffer zone showing vegetation density in the buffer zone of the study area is given as Map 5..

The Project Proponent will provide support and funds to the forest department to implement scheme for conservation of wildlife in the buffer zone including protected and forest areas.

3.3.2 Restoration of Grasslands and Rangeland Management

Study of existing land use within the Mineral Block was carried out by using surface plan and of buffer zone through satellite image processing. The data used for analysis was sourced from IRS-R2, Mx (Indian Remote Sensing Satellite-ResourceSat-2, Mx) with 5.0 m resolution, dated 08/03/2023 and a land use land cover map of the study area was prepared, which is given in Map-3.

Land use plan for the Mineral Block area is prepared to encompass pre-operational, operational and post operational phases. The Mineral Block area does not involve any grasslands or grazing lands.

3.3.3 Creation of Waterholes in Strategic Locations Based on Animal Visitation Data

Creating and maintaining waterholes for wildlife involves careful consideration of site conditions and habitat requirements. This includes assessing the natural water sources, soil types, and the needs of the target species. Techniques range from improving natural depressions to building artificial structures like levees and troughs, all while considering potential impacts on the ecosystem.

Kalay River exists on the eastern side of the Mineral Block, which forms a natural barrier between the Mineral Block and Wildlife Sanctuary. Thus, there will be no crossing over of wild animals from Wildlife Sanctuary towards the Mineral Block to access the waterholes.

Financial support of total ₹9.17 lakhs over a period of 5 years will be provided to the State Forest Department for creation and maintenance of waterholes with shade trees at strategic locations.

3.3.4 Soil and Moisture Conservation (SMC) Structures Based on Landscape Approach

The implementation of a comprehensive Soil Conservation Scheme is necessary to prevent siltation in the seasonal drainage and river resulting from mining activities. Sedimentation poses a significant threat to water bodies, impacting their capacity and subsequently affecting water availability for various users. Therefore, the adoption of effective erosion control measures within the Mineral Block is imperative to mitigate soil erosion and prevent sediment discharge into Kalay River.

The primary objective of the Soil Conservation Scheme is to preserve soil cover, mitigate erosion, and prevent sedimentation in Kalay River. Additionally, the scheme aims to enhance ecosystem vitality and reduce environmental damage resulting from mining operations.

The Soil Conservation Scheme encompasses an area of 152.5073 Ha. including 21.133 Ha. of Forest land. It primarily addresses soil erosion attributed to activities such as extraction and handling of Iron ore & waste and other allied mining activities.

a. Conservation of Soil Cover: The scheme focuses on conserving soil cover to prevent erosion and siltation in Kalay River, thereby safeguarding water quality and ecosystem health.
b. Biological and Engineering Measures: Implementation of biological and engineering measures to reduce sediment discharge. These measures include vegetative cover enhancement, erosion control structures, and drainage systems.
c. Ecosystem Rejuvenation: Expansion of vegetative cover and improvement of water retention capabilities to rejuvenate potential and degraded ecosystems in the area.

Sediment Control Techniques:

To develop an effective sediment control plan, the following strategies are adopted:

a. Restoration of Degraded Areas: Reclamation and rehabilitation measures will be adopted in the degraded area to minimize soil erosion.
b. Drainage Control System: Establish a comprehensive drainage control system to manage surface water runoff effectively.
c. Integration of Control Measures: Integrate drainage, erosion, and sediment control into all stages of mine operations.
d. Construction of Erosion Control Measures: Construct drainage and erosion control measures to mitigate erosion during mining operations.
e. Runoff Diversion: Divert surface water runoff in to mining pit and settling ponds to prevent sediment discharge into the natural water course.
f. Velocity Reduction: Incorporate measures to reduce the flow velocity of surface water runoff, thereby minimizing erosion.

Preventive Measures for Soil Erosion:

I. Material Stacking: Protective measures such as bunds or trenches along the periphery of the stacks to prevent material runoff from the stacks.

ii. Afforestation: Carry out plantation of trees to enhance area stability and biodiversity, thereby reducing the risk of soil erosion.
iii. Green Belt Development: Development of Green Belt along the inner periphery of the Mineral Block, by planting a mix of indigenous and fast-growing plant species. This will also create a dense canopy tree belt along the Mineral Block boundary to mitigate dust, gaseous pollutants, and noise, while stabilizing the soil.
iv. Roadside Plantation: Plant trees along haul roads to mitigate erosion and enhance roadside stability.
v. Parapet Wall Construction: Construct parapet walls along toe of the dumps, to prevent material wash-off during monsoon, thereby reducing sediment discharge.
vi. Trenches and Drains: Construct trenches and drains on pit and dump benches to channelize rainwater and storm runoff into mining pits and settling ponds, thereby minimizing erosion.
vii. Silpaulin Tarp Utilization: Use Silpaulin Tarp on ROM stacks during monsoon to prevent rainwater and storm water runoff from entering natural water course.
viii. Grass Growth: Growing of grass and use of good quality soil mixed with manure and irrigation to promote grass growth on bund and dump slopes, enhancing erosion resistance.
ix. Road Maintenance: Maintain well-graded and wide roads for material handling to minimize soil disturbance and erosion risks.

A Surface plan of the Mineral Block showing the proposed mitigative measures is enclosed as **Map-4.**

Mitigation Measures

a. Construction of Environment Protective Measures: Construction of drains, settling ponds, silt arrestors, and other protective structures.
b. Green Belt Development and Plantation: This includes the cost of developing and maintaining green belt within the Mineral Block area.

Early Warning Systems

During the mining operational period early warning system such as, regular field monitoring, every year Drone based survey and meteorological data will be used to monitor and predict possible soil erosion risks. By analyzing this real-time data, these systems can detect structural soil changes, identify vulnerable areas, forecast risks, and issue timely warnings to allow for preventative actions to protect soil.

Warnings will be communicated to Environmental Monitoring Cell of the Project Proponent to enable timely intervention and preventative measures for siltation, thereby safeguarding the seasonal drainage and river resulting from mining activities.

The soil and moisture conservation measures will be implemented by the project proponent within the mineral block area. As for capacity building the Project Proponent has well equipped infrastructure and adequate technical expertise for implementing various measures proposed for soil and moisture conservation within the Mineral Block. The Project Proponent has a well laid down environment policy and Environment Management Cell as mentioned in Para 4.5.

The proposed soil conservation scheme, coupled with erosion control measures, aims to safeguard the environment and water resources while ensuring sustainable project operations.

Through diligent implementation and periodic evaluation, the scheme endeavors to mitigate soil erosion, prevent sedimentation, and promote ecological resilience within the Mineral Block.

The cost towards the construction of various conservation measures such as trenches, drains, settling ponds, bunds and arrestor walls, etc. over a period of 5 years will be about ₹28.26 lakhs and will be borne by the Project Proponent.

3.3.5 Management of Wildlife Corridors

The Mineral Block has been worked by the erstwhile lessee and is already broken up by way of Mining pits and dumps. There are no Wildlife Corridors within the Mineral Block area. There are no available notifications published in the National or State Gazettes with respect to Wildlife Corridors falling within the 10 km study area.

3.3.6 Fire Prevention and Mitigation Measures

Fire conservancy is an old scientific management. Fire prevention and mitigation measures involves a multi-faceted approach focusing on preventing fires, quickly responding to them, and restoring affected areas. This includes measures like creating firebreaks, raising awareness among local communities, employing advanced firefighting techniques, and developing wildlife-friendly restoration strategies.

Early warning systems and firebreaks are crucial components of wildfire management, working together to mitigate the impact of wildfires. Early warning systems provide timely alerts about potential fires, while firebreaks act as physical barriers to slow or stop fire spread. These strategies are essential for protecting lives, property, and natural resources from the effects of wildfires.

Local communities play a vital role in firefighting and control, particularly in wildfire management. They can be instrumental in early detection and reporting, fire prevention through education and awareness, providing direct support during fire suppression, assisting with evacuations, and participating in post-fire recovery efforts.

The Project Proponent will support the State Forest department towards fire prevention and educating local communities on fire monitoring and control.

3.3.7 Education, Training and Capacity Building

The Project Proponent will support the State Forest department to conduct programmes towards education, training and capacity building every year. These programmes may be based on themes such as sustainable forest management, forest fire resilience, climate change adaptation/mitigation, community involvement and ensure healthy forests for future generations.

The Project Proponent has allocated funds towards awareness programs and capacity building summing to an amount of Rs. 3.07 lakhs over a period of 5 years and the year wise details of the funds allocated is given in Table 5.1.

3.3.8 Measures to Address Human-Wildlife Conflicts

No Human-Wildlife conflict, kill/ injury were reported during field interaction with local community. The Project Proponent will engage workers from local community for mining

operations; thus, the project will not create influx of population in the area. Kalay River flows from South to North from the Project boundary, separating it from the WLS, thereby acting as a natural barrier. Kalay River thus restricts the animal movement from WLS towards the Project.

In view of the above observations, there is minimal human-wildlife conflict in the area and the implementation of the Project will not escalate the human-wildlife conflict further.

CHAPTER -4
ONSITE IMPLEMENTATION PLAN

4.1. *INTRODUCTION*

An onsite implementation plan is a roadmap that outlines the specific steps, resources, and timeline for physically putting a project into action at a particular location. The chapter deals with the implementation of conservation measures mentioned in Chapter 3 through resource allocation and strategizing a plan to achieve the goals of the Project in a timely manner. This detailed roadmap helps teams stay organized, minimize risks, and improve communication during the execution phase.

4.2. *Project Site Zoning (Core and Buffer Area)*

i. **Core Area:**

The Project Block IV - Kalay Mineral Block encompassing an area of 152.5073 Ha is the Core Zone (Core Area).

ii. **Buffer Area:**

An area within 10 km radius from the boundary of the Mineral Block comprises Buffer Zone (Buffer Area).

Key Plan representing the Core Area and Buffer Area is enclosed as Map 1.

iii. **Permissions, restrictions, or activities allowed in each zone.**

Permissions with respect to Core Zone

1. Letter of Intent.
2. Mining Lease Deed.
3. Environmental Clearance.
4. Consent to Establish and Operate.
5. Forest Clearance.
6. Approved mining plan.

As per the condition 3.2(b) of the LOI dated 13/01/0203, the Project Proponent is in the process of obtaining the above mentioned statutory Permissions/Approvals/Clearances/ Documents. After obtaining the statutory permissions, mining operations and allied activities.

Buffer Zone

1. Consent to Establish and Operate.
2. DMG (Transit Permit)

The Mineral Block falls outside the Eco-Sensitive Zone of Bhagwan Mahavir Wildlife Sanctuary and Eco-Sensitive Areas of the Western Ghats.

Transportation of products from the project area to the jetties will be carried through already existing State Highways SH-7 and SH-6 and internal mine roads which is about 12km to 14km.

The buffer zone consists of revenue land, private land, forest land and WLS, for which, the Project Proponent does not have any authority whatsoever. However, the Project Proponent will extend support to the State Forest Department to carry out Wildlife Conservation activities in the buffer zone as applicable.

4.3. *STRATERGIES for Proposed activities to be undertaken*

The Project Proponent proposes to make a collaborative effort with the State Forest Department in implementing the Wildlife Conservation Plan.

The Project Proponent proposes to implement various conservation activity within the Core Zone and ensure that good air, water, noise environment is maintained, greenbelt/plantation is developed, in other words all such activities and mitigating measures are implemented so that good environment within and surrounding the Mineral Block is maintained.

The Project Proponent will provide funds to the State Forest Department for various activities for wildlife conservation in the Buffer Zone of the Mineral Block which also includes Reserve Forest and Protected areas. The financial layout for the implementation of Wildlife Management and Mitigation Plan for a period of 5 years is given in Table 5.1 of Chapter 5 of this Plan.

4.4. *Action Plan for Implementation of Activities for Wildlife Conservation*

This Action Plan has been prepared in consultation with the State Forest Department for which the Project Proponent will provide funds amounting to Rs. 106.12 Lakhs as detailed in the Financial Outlay in Chapter 5 of the Wildlife Conservation Plan. Activities such as Greenbelt Development, Plantation and Soil Moisture Conservation, which will take place within the project's core zone, will be carried out by the Project Proponent with an estimated budget of Rs. 55.19 Lakhs. Wildlife conservation measures within buffer zone will be implemented by the State Forest Department at the cost of Project Proponent amounting to Rs. 106.12 Lakhs by involving stakeholders such as local communities and district and local administrative authorities, as needed.

All the activities listed herein below will begin within six months of the start of mining operations and will be completed within five years.

S. No.	Activities	Strategies	Objectives	Measurable Outcomes & its sustainability
1	Provision of Rescue and Patrolling Vehicle	6 to 12 months after the start of mining operations	Enhance mobility for wildlife rescue and patrolling.	One 4-wheeler and Two 2-wheeler vehicle along with rescue equipment will be available with the Forest Department for rescue operations.
2	Fire Prevention and Control Measures	0 to 24 months and upto 5 years after the start of mining operations	Prevent, detect, and control forest fires to protect wildlife habitat and biodiversity.	• 10 Nos. of firefighting kits which will be used for fire prevention in wildlife areas. • Local community members will be trained in fire control which will help in reducing frequency of annual fire incidences and achieving zero habitat loss in core conservation zones due to fire.
3	Awareness and Sensitization Programs	0 to 24 months and upto 5 years after the start of mining operations	Educate communities & workers by conducting workshops, Street plays, School campaigns for creating awareness.	• Awareness of the local communities regarding wildlife conservations and fire management will increase which will help in achieving Fire prevention and control and human wildlife conflict. • Attendance records to be maintained of the awareness programmes.

4	Watch & Ward for Wildlife Protection	0 to 24 months and upto 5 years after the start of mining operations	Strengthen protection and surveillance to prevent poaching, illegal grazing, encroachment, and forest fires within wildlife habitats.	• Daily patrolling of the Protected areas will increase. • Daily patrolling records maintained and will be reviewed monthly. • Increase in watch posts or protection camps which will help in achieving zero poaching incidents, better fire detection and prevention and avoiding illegal grazing and encroachment by the local community.
5	Creation and maintenance of Water holes	6 months to 24 months and upto 5 years after the start of mining operations	• Support Ecological Balance and Biodiversity • Improve Wildlife Monitoring	• Construct, restore and maintain at least 5 water holes and maintain the status of the same.
6	• Green belt Development • Enrichment plantation in buffer areas	0 to 24 months and upto 5 years after the start of mining operations	• Rehabilitate degraded landscapes and support native flora to Prevent soil erosion and improve water retention. • Act as a natural sink for air pollutants (e.g., dust, SO_2, NOx, CO). • Serve as a barrier to reduce noise from roads, industry, or project operations. • Offset carbon emissions through biomass accumulation.	• At the conceptual stage about 59% of the Project area will be brought under plantation by planting 2,24,000 plants which improves the soil structure thereby improving the overall landscape of the area. Also, enhancing the aesthetic appeal of the area. • Reduction in particulate matter and gaseous pollutants in the local environment by maintaining the fugitive and gaseous emissions below permissible limits. • Noise levels reduced in buffer zones or nearby communities by maintain the noise levels below the permissible limits. • Vegetation growth contributing to climate change mitigation by reducing the carbon foot print.
7	Soil Moisture Conservation Measures	6 months to 24 months and upto 5 years after the start of mining operations	Enhance soil water retention and groundwater recharge to support vegetation, reduce erosion.	• Roof top water harvesting structure will enhance the ground water recharges. (12 months from start of mining operations) • Lateritic bund (retention wall) and garland drains as per the approved mining plan will be carried out which will help in preventing soil erosion. (24 months) • Survival rate of plantation of 95% will be ensured. (5 years).
8	Wildlife Monitoring	0 to 24 months and upto 5 years after the start of mining operations	Monitor wildlife species to know the wildlife population for data driven management practices and	• 02 nos camera traps will be provided for monitoring wildlife movement. • Bi-annual or annual monitoring reports submitted with photographic evidence.

			support towards veterinary.	• Veterinarians support to ensure good health of the wildlife.

4.5. INSTITUTIONAL MECHANISM FOR MONITORING / SUPERVISION OF ACTIVITIES

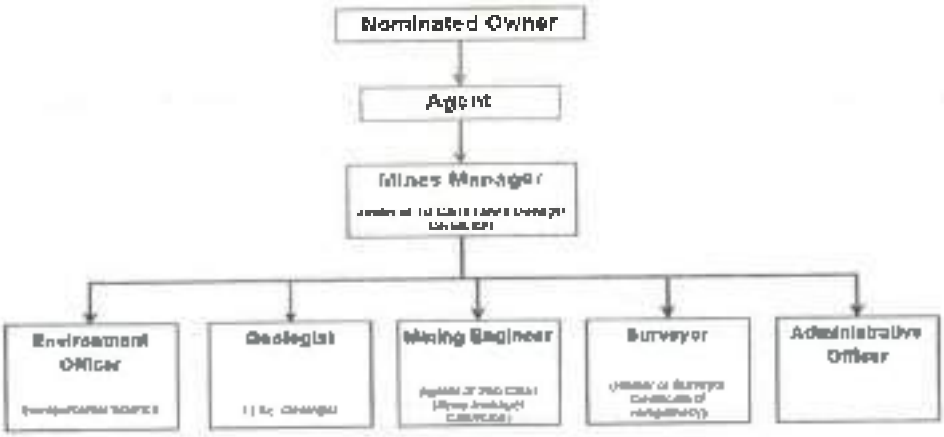
Monitoring and Evaluation (M&E) is essential to ensure that the proposed intervention achieves its intended objectives while minimizing unintended environmental or social impacts. To carry out effective monitoring and evaluation the Project Proponent has a well laid down Environment Policy under which Environmental Management Cell (EMC) is established under the supervision of Mine Manager who shall directly report to the Nominated Owner/Agent, details which are given below:

ENVIRONMENTAL MANAGEMENT CELL

Project Title:
Block IV-Kalay Mineral Block located at village Santona, Taluka Sanguem, District South Goa, Goa, having an area of 152.5078 Ha.

The Environmental Management Cell (EMC) shall be headed by Mines Manager who will report to the Agent of the Unit and also have direct access to Head of Organization i.e. Nominated owner.

Environmental Management Cell



A mechanism for reporting on compliance of the Environmental and other related aspects has been formulated. As per guidelines of MoEFCC, New Delhi, the status of environment compliance will be uploaded on the company website regularly. Periodic reviewing and performance measurement will also be taken up to look for improvement areas. The Environment Management Plan (EMP) which includes works like storm water management (drainages, settling ponds, trenches, desilting etc.), dump stabilization (inward slope to dump surface, laying of geotextiles wherever feasible, grass seeds, etc.), plantation, etc. will be planned jointly by a team comprising of mines manager, surveyor, geologist and environment officer.

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CIN-U13209GA2010PTC006440

The team will meet frequently to assess the progress of EMP so that the storm water management and dump stabilization jobs are completed well before the onset of monsoon and plantation is carried out during monsoon. The status will be reviewed by senior management on a weekly basis.

For successful implementation of the environmental management plan, assistance from other agencies/institutions may be sought whenever necessary for regulatory requirements and technical support. The coordinating agencies, which may be involved in specific environmental and project-related activities, are given below: -

- Interaction with State Pollution Control Board for legal compliance, new updates in environmental law, awareness, etc.
- Interaction with State Agriculture and Forest Department for engagement w.r.t plantation.
- Interaction with consultants, and reputed institutes for various projects related to mine reclamation, water positivity study, and projects on carbon footprint.

The Environment Management Cell will also coordinate to carry out environment monitoring as stipulated by the authorities. The monitoring will be undertaken by an Environmental Laboratory recognized by MoEF&CC. The monitoring data will be regularly submitted to the authorities like GSPCB, regional office of MoEF&CC.

Date: 15/05/2024

Place: Panaji, Goa



Sandeep Morajkar

(Authorised Representative)

CHAPTER -5

SCHEME FOR CREATION AND MAINTENANCE OF ALTERNATE HABITAT/ HOME FOR THE AVIFAUNA

5.1 INTRODUCTION

The extraction of essential minerals, while vital for economic development, inherently involves large-scale land transformation that often results in the direct loss, fragmentation, and degradation of natural avian habitats. Mining operations—including open-pit development, overburden dumping, and the establishment of associated infrastructure—introduce significant disturbances such as noise, dust, and altered hydrology, all of which pose a demonstrable threat to local and migratory avifauna.

In response to both stringent **statutory mandates** for biodiversity protection and a global commitment to responsible resource management (e.g., the mitigation hierarchy aiming for **No Net Loss of Biodiversity**), the **"Scheme for Creation and Maintenance of Alternate Habitat/ Home for the Avifauna"** is hereby presented.

The primary purpose of this scheme is to serve as a **core component of the Environmental Management Plan (EMP)**, focusing specifically on **compensatory and restorative measures** for bird species affected by the project's footprint. It shifts the focus from simple compliance to a proactive strategy of **ecological rehabilitation.**

This initiative will not only establish and maintain **ecologically functional alternate habitats**—such as regenerated forest patches, constructed wetlands, and secure nesting areas within the mining lease or buffer zone—but also ensure the long-term **survival and thriving** of local avian populations. By implementing this systematic scheme, the project aims to demonstrate environmental stewardship and achieve a quantifiable, positive contribution to regional biodiversity, ensuring mining activities and wildlife conservation can coexist.

5.2 EXISTING AVIFAUNA

Species of fauna within the Core zone and buffer zone (10km radius from the mineral block boundary) were identified by Ecology and Biodiversity Expert, Mineral Engineering Services, NABET Accredited Consultant, and list of the same was authenticated by the Forest Department. A total 15 Species of birds were observed in the Mineral Block Area as listed in the table below.

SR. NO.	COMMON NAME	SCIENTIFIC NAME	FAMILY	CONSERVATION STATUS
1	Common Iora	*Aegithina Tiphia*	Aegithinidae	Least Concern
2	Green Bee Eater	*Merops orientalis*	Meropidae	Least Concern
3	House Crow	*Corvus splendens*	Corvidae	Least Concern
4	House Sparrow	*Passer domesticus*	Passeridae	Least Concern
5	House Swift	*Apus affinis*	Apodidae	Least Concern
6	Indian Robin	*Saxicoloides fulicatus*	Muscicapidae	Least Concern
7	Jungle Crow	*Corvus macrorhynchos*	Corvidae	Least Concern
8	Jungle Myna	*Acridotheres fuscus*	Sturnidae	Least Concern
9	Red-Whiskered Bulbul	Pycnonotus jocosus	Pycnonotidae	Least Concern
10	Common Myna	*Acridotheres tristis*	Sturnidae	Least Concern
11	Small Blue Kingfisher	*Alcedo atthis*	Alcedinidae	Least Concern
12	Black Drongo	*Dicrurus macrocercus*	Dicruridae	Least Concern
13	Paddyfield Pipit	*Anthus Rufulus*	Motacillidae	Least Concern
14	Indian Peafowl	*Pavo cristatus*	Phalsanidae	Least Concern
15	Spotted Dove	*Streptopelia chinensis*	Columbidae	Least Concern

5.3 METHODOLOGY FOR CREATING ALTERNATE HABITAT

The Forest land of 21.133 ha. proposed for diversion under the Van (Sanrakshan Evam Samvardhan) Adhiniyam, 1980, comprised of about 1881 enumerated trees for which tree felling permission will be obtained. With the felling of trees in the forest land, there will be loss to environmental & fragmentation of habitat of existing bird within the mineral block area. Thus arise the need to create and maintain an alternate habitat for avifauna in an area suitable to their needs.

Creating and maintaining alternative habitats for avifauna (birdlife) involves providing essential resources like food, water, shelter, and nesting sites in areas where natural habitats have been lost or degraded. This can be achieved through various methods, including planting native trees and shrubs, providing water sources like bird baths, and installing nest boxes. The goal is to offer birds a suitable environment to thrive.

The key aspect of creating and maintaining alternate habitats involve:

1. Understanding Bird's needs: Different bird species have different habitat requirements. Food sources (insects, seeds, fruits), water availability (Drinking, bathing), nesting sites, etc. all play a crucial role.
2. Creating alternate habitats: Provide suitable nesting materials, such as twigs, leaves, and mud, or install nest boxes specifically designed for different bird species. Thus, create safe places for birds to rest, hide from predators, and escape harsh weather. This can include dense vegetation, trees, and shrubs.
3. Maintaining Habitats: Regularly assessing the effectiveness of the habitat and making adjustments/ maintenance for their shelter and water facilities as needed.

By incorporating these key aspects, a sustainable and successful alternative habitat for avifauna can be developed. The following scheme details the action plan for creating and maintaining the alternate habitat for avifauna whose habitat will be cleared in the project area.

5.4 ACTION PLAN

The main aim of the scheme is to restore the ecological balance in areas affected by tree felling and to re-establish nesting, roosting, and foraging habitats for birds.

The scheme is prepared in such a manner that the key aspects of creating and maintaining alternate habitats are incorporated and can be successfully established. The scheme for creating and maintaining alternate habitats for avifauna is detailed as below:

A. Understanding Bird's needs:

- Tree felling will be undertaken in a phased manner from the first year of mining operation. Before the fragmentation of the avifauna habitat due to tree felling within the project site, a phase wise survey of the area proposed for felling of trees will be conducted to locate and identify the bird nest, number of nests in the area and their respective species.
- Survey of nests will be conducted by engaging experts of birds
- Care will be taken to ensure that no nest with eggs or hatchlings are destroyed.
- Based on the identified species, their habits, habitat and nesting pattern will be identified.
- A total 15 Species of birds were observed in the Mineral Block Area and the details of their habitat and nesting patterns (Source: https://indiabio.diversity.org, https://www.allaboutbirds.org) are as follows:

1. ***COMMON IORA***

Habitat: Scrub or gardens in towns and groves of trees (mango, tamarind, neem etc) on village outskirts and secondary deciduous forests.

Feeding: It feeds on insects and their eggs and larva.

Nesting Pattern: The nest is a compact little cup, about 2.5" across, of soft grass and root fibres neatly rounded off at the bottom. It is worked into the crotch of a slender twig 4 to 30 feet from the ground, but most commonly between 6 and 12. The exterior is well plastered with cobwebs.
The breeding season is mainly between May and September.

Photograph: Common fora and its Nest (Cup Shaped Nest)




2. ***GREEN BEE EATER***

Habitat: Widespread in open countryside, often close to habitation and cultivation, in wooded areas, lower slopes of the Hill, and around wetlands. Also partial to the zone above sandy beach along the seacoast.

Feeding: Their food consists of dragonflies, dipterous and hymenopterous insects, and honeybees. It catches its feed in mid-air and kills by rubbing on the branches that form their perch.

Nesting Pattern: Nests are made in holes in the sides of mud banks, mounds, dry nullahs, burrow pits often near a stream or riverbed. As horizontal tunnels about 1.5 inch diameter, and from a foot to six feet long.
The principal breeding months are from February to May.

Photograph: Green Bee Eater and its Nest (Tunnel Nest)




3. ***HOUSE CROW***

Habitat: Most familiar bird of Indian towns and villages, found near human habitation and cultivation.

Feeding: Their diet is mainly omnivorous. Generally, feeds on largely on refuse around human habitations, small reptiles and mammals, insects, small invertebrates, eggs, nestlings, grains, carcasses.

Nesting Pattern: Flat platform nests built with rough stick and lined with coir or other fibre.
Breeding season March through July.

Photograph: House Crow Bird and its Nest (Platform Nest)





4. ***HOUSE SPARROW***

Habitat: A very familiar bird, closely associated with human habitation in hills and plains alike, in bustling, noisy city or outlying forest village. It's quick to adapt itself to the new surroundings.

Feeding: Feed on almost anything: grain, insects, fruit & Flower buds, flower nectar and kitchen scraps.

Nesting Pattern: Prefers to nest in manmade structures such as eaves or walls of buildings, streetlights, and nest boxes instead of in natural nest sites. The nest is a collection of straw and rubbish placed in a hole in wall or ceiling, niche, gargoyle, inverted lamp shade, and in every conceivable situation within or on the outside of a tenanted building. Rarely, in some small bushy tree or creeper.
Breeds practically throughout the year. Several broods are raised in quick succession.

Photograph: House Sparrow and its Nest (Platform Nest)





5. ***HOUSE SWIFT***

Habitat: Usually found close to human habitation in ancient forts, ruined mosques and buildings and dwelling houses-deserted or occupied-often in midst of noisy cities.

Feeding: It feeds on invertebrates, flies and midges which it catches in its very wide mouth.

Nesting Pattern: The nest is constructed of grass and feathers glued together with saliva, and usually attached under the eaves of houses, arches or bridges. They may be built in colonies, that are repaired and used year after year, with birds returning to the same nest.

Photograph: House Swift and its Nest (Cup shaped Nest)





6. ***INDIAN ROBIN***

Habitat: It inhabits the drier Open stony, grassy and scrub forest habitats and and is a frequent visitor to gardens and compounds.

Feeding: The Robin feeds exclusively on insects and caterpillars. It is partial to white-ants and is commonly in attendance on or near ant-hills.

Nesting Pattern: The nest is a cup-shaped affair of grass and rootlets, lined with feathers or hair and often adorned with snake sloughs. It is placed in a hole in a wall, earth-cutting or rotten tree-stump. A derelict tin can or earthen chatty lying about is frequently used.
The breeding season is from April to June.

Photograph: Indian Robin and its Nest (Cup Shaped Nest)





7. ***JUNGLE CROW***

Habitat: Well wooded countryside, close to areas of habitation and on the edges of villages.

Feeding: It is predominantly carnivorous and scavenges on dead animals and birds including carrion, the eggs and chicks of other birds, and the young of small mammals.

Nesting Pattern: Flat platform nests typically built in prominent tree forks or the crowns of palm trees, high above the ground, using a platform of twigs and sticks. Breeding season March through July.

Photograph: Jungle Crow and its Nest (Platform Nest)





8. ***JUNGLE MYNA***

Habitat: Common in open deciduous forests, scrub, cultivation and gardens. Usually stays away from human habitation but can be seen by cattle, hunting insects flushed by their movements.

Feeding: They are omnivorous and the diet also consist of wild figs, berries and flower nectar.

Nesting Pattern: The nest is in tree holes or roadside slopes. It is a lined with a collection of twigs, roots, grass and rubbish. Nesting season is usually between February to July.

Photograph: Jungle Myna and its Nest (Cavity Nest)





9. ***RED-WHISKERED BULBUL***

Habitat: A common bird of dry scrubland and the edges of hilly, well-wooded forests and urban parks and gardens. It can be seen in the trees and bushes that afford the prospect of food and shelter

Feeding: Principally feed off berries and can cause damage to ripening fruit but also devour spiders, insects and caterpillars.

Nesting Pattern: The nest is a compact cup made of rootlets, fine twigs and grass usually on some low tree, shrub or hedge in a garden or in scrub country. Casuarina needles are utilised where available. Breeding season is chiefly from February to August.

Photograph: Red-Whiskered Bulbul and its Nest (Cup Shaped Nest)





10. ***COMMON MYNA***

Habitat: Found in the countryside, but is very common in areas of habitation and cultivation.

Feeding: They feed on insects, fruit or kitchen scraps, and it is often seen following the plough for earthworms, or with grazing cattle catching insects as they are disturbed.

Nesting Pattern: Both sexes construct the nest, which they place in any spot that will hold a large pile of leaves and twigs. Nest sites include natural cavities, nest boxes, trees, crevices in buildings, utility poles, and pipes.

The Common Myna's nesting season typically runs from April to August.

Photograph: Common Myna and its Nest (Cavity Nest)





11. SMALL BLUE KINGFISHER

Habitat: Prefers areas with still or gently flowing water that contain small fish, and needs banks with vegetation like trees and shrubs for perching and nesting burrows. During winter, it may move to coastal areas like estuaries and harbors.

Feeding: Primarily feeds on small fish, but its diet also includes aquatic insects, crustaceans like shrimp and crayfish, and tadpoles.

Nesting Pattern: Favourite sites are the banks of streams, tanks and ditches into which are burrowed horizontal tunnels about 2 inches in diameter and from a foot to 4 feet in length, terminating in a widened nest chamber 5 or 6 inches across.
Nesting occurring from approximately March to June.

Photograph: Small Blue Kingfisher and its Nest (Tunnel Nest)




12. BLACK DRONGO

Habitat: It is found everywhere in open country, particularly near cultivation and habitation. It is often seen alone perched on overhead wires, posts or other exposed perches keeping watch for insects and other prey, but it can also be seen riding on the backs of cattle, waiting to pounce on insects disturbed by the cows.

Feeding: Feeds on insects caught through aerial hawking and gleaning from foliage, but also eats small vertebrates like lizards and nestlings, and occasionally takes nectar and grains.

Nesting Pattern: The nest is a flimsy-bottomed cup of fine twigs, grasses and fibres cemented together with cobwebs. It is placed in a fork, usually near the extremity of a branch, from 12 to 30 feet from the ground.
Nesting season is between April to August.

Photograph: Black Drongo and its Nest (Cup shaped Nest)




13. *PADDYFIELD PIPIT*

Habitat: It can be found on open country, both fallow and grazing land, and grass covered, stony hills.

Feeding: It is usually seen in pairs or small parties, feeding on weevils and other small insects.

Nesting Pattern: The nest is a shallow cup of fine grass, rootlets and hair sometimes partially domed — placed on the ground in an old hoof-print of cattle or under shelter of a clod or diminutive bush.
The season ranges between February and October, but is most general from March to June.

Photograph: Paddyfield Pipit and its Nest (Cup shaped nest)




14. *INDIAN PEAFOWL*

Habitat: In the wild they can be found in deciduous forest undergrowth, but they are very shy, and are more likely to be seen in their semi-feral state in villages, towns and cultivation.

Feeding: They feed on a wide range of foods from seeds and grain to insects, worms and grubs.

Nesting Pattern: Nest, usually a shallow scrape in dense undergrowth lined with sticks and leaves.
Nesting period is between January to October.

Photograph: Peacock and Peahen with its Nest (Ground nest)




15. SPOTTED DOVE

Habitat: Can be found in pairs or groups in open wooded country and areas of cultivation. It can become tame, entering gardens and compounds, feeding on grain on the ground.

Feeding: Spotted Doves forage mostly on the ground, where they feed primarily on seeds and berries.

Nesting Pattern: Typically on a tree or bush limb, usually surrounded by dense foliage. A loose, shallow cup, made of twigs and lined with feathers (and sometimes fine rootlets)
Nesting period is primarily often starting in March.

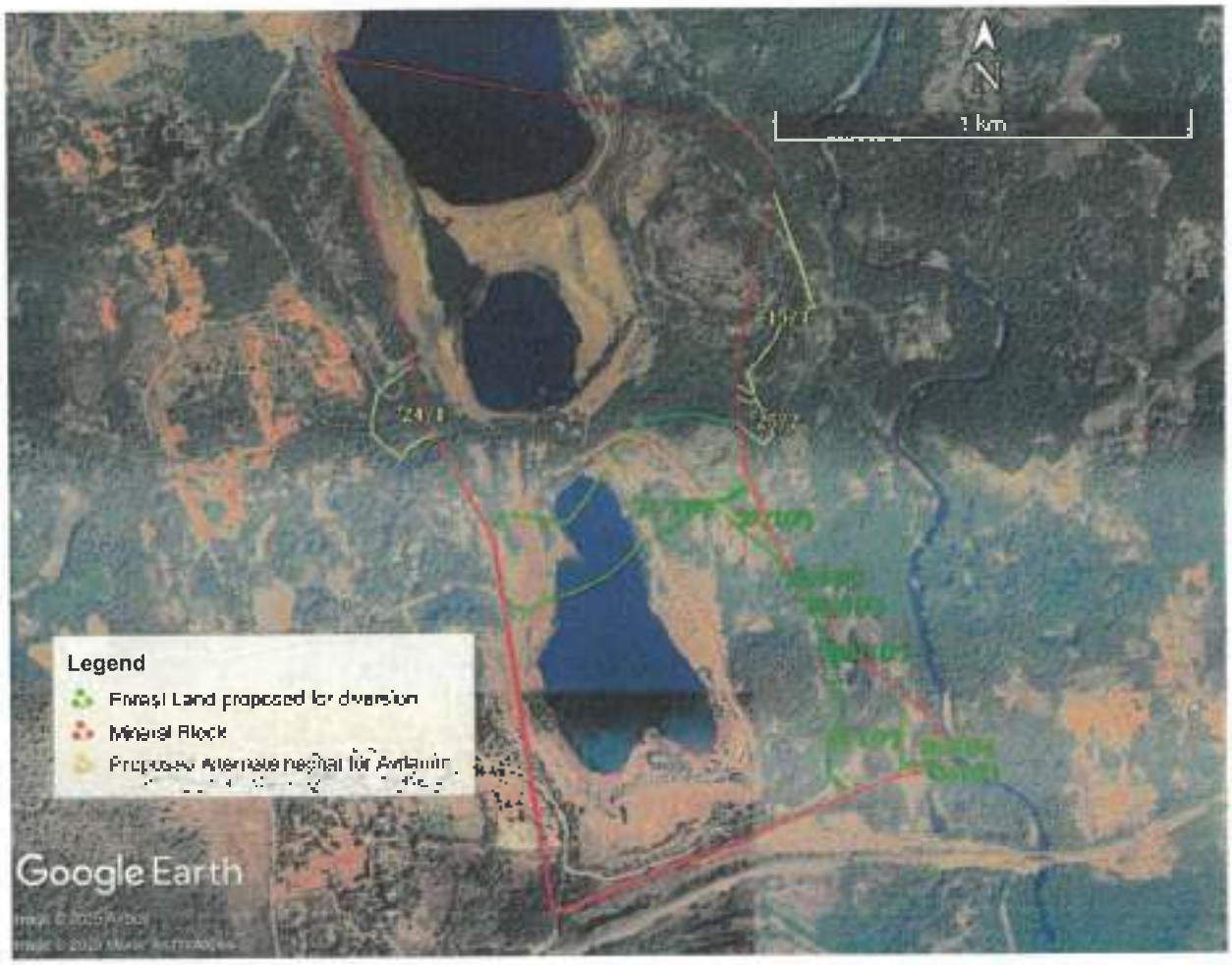
Photograph: Spotted dove and its Nest (Cup shaped nest)





B. Site Selection:

- Selection of site for alternate habitat is considered in such a manner that the site is adjoining to the mineral block and availability of water, food and sheltering trees are naturally surrounding the new location.
- Consideration is given to areas near to habitation and/ or areas with thick vegetation. Thicker vegetation creates safe places for birds to rest, hide from predators, and escape harsh weather.
- Locations such as Reclaimed & Rehabilitated lands, dumps slopes stabilised with native tree species plantation, Safety zones or green belts, etc. may also be consider as alternate site for setting bird nests.
- While choosing alternate habitat trees, due importance will be given to existing mixed native species mainly fruit bearing trees like Mango, Jamun etc. having girth preferably above 120 cm (approximately) and thicker density for setting of nests.
- The survey no. 15/1, 25/2 and 24/1 having total area of about 6.0 Ha. located adjacent to the mineral block in Santona village, Sanguem taluka are proposed designated sites for alternate avifauna habitat. A plan showing the proposed site selected for creation of alternate avifauna is given below:



C. Creating Habitat:

- Artificial Nests made out of ecofriendly material will be installed on trees in the selected sites adjoining the Mineral Block area.
- Design of bird nests will be in consultation with the state forest department.
- Local communities will be engaged in habitat creation and maintenance fostering a sense of ownership and promoting long term sustainability.

D. Maintenance and Periodic Evaluation:

- The effectiveness of the newly created alternate habitat will be assessed and based on findings adjustments will be made if needed.
- Awareness will be imparted to workers and mine staff and amongst the locals on use of harmful pesticides and herbicides that can contaminate food sources and harm birds.
- Awareness will be imparted to workers and mine staff about the basic bird habitat management and conservation of avifauna. Local communities will be involved in avifauna conservation activities.

E. Documentation and Reporting

- Geotagged Photographic records of nests identified during survey will be maintained.
- Geotagged Photographic records of the creation of avifauna habitat development will be maintained.
- Records of periodic evaluation will be maintained and submitted if required.

E. Future Outlook

- During the conceptual period, with due consideration to improve the faunal habitat conditions, Reclamation & Rehabilitation of degraded land will be taken up.
- Of the total degraded area of 136.5289 Ha., an area of 89.9678 Ha will be reclaimed by planting saplings of native fruit bearing wild species such as Bel, Jack fruit, Pimpal, Jambal, Ghoting, Ottam, Aapto, Bhirand (Kokum), etc., obtained from the forest department.
- Additionally, some of the native fruiting wild shrubs such as Kanna (*Carissa carandas*), Guava, Chapera fruit (*Flacourtia jangomas*), Ber (*Ziziphus mauritiana*), etc. which attracts fruit eating avifauna will also be planted.
- Also, an area of 44.1356 Ha. will be converted into a water reservoir which will be beneficial to society and also to the migratory avifauna.
- A green belt consisting of shrubs and trees of different species will be created around the mineral block and the same will be maintained.

By implementing these strategies, individuals, communities, and organizations can play a vital role in creating and maintaining healthy habitats for birds, contributing to their conservation and well-being.

5.5 EXECUTION & FUNDING

The scheme will be executed by the user agency in consultation with local concern forest officer and the cost of implementing the scheme will be borne by the user agency.

5.6 CONCLUSION

The development of alternate habitats for avifauna is a vital step toward mitigating the ecological impact of land-use changes such as by mining. By integrating native vegetation, ensuring availability of food and water sources, and creating safe nesting environments, a sustainable and supportive ecosystem can be established for bird species. This initiative not only aids in the conservation of biodiversity but also enhances the ecological value of reclaimed areas. Long-term monitoring and adaptive management will ensure the continued success and improvement of these habitats, reaffirming our commitment to responsible environmental stewardship.

CHAPTER -5
YEARWISE FINANCIAL OUTLAY

5.1 Introduction

This chapter presents a detailed financial plan for various conservation, habitat management, and infrastructure development activities scheduled over the five-year project period. The goal of the financial plan is to ensure proper resource distribution for effective implementation, monitoring, and ongoing support of wildlife conservation efforts.

The plan covers the period five years from the start of mining operations and includes both capital investments and ongoing operational costs. Activities proposed involve habitat improvement, community-based interventions, ecological monitoring, soil and water conservation works and capacity-building programs. All cost estimates are based on current market rates. A cost increase factor of 10% per year is applied to maintenance, operation, and ongoing expenses. This accounts for inflation, wage growth, material cost changes, and service delivery adjustments during the project period. The financial plan has been organized to show: Initial capital-heavy investments in Years 1 and 2 Gradual scaling of ongoing activities, such as maintaining water holes, monitoring, and staff deployment Increased community engagement and capacity-building in the middle to later phases Focus on sustainability, including handover plans and lasting impact This organized financial plan offers a realistic and phased method for fund distribution, ensuring that conservation objectives are met effectively and within available resources

The chapter deals with various activities to be carried out towards protecting and restoring biodiversity and its financial outlay.

Key Components towards Conservation of Wildlife:

- Habitat Management and Restoration:
  This involves activities like restoring degraded ecosystems, creating artificial water sources, planting native vegetation, and controlling invasive species.
- Scientific Research and Monitoring:
  Success in long-term conservation involves scientific research and continual monitoring to study wildlife populations, their habitats, and the threats they face.
- Community Engagement and Livelihood Support:
  Engaging local communities in conservation efforts and providing alternative livelihoods can reduce human-wildlife conflict and foster a sense of ownership.
- Awareness training and Capacity Building:
  Awareness training and capacity building of wildlife management professionals, researchers, and local community members is essential for effective implementation of the plan.

5.2 FUND ALLOCATION FOR WILDLIFE CONSERVATION

The Project Proponent has allocated budget to carry out various measures within the Mineral Block area such as, implementing mitigative measures, plantation and green belt development and also provide support to the Forest Department for carrying out its activities, wherever feasible. Based on the survey carried out, an amount of Rs. 161.31 lakhs is earmarked for implementation of Wildlife Management and Conservation Plan for a period of 5 years. The budgetary allocation is provided in **Table 5.1**.

Table 5.1: Budget Layout for Implementation of Wildlife Management & Mitigation Plan & Soil and Moisture Conservation Plan

Sr. No	Mitigation Measures	Year of Operation (Amount in Rs. Lakhs)				
		1st	2nd	3rd	4th	5th
A	Conservation Measures to be undertaken by Forest Department					
1	Rescue Vehicle	12.50	-	-	-	-
2	Conservation measures • Wildlife census and monitoring • Capacity building for mitigating human-wildlife conflicts • Nursery development	3.40	3.74	4.11	4.52	4.97
3	Fire Prevention Measures	0.60	0.66	0.73	0.80	0.88
4	Veterinarian Support	0.50	0.55	0.61	0.67	0.74
5	Creation and maintenance of waterholes as per site conditions and habitat	1.50	1.65	1.82	2.00	2.20
6	Enrichment planting of native species such as Ficus, Eugenia, Emblica, etc., palatable to the wildlife in buffer areas and maintenance	2.50	2.75	3.03	3.33	3.76
7	Awareness programs	0.50	0.55	0.61	0.67	0.74
8	Watch and Ward	6.43	6.75	7.09	7.44	7.82
9	Two-Wheeler for logistics support (2 Nos)	3.00	-	-	-	-
	Sub- Total	**30.93**	**16.65**	**18.00**	**19.43**	**21.11**
	Total Amount	**106.12**				
B	**Conservation Measures to be undertaken by User Agency**					
10	Conservation Measures within Core Area					
	Plantation/greenbelt development within Project area	0.75	0.83	0.91	1.00	1.11
	Post Plantation Care	-	0.50	0.55	0.61	0.67
11	**Soil Moisture Conservation within core area**					
	Soil Moisture Conservation within Project area Construction of trenches Construction of Settling Ponds Construction of Bund/parapet walls	4.53	5.03	5.59	6.21	6.9
12	**Avifauna Scheme**					
	Artificial Nest installation	0.50	0.50	0.50	0.50	0.50
	Plantation of fruit bearing shrubs	0.50	0.50	0.50	0.50	0.50
	Supervision	3.00	3.00	3.00	3.00	3.00
	Sub- Total	**9.28**	**10.36**	**11.05**	**11.82**	**12.68**
	Total Amount	**55.19**				
	GRAND TOTAL	**161.31**				

Approved:
Addl. PCCF/Chief Conservator of Forests &
Chief Wildlife Warden,
Panaji - Goa

X An amount of ₹ 106.12/- lakhs has been allocated for State Forest Department towards implementation of wildlife conservation plan in the buffer area. The Project Proponent will carry out Plantation /greenbelt development and soil and moisture conservation within the core area.

Animal Plan / Work Program

The Project Proponent will take up the following additional activities within the Mining Lease.

- In addition to the above, fencing shall be erected around the Mineral Block area to prevent entering of fauna into the Mineral Block premises.
- Fauna species other than those already recorded within the Mineral Block premises will be informed to the Forest Department.
- The employees working at the project site shall be trained to inculcate in them the importance of existence of flora and fauna to maintain environmental balance.

Budget allocations and time bound interventions will be monitored by local authority to ensure bindiversity conservation and not to damage existing ecosystem habitats.

Prepared By : Dr. Chetan H C
Ecology & Biodiversity- FAE(NABET)

(M.S.RAJU)
NABET CONSULTANT

Place: Ballari
Date: 01.11.2025

X → the entire plan with the financial outlay of Rs 161.31 lakhs shall be implemented/ executed by the forest department.

Addl. Pr. Chief Conservator of Forests &
Chief Wildlife Warden,
Panaji - Goa

SUMMARY

1. Chapter 1

1.1. Project Overview and Location

- Block IV - Kalay Mineral Block is an iron ore mining project with an area of 152.5073 Ha, located in Santona Village, Sanguem Taluka, South Goa District, Goa State.
- The project proponent, Fomento Resources Private Limited, the Company was declared the Preferred Bidder for the block on December 22, 2022, following an auction process conducted by the Directorate of Mines and Geology (DMG), Government of Goa.
- The project site is situated in the Survey of India Toposheet No. D43C3 (48 I/3) and is 1.27 km from State Highway Road No. SH-7.

1.2. Project Details

- The project involves a fully mechanized opencast mining method for the extraction of iron ore.
- The total mineral reserves/resources of iron ore in the block as of February 1, 2023, were 16.731 Million Tonnes, with a proposed extraction capacity of 0.75 Million Tonnes Per Annum (MTPA).
- The project area has a pre-existing mining infrastructure, including mine pits, dumps, benches, and haul roads, as it was operational from the late 1950s until 2018.

1.3. Statutory Clearances

- **Mining Plan:** A Mining Plan was prepared and approved by the Indian Bureau of Mines (IBM). It was later modified and re-approved by India Bureau of Mimes on August 23, 2024, to account for a forest area of 21.1330 Ha.
- **Environmental Clearance:** The project has been granted Environmental Clearance by MoEF&CC, New Delhi vide its file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025.
- **Forest Clearance:** An online application for the diversion of 21.1330 Ha of forest land was filed on May 15, 2024. Stage-I "In-Principle" approval was granted on May 12, 2025.

1.4. Environmental and Demographic Information

- **Topography and Climate:** The area has an undulating and hilly topography, with the highest elevation at 640 m MSL. The climate is

tropical with three distinct seasons. The average annual rainfall is about 4000mm, and temperatures range from 16°C to 36°C.

- **Drainage:** The main drainage for the mineral block is the Kalay River, which flows along the eastern boundary. A seasonal *nalla* (stream) also flows across the block from west to east.
- **Environmental Sensitivity:** The Bhagwan Mahaveer Wildlife Sanctuary & National Park is located 1.04 km to the east of the project. The Nanda Lake Ramsar site is 7.0 km away. Kalay Railway Station is the nearest railway station 2.4 km to the southeast.
- **Demographics:** According to the 2011 census, there are 51 villages in the buffer zone with a total population of 113,340. The sex ratio is 993 males per 1000 females. The largest village is Curchorem-Cacora (Municipal Council) with a population of 22,730, while Moissal has the smallest population of 8.

2. **Chapter 2**

Study was conducted to assess the biodiversity of the Mineral Block Area and its 10 km radius buffer zone, with field surveys taking place between April 6-9, 2023. The study followed a participatory and consultative approach, including consultations with local villagers and forest officials, and a literature review.

Key Findings:

- **Flora:** A total of 45 species were recorded in the core area, consisting of 21 trees, 11 shrubs, and 13 herbs. In the buffer zone, 42 shrub species and 28 herb species were reported. The document also lists endemic, rare, threatened, and keystone species.
- **Fauna:** The study documented 16 faunal species in the core area: 9 birds, 3 mammals, and 4 reptiles. In the buffer zone, a total of 262 faunal species were reported from primary and secondary observations. This included 22 species of mammals, 24 reptiles, 17 amphibians, 154 birds, 27 butterflies, and 18 crabs and fish. The document lists specific species and their conservation status under the IUCN Red List and the Wildlife (Protection) Act of 1972.
- **Study Area:** The region's forests were classified as Southern moist deciduous mixed forests and Southern secondary moist mixed deciduous forests. The 10-km buffer area was divided into four quartiles for sampling. No wildlife corridors were found within the Mineral Block Area or the 10 km study area.

- **Methodology:** The flora study used a quartile approach with randomly sampled quadrats of varying sizes for trees, shrubs, and herbs. The fauna study utilized indirect methods like tracking pug marks and scat, as well as direct sightings. Bird documentation was done using the point count method. Butterfly counts were done using linear transects. The conservation status of species was verified using sources such as the IUCN Red List.

3. **Chapter 3**

The provided document outlines the wildlife and habitat management strategies for a proposed mineral block project. The project, an e-auctioned Mineral Block previously operated by another lessee, will only have an operational phase. The Chapter identifies potential impacts from project activities on the physical, biological, and socio-economic environment. The severity of these impacts is assessed based on the project's location, operational methods, and the adoption of modern technologies.

3.1. Probable Impacts and Mitigation Measures

- **Flora**: The core project area has mostly sparse vegetation. Dust generated from mining operations could affect plant photosynthesis and productivity, but the impact is not expected to be significant due to the lack of substantial vegetation. An Environmental Management Plan (EMP) has been prepared that recommends measures to control fugitive dust.
- **Fauna**: The mineral block is located 1.04 km from the Bhagwan Mahavir Wildlife Sanctuary, with Kalay River acting as a natural barrier. This barrier prevents wild animals from crossing over, so the anticipated impact on wildlife in the sanctuary is considered negligible.
- **Water Bodies**: A seasonal drainage and the Kalay River are present near the mineral block. Surface water runoff will be diverted into mining pits and settling ponds for treatment to ensure discharged water meets permissible limits and does not harm aquatic life. The mining operations are expected to intersect the groundwater table, but the area is classified as "SAFE" for groundwater development.
- **Land**: Around 136.5289 hectares of the area out of 152.5073 Ha. of the Mineral block will be degraded. However, 89.9678 hectares will be reclaimed and rehabilitated through plantation, and 44.14 hectares will be converted into a water reservoir to augment groundwater and benefit local villagers.

- **Human-Wildlife Conflicts**: Kalay River serves as a natural barrier that restricts animal movement from the Wildlife Sanctuary towards the project. No human-animal conflicts, injuries, or deaths were reported during field interactions with local communities. The document concludes that there is a minimal chance of such conflicts.

3.2. Conservation Plans for Specific Species

The document also provides conservation plans for several rare, endangered, and threatened (RET) species, including their habitats, threats, and conservation strategies. These species include:

- **Common Leopard**: Threats include human-leopard conflict, habitat loss, poaching, and prey depletion. Conservation efforts focus on habitat enrichment, monitoring, conflict mitigation, and strengthening enforcement.
- **Slender Loris**: Threats include habitat destruction, poaching, and a lack of local awareness. Conservation plans include legal protection, awareness programs, habitat protection, and using canopy bridges to connect fragmented forests.
- **Four-horned Antelope**: Threats include habitat loss, overgrazing by domestic livestock, and invasive species. Conservation focuses on habitat management, invasive species control, and legal protection.
- **Gaur (Indian Bison)**: Major threats are habitat degradation and fragmentation, uncontrolled fires, poaching, and human-wildlife conflict. Conservation measures include building waterholes, managing fire lines and grasslands, and forming coordination committees to mitigate conflict.
- **Indian Pangolin**: Threats include heavy poaching for scales and meat, illegal international trade, and habitat loss. Conservation plans involve legislative protection, community engagement, night patrolling, and rescue and rehabilitation efforts.
- **Nilgiri Wood Pigeon**: The primary threat is habitat loss and degradation from developmental projects like mining and hydropower plants. Conservation efforts include habitat preservation, protecting key areas, and managing development projects.
- **Monitor Lizard**: Threats include habitat loss due to urbanization, illegal trade for skin and meat, and agricultural pollution. Conservation plans suggest increasing grass cover, strengthening anti-poaching measures, and educating the public.

- **Marsh Crocodile**: Threats include habitat destruction, drowning in fishing gear, and illegal trade. Conservation strategies include legal protection, habitat management, community education, and research.
- **Indian Rock Python**: Threats include habitat loss, poaching for the illegal pet trade, and human-wildlife conflict. Conservation plans include habitat management, public awareness campaigns, and collaboration between government and non-government organizations.
- **King Cobra**: Threats include habitat loss due to agricultural expansion and human-wildlife conflict. Conservation plans focus on habitat preservation, targeted awareness programs, and species-specific research.

4. Chapter 4

An onsite implementation plan is a detailed roadmap that outlines the specific steps, resources, and timeline for executing a project at a particular location. The plan is designed to help teams stay organized, reduce risks, and improve communication during the execution phase. This particular plan focuses on implementing conservation measures by allocating resources and strategizing to achieve project goals in a timely manner.

The project site is divided into Core Area and Buffer Area. The Core Area is the Project Block IV - Kalay Mineral Block, which covers an area of 152.5073 Ha. The Buffer Area is a 10 km radius from the Mineral Block's boundary.

4.1. Permissions and Restrictions:

- **Core Zone:** The Project Proponent based as per the conditions stated in Letter of Intent granted has obtained Environmental Clearance, Approved Mining Plan and is in the process of obtaining all the statutory permissions as required. Mining operations and allied activities will begin after all the permissions are obtained.
- **Buffer Zone:** Permissions required for this zone include Consent to Establish and Operate and a Transit Permit from the Department of Mines and Geology (DMG). The Project Proponent has no authority over the buffer zone, which consists of revenue land, private land, forest land, and a Wildlife Sanctuary (WLS). However, the Project Proponent will support the State Forest Department in wildlife conservation activities in this zone.

4.2. Proposed Strategies and Action Plan:

The Project Proponent plans to collaborate with the State Forest Department to implement a Wildlife Conservation Plan. The Project Proponent will implement various conservation activities within the Core Zone, such as maintaining good air, water, and noise environments and developing greenbelts. The Proponent will also provide funds to the State Forest Department for wildlife conservation activities in the Buffer Zone. The financial layout for the five-year plan is detailed in Chapter 5.

An Action Plan has been prepared in consultation with the State Forest Department. The Project Proponent will provide Rs. 71.13 Lakhs for wildlife conservation measures in the buffer zone, which will be implemented by the State Forest Department. Activities within the core zone, such as greenbelt development, plantation, and soil moisture conservation, will be carried out by the Project Proponent with an estimated budget of Rs. 35.18 Lakhs. All these activities will start within six months of the beginning of mining operations and will be completed within five years.

The action plan includes:

- **Provision of a Rescue and Patrolling Vehicle:** To enhance mobility for wildlife rescue and patrolling.
- **Fire Prevention and Control Measures:** To prevent, detect, and control forest fires. This includes providing firefighting kits and training local community members.
- **Awareness and Sensitization Programs:** To educate communities and workers about wildlife conservation and fire management through workshops and campaigns.
- **Watch & Ward for Wildlife Protection:** To strengthen surveillance against poaching, illegal grazing, encroachment, and fires.
- **Creation and Maintenance of Water Holes:** To support ecological balance and improve wildlife monitoring.
- **Greenbelt Development:** To rehabilitate degraded landscapes, prevent soil erosion, and act as a natural sink for air pollutants. The plan aims to plant 2,24,000 plants over about 59% of the project area.
- **Soil Moisture Conservation Measures:** To enhance soil water retention and groundwater recharge.
- **Wildlife Monitoring:** To monitor wildlife species and population for data-driven management.

5. **Chapter 5**

The Chapter outlines a five-year financial plan for wildlife conservation, habitat management, and infrastructure development to be implemented during mining operations. The financial plan applies a 10% annual cost increase to account for inflation, wage growth, and changes in material costs. The overall proposed budget for all wildlife conservation activities is ₹106.31 lakhs for the five-year period.

In addition to these measures, the project proponent will erect fencing around the mineral block to prevent animals from entering the premises. Employees at the project site will receive training on the importance of local flora and fauna. The financial allocations and interventions will be monitored by a local authority to ensure biodiversity conservation and prevent damage to existing ecosystems. The document was prepared by Dr. Chetan H. C. and M. S. Raju on August 25, 2025, in Ballari.

ABBREVIATIONS

Abbreviation	Full Form	Description
BSI	Botanical Survey of India	National institution for survey and research on India's plant resources.
CAAQMS	Continuous Ambient Air Quality Monitoring System	Automated system that continuously measures and reports air quality in real-time using integrated sensors and analysers
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	International treaty to regulate trade of endangered species.
CPCB	Central Pollution Control Board	Central/ National authority responsible for pollution control and monitoring.
CR	Critically Endangered	IUCN Red List category for species facing an extremely high risk of extinction.
CRZ	Coastal Regulation Zone	Environmentally sensitive coastal areas regulated for conservation.
DD	Data Deficient	IUCN Red List category for species where there is insufficient information to assess its population or distribution to determine its status
DGPS	Differencial Global Positioning System	An enhancement to the standard GPS system that significantly improves location accuracy
DMG	Directorate of Mines & Geology	Department that looks after the mineral administration in the state
EIA	Environmental Impact Assessment	Process to evaluate the potential environmental effects of a proposed project
EMC	Environmental Monitoring Cell	Team within the company, responsible for collecting, analyzing, and assessing environmental data.
EMP	Environmental Management Plan	Comprehensive plan designed to mitigate the impacts of a project on the environment
EN	Endangered	IUCN Red List category for species facing a very high risk of extinction.
ESA	Ecologically Sensitive Area	Region notified to conserve biodiversity, protect fragile ecosystems, Incase of Goa, the ESA of Western Ghats
ESZ	Ecologically Sensitive Zone	Buffer areas notified around National Parks and Wildlife Sanctuaries.
EW	Extinct in the Wild	IUCN Red List category for species known only to survive in captivity or well outside their historic natural range
EX	Extinct	IUCN Red List category for species where there is no reasonable doubt that the last individual has died
FAE	Functional Area Expert	an expert in a specific functional area
GPS	Global Positioning System	satellite-based network that provides accurate, real-time location, speed, and time information

GSBB	Goa State Biodiversity Board	Autonomous body of the Government of Goa to conserve biodiversity and promote sustainable livelihoods in the region
GSPCB	Goa State Pollution Control Board	State authority responsible for pollution control and monitoring.
HA.	Hectare	Unit of area used to measure land
HEMM	Heavy Earth Moving Machinery	Large, powerful machines used in mining, construction, and infrastructure projects
HH	House Hold	group of people living in a single housing unit
HOD	Head of Department	Senior faculty member responsible for a department
I	Schedule-I	Schedules of Indian Wildlife Protection Act (IWPA)
IBA	Important Bird and Biodiversity Area	Sites recognized internationally for bird and biodiversity conservation.
IBM	Indian Bureau of Mines	A government organization in India that promotes the scientific and sustainable development of mineral resources
ICAR	Indian Council of Agricultural Research	An autonomous body responsible for co-ordinating agricultural education and research in India
ICFRE	Indian Council of Forestry Research & Education	An autonomous body that conducts and coordinates forestry research, education, and extension services
II	Schedule-II	Schedules of Indian Wildlife Protection Act (IWPA)
INR	Indian Rupee	Official currency of India
IUCN	International Union for Conservation of Nature	Global authority on the status of the natural world and measures for conservation.
IV	Schedule-IV	Schedules of Indian Wildlife Protection Act (IWPA)
IWPA	Indian Wildlife (Protection) Act, 1972	Main legislation in India for protection of wildlife, with schedules for species protection.
LC	Least Concern	IUCN Red List category for species at low risk of extinction.
LOI	Letter of Intent	A formal document of terms between 2 or more parties
LOS	Level of Service	Qualitative measure of traffic flow conditions
LULC	Land Use and Land Cover	Map of the Earth's surface based on its physical characteristics (land cover) and how it is used (land use)
MCDR	Mineral Concervation & Development Rules	Rules of the Indian Mining Industry
MCR	Mineral Concession Rules	Set of regulations framed for the Indian Mining Industry
MDPA	Mine Development and Production Agreement	a legal document of agreement in mining industry

ML	Mining Lease	a legal right granted to extract minerals from a specified area of land for a defined period
MoEF&CC	Ministry of Environment, Forest and Climate Change	Indian government's nodal agency responsible for implementing environmental and forestry policies
MR	Mineral Reject	
MSL	Mean Sea Level	a global reference point for altitude and elevation
MTPA	Million Tonnes Per Annum	Unit of measure of quantity of material
NABET	National Accreditation Board for Education and Training	Constituent Board of Quality Council of India
NDVI	Normalized Difference Vegetation Index	a remote sensing method that measures the density of vegetation
NE	Not Evaluated	IUCN Red List category for species which have not been assessed for risk of extinction.
NEERI	National Environmental Engineering Research Institute	
NGO	Non Governmental Organisation	a private, nonprofit group organized on local, national, or international levels
NH	National Highway	Main road within India's highway network that connects important cities
NIT	Notice Inviting Tender	Public announcement to solicit bids
NOC	No Objection Certificate	a formal legal document confirming no objections to a specific action being undertaken
NP	National Park	Legally protected area for conservation of wildlife and habitat.
NT	Near Threatened	IUCN Red List category for species close to qualifying for threatened status.
PF	Protected Forest	Forest area with limited protection under the Indian Forest Act.
PP	Project Proponent	
PPE	Personal Protection Equipment	gear worn to protect an individual from workplace or environmental hazards
PUC	Pollution Under Control	a mandatory certificate, which certifies that a vehicle's emissions are within the legally permissible limits set by the CPCB
RET	Rare, Endangered & Threatened	Category of Biological Species
RF	Reserve Forest	Forest area notified and protected under Indian Forest Act.
ROM	Run-of-Mine	Raw material as is extracted from mine

SH	State Highway	Main road within a state that connects important cities
SMC	Soil and Moisture Conservation	Measures to conserve soil and water resources.
SSC	Species Survival Commission	Specialist groups under IUCN responsible for assessing species' status and conservation actions.
TOT_F	Total Female Population	Number of females from the Total Population
TOT_M	Total Male Population	Number of males from the Total Population
TOT_P	Total Population	Number of people or individuals residing in a specific geographical area
VU	Vulnerable	IUCN Red List category for species facing a high risk of extinction.
WCMC	World Conservation Monitoring Centre	United Nations Environment Programme (UNEP) centre providing biodiversity data and assessments.
WLS	Wildlife Sanctuary	Protected area declared for protection of wildlife and habitat.
ZSI	Zoological Survey of India	National institution for survey and research on India's animal resources.

LIST OF FLORA COMMONLY FOUND IN THE FOREST AREAS OF SOUTH GOA FOREST DIVISION

Sl. No.	Scientific Name	Local/ Vernacular Name
1.	*Acacia catechu*	Khair
2.	*Adina cordifolia*	Hedu
3.	*Agele marmelos*	Bel.
5.	*Albizia lebbak*	Shiras
6.	*Albizzia odoratissima*	Kaloshiras
7.	*Alstonia scholaris*	Satvan
4.	*Amoora lawii*	Burumbi
8.	*Anacardium occidentale*	Kaju.
9.	*Anogeissus latifolia*	Dhaoda
10.	*Aporusa lindleyana*	Salai
11.	*Artocarpus integrifolia*	Phanas
12.	*Artocarpus lakoocha*	Otamb
13.	*Azadirachta indica*	Nimb
14.	*Barringtonia acutangula*	Men kumbyo
15.	*Bauhinia racemosa*	Apto.
16.	*Bauhinia wahilli*	Mavli
17.	*Bombax ceiba*	Savar
18.	*Bridelia retusa*	Khatem Asan.
19.	*Buchnania lanzan*	Chara
20.	*Butea monospermum*	Palas.
21.	*Callicarpa tomentosa*	Phalyo.
22.	*Callophylum inophyllum*	Undi.
23.	*Calycopteris floribunda*	Uski.
24.	*Carallia brachiata*	Panshi, Makad bhiran,
25.	*Careya arborea*	Kumbyo
26.	*Caryota urens*	Birlo mad
27.	*Cassia fistula*	Bayo, Balo.
28.	*Ceiba pentandra*	Savar
29.	*Cinnamomum zeylanicum*	Tikhi
30.	*Corypha umbraculifera*	Karetel
31.	*Dalbergia latifolia*	Shisham
32.	*Derris scandens*	Kanranj
33.	*Dillenia pentagyna*	Karmal.
34.	*Diospyros Montana*	Goiunda, Govimelu.
35.	*Diospyros paniculata*	Kuri.
36.	*Embelica officinalis*	Amla, Awalo
37.	*Erythrina indica*	Pongaro.
38.	*Ficus arnotianna*	Asti payr
39.	*Ficus asperrima*	Kharvat
40.	*Ficus bengalensis*	Vad
41.	*Ficus glomerata*	Rumad
42.	*Ficus Hispida*	Kalaumbar
43.	*Ficus religiosa*	Pipal.

44.	*Ficus tsiela*	Basri.
45.	*Flacourtia jangomonas*	Jangli Jagam.
46.	*Flacourtia montanna*	Chafra
47.	*Garcinia gummigutta*	Dhar ambo.
48.	*Garcinia indica*	Bhiran
49.	*Gmelina arborea*	Shivan
50.	*Grewia tillifolia*	Dhaman
51.	*Helicters isora*	Kivan
52.	*Holarrhena antidysentrica*	Kudo
53.	*Holigarnia arnottiana*	Bibo
54	*Holoptelia integrifolia*	Vamolo
55.	*Hopea wightiana*	Pav.
56.	*Hydnocarpus laurifolia*	Khast, Kavat.
57.	*Lagerstroemia lanceolata*	Nano
58.	*Lagerstroemia parviflora*	Taman
59.	*Lannea coromandalica*	Moi
60.	*Leea indica*	Jino
61.	*Luta graveolens*	Arod
62.	*Macaranga peltata*	Chandado.
63.	*Mallotus phillipinensis*	Bems, Sendri.
64.	*Mangifera indica*	Ambo
65.	*Manilkara hexandra*	Kirni
66.	*Melia azedarach*	Firnage nimb.
67.	*Mesua ferrea*	Nagchampho.
68.	*Mimusops elengi*	Onval

LIST OF FAUNA COMMONLY FOUND IN THE FOREST AREAS OF SOUTH GOA FOREST DIVISION

Mammals:-Important species of mammals found in the division are given below

Sr. No.	Zoological Name	English Name	Local Name
1	*Axis axis*	Spotted deer	Cheetal
2	*Bandicota indica*	Bandicoot rat	Kolindar
3	*Bos gaurus*	Gaur or Indian bison	Gavvo redo, Gavvo
4	*Canis aureaus*	Jackal	Kolo
5	*Cervus unicolor*	Sambar	Meru.
6	*Cuon alpinus*	Wild dog	Kolsundo, Deucolo
7	*Cynopterus brachyotis*	Indian fulvous fruit bat	Pakho
8	Delphinus tropicalis linn	Common Dolphin	Gaddo redo
9	*Felis bengalensis*	Leopard cat	Wagatti
10	*Felis chaus*	Jungle cat	Baul,
11	*Funambulus palmarum*	Three striped palm squirrel	Chani, Khar.
12	*Herpestes edwardsii*	Common grey mongoose	Mungoos, Munghas,
13	*Hyaena hyaena*	Striped hyaena	Yeul , Bhalu
14	*Hysterix indica*	Porcupine	Sal, Salinder
15	*Lepus nigricollis*	Black napped Hare	Soso
16	*Loris tardigradus*	Slender loris	Van manus
17	*Lutra lutra*	Common Otter	Udh,
18	*Lutra perspicillata*	Smooth coated Otter	Udh
19	*Macaca radiata*	Bonnet macaque	Khete, Makod.
20	*Manis crassicaudata*	Indian pangolin	Therio
21	*Megaderma spasma*	Indian false vampire bat	Vagul
22	*Melursus ursinus*	Sloth bear	Aswal, Vashel.
23	*Muntiacus muntjak*	Barking deer	Bhekaro
24	*Mus booduga*	Indian field mouse	Undir
25	*Otompos wronghtoni*	Wronghton's freetailed bat	Vagul
26	*Panthera pardus*	Leopard	Bibto Vag, Biblo.
27	*Panthera tigris*	Tiger	Danyo or Pattacho Vag
28	*Paradoxurus hermaphorditus*	Palm civet cat	Katanoor
29	*Petaurista petarauista*	Common flying squirrel	Ud pakho.
30	*Phocoena phoecoena*	Porpoise	
31	*Pipistrellus dormeri*	Dormers bat	Vagul
32	*Presbytis entellus*	Common Langur	Vanor
33	*Pteropus giganteus*	Flying Fox	Pakho

34	*Rattus rattus*	House Rat	Undir
35	*Ratufa macroura*	Malabar Giant Squirrel	Shekro,
36	*Rhinolophus luctus*	Horse shoe bat	Vagul
37	*Suncus murinus (Linnaeus)*	House shrew	Chuchunderi
38	*Sus scrofa*	Wild Boar	Ran dukar.
39	*Tatera indica*	Indian Gerbille	Undir
40	*Tragulus meminna*	Mouse deer	Pisoi
41	Tursiops aduncus	Indian bottlenose dolphin	
42	*Viverricula indica*	Small Indian civet cat	Javade,

Birds: - Important birds found in the division are given in the following table

Sr. No.	Scientific name	Common name
1	*Accipiter badius*	Shikra
2	*Acridotheres fuscus*	Jungle Myna
3	*Acrocephalus aedon*	Thick billed Warbler
4	*Acrocephalus agricola*	Paddyfield Warbler
5	*Aegithina tiphia*	Common Iora
6	*Alcedo atthis*	Common Kingfisher
7	*Amaurornis phoenicurus*	White-breasted Waterhen
8	*Anas acuta*	Northern Pintail
9	*Anas clypeata*	Northern Shoveler
10	*Anas crecca*	Common Teal
11	*Anas poecilorhyncha*	Spot-billed
12	*Anas querquedula*	Garganey
13	*Anastomus oscitans*	Asian Openbill
14	*Anhinga melanogaster*	Oriental Darter
15	*Anthus richardi*	Richards Pipit
16	*Apus pacificus*	Large White Rumped Swift
17	*Aquila pomarina*	Lesser Spotted Eagle
18	*Ardea cinerea*	Grey Heron

19	*Ardea purpurea*	Purple Heron
20	*Ardeola grayii*	Indian Pond-Heron
21	*Bubulcus ibis*	Cattle Egret
22	*Cacomantis passerinus*	Grey-bellied Cuckoo
23	*Calandrella brachydactyla*	Greater Short-toed Lark
24	*Calidris temminckii*	Temminck's Stint
25	*Celeus brachyyurus*	Rufous woodpecker
26	*Centropus sinensis*	Greater Coucal
27	*Ceryle rudis*	Pied Kingfisher
28	*Chalcophaps indica*	Emerald Dove
29	*Charadrius alexandrinus*	Kentish plover
30	*Charadrius dubius*	Little ringed plover
31	*Chloropsis aurifrons*	Gold fronted chloropsis
32	*Circaetus gallicus*	Short-toed Snake-Eagle
33	*Circus aeruginosus*	Western Marsh Harrier
34	*Columba elphinstonii*	Nilgiri Wood-Pigeon
35	*Columba livia*	Rock Pigeon
36	*Copsychus malabaricus*	White-rumped Shama
37	*Copsychus saularis*	Magpie robin
38	*Coracina mealnoptera*	Black headed cuckoo shrike
39	*Corvus macrorhynchos*	Jungle crow
40	*Corvus splendens*	House Crow
41	*Cuculus varius*	Common Hawk-Cuckoo
42	*Cyornis tickelliae*	Tickell’s blue flycatcher
43	*Cypsirus Parvus*	Palm Swift
44	*Dendrocitta vagabunda*	Indian tree pie
45	*Dendrocopos mahrattensis*	Yellow-crowned Woodpecker
46	*Dendrocopus mahrattensis*	Yellow fronted pied woodpecker
47	*Dendrocygna javanica*	Lesser Whistling teal

48	*Dicaeum agile*	Thick billed Flowerpecker
49	*Dicaeum erythrorhynchos*	Tickell's Flowerpecker
50	*Dicrurus aeneus*	Bronzed Drongo
51	*Dicrurus caerulescens*	White bellied Drongo
52	*Dicrurus hottentottus*	Hair crested Drongo
53	*Dicrurus macrocercus*	Black Drongo
54	*Dicrurus paradiseus*	Greater racket tailed drongo
55	*Dinopium benghalense*	Lesser golden back woodpecker
56	*Dryocopus javensis*	White-bellied Woodpecker
57	*Ducula badia*	Mountain Imperial-Pigeon
58	*Dumetia hyperythra*	White throated Babbler
59	*Egretta gularis*	Western Reef-Egret
60	*Elanus caeruleus*	Black-winged Kite
61	*Eremopterix grisea*	Ashy-crowned Sparrow-Lark
62	*Eumyias thalassina*	Verditer flycatcher
63	*Fulica atra*	Common Coot
64	*Gallicrex cinerea*	Watercock
65	*Gallinula chloropus*	Common Moorhen
66	*Galloperdix spadicea*	Red Spurfowl
67	*Gallus sonneratii*	Grey Junglefowl
68	*Glareola lactea*	Small Pratincole
69	*Gorsachius melanolophus*	Malayan Night Heron
70	*Halcyon pileata*	Black-capped Kingfisher
71	*Halcyon smyrnensis*	White-throated Kingfisher
72	*Haliaeetus leucogaster*	White-bellied Fish-Eagle
73	*Haliastur indus*	Brahminy Kite
74	*Hemicircus canente*	Heart-spotted Woodpecker
75	*Hemiprocene longipennis*	Crested tree swift

76	*Hemipus picatus*	Pied flycathcher shrike
77	*Himantopus himantopus*	Black-winged Stilt
78	*Hirundo concolor*	Dusky Crag Martin
79	*Hirundo daurica*	Red rumped Swallow
80	*Hirundo smithii*	Wire tailed Swallow
81	*Hypothymis azurea*	Black-naped Monarch
82	*Iole indica*	Yellow-browed Bulbul
83	*Irena puella*	Asian Fairy-bluebird
84	*Lanius schach*	Rufous back Shrike
85	*Leptoptilos javanicus*	Lesser Adjutant
86	*Lonchura malacca*	Black headed Munia
87	*Lonchura striata*	White backed Munia
88	*Megalaima haemacephala*	Crimson breasted Barbet
89	*Megalaima viridis*	Small Green Barbet
90	*Merops leschenaulti*	Chestnut headed bee-eater
91	*Merops orientalis*	Little Green Bee-eater
92	*Merops philippinus*	Blue-tailed Bee-eater
93	*Mesophoyx intermedia*	Intermediate Egret
94	*Milvus migrans*	Black Kite
95	*Motacilla citreola*	Citrine Wagtail
96	*Motacilla madaraspatensis*	Large Pied wagtail
97	*Muscicapa dauurica*	Asian Brown Flycatcher
98	*Mycteria leucocephala*	Painted Stork
99	*Myiophonus horsfieldii*	Malabar Whistling-Thrush
100	*Nectarinia asiatica*	Purple Sunbird
101	*Nectarinia lotenia*	Loten’s Sunbird
102	*Nectarinia zeylonica*	Purple rumped Sunbird

103	*Nycticorax nycticorax*	Black-crowned Night-Heron
104	*Nyctyornis athertoni*	Blue bearded bee-eater
105	*Oriole oriolus*	Golden oriole
106	*Oriolus xanthornus*	Black headed oriole
107	*Orthotomus sutorius*	Common Tailor bird
108	*Oxylophus jacobinus*	Pied Cuckoo
109	*Pandion haliaetus*	Osprey
110	*Passer domesticus*	House Sparrow
111	*Pavo cristatus*	Indian Peafowl
112	*Pelargopsis capensis*	Stork-billed Kingfisher
113	*Pellorneum ruficeps*	Spotted Babbler
114	*Perdicula asiatica*	Jungle Bush-Quail
115	*Pericrocotus cinnamomeus*	Small minivet
116	*Pericrocotus cinnamomeus*	Small Minivet
117	*Pericrocotus flammeus*	Scarlet Minivet
118	*Picumnus innominatus*	Speckled Piculet
119	*Pitta brachyura*	Indian Pitta
120	*Ploceus philippinus*	Indian Baya
121	*Pomatorhinus horsfieldii*	Indian Scimitar-Babbler
122	*Porphyrio porphyrio*	Purple Swamphen
123	*Porzana fusca*	Ruddy-breasted Crake
124	*Prinia hodgsonii*	Grey-breasted Prinia
125	*Prinia inornata*	Plain Prinia
126	*Prinia socialis*	Ashy Prinia
127	*Psittacula krameri*	Rose ringed parakeet
128	*Psittacula kyanocephala*	Blossom headed parakeet
129	*Pycnonotus cafer*	Red vented Bulbul

130	*Pycnonotus jocosus*	Red whiskered Bulbul
131	*Pycnonotus luteolus*	White browed Bulbul
132	*Rhipidura albicollis*	White throated fantail flycatcher
133	*Saxicola caprata*	Pied bush chat
134	*Saxicoloides fulicata*	Indian Robin
135	*Sitta frontalis*	Velvet-fronted Nuthatch
136	*Spilornis cheela*	Crested Serpent-Eagle
137	*Spizaetus cirrhatus*	Changeable Hawk-Eagle
138	*Sterna aurantia*	River Tern
139	*Sterna bengalensis*	Lesser Crested-Tern
140	*Sterna nilotica*	Gull-billed Tern
141	*Streptopelia chinensis*	Spotted Dove
142	*Sturnus pagodarum*	Brahminy Myna
143	*Sturnus roseus*	Rosy Starling
144	*Tachybaptus ruficollis*	Little Grebe
145	*Terpsihone paradisi*	Paradise flycatcher
146	*Treron pompadora*	Pompadour Green-Pigeon
147	*Tringa cinerea*	Terek Sandpiper
148	*Tringa erythropus*	Spotted Redshank
149	*Tringa glareola*	Wood Sandpiper
150	*Tringa hypoleucos*	Common Sandpiper
151	*Tringa nebularia*	Common Greenshank
152	*Turdoides striatus*	Jungle Babbler
153	*Turdus merula*	Eurasian Blackbird
154	*Upupa epops*	Hoopoe
155	*Vanellus indicus*	Red-wattled Lapwing
156	*Vanellus malabaricus*	Yellow-wattled Lapwing

Reptiles: - Important reptiles found in the division are given below.

Sr. No.	Scientific name	Common name	Local Name
		SNAKES	
1.	*Ahaetulla nasutus*	Vine Snake	Harvel, Haryali
2.	*Amphiesma stolatum*	Buff striped keel back	Yevale.
3.	*Boiga forsteni*	Forsten's Cat Snake.	
4.	*Boiga trigonata*	Common Indian Cat Snake.	
5.	*Bungarus caeruleus*	Common Indian Krait	Kaner.
6.	*Calliophis nigrescens*	Coral Snake	
7.	*Cerberus rhynchops*	Dogfaced water Snake	Pan ghonas
8.	*Chrysopelea ornata*	Golden back tree Snake	
9.	*Coelognathus helena*	Trinket Snake	
10.	*Dendrelaphis tristis*	Bronzeback tree Snake	Naneti, Nanado.
11.	*Echis carinatus*	Saw scaled Viper	Phoorshe
12.	*Enhydrina schistosa*	Hook-nosed Sea Snake	
13.	*Eryx johnii*	Johns sand boa	Malun
14.	*Gongylophis conicus*	Common Sand Boa	Malun
15	*Grypotyphlops acutus*	Beaked worm snake	Sulo
16	*Lycodon aulicus*	Common Wolf snake	Pasko
17.	*Macropisthodon plumbicolor*	Green keelback.	Yevale
18.	*Naja naja*	Indian Spectacled Cobra.	Nag, Parro
19	*Oligodon arnensis*	Common Kukri snake	
20	*Oligodon taeniolatus*	Variegated Kukri Snake	
21.	*Ophiophagus hannah*	King Cobra	Nagin, Dom.
22.	*Ptyas mucosa*	Indian Rat Snake	Dhivad, Dhaman.
23.	*Python molurus*	Indian Rock Python	Har, Mayndol
24.	*Ramphotyphlops braminus*	Brahminy worm snake	Telyo
25	*Trimeresurus malabaricus*	Malabar Pit Viper	Chapade
26	*Trimeresurus gramineus*	Bamboo Pit Viper	Chapade
27	*Uropeltis macrolepis macrolepis*	Bombay shield tail	
28.	*Vipera russelii*	Russels Viper	Ghonas,
29.	*Xenochropis piscator*	Checkered keelback	Yevale

30	*Macropisthodon plumbicolor*	Green Keelback	Yevale
CROCODILES			
1.	*Crocodylus palustris*	Mugger or Marsh crocodile	Mange, Mugger
TURTLES (SEA TURTLE & FRESH WATER TURTLE)			
1.	*Lepidochelyes olivacea*	Olive ridley turtle	Kasai
2.	*Lissemys punctata*	Indian flapshell turtle	Tupyo kasav
3.	*Melanochelys trijuga*	Indian black turtle	Hagaro kasav
LIZARDS, SKINKS			
1	*Calotes rouxii*	Rouxii lizard	Sheddo
2	*Calotes versicolor*	Indian garden lizard	Sheddo
3	*Chamaeleo zeylanicus*	Indian chameleon	
4	*Draco dussumieri*	Flying lizard	Pavto
5	*Mabuya macularia*	Bronze skink	Shirli
AMPHIBIANS			
1.	*Duttaphrynus melanostictus (schnieder)*	Indian toad	Manaki
2.	*Hoplobatrachus tigerinus*	Indian bull frog	Bebo
3.	*Euphlyctis cyanophlyctis*	Indian skipper frog	Bebki
4.	*Sphaerotheca breviceps*	Indian burrowing frog	Bebki
5.	*Rhacophorus malabaricus*	Malabar gliding frog	
6.	*Rana malabarica*	Fungoid frog	Bebki

रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

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अधिसूचना

नई दिल्ली, 23 जनवरी, 2015

का.आ. 221(अ).—भगवान महावीर वन्य जीव अभयारण्य और राष्ट्रीय उद्यान, गोवा राज्य के उत्तरी गोवा जिले में 15^0 29'30.47'' उत्तर और 15^0 15'9.29'' उत्तर अक्षांश तथा 74^0 20 '10.01 पूर्व और 74^0 29 '26.27'' पूर्व देशांतर के बीच स्थित है और 240 वर्ग किलोमीटर के क्षेत्र में विस्तृत है, जो जैव विविधता से समृद्ध वेस्टर्न घाट का आवश्यक भाग है ।

और, मूल संरक्षित क्षेत्र के 240 वर्ग किलोमीटर क्षेत्र में से, 107 वर्ग किलोमीटर का क्षेत्र काट कर और अभयारण्य को दो भागों में विभाजित कर राष्ट्रीय उद्यान के रूप में संरचित है ।

और, अभयारण्य में वन्य जीवों की संकटापन्न प्रजातियां जैसे भारतीय गवल, तेंदुआ, चूहा हरिण,काला तेंदुआ, तवांगु, जंगली कुत्ते, भालू आदि निवास करते हैं;

और, इस संरक्षित क्षेत्र के वन वर्षा को आकृष्ट करते हैं और भूमिगत जलदायी स्तरों में जल को संचित करने में सहायता करते हैं और नदियों और धाराओं के विरुद्ध मृदा क्षरण को कम करके उनमें सिल्ट के भराव को रोकते हैं और बहुवार्षिक या अर्द्धवाषिक या मौसमी प्रकृति की जल धाराओं का पूरा बंधा हुआ नेटवर्क चलता है जो जुआरी नदी, मांडवी नदी और उसकी नहरों को भरता है ;

अतः, यह आवश्यक है कि भगवान महावीर वन्य जीव अभयारण्य के चारों ओर के संरक्षित क्षेत्र को पारिस्थितिक और पर्यावरण के दृष्टिकोण से एक पारिस्थितिक संवेदी क्षेत्र के रूप में संरक्षित और संधारित किया जाए ;

और,पर्यावरण (संरक्षण) अधिनियम, 1986 के नियम 5 के उपनियम (3) के अधीन यथा अपेक्षित एक प्रारूप अधिसूचना पर्यावरण (संरक्षण) अधिनियम, 1986(1986 का 29) की धारा 3 की उपधारा (2) के खंड (v) और खंड (xiv) और उपधारा (3) के साथ पठित उपधारा (1) के अधीन प्रदत्त शक्तियों का प्रयोग करते हुए भारत के तत्कालीन पर्यावरण और वन मंत्रालय की संख्यांक का.आज्ञ 635 (अ) तारीख 3 मार्च, 2014 की अधिसूचना द्वारा भारत के राजपत्र, असाधारण, में उन सभी व्यक्तियों की जानकारी के लिए प्रकाशित की गई थी जिनके उससे प्रभावित होने की संभावना है और उसके द्वारा उस तारीख से साठ दिन की अवधि के भीतर आक्षेप और सुझाव मांगे गए थे जिस तारीख को उक्त अधिसूचना को अंतर्विष्ट करने वाले राजपत्र की प्रतियां जनता को उपलब्ध कराई गई थीं ;

और , उक्त अधिसूचना को अंतर्विष्ट करने वाले राजपत्र की प्रतियां 3 मार्च, 2014 को जनता को उपलब्ध कराई गई थीं जिसमें अधिसूचना संख्यांक का.आ. 831 (अ) तारीख 19 मार्च, 2014 द्वारा जारी शुद्धि पत्र भी था;

और, प्रारूप अधिसूचना के जवाब में प्राप्त सभी आक्षेपों और सुझावों पर केन्द्रीय सरकार द्वारा सम्यक् रूप से विचार कर लिया गया है;

और, अब, केन्द्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 3 की उपधारा (1), उपधारा (2) के खंड (v) और खंड (xiv) और उपधारा (3) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, गोवा राज्य में भगवान महावीर वन्य जीव अभयारण्य की परिधि से एक किलोमीटर स्थल अथवा जल निकाय में से जो भी निकट हो, को पारिस्थितिक संवेदी जोन के रूप में अधिसूचित करती है, जिसका विवरण निम्नानुसार है, अर्थात् :--

1. पारिस्थितिक संवेदी जोन का विस्तार और उसकी सीमाएं--(1) पारिस्थितिक संवेदी जोन का विस्तार गोवा राज्य में भगवान महावीर वन्य जीव अभयारण्य की सीमा की परिधि से एक किलोमीटर स्थल अथवा जल निकाय में से जो भी निकट हो तक होगी ।

(2) पारिस्थितिक संवेदी जोन मेदई वन्य जीव अभयारण्य की सीमा द्वारा उत्तर की ओर से, नेत्रावली वन्य जीव अभयारण्य की सीमा द्वारा दक्षिण की ओर से, भगवान महावीर वन्य जीव अभयारण्य और राष्ट्रीय उद्यान की सीमा द्वारा पूर्व की ओर से और पश्चिम की ओर से धारवनडोरा तालुक, सात्तरी तालुक के ग्रामों के क्षेत्र से सीमाबद्ध है; दूधसागर नदी जो भगवान महावीर राष्ट्रीय उद्यान से आरंभ होती है पारिस्थितिक संवेदी जोन की सीमा और भगवान महावीर अभयारण्य की सीमा के साथ-साथ पारिस्थितिक संवेदी जोन के पश्चिम से होकर गुजरती है ।

(3) पारिस्थितिक संवेदी जोन की सीमा का मानचित्र इस अधिसूचना से उपाबद्ध अक्षांश और देशांतर के साथ **उपाबंध 1** के रूप में दिया गया है । पारिस्थितिक संवेदी जोन की सीमा पर प्रमुख स्थलों के अक्षांश और देशांतर की सूची इस अधिसूचना के साथ **उपाबंध 2** पर यथारूप में दी गई है ।

(4) पारिस्थितिक संवेदी जोन की सीमा के भीतर भागतः आने वाले 16 ग्रामों की सूची **उपाबंध 3** पर दी गई है ।

(5) उपाबंध 3 में दिए गए ग्रामों की सूची को राज्य सरकार द्वारा जोनल मास्टर प्लान तैयार करते समय और देखे जाने के लिए तथा पुष्टि के लिए दी गई है ।

2. पारिस्थितिक संवेदी जोन के लिए जोनल मास्टर प्लान--(1) पर्यावरण वन और जलवायु परिवर्तन मंत्रालय, भारत सरकार के विचार और अनुमोदन के लिए राज्य सरकार, पारिस्थितिक संवेदी जोन के प्रभावी प्रबंधन के प्रयोजन हेतु राजपत्र में इस अधिसूचना के अंतिम प्रकाशन की तारीख से दो वर्ष की अवधि के भीतर स्थानीय व्यक्तियों के परामर्श से और सभी संबंधित विभागों, जैसे पर्यावरण, वन और वन्य जीव, कृषि, राजस्व, शहरी और आवास विकास, पर्यटन, ग्रामीण विकास, सिंचाई और बाढ़ नियंत्रण, खनन और लोक निर्माण विभाग, की सहभागिता से पारिस्थितिक और पर्यावरण संबंधित प्रतिफलों को उक्त योजना में समेकित करते हुए जोनल मास्टर प्लान तैयार करेगी ।

(2) जोनल मास्टर प्लान में अवक्रमित क्षेत्रों के जीर्णोद्धार, विद्यमान जल निकायों के संरक्षण, आवाह क्षेत्रों के प्रबंधन, जलसंभरों के प्रबंधन, भूगर्भ जल के प्रबंधन, मिट्टी और नमी संरक्षण, स्थानीय समुदायों की आवश्यकताओं तथा पारिस्थितिकी व पर्यावरण से संबंधित ऐसे अन्य पहलूओं, जिन पर ध्यान देना आवश्यक है, के लिए उपबंध होंगे ।

(3) जोनल मास्टर प्लान सभी विद्यमान और प्रस्तावित शहरी बंदोबस्त, ग्रामीण बंदोबस्त, वनों के किस्म और प्रकार, कृषि क्षेत्र, उद्यान-कृषि क्षेत्र, मानव द्वारा निर्मित विरासत और स्थलों, नैसर्गिक विरासत स्थलों, चालू खनन पट्टे, झीलों और अन्य जलाशयों का सीमांकन करेगा ।

(4) पारिस्थितिक संवेदी जोन के लिए इस प्रकार तैयार जोनल मास्टर प्लान को गोवा राज्य के क्षेत्रीय प्लान समेकित किया जाएगा ।

(5) जोनल मास्टर प्लान, पैरा 4 में विनिर्दिष्ट सारणी के स्तंभ (2) के अधीन क्रियाकलापों के विनियमन के लिए केन्द्रीय सरकार या राज्य सरकार द्वारा विनिर्दिष्ट उपायों को अंतर्विष्ट करेगा ।

(6) इस प्रकार तैयार किया गया जोनल मास्टर प्लान क्षेत्रीय विकास प्लान के सहविस्तारी होगा ।

(7) जोनल मास्टर प्लान इस अधिसूचना के उपबंधों के अधीन अपने कृत्यों की मानीटरी को पूरा करने के लिए राज्य स्तरी पारिस्थितिकी संवेदी मानीटरी समिति (जिसे इसमें इसके पश्चात् रास्त पा सं मा स कहा गया है), पैरा 5 में यथा संदर्भित के लिए निर्देश दस्तावेज होगा ।

3. राज्य सरकार द्वारा किए जाने वाले उपाय- राज्य सरकारें इस अधिसूचना के उपबंधों को प्रभाव देने के लिए निम्नलिखित उपायों को करेंगी, अर्थात् :—

(1) पारिस्थितिक संवेदी जोन में, वनों, उद्यान-कृषि क्षेत्रों, कृषि क्षेत्रों, उद्यानों और खुले स्थानों, जो आमोद-प्रमोद के प्रयोजन के लिए निश्चित किए गए हैं, का वाणिज्यिक उपयोग या उद्योग संबंधित विकास क्रियाकलापों के लिए भू-उपयोग में संपरिवर्तन अनुज्ञेय नहीं होगा :

परंतु कृषि योग्य भूमि का पारिस्थितिक संवेदी जोन के भीतर संपरिवर्तन, राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति की सिफारिश पर, और राज्य सरकार के पूर्व अनुमोदन से, स्थानीय निवासियों की आवासीय जरूरतों को पूरा करने के लिए, जिसके अंतर्गत पैरा 4 की सारणी के स्तंभ (2) में यथा विनिर्दिष्ट क्रमशः मद सं0 24, सं0 26, सं0 28 और सं0 31 में सूचीबद्ध क्रियाकलापों को पूरा करने के लिए ही अनुज्ञात होगा, अर्थात् :—

(i) लघु स्तरीय उद्योग जो प्रदूषण कारित नहीं करते हैं,

(ii) वर्षा जल संचयन, और

(iii) कुटीर उद्योग जिसके अंतर्गत ग्रामीण उद्योग भी हैं,

(iv) पारिस्थितिक रूप से अनुकूल पर्यटन के अनुकूल क्रियाकलापों के लिए पारिस्थितिक रूप से अनुकूल कोटेज जो अस्थायी रूप से पर्यटकों के अधिभोग के लिए हों जैसे टेंट, लकड़ी के घर, आदि :

परंतु यह और कि समान रूप से जनजातीय प्रथाओं से गैर-जनजातीय प्रथाओं के लिए भूमि का उपयोग राज्य सरकार के पूर्व अनुमोदन और तत्समय प्रवृत्त विधि के उपबंधों, जिसके अंतर्गत अनुसूचित जनजाति और अन्य परंपरागत वन निवासी (वन अधिकारों की मान्यता) अधिनियम, 2006 (2007 का 2) भी है, के अनुपालन के बिना संपरिवर्तन अनुज्ञात नहीं होगा ।

परंतु यह भी कि पारिस्थितिक संवेदी जोन के भीतर भू अभिलेखों में प्रकट होने वाली किसी त्रुटि को राज्य सरकार द्वारा राज्य स्तरीय पारिस्थितिक संवेदी मानीटरी समिति के विचार प्राप्त करने के पश्चात् संशोधित किया जाएगा, जो प्रत्येक मामले में केवल एक बार ही होगा और उक्त त्रुटि का संशोधन केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को सूचित किया जाएगा :

परंतु यह और कि किसी मामले में उपरोक्त त्रुटि का सुधार करने में भू-प्रयोग में परिवर्तन सम्मिलित नहीं होगा सिवाय उस दशा के जैसा कि इस उप पैरा में उपबंधित किया गया है ।

(2) सभी जलस्रोतों के आवाह क्षेत्र की पहचान की जाएगी और उनमें से जो अपनी प्राकृतिक संरचना में सूख रहे हैं, उनके संधारण तथा नवीकरण की योजना जोनल मास्टर प्लान में सम्मलित की जाएगी और उन क्षेत्रों में या उनके निकटवर्ती क्षेत्रों में विकास क्रियाकलापों को प्रतिषिद्ध करने के लिए राज्य सरकार द्वारा नियमनिष्ठ मार्गदर्शक सिद्धांत बनाए जाएंगे ।

(3) पारिस्थितिकी संवेदी जोन के भीतर पर्यटन से संबंधित क्रियाकलाप जो जोनल मास्टर प्लान का हिस्सा होंगे निम्नानुसार है, अर्थात्-

(क) पारिस्थितिक संवेदी जोन के भीतर सभी नए पर्यटन क्रियाकलापों या विद्यमान पर्यटन क्रियाकलापों का प्रसार पारिस्थितिक पर्यटन, पारिस्थितिक-शिक्षा और पारिस्थितिक विकास तथा पारिस्थितिक संवेदी जोन की वहन क्षमता पर आधारित अध्ययन पर जोर देते हुए भारत सरकार पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय और राष्ट्रीय व्याघ्र संरक्षण प्राधिकरण के माध्यम से केन्द्रीय सरकार द्वारा जारी मार्गदर्शक सिद्धांतों के अनुसार होगा ;

(ख) पारिस्थितिक संवेदी जोन के भीतर नया संनिर्माण अनुज्ञात नहीं होगा सिवाय पर्यटकों के अस्थायी अधिभोग के लिए पारिस्थितिक के अनुकूल आवास जैसे टेंट, लकड़ी के घर, छप्पर की छत और पारिस्थतिक के अनुकूल पर्यटन क्रियाकलापों केः

(ग) जोनल मास्टर प्लान के अनुमोदन होने तक, पर्यटन के लिए विकास और विद्यमान पर्यटन क्रियाकलापों का विस्तार को संबंधित विनियामक प्राधिकारियों द्वारा अनुज्ञात किया जाएगा जो राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति की सिफारिश और स्थल की वास्तविक रूप से विनिर्दिष्ट संवीक्षा पर आधारित होगा ।

(4) पारिस्थितिक संवेदी जोन में मूल्यवान नैसर्गिक विरासत की पहचान की जाएगी और जोनल मास्टर प्लान में सम्मिलित किया जाएगा; सभी जीन पूल के लिए आरक्षित क्षेत्र, चट्टान विरचनाएं, जल प्रपातों, झरनों, घाटी मार्गों, उपवनों, गुफाएं, स्थलों, भ्रमण, अश्वारोहण, खड़ी चट्टानों आदि को परिरक्षित किया जाएगा; उनके संरक्षण और संधारण के लिए इस अधिसूचना के प्रकाशन की तारीख से छह मास के भीतर उपयुक्त प्लान बनाएगी और ऐसे प्लान बनाया जाएगा और ऐसे प्लान जोनल मास्टर प्लान के भाग होंगे ।

(5) पारिस्थितिक संवेदी जोन में भवनों, संरचनाओं, शिल्प-तथ्यों, क्षेत्रों और ऐतिहासिक, वास्तु-शिल्पीय, सौन्दर्य विषयक और सांस्कृतिक महत्व की प्रसीमाओं की पहचान की जाएगी और उनके संरक्षण के लिए इस अधिसूचना के प्रकाशन की तारीख से छह मास के भीतर प्लान बनाया जाएगा और जोनल मास्टर प्लान में सम्मिलित किया जाएगा ।

(6) राज्य सरकार का पर्यावरण विभाग या राज्य वन विभाग, वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 (1981 का 14) के उपबंधों के अनुसार, पारिस्थितिक संवेदी जोन में, ध्वनि प्रदूषण के नियंत्रण के लिए मार्गदर्शक सिद्धांत और विनियम की विरचना करने वाला प्राधिकरण होगा ।

(7) राज्य सरकार का पर्यावरण विभाग या राज्य वन विभाग, वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 (1981 का 14) के उपबंधों के अनुसार, पारिस्थितिक संवेदी जोन में, वायु प्रदूषण के नियंत्रण के लिए मार्गदर्शक सिद्धांत और विनियम की विरचना करने वाला प्राधिकरण होगा ।

(8) पारिस्थितिक संवेदी जोन में उपचारित बहिस्राव जल का निस्सारण जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974 (1974 का 6) के उपबंधों के अनुसार होगा ।

(9) ठोस अपशिष्टों का निपटान निम्नानुसार किया जाएगाः-(i) पारिस्थितिक संवेदी जोन में ठोस अपशिष्ट का निपटान समय-समय पर यथा संशोधित अधिसूचना सं. का.आ. 908(अ) तारीख 25 सितंबर, 2000 द्वारा केन्द्रीय सरकार के तत्कालीन पर्यावरण मंत्रालय द्वारा प्रकाशित नगरपालिक ठोस अपशिष्ट (प्रबंध और हथालन) नियम, 2000 के उपबंधों के अनुसार किया जाएगा ;

(ii) स्थानीय प्राधिकरण जैव निम्नीकरणीय और अजैव निम्नीकरणीय संघटकों में ठोस अपशिष्टों के संपृथकन के लिए योजनाएं तैयार करेंगे ;

(iii) जैव निम्नीकरणीय सामग्री को अधिमानतः खाद बनाकर या कृमि खेती के माध्यम से पुनःचक्रित किया जाएगा ;

(iv) अकार्बनिक सामग्री का निपटान किसी पर्यावरणीय स्वीकृत रीति में होगा ।

(10) पारिस्थितिक संवेदी जोन में जैव चिकित्सीय ठोस अपशिष्ट का निपटान समय-समय पर यथा संशोधित अधिसूचना सं. का.आ. 630 (अ) तारीख 20 जुलाई, 1998 द्वारा केन्द्रीय सरकार के तत्कालीन पर्यावरण और वन मंत्रालय द्वारा प्रकाशित जैव चिकिसीय अपशिष्ट (प्रबंध और हथालन) नियम, 1998 के उपबंधों के अनुसार किया जाएगा ;

(11) परिवहन की यानीय क्रियाकलाप आवास के अनुकूल विनियमित होंगे और इस संबंध में जोनल मास्टर प्लान में विशेष उपबंध अधिकथित किए जाएंगे और जोनल मास्टर प्लान के तैयार होने और पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय के अनुमोदन के दौरान, राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति यानीय गतिविधियों को विद्यमान नियमों और विनियमों के अनुसार मानीटर करेगी ।

4. पारिस्थितिक संवेदी जोन में प्रतिषिद्ध या विनियमित किए जाने वाले क्रियाकलापों की सूची - पारिस्थितिक संवेदी जोन में सभी क्रियाकलाप पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) के उपबंधों द्वारा शासित होंगे और नीचे दी गई सारणी में विनिर्दिष्ट रीति में विनियमित होंगे, अर्थात् :--

सारणी

क्रम सं.	क्रियाकलाप	टिप्पणी
(1)	(2)	(3)
प्रतिषिद्ध क्रियाकलाप		
1.	वाणिज्यिक खनन, पत्थर की खदान और उनको तोड़ने की इकाइयां	(क) सभी प्रकार के खनन (लघु और वृहत खनिज), पत्थर की खानें और उनको तोड़ने की इकाइयां का तत्काल प्रभाव से प्रतिषेध हैः परंतु लघु और वृहत खनिज के चालू पट्टे को दस वर्ष की अवधि के भीतर क्रमिक रीति में और रिट याचिका, (टी.एन. गोविन्द रामन बनाम भारत संघ) 1995 का 2002 के आई.ए. में तारीख 4.8.2006 के भारत के माननीय उच्चतम न्यायालय के अपने आदेश का उपांतरण करने और गोवा फाउंडेशन बनाम भारत संघ रिट याचिका 2012 का 435 में के आदेश के उपांतरण के अध्यधीन रहते हुए हटा दिया जाएगा ; परंतु यह और कि राज्य सरकार यह सुनिश्चित करेगी कि खान बंदी की समुचित और अशिथिल योजना बने और खनन के बाह्य क्षेत्र के पुनर्वासन और पारिस्थितिक प्रत्यावर्तन को भारतीय खान ब्यूरो द्वारा अधिकथित संनियमों के अनुसार यथासंभव शीघ्रता से पूरा किया जाए ;

2.	आरा मशीनों की स्थापना ।	तत्काल प्रभाव से प्रतिषिद्ध ।
3.	जल या वायु या मृदा या ध्वनि प्रदूषण करने वाले उद्योगों की स्थापना करना ।	तत्काल प्रभाव से प्रतिषिद्ध ।
4.	वाणिज्यिक होटल और सैरगाह की स्थापना करना ।	पारिस्थितिक संवेदी जोन में तत्काल प्रभाव से कोई नया वाणिज्यिक होटल और सैरगाह प्रतिषिद्ध होंगे ।
5.	जलाने के उपयुक्त लकड़ी का वाणिज्यिक उपयोग ।	तत्काल प्रभाव से प्रतिषिद्ध ।
6.	नए बृहत जल विद्युत परियोजना का स्थापना	पारिस्थितिक संवेदी जोन में नए जल विद्युत परियोजना संयंत्रों (बांध, सुरंग बनाने और जलाशय के संनिर्माण) की स्थापना और विद्यमान संयंत्रों के विस्तार के सिवाय सूक्ष्म जल विद्युत परियोजनाओं (100 किलोवाट तक) या लघु विद्युत परियोजनाओं (101 किलोवाट से 2000 तक), जो स्थानीय समुदायों की ऊर्जा की आवश्यकताओं को पूरा करेगी, संबधित ग्राम सभा और अन्य आवश्यक अनापत्तियों के अध्यधीन रहते हुए प्रतिषिद्ध होगी ।
7.	किसी खतरनाक पदार्थ का प्रयोग या उत्पादन	तत्काल प्रभाव से प्रतिषिद्ध ।
8.	प्राकृतिक जल निकायों या सतही क्षेत्र में अनुपचारित बहिर्स्राव और ठोस अपशिष्टों का निस्सारण	तत्काल प्रभाव से प्रतिषिद्ध है ।
9.	नई लकड़ी आधारित उद्योग	पारिस्थितिक संवेदी जोन की सीमाओं के भीतर नई लकड़ी पर आधारित उद्योगों की स्थापना प्रतिषिद्ध होगी ।
10.	संनिर्माण क्रियाकलाप	पारिस्थितिक संवेदी जोन में सिवाय, स्थानीय निवासियों की घरेलू आवश्यकताओं, जिसके अंतर्गत मद संख्या 26 मद संख्या 28 और मद संख्या 31 में सूचीबद्ध क्रियाकलाप भी हैं, किसी प्रकार का नया संनिर्माण तत्काल प्रभाव से प्रतिषिद्ध होगा और मद संख्या 24 में सूचीबद्ध क्रियाकलाप के मामले में संनिर्माण क्रियाकलापों को विनियमित करते हुए उन्हें न्यूनतम स्तर पर रखा जाएगा ।
11.	प्लास्टिक के थैलों का उपयोग	तत्काल प्रभाव से प्रतिषिद्ध ।
12.	भट्ठे	तत्काल प्रभाव से प्रतिषिद्ध ।
विनियमित क्रियाकलापः		
13.	वृक्षों की कटाई	(क)राज्य सरकार के सक्षम प्राधिकारी की पूर्व अनुमति के बिना वन या सरकारी या राजस्व या निजी भूमि पर वृक्षों की कटाई नहीं की जाएगी ; (ख) संबंधित केंद्रीय अधिनियम या राज्य अधिनियम और उसके अधीन बनाए गए नियमों के उपबंधों के अनुसार वृक्षों की कटाई विनियमित की जाएगी ।
14.	वाणिज्यिक जल संसाधन जिसके अंतर्गत भूजल संचयन भी है ।	(क) भूमि के अधिभोगी की वास्तविक कृषि और घरेलू खपत के लिए जल का निष्कर्षण सतही और भूमिगत जल अनुज्ञात होगा ; (ख) औद्योगिक या वाणिज्यिक उपयोग के लिए सतही और भूमिगत जल का निष्कर्षण, जिसके अंतर्गत निष्कर्षण किए जा सकने वाले जल की मात्रा भी है, के लिए संबंधित विनियामक प्राधिकरण की पूर्व लिखित अनुमति अपेक्षित होगी ; (ग) सतही या भूजल का कोई विक्रय अनुज्ञात नहीं होगा ; (घ) जल के संदूषण या प्रदूषण, जिसके अंतर्गत कृषि भी है, को रोकने के लिए सभी उपाय किए जाएंगे ।
15.	बिजली के तारों और दूर संचार टावरों का संनिर्माण ।	अंडरग्राउंड केबिलिंग को बढ़ावा देना ।
16.	विद्यमान होटलों और विश्रमालयों के परिसरों पर बाड़ लगाना	
17.	विद्यमान सड़कों को चौड़ा करना और उन्हें सुदृढ करना तथा नई सड़कों का संनिर्माण	उचित पर्यावरण समाघात निर्धारण और उसमें कमी करने के लिए के लागू होने वाले उपायों के अनुसार करना होगा ।

18.	रात्रि में यानिक यातायात का संचलन	वाणिज्यिक प्रयोजन के लिए ।
19.	विदेशी प्रजातियों का प्रवेश	
20.	पर्यटन संबंधी क्रियाकलापों जैसे राष्ट्रीय उद्यान क्षेत्र के ऊपर गर्म हवा के गुब्बारों द्वारा उड़ान भरना, आदि व्यापारिक कार्य ।	
21.	पहाड़ी ढलानों और नदी तटों का संरक्षण	
22.	प्राकृतिक जल निकायों या सतही क्षेत्र में उपचारित बहिर्स्राव का निस्सारण	उपचारित बहिर्स्राव के पुनर्चक्रण को प्रोत्साहित करना और अवमल या ठोस अपशिष्टों के निपटान के लिए विद्यमान विनियमों का अनुपालन करना होगा ।
23.	वाणिज्यिक साइनबोर्ड और होर्डिंग	-
24.	प्रदूषण कारित नहीं करने वाले लघु उद्योग	पारिस्थितिक संवेदी जोन से गैर प्रदूषण, गैर परिसंकटमय, लघु और सेवा उद्योग, कृषि उद्यान, कृषि या कृषि आधारित देशीय माल से औद्योगिक उत्पादों का उत्पादन उद्योग और जो पर्यावरण पर कोई विपरीत प्रभाव नहीं डालते हैं ।
25.	वन उत्पादों और गैर काष्ठ वन उत्पादों का संग्रहण	-
26.	पारिस्थितिक पर्यटन क्रियाकलापों जिसके अंतर्गत पारिस्थितिक पर्यटन मकानों, रेस्टोरेंट और आमोद-प्रमोद की सुविधाएं भी हैं जिसमें स्फूर्ति, तैराकी पूल, व्यायाम शाला भी हैं जो कपड़े या लकड़ी या बोर्ड कणिका जैसे टेंट आदि की अस्थायी संरचनाओं में बने हैं ।	पर्यटन मास्टर प्लान के अनुसार ।
संवर्धित क्रियाकलाप		
27.	स्थानीय समुदायों द्वारा प्रचलित कृषि और बागवानी प्रथाओं के साथ पशुपालन, पशुपालन कृषि, जल कृषि और मछली पालन	
28.	वर्षा जल संचयन	सक्रिय रूप से बढ़ावा दिया जाएगा ।
29.	जैविक खेती	सक्रिय रूप से बढ़ावा दिया जाएगा ।
30.	सभी क्रियाकलापों के लिए हरित प्रौद्योगिकी को ग्रहण करना	सक्रिय रूप से बढ़ावा दिया जाएगा ।
31.	कुटीर उद्योगों जिसके अंतर्गत ग्रामीण कारीगर आदि भी हैं	-

5. राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति--(1) केंद्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय, गोआ के राष्ट्रीय उद्यान और वन्य जीव अभयारण्य के चारों ओर के पारिस्थितिक संवेदी जोन के प्रभावी मानीटरी के लिए गोवा राज्य के लिए एक समिति का गठन करती है जिसका नाम राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति (रा. स्त. पा. स. जो. मा. स.), जो निम्नलिखित से मिलकर बनेगी, अर्थात् :—

(i) मुख्य सचिव, गोवा सरकार - अध्यक्ष;

(ii) पर्यावरण और वन मंत्रालय, का एक प्रतिनिधि - सदस्य;

(iii) सदस्य सचिव, राज्य प्रदूषण नियंत्रण बोर्ड - सदस्य;

(iv) पर्यावरण के क्षेत्र में कार्य करने वाले गैर सरकारी संगठनों का गोवा राज्य सरकार द्वारा नामनिर्दिष्ट एक प्रतिनिधि (एक वर्ष की अवधि के लिए) - सदस्य;

(v) राज्य सरकार द्वारा नामनिर्दिष्ट समुदाय आधारित संगठन का एक प्रतिनिधि (एक वर्ष की अवधि के लिए) - सदस्य;

(vi) गोवा सरकार के वन एवं पर्यावरण ग्रामीण विकास, कृषि, शहरी विकास और आवास, खनन और पत्तन तथा परिवहन विभागों के प्रमुख सचिव -सदस्य;

(vii) राज्य सरकार द्वारा नामनिर्दिष्ट गोवा राज्य की ख्याति प्राप्त संस्था या विश्वविद्यालय से पारिस्थितिक का एक विशेषज्ञ (एक वर्ष की अवधि के लिए) - सदस्य;

(viii) मुख्य वन संरक्षक, (वन्य जीव) और मुख्य वन्य जीव वार्डन, गोवा सरकार - सदस्य सचिव ।

(2) राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति अधोलिखित कार्य करेगी :—

(क) राज्य स्तरीय पारिस्थितिक संवेदी जोन समिति गोवा राज्य के राष्ट्रीय उद्यान और वन्य जीव अभयारण्य के चारों ओर पारिस्थितिकी संवेदी जोन की उद्घोषणा करने वाले राजपत्र अधिसूचना (अधिसूचनाएं) जिसके अंतर्गत यह अधिसूचना भी है के उपबंधों के अनुपालन को मानीटर करेगी ।

(ख) इस अधिसूचना के पैरा 4 के अधीन सारणी के स्तंभ (3) में यथा विनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के सिवाय, भारत भारत सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं.संख्यांक का.आ. 1533 तारीख 14 सितंबर, 2006 की अनुसूची के अधीन ऐसे क्रियाकलापों जिन्हें सम्मिलित किया गया है तथा पारिस्थितिक संवेदी जोन में आते हैं ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं पर आधारित राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति द्वारा संवीक्षा की जाएगी और उक्त अधिसूचना के उपबंधों के अधीन पूर्व पर्यावरण निकासी के लिए केन्द्रीय सरकार के पर्यावरण और वन मंत्रालय को निर्दिष्ट की जाएगी ।

(ग) इस अधिसूचना के पैरा 4 के अधीन सारणी के स्तंभ (3) में यथा विनिर्दिष्ट प्रतिषिद्ध क्रियाकलापों के सिवाय, भारत सरकार के तत्कालीन पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना संख्यांक का.आ. 1533 तारीख 14 सितंबर, 2006 की अधिसूचना के अनुसूची के अधीन ऐसे क्रियाकलापों, जिन्हें सम्मिलित नहीं किया गया है, परंतु पारिस्थितिक संवेदी जोन में आते हैं, ऐसे क्रियाकलापों की वास्तविक विनिर्दिष्ट स्थलीय दशाओं पर आधारित राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति द्वारा संवीक्षा की जाएगी और उसे संबद्ध विनियामक प्राधिकरणों को निर्दिष्ट किया जाएगा ।

(ध) राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति का सदस्य-सचिव या संबधित कलक्टर या संबंधित उद्यान का भारसाधक किसी ऐसे व्यक्ति के विरूद्ध, जो इस अधिसूचना के उपबंधों का उल्लंघन करता है, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 19 के अधीन परिवाद फाइल करने के लिए सक्षम होगा ।

(ङ) राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति विषय-विषय आधारित अपेक्षाओं पर निर्भर रहते हुए संबद्ध विभागों के प्रतिनिधियों या विशेषज्ञों, औद्योगिक संगमों या संबद्ध पणधारियों के प्रतिनिधियों को अपने विचार-विमर्श में सहायता के लिए आमंत्रित कर सकेगी ।

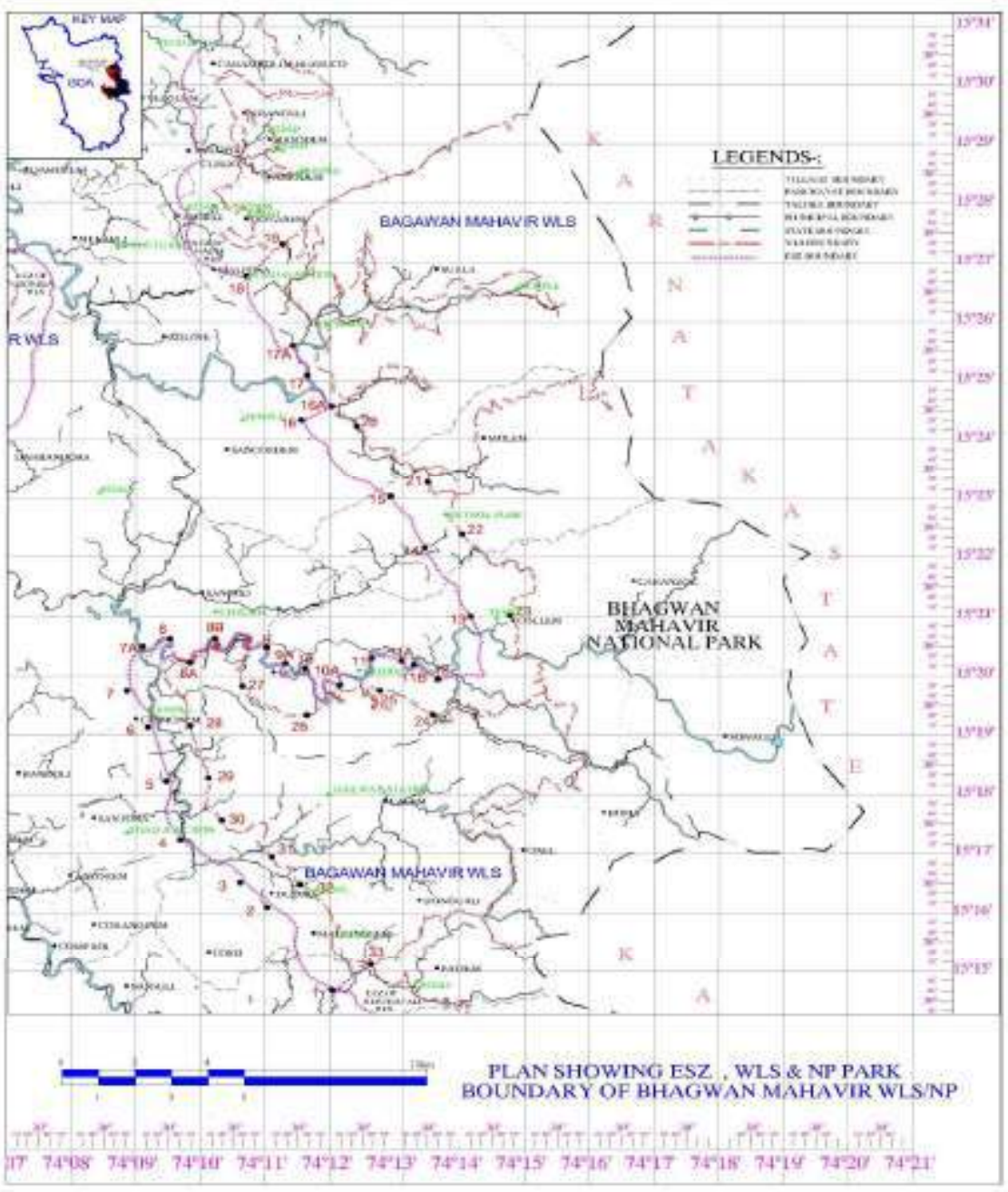
(च) राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति प्रत्येक वर्ष 31 मार्च तक के कार्यकलापों का विवरण उसी वर्ष के 30 जून तक केन्द्रीय सरकार के पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय को उपाबंध 4 में दिए गए प्रोफार्मा के अनुसार अपनी वार्षिक कार्यवाही रिपोर्ट प्रस्तुत करेगी ।

(छ) केन्द्रीय सरकार का पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय समय-समय पर राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी समिति को अपने कृत्यों के प्रभावी निर्वहन के लिए निदेश दे सकेगा ।

6. इस अधिसूचना के उपबंध अधिसूचना में सम्मिलित विषयों की बाबत भारत के माननीय उच्चतम न्यायालय, उच्च न्यायालयों या राष्ट्रीय हरित अधिकरण (एनजीटी) द्वारा पारित आदेशों, यदि कोई हों, या पारित किए जाने वाले आदेशों के अधीन होंगे ।

उपाबंध- 1

अक्षांश और देशांतर दर्शित करने वाला भगवान महावीर वन्य जीव अभयारण्य पारिस्थितिक संवेदी जोन का मानचित्र



[फा. सं. 25/34/2013-ईएसजैड-आरई]

डॉ. जी. वी. सुब्रामणियम, वैज्ञानिक 'जी'

उपाबंध-2

प्रमुख स्थलों के अक्षांश / देशांतर			
क्रम सं.	विवरण	**अक्षांश**	**देशांतर**
1	बागान	15^0 14'32.12'' उ	74^0 11 '55.78'' पू
2	रोड	15^0 15'58.19'' उ	74^0 10'58.55'' पू

3	रोड	15^0 16'23.40'' उ	74^0 10'33.37'' पू
4	रेलवे रोड	15^0 17'5.93 '' उ	74^0 9'38.10'' पू
5	रोड	15^0 18'5.77'' उ	74^0 9'25.42'' पू
6	रोड	15^0 19'0.17'' उ	74^0 9'8.32'' पू
7	रोड	15^0 19'37.55'' उ	74^0 8'48.79'' पू
7क	नदी	15^0 20'27.07'' उ	74^0 9'5.03'' पू
8	नदी	15^0 20'49.63'' उ	74^0 9'40.75'' पू
8क	नदी	15^0 20'12.15'' उ	74^0 9'48.20'' पू
8ख	नदी	15^0 20'36.59'' उ	74^0 10 '13.28'' पू
9	नदी	15^0 20'41.92'' उ	74^0 11 '7.41'' पू
9क	नदी	15^0 20'11.85'' उ	74^0 11 '19.26''पू
10	नदी	15^0 20'7.80'' उ	74^0 11 '48.41''पू
10क	नदी	15^0 19'50.54'' उ	74^0 12 '9.19''पू
11	नदी	15^0 20'10.67'' उ	74^0 12 '34.26''पू
11क	नदी	15^0 20'12.43'' उ	74^0 13'6.80''पू
11ख	नदी	15^0 20'12.11'' उ	74^0 13'15.51''पू
12	रोड	15^0 19'47.29'' उ	74^0 13'31.47''पू
13	रोड	15^0 20'51.63'' उ	74^0 14'1.11''पू
14	रोड	15^0 21'58.72'' उ	74^0 13 '19.41''पू
15	धान कार्नर	15^0 22'52.60'' उ	74^0 12'47.45 ''पू
16	धान कार्नर	15^0 23'53.72'' उ	74^0 11 '35.05'' पू
16क	नदी	15^0 24'34.13'' उ	74^0 12 '1.38'' पू
17	नदी	15^0 25'5.24'' उ	74^0 11 '36.97'' पू
17क	नदी	15^0 25'37.06'' उ	74^0 11 '27.73'' पू
18	मदई-भगवान महावीर वन्य जीव अभयारण्य सीमा	15^0 26'51.80'' उ	74^0 10 '12.72'' पू
19	मदई-भगवान वन्य जीव अभयारण्य	15^0 27'15.04'' उ	74^0 11'16.98'' पू
20	वन्य जीव अभयारण्य सीमा	15^0 24'7.47'' उ	74^0 12 '31.77'' पू
21	वन्य जीव अभयारण्य सीमा	15^0 23'9.15'' उ	74^0 13'27.37'' पू
22	वन्य जीव अभयारण्य सीमा	15^0 22'11.43'' उ	74^0 13 '59.18'' पू
23	वन्य जीव अभयारण्य सीमा	15^0 21'1.53'' उ	74^0 14 '42.51'' पू
24	वन्य जीव अभयारण्य सीमा	15^0 19'21.93'' उ	74^0 13'28.54'' पू
25	वन्य जीव अभयारण्य सीमा	15^0 19'48.95'' उ	74^0 12'41.04'' पू
26	वन्य जीव अभयारण्य सीमा	15^0 19'31.54'' उ	74^0 11'58.74'' पू
27	वन्य जीव अभयारण्य सीमा	15^0 19'57.69'' उ	74^0 10'50.58'' पू
28	वन्य जीव अभयारण्य सीमा	15^0 19'8.06 '' उ	74^0 9'50.22'' पू
29	वन्य जीव अभयारण्य सीमा	15^0 18'20.49'' उ	74^0 9'57.43'' पू
30	वन्य जीव अभयारण्य सीमा	15^0 17'29.83'' उ	74^0 10'19.74'' पू
31	वन्य जीव अभयारण्य सीमा	15^0 16'54.18'' उ	74^0 11'5.25'' पू
32	वन्य जीव अभयारण्य सीमा	15^0 16'24.77'' उ	74^0 11'35.11'' पू
33	भगवान महावीर - नेत्रावली वन्य जीव अभयारण्य सीमा	15^0 15'10.83'' उ	74^0 12'33.08'' पू

उपाबंध-3

भगवान महावीर वन्यजीव अभयारण्य और राष्ट्रीय उद्यान पारिस्थितिक संवेदी जोन के भीतर आने वाले ग्रामों की सूची

पारिस्थितिक संवेदी जोन सीमा के भीतर भागतः आने वाले ग्रामों की सूची

क्रम सं.	ग्राम का नाम
1.	एगलोट
2.	सेनकोर्डम
3.	मालिम
4.	सुरला
5.	कोलिम
6.	सिगाओ
7.	कोडली
8.	कारमोनीम
9.	सेंटोना
10.	कालीम
11.	डूडाल
12.	मेलिंगम
13.	उजीम
14.	मेलाऊली
15.	गोवानीम
16.	पेटीम

उपाबंध 4

कृत कार्रवाई रिपोर्ट का प्रोफार्मा:-

राज्य स्तरीय पारिस्थितिक संवेदी जोन मानीटरी कमेटी.-

1. बैठक की संख्या और तारीख
2. बैठकों के कार्यवृत्त: प्रमुख रूप से उल्लेखनीय बिंदुओं का उल्लेख करें

   बैठक के कार्यवृत्त को पृथक् उपाबंध पर संलग्न करें।

3. जोनल मास्टर प्लान जिसके अंतर्गत पर्यटन मास्टर प्लान (पारिस्थिति संवेदी जोन वार) भी है के तैयार किए जाने की स्थिति

4. उन मामलों का सार जिसके भू अभिलेख में प्रकट हुई त्रुटियों का सुधार किया जाना है। (पारिस्थिति संवेदी जोन वार)

   जिसका विवरण उपाबंध के रूप में संलग्न किया जा सकता है

5. पर्यावरण समाघात निर्धारण अधिसूचना, 2006 (पारिस्थिति संवेदी जोन वार) के अधीन उन क्रियाकलापों के लिए जो सम्मिलित किए गए हैं संवीक्षा किए गए मामलों का सार।

6. पर्यावरण समाघात निर्धारण अधिसूचना, 2006 (पारिस्थिति संवेदी जोन वार) के अधीन उन क्रियाकलापों के लिए जो सम्मिलित नहीं किए गए हैं संवीक्षा किए गए मामलों का सार।

7. पर्यावरण (संरक्षण) अधिनियम, 1986 (पारिस्थिति संवेदी जोन वार) की धारा 19 के अधीन दर्ज किए गए परिवादों का सार।

8. कोई अन्य महत्वपूर्ण विषय।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 23rd January, 2015

S.O. 221(E).—Whereas, the Bhagwan Mahaveer Wildlife Sanctuary and National Park, Goa lying between latitudes 150 29' 30.47'' N and 150 15' 9.29" N and longitudes 740 20'10.01" E and 740 29' 26.27" E in the North Goa District of Goa State and extending over an area of 240 square kilometres, is an essential part of the Western Ghats, which is rich in biodiversity;

And whereas, out of the 240 square kilometres of original Bhagwan Mahaveer Wildlife Sanctuary, an area of 107 square kilometres was carved out and constituted as a National Park thereby dividing the Sanctuary into two parts;

And whereas, the endangered species of wildlife like Indian bison, panther, mouse deer, black panther, slender loris, wild dog, sloth bear, etc inhabits the Protected Areas;

And whereas, the forest of these Protected Areas intercepts rainfall and helps recharge ground water aquifer and protects rivers and streams against siltation by minimising soil erosion and has a well knit network of streams spreading throughout which are perennial or semi perennial or seasonal in nature, feeding Zuari river, Mandovi river and its canals;

And whereas, it is necessary to conserve and protect the area around the Bhagwan Mahaveer Wildlife Sanctuary and National Park as Eco-sensitive Zone from ecological and environmental point of view;

And whereas, a draft notification under sub-section (1) read with clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) was published in the Gazette of India, Extraordinary, *vide* notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 635(E), dated the 3rd March, 2014, as required under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from date on which copies of the Gazette containing the said notification were made available to the public;

And whereas, copies of the Gazette containing the said notification were made available to the public on the 3rd March, 2014 along with the corrigendum issued *vide* notification number S.O. 831(E), dated 19th March, 2014;

And whereas, all objections and suggestions received in response the draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1), clause (v) and clause (xiv) of sub-section (2) and sub-section (3) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby notifies an area to an extent of one kilometre of land or the water body, whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa, as the Eco-sensitive Zone, details of which are as under, namely:—

1. **Extent and Boundaries of Eco-sensitive Zone.-**(1) The extent of Eco-sensitive Zone shall be one kilometre of land or the water body whichever is nearer to the boundary of the Bhagwan Mahaveer Wildlife Sanctuary and National Park in the State of Goa.

(2) The Eco-sensitive Zone is bounded on the North by the boundary of Madei Wildlife Sanctuary, on the South by the boundary of Netravali Wildlife Sanctuary, on the East by the boundary of Bhagwan Mahaveer Wildlife Sanctuary and National Park and on the West by areas of the villages of Dharbandora Taluka, Sattari Taluka and Sanguem Taluka; the Dudhsagar river, originating from the Bhagwan Mahaveer National Park passes through the Eco-sensitive Zone towards West along the Eco-sensitive Zone boundary and Bhagwan Mahavir Sanctuary boundary.

(3) The map of Eco-sensitive Zone boundary is appended to this notification as **Annexure I**. List of latitudes and longitudes of prominent points on the boundary of the ESZ is appended to this notification as **Annexure II**.

(4) The list of sixteen villages falling partially within Eco-sensitive Zone boundary is given at **Annexure III**.

(5) The list of villages given in Annexure III shall be further revisited and confirmed by the State Government while preparing the Zonal Master Plan.

2. Zonal Master Plan for the Eco-sensitive Zone.- (1) The State Government shall for the purpose of effective management of the Eco-sensitive Zone, prepare a Zonal Master Plan, within a period of two years from the date of publication of this notification in the Official Gazette, for consideration and approval of the Ministry of Environment, Forests, and Climate Change, Government of India in consultation with local people and with the involvement of all concerned State Departments, such as Environment, Forest and Wildlife, Agriculture, Revenue, Urban and Housing Development, Tourism, Rural Development, Irrigation and Flood Control, Mining and Public Works Department for integrating the ecological and environmental considerations into the said plan.

(2) The Zonal Master Plan shall provide for restoration of degraded areas, conservation of existing water bodies, management of catchment areas, watershed management, ground water management, soil and moisture conservation, needs of local community and such other aspects of ecology and environment that need attention.

(3) The Zonal Master Plan shall demarcate all the existing and proposed urban settlements, village settlements, types and kinds of forest, agriculture areas, horticultural areas, man-made heritage sites, natural heritage sites, mining leases in operation, lakes and other water bodies.

(4) The Zonal Master Plan thus prepared specific to this Eco-sensitive Zone shall be integrated into the regional plan for the State of Goa.

(5) The Zonal Master Plan shall contain the measures as may be specified by the Central Government or the State Government, for regulation of activities specified under column (2) of the table specified in paragraph 4.

(6) The Zonal Master Plan so prepared shall be co-terminus with the regional development plan.

(7) The Zonal Master Plan shall be a reference document for the State Level Eco-sensitive Zone Monitoring Committee (hereinafter referred to as the SESZMC), as referred to in para 5, for carrying out its functions of monitoring under the provisions of this notification.

3. **Measures to be taken by State Government.-**The State Governments shall take the following measures for giving effect to the provisions of this notification, namely:—

(1) Forests, horticulture areas, agricultural areas, parks and open spaces earmarked for recreational purposes in the Eco-sensitive Zone shall not be used or converted into areas for commercial or industrial related development activities:

Provided that the conversion of agricultural lands within the Eco-sensitive Zone may be permitted on the recommendation of the SESZMC, and with the prior approval of the State Government, to meet the residential needs of the local residents, and for the activities listed at item numbers 24, 26, 28 and 31 in column (2) of the Table in paragraph 4, namely:-

(i) Small scale industries not causing pollution,

(ii) Rainwater harvesting, and

(iii) Cottage industries including village industries,

(iv) Ecofriendly cottages for temporary occupation of tourists such as tents, wooden houses, etc. for Eco-friendly tourism activities:

Provided further that no change in use of land from tribal usage to non-tribal usage shall be permitted without the prior approval of the State Government and without compliance of the provisions of the law for the time being in force, including the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007):

Provided also that any error appearing in the land records within the Eco-sensitive Zone shall be corrected by the State Government, after obtaining the views of SESZMC, only once in each case and the correction of said error shall be intimated to the Central Government in the Ministry of Environment, Forest and Climate Change:

Provided also that the above correction of error shall not include change of land use in any case except as provided under this sub-paragraph.

(2) The catchment areas of all natural springs shall be identified and plans for their conservation and rejuvenation shall be incorporated in the Zonal Master Plan and the strict guidelines shall be drawn up by the State Government to prohibit development activities at or near these areas.

(3) The activity relating to tourism within the Eco-sensitive Zone which shall form part of the Zonal Master Plan shall be as under, namely:-

(a) all new tourism activities or expansion of existing tourism activities within the Eco-sensitive Zone shall be in accordance with the guidelines issued by the Central Government in the Ministry of Environment, Forests and Climate Change and by the National Tiger Conservation Authority, with emphasis on eco-tourism, eco-education and eco-development and based on carrying capacity study of the Eco-sensitive Zone;

(b) New construction of any kind shall not be allowed within the Eco-sensitive Zone except for eco-friendly accommodation like tents, wooden houses or thatched roofs for temporary occupation of tourists and for eco-friendly tourism activities:

(c) Till the Zonal Master Plan is approved, development for tourism and expansion of existing tourism activities shall be permitted by the concerned regulatory authorities based on the actual site specific scrutiny and recommendation of the SESZMC.

(4) All sites of valuable natural heritage in the Eco-sensitive Zone such as the gene pool reserve areas, rock formations, waterfalls, springs, gorges, groves, caves, points, walks, rides, cliffs, etc. shall be identified and preserved and proper plan shall be drawn up for their protection and conservation, within six months from the date of publication of this notification and such plan shall form part of the Zonal Master Plan.

(5) Buildings, structures, artefacts, areas and precincts of historical, architectural, aesthetic, and cultural significance shall be indentified in the Eco-sensitive Zone and plans for their conservation shall be prepared within six months from the date of publication of this notification and incorporated in the Zonal Master Plan.

(6) The Environment Department of the State Government shall draw up guidelines and regulations for the control of noise pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981(14 of 1981).

(7) The Environment Department of the State Government shall draw up guidelines and regulations for the control of air pollution in the Eco-sensitive Zone in accordance with the provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981).

(8) The discharge of treated effluent in Eco-sensitive Zone shall be in accordance with the provisions of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974).

(9) Disposal of solid wastes shall be as under:-

(i) The solid waste disposal in Eco-sensitive Zone shall be carried out as per the provisions of the Municipal Solid Waste (Management and Handling) Rules, 2000 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* notification number S.O. 908(E), dated the 25th September, 2000;

(ii) the local authorities shall draw up plans for the segregation of solid wastes into biodegradable and non-biodegradable components;

(iii) The biodegradable material shall be recycled preferably through composting or vermiculture;

(iv) the inorganic material shall be disposed of in an environmentally acceptable manner.

(10) The bio-medical waste disposal in the Eco-sensitive Zone shall be carried out as per the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1998 published by the Government of India in the erstwhile Ministry of Environment and Forests *vide* Notification number S.O. 630(E), dated the 20th July, 1998.

(11) The vehicular movement of traffic shall be regulated in a habitat friendly manner and specific provisions in this regard shall be incorporated in the Zonal Master Plan and till such time as the Zonal master plan is prepared and approved by the Ministry of Environment, Forests and Climate Change, SESZMC shall monitor compliance of vehicular movement as per the rules and regulations in force.

4. **List of activities prohibited or to be regulated within the Eco-sensitive Zone.-**All activities in the Eco-sensitive Zone shall be governed by the provisions of the Environment (Protection) Act, 1986 (29 of 1986) and be regulated in the manner specified in the Table below, namely:—

TABLE

S.No.	Activity	Remarks
(1)	(2)	(3)
Prohibited Activities		
1.	Commercial Mining, stone quarrying and crushing units.	(a) All new and existing mining (minor and major minerals), stone quarrying and crushing units are prohibited with immediate effect: Provided that the existing mines may be phased out within a period of ten years subject to the Supreme Court modifying its interim order dated 4.8.2006 in I.A. 1000 in Writ Petition 202 of 1995 (T.N. Godavarman Vs. Union of India) and its order in Writ Petition 435 of 2012 in the matter of Goa Foundation Vs Union of India: Provided further that the State Government shall ensure a proper and rigorous mine closure plan for rehabilitation and ecological restoration of the mined out area which shall be completed as early as possible as per Indian Bureau of Mines norms.
2.	Setting up of saw mills.	Prohibited with immediate effect.
3.	Setting up of industries causing water or air or soil or noise pollution.	Prohibited with immediate effect.
4.	Commercial establishment of hotels and resorts.	New commercial establishment such as hotels and resorts shall be prohibited within the Eco-sensitive Zone with immediate effect.
5.	Commercial use of firewood.	Prohibited with immediate effect.
6.	Establishment of new major hydroelectric projects.	Setting up of new hydro-electric power plants (dams, tunnelling, and construction of reservoir) and expansion of existing plants in the Eco-sensitive Zone is prohibited with immediate effect, except the micro hydel power projects (Up to 100KW) or the mini hydel power projects (from 101 to 2000KW), which would serve the energy needs of the local communities, subject to the consent of the concerned Gram Sabha and all other requisite clearances.
7.	Use or production of any hazardous substances.	Prohibited with immediate effect
8.	Discharge of untreated effluents and solid waste in natural water bodies or land area.	Prohibited with immediate effect.
9.	New wood based industry.	Establishment of new wood based industry shall be prohibited within the limits of Eco-sensitive Zone with immediate effect.
10.	Construction activities	No new construction of any kind shall be prohibited within the Eco-sensitive Zone with immediate effect, except for the domestic needs of local residents including the activities listed at item numbers 26, 28 and 31 and in the case of activities listed at item number 24, the construction activity shall be regulated and kept at the minimum.
11.	Use of plastic carry bags	Prohibited with immediate effect.
12.	Brick kilns	Prohibited with immediate effect.
Regulated Activities		
13.	Felling of trees.	(a) There shall be no felling of trees on the forest or Government or revenue or private lands without prior permission of the competent authority in the State Government. (b) The felling of trees shall be regulated in accordance with the provisions of the concerned Central or State Act and the rules made thereunder.
14.	Commercial water resources including ground water harvesting.	(a) The extraction of surface water and ground water shall be allowed only for *bona fide* agricultural use and domestic consumption of the occupier of the land (b) extraction of surface water and ground water for industrial or commercial

		use including the amount that can be extracted, shall require prior written permission from the concerned Regulatory Authority. (c) No sale of surface water or ground water shall be permitted. (d) Steps shall be taken to prevent contamination or pollution of water from any source including agriculture.
15.	Erection of electrical cables and telecommunication towers.	Promote underground cabling.
16.	Fencing of existing premises of hotels and lodges.	
17.	Widening and strengthening of existing roads and construction of new roads.	Shall be done with proper Environment Impact Assessment and mitigation measures, as applicable.
18.	Movement of vehicular traffic at night.	For commercial purpose.
19.	Introduction of exotic species.	
20.	Undertaking activities related to tourism like over-flying the National Park area by hot-air balloons, etc.	
21.	Protection of hill slopes and river banks.	
22.	Discharge of treated effluents in natural water bodies or land area.	Recycling of treated effluent shall be encouraged and for disposal of sludge or solid wastes, the existing regulations shall be followed.
23.	Commercial Sign boards and hoardings.	
24.	Small scale industries not causing pollution.	Non polluting, non-hazardous, small-scale and service industry, agriculture, floriculture, horticulture or agro-based industry producing products from indigenous goods from the Eco-sensitive Zone, and which do not cause any adverse impact on environment.
25.	Collection of Forest produce or Non-Timber Forest Produce (NTFP).	
26	Eco-tourism activities including eco tourist lodges, restaurant and recreational facilities including sap, swimming pool, gymnasium in temporary structures made of cloth or wood or particle board such as tents etc.	As per tourism master plan
Promoted Activities		
27.	Ongoing agriculture and horticulture practices by local communities along with dairies, dairy farming, aquaculture and fisheries.	
28.	Rain water harvesting.	Shall be actively promoted.
29.	Organic farming.	Shall be actively promoted.
30.	Adoption of green technology for all activities.	Shall be actively promoted.
31.	Cottage industries including village artisans, etc.	

5. State Level Eco-sensitive Zone Monitoring Committee.- (1) The Central Government in the Ministry of Environment, Forest and Climate Change, for effective monitoring of all notified Eco-sensitive Zones around the National Parks and Wildlife Sanctuaries in the state of Goa, hereby constitutes a Committee

called the State Level Eco-sensitive Zone Monitoring Committee (SESZMC) for the State of Goa comprising of the following members, namely:-

(i) Chief Secretary, Government of Goa- Chairman;

(ii) Representative of the Ministry of Environment, Forests and Climate Change –Member;

(iii) Member Secretary, State Pollution Control Board-Member;

(iv) One representative of Non-governmental Organizations working in the field of environment, nominated by the Government of Goa (for a term of one year)– Member;

(v) One representative of community based organization nominated by the State Government (for a term of one year)– Member;

(vi) Principal Secretaries of the Government of Goa from Departments of Forest, Environment, Rural Development, Agriculture, Urban Development and Housing, Mining and Ports and Transport, Revenue– Members;

(vii) One expert in Ecology from reputed Institution or University of the State of Goa nominated by the State Government (for a term of one year) - Member;

(viii) Chief Conservator of Forests (WL) and Chief Wildlife Warden, Government of Goa– Member Secretary.

(2) The function of the SESZMC shall be as under:

(a) The SESZMC shall monitor the compliance of the provisions of Notifications declaring Eco-sensitive Zones around National Park and Wildlife Sanctuaries in the State of Goa including this notification.

(b) All activities that are covered under the Schedule to the notification of the Government of India in the Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006, and are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinised by the SESZMC based on the actual site-specific conditions and refer the same to the Central Government in the Ministry of Environment, Forest and Climate Change for prior environmental clearances under the provisions of the said notification.

(c) The activities that are not covered under the Schedule to the notification of the Government of India in the erstwhile Ministry of Environment and Forests number S.O. 1533(E), dated the 14th September, 2006 but are falling within such Eco-sensitive Zones as are notified by the Central Government by issuing notification in the Gazette of India in respect of the National Parks and Wildlife Sanctuaries in the State of Goa, except for the prohibited activities specified in the Table under paragraph 4 thereof, shall be scrutinized by the SESZMC based on the actual site-specific conditions and refer the same to the concerned regulatory authorities.

(d) The Member Secretary of the SESZMC or the concerned Collector or the concerned park in-charge shall be competent to file complaint under section 19 of the Environment (Protection) Act, 1986 against any person who contravenes the provisions of this notification.

(e) The SESZMC may invite representatives or experts from concerned Departments, Industry Associations or concerned stakeholders to assist it in its deliberations depending on the requirements on issue to issue basis.

(f) The SESZMC shall submit the annual action taken report of its activities as on 31st March of every year by 30th June of that year to the Central Government in the Ministry of Environment, Forests and Climate Change as per pro forma given in **Annexure IV**.

(g) The Central Government in the Ministry of Environment, Forests and Climate Change may give such directions, as it may deem fit, to the SESZMC for effective discharge of its functions.

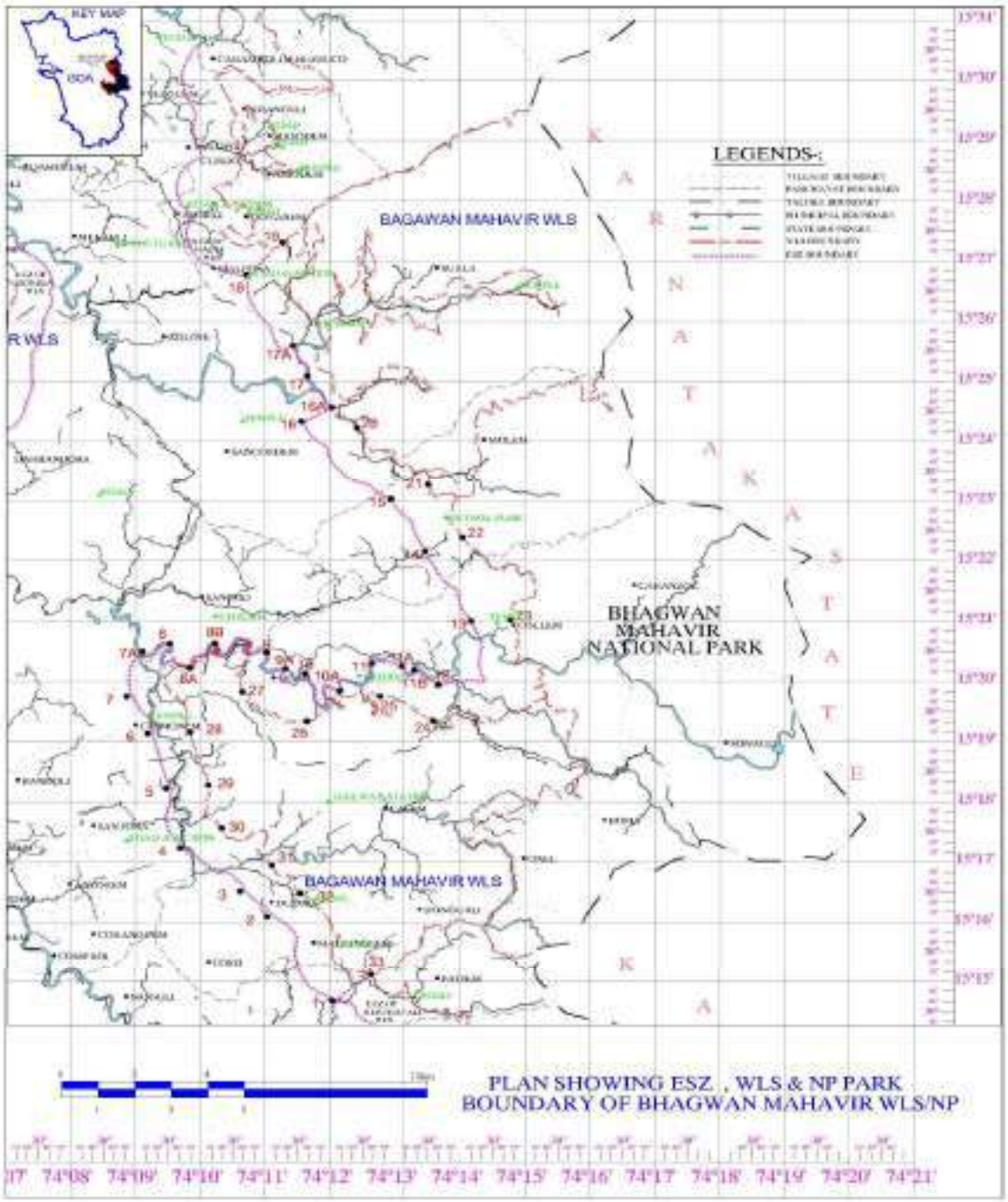
6. The provisions of this notification shall be subject to the orders passed by the Hon'ble Supreme Court of India or the High Court or National Green Tribunal (NGT) as the case may be, in respect of matters covered under this notification.

[F. No. 25/34/2013-ESZ-RE]

Dr. G. V. SUBRAHMANYAM, Scientist 'G'

Annexure I

Map of Bhagwan Mahaveer Wildlife Sanctuary & National Park Eco-sensitive Zone showing Latitudes-Longitudes



Annexure II

CO-ORDINATES OF PROMINENT POINTS			
S. No.	Description	**Latitude**	**Longitude**
1	PLANTATION	15°14'32.12"N	74°11'55.78"E
2	ROAD	15°15'58.19"N	74°10'58.55"E
3	ROAD	15°16'23.40"N	74°10'33.37"E
4	RAILWAY ROAD	15°17'5.93"N	74° 9'38.10"E
5	ROAD	15°18'5.77"N	74° 9'25.42"E
6	ROAD	15°19'0.17"N	74° 9'8.32"E
7	ROAD	15°19'37.55"N	74° 8'48.79"E
7A	RIVER	15°20'27.07"N	74° 9'5.03"E
8	RIVER	15°20'49.63"N	74° 9'40.75"E
8A	RIVER	15°20'12.15"N	74° 9'48.20"E
8B	RIVER	15°20'36.59"N	74°10'13.28"E
9	RIVER	15°20'41.92"N	74°11'7.41"E
9A	RIVER	15°20'11.85"N	74°11'19.26"E
10	RIVER	15°20'7.80"N	74°11'48.41"E
10A	RIVER	15°19'50.54"N	74°12'9.19"E
11	RIVER	15°20'10.67"N	74°12'34.26"E
11A	RIVER	15°20'12.43"N	74°13'6.80"E
11B	RIVER	15°20'12.11"N	74°13'15.51"E
12	ROAD	15°19'47.29"N	74°13'31.47"E
13	ROAD	15°20'51.63"N	74°14'1.11"E
14	ROAD	15°21'58.72"N	74°13'19.14"E
15	PADDY CORNER	15°22'52.60"N	74°12'47.45"E
16	PADDY CORNER	15°23'53.72"N	74°11'35.05"E
16A	RIVER	15°24'34.13"N	74°12'1.38"E
17	RIVER	15°25'5.24"N	74°11'36.97"E
17A	RIVER	15°25'37.06"N	74°11'27.73"E
18	MADEI-BHAWGAN ESZ	15°26'51.80"N	74°10'12.72"E
19	MADEI-BHAWGAN WLS	15°27'15.04"N	74°11'16.98"E
20	WLS BOUNDARY	15°24'7.47"N	74°12'31.77"E
21	WLS BOUNDARY	15°23'9.15"N	74°13'27.37"E
22	WLS BOUNDARY	15°22'11.43"N	74°13'59.18"E
23	WLS BOUNDARY	15°21'1.53"N	74°14'42.51"E
24	WLS BOUNDARY	15°19'21.93"N	74°13'28.54"E
25	WLS BOUNDARY	15°19'48.95"N	74°12'41.04"E
26	WLS BOUNDARY	15°19'31.54"N	74°11'58.74"E
27	WLS BOUNDARY	15°19'57.69"N	74°10'50.58"E
28	WLS BOUNDARY	15°19'8.06"N	74° 9'50.22"E
29	WLS BOUNDARY	15°18'20.49"N	74° 9'57.43"E
30	WLS BOUNDARY	15°17'29.83"N	74°10'19.74"E
31	WLS BOUNDARY	15°16'54.18"N	74°11'5.25"E
32	WLS BOUNDARY	15°16'24.77"N	74°11'35.11"E
33	BHAGWAN-NETRAVALI WLS	15°15'10.83"N	74°12'33.08"E

Annexure III

List of villages falling within the Bhagwan Mahaveer Wildlife Sanctuary and National Park Eco-sensitive Zone

List of Villages partially within the ESZ Boundary

S. No.	**Village Name**
1	Aglote
2	Sancordem
3	Mollem
4	Surla

5	Collem
6	Sigao
7	Codli
8	Cormonem
9	Santona
10	Calem
11	Dudal
12	Maulinguem
13	Uguem
14	Melauli
15	Govanem
16	Patiem

Annexure IV

Proforma of Action Taken Report: - State Level Eco-sensitive Zone Monitoring Committee.-

1. Number and date of Meetings
2. Minutes of the meetings: Mention main noteworthy points. Attached Minutes of the meeting on separate Annexure.
3. Status of preparation of Zonal master Plan including Tourism master Plan (Eco-sensitive Zone wise)
4. Summary of cases dealt for rectification of error apparent on face of land record. (Eco-sensitive Zone wise).

   Details may be attached as Annexure
5. Summary of cases scrutinized for activities covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).

   Details may be attached as separate Annexure.
6. Summary of case scrutinized for activities not covered under Environment Impact Assessment Notification, 2006 (Eco-sensitive Zone wise).

   Details may be attached as separate Annexure.
7. Summary of complaints ledged under Section 19 of Environment (Protection) Act, 1986. (Eco-sensitive Zone wise).
8. Any other matter of importance.

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Annexure 3

(https://gsbb.goa.gov.in/wp-content/uploads/2020/05/List-of-plants.pdf

LIST OF THE PLANTS

Sr. No	Local Name	Botanical Name
1	Anjan	Hardwickia binata
2	Arjun	Terminalia arjuna
3	Awala	Emblica officinalis
4	Badam	Terminallia catappa
5	Balo	Cassia fistula
6	Bel	Aegle marmelos
7	Bhillomaad	Caryota urens
8	Bhirand	Garcinia indica
9	Bimbal, bilimbi	Averrhoea bilimbi
10	Cashew	Anacardium occidentale
11	Chafi	Michelia champaka
12	Chafra	Flacourtia montana
13	Chandan, sandal wood	Santalum album
14	Chapha (Kavti)	Magnolia lilifera
15	Chaul mogra	Hydnocarpus laurifolia
16	Copperpod tree	Peltophorum pterocarpum
17	Dhavorukh/ Arjun	Stercularia urens
18	Dhoop	Vateria indica
19	Ebony	Diospyros montana
20	Ebony	Diospyros paniculata
21	Egg fruit	Pouteria campechiana
22	Flame tree	Spathodea campanulata
23	Ghoting	Terminalia bellerica
24	Guava	Psidium guajava
25	Harda	Terminalia chebula
26	Jagma	Flacourtia jangomas
27	Jaiphal	Myristica fragrans
28	Jambo	Xylia xylocarpa

Sr. No	Local Name	Botanical Name
29	Jambul	Syzygiumcumini
30	Kachnar	Bauhinia variegate
31	Kadamb	Anthocephalus cadamba
32	Karanjei	Millettia pinnata
33	Karmal	Averrhoa carambola
34	Karo	Strycnosnux-vomica
35	Karvill, kadipatta	Murraya koenigii
36	Kindal	Terminalia paniculata
37	Kumyo	Careya arborea
38	Lavang	Sygzigium aromaticum
39	Mad	Cocos nucifera
40	Madat	Terminalia elliptica
41	Mahua	Madhuca indica
42	Malabar tamarind	Garcinia gummigutta
43	Mango	Mangifera indica
44	Mashing	Moringa oleifera
45	Moi	Lannea coromandelica
46	Nagkesar	Mesua ferrea
47	Nano	Lagerstroemia lanceolata
48	Narkya, Ghaneri	Nothaphodytes nimmoniana
49	Neem	Azadirachta indica
50	Neem Chameli	Milingtonia hortensis
51	Nirpanas	Artocarpus altilis
52	Ovala	Mimusops elengi
53	Palas	Butea monosperma
54	Palpanas	Annona murigata
55	Parijat	Nyctanthes arbor-tristis
56	Peepal	Ficus religiosa
57	Phanas	Artocarpus heterocarpus

Sr. No	Local Name	Botanical Name
58	Putranjiva	Putranjiva roxburghii
59	Ranawara	Senna auriculata
60	Ritho	Sapinduslaurifolius/ mukorossi
61	Rumad	Ficus glomerata/racemosa
62	Sal	Tectona grandis
63	Santvin	Alstonia scholaris
64	Savar	Bombax ceiba
65	Shisam	Dalbergia sisso
66	Shivan	Gmelina arborea
67	Siris	Albizia lebbeck
68	Sita Ashok	Saraca asoca
69	Sitaphal	Annona squamosa
70	Supari	Areca catechu
71	Suranga	Mammea suriga
72	Taman	Lagerstroemia reginae
73	Taman	Lagerstroemia speciosa
74	Tefla	Zanthoxylum rhetsa
75	Tamarind	Tamarindus indica
76	Tikhi	Cinnamomum zeylanicum
77	Vad tree	Ficus bengalensis
78	Zam	Syzyzium aqueum

Chapter-10

Environmental Management Plan

10.1 OBJECTIVE

The objective of the Environmental Management Plan (EMP) is to identify administrative aspects for ensuring that the mitigation measures are implemented and their effectiveness is monitored.

The EMP focuses on direct impacts viz. the impacts having the potential to cause significant influence on the environment.

The broad objectives of EMP are:

- To implement specific measures to prevent, reduce or manage the environmental impacts during operation of the project; and
- To identify the level of environmental performance expected during the operation of the project.

Project Proponent will be committed to implement Environment Management Plan towards environmental protection and conservation with respect to the proposed project. Based on the evaluation of impacts and baseline conditions, Environmental Management Plan (EMP) has been delineated to mitigate the adverse impacts due to the project on the environment.

The environmental management plan takes into consideration waste minimization, impact mitigation, management, monitoring and institutional measures, during operation of the project to eliminate adverse environmental impacts or reduce them to acceptable levels. The present Environmental Management Plan addresses the components of environmental attributes affected by mining operation.

The objectives of EMP are:

- Overall conservation of environment.
- Minimization of waste generation and pollution.
- Judicious use of natural resources and water.
- Safety, welfare and good health of the work force and populace.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and long-term impacts.
- Ensure effective operation of all control measures.

10.2 ENVIRONMENTAL MANAGEMENT CELL

The Environmental Management Cell (EMC) shall be headed by Mines Manager who will report to the Agent of the Unit and also have direct access to Head of Organization i.e. Nominated owner.

ENVIRONMENTAL MANAGEMENT CELL



Fig. 10.1: Environmental Management Cell

A mechanism for reporting on compliance of the Environmental and other related aspects has been formulated. As per guidelines of MoEFCC, New Delhi, the status of environment compliance will be uploaded on the company website regularly. Periodic reviewing and performance measurement will also be taken up to look for improvement areas. The Environment Management Plan (EMP) which includes works like storm water management (drainages, settling ponds, trenches, desilting etc.), dump stabilization (inward slope to dump surface, laying of geotextiles wherever feasible, grass seeds, etc.), plantation, etc. will be planned jointly by a team comprising of mines manager, surveyor, geologist and environment officer.

The team will meet frequently to assess the progress of EMP so that the storm water management and dump stabilization jobs are completed well before the onset of monsoon and plantation is carried out during monsoon. The status will be reviewed by senior management on a weekly basis.

For successful implementation of the environmental management plan, assistance

from other agencies/institutions may be sought whenever necessary for regulatory requirements and technical support. The coordinating agencies, which may be involved in specific environmental and project-related activities, are given below: -

- Interaction with State Pollution Control Board for legal compliance, new updates in environmental law, awareness, etc.
- Interaction with State Agriculture and Forest Department for engagement w.r.t plantation.
- Interaction with consultants, and reputed institutes for various projects related to mine reclamation, water positivity study, and projects on carbon footprint.

The Environment Management Cell will also coordinate to carry out environment monitoring as stipulated by the authorities. The monitoring will be undertaken by an Environmental Laboratory recognized by MoEF&CC. The monitoring data will be regularly submitted to the authorities like GSPCB, regional office of MoEF&CC.

10.3 HEALTH, SAFETY & ENVIRONMENT POLICY

Policy Statement

Fomento Resources Private Limited is aware that conservation of environment is one of the most important aspects. The company continuously strives and is committed to implement environment friendly mining by adopting latest pollution control devises, best reclamation practices, waste minimization techniques to conserve natural resources, water management system, complying with statutory requirements and work proactively to conserve biodiversity, maintaining ecological balance thereby bringing long- term positive impact on the employees and surrounding community to achieve the goal of sustainable development. We ensure that the management, officers, employees and contractors are aware of this Policy as well as the relevant responsibilities which are set out in these policies.

Environmental Policy:

We consider that the climate change to be the greatest threat affecting economic stability, vulnerable communities and the Society. We strive to make our operations as reliable and effective as possible, driving increased standards for environmental performance by:

- Strive to prevent environmental contamination, reduce negative environmental impact by making every effort to comply with all applicable environmental laws, regulations and requirements.
- Protect the environment by implementing eco-efficient processes like

reclamation, afforestation, adoption of improved technology and optimum conservation of the natural resources.

- Establishing and maintaining management systems to identify, monitor, assess and taking adequate mitigative measures to control negative environmental impact of our activities. Wherever appropriate, ensuring that employee undertake training to ensure they are complying with best industry practices and all applicable environmental laws, regulations and requirements.
- By ensuring that resources are available to meet our reclamation and environmental obligations.
- By ensuring that our employees and contractors carry out their responsibilities in accordance with this Policy, applicable law and the industry standards.
- By engaging and working with local representatives in the area in which we operate to educate the community on the environmental obligations associated with our activities.
- By transparent communication and consultation with interested and affected parties on environmental aspects of our activities.
- By working towards continual improvement of our environment performance over a period of time, including with regard to increasing our energy efficiency, reducing emission and waste and to promote sustainable development in the areas in which we operate.
- By conducting audits to monitor, measure and evaluate the effectiveness of our environmental management system, and communicate the findings to the safety, health and environmental cell. We will strive to increase transparency on environmental matters.
- Integrate water management system based on the principle 'Reduce, Reuse and Recycle of wastewater, harvesting of rainwater and artificial recharge for a sustainable water resource.

Environment Vision:

By thinking globally and acting locally, the organization plays an active role in society to address emerging global environmental issues such as climate change, desertification, biodiversity, etc., while committed to economic development.

10.4 SYSTEM OF COMPLYING WITH LEGAL REQUIREMENTS AND REVIEWING BY MANAGEMENT/ BOARD MEMBERS

a. **Responsibility**

- Identification of departments to ensure compliance with legal

requirements.

- Dissemination of checklist to Head of departments (HODs) and their sub-ordinate teams towards information sharing and ensuring compliance with legal requirements.
- Responsibility is fixed on a particular person in each department for ensuring compliance; and
- Person responsible for ensuring compliance reports the compliance status to the HOD, monthly & periodically.

b. Reporting Mechanism

- HOD reviews the compliance status reported to him and shares the same to be reviewed by the management.
- If any non-compliance is reported, HOD devises an action plan to meet the compliance in a time bound manner.
- Non-compliance reported is shared with senior management and internal auditors for appraisal and review.

c. System of Positive Assurance

- The Senior Management shall review the status of non-compliance with the HODs, EMC and legal department.
- The Senior Management in discussion with HODs, EMC and legal department shall formulate procedures to prevent such non-compliances.

10.5 TRAINING

Training will be imparted to the employees as per job requirements on various aspects like environment management, natural resource conservation, reporting of environmental incidents, legal requirements, environmental monitoring, waste management, general environment awareness, etc. The training will be imparted by internal as well as external resources.

10.6 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Impact Assessment revealed that the study area has not been affected adversely and is likely to get new economic boost.

Block IV - Kalay Mineral Block is auctioned as a new/ fresh mine and it will be operated taking all precautionary measures to reduce the impact of mining operations on Air, Water, Noise and Soil and ensuring all control measures to comply with the prescribed standards.

The proposed production of Iron Ore within the existing Mineral Block Area will be carried out following the conventional Open Cast method of mining, which involves no drilling and blasting. All the necessary environmental protective measures will be implemented.

Further, regular Environmental Monitoring will be conducted throughout the life of the mine (within the project site and in the surrounding) to control the level of pollutants resulting from the mining activity within permissible limits.

10.6.1 AIR POLLUTION CONTROL

Control of Fugitive Emissions

- Regular water sprinkling on haul roads & loading points will be carried out.
- Development of green belt/plantation around the lease boundary, along the roads, on the dumps, etc.
- Maintaining the mine haul roads in good condition and implementing speed limit will prevent dust pollution.
- All the Heavy Earth Moving Machinery will have air-conditioned cabins thus providing pollution free atmosphere to the operators.
- Ambient Air Quality Monitoring will be conducted on regularly basis to assess the quality of ambient air.
- Use of Personal Protection Equipment (PPE) like dust masks, ear plugs, etc. by the workers.
- Dust suppression: Dust suppression systems such as sprinklers, fog guns, etc. will be installed at loading, hauling, and unloading points and also at strategic locations in place of sprinkling of water through water tankers. The dust suppression arrangement will reduce water consumption as well as fuel consumption in comparison with traditional water tankers.
- Road maintenance: Haul roads within the mine will be maintained in good condition by engaging motor grader and by regular spraying of water. Such arrangement will help in reduction of fuel consumption, frequent breakdowns of trucks plying and reduction in wear and tear of vehicle tyres.
- Mechanical sweepers will be engaged for sweeping of the transportation road ensuring reduced dust pollution and improved road safety. Dedicated manpower to clean the ore spillage on the public road by manual sweeping and washing.

- DG sets with acoustic insulators as per manufacturers specifications will be deployed. DG sets will be provided with stacks of sufficient height. Air quality and noise levels emitted for the DG sets will be monitored regularly.
- Use of solar energy for the purpose of illumination during night time will be made. Feasibility of using Solar energy for office area will be carried out.

Air pollution, management and control measures to be carried out during mining operations is tabulated below in **Table 10.1.**

Table 10.1: Air Pollution Management and Control Measures

Potential Impact	Actions/Measures	Parameters for Monitoring
Air Emissions	All equipment are operated within specified design parameters.	Random checks of equipment
	Vehicle trips to be minimized to the extent possible	Vehicle logs/automatic vehicle monitoring system/ Increase the capacity of vehicle
	Ensure regular checks of vehicular pollution	Pollution under control certificate of vehicle
	Covering of Vehicles transporting the mined mineral	No. of Trucks with covering/Random checks of trucks on roads
	Plantation of trees on the safety zone barrier of the Lease boundary of the Mineral Block area, which will reduce dust and noise in the vicinity.	No. of Saplings per year and area covered by plantation
	Regular water spraying shall be done in the mine area	Maintain moisture content of the surface of the activity area.
	Ambient air quality within the premises of the proposed unit to be monitored.	The Ambient Air Quality shall conform to the standards

10.6.2 WASTEWATER MANAGEMENT

- No generation of industrial wastewater from mining operations.
- Treatment of domestic wastewater shall be treated in septic tanks and soak pit arrangements.

10.6.3 WATER MANAGEMENT

- The surface runoff generated during monsoon season shall be diverted and channelized through hume pipes, garland drains, into the mining pit, there by harvesting rainwater.
- Harvested rainwater will be utilized for dust suppression, plantations, greenbelt development, used in workshop, wheel washing system, etc. during the mining operaions.

- The rainwater harvested in mine pits will be passed through a series of settling ponds where water will be treated with lime and flocculant to expedite the rate of sedimentation of sediment and clean water will be discharged from the mine. The water so discharged will be of good quality which will be gainfully utilized for irrigation.
- The discharge water will help recharge river water in the downstream and thereby maintaining a flow in the reviver system.
- The inactive dump slopes will be stabilized by geotextile wherever feasible, planting grasses, legumes and local native plant species in consultation with the Forest Department. Such plantation will prevent soil erosion thereby controlling sediment runoff.
- The toe of dumps shall be provided with retention walls to arrest silt run-off.

The proposed year-wise construction of garland drains & retaining wall during the plan period given below in **Table 10.2.**

Table 10.2: Proposed year-wise construction of garland drains & retaining wall

Year	Proposed Length (m)	Latitude (From-to)	Longitude (From-to)
Retaining Wall			
1	330	15:17:05.82 to 15:17:10.42	74:09:15.82 to 74:09:26.20
2	75	15:17:15.32 to 15:17:16.96	74:09:32.21 to 74:09:34.56
3	200	15:17:09.44 to 15:17:13.37	74:09:25.87 to 74:09:31.56
4	370	15:17:40.61 to 15:17:47.15	74:09:05.29 to 74:09:13.32
5	250	15:17:22.46 to 15:17:28.35	74:09:26.82 to 74:09:33.51
Garland Drains			
1	1120	15:17:39.28 to 15:18:03.78	74:08:57.92 to 74:09:21.30
2	1320	15:17:07.45 to 15:18:05.11	74:09:15.15 to 74:09:28.00
3	1305	15:17:12.64 to 15:18:01.28	74:09:09.43 to 74:09:29.02
4	1515	15:17:05.45 to 15:17:55.35	74:09:03.09 to 74:09:31.39
5	1090	15:17:11.37 to 15:18:01.22	74:09:18.82 to 74:09:34.38

The **Environmental Plan** showing various existing Environmental protective measures is enclosed as **Plate No. 21.**

Water Conservation Measures:

The project proponent shall take all the necessary steps to conserve water and reduce the specific water consumption as given below:

- Use of water tankers with special nozzles to make optimum use of water and thereby cover more areas with less water.
- Feasibility of using lignin based or other environment-friendly dust suppressants to reduce the water consumption for dust suppression.

- Use of fixed dust suppression systems like sprinklers, fog guns, etc., which will further reduce water consumption as well as reduce fuel consumption for plying water tankers.
- Monitoring of specific water consumption on monthly basis and take annual specific water consumption reduction targets.
- Environment friendly dust suppressants to reduce the water consumption for dust suppression.
- Use of fixed dust suppression systems like sprinklers, fog guns, etc. which will further reduce water consumption as well as reduce fuel consumption for plying water tankers.
- Monitoring of specific water consumption on monthly basis and take annual specific water consumption reduction targets
- Use of water tankers with special nozzles to make optimum use of water and covering more areas with less water.
- Use of drip irrigation system for watering plants.
- Imparting awareness amongst the employees on avoiding water wastage.

10.6.4 NOISE POLLUTION CONTROL

- Ambient noise levels will be ensured to less than 75 dB(A) during daytime & less than 70 dB(A) during night time, by taking all necessary measures.
- Drilling and Blasting activities are not proposed for the Project.
- All the HEMM are provided with air conditioners and acoustically insulated cabins.
- Providing PPE such as like earplugs, earmuffs to the workmen in noise prone zones in the mine.
- Green belt will be developed all along the lease boundary.

Noise pollution management and control measures during mining operations and transportation are given below in **Table 10.3**.

Table 10.3: Noise Pollution Management and Control measure

Potential Impact	Actions/Measures	Parameters for Monitoring
Noise	Selection of State-of-art HEMM in good working condition with periodic maintenance to be engaged for mining operations.	Equipment logs, noise reading
	Implement good working practices (equipment selection and siting) to minimize noise and also reduce its impacts on human health (ear muffs/ ear plugs, safe distances and enclosures).	Site working practices records, noise level readings and record of PPE's issued.

	Ambient Noise monitoring near the lease boundary. The Noise level should not exceed the permissible limit both during day and night time.	Noise levels
	All equipment operated within specified design parameters.	Random checks of equipment logs/ manuals
	Greenbelt development along the periphery of the Mineral Block will act a barrier to the propagation of noise as well as dust.	Around 1500 saplings of native species will be planted every year by way of gap filling strengthening the existing greenbelt.

10.6.5 PROTECTIVE MEASURES FOR GROUND VIBRATIONS/AIR BLAST CAUSED BY BLASTING

Drilling and Blasting activities are not proposed for the Project.

10.6.6 SOLID & HAZARDOUS WASTE MANAGEMENT

The solid waste generated is overburden. Overburden (waste) of 2384000 T will be generated during fourth year of the plan period to produce 750000 T of iron ore. Overburden waste is stacked in designated locations as shown in **Table 10.4.** The lateritic waste generated during mining operations will be used for erection of retention walls at the toe of the dumps, and also as safety barriers (bunds) all along the haul roads. Proposed dumping of the waste/overburden during the plan period is given in **Table 10.5.**

Table 10.4: Overburden/waste dump details

S. No.	Dump ID	Dump Status (Stabilized/ Dead/ Active)	Type of Dump (waste/ MR)	Total Dump Quantity (t)	Area covered by Dump (Ha)	Height (m)	Location
1	Dump-1	Active	Waste	7430000	10.3378	42.5	15:17:44.22 to 15:18:05.43 74:09:15.33 to 74:09:27.00
2	Dump-2	Active	Waste	220000	1.7902	15.2	15:17:39.02 to 15:17:47.84 74:09:15.36 to 74:09:23.71
3	Dump-3	Active	Waste	200000	1.6279	18	15:17:44.80 to 15:18:05.99 74:08:55.89 to 74:09:02.85
4	Dump-4	Stabilized	Waste	373000	2.6080	20	15:17:34.48 to 15:17:41.03 74:09:21.07 to 74:09:30.11
5	Dump-6	Active	Waste	1300000	11.4926	26	15:17:12.35 to 15:17:35.19 74:09:19.49 to 74:09:35.83
6	Dump-7	Active	Waste	200000	0.3320	10	15:17:11.65 to 15:17:24.70 74:09:08.76 to 74:09:13.74
7	Dump-8	Dead	Waste	60000	0.2852	8	15:17:20.22 to 15:17:25.11 74:09:35.21 to 74:09:36.88
8	Dump-9	Dead	Waste	30000	0.1873	8	15:17:10.78 to 15:17:13.73 74:09:36.59 to 74:09:39.27

Table 10.5: Proposed dumping of the waste/overburden during the plan period

Sr. No.	Year	Dump Id	Type of Dump	Proposed Area (ha)	Total Dump Quantity (m^3)
1	Year1	Dump-6A	Waste	2.54	152400.00
2	Year1	TD-2	Waste	4.13	563600.00
3	Year2	TD-1	Waste	7.10	675440.00
4	Year2	TD-2	Waste	3.24	388560.00
5	Year3	TD-1	Waste	6.02	496270.00
6	Year3	TD-2	Waste	3.51	526800.00
7	Year3	Dump-6A	Waste	1.43	128430.00
8	Year4	TD-2	Waste	4.77	547640.00
9	Year4	Dump-6A	Waste	4.21	505560.00
10	Year4	Dump-6	Waste	3.47	138800.0
11	Year5	Dump-6	Waste	5.11	263150.0
12	Year5	Dump-6A	Waste	2.18	326850.00

The following environment management measures are undertaken to prevent soil erosion

- Terracing, mulching, plantation of grasses, legumes, etc. on the inactive slopes.
- The wastes and ore generated are non-toxic and non-acidic. The possible pollutants in the water are suspended solids from mining areas and dumps. Rainwater from the entire broken area is harvested in mining pits through trenches and garland drains. The water is allowed to settle within the pit helping in groundwater recharge. During operational period, the pumped out water from the pit is passed through series of settling ponds to remove the solid suspensions and clear water shall be discharged from the Mineral Block area.
- Provision of retention walls at the toe of the waste dump to arrest runoff.
- Provision of garland drains around the waste dump and diversion of water to settling ponds and mine pit for sedimentation of suspended particles.
- Drains will be provided along the haul roads to divert the monsoon runoff into settling ponds and mine pit.
- The following engineering control structures will be constructed such as check dams, retaining walls and settling ponds to store the runoff water.
- Covering the dump slopes with biodegradable geotextiles wherever feasible and carrying out afforestation on the dump slopes.

Overburden waste i.e backfilled during the plan period is given below

1. Temporary Backfilling
2. Ore reserves at the common boundary with CGL

3. Proposed exploration and enhancement of life of the mine.
4. Conceptual plan

Hazardous waste:

The mine shall generate minor quantities of Hazardous waste in the form of used oil (spent oil) due to maintenance of mining machineries. Hazardous waste authorization will be obtained from Goa State Pollution Control Board for collection, storage and disposal of hazardous waste. The quantity of hazardous waste likely to be generated is about namely spent oil 7 Tonnes per Annum, waste residue contaminated with oil 2 Tonnes per Annum. The hazardous waste will be properly segregated and stored at dedicated place and disposed to authorized recyclers State Pollution Control Board.

10.6.7 ECOLOGY RESTORATION (LAND RECLAMATION & LAND REHABILITATION)

10.6.7.1 LAND RECLAMATION

Mining operation will be carried out in accordance with the Approved Mining Plan along with Progressive Mine Closure Plan. The impact on topography and surface drainage is localized and restricted to mining activity area.

The following mitigative measures will be taken up-

- Levelling and grading of dump surface will be taken up followed by subsequent plantation.
- Slope study of the project site has been carried out through a reputed institute viz. "National Institute of Technology Karnataka" Suratkal (NITK). Recommendations suggested by the Institute in the study report will be followed. If needed, such slope stability study will be carried out further.
- Disposal of waste will be done at earmarked place only.
- The waste dumps will be terraced and will be provided with garland drains at the toe of the dumps, retention walls and series of settling ponds at strategic locations to arrest the silt/sediment from the runoff during monsoon.
- The matured portion of the waste dumps will be stabilized by geo-textile wherever feasible and will be progressively planted and rehabilitated with suitable native species.

At the conceptual period, waste dumps shall be reclaimed by plantation and thus impact will be minimized.

10.6.7.2 LAND REHABILITATION

Land rehabilitation will involve plantation of saplings of native species generally grown in the state of Goa, comprising of mixed species with more preference given to fruit tree species such as cashew, mango, jamun, avla, etc., which attracts birds. Plantation will be carried out as per CPCB guidelines "Guidelines for Developing Greenbelts" and also in consultation with the state forest and agriculture departments. Fruit trees can generate revenue to the locals in future.

a) Plantation along mining lease boundary

Kalay Mineral Block is already having a 7.5m wide green belt all along the eastern boundary and partly on the western and southern boundary of the Mineral Block. As the Mineral Block shares a common boundary with adjoining mine, there is no green belt on its northern boundary.

b) **Plantation around office building & road**

Avenue plantation already exists around the built-up areas and in open spaces around the office premises.

c) **Plantation on dump slopes**

The matured portion of the waste dumps will be terraced at suitable intervals and the slopes will be stabilized by laying geo-textile wherever feasible and the same will be progressively planted and rehabilitated with suitable native species. Pits of size 60cm x 60cm will be dug at 1.5m interval and filled with a mixture of top soil, organic manure and phosphate fertilizer and covered with a layer of soil held with coir net blanket. Seeds of grass and small scrubs of local varieties will be sprinkled on the soil covering the dump slope. Seedling of the plants will be planted in pit on the slopes.

d) **Plantation on Backfilled areas**

Plantation on the mine benches will be taken up during the final mine closure period. The mine pit, after backfilling and levelling, a layer of lateritic material will be spread. Grass seeds/ seedlings will be planted to stabilize the soil. Plants having drought hardy, with fast growth rate with glabrous/ pendulous leaves, will be selected for plantation. The reclaimed mine benches will be provided with garland drains sloping along the mining benches to facilitate the conveying of water from higher benches to the next lower benches.

Out of the total Mineral Block area of 152.5073 Ha., an area of 136.5289 Ha. is proposed to be broken up by way of excavation and also be utilised for other mining activities by the end of conceptual stage; the conceptual land use proposed is based on the current Reserves & Resources. Of the total degraded area of 136.5289 Ha., an area of

89.9678 Ha will be reclaimed by planting 1500 saplings /Ha i.e., 1,34,805 saplings of native plants and fruit bearing species such as Cashew, Bamboo, Arjuna, Alva etc. and an area of 44.1356 Ha. will be converted into a water reservoir which will be beneficial to society and also to the migratory avifauna. An area of 2.4255 Ha. will remain under mining infrastructures and utilities. In future, depending on the results of the proposed exploration, the Reserves and Resources will be updated, based on which the conceptual land-use may change accordingly.

The company will adopt the following practices for carrying out scientific and systematic eco-restoration of the mine during the conceptual period:

1. Use of the latest software for mine planning
2. Associating with various research institutes like NEERI, ICAR, ICFRE and consultants for mine reclamation projects as and when required.
3. Associating with various technical departments of state government like Forest department, Agriculture department, Fisheries department, Water Resource department etc.
4. Identifying all the stakeholders and engaging with them in a structured manner throughout the life of the mine. This will help to identify the issues, concerns of the stakeholders and satisfy them in a systematic manner. It will also help to take inputs form the stakeholders in eco-restoration of the mines.
5. Regular Biodiversity Assessment to help the company to achieve a No Net Loss w.r.t biodiversity.
6. Converting mining pits into water reservoirs, ponds with other ecotourism facilities like water sports, boating, fishing, etc. based on the requirement of the local people.
7. Develop Pisciculture in mine pits and also involve the community for cage fishing to make it a commercially viable venture, based on the requirement of the local people.
8. Developing theme-based gardens like medicinal gardens, horticulture gardens, spice gardens.
9. Converting the mining infrastructure like office buildings, workshops, etc into public utility infrastructure like schools, training center, medical centre, etc.

The objective of the Eco restoration would be to create a positive landscape which will help the community or the mining employees to generate revenue even after the

mining operations close. Scientifically developed green belts, water bodies, and other infrastructure.

As per the Approved Mining Plan, green belt development for the 5 year plan period is given in **Table 10.6.**

Table 10.6: Green belt planning during mining plan period

Year	Green Belt Location(s)	Area Proposed to be Covered (Ha)	Number of saplings Proposed	Estimated Expenditure (INR)
1	Dump1	0.60	1500	150000
2	Dump1	0.60	1500	150000
3	Dump1	0.60	1500	150000
4	Dump1 & Along Eastern Block Boundary	0.50	1500	150000
5	Dump1 & Along Eastern Block Boundary	0.50	1500	150000

Potential species suggested for green belt development is listed in **Table 10.7.**

Table 10.7: List of species suggested for future green belt development

S. No.	Botanical Name	Family	Common Name	S/T	Habitat	Height
Shrubs - < 5m (1st tier of Plantation)						
1	*Citrus limon*	Rutaceae	Lemon	T	Shrub	3m
2	*Duranta repens*	Verenaceae	Golden Dew Drop	T	Shrub	3m
3	*Hibiscus rosa sinensis*	Malvaceae	China Rose/ DasavaLa	T	Shrub	3m
4	*Nerium indicum*	Apocynaceae	Oleander/Chandaatha	T	Shrub	5m
Trees 5 - 10m (2nd tier of Plantation)						
5	*Acacia nilotica*	Mimoseae	Gum Arabic/ Babli	T	Tree	8m
6	*Bauhinia varigata*	Caesalpinaceae	Kachnar/ Arisinantige	T	Tree	5m
7	*Annona squamosa*	Annonaceae	Setha palla	T	Tree	6m
8	*Butea monosperma*	Fabaceae	Flame of the Forest/Muttuga	T	Tree	10m
9	*Gardenia jasminoides*	Rubiaceae	Cape jasmine/ Suvasane Malle	T	Tree	5m
10	*Moringa oleifera*	Moringaceae	Drumstick Tree/Guggala	S	Tree	10m
11	*Pithecellobium dulce*	Mimosaceae	Manilla Tamarind/Seeme hunase	T	Tree	8m
12	*Thevetia peruviana*	Apocynaceae	Mexican oleander	T	Shrub	6m
13	*Phyllanthus emblica*	Phyllanthaceae	Ambla	T	Shrub	7m
Trees >10m (3rd tier of Plantation)						
14	*Aegle marmelos*	Rutaceae	Maredu / Bilva	T	Tree	12m
15	*Albizia lebbeck*	Mimoseae	Siris tree	T	Tree	20m
16	*Albizia procera*	Mimoseae	White siris/Belari	T	Tree	20m
17	*Alstona scholaris*	Apocynaceae	Devil Tree/ Aelele Haale	T	Tree	15m
18	*Azadirachta indica*	Meliaceae	Neem/ Turakabevu	T	Tree	20m
19	*Bambusa vulgaris*	Poaceae	Yellow Bamboo	T	Perennial grass	15m
20	*Cassia fistula*	Caesalpinaceae	Golden Shower/ Kakke	T	Tree	12m
21	*Delonix regia*	Caesalpinaceae	Flame Tree/ Kempu torai	T	Tree	15m
22	*Ficus benghalensis*	Moraceae	Banyan tree/ Aaladamara	T	Tree	20m

23	*Ficus religiosa*	Moraceae	Peepal/ Arali	T	Tree	20m
24	*Mangifera indica*	Anacardiaceae	Mango/ Mavinamara	S	Tree	15m
25	*Polythia longifolia*	Anonaceae	Ashok/Ubbina	S	Tree	15m
26	*Wrightia tinctoria*	Apocynaceae	Alae mara	T	Tree	12 m
27	*Hardwickia binata*	Fabaceae	Small leaves	T	Shrub	6m
28	*Syzygium cumini*	Myrtaceae	Neredu/ Neereedu	T	Tree	20m
29	*Tectona grandis*	Verbenaceae	Teak	T	Tree	20m

e) **Post-Plantation Care**

Post-plantation care is very important and will be an integral part of mine management. Dedicated manpower will be engaged in the mine for post-plantation care, the activities of which include, regular watering, de-weeding, manuring, providing protective measures to protect planted saplings, etc. Diseased and dead plants shall be replaced by fresh saplings.

Regular monitoring of the survival rate and remedial action will be done in an organized and planned manner.

10.7 WILDLIFE MANAGEMENT AND CONSERVATION PLAN

Wildlife management needs to consider multifaceted factors such as food-web, resources competitions, anthropogenic factors, forest fragmentation and sociological issues such as community livelihoods, culture, ethics, forest dependency, etc. Detailed Wildlife Conservation Plan is enclosed as **Appendix-4** and the acknowledgement from Chief Wildlife Warden is enclosed as **Annexure 14.**

Total of 48 species of fauna falls within the category of Wildlife Protection Act 1972 and amendment 2022 under Schedule I. The details of each species is given below in **Table 10.8**.

Table 10.8: List of Scheduled I Wildlife species

S. No.	Local Name	Scientific name	Family	WPA-Schedule
	Mammal			
1	Common grey mongoose	*Urva edwardsii*	Herpestidae	LC/I
2	Indian porcupine	*Hystrix indica*	Hystricidae	LC/I
3	Malabar gain squirrel	*Ratufa indica*	Sciuridae	VU/I
4	Common leopard*	*Panthera pardus*	Felidae	VU/I
5	Leopard cat*	*Pronailurus bengalensis*	Felidae	LC/I
6	Wronghto's Gaint Mastiff Bat*	*Otomops wroughtoni*	Molossidae	LC/I
7	Slender Loris	*Loris lydekkerianus*	Lorisidae	NT/I
8	Tiger*	*Panthera tigris*	Felidae	EN/I
9	Mouse Deer	*Moschiola indica*	Tragulidae	LC/I
10	Four Horned Antelope*	*Tetracerus quadricornis*	Bovidae	VU/I
11	Gaur or Indian Bison	*Bos gaurus*	Bovidae	VU/I
12	Indian Pangolin*	*Manis crassicaudata*	Manidae	EN/I

13	Sloth bear*	*Melursus ursinus*	Ursidae	VU/I
14	Small Indian civet*	*Viverricula indica*	Viverridae	LC/I
15	Bonnet macaque	*Macaca radiata*	Cercopithecidae	LC/I
16	Wild dog*	*Cuon alpines*	Canidae	EN/I
	Birds			
17	White-bellied Sea-Eagle	*Haliaeetus leucogaster*	Accipitridae	LC/I
18	Indian Peafowl	*Pavo cristatus*	Phasianidae	LC/I
19	Shikra	*Accipiter badius*	Accipitridae	LC/I
20	Osprey	*Pandion haliaetus*	Pandionidae	LC/I
21	Chestnut Bittern*	*Ixobrychus cinnamomeus*	Ardeidae	LC/I
22	Cotton Teal	*Nettapus coromandelianus*	Anatidae	LC/I
23	Brahminy Kite	*Haliastur indus*	Accipitridae	LC/I
24	Long-billed Vulture *	*Gyps indicus*	Accipitridae	CR/I
25	Crested Serpent Eagle*	*Spilornis cheela*	Accipitridae	LC/I
26	Eurasian Marsh Harrier *	*Circus aeruginosus*	Accipitridae	LC/I
27	Crested Goshawk	*Accipiter trivirgatus*	Accipitridae	LC/I
28	Besra Sparrowhawk*	*Accipiter virgatus*	Accipitridae	LC/I
29	Black Eagle*	*Ictinaetus malayensis*	Accipitridae	LC/I
30	Crested Tree-swift	*Hemiprocne coronate*	Hemiprocnidae	LC/I
31	Brown Wood Owl	*Strix leptogrammica*	Strigidae	LC/I
32	Common Hill-Myna	*Gracula religiosa*	Sturnidae	LC/I
33	Grey Junglefowl	*Gallus sonneratii*	Phasianidae	LC/I
34	Nilgiri Wood Pigeon	*Columba elphinstonii*	Columbidae	VU/I
35	Small Minivet *	*Pericrocotus cinnamomeus*	Campephagidae	LC/I
36	Forest Eagle-Owl *	*Bubo nipalensis*	Strigidae	LC/I
	Reptiles			
37	Indian Rock Python*	*Python molurus molurus*	Pythonidae	NT/I
38	Marsh Crocodile *	*Crocodylus palustris*	Crocodylidae	VU/I
39	Indian Falpshell Turtle *	*Lissemys punctata*	Trionychidae	VU/I
40	Common Indian Monitor Lizard	*Varanus bengalensis*	Varanidae	NT/I
41	Russell's Viper	*Daboia russelii*	Viperidae	LC/I
42	Cobra	*Naja naja*	Elapidae	LC/I
43	King cobra*	*Ophiophagus hannah*	Elapidae	VU/I
44	Green Forest lizard	*Calotes calotes*	*Agamidae*	LC/I
45	Checkered Keelback	*Fowlea piscator*	*Colubridae*	LC/I
46	Common Kukri Snake*	*Oligodon arnensis*	Colubridae	LC/I
47	Whitaker's Boa*	*Eryx whitakeri*	Boidae	NT/I
48	Common Indian monitor lizard	*Varanus bengalensis*	*Varanidae*	NT/I

10.7.1 BRIEF MITIGATION MEASURES FOR CONSERVATION OF WILDLIFE

i. Water holes for habitat improvement

Animals and birds need a regular water source for their daily consumption. During hot summer wild animals and birds stray outside forest in search of water

source for quenching thirst. It is therefore proposed to construct water holes in the forested area in the buffer zone at convenient points. These water holes should be large enough to store the water to meet the requirement of animals and birds. The water holes should be provided with cement concrete bedding, side walls with stone pitching and grass should be grown in gap for gripping while animals enter into the water holes. These water holes should be cleaned at regular intervals to remove leaf litter, de-silting and refilling water.

Few shades are provided around water holes for animal resting during summer season. Fruit bearing trees shall be grown around water holes for nesting and food for birds and shade for wild animals.

ii. Noise levels

During mine operations, noise levels will increase due to the movement of HEMM. Similar to human beings, the wildlife is also sensitive to higher noise levels. To reduce the noise levels during mining operations the following measures are proposed.

- Use of well-maintained loading machines with sharp bucket teeth
- Well-maintained roads.
- No over speeding of vehicles
- No drilling and blasting is proposed.
- State-of-the-art HEMM will be engaged for mining operations, which will have less noise emission and also provide acoustic insulation for the operators.
- Reduction of noise level is achieved by proper maintenance of machinery and equipment.
- Vehicular traffic within the mine will be restricted by reducing the number of trips, using heavy-duty trucks.
- PUC-certified trucks will be engaged for the transportation of ore.
- Interruption of noise path from the source to the receiver is achieved by the development of 7.5m wide green belt.

Periodical monitoring of noise levels will be carried out in the core and buffer zone.

iii. Air Quality:

Ambient air quality shall be maintained within prescribed CPCB limits. For this, the following steps are proposed-

- Regular sprinkling of water on haul roads within the mining area.
- No overloading of transport tipper trucks to avoid spillage of ore and carriers of ore-carrying tipper trucks will be covered with tarpaulins.

- Green belt development around the mine area and avenue plantation with thick foliage to arrest dust.

iv. Green Belt Development

Green belt of 7.5m width will be developed along the periphery of the Mineral Block area. The green belt developed will help mitigate the effects of air and noise pollution from the Project activity.

The species proposed to be planted shall be selected based on the criteria prescribed by CPCB as "Guidelines for Developing Greenbelts" and also in consultation with the local forest department.

*v. **Training staff and Awareness activity:***

All the mine workers and staff shall be provided awareness and training in the conservation of wildlife and develop a liking for wildlife conservation by celebrating Environment Day involving local village people and school students. The drivers shall be trained to give way for wildlife with the support of the local forest department.

The villagers are also made aware of wildlife conservation by conducting meetings using pamphlets, audio and video means. Various biodiversity/wildlife awareness activities like conducting quizzes, drawings, painting competitions and essay writing for school students.

Villagers are awarded for their contribution towards protecting and preventing wood theft and tree cutting helping Forest Dept. in catching Poachers. Conservation activities for the protection of flora & fauna shall be implemented in consultation with Forest Department officials.

*vi. **Watch towers:***

One machan (watch tower) shall be erected near the water reservoir to prevent any poaching in the area.

*vii. **Fund for wildlife conservation:***

The approved wild life conservation plan will be implemented by forest department and financially supported by the project proponent. The budgetary allocation of funds towards wildlife conservation shall be 78**.05 Lakhs** (updated) for five years.The habitat management in and around the study area must be adopted by planting suitable fodder species to enable wild herbivores tothrive upon. Following suggestions, if implemented, will encourage the nativefauna to return to the areas:

- A dense green belt consisting of shrubs and trees of different species must be created around the mine area and also along the roads which will act also as a dust and noise barrier.
- Awareness programs amongst the local people as well as mine staff, regarding the importance of wildlife, their habits and habitats, should be organized so that stray and displaced fauna (due to degradation and de-fragmentation of their habitat) is not killed.
- Rock fill dams and check dams shall be constructed in the forest area of buffer zone to prevent the soil erosion. This will be able to store sufficient quantity of filtered water in the area and will act as water holes for the faunal life present in the region.
- The green cover loss due to construction of roads and heavy vehicular movements will restrict the animal movements to the adjoining areas. Therefore, development of a green belt and massive afforestation program of local species and shade giving plant species in the forest area along with approach road shelter for them.
- Awareness programme for the local people/schools children as well as project staff shall be carried out regarding the importance of regional biodiversity and need for their conservation for posterity.
- Fire lines should also be cleared along permanent features like roads, nallas and footpaths at suitable intervals to prevent forest fire from spreading, in case it breaks out.
- People should be trained with forest fire fighting measures and equipped with necessary materials like rakes, shovels, billhook, bucket etc. and suitable dresses.

The forest department has to carry out conservation of wildlife in the protected and forest areas. The Project Proponent will support the department by allocating and providing funds for implementation of scheme for conservation of wildlife. The measures for protection of environment within the core zone (Mineral Block) would be the responsibility of Project Proponent and will be carried out as required.

10.8 BUDGET FOR ENVIRONMENT MANAGEMENT PLAN (EMP)

Table 10.9: EMP Cost (Updated)

S. No.	Description of Item	Proposed (₹) in Lacs	
		Capital Cost	Recurring Cost
1	**Air Pollution control Measures**		
A	Dust Suppression by water tankers No. of water tankers – 2 (10 m3 capacity) No. of trips/day – 10 (@₹400/- per trip) No. of working days – 200 = 10 x 400 x 200 = ₹ 8,00,000/-	45.10	8.00
B	Road maintenance by Motor Grader Working hours – 300 (@₹2000/-) No. of working days – 200 (8 month) = 2000 x 300 x 200 = ₹ 6,00,000/-		6.00
C	Wheel washing system Capital - Installation cost – ₹25,00,000/- Recurring - Maintenance cost – ₹10,000/- per month - Operational cost - ₹90,000/- per month - No. of working days – 200 (8 months) = 1,00,000 x 8 = ₹ 8,00,000/-		8.00
D	Road washing with water tanker (Ambeaudoc) No. of water tankers – 1 (10 m3 capacity) No. of trips – 2 trips/day (@ ₹500/- per trip) No. of working days – 200 = 2 x 500 x 200 = ₹ 2,00,000/-		2.00
E	Road sweeping machine Truck mounted sweeping machine – 1 (@₹3000/- per hour) (2hr daily) No. of working days – 200 = 3000 x 2 x 200 = ₹ 12,00,000/-		12.00
F	Permanent water sprinkler Sprinkler installation – ₹1000/- per meter Length of pipeline – 1000m Pump cost (2HP) – ₹50000/- Operational cost – ₹1,20,000/- per year Capital Installation Cost – 1000 x 1000 = 100000 + 50000 = ₹ 10,50,000/- Recurring cost – 15000 x 8 = ₹ 1,20,000/-		1.20
G	Green net along road (400 m) Installation cost with frame - ₹2400/m Capital Cost = 2400 x 400 = ₹ 9,60,000/- Recurring Maintenance Cost - ₹ 10,000/- per year		0.10
2	**Water Pollution Control Measures**		
A	Settling ponds No. of settling ponds - 7 Total capacity - 14,070 m3	48.73	3.90

	Capital Construction cost (₹110/m3) = ₹ 15,47,700 Recurring Maintenance Cost – ₹3,90,000/-		
B	Drains and Trenches (6350 m) Capital Construction Cost – ₹300/ m = 6350 x 300 = ₹ 19,05,000/- Recurring Maintenance Cost – ₹ 100/m = 6350 x 100 = ₹6,35,000/- per year		6.35
C	Protective Bunds (1225m) Construction cost – ₹1000/m =1225 x 1000 = ₹ 12,25,000/- Recurring Maintenance Cost – ₹ 100/m = 1225 x 100 = ₹ 1,22,500/- per year		1.20
D	Use of Coco Filters and other miscellaneous cost		0.10
E	ETP Associated with Oil and Grease trap for workshop	15.00	---
3	Fire protection systems	2.00	0.16
4	a. Continuous Air Quality monitoring CAAQMS (1 no)	10.00	7.00
5	Greenbelt along Boundary 7.5 Meter safety zone and Plantation within ML Area (5 years) Sapling and plantation cost @₹ 75/plant Maintenance cost @ ₹ 25/plant	35.00	1.75
6	Solar energy (15kw) @ ₹ 40,000/kw Solar Street lights (30watts) @ ₹ 20,000/unit Annual maintenance cost @ ₹ 20,000/month	10.00	2.00
7	Sanitary Facility (4no)	3.00	0.20
8	Health check-up Total Staff - 127 @ ₹1200/person	---	1.50
9	Personal Protective Equipment (PPEs) Safety Shoes + Helmets + Gloves etc	---	1.20
10	Environmental awareness & training	---	0.25
11	Environment Monitoring Program Cost	---	16.40
12	Silpauline covering on ore stack	---	5.00
13	Traffic control	---	14.00
Total		**168.83**	**98.31**
14	Budget for the Wildlife Conservation Plan (updated) for 5 years		106.31

10.9 ENVIRONMENTAL MONITORING STRATEGY

Environmental quality monitoring is an important feature to monitor the efficiency of various mitigation measures implemented in the Project during its operation.

For analysis of Environmental Parameters and monitoring, services of an approved and recognized laboratory will be engaged. A budgetary allocation of Rs. 16,40,000/- lakhs/annum have been earmarked for Environmental monitoring. A comprehensive monitoring programme is given under

Table 10.10: Monitoring Schedule for Environmental Parameters

S. No.	Particulars	Frequency of Monitoring	Sampling	Parameters Required to be Monitored
Air Quality				
1	Ambient Air quality in and around the Mine	Twice a week	24 hours continuously	PM2.5, PM10, SO2 & NO2
Water Quality				
2	Water Quality around the Mine	Once in a Month	Grab Sampling	As per IS: 10500
Noise Level Monitoring				
3	Ambient Noise levels in and around the Mine	Once in a Quarter	Continuous for 24 hours with 1 hour interval	Noise Level
Soil Quality				
4	Soil Quality around the Mine	Once in a year	Grab Sampling	IS: 2720

10.10 OCCUPATIONAL SAFETY AND HEALTH PLAN

Occupational Safety and health plan to evaluate the impacts of mining on the health of employees shall be carried out in accordance with Rule 29B of the Mines Rule, 1955 and the same will be adhered to as a Health Policy. Such health policy will be implemented until the life of the mine.

10.10.1 HEARING IMPAIRMENT

The most significant occupational health hazard is noise induced hearing loss. There are no reported cases of hearing loss due to noise pollution as per the observation of local doctors. Mining authorities will conduct periodic health checkups for any hearing impairment of employees.

10.10.2 SKIN DISEASES

According to local doctors, 2.2 per cent of the patients have suffered from skin diseases, which is because of lack of personal hygiene rather than due to mining. The company will maintain good sanitary conditions in and around the mineral block premises and also impart awareness on sanitization and personal hygiene to the employees.

Mining authorities will conduct health checkups to detect any skin allergies among employees.

10.10.3 EYE DISEASES

According to local doctors, patients suffering from eye related problems are low. Eye infections are generally not related to dust pollution and is mostly due to general

bacterial infection and old age. Mining authorities will take adequate precautionary measures to minimize dust pollution. Further, mining authorities will conduct periodic health checkups to detect eye diseases among employees.

10.10.4 JOB STRESS BECAUSE OF WORKING IN ACCIDENT PRONE ENVIRONMENT

The job stress is expected to be low because of incentives like providing food in workplace, weekly holidays and recreational facilities.

10.10.5 RESPIRATORY DISEASES

Iron ore does not contain any toxic elements in it. Hence, the possibility of any health hazards due to such toxic elements does not arise. The most observed occupational health hazard is lung diseases due to inhalation of respirable dust. However, management will take necessary measures to minimize such occupational health hazards.

The percentage of Pneumonia episodes observed in the buffer zone is 0.11, which is very low. The percentage of Asthma or Bronchitis is moderately high 3.7. Pneumonia and Asthma episodes are because of vices like consumption of tobacco and alcohol, especially among males. Mining authorities will conduct periodic health checkups for any respiratory infections amongst employees.

10.10.6 HAZARDS DUE TO MATERIALS LIKE ASBESTOS, SILICA, CHROME DUST, ETC.

Hazardous materials such as Asbestos, Silica, Chrome dust, etc. are not utilized /generated in the said Project, either for construction or for any other use. Hence, there is no risk associated.

10.11 OCCUPATIONAL SAFETY

10.11.1 PROVISION OF REST SHELTER FOR WORKERS WITH FACILITIES OF DRINKING WATER

Rest room with fresh drinking water and toilet facilities with running water for wash will be provided at the work site for all employees. Canteen and Dispensary shall also be provided.

10.11.2 AWARENESS OF SAFETY AND USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

All employees will be made aware of safety measures to be followed at the work site. Awareness programmes will be conducted by professionals who have graduated in the industrial safety. All the workers will be given helmet, gum shoes, safety shoes, etc.

10.11.3 REGULAR MAINTENANCE OF TESTING OF EQUIPMENT

The safety and testing of equipment will be carried out as per statutes.

10.11.4 MEDICAL EXAMINATION OF ALL EMPLOYEES

Medical examination of all the employees will be carried out in accordance with Rule 29B of the Mines Rule, 1955.

10.11.5 SAFETY MEASURES OF RISK ASSESSMENT IN UNDERGROUND MINING

There is no underground mining activity.

10.11.6 CONDUCT OF MOCK DRILL

Mock drill will be regularly conducted for all the emergency situations identified, like fire, land slide, drowning, etc.

10.11.7 SAFE STORAGE OF HANDLING OF EXPLOSIVES

Drilling and blasting is not proposed.

10.12 SOCIO-ECONOMIC CONDITIONS OF THE REGION

10.12.1 MEDICAL ASSISTANCE

First-aid centre will be established in the mine premises. Regular health check-ups for employees will be conducted as per provisions under Rule 29B of Mines Rules 1955. Health camps will be conducted in surrounding villages.

10.12.2 PRIMARY EDUCATION

Budgetary provision will be made to provide assistance to school children, by providing school uniforms, books, scholarships to underprivileged and meritorious students.

Imparting employability training, vocational courses and skill development will be planned.

10.12.3 RURAL WATER SUPPLY

All the villages are connected with government water supply. In case of any such requirement support will be provided to strengthen the government system.

10.12.4 VOCATIONAL TRAINING

Vocational training will be included in the welfare programs in future. It is going to be an important welfare program that can counter the unemployment.

10.12.5 EMPLOYMENT

The mining project will create direct and indirect employment opportunities in the surrounding villages. Apart from direct employment in the mines, indirect employment/business opportunities will be generated like canteen, engaging local trucks for transportation of Iron ore.

10.12.6 COMMUNICATION AND ACCESSIBILITY

All Villages are well connected by roads leading to taluka or district headquarters.

KEY PLAN



N
W E
S

SCALE- 1 : 50000

0 2.5 5 km

TOPOSHEET No.

48I/3	48I/7
48I/4	48I/8

CONVENTIONAL SYMBOLS



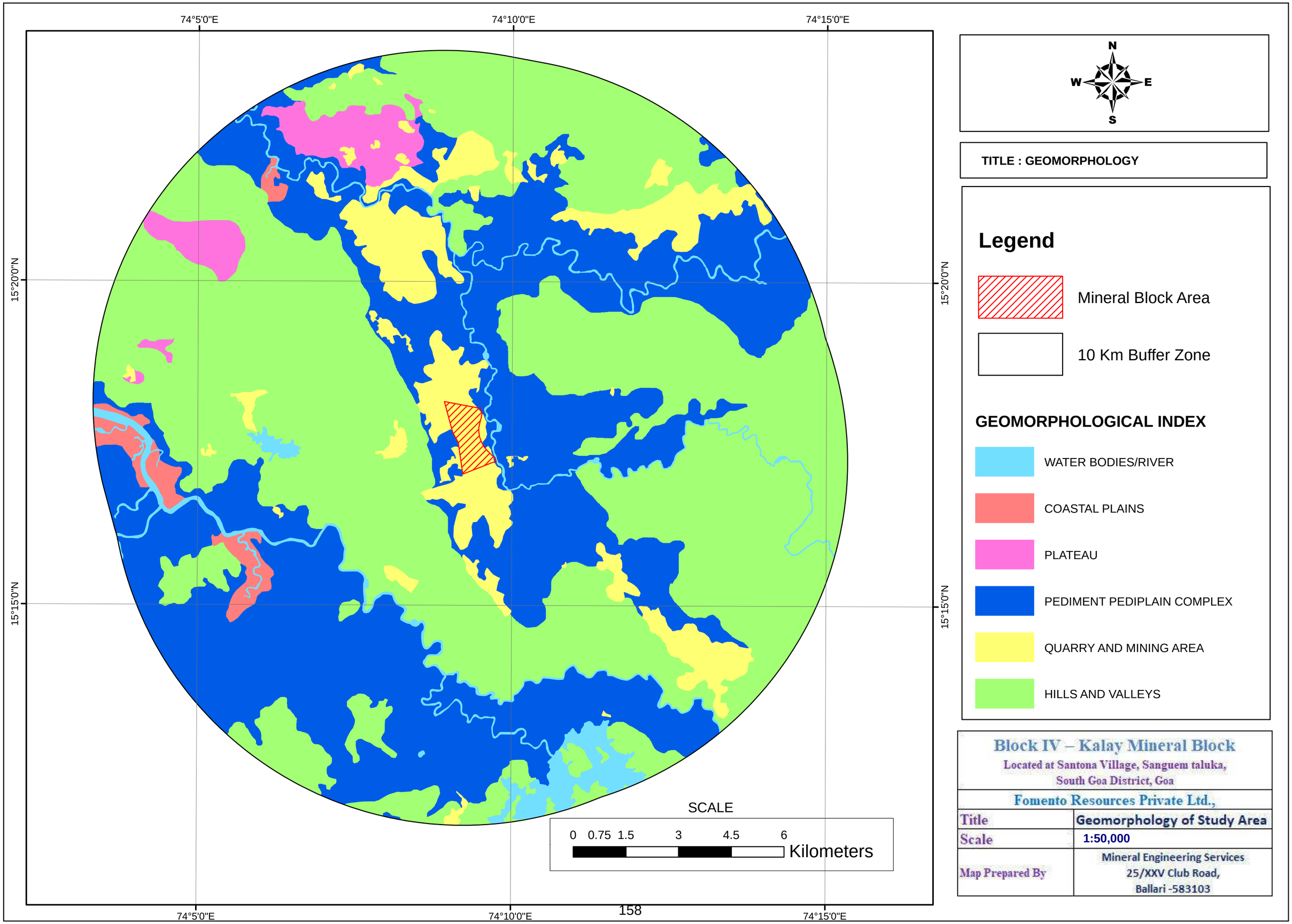
LEGEND

- Mineral Block
- 10 km Buffer Zone

Block IV - Kalay Mineral Block	
Located at Santona Village, Sanguem taluka, South Goa District, Goa.	
Fomento Resources Private Limited	
Scale	1: 50000

Map-2

Geomorphology of Study Area



TITLE : GEOMORPHOLOGY

Legend

- Mineral Block Area
- 10 Km Buffer Zone

GEOMORPHOLOGICAL INDEX

- WATER BODIES/RIVER
- COASTAL PLAINS
- PLATEAU
- PEDIMENT PEDIPLAIN COMPLEX
- QUARRY AND MINING AREA
- HILLS AND VALLEYS

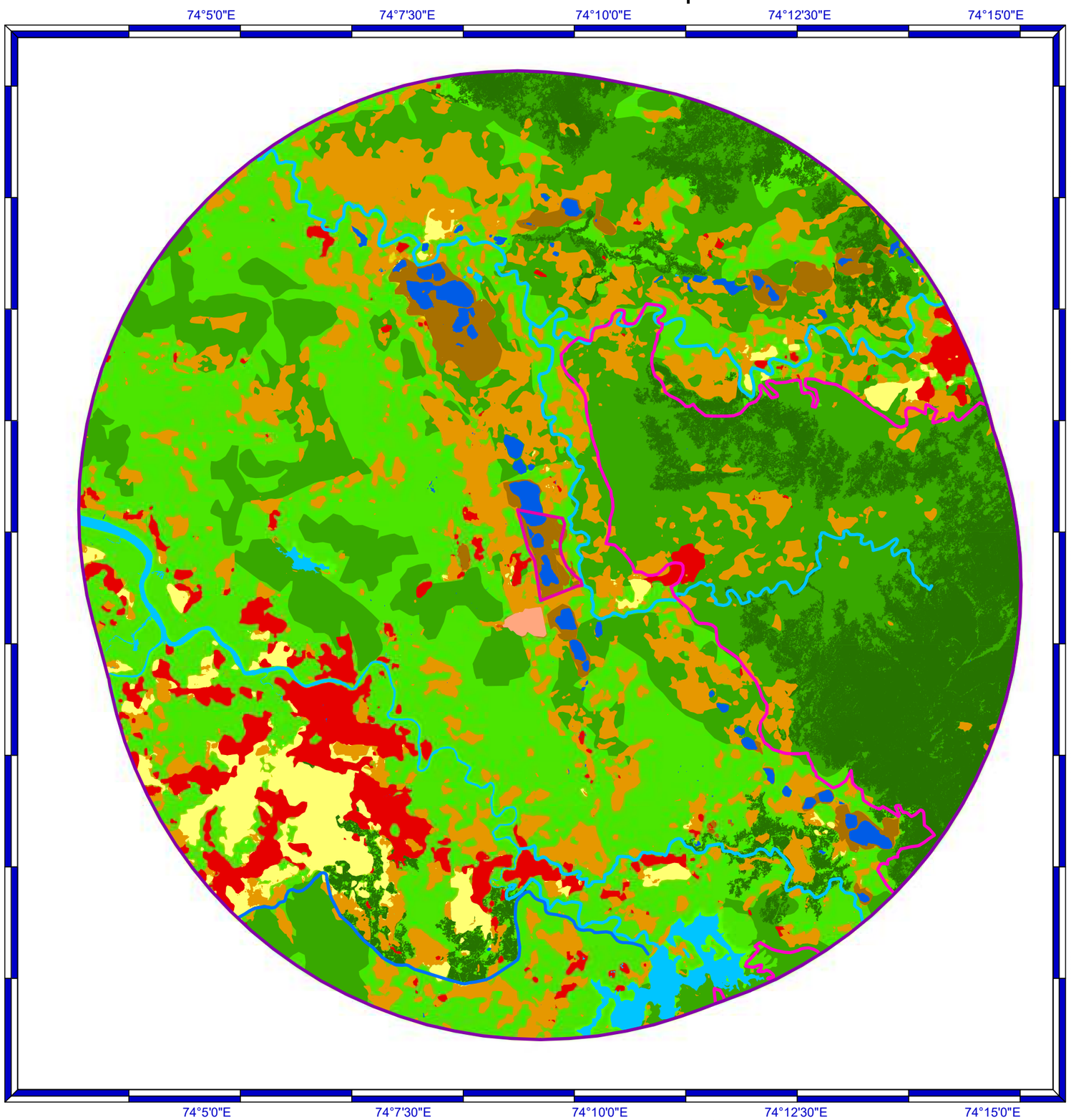
Block IV – Kalay Mineral Block
Located at Santona Village, Sanguem taluka,
South Goa District, Goa

Fomento Resources Private Ltd.,

Title	Geomorphology of Study Area
Scale	1:50,000
Map Prepared By	Mineral Engineering Services 25/XXV Club Road, Ballari -583103

Land Use & Land Cover Map

Map-3



N
W E
S

Scale 1:50000

0 2.5 5 Km

Legend

- Mineral Block
- 10 Km Bufferzone
- Rivers
- Wildlife sanctuary Boundary
- canal
- Dense Reserve Forest
- Reserve Forest
- Vegetation
- Agricultural Land
- Water Bodies
- Mine Broken up Area
- Mine Pit Water
- Barren/Grass Land
- Settlements
- Industry

Sl. No	Descripition	Area_Ha	%
1	Dense Reserve Forest	5227.0	13.99
2	Reserve Forest	12638.1	33.83
3	Vegetation	8416.0	22.53
4	Settlements	1714.3	4.59
5	Water Bodies	772.0	2.07
6	Broken up Area & Pit Water Bodies	1426.9	3.82
7	Agricultural Land	1304.8	3.49
8	Barren/Grass Land	5810.2	15.55
9	Industry	46.7	0.13
	Total	37356.0	100.0

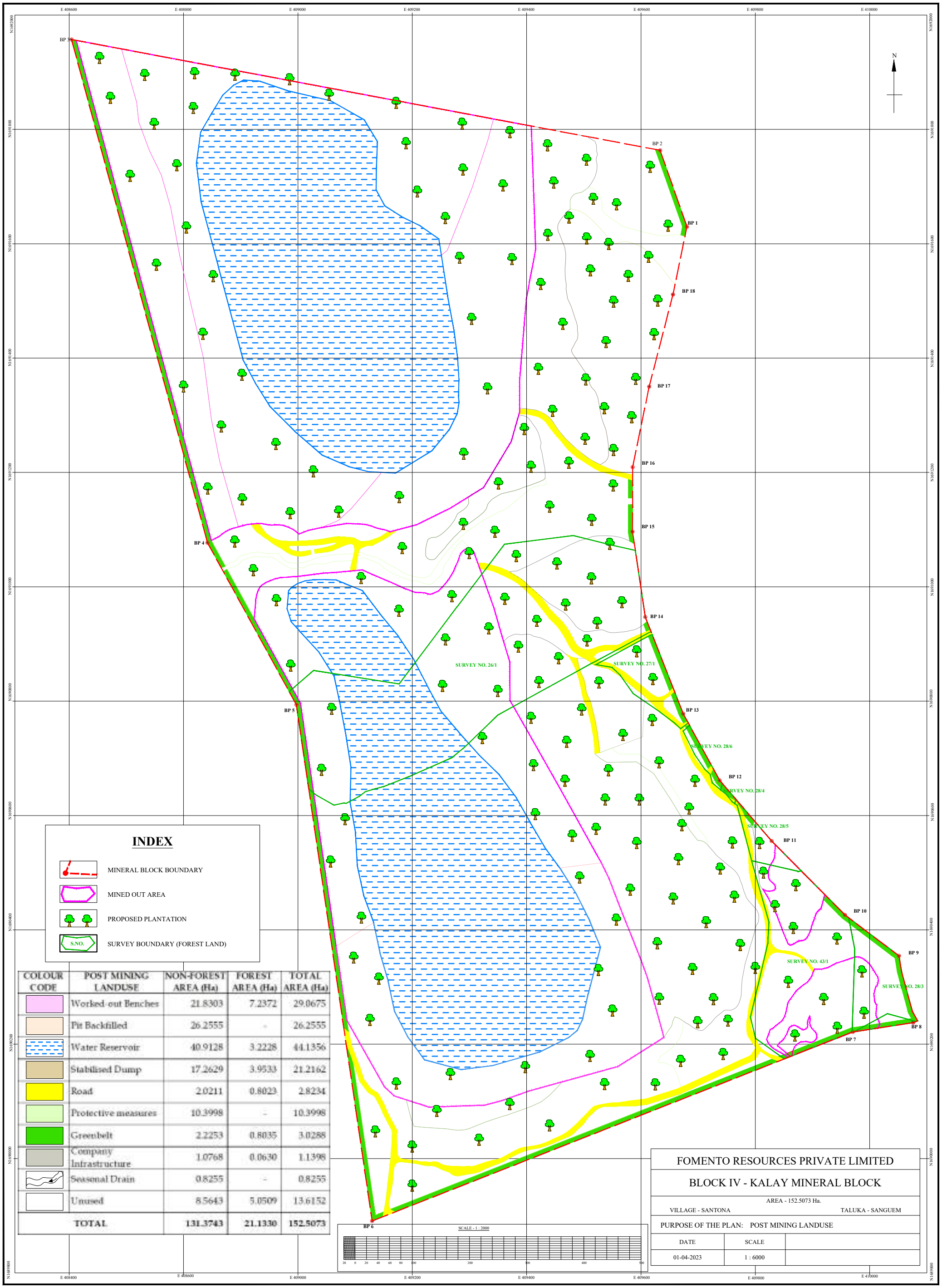
Block IV – Kalay Mineral Block

Located at Santona Village, Sanguem taluka, South Goa District, Goa

Fomento Resources Private Ltd.,

Title	Land Use Land Cover
Scale	1:50000
Data Used	IRS-R2, Mx
Resolution	5m
Date of Pass	01.04.2023 & 08.03.2023
Map Prepared By	Mineral Engineering Services 25/XXV Club Road, Ballari -583103

Map-4



INDEX

- MINERAL BLOCK BOUNDARY
- MINED OUT AREA
- PROPOSED PLANTATION
- S.NO. — SURVEY BOUNDARY (FOREST LAND)

COLOUR CODE	POST MINING LANDUSE	NON-FOREST AREA (Ha)	FOREST AREA (Ha)	TOTAL AREA (Ha)
	Worked-out Benches	21.8303	7.2372	29.0675
	Pit Backfilled	26.2555	-	26.2555
	Water Reservoir	40.9128	3.2228	44.1356
	Stabilised Dump	17.2629	3.9533	21.2162
	Road	2.0211	0.8023	2.8234
	Protective measures	10.3998	-	10.3998
	Greenbelt	2.2253	0.8035	3.0288
	Company Infrastructure	1.0768	0.0630	1.1398
	Seasonal Drain	0.8255	-	0.8255
	Unused	8.5643	5.0509	13.6152
	TOTAL	**131.3743**	**21.1330**	**152.5073**

FOMENTO RESOURCES PRIVATE LIMITED

BLOCK IV - KALAY MINERAL BLOCK

AREA - 152.5073 Ha.

VILLAGE - SANTONA TALUKA - SANGUEM

PURPOSE OF THE PLAN: POST MINING LANDUSE

DATE	SCALE	
01-04-2023	1 : 6000	

Map-5

N

E 408600 E 408800 E 409000 E 409200 E 409400 E 409600 E 409800 E 410000 E 410200

N1692000 N1691800 N1691600 N1691400 N1691200 N1691000 N1690800 N1690600 N1690400 N1690200 N1690000 N1689800

DUMP - 1

DUMP - 2

DUMP - 3

DUMP - 4

DUMP - 5

DUMP - 6

DUMP - 8

DUMP - 9

LEGEND

- BUND
- LATERITE RUBBLE WALL
- SETTLING POND
- GARLAND DRAINS
- PLANTATION
- GEOTEXTILE
- EXISTING SETTLING POND

E 408400 E 408600 E 409000 E 409200 E 409400 E 409600 E 409800 E 410000 E 410200

I N D E X

- MINERAL BLOCK BOUNDARY
- BENCHES
- EXISTING DUMP/ BACKFILLING
- BOREHOLE
- CONTOUR
- ROADS
- FOREST LAND
- HIGH TENSION POWER LINE
- LOW TENSION POWER LINE
- RUBBLE WALL
- STRUCTURES
- NALLAH
- 7.5 m STATUTORY BARRIER

SCALE - 1 : 2000

20 0 20 40 60 80 100 200 300 400 500

FOMENTO RESOURCES PRIVATE LIMITED

BLOCK IV - KALAY MINERAL BLOCK

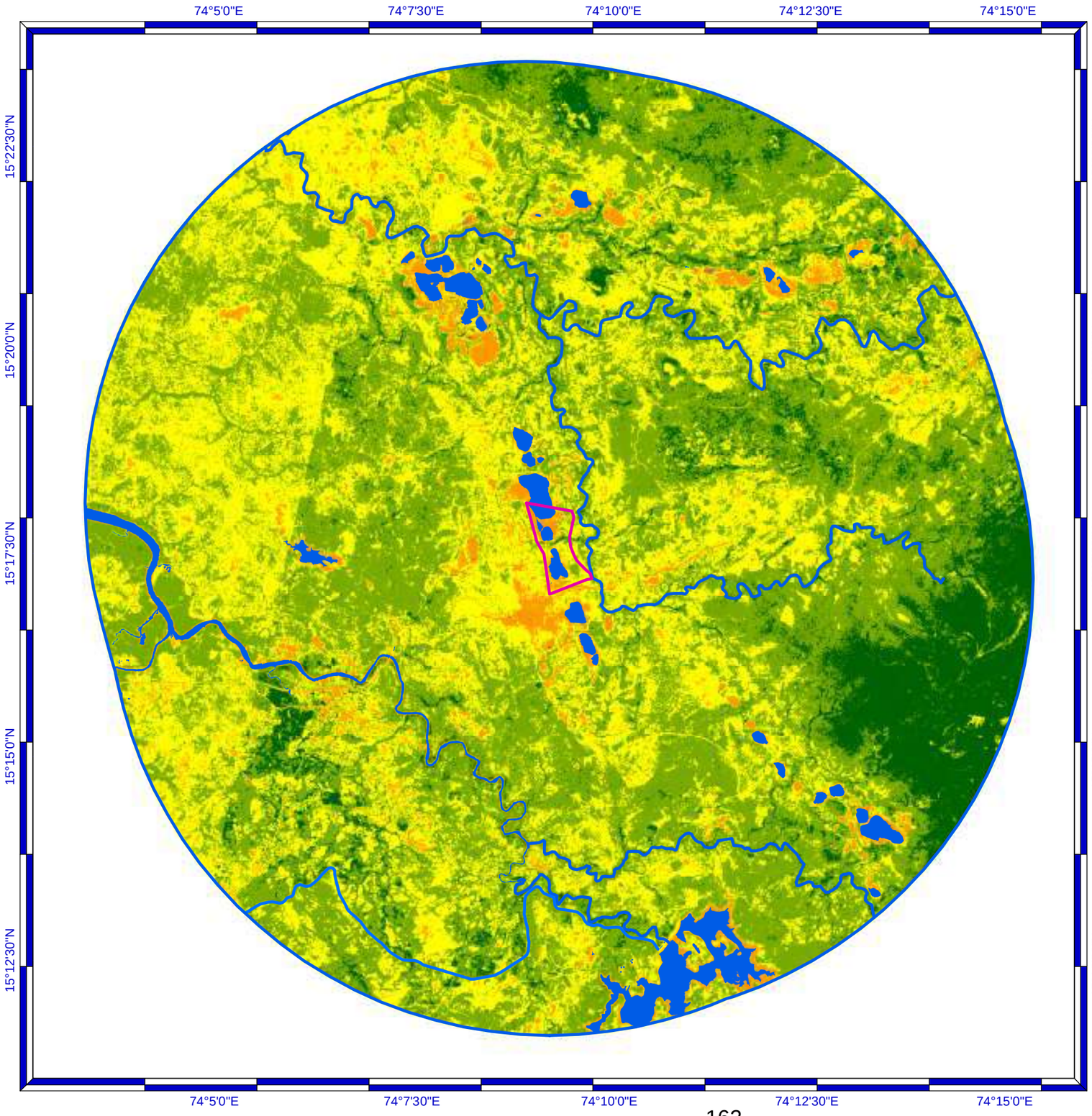
AREA - 152.5073 Ha.

VILLAGE - SANTONA TALUKA - SANGUEM

PURPOSE OF THE PLAN: PLAN SHOWING SOIL CONSERVATION MEASURES

DATE	SCALE	
	1 : 2000	The Plan is prepared based on the Geo-referenced Cadastral DGPS Plan authenticated by the State Government and is correct to the best of our knowledge

Normalized Difference Vegetation Index(NDVI)





Scale 1:50,000

0 2.5 5 Km

Legend

- Mineral Block
- 10 km bufferzone
- 0.01 - 0.17
- 0.18 - 0.38
- 0.39 - 0.58
- 0.59 - 0.79
- Water bodies/Pit water /Canal

Block IV – Kalay Mineral Block

Located at Santona Village, Sanguem taluka,
South Goa District, Goa

Fomento Resources Private Ltd.,

Title	NDVI
Scale	1:50,000
Data Used	IRS-R2, Mx
Resolution	5m
Date of Pass	01.04.2023 & 08.03.2023
Map Prepared By	Mineral Engineering Services 25/XXV Club Road, Ballari -583103

By e-mail

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES
OFFICE OF THE REGIONAL CONTROLLER OF MINES, GOA

No. MCDR-MPC0FE/6/2024-GOA-IBM_RO_GOA Dt : 23/08/2024

Shri/M/s. Fomento Resources Private Limited ,
102, 1st floor, Kamat Metropolis-I, Behind Caculo Mall, St. Inez, Panaji Tiswadi

BLOCK IV KALAY MINERAL BLOCK (PB63)

Sub : Approval of Modifications in Approved Mining Plan in respect of your BLOCK IV – KALAY MINERAL BLOCK over an area of 152.5073 Ha. situated in Santona Village, Sanguem Taluka, South Goa District of Goa State submitted under Rule 16(1) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016.

Ref : (i) Online submission/receipt of draft Modifications in Approved Mining Plan in respect of your aforesaid Block in the MPAS portal on 17.07.2024.

(ii) This office scrutiny comments on the examination of draft Modifications in Approved Mining Plan in respect of your aforesaid Block sent through the MPAS Portal on 20.08.2024.

(iii) Online submission/receipt of modified Modifications in Approved Mining Plan in respect of your aforesaid Block in the MPAS portal on 21.08.2024.

Sirs,

In exercise of the powers conferred by clause (b) of sub-section (2) of section 5 of the Mines & Minerals (Development & Regulation) Act, 1957 read with Government of India Order No. S.O. 1857(E) dated 18.05.2016; and in exercise of the powers conferred under sub-rule (3) of Rule 16 of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules, 2016, I hereby **approve** the Modifications in Approved Mining Plan with Progressive Mine Closure Plan in respect of your Block No. IV – Kalay Mineral Block over an extent of 152.5073 Ha. situated in Santona Village, Sanguem Taluka, South Goa District of Goa State submitted under Rule 16(1) of Minerals (Other than Atomic and Hydro Carbons Energy Minerals) Concession Rules 2016. This approval is subject to the following conditions: -

1. All conditions already levied in the earlier letter of approval of the Mining Plan approved vide this office Letter No. MCDR-MPC0FE/2/2023-GOA-IBM_RO_GOA dated 30.06.2023 remains unchanged.
2. This modification of the Approved Mining Plan document is approved in view of changes in land use pattern in respect of Survey Nos. 27(P), 28(P), 26/1 (P) & 43/1(P) of Santona Village, Sanguem Taluka which have been identified as 'Prospective Private Forest' and 'Unclassified Forest' by the State Govt. of Goa measuring to the total extent of 21.133 Ha.
3. The applicant shall obtain the necessary Forest Clearance and other approvals from the concerned Component Authorities before the commencement of mining operations.

Yours faithfully,

(Naresh Kumar Katariya)

Regional Controller of Mines

Indian Bureau of Mines, Goa

Copy forwarded for kind information to: -

- The Controller of Mines (SZ), Indian Bureau of Mines, Bangalore.
- The Director, Directorate of Mines & Geology, Government of Goa, Institute of Menezes Braganza Building, Panaji – Goa, 403001.

Approved

- The Director, Directorate of Mines Safety, Goa Region, Agali, Fatorda – Goa, 403602.
- Mr. Amit Ashok Ghogale, H.No. 307, Near Govt. High School, New Vaddem, Vasco-da-Gama, Goa. 403802
- Ms. Roshel Fernandes, H. No. 323/85, Behind Releaf Pharmacy, Fatorda, Margao Goa – 403723.

--sd--

(Naresh Kumar Katariya)

Regional Controller of Mines

Indian Bureau of Mines, Goa

Approved

FOMENTO RESOURCES

Annexure-10

FOMENTO RESOURCES PRIVATE LIMITED

Block IV - Kalay Mineral Block

Health Safety and Environmental Policy

The management of Fomento Resources Private Limited, having its registered office at 102, 1st floor, Kamat Metropolis-1, behind Caculo Mall, St. Inez, Panaji, North Goa, 403001, are committed to implement, maintain and continually improve Health, Safety and Environment of employees and stakes-holders by adopting best practices in all activities and processes at 'Block IV – Kalay Mineral Block', located at Village Santona of Sanguem Taluka, District South Goa, Goa.

The health and safety of our employees and stakeholders are given top priority. We pride ourselves in achieving zero accidents and injuries from the emphasis of instructing safe work practices in all areas of the business.

We are committed to:

- Promote wellness by creating injury free and healthy work environment by eliminating occupational hazards and risks.
- Provide adequate resources, develop competency of our employees and workers through training and motivate them through consultation and participation in the effective implementation of our Health, Safety and Environment Policy.
- Protect the environment and prevent environmental pollution by implementing eco-efficient processes like afforestation, adoption of improved technology and optimum conservation of the natural resources.
- Comply with all the applicable statutory and other compliances by implementing the following SOPs:
    - Disseminate responsibilities to relevant Head of departments (HODs) and its employees, to ensure such compliances with legal requirements. Review the compliance status by the management reported by the HOD.
    - Devise an action plan to meet the compliance in a time bound manner, if any non-compliance is reported.
    - Report non-compliance with senior management for appraisal and review.
    - Review the status of non-compliance by the Senior Management with the HODs. Environmental Management Cell and legal department.
    - Formulate procedures to prevent such non-compliances by Senior Management in discussion with HODs, EM and legal department.

For and on behalf of
FOMENTO RESOURCES PRIVATE LIMITED

FOMENTO RESOURCES PVT. LTD. FRPL GOA

Abhijit Rane
Company Secretary
Mem No: A34345

Date: 26/11/2025
Place: Panaji, Goa

FOMENTO RESOURCES

CERTIFIED TRUE COPY OF THE RESOLUTIONS PASSED AT THE MEETING OF THE BOARD OF DIRECTORS OF M/S. FOMENTO RESOURCES PRIVATE LIMITED HELD ON 21ST NOVEMBER 2025 AT DIYA ENCLAVE, NEXT TO KRISHI BHAVAN, MIRAMAR, PANAJI – GOA 403001

The Chairman briefly solicited the Board to contemplate on the issue that a healthy and sustainable environment is important to employees and stakes-holders in all activities and processes at 'Block IV – Kalay Mineral Block', located at Village Santona of Sanguem Taluka, District South Goa, Goa. The Chairman informed that in order to be consistent with the environmental commitment, the Company is implementing a Health Safety and Environmental Policy based on the principles governing environmental management and compliance.

The Board after due deliberation on the matter decided to approve the adoption of the Health Safety and Environmental Policy in its present form as tabled before the Board for their perusal. Thereafter the Board passed the following resolution:

"RESOLVED THAT the Board hereby accords its consent for adoption of the Health Safety and Environmental Policy, draft whereof is tabled before the Board and initialled by the Chairman for identification, to govern the Board members, officers and employees in all activities in connection with the activities and processes at 'Block IV – Kalay Mineral Block' and the said Policy be communicated to all employees and stakes-holders of the Company."

"RESOLVED FURTHER THAT any Director of the Company be and are hereby authorised to do all such acts, deeds and things as may be deemed necessary, expedient, appropriate or advisable to implement this resolution and any such prior actions are hereby ratified."

"RESOLVED FURTHER THAT a copy of the foregoing resolution duly certified by any director or the secretary of the Company be provided to any statutory/governmental quasi-governmental authority as may be required."

For and on behalf of
FOMENTO RESOURCES PRIVATE LIMITED

FOMENTO RESOURCES PVT. LTD. FRPL GOA

Abhijit Rane
Company Secretary
Mem No: A34345

Date: 26/11/2025
Place: Panaji, Goa

Annexure-11

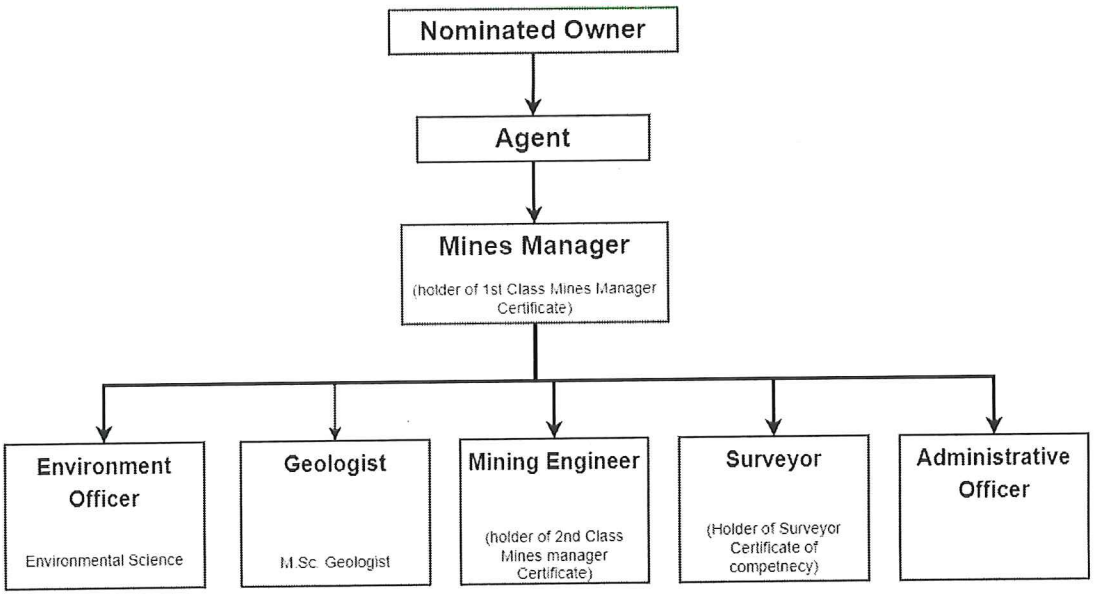
ENVIRONMENTAL MANAGEMENT CELL

Project Title:

Block IV-Kalay Mineral Block located at village Santona, Taluka Sanguem, District South Goa, Goa, having an area of 152.5073 Ha.

The Environmental Management Cell (EMC) shall be headed by Mines Manager who will report to the Agent of the Unit and also have direct access to Head of Organization i.e. Nominated owner.

Environmental Management Cell



A mechanism for reporting on compliance of the Environmental and other related aspects has been formulated. As per guidelines of MoEFCC, New Delhi, the status of environment compliance will be uploaded on the company website regularly. Periodic reviewing and performance measurement will also be taken up to look for improvement areas. The Environment Management Plan (EMP) which includes works like storm water management (drainages, settling ponds, trenches, desilting etc.), dump stabilization (inward slope to dump surface, laying of geotextiles wherever feasible, grass seeds, etc.), plantation, etc. will be planned jointly by a team comprising of mines manager, surveyor, geologist and environment officer.

FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis - I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001.
Tel : +91 832 2441000 Email : fomento@fomento.com Website : www.fomento.com
CIN-U13209GA2010PTC006440

FOMENTO RESOURCES PVT. LTD. FRPL GOA

The team will meet frequently to assess the progress of EMP so that the storm water management and dump stabilization jobs are completed well before the onset of monsoon and plantation is carried out during monsoon. The status will be reviewed by senior management on a weekly basis.

For successful implementation of the environmental management plan, assistance from other agencies/institutions may be sought whenever necessary for regulatory requirements and technical support. The coordinating agencies, which may be involved in specific environmental and project-related activities, are given below: -

- Interaction with State Pollution Control Board for legal compliance, new updates in environmental law, awareness, etc.
- Interaction with State Agriculture and Forest Department for engagement w.r.t plantation.
- Interaction with consultants, and reputed institutes for various projects related to mine reclamation, water positivity study, and projects on carbon footprint.

The Environment Management Cell will also coordinate to carry out environment monitoring as stipulated by the authorities. The monitoring will be undertaken by an Environmental Laboratory recognized by MoEF&CC. The monitoring data will be regularly submitted to the authorities like GSPCB, regional office of MoEF&CC.

Date: 15/05/2024

Place: Panaji, Goa



Sandeep Morajkar

(Authorised Representative)

ACTION PLAN FOR IMPLEMENTATION OF ENVIRONMENTAL MANAGEMENT PLAN

Project Title:
Block IV – Kalay Mineral Block

Project Proponent:
Fomento Resources Private Limited

Project Location:
Village Santona of Sanguem Taluka, South Goa, State Goa.

---

1. Introduction

The objective of the Environmental Management Plan (EMP) is to identify administrative aspects to ensure that mitigation measures are implemented and their effectiveness is monitored. The EMP focuses on direct impacts, which are identified as having the potential to cause significant impacts on the environment and identifies the following objectives:

- Specific measures that will be taken to prevent, reduce or manage the environmental impacts during operation; and
- To identify the level of environmental performance that will be expected during the operation.

Project Proponent will be committed towards comprehensive Environment Management Plan for environmental protection and conservation for the proposed project. Based on the evaluation of impacts and baseline conditions, an Environmental Management Plan (EMP) was delineated to mitigate the adverse impacts on environment of the area.

Implementation of EMP includes selection of monitoring mechanisms, assignment of responsibilities to implement the mitigation measures and setting of timelines, during construction and operational phase of the project.

2. Objectives

- Selection of monitoring mechanisms to be implemented during the construction and operational phases of the project.
- Implementation of mitigation measures towards probable environmental impacts.
- Assign clear responsibility to personnel.

- Monitor the effectiveness of the implemented EMP.
- Ensure compliance to stipulated conditions with respect to environmental conditions.

3. Key Environmental Conditions & Mitigation Measures

A. During Construction Phase

The Block IV – Kalay Mineral Block was originally granted as Mining Lease T.C. No. 40/51 & 12/52 to the former lessee, M/s N. S. Narvencar. The mine was in operation from the late 1950s until 2018. In February 2018, the Hon'ble Supreme Court of India, through its judgment dated 07/02/2018, cancelled all mining leases in the State of Goa and directed the Government of Goa to issue fresh mining leases. In response, the Government of Goa issued a Notice Inviting Tender (NIT) on 30th September 2022, inviting bids for the grant of mining leases for Four identified iron ore mineral blocks. Following the auction process, Fomento Resources Private Limited (FRPL) was declared the preferred bidder by the Government of Goa, through the Directorate of Mines & Geology, and was issued a Letter of Intent (LOI) on 13th January 2023 read with letter dated 13th March 2023 for the grant of the mining lease for the Block IV – Kalay Mineral Block.

Since the mine was in operation prior to 2018, much of the mining lease area has already been developed. The mine benches, haul roads, and boundary pillars are already in place, which significantly reduced the need for preparatory work. Therefore, there was minimal requirement for additional groundwork or infrastructure development.

B. During Operational Phase

The operational phase involves Iron Ore extraction activity (Mining activity) and all other ancillary activities involved in the mining activity. It is vital to implement EMP during the Operational Phase for maintaining a good environmental health on a long-term basis. The following activities will be implemented during the operational phase in compliance to the conditions stipulated in the approvals/permissions granted to the project.

Environmental Quality Monitoring and Reporting:

The following Environmental Quality Monitoring will be carried out and the report will be submitted on a timely basis as prescribed in Approvals/ permissions granted.

- **Air Quality Monitoring**: Regular monitoring of dust emissions in the form of particulate matter (PM10 & PM2.5), and other gaseous pollutants, will be carried out to ensure compliance with air quality standards.

- **Water Quality Monitoring**: Surface and groundwater monitoring will be carried out to assess the quality of nearby water sources, checking for contamination due to mining operations (e.g., soil erosion during monsoon, surface water runoff, sedimentation).

- **Noise and Vibration Monitoring**: Monitoring of noise levels to ensure that they are within permissible limits, particularly in sensitive areas (e.g., residential areas, wildlife habitats).

Solid Waste Management:

- Proper disposal of overburden/waste at earmarked area with proper terracing and slopes of the Dump as per Approved Mining Plan.
- Implementation of all protective measures.

Water Management:

- **Water Conservation**: Harvesting of rainwater in the mining pit, settling ponds and its use for dust separation during mining operation, use in workshop and wheel wash system and its use for greenbelt development. Implementing water recycling systems wherever possible to reduce demand on local water resources.
- **Erosion Control**: Measures to control surface water runoff, erosion and sedimentation, especially during monsoon. Use of silt traps, sedimentation ponds, and proper land grading along with plantation on slopes.
- **Water Treatment**: Treatment of water to ensure it meets environmental standards before its discharge from the mining lease.

Land Rehabilitation and Reclamation:

- **Progressive Reclamation**: Begin reclamation efforts during mining operations, including re-vegetation of disturbed areas, re-contouring of land and stabilizing slopes.

- **Post-Mining Land Use Plans**: Development of a post-mining land use plan, including strategies for returning the land to productive use (e.g., agriculture, forestry, or wildlife habitat).

Community Engagement and Social Responsibility:

- **Stakeholder Consultation**: Regular engagement with local communities, indigenous groups, and other stakeholders to address concerns related to mining operations.

- **Employment and Local Benefits**: Ensuring that the local community benefits from the operation, through employment, training, and infrastructure development.
- **Health and Safety**: Adherence to strict health and safety protocols for workers, including regular training, provision of protective equipment, and measures to prevent accidents.

Pollution Prevention and Mitigation:

- **Dust Control**: Implementation of dust control measures, such as water spraying, use of dust suppressants, and covering stockpiles so as to prevent dust from getting airborne and contaminating air in the surrounding environment.
- **Spill Response Plans**: Development and implementation of spill response and cleanup procedures for hazardous wastes (Category 5.1 & 5.2), spillage of dust on road during transport.

4. Responsibility Matrix

Sr. No.	Task/Condition	Responsibility During Operational Phase	Supervision
1	Environmental Quality Monitoring • Ambient air quality monitoring • Fugitive dust emission monitoring • Surface water quality monitoring • Groundwater quality monitoring • Noise levels monitoring, • DG set stack and noise level monitoring)	Environmental Officer through NABL Accredited Agency	Environment Management Cell (EMC) of Project Proponent
2	Implementation of air and water pollution control measures, including erosion control measures.	Environmental Officer, Geologist, Surveyor & Mining Engineer	
3	Noise Pollution control measures	Environmental Officer	
4	Solid Waste Management	Geologist, Surveyor & Mining Engineer	
5	Hazardous Waste Management 1. Used Oil (Spent Oil) (Category 5.1)	1. Collection and storage – Environmental Officer	

	2. Waste containing residues of used oil (Category 5.2)	(through Mechanical & Stores dept.) 2. Disposal – • Authorised Recycler registered with Goa State Pollution Control Board.	
6	Plantation	Mining Engineer, Geologist, Surveyor, Environmental Officer.	
7	Hazardous Waste Management 1. Used Oil (Spent Oil) (Category 5.1) 2. Waste containing residues of used oil (Category 5.2)	1. Collection and storage – Environmental Officer (through Mechanical & Stores dept.) 2. Disposal – • Authorised Recycler registered with Goa State Pollution Control Board.	
8	Soil/Vegetation Conservation	Environmental Officer & Mining Engineer	
9	Personal Protective Equipment	Mining Engineer	
10	Maintenance of fire protection systems	Mining Engineer	
11	Environment awareness & training	Environmental Officer, Mining Engineer, Mines Manager & Administrative Officer	
12	Health	Mining Engineer & Administrative Officer	
13	Environmental Compliance	Mines Manager, Environmental Officer	

FOMENTO RESOURCES

Date: 25/11/2025

To,
Ministry of Environment, Forest and Climate Change,
Regional Office (Southern Zone), Kendriya Sadan,
IVth Floor, E& F Wings, 17th Main Road, IInd Block,
Koramangala, Bangalore - 560 034.

Sub: Compliance to condition no. 15.6 & 17.1 of the Environmental Clearance bearing file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025 in respect of Block IV – Kalay Mineral Block located at Village Santona, Taluka Sanguem, District South Goa – Goa.

Ref: Environmental Clearance granted to Block IV – Kalay Mineral Block located at Village Santona, Taluka Sanguem, District South Goa – Goa., bearing file no. IA-J-11015/11/2023-IA-II(NCM) dated 22/08/2025.

Sir,

In reference to the above-mentioned subject and in compliance to condition no. 15.6 & 17.1 of the Environmental Clearance granted to our unit Block IV - Kalay Mineral Block, we are submitting herewith the time-bound Action Plan for undertaking the activities committed during public consultation by the Project Proponent and as discussed by the EAC in terms of the provisions of the MoEF&CC Office Memorandum No. 22-65/2017-IA.III dated 30 September, 2020, enclosed herewith as **Annexure-1.**

Please note, we are in the process of obtaining statutory permissions and signing of Mining Lease Deed with the State Government. The mining operations will commence upon execution and registration of Mining Lease Deed.

Thanking you,
Yours faithfully.
For Fomento Resources Private Limited

(Sandeep Morajkar)
Authorized Representative
Encl: As mentioned above

FOMENTO RESOURCES PRIVATE LIMITED
102, 1st Floor, Kamat Metropolis - I, Behind Caculo Mall, St. Inez, Panaji, North Goa, 403001.
Tel : +91 832 2441000 Email : fomento@fomento.com Website : www.fomento.com
CIN-U13209GA2010PTC006440

Annexure-1

Block IV - Kalay Mineral block

Proposed Action Plan as per issues raised during Public Hearing

S. No.	Concerns raised during the Public Hearing	Physical Activity to be Done	Beneficiaries	Areas/Locality	Action Plan Budget (Rs. In Lakh)		
					1st Year of operation	2nd Year of operation	3rd Year of operation
1	**Expenditure towards Social Development**						
	Support for Education	Transport facilities to the students (2 jeeps)	20 students	Ambeaudoc, Devnamol, Periudhoc	10.00	10.00	10.00
		Tuition Classes for students	25 students	Ambeudoc, Periudoc			
		Providing water filters for schools	2 schools	Ambeudoc, Periudoc			
	Health Care	Provision of dispensary	80 villagers	Ambeaudoc, Cormonem, Devnamol, Periudhoc	8.0	8.0	8.0
		Providing medical facilities such as ECG machine (2 nos), refrigerator (2 nos) for storing medicines, water purifiers (2 nos)	80 villagers	Ambeudoc, Periudoc			
	Water Resources & Sanitation	Providing drinking water to villagers through water tanker	40 Villagers	Ambeudoc, Devnamol, Periudoc, Guddemol, Cormonem, Bandoli	8.0	8.0	8.0
		Conducting awareness programmes in schools on single use plastic ban in surrounding Villages	100 Students				
	Support for Agriculture/ Horticulture /Plantation	Distribution of Saplings	40 Villagers	Ambeudoc, Devnamol, Periudoc	2.0	2.0	2.0
		Distribution of Saplings in schools	3 Schools				

	Assistance to cultural/ religious activities	Support during annual puja, maintenance	10 nos	Ambeudoc, Devnamol, Periudoc, Guddemol, Cormonem, Bandoli	2.0	2.0	2.0
	Assistance to sports and cultural clubs	Support for cultural functions	8 to 10 Cultural clubs	Ambeudoc, Devnamol, Periudoc, Guddemol, Sanvordem, Capxem	4.0	4.0	4.0
Total					**33.60**	**33.60**	**33.60**

Note: Nature of the activities & Village can be based on the outcome of need base analysis during the execution phase in coordination with local Gram Panchayat within the overall budget proposed here for Socio- Economic Development Plan.