



सत्यमेव जयते

**File No: 10926**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**(Issued by the State Environment Impact Assessment**  
**Authority(SEIAA), TAMIL NADU)**

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Dated 12/07/2024



To,

Subramanian Shanmugam  
Subramanian Shanmugam  
No,69, Subramanian, Ganapathy Nagar, Thiruvanaikovil, Trichy- 620005, Thiruvanaokovil,  
TIRUCHIRAPPALLI, TAMIL NADU, 620005  
krpsubramanian@gmail.com

**Subject:** Grant of Terms of Reference along with Public Hearing under the provision of the EIA Notification 2006-regarding.

**Sir/Madam,**

This is in reference to your application for Grant of Terms of Reference with Public Hearing under the provision of the EIA Notification 2006-regarding in respect of project Limekankar Deposit Quarry Project Belongs to S.Subramanian, Extent: 3.54.5ha S.F.Nos.189/2A, 2B, 190/1A, 1B, 2, 4 & 5 in Keelapalur Village and S.F.No.31/1 in Karuppur Senapathy Village, Ariyalur Taluk & District. submitted to SEIAA -TN vide proposal number SIA/TN/MIN/474122/2024 dated 19/06/2024.

2. The particulars of the proposal are as below :

<b>(i) TOR Identification No.</b>	TO24B0108TN5928344N
<b>(ii) File No.</b>	10926
<b>(iii) Clearance Type</b>	TOR
<b>(iv) Category</b>	B1
<b>(v) Project/Activity Included Schedule No.</b>	1(a) Mining of minerals Limekankar Deposit Quarry Project Belongs to S.Subramanian, Extent: 3.54.5ha S.F.Nos.189/2A, 2B, 190/1A, 1B, 2, 4 & 5 in Keelapalur Village and S.F.No.31/1 in Karuppur Senapathy Village, Ariyalur Taluk & District.
<b>(vii) Name of Project</b>	Subramanian Shanmugam
<b>(viii) Name of Company/Organization</b>	Subramanian Shanmugam
<b>(ix) Location of Project (District, State)</b>	Ariyalur, TAMIL NADU
<b>(x) Issuing Authority</b>	SEIAA
<b>(xii) Applicability of General Conditions</b>	no
<b>(xiii) Applicability of Specific Conditions</b>	no

3. In view of the particulars given in the Para 1 above, the project proposal interalia including Form-1(Part A and B) were submitted to the SEIAA-TN for an appraisal by the Appraisal Committee (SEAC) in the SEIAA under the provision of EIA notification 2006 and its subsequent amendments.
4. The above-mentioned proposal has been considered by State Environment Impact Assessment Authority (SEIAA) in the meeting held on 09/07/2024. The minutes of the meeting and all the Application and documents submitted [(viz. Form-1 Part A, Part B, Part C EIA, EMP)] are available on PARIVESH portal which can be accessed by scanning the QR Code above.
5. The State Expert Appraisal Committee (SEAC), based on the information & clarifications provided by the project proponent and after detailed deliberations recommended the proposal for grant of Terms of Reference along with Public Hearing under the provision of EIA Notification, 2006 and as amended thereof subject to the stipulation of specific and general conditions as detailed in Annexure (2).
6. The SEIAA has examined the proposal in accordance with the Environment Impact Assessment (EIA) Notification, 2006 & further amendments thereto and after accepting the recommendations of the Appraisal Committee hereby decided to grant Terms of Reference with Public Hearing for instant proposal of M/s. Subramanian Shanmugam under the provisions of EIA Notification, 2006 and as amended thereof.
7. The Ministry/SEIAA-TN reserves the right to stipulate additional conditions, if found necessary.
8. The Terms of Reference to the aforementioned project is under provisions of EIA Notification, 2006. 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.
9. This issues with the approval of the Competent Authority.
10. The TORs with public hearing prescribed shall be valid for a period of three years from the date of issue, for submission of the EIA/EMP report as per OMNo.J-11013/41/2006-IA-II(I)(part) dated 29th August, 2017.

#### **Copy To**

1. The Secretary, Ministry of Mines, Government of India, Shastri Bhawan, New Delhi.
2. The Additional Chief Secretary to Government, Environment and Forests Department, Tamil Nadu.
3. The Additional Chief Secretary to Government, Natural Resources Department, Tamil Nadu.
4. The Additional Principal Chief Conservator of Forests, Regional Office (SZ), 34, HEPC Building, 1<sup>st</sup>& 2<sup>nd</sup> Floor, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Chairman, Central Pollution Control Board, PariveshBhawan, CBD-Cum-Office Complex, East Arjun Nagar, New Delhi-110 032.
6. The Chair Person, TNPC Board,76, Mount Salai,Guindy, Chennai-32
7. The District Collector, Ariyalur District
8. The Commissioner of Geology and Mines, Guindy, Chennai-32
9. Assistant Director, Department of Geology & Mining, Ariyalur District
10. EI Division, Ministry of Environment & Forests, Paryavaran Bhawan, New Delhi.
11. File Copy

#### **Annexure 1**

#### **Specific Terms of Reference for (Mining Of Minerals)**

#### **1. Seiaa Specific Conditions:**

S. No	Terms of Reference
1.1	<p>After detailed discussions, the Authority accepts the recommendation of SEAC and decided to grant Terms of Reference with Public Hearing for the production quantity of 69,449 Ts of ROM &amp; 69,449 Ts of Limekankar @100% Recovery; the annual peak production is 37,908 Ts of ROM &amp; 37,908 Ts of Limekankar @ 100% Recovery with the depth of mining upto 2.0m subject to the following TORs, specific conditions as recommended by SEAC in addition to the standard terms of reference for EIA study and details issued by the MOEF &amp; CC and with the specific and standard conditions.</p> <ol style="list-style-type: none"> <li>1. The detailed studies on the <b>Loss of Vegetation, Loss of Biodiversity</b> shall be carried out and the action plan to prevent the same shall be included in the EIA report.</li> <li>2. The detailed studies on the <b>Impact on water bodies and human health</b> shall be carried out and the action plan to prevent the same shall be included in the EIA report.</li> <li>3. The PP shall carry out the scientific studies to assess the <b>hydrogeological condition</b> of the quarry by involving any one of the reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report.</li> <li>4. The PP shall carry out the scientific studies with prior permission from the DMS/Chennai Region, to design the <b>controlled blast parameters</b> for reducing the blast-induced ground/air-vibrations and eliminating the fly rock from the blasting operations carried out in the quarry, by involving anyone of these reputed Research and Academic Institution. A copy of such scientific study report shall be included in the EIA report.</li> <li>5. The PP shall carry out the scientific studies to assess the slope stability of the working benches and existing quarry wall by involving any one of the reputed Research and Academic Institutions. A copy of such scientific study report shall be included in the EIA report.</li> </ol>

## 2. Seac Conditions - Site Specific

S. No	Terms of Reference
2.1	<ol style="list-style-type: none"> <li>1. Considering that there is an educational institutions nearby, the PP shall furnish the mitigation measures proposed for the anticipated impacts due to the mining activity with special reference to air, water and land pollutions.</li> <li>2. <b>A Cluster Management Committee (CMC) shall be constituted including all the mines in the cluster as Committee Members for the effective management of the mining operation in the cluster through systematic &amp; scientific approach with appointment of statutory personnel, appropriate environmental monitoring, good maintenance of haul roads and village/panchayat roads, authorized blasting operation etc. The PP shall submit the following details in the form of an Affidavit during the EIA appraisal:</b> <ol style="list-style-type: none"> <li>(i) <b>Copy of the agreement forming CMC.</b></li> <li>(ii) <b>The Organisation chart of the Committee with defining the role of the members</b></li> <li>(iii) <b>The ‘Standard Operating Procedures’ (SoP) executing the planned activities.</b></li> </ol> </li> <li>3. As accepted by the Project Proponent, an amount of Rs. 5 lakhs shall be remitted to the Chief Wildlife warden, o/o PCCF, Chennai, for undertaking conservation measures in Karaivetti Bird Sanctuary before obtaining CTO from TNPCB.</li> <li>4. The PP shall furnish the AAQ report carried out during the operation of adjacent Limekankar quarries by the PP.</li> <li>5. The proponent shall furnish photographs of adequate fencing, garland drainage built with siltation tank &amp; green belt along the periphery including replantation of existing trees; maintaining the safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</li> <li>6. The Proponent shall carry out Bio diversity study as a part of EIA study and the same shall be</li> </ol>

S. No	Terms of Reference
	included in the Report.

### 3. Seac Standard Conditions

S. No	Terms of Reference
3.1	<p>1. In the case of existing/operating mines, a letter obtained from the concerned AD (Mines) shall be submitted and it shall include the following:</p> <ul style="list-style-type: none"> <li>(i) Original pit dimension</li> <li>(ii) Quantity achieved Vs EC Approved Quantity</li> <li>(iii) Balance Quantity as per Mineable Reserve calculated.</li> <li>(iv) Mined out Depth as on date Vs EC Permitted depth</li> <li>(v) Details of illegal/illicit mining</li> <li>(vi) Violation in the quarry during the past working.</li> <li>(vii) Quantity of material mined out outside the mine lease area</li> <li>(viii) Condition of Safety zone/benches</li> <li>(ix) Revised/Modified Mining Plan showing the benches of not exceeding 6 m height and ultimate depth of not exceeding 50m.</li> </ul> <p>2. Details of habitations around the proposed mining area and latest VAO certificate regarding the location of habitations within 300m radius from the periphery of the site.</p> <p>3. The proponent is requested to carry out a survey and enumerate on the structures located within the radius of (i) 50 m, (ii) 100 m, (iii) 200 m and (iv) 300 m (v) 500m shall be enumerated with details such as dwelling houses with number of occupants, whether it belongs to the owner (or) not, places of worship, industries, factories, sheds, etc with indicating the owner of the building, nature of construction, age of the building, number of residents, their profession and income, etc.</p> <p>4. The PP shall submit a detailed hydrological report indicating the impact of proposed quarrying operations on the waterbodies like lake, water tanks, etc are located within 1 km of the proposed quarry.</p> <p>5. The Proponent shall carry out Bio diversity study through reputed Institution and the same shall be included in EIA Report.</p> <p>6. The DFO letter stating that the proximity distance of Reserve Forests, Protected Areas, Sanctuaries, Tiger reserve etc., up to a radius of 25 km from the proposed site.</p> <p>7. In the case of proposed lease in an existing (or old) quarry where the benches are not formed (or) partially formed as per the approved Mining Plan, the Project Proponent (PP) shall the PP shall carry out the scientific studies to assess the slope stability of the working benches to be constructed and existing quarry wall, by involving any one of the reputed Research and Academic Institutions - CSIR-Central Institute of Mining &amp; Fuel Research / Dhanbad, NIRM/Bangalore, Division of Geotechnical Engineering-IIT-Madras, NIT-Dept of Mining Engg, Surathkal, and Anna University Chennai-CEG Campus. The PP shall submit a copy of the aforesaid report indicating the stability status of the quarry wall and possible mitigation measures during the time of appraisal for obtaining the EC.</p> <p>8. However, in case of the fresh/virgin quarries, the Proponent shall submit a conceptual 'Slope Stability Plan' for the proposed quarry during the appraisal while obtaining the EC, when the depth of the working is extended beyond 30 m below ground level.</p> <p>9. The PP shall furnish the affidavit stating that the blasting operation in the proposed quarry is carried out by the statutory competent person as per the MMR 1961 such as blaster, mining mate, mine foreman, II/I Class mines manager appointed by the proponent.</p> <p>10. The PP shall present a conceptual design for carrying out only controlled blasting operation involving line drilling and muffle blasting in the proposed quarry such that the blast-induced ground vibrations are controlled as well as no fly rock travel beyond 30 m from the blast site.</p> <p>11. The EIA Coordinators shall obtain and furnish the details of quarry/quarries operated by the</p>

S. No	Terms of Reference
	<p>proponent in the past, either in the same location or elsewhere in the State with video and photographic evidences.</p> <p>12. If the proponent has already carried out the mining activity in the proposed mining lease area after 15.01.2016, then the proponent shall furnish the following details from AD/DD, mines,</p> <p>13. What was the period of the operation and stoppage of the earlier mines with last work permit issued by the AD/DD mines?</p> <p>14. Quantity of minerals mined out.</p> <ul style="list-style-type: none"> <li>· Highest production achieved in any one year</li> <li>· Detail of approved depth of mining.</li> <li>· Actual depth of the mining achieved earlier.</li> <li>· Name of the person already mined in that leases area.</li> <li>· If EC and CTO already obtained, the copy of the same shall be submitted.</li> <li>· Whether the mining was carried out as per the approved mine plan (or EC if issued) with stipulated benches.</li> </ul> <p>15. All corner coordinates of the mine lease area, superimposed on a High-Resolution Imagery/Topo sheet, topographic sheet, geomorphology, lithology and geology of the mining lease area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).</p> <p>16. The PP shall carry out Drone video survey covering the cluster, green belt, fencing, etc.,</p> <p>17. The proponent shall furnish photographs of adequate fencing, green belt along the periphery including replantation of existing trees &amp; safety distance between the adjacent quarries &amp; water bodies nearby provided as per the approved mining plan.</p> <p>18. The Project Proponent shall provide the details of mineral reserves and mineable reserves, planned production capacity, proposed working methodology with justifications, the anticipated impacts of the mining operations on the surrounding environment, and the remedial measures for the same.</p> <p>19. The Project Proponent shall provide the Organization chart indicating the appointment of various statutory officials and other competent persons to be appointed as per the provisions of the Mines Act'1952 and the MMR, 1961 for carrying out the quarrying operations scientifically and systematically in order to ensure safety and to protect the environment.</p> <p>20. The Project Proponent shall conduct the hydro-geological study considering the contour map of the water table detailing the number of groundwater pumping &amp; open wells, and surface water bodies such as rivers, tanks, canals, ponds, etc. within 1 km (radius) along with the collected water level data for both monsoon and non-monsoon seasons from the PWD / TWAD so as to assess the impacts on the wells due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided.</p> <p>21. The proponent shall furnish the baseline data for the environmental and ecological parameters with regard to surface water/ground water quality, air quality, soil quality &amp; flora/fauna including traffic/vehicular movement study.</p> <p>22. The Proponent shall carry out the Cumulative impact study due to mining operations carried out in the quarry specifically with reference to the specific environment in terms of soil health, biodiversity, air pollution, water pollution, climate change and flood control &amp; health impacts. Accordingly, the Environment Management plan should be prepared keeping the concerned quarry and the surrounding habitations in the mind.</p> <p>23. Rain water harvesting management with recharging details along with water balance (both monsoon &amp; non-monsoon) be submitted.</p> <p>24. 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 should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.</p>

S. No	Terms of Reference
	<p>25. Details of the land for storage of Overburden/Waste Dumps (or) Rejects outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&amp;R issues, if any, should be provided.</p> <p>26. Proximity to Areas declared as 'Critically Polluted' (or) the Project areas which attracts the court restrictions for mining operations, should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the TNPCB (or) Dept. of Geology and Mining should be secured and furnished to the effect that the proposed mining activities could be considered.</p> <p>27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.</p> <p>28. Impact on local transport infrastructure due to the Project should be indicated.</p> <p>29. A tree survey study shall be carried out (nos., name of the species, age, diameter etc.,) both within the mining lease applied area &amp; 300m buffer zone and its management during mining activity.</p> <p>30. A detailed mine closure plan for the proposed project shall be included in EIA/EMP report which should be site-specific.</p> <p>31. As a part of the study of flora and fauna around the vicinity of the proposed site, the EIA coordinator shall strive to educate the local students on the importance of preserving local flora and fauna by involving them in the study, wherever possible.</p> <p>32. The purpose of Green belt around the project is to capture the fugitive emissions, carbon sequestration and to attenuate the noise generated, in addition to improving the aesthetics. A wide range of indigenous plant species should be planted as given in the appendix-I in consultation with the DFO, State Agriculture University. The plant species with dense/moderate canopy of native origin should be chosen. Species of small/medium/tall trees alternating with shrubs should be planted in a mixed manner.</p> <p>33. Taller/one year old Saplings raised in appropriate size of bags, preferably ecofriendly bags should be planted as per the advice of local forest authorities/botanist/Horticulturist with regard to site specific choices. The proponent shall earmark the greenbelt area with GPS coordinates all along the boundary of the project site with at least 3 meters wide and in between blocks in an organized manner</p> <p>34. A Disaster management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.</p> <p>35. A Risk Assessment and management Plan shall be prepared and included in the EIA/EMP Report for the complete life of the proposed quarry (or) till the end of the lease period.</p> <p>36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.</p> <p>37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.</p> <p>38. The Socio-economic studies should be carried out within a 5 km buffer zone from the mining activity. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.</p> <p>39. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.</p> <p>40. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.</p> <p>41. If any quarrying operations were carried out in the proposed quarrying site for which now the EC is sought, the Project Proponent shall furnish the detailed compliance to EC conditions given in the previous EC with the site photographs which shall duly be certified by MoEF&amp;CC, Regional</p>

S. No	Terms of Reference
	<p>Office, Chennai (or) the concerned DEE/TNPCB.</p> <p>42. The PP shall prepare the EMP for the entire life of mine and also furnish the sworn affidavit stating to abide the EMP for the entire life of mine.</p> <p>43. Concealing any factual information or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this Terms of Conditions besides attracting penal provisions in the Environment (Protection) Act, 1986.</p>

**4. Seiaa Standard Conditions:**

S. No	Terms of Reference
4.1	<p><b><u>Cluster Management Committee</u></b></p> <ol style="list-style-type: none"> <li>1. Cluster Management Committee shall be framed which must include all the proponents in the cluster as members including the existing as well as proposed quarry.</li> <li>2. The members must coordinate among themselves for the effective implementation of EMP as committed including Green Belt Development, Water sprinkling, tree plantation, blasting etc.,</li> <li>3. The List of members of the committee formed shall be submitted to AD/Mines before the execution of mining lease and the same shall be updated every year to the AD/Mines.</li> <li>4. Detailed Operational Plan must be submitted which must include the blasting frequency with respect to the nearby quarry situated in the cluster, the usage of haul roads by the individual quarry in the form of route map and network.</li> <li>5. The committee shall deliberate on risk &amp; emergency management plan, fire safety &amp; evacuation plan and sustainable development goals pertaining to the cluster in a holistic manner especially during natural calamities like intense rain and the mitigation measures considering the inundation of the cluster and evacuation plan.</li> <li>6. The Cluster Management Committee shall form Environmental Policy to practice sustainable mining in a scientific and systematic manner in accordance with the law. The role played by the committee in implementing the environmental policy devised shall be given in detail in the EIA Report.</li> <li>7. The committee shall furnish action plan regarding the restoration strategy with respect to the individual quarry falling under the cluster in a holistic manner.</li> <li>8. The committee shall deliberate on the health of the workers/staff involved in the mining as well as the health of the public in the vicinity.</li> </ol> <p><b><u>Agriculture &amp; Agro-Biodiversity</u></b></p> <ol style="list-style-type: none"> <li>9. Impact on surrounding agricultural fields around the proposed mining Area.</li> <li>10. Impact on soil flora &amp; vegetation around the project site.</li> <li>11. Details of type of vegetation including no. of trees &amp; shrubs within the proposed mining area and. If so, transplantation of such vegetation all along the boundary of the proposed mining area shall committed mentioned in EMP.</li> <li>12. The Environmental Impact Assessment should study the agro-biodiversity, agro-forestry, horticultural plantations, the natural ecosystem, the soil micro flora, fauna and soil seed banks and suggest measures to maintain the natural Ecosystem.</li> <li>13. Action should specifically suggest for sustainable management of the area and restoration of ecosystem for flow of goods and services.</li> <li>14. The project proponent shall study and furnish the impact of project on plantations in adjoining patta lands, Horticulture, Agriculture and livestock.</li> </ol> <p><b><u>Forests</u></b></p> <ol style="list-style-type: none"> <li>15. The project proponent shall detailed study on impact of mining on Reserve forests and free ranging wildlife.</li> <li>16. The Environmental Impact Assessment should study impact on forest, vegetation, endemic, vulnerable and endangered indigenous flora and fauna.</li> </ol>

S. No	Terms of Reference
	<p>17. The Environmental Impact Assessment should study impact on standing trees and the existing trees should be numbered and action suggested for protection.</p> <p>18. The Environmental Impact Assessment should study impact on protected areas, Reserve Forests, National Parks, Corridors and Wildlife pathways, near project site.</p> <p><b><u>Water Environment</u></b></p> <p>19. Hydro-geological study considering the contour map of the water table detailing the number of ground water pumping &amp; open wells, and surface water bodies such as rivers, tanks, canals, ponds etc. within 1 km (radius) so as to assess the impacts on the nearby waterbodies due to mining activity. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided, covering the entire mine lease period.</p> <p>20. Erosion Control measures.</p> <p>21. Detailed study shall be carried out in regard to impact of mining around the proposed mine lease area on the nearby Villages, Water-bodies/ Rivers, &amp; any ecological fragile areas.</p> <p>22. The project proponent shall study impact on fish habitats and the food WEB/ food chain in the water body and Reservoir.</p> <p>23. The project proponent shall study and furnish the details on potential fragmentation impact on natural environment, by the activities.</p> <p>24. The project proponent shall study and furnish the impact on aquatic plants and animals in water bodies and possible scars on the landscape, damages to nearby caves, heritage site, and archaeological sites possible land form changes visual and aesthetic impacts.</p> <p>25. The Terms of Reference should specifically study impact on soil health, soil erosion, the soil physical, chemical components and microbial components.</p> <p>26. The Environmental Impact Assessment should study on wetlands, water bodies, rivers streams, lakes and farmer sites.</p> <p>27. The EIA shall include the impact of mining activity on the following:</p> <ol style="list-style-type: none"> <li>Hydrothermal/Geothermal effect due to destruction in the Environment.</li> <li>Bio-geochemical processes and its foot prints including environmental stress.</li> <li>Sediment geochemistry in the surface streams.</li> </ol> <p><b><u>Energy</u></b></p> <p><b><u>Climate Change</u></b></p> <p>29. The Environmental Impact Assessment shall study in detail the carbon emission and also suggest the measures to mitigate carbon emission including development of carbon sinks and temperature reduction including control of other emission and climate mitigation activities.</p> <p>30. The Environmental Impact Assessment should study impact on climate change, temperature rise, pollution and above soil &amp; below soil carbon stock, soil health and physical, chemical &amp; biological soil features.</p> <p>31. Impact of mining on pollution leading to GHGs emissions and the impact of the same on the local livelihood.</p> <p><b><u>Mine Closure Plan</u></b></p> <p><b><u>EMP</u></b></p> <p>33. Detailed Environment Management Plan along with adaptation, mitigation &amp; remedial strategies covering the entire mine lease period as per precise area communication order issued and the scope for achieving SDGs.</p> <p>34. The Environmental Impact Assessment should hold detailed study on EMP with budget for Green belt development and mine closure plan including disaster management plan.</p> <p><b><u>Risk Assessment</u></b></p> <p><b><u>Disaster Management Plan</u></b></p> <p><b><u>Others</u></b></p> <p>37. The project proponent shall furnish VAO certificate with reference to 300m radius regard to approved habitations, schools, Archaeological sites, Structures, railway lines, roads, water bodies such as streams, odai, vaari, canal, channel, river, lake pond, tank etc.</p>

S. No	Terms of Reference
	<p>38. As per the MoEF&amp; CC office memorandum F.No.22-65/2017-IA.III dated: 30.09.2020 and 20.10.2020 the proponent shall address the concerns raised during the public consultation and all the activities proposed shall be part of the Environment Management Plan.</p> <p>39. The project proponent shall study and furnish the possible pollution due to plastic and microplastic on the environment. The ecological risks and impacts of plastic &amp; microplastics on aquatic environment and fresh water systems due to activities, contemplated during mining may be investigated and reported.</p>

**Standard Terms of Reference for (Mining of minerals)**

1.

S. No	Terms of Reference
1.1	An EIA-EMP Report shall be prepared for peak capacity (.....MTPA)operation in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
1.2	An EIA-EMP Report would be prepared for peak capacity operation to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of mineral production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
1.3	Propoer KML file with pin drop and coordinate of mine at 500-1000 m interval be provided
1.4	A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries, mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given. The above details to be furnished in tabular form also
1.5	Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
1.6	A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
1.7	Catchment area with its drainage map of 25 km area within and outside the mine shall be provided with names, details of rivers/ riverlet system and its respective order. The map should clearly indicate drainage pattern of the catchment area with basin of major rivers. Diversion of drains/ river need eloboration in form of lengthe, quantity and quality of water to be diverted
1.8	(Details of mineral reserves, geological status of the study area and the seams to be worked,

S. No	Terms of Reference																																																
	ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.																																																
1.9	Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.																																																
1.10	Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.																																																
1.11	A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.																																																
1.12	<p>Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified. Area under Surface Rights</p> <table border="1" data-bbox="319 1232 1484 1523"> <thead> <tr> <th>S.N</th> <th>ML/Project Land use</th> <th>Area under Surface Rights(ha)</th> <th>Area Under Mining Rights(ha)</th> <th>Area under Both (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Agricultural land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>Forest Land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>Grazing Land</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>Settlements</td> <td></td> <td></td> <td></td> </tr> <tr> <td>5</td> <td>Others (specify)</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1" data-bbox="319 1568 1484 1881"> <thead> <tr> <th>S.N.</th> <th>Details</th> <th>Area (ha)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Buildings</td> <td></td> </tr> <tr> <td>2</td> <td>Infrastructure</td> <td></td> </tr> <tr> <td>3</td> <td>Roads</td> <td></td> </tr> <tr> <td>4</td> <td>Others (specify)</td> <td></td> </tr> <tr> <td></td> <td>Total</td> <td></td> </tr> </tbody> </table>	S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights(ha)	Area under Both (ha)	1	Agricultural land				2	Forest Land				3	Grazing Land				4	Settlements				5	Others (specify)				S.N.	Details	Area (ha)	1	Buildings		2	Infrastructure		3	Roads		4	Others (specify)			Total	
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1.13	Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna,																																																

S. No	Terms of Reference
	or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
1.14	One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SO <sub>x</sub> , NO <sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided. The detail of NABL/ MoEF&CC certification of the respective laboratory and NABET accreditation of the consultant to be provided.
1.15	Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
1.16	For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area. In case of expansion, the displayed data of CAAQMS and its comparison with the monitoring data to be provided
1.17	A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.
1.18	The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data should be provided in EIA/ EMP report also occupational status & economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
1.19	The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.
1.20	Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
1.21	Impact of proposed project/activity on hydrological regime of the area shall be assessed and report

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	be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted
1.22	Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
1.23	Study on land subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
1.24	Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
1.25	PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs
1.26	PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of mineral. The measures adopted to conserve energy or use of renewable sources shall be explored
1.27	PP to evaluate the green house emission gases from the mine operation and corresponding carbon absorption plan.
1.28	Site specific Impact assessment with its mitigation measures, Risk Assessment and Disaster Preparedness and Management Plan should be provided.
1.29	Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
1.30	Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
1.31	Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
1.32	The number and efficiency of mobile/static water jet, Fog cannon sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
1.33	Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area

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	and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
1.34	Adequate greenbelt nearby areas, mineral stock yard and transportation area of mineral shall be provided with details of species selected and survival rate Greenbelt development should be undertaken particularly around the transport route.
1.35	Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
1.36	Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
1.37	CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
1.38	Corporate Environment Responsibility:
1.39	a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
1.40	b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
1.41	c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
1.42	d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
1.43	e) Environment Management Cell and its responsibilities to be clearly spelled out in EIA/ EMP report
1.44	f) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
1.45	Status of any litigations/ court cases filed/pending on the project should be provided.
1.46	PP shall submit clarification from PCCF that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.
1.47	Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

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1.48	<p>Details on the Forest Clearance should be given as per the format given:</p> <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Total Project Area (ha)</td> <td style="width: 15%;">ML Forest land (ha)</td> <td style="width: 15%;">Total Forest land (ha)</td> <td style="width: 15%;">Date of FC</td> <td style="width: 15%;">Extent of Forest Land</td> <td style="width: 15%;">Balance area for which FC is obtained</td> <td style="width: 15%;">Status of appl For diversion of forest land</td> </tr> </table> <p>If more than one provide details of each FC</p>	Total Project Area (ha)	ML Forest land (ha)	Total Forest land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is obtained	Status of appl For diversion of forest land
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1.49	<p>In case of expansion of the proposal, the status of the work done as per mining plan and approved mine closure plan shall be detailed in EIA/ EMP report</p>							
1.50	<p>Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the time bound action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.</p>							
1.51	<p>PP shall carry out survey through drone highlighting the ground reality for atleast 10 minutes</p>							
1.52	<p>Detailed Chronology of the project starting from the first lease deed allotted/Block allotment/ Land acquired to its No. of renewals, CTO /CTE with details of no. renewals, previous EC(s) granted details and its compliance details, NOC details from various Govt bodies like Forest NOC(s), CGWA permissions, Power permissions, etc as per the requisites respectively to be furnished in tabular form.</p>							
1.53	<p>The first page of the EIA/ EMP report must mention the peak capacity production, area, detail of PP, Consultant (NABET accreditation) and Laboratory (NABL / MoEF &amp; CC certification)</p>							
1.54	<p>The compliances of ToR must be properly cited with respective chapter section and page no in tabular form and also mention sequence of the respective ToR complied within the EIA-EMP report in all the chapter,s section.</p>							

**In addition to the above, the following shall be furnished: -**

**The Executive summary of the EIA/EMP report in about 8-10 pages should be prepared incorporating the information on following points:**

1. Project name and location (Village, District, State, Industrial Estate (if applicable)).
2. Process description in brief, specifically indicating the gaseous emission, liquid effluent and solid and hazardous wastes.
3. Measures for mitigating the impact on the environment and mode of discharge or disposal.
4. Capital cost of the project, estimated time of completion.
5. The proponent shall furnish the contour map of the water table detailing the number of wells located around the site and impacts on the wells due to mining activity.
6. A detailed study of the lithology of the mining lease area shall be furnished.
7. Details of village map, "A" register and FMB sketch shall be furnished.
8. Detailed mining closure plan for the proposed project approved by the Geology of Mining department shall be submitted along with EIA report.
9. Obtain a letter /certificate from the Assistant Director of Geology and Mining standing that there is no other Minerals/resources like sand in the quarrying area within the approved depth of mining and below depth of mining and the same shall be furnished in the EIA report.
10. EIA report should strictly follow the Environmental Impact Assessment Guidance Manual for Mining of Minerals published February 2010.
11. Detail plan on rehabilitation and reclamation carried out for the stabilization and restoration of the mined areas.
12. The EIA study report shall include the surrounding mining activity, if any.
13. Modeling study for Air, Water and noise shall be carried out in this field and incremental increase in the above study shall be substantiated with mitigation measures.
14. A study on the geological resources available shall be carried out and reported.
15. A specific study on agriculture & livelihood shall be carried out and reported.
16. Impact of soil erosion, soil physical chemical and biological property changes may be assumed.
17. Site selected for the project - Nature of land - Agricultural (single/double crop), barren, Govt./ private land, status of is acquisition, nearby (in 2-3 km.) water body, population, with in 10km other industries, forest , eco-sensitive zones, accessibility, (note - in case of industrial estate this information may not be necessary)

18. Baseline environmental data - air quality, surface and ground water quality, soil characteristic, flora and fauna, socio-economic condition of the nearby population
19. Identification of hazards in handling, processing and storage of hazardous material and safety system provided to mitigate the risk.
20. Likely impact of the project on air, water, land, flora-fauna and nearby population
21. Emergency preparedness plan in case of natural or in plant emergencies
22. Issues raised during public hearing (if applicable) and response given
23. CER plan with proposed expenditure.
24. Occupational Health Measures
25. Post project monitoring plan
26. The project proponent shall carry out detailed hydro geological study through intuitions/NABET Accredited agencies.
27. A detailed report on the green belt development already undertaken is to be furnished and also submit the proposal for green belt activities.
28. The proponent shall propose the suitable control measure to control the fugitive emissions during the operations of the mines.
29. A specific study should include impact on flora & fauna, disturbance to migratory pattern of animals.
30. Reserve funds should be earmarked for proper closure plan.
31. A detailed plan on plastic waste management shall be furnished. Further, the proponent should strictly comply with, Tamil Nadu Government Order (Ms) No.84 Environment and forests (EC.2) Department dated 25.06.2018 regarding ban on one time use and throw away plastics irrespective of thickness with effect from 01.01.2019 under Environment (Protection) Act, 1986. In this connection, the project proponent has to furnish the action plan.

**Besides the above, the below mentioned general points should also be followed:-**

- a. A note confirming compliance of the TOR, with cross referencing of the relevant sections / pages of the EIA report should be provided.
- b. All documents may be properly referenced with index, page numbers and continuous page numbering.
- c. Where data are presented in the report especially in tables, the period in which the data were collected and the sources should be indicated.

- d. While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF & CC vide O.M. No. J-11013/41/2006-IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry should also be followed.
- e. The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India (QCI)/National Accreditation Board of Education and Training (NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other organization/Laboratories including their status of approvals etc. In this regard circular no F. No.J -11013/77/2004-IA-II(I) dated 2<sup>nd</sup> December, 2009, 18<sup>th</sup> March 2010, 28<sup>th</sup> May 2010, 28<sup>th</sup> June 2010, 31<sup>st</sup> December 2010 & 30<sup>th</sup> September 2011 posted on the Ministry's website <http://www.moef.nic.in/> may be referred.
- After preparing the EIA (as per the generic structure prescribed in Appendix-III of the EIA Notification, 2006) covering the above mentioned points, the proponent will take further necessary action for obtaining environmental clearance in accordance with the procedure prescribed under the EIA Notification, 2006.
  - The final EIA report shall be submitted to the SEIAA, Tamil Nadu for obtaining Environmental Clearance.

