

## GUIDELINES FOR IMPLEMENTATION OF ENVIRONMENTAL POLICY OF SCCL

In order to fulfil the objectives of Environmental Policy, the following guidelines have been framed in different facets of environmental management for bringing uniformity in planning, execution and monitoring systems thereby ensuring environmentally sustainable coal mining operations.

Sources / Activities	Recommended control measures
<b>A. Planning of New / Expansion Projects</b>	
1. Planning	<ul style="list-style-type: none"> <li>i. Due care shall be taken in addressing all the environmental issues while formulating a project proposal.</li> <li>ii. It shall be ensured at the planning stage itself that forest lands, high-yielding agricultural lands, habitations, water bodies shall be avoided for location of dump sites.</li> <li>iii. Conservation of ecologically sensitive areas, if any, located near the project area shall be given due consideration.</li> <li>iv. EIA/EMP shall be prepared with proper environmental safeguards along with sufficient fund provision.</li> </ul>
<b>B. Air Pollution Control</b>	
1. Drilling	<ul style="list-style-type: none"> <li>i. Wet drilling mechanism shall be adopted.</li> </ul>
2. Blasting	<ul style="list-style-type: none"> <li>i. Blasting in Opencast Mines shall be conducted during favourable weather conditions using NONELs with proper design of blasthole geometry &amp; optimum quantity of explosives.</li> <li>ii. Use of delay detonators shall be adopted in underground mines in order to reduce ground vibrations.</li> <li>iii. Blast site shall be wetted before and after blasting.</li> </ul>
3. HEMM	<ul style="list-style-type: none"> <li>i. Regular Maintenance of all Diesel operated HEMMs shall be done as per the manufacturer's schedule for effective control of exhaust emissions.</li> </ul>
4. Haul Roads	<ul style="list-style-type: none"> <li>i. All service roads shall be metalled and well maintained.</li> <li>ii. All haul roads and service roads shall be regularly sprayed with water.</li> <li>iii. Plantation shall be done alongside the haul and service roads.</li> </ul>
5. Over Burden	<ul style="list-style-type: none"> <li>i. Inoperative dumps shall be subjected to technical and biological reclamation.</li> <li>ii. Plantation shall be done over and around OB dumps to ensure stability of slopes and prevention of dust generation by wind action.</li> </ul>
6. Coal Handling	<ul style="list-style-type: none"> <li>i. Crusher house and belt conveyors shall be enclosed and mist spray arrangement installed at all receiving points, transfer points, Ground bunkers and loading points.</li> </ul>

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	ii. Plantation shall be done all around the Coal Handling Plant (CHP).
7. Coal Transport	i. Wherever feasible, transportation outside the ML area will be by rail / conveyor system ii. The width of transportation road shall be designed in such a way that no vehicle shall ply on the unpaved road. iii. Coal Transport trucks shall be optimally loaded and covered with tarpaulin for preventing spillage during transportation.
<b>C. Water Pollution Control</b>	
1. Surface	i. Garland drains shall be made around quarry and OB dumps to collect run off water and siltation points of sufficient size shall be provided for collection of silt. ii. OB dump run off to be desilted through settling tanks before discharge into natural streams. Contour drains to be constructed along the slopes of OB dumps. iii. Toe walls to be constructed around the OB dump with boulders collected from OB material. iv. A berm with dimensions of not less than two metres height and 2 metres width at the top shall be made in trapezium shape all along the edge of each deck to prevent erosion of dumps and gully formation. v. The terrace shall be kept free of obstructions (OB heaps), sloped in bye and maintained with uniform gradient for free flow of water in order to avoid accumulation of water leading to gully formation and dump slides. vi. The coal washery should adopt proven internationally accepted technology of continuous operating and with zero effluent discharge system.
2. Mine Water	i. Mine water shall be treated in filter beds for domestic consumption. Excess mine water shall be treated in settling ponds before discharging in to natural streams.
3. Workshop and CHP	i. Effluent coming out from workshops shall be treated in an Effluent Treatment Plant containing an oil / grease trap and sedimentation tank. The treated water is to be stored and reused in the workshop itself. ii. ETP shall be constructed for treating CHP effluents and adoption of closed water circuit in CHP shall be adopted thereby ensuring zero discharge.
4. Domestic Effluent	i. In isolated building or housing complexes septic tanks and soak pits to be provided. ii. In large townships, complete sewerage system including sewage treatment facilities shall be adopted. iii. Community and service building shall be provided with

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	adequate sewage treatment facilities.
5. Hazardous and Bio-medical wastes	<ul style="list-style-type: none"> <li>i. Hazardous wastes like used oil with barrels, waste oil with barrels, used transformer oil with barrels, scrapped batteries, iron scrap, copper cables, scrapped cap lamp accumulators, empty oil and grease drums shall be handled and disposed off in accordance with the procedure laid down in HWM Rules.</li> <li>ii. Used oil, spent oil, batteries and copper cables shall be disposed off to the recyclers having valid registration from CPCB/APPCB for recycling or recovery, whereas the empty oil and grease barrels shall be detoxified prior to their disposal to outside agencies.</li> <li>iii. Bio-medical wastes shall be handled and disposed off as per the latest guidelines issued by MoEF.</li> </ul>
<b>D. Noise Pollution Control</b>	
1. Drilling	<ul style="list-style-type: none"> <li>i. Controlled blasting methods with proper spacing, burden and stemming shall be adopted to get optimum results.</li> <li>ii. Blast holes should be judiciously charged to control noise and blast vibrations</li> </ul>
2. HEMM	<ul style="list-style-type: none"> <li>i. Providing of sound proof cabins for the workers deployed on machines producing higher levels of noise like dozers, shovels, dumpers, drills and feeder breakers etc.</li> <li>ii. The engine exhausts of HEMM to be fitted with mufflers.</li> <li>iii. HEMM to be properly maintained and operators to be provided with ear mufflers / ear plug.</li> <li>iv. Reducing the exposure time of workers to the higher noise levels shall be practiced.</li> </ul>
3. CHP	<ul style="list-style-type: none"> <li>i. Belt drive or roller drive systems shall be used instead of gear train system which results in considerable noise reduction.</li> </ul>
4. Exhaust Fan in UG mines	<ul style="list-style-type: none"> <li>i. The main mechanical ventilator shall be installed in acoustically designed enclosed chambers with evasee.</li> <li>ii. Thick green belt shall be developed around the fan house for attenuation of noise.</li> </ul>
<b>E. Energy / Water Conservation Measures</b>	
1. Electricity	<ul style="list-style-type: none"> <li>i. CFLs and energy efficient appliances shall be used at mines, allied units and colonies.</li> <li>ii. Efforts shall be made for utilization of renewal sources of energy like solar and wind power.</li> </ul>
2. Oil	<ul style="list-style-type: none"> <li>i. Periodical maintenance of vehicles including fine tuning of engines shall be done to improve their fuel efficiency.</li> <li>ii. Leakage and spillage of oils during transport and usage shall be avoided.</li> </ul>

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3. Water	<ul style="list-style-type: none"> <li>i. Wastage of water resulting from leakages through distribution pipelines and overflow from overhead tanks shall be arrested.</li> <li>ii. Summer storage tanks shall be constructed in all the mining areas for rain water harvesting and augmentation of ground water recharge.</li> </ul>
<b>F. Land Management</b>	
1. Top soil	<ul style="list-style-type: none"> <li>i. Top soil shall be stacked at earmarked place and shall be used only in reclamation of OB dumps.</li> <li>ii. Top soil shall invariably be removed from the site allocated for external dumping of OB material, to conserve precious natural resource and ensure better stability of dumps.</li> </ul>
2. Reclamation	<ul style="list-style-type: none"> <li>i. Reclamation of mined out areas including external OB dumps and back filled areas shall be taken up concurrent with progress of mining operations as per the EMP.</li> <li>ii. Native species shall be selected for dump plantation in order to achieve better survival rate.</li> <li>iii. The voids left over after cessation of mining operations shall be converted in to water bodies.</li> </ul>
3. Subsidence Management	<ul style="list-style-type: none"> <li>i. The cracks / pot holes formed on surface as a result of subsidence due to UG mining shall be filled with OB material and compacted.</li> <li>ii. Garland drains shall be provided around the subsidence areas to avoid inrush of water in to Underground workings.</li> </ul>
4. Green Belt Development	<ul style="list-style-type: none"> <li>i. Extensive plantation shall be taken up in colonies, vacant lands, degraded forest lands and surface area of UG mines.</li> <li>ii. Gap plantation shall be taken up wherever the survival rate is poor.</li> <li>iii. Avenue plantation shall be taken up alongside the roads.</li> </ul>
<b>G. Environmental Monitoring</b>	
1. Environmental Monitoring for pollution mitigation	<ul style="list-style-type: none"> <li>i. Monitoring of ambient air quality, ground &amp; surface water quality, effluent discharge quality, noise &amp; blast vibrations, phreatic surface levels, subsidence, HEMM exhaust emissions shall be carried out as per the stipulated norms and corrective measures shall be taken for mitigation of pollution.</li> </ul>
2. Satellite surveillance	<ul style="list-style-type: none"> <li>i. Satellite surveillance of all opencast mines shall be carried out once in three years for change detection analysis in land use / land cover in core and buffer zone of the project.</li> </ul>

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H. Environmental Awareness	
1. Environmental Awareness	<ul style="list-style-type: none"> <li>i. Environmental awareness programmes shall be conducted in all mining areas to bring awareness among the employees regarding the environmental policy, its objectives and measures to be taken to safeguard the environment.</li> <li>ii. Awareness programmes shall be conducted on energy, oil and water conservation.</li> <li>iii. Awareness shall be created in the employees and general public on the ill-effects of plastics usage and educate them to use alternatives.</li> </ul>

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