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Apart from the representations made by the participants during the public hearing, some queries were also received by the GPCB through electronic mail & letters and responses for the same were made. Details are depicted in the Public Hearing Proceedings submitted by GPCB are enclosed as Appendix I.

7.2. CRZ Mapping

To demarcate the Coastal Regulation Zones in the proposed project site and study area, a detailed CRZ Mapping study has been undertaken through National Centre for Sustainable Coastal Management (NCSCM), a MoEF&CC authorized agency, based on the site visit undertaken during May 2017. Detailed CRZ Map study report along with the CRZ Map showing the High Tide Line/Low Tide Line (HTL/LTL) along with the superimposition of proposed project site on 1:4000 scale and CRZ Map showing the Ecological Sensitive Areas falling within 7km radius from the project site is enclosed as Appendix II.

7.3. Risk Assessment


Bulk storage of any combustible materials leads to fire risk in many large storage areas such as waste bunkers, wood or paper stockpiles and coal storage yards. Self-ignition usually starts within the bottom layers of a stockpile as a result of temperature increases in the material. Continuous monitoring of the surface layers enables a fast location of hot spots rapid response to coal fires at initial stage.

The fires usually start as ‘hot spots’ in the coal accumulation. These are places where the generated heat cannot be dissipated efficiently while there is still enough oxygen to promote the oxidation reaction of the coal.

7.3.1. Self-Ignition of Coal

The risk from fire exists anywhere significant amounts of coal are in use or storage. One of the most frequent and serious causes of coal fires is spontaneous combustion. Spontaneous combustion is one of the most prevalent and serious causes of coal fires. It has been a well-known, and long-feared, danger at coal storage sites all over the world.

Coal reacts with atmospheric oxygen even at ambient temperatures and this reaction is exothermic. If the heat liberated during the process is allowed to accumulate, the rate of the above reaction increases exponentially and there is a further rise in temperature.

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When this temperature reaches the ignition temperature of coal, the coal starts to burn and the phenomena is described as spontaneous combustion.

Preventing spontaneous combustion coal fires involves attention to many different factors. Among the most critical are the type, age, and composition of coal, how it is stored, and how it is used. Given the right kind of coal, oxygen, and a certain temperature and moisture content, coal will burn by itself. Spontaneous combustion has long been recognized as a fire hazard in stored coal. Spontaneous combustion fires usually begin as "hot spots" deep within the reserve of coal. The hot spots appear when coal absorbs oxygen from the air. Heat generated by the oxidation then initiated the fire.

Such fires can be very stubborn to extinguish because of the amount of coal involved and the difficulty of getting to the seat of the problem. Moreover, coal in either the smoldering or flaming stage may produce copious amounts of CH₄ and CO gases. In addition to their toxicity, these gases are highly explosive in certain concentrations, and can further complicate efforts to fight this type of coal fire. Even the most universal firefighting substance, water, cannot be used indiscriminately.


7.3.2. Cause Spontaneous Coal Combustion

The following general factors contribute to spontaneous coal fires:

- New coal added on top of old coal created segregation of particle sizes, which is a major cause of overheating.
- Insufficient, temperature probes installed in the coal bunker resulted in an excessive period of time before the fire is detected.
- Failure of equipment needed to fight the fire.
- Ineffective capability and use of CO₂ suppression system.
- Delay in the application of water.
- Inadequate policies, procedures, and training of personnel prevented proper decision making, including the required knowledge to immediately attack the fire.


7.3.3. Recommendations

- Air circulating within a coal pile should be restricted as it contributes to heating; compacting helps seal air out.

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- Moisture in coal contributes to spontaneous heating because it assists the oxidation process and should be limited to 3%.
- Coal having high moisture content should be segregated and used as quickly as possible. Efforts should be made to keep stored coal from being exposed to moisture
- Dry coal shall be kept dry and shall be not exposed to any rain during storage period. This concerns what is known as the heat-of-wetting; Drying coal is an endothermic process [heat is absorbed] and lowers the temperature of the coal. Wetting (or gaining moisture) is an exothermic process and the liberated heat can accelerate the spontaneous heating of the coal.
- A high ambient temperature aids the spontaneous heating process.
- Use coal as quickly as practicable. The longer large coal piles are allowed to sit, the more time the spontaneous process has to work.
- The shape and composition of open stockpiles can help prevent fires. Dumping coal into a big pile with a trestle or grab bucket can lead to problems. Rather, coal should be packed in horizontal layers, which are then leveled by scraping and compacted by rolling. This method helps distribute the coal evenly and thus avoids breakage and segregation of fine coal. Segregation of coal particles by size should be strenuously avoided, as it may allow more air to enter the pile and subsequent heating of finer sizes.
- The height of the coal pile is also important. Limit unlayered, uncompacted high grade coal to a height of 5m; maximum height is 8m for layered and packed coal.
- Properly inspect, test and maintain installed fire protection equipment.
- Maintain an update pre-fire plan and encourage regular visits to coal facilities by the site or local emergency response force.

Although coal fires are infrequent, there is a possibility of coal fires at the coal stock yards during the summer conditions due to burning of volatile compounds. Coal stock yard fires can be avoided by providing proper stacking design to prevent air movement inside the coal lumps, minimizing the duration of coal storage at the site and water sprinkling operations to maintain adequate moisture.

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Firefighting systems and fire hydrant systems shall be installed at all hazard prone areas such as coal stock yards, transfer points, approach trestle as per the applicable fire safety standards.

7.4. Social Impact Assessment, R&R Action Plans

No land acquisition is envisaged in the proposed project as the expansion involves in the existing facility. Hence Social Impact Assessment, Resettlement and Rehabilitation is not envisaged. However, the need based CSR have been suggested based on the primary socioeconomic survey.

7.4.1. CSR Programs

The proposed CSR programs are based on the felt needs and study area socioeconomic indicators. The proposed programs are in line with the recommended CSR Activities as per Schedule VII of Sec 135 of Companies Act 2013. The proposed CSR Programs can be grouped into the following subheadings.

- Fishermen Development programs:
 - Social Security systems to the fishermen as they are not enrolled in any government schemes,
 - Safety equipments for the fishermen
 - Skill Development training Programs
 - Safety training programs under National Security program as the area is adjacent to International border,
 - Fish landing centre/boat berthing facilities for the Jummavari fishing settlements.
 - Providing permanent settlements and houses for the Jummavari fishermen community
- Health Promotions Programs:
 - Health Camps,
 - Safe Drinking water Facilities as there is no drinking water source in the villages the water is purchased for cost,
 - Hospital adjacent to the port, the nearest hospital is available at the distance of 10 km from the port. Hospital can be opened adjacent to the port for the employees and public