

ENVIRONMENTAL MONITORING PROGRAMME

6.1 INTRODUCTION:

Environmental Management is nothing but resource management and environmental planning is just the same as development planning. They are just the other side of the same coin. The resource management and development planning look at the issue from narrow micro-economical point of view while environmental management views the issue from the broader prospective of long term sustained development option, which ensures that the environment is not desecrated. For the effective and consistent functioning of the project, proper environmental monitoring programme shall be carried at Chennai Port Trust.

The programme shall include the following:

- Environmental Monitoring
- Personnel Training
- Regular Environmental audits and correction measures
- Documentation-standards operation procedures Environmental management plan and other records

6.2 ENVIRONMENTAL MONITORING

Chennai Port Trust will outsource the work of monitoring to assess the environmental health in the post period. A post study monitoring programme is important as it provides useful information on the following aspects.

- It helps to verify the predictions on environmental impacts presented in this study.
- It helps to indicate warnings of the development of any alarming environmental situations, and thus, provides opportunities for adopting appropriate control measures in advance.

The monitoring programme, based on the findings of the impact assessment studies in different areas of environment, has been outlined in the next few sections. Post study monitoring

programme including areas, number and location of monitoring stations, frequency of sampling and parameters to be covered have been summed up in Table 6.1.

Table: 6.1 Post Study Environmental Programme

S.No	Component	Location	Parameters	Frequency
1	Stack emission characteristics	Stacks attached to emission sources (eg. DG sets)	Stack monitoring for PM ₁₀ , PM _{2.5} , SO ₂ , NO _x	As per SPCB norms
2	Ambient air quality	4 stations within the premises covering upwind & down-wind direction	Ambient air quality parameters as per NAAQS viz., PM ₁₀ , PM _{2.5} , SO _x , NO _x	As per NAAQS, 2009
3	Ground water Quality (Used as domestic water)	Point of abstraction	Parameters listed in ISO:10500	Quarterly
4	Effluent quality	Discharge header of effluent pipeline	According to inlet quality	Once in a month
5	Marine Ecology	Six different location nearby the port area	Densities and diversities of fish, planktons, macro-invertebrates, sediment characteristics, marine benthic fauna	Once in a year
5	Waste (including hazardous)	Waste generation point	Quantity/ volume generated and disposed	Shall send to the authorized agencies
6	Ambient Noise Levels	Noise level monitoring in dB(A) near noise	Ambient noise levels (L _{eq} day &	Quarterly

		generating equipment e.g., pumps, generators	$L_{eq}(night)$	
7	Greenbelt development	Within the project site	Plant density, health, growth and survival rate in additional greenbelt development	Continuous Greenbelt management

6.2.1 Meteorology:

Meteorology forms one of the important categories of environment in the area as it directly controls the levels of ambient air quality in the surrounding. As such, a meteorological station is existing at Chennai Port Trust for recording of relevant meteorological parameters. The observatory shall have equipment for recording the temperature, relative humidity, rainfall, atmospheric pressure as well as wind speed and wind direction.

6.2.2 Ambient Air Quality:

Monitoring of ambient air quality at Chennai Port Trust shall be carried out quarterly to ascertain the levels of pollutants in the atmosphere; air quality could represent one of the worst affected environmental disciplines due to the Port operations. Ambient air quality shall be monitored once in three months for PM₁₀, PM_{2.5}, SO₂, NO_x and CO 24 hourly samples of ambient air quality at 4 different locations in and around Chennai Port Trust.

6.2.3 Water Quality:

Water quality constitutes another important area in the post study monitoring programme. The major streams or perennial sources of surface water in the study area are Cooum river.

Water samples near the Chennai Port Trust shall be sampled twice in a year and analyzed for physical, chemical and bacteriological parameters, including heavy metals and trace elements.

6.2.4 Noise Level:

Ambient Noise Levels shall be monitored at 8 locations covering industrial, commercial, residential and sensitive areas in all seasons for day time and night time Leq.

6.2.5 Soil/Sediment Quality:

Soil samples in and around Chennai Port Trust and sediment samples shall be collected once in a year. The samples shall be analyzed for physical and chemical parameters as well as organic and nutrient content and heavy metals. This would help to detect any contamination or build up of harmful or toxic elements due to leachate from the pollutants.

6.2.6 Marine Ecology:

The marine ecological study shall be carried out yearly at 6 different location nearby the port area.

6.2.7 Marine Benthic fauna:

The benthic population and community structure around the outfall shall be paid to monitor anvasion of any non-indigenous marine species in the area. The collected data shall be statistically analyzed so that the diversity indices can be recorded. This will enable to develop meaningful management plans in altering the discharge method.