

**ANNEXURE-IV
ENVIRONMENTAL CODE OF PRACTICES**

(Applicable for 10% of the total value of the packages in each Phase including packages costing more than Rs.8.00 Crore)

Only for sites/works selected under Random Sampling can be done

1. Construction Camps and Site offices (Applicable for site where the number of labour residing exceed 100)

The following measures are recommended for planning and maintaining of construction camps and site offices:

- The site for construction camp shall be identified in consultation with the individual owners in case of private lands and Engineer-in-Charge in case of government lands.
- Layout of construction camp, including indicating various structures to be constructed including the temporary structures to be put up, site roads, drainage, lighting, equipment storage units and other facilities, should be furnished to the Engineer. The following documents shall be part of the plan:
 - Written No-objection certificate of the owner/cultivator
 - Extent of land required and duration of the agreement
- Living units of adequate space as prescribed in Labour and Environmental Acts with proper ventilation shall be provided
- Construction camps should have access to Drinking water, Sanitation, first aid and waste disposal facilities.
- Water and Sanitation facilities
 - Provide for a sufficient supply of potable water. Identify suitable community water sources such as hand pumps, stand posts, etc., for procuring drinking water, in consultation with the Gram Panchayat.
 - In the event of non-availability of other sources of potable water, the Contractor shall obtain water from an unprotected source, after the testing for its potability.
 - Every water supply or storage shall be at a distance of not less than 15m from any wastewater / sewage drain or other source of pollution.
 - Every site shall be provided with adequate and suitable facilities for washing clothes and utensils,

- Separate and adequate bathing facilities shall be provided for the use of male and female workers. Such facilities shall be conveniently accessible and shall be kept in clean and hygienic conditions.
 - Sanitary arrangements, latrines and urinals shall be provided in every work place on the following scale:
 - For female workers: there shall be at least one latrine for every 25 females or part thereof.
 - For male workers: there shall be at least one latrine for every 25 males or part thereof.
 - Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.
 - Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers “For Men Only” or “For Women Only” as the case may be.
 - The latrines and urinals shall be adequately lighted and shall be maintained in a clean sanitary condition at all times and
 - Water shall be provided in or near the latrines and urinals by storage in drums.
- Arrangements for Waste Disposal
- Disposal of sanitary wastes and excreta shall be into soak pits.
 - Grey water from campsites will be discharged and disposed in a kitchen sump located at least 15 meters from any body of water. Sump capacity should be at least 1.3 times the maximum volume of wastewater discharged per day. The bottom of the pit should be filled with coarse gravel and the sides shored up with board, etc. to prevent erosion and collapse of the pit.
 - Solid wastes generated in the construction site shall be reused if recyclable or disposed off in land fill sites.
- 2. Construction Site (Applicable for site where the number of labour residing exceed 100)**
- It should be kept free of water logging
 - Protective guards should be provided across the areas where workers may fall or could face an impalement hazard.
 - Store tools and materials neatly and out of the way in storage bins or lockers and keep flammable or hazardous wastes, if any, in covered, segregated waste containers
 - Keep form and scrap lumber away from work areas, passageways
 - No loose material should be allowed to leave unattended, and sites should be properly finished after completing the work

- Good housekeeping should be maintained at construction sites
- The Contractor shall undertake measures to minimize the dust generation, emissions, noise, oil spills, residual waste and accidents at the plant site as well as during transportation of material to construction site.
 - During site clearance, all cut and grubbed materials shall be kept at a secured location so that it does not raise any safety concerns.
 - During excavation, water sprinkling shall be done to minimize dust generation
 - Frequent water sprinkling shall be done on the haul roads to minimize dust generation.
 - In case of loose soils, compaction shall be done prior to water sprinkling.
- Cautionary and informatory sign shall be provided at all locations specifying the type of operation in progress.
- The construction waste generated shall be disposed as per guidelines for “Waste Management Plan”.
- The equipment's, which are required to move forward and backward, shall be equipped with alarm for backward movement. It shall be ensure that the workers shall remain away from the working areas at such times.

3. Storage Sites (for large and longtime storage)

Contractor shall provide details for storage of:

- Petrol/Oil/Lubricants: Brick on edge flooring or sand flooring will be provided at the storage places of Petrol/Oil/Lubricants to avoid soil and water contamination due to spillage.
- Cement: Damp-proof flooring, as per IS codes

4. Identification of Borrow areas

- Embankment fill material is to be procured from borrow areas designated for the purpose. Scope of this ECoP extends to measures that need to be incorporated during borrow area location, material extraction and rehabilitation.
- Design measures for reduction in quantity of earth work need to be undertaken to reduce the quantity of material extracted and consequently decrease the borrow area requirement. Following shall be considered during identification of Borrow areas:
 - The arrangements to be worked out with land owner / community for the site. Borrow area shall be identified in consultation with the individual owners in case of private lands and Engineer-in-Charge in case of government lands.. This is to be done after assessing the suitability of the material.

- The Engineers will approve the borrow area after inspection of the site to verify its suitability with the contractor and landowner.

5. Environment, Health and Safety

- Safe access to the job sites should be provided to all workers
- Passage ways, walkways, and ramps should be kept free of materials, scraps or obstructions
- First Aid box should be readily available at construction sites
- Contact with nearest nursing homes/clinics/primary health centre should be maintained by the Contractor to deal with any emergency at site
- A vehicle should be readily available at construction site to meet emergency situation
- The contractor should comply with all the precautions as required for the safety of the workmen as per Labour Laws as far as those applicable to this project
- The contractor should strictly follow the statutory child labour act
- Personal Protective Equipment such as helmets, hand gloves, safety shoes, nose masks, safety goggles should be provided to the workers.

6. Public Safety

- Warning sign boards should be provided along the construction sites in Tamil/English.

7. Waste Management

- Finalize design to minimize waste generation through balancing of cut and fill operations and minimizing excess cuts requiring disposal.
- Identify the type of wastes as well as sources of waste during construction and suggest options for possible reuse

8. Storage of Construction material

- All construction materials should be stored in secured places and following good housekeeping practices
- No hazardous material should be allowed to store near the construction sites.

9. Water pollution

- Solid waste shall be disposed at authorized sites as identified
- Waste water shall be discharged through soak pits.
- SW and GW quality to be tested regularly for any fecal contamination

10. Soil pollution

- Measures to prevent accidental spills of oils and other **lubricants**
- Disposal of waste and wastewater shall not be done on open land.

11. Air pollution

Air quality impacts will be caused by emissions from construction vehicles, equipment and DG sets, and emissions from transportation traffic. Frequent truck trips will be required during the construction period for removal of excavated material and other equipment and materials. The following measures are recommended to control air pollution:

- Contractor will be responsible for maintaining properly functioning construction equipment to minimize exhaust.
- Construction equipment and vehicles will be turned off when not used for extended periods of time.
- Unnecessary idling of construction vehicles to be prohibited.
- When practical, excavated spoils will be removed as the contractor proceeds along the length of the activity.
- Contractors will be required to cover stockpiled soils and trucks hauling soil, sand, and other loose materials or require trucks to maintain at least two feet of freeboard.

12. Landscape degradation

- On completion of the works all the temporary structures may be cleared away, all rubbish disposed, excreta and disposal pits or trenches filled in and effectively sealed off and the whole site and shall be handed over to the department in good condition.

13. Impacts on groundwater resources and quality

Irrigation would increase in the irrigated areas, resulting in increased groundwater recharge. Canal rehabilitation would improve water efficiency in conveyance. In areas vulnerable to waterlogging, conjunctive use of ground and surface water needs to be introduced. The other measures could be deficit irrigation, change in cropping patterns, etc.

- Abstraction of groundwater in notified blocks of the country to be regulated as per the norms of Central Ground Water Board or State Ground Water Authority Artificial recharging structures can be built in suitable places which will decrease its concentration.
- Rainwater harvesting through existing wells can be adopted to reduce the groundwater fluoride concentration

- In the sub-basins affected with high fluoride concentration, the hand pumps may be painted with a suitable colour for easy identification by the local people so as to avoid using it for drinking water purpose.
- In the selected sub-basins where flourides and nitrates are above the permissible limits, it is recommended that the groundwater samples should be tested at regular intervals by the concerned line department.

14. Use of chemical fertilizer and pesticides

- Conduct trainings/ workshops to the farmers about the health hazards with respect to the use of chemicals/ pesticides, the bio-accumulation process in the fish and its implications.
- Promote use of bio manure, bio food for agriculture practices and use of traditional fish feed like Mustard Oil cake, by-products of polished rice etc.
- Promote Integrated farming practices so as to encourage the use of farm waste, livestock manure in fish farming which acts as a fertilizer.
- Use of agriculture by-products such as rice bran and coconut oil cake in the ratio of 70:30 at 2-3% of the body weight of fishes can be provided.