

ANNEXURE- VIII: EMP FOR CIVIL WORKS

	Parameter	Impacts	Mitigation	Institutional Arrangement
Pre- Construction				
	Stakeholder information and communication	If view of different stakeholders are not considered during design stage, may create hinderance or obstruction to project implementation	Local people were sensitised on proposed project during stakeholders consultation and their views are considered;	Implement: ESMF Consultant Supervise: SPU- OIIPCRA Monitor: M&E Cell at OCTDMS
			Several rounds of meeting with each line departments were conducted to obtain their view and same has been incorporated into EMF;	Implement:ESMF preparing consulting firm Supervise: SPU- OIIPCRA Monitor: M&E Cell at OCTDMS
			All relevant stakeholder at sample project area were consulted to obtain their view	Implement: ESMF Consultant Supervise: SPU- OIIPCRA Monitor: M&E Cell at OCTDMS
			State level sharing workshop on disclosure of EMF document will be done inviting representatives from all stakeholder group	Implement: SPU (OIIPCRA) Supervise: The World Bank Monitor: M&E Agency
			Local people will be informed regarding closure of irrigation system during construction work	Implement: Respective MI Dept. Supervise: DLPMT Monitor: M&E Agency
	Utilities	Any public utility is not anticipated to be impacted due to proposed renovation of irrigation facilities and other activities proposed under OIIPCRA. Project will not cause any impact to any such utility.	_____	_____
	Sensitive Receptors	Dust and air pollution due to flying of stacked up earth; littering during transportation;	Identification of sensitive receptors like school, health centre and playground within 100 meter radius of construction site	Implement: Contractor Supervise: Respective MI Dept. Monitor: M&E Cell of Dept. of MI
		Noise pollution due to construction and demolition work and plying of construction vehicle		
	Physical and Cultural Properties	Any PCR is not anticipated to be impacted due to proposed renovation of irrigation facilities and other activities proposed under OIIPCRA. Project will not cause any impact to any such PCR.	_____	_____

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	Hot mix plant	Violation of Consent to Operate laid down by SPCB (Odisha)	Obtain Consent to Operate for deployment of Hot mixing plant	Implement: Contractor Supervise: Respective line department (Dept. of MI, DoA, DFeO, DHO) Monitor: M&E Agency
Construction				
	Silt/ soil Disposal	Generation and disposal of earth material due to digging of bore well;	Soil material shall be used to strengthen surrounding area of bore well; Excess soil will be used for strengthening of nearby MI tank bund.	As stated in monitoring plan of EMF report
	Loss of top soil	Loss of top soil due to digging of bore well;	Top soil shall be stored separately and spread over nearby agricultural field	As stated in monitoring plan of EMF report
		Loss of top soil during excavation of foundation trenches and resectioning of tank	Top soil shall be stored separately and spread over MI tank bund	As stated in monitoring plan of EMF report
	Aquatic Weed Management	Organic pollution due to improper dumping of aquatic weeds, shrub stems, stumps, roots, twigs and leave leading to inconvenience to local commuters, odour pollution, etc.	Identification of temporary storage locations for drying and temporary storage of the aquatic weed waste in consultation with the EE of respective MI division and the local people. The locations shall not be within 100 m of the Sensitive Receptors like educational institute, healthcare centre, children park.	As stated in monitoring plan of EMF report
			Local community will be allowed to collect the shrub stems, stumps, roots for use as fuelwood and fencing material and weeds for domestic use such as using it as fuel, animal fodder or for composting.	As stated in monitoring plan of EMF report
			Sale or free lifting of dry/semi-dry weed waste for onward processing into compost, ropes (for handicrafts and furniture making), fodder, etc.	As stated in monitoring plan of EMF report
	C&D waste	Generated construction waste like sand, stone if not removed after completion of work may create inconvenience to local people, health hazard;	Code of practice as suggested in Orissa PublicWorks Department Code Volume –II (OPWD Code, vol-II) shall strictly be followed while handling C&D waste. Residual construction material shall be stored separately and cleaned immediate after completion of work; construction site shall be cleaned before rainy season;	As stated in monitoring plan of EMF report
	Metal Waste	Generated metal waste like cut piece of reinforcement and mesh wire if not removed after completion of work may create inconvenience to local people,	Residual construction material shall be stored separately and cleaned immediate after completion of work; Metal waste, if any, shall be collected and stored	As stated in monitoring plan of EMF report

	Parameter	Impacts	Mitigation	Institutional Arrangement
		health hazard;	separately and sold to authorised recycler;	
	Plastic Waste	Generation of Plastic waste	Provide waste bins on site for collection and disposal of plastic waste, cans and food waste. These bins shall be frequently emptied at approved dump sites. Plastic waste shall be collected and stored separately and sold to authorised recycler	As stated in monitoring plan of EMF report
	Ambient Noise	Noise pollution due to construction and demolition work and its impact on workers and community health	Heavy noise emitting equipment shall be fitted with silencer. Noise barrier shall be provided to generator set.	As stated in monitoring plan of EMF report
			Construction workers shall be provided with PPEs (earmuff) to minimise health impact due to noise pollution	As stated in monitoring plan of EMF report
	Air Quality	Dust and air pollution due to flying of stacked up earth; littering during transportation	Regular water sprinkling arrangement on silt material specially during hot-summer season to maintain soil moisture and minimise dust pollution;	As stated in monitoring plan of EMF report
			At soil staking site in proximity of sensitive receptors, at least air quality monitoring during construction period shall be carried out.	As stated in monitoring plan of EMF report
		Air Pollution due to Burning of weeds, shrub stems, stumps, roots, twigs and leave	Contractor shall not adopt practice of burning weeds, shrub stems, stumps, roots, twigs and leaves in open place;	As stated in monitoring plan of EMF report
			Discourage local community in burning of weeds, shrub stems, stumps, roots, twigs and leaves in open place;	As stated in monitoring plan of EMF report
	Water Quality	Sediment transport in streams, canal leading to increased TDS and turbidity; sediment deposition in MI tank leading to reduction in water storage capacity	Excavated sediment shall not be stored on river or canal embankment except on MI tank embankment; Muck/soil may be stored on MI tank embankment for temporary period of maximum 10 days.	As stated in monitoring plan of EMF report
			Excess muck/ soil shall also be cleared from MI tank bed immediate after completion of construction work.	As stated in monitoring plan of EMF report
			Slopes of embankments to be constructed and maintained at a stable gradient according to design specifications to minimize erosion.	As stated in monitoring plan of EMF report
			Embankments shall not be left un-compacted during construction works to minimize wind and water erosion.	As stated in monitoring plan of EMF report
			Immediate shifting of desilted materials after dewatering from MI tank embankment to next designated stacking point to minimize the potential for	As stated in monitoring plan of EMF report

	Parameter	Impacts	Mitigation	Institutional Arrangement
			erosion into MI tank bed or side by agricultural field;	
	Soil Quality	Mixing of C&D waste with soil	C&D waste including construction material shall be stored after providing bed lining arrangement to restrict mixing with soil material;	Implement: Contractor Supervise: Respective Line Dept. Monitor: M&E Agency
		Mixing of oil (diesel) with soil may deteriorate soil fertility	Bulk purchase of fuel material shall be avoided; fuel (oil) shall be stored in double line containment with provision of bed lining; fuel shall not be temporarily stored at agricultural land	Implement: Contractor Supervise: Respective Line Dept. Monitor: M&E Agency
	Vegetation waste management	Generated wood chips/ logs (from centering, shuttering work) if not removed after completion of work may create inconvenience to local people, health hazard;	There should be no burning of vegetation waste on site. Residual construction material shall be stored separately and cleaned immediately after completion of work; Local people shall be allowed to take wood waste to use as cooking fuel;	As stated in monitoring plan of EMF report
	Storage of Construction material	Impact on agricultural land, if stored in agricultural field	Prior consent of land owner shall be obtained; Crop compensation against any loss of standing crop / crop season shall be provided to land owner; Bed lining arrangement with side bund shall be provided at storage site if stored at agricultural land to restrict any mixing of residual construction material; residual material including lining arrangement shall properly be removed immediately after completion of work to the satisfaction of land owner	Implement: Contractor Supervise: Respective Line Dept. Monitor: M&E Agency
	Physical and Cultural Properties; Chance Finds	Impact on PCR; Chance find of archaeological importance	Project will adopt avoidance principle to eliminate any impact on PCR. Occurrence of chance find will be governed by chance find process given in Annexure-XI.	Implement: Respective Line Dept. Supervise: DLPMT Monitor: M&E Agency
	Worker Occupational Health and Safety	Impact on workers health and safety during construction work	Provision of first aid kits; Ensure use of PPEs by all construction workers; Enforcing wearing fire/flame resistant cloth and aprons during cutting and welding operation; Ensuring use of PPEs such as welding helmet, hand goggles, Respirators specially during cutting and welding operation; Ensuring use of hand and forearm protecting leather gloves; safety goggles; steel-toed safety shoes; and upper foot guards to protect the instep area from impact or compression.	As stated in monitoring plan of EMF report

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		Provision of safe and hygiene drinking water	Contractor shall make arrangement for required quantity with desirable quality of drinking water at each working site	Implement: Contractor Supervise: Respective Line Department Monitor: M&E Agency
		Provision of separate toilet blocks for male and female workers at site	Provide temporary and separate toilet blocks for male and female workers at each work site; toilet block shall be sufficiently away from any water source to ensure that it's do not mixed with water	Implement: Contractor Supervise: Respective Line Department Monitor: M&E Agency
	Worker Welfare (Accommodation)	Provision of safe accommodation with minimum necessary amenities for workers	As local people/ labour will be hired on temporary basis, any such accommodation like labour camp will not be required; rented house will be arranged for those technical workers coming from other area; material will be stored at separate rented house at nearby area of worksite	Implement: Contractor Supervise: Respective Line Department Monitor: M&E Agency
	Community Health and Safety	Road accident of local people due to collision or breakdown of construction vehicle	Cases of road accident will be referred to nearby healthcare centre after primary first aid by contractor;	Implement: Contractor Supervise: Respective Line Dept. Monitor: M&E Agency