

3.0 BENEFITS DERIVED FROM THE PROJECT (EFFECTIVENESS)

3.1 Operational and Physical Condition

(This section will be developed when the operational plan is available)

Facilities	Description of condition	Problems, its Background and Remedial Action Plan
(P/R and PCR)	(P/R and PCR)	(P/R and PCR)

3.2 Precautions (Measures To Be Adopted/ Points Which Require Special Attention)

Original Issues and Countermeasure(s)	Actual Issues and Countermeasure(s)
<p>3.2.1 General Issues</p> <p>1. Toll Arrangement/ Toll Rate Fixed toll rate as per the type of vehicle will be levied for the road users after the completion of the Project. An appropriate tolling policy/ rates will be finalized in consultation with the state government prior to the completion of Civil works.</p> <p>2. Operation and Maintenance MMRDA proposes to appoint separate agencies for Operation & Maintenance of the bridge and for Toll Management System. Both the agencies for O & M and Toll Management System may be appointed through open tendering process. Overall monitoring of the two agencies would be done by MMRDA in house through a separate cell which could be constituted for the purpose. MMRDA has confirmed to allocate adequate budget for engaging the Contractors.</p>	<p>(P/R and PCR)</p> <p>Appropriate Tolling Policy/ Rates will be finalized by December 2021.</p> <p>Single Operation and Maintenance Contractor will be appointed by December 2021.</p>
<p>3.2.2 Environmental and Social Consideration</p> <p>a. CRZ Clearance</p> <p>i. Supplemental EIA has been approved by MMRDA and disclosed on the website of JICA. Supplemental EIA report has been disclosed also on the website of MMRDA.</p> <p>ii. Furthermore, renewed CRZ Clearance has been obtained in January 2016.</p> <p>iii. In accordance with the conditions for</p>	<p>(P/R and PCR)</p> <ul style="list-style-type: none"> • MMRDA has disclosed Supplemental EIA & SIA on MMRDA website. • The renewed CRZ clearance was granted on 25/1/2016 from MoEF&CC and the approval conditions have been imposed on the Contractors as the Employer's requirements. MMRDA has actively monitored the compliances of the approval conditions and maintains throughout the construction phase. • MMRDA appointed Mangroves & Marine



<p>CRZ Clearance, appropriate measures shall be taken, and necessary budget shall be secured by MMRDA.</p>	<p>Biodiversity Foundation for bird monitoring and implementation of Flamingos and bird monitoring program for the MTHL project during the construction as well as the long-term monitoring after the construction.</p> <ul style="list-style-type: none"> • Rs 91.42 Crore has been transferred to Mangroves & Marine Biodiversity Foundation, Mumbai for the development & conservation of mangrove area and its afforestation. Such funds will be managed by the Mangrove Foundation of Maharashtra State. • As per the renewed CRZ clearance condition, IIT Mumbai has been appointed for the DPR study to develop a Mahul creek Effluent Treatment Plant (ETP). Rs 4.98 Crore was secured for IIT services. The Draft DPR has been reviewed and approved.
--	--

b. Required Permits

The Permits to be obtained by MMRDA/ Contractors and the present status is given in the following Table.

Table 3.2.2 Present Status of some Important Permits

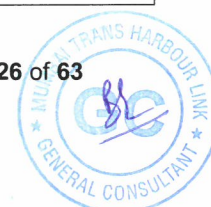
Clearance Required	Approving Authority	Responsible Organization	Obtained by when	Remark /Status
Mangrove Cutting	Hon. Bombay High Court	MMRDA/ Contractor	Approval received from Hon. Bombay High Court on 28 th November 2016	Mangrove cutting operation was completed with full compliance and as of now, no further follow up work is required.
Tree Cutting /Transplantation	Respective Tree Authorities	Contractor for respective Packages	-	<p>Pkg-1: Tree Cutting/ Transplantation permission from the Garden Dept., MCGM obtained on 24th December 2020.</p> <p>Pkg-2: Tree Cutting/ Transplantation permission obtained & completed.</p> <p>Pkg-3: Forest Department issued a concurrence on 19/05/2019. CIDCO's permission for Tree Cutting/ Transplantation obtained on 25th November 2019.</p>
Consent to Establish	Maharashtra Pollution Control Board	Contractor for respective Packages	Pkg-1-18.07.2018 Pkg-2-16.08.2018 Pkg-3-29.05.2019	



3.3 Environmental and Social Impacts

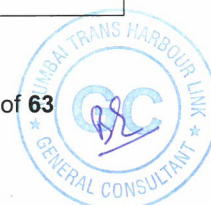
Major environmental and social impacts have occurred during project implementation (e.g. involuntary resettlement, poverty reduction, impacts on the natural environment).

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>1. Establishment of Effective Environmental and Social Cell in PIU</p> <p>MMRDA confirmed that Social Development Cell (2 Officers), Land Cell (3 Officers), and Environmental Cell (2 Officers) had been set up.</p>	<p>Cell is established by MMRDA (Annexure III, Organization chart)</p>
<p>2. Rehabilitation and Land Acquisition Issues</p> <p>a. Affected Area and Population</p> <p>Due to the Project, 1282 non-titleholders will be involuntary resettled, and 108.09 ha of land will be handed over by CIDCO.</p>	<p>Sewri: Involuntary resettlement in Sewri section has been further validated by Social Development Cell of MMRDA. Out of 297 Project Affected Households (PAHs) have given consents as follows:</p> <ul style="list-style-type: none"> • 164 PAHs Kanjurmarg for residential • 25 PAHs Kanjurmarg for commercial • 7 PAHs (Satsangi Plot) Kanjurmarg for Commercial • 1 PAHs (commercial to residential) for Bhakti Park • 100 PAHs HDIL Kurla for residential <p>Navi Mumbai: CIDCO has been finalizing the land acquisition closely monitored by Land Cell of MMRDA. Except private land and forest, CIDCO has possessed all required land of 108.09 ha. Out of the 108.09 ha, 106.345 ha has been handed over by CIDCO to MMRDA. CIDCO is going to acquire the balance 1.745 ha with the help of Collector, Raigad.</p>
<p>b. Entitlement Policy</p> <p>MMRDA prepared the entitlement matrix for resettlement of non-title holders in Sewri, which meets the Resettlement and Rehabilitation Policy for Mumbai Urban Transportation Project (1997, amended in 2000) and JICA guidelines for Environmental and social considerations (2010)</p>	<p>There have been no changes during the enforcement. As per the Attachment 2-5 of JICA MoD, MMRDA has committed to enforce the agreed/ approved policy.</p>



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
("Guidelines") (Attachment 2-5).	
<p>c. Compensation to Project affected Fishermen</p> <p>Detailed baseline survey will be undertaken by MMRDA in order to identify fishermen who are affected by the Project. Based on the result of the baseline survey, MMRDA will compensate them in accordance with compensation policy prior to the construction. Monitoring will be conducted by MMRDA with assistance of the Consultant to gasp the exact impact during construction and operation phase.</p>	<p>Updated Attachments 2-8 and 2-10 are enclosed in the report.</p>
<p>d. Implementation Schedule</p> <p>The Implementation schedule for land acquisition, resettlement and rehabilitation is attached as per Attachment 2-10.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>e. Grievance Redressal Mechanism</p> <p>Grievance Redressal Committee ("GRC") set under MMRDA will deal with grievances raised by PAPs in Sewri and fishermen to be affected by the Project. Any grievances raised by PAPs whose land is acquired by CIDCO shall be resolved by CIDCO.</p>	<p>Sewri: FLGRC (Field Level Grievance Redressal Committee) and SLGRC (Senior Level Grievance Redressal Committee) were set as per the RAP and in operation.</p> <p>Compensation Committee has been constituted to address the issues of Compensation to Lease Holders at Sewri.</p> <p>Fishermen: GRC for resolving grievances of the fisherfolk was set up as per the compensation policy and is in operation.</p>
<p>f. Internal Monitoring</p> <p>Internal Monitoring of the Resettlement Action Plan (RAP) implementation will be conducted by MMRDA in accordance with the RAP with necessary assistance of the consultant. RAP Internal Monitoring Form (Attachment 2-8) will be submitted to JICA on a quarterly basis as a part of PSR during the RAP implementation.</p>	<p>Internal Monitoring updates are mentioned in Attachment 2-8.</p>

Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>g. Qualitative Independent Evaluation</p> <p>An Independent Evaluation Agency will be hired by MMRDA for evaluation of RAP implementation. An external evaluation report will be submitted to MMRDA at mid-term and end-term. MMRDA would submit the evaluation report to JICA in a timely manner.</p>	<p>Updated Attachment 2-10 is enclosed in the report.</p>
<p>h. RAP Implementation Budget</p> <p>The amount of estimated resettlement and compensation budget is Rs.906.26 Cr MMRDA informed to the JICA Mission that RAP implementation cost would be borne by MMRDA and ensured sufficient and timely allocation of funds for smooth implementation.</p>	<p>As updated in MOD dated 03/09/2019 for MTHL- II, the base cost Budget towards RAP Implementation is updated as Rs 1129.3 Cr.</p>
<p>i. Environmental Management Plan (“EMP”)</p> <p>The mitigation measures against air pollution, waste, noise, and water pollution etc. shall be taken during construction and operation phase. Mitigation measures such as installation of noise barrier, appropriate waste management, etc. have been prepared by MMRDA. The mitigation measures are listed in the EMP matrix. (Attachment 2-1). During the detailed design stage, MMRDA, with assistance of the Consultant, will update the EMP, as necessary.</p>	<p>EMP will be updated, if required, in due course of construction activities/progress.</p>
<p>j. Environmental Monitoring Plan (“EMoP”)</p> <p>MMRDA takes overall responsibility for implementation of EMoP. During construction, environmental monitoring will be carried out by contractors under supervision by Construction Supervision consultant. The result shall be reported to the JICA India Office on a quarterly basis as a part of Progress</p>	<p>Environmental Monitoring Plan with the package wise budgeted cost is reported in Attachment 2-3. Environmental Monitoring Results during the construction phase are reported in Attachment 2-4.</p>



Issue(s)	Action or countermeasure(s) taken and remaining problem(s)
<p>Status Report (PSR) by filling in the Reporting Form of Environmental Monitoring Result. (Attachment 2-4). After completion of the construction, EMoP shall be implemented by MMRDA, and the results shall be submitted to the JICA India Office semi-annually until two years after complementation of construction. The required amount of estimated environmental monitoring budget is borne by MMRDA.</p>	
<p>k. Long Term Bird Monitoring</p> <p>MMRDA committed to conduct the long-term monitoring of birds and its habitat in Sewri mudflats with the assistance of hired bird expert. During the long-term monitoring, MMRDA will share information and receive advice from external experts including the one from NGOs and civil society.</p>	<ul style="list-style-type: none"> • MMRDA has entrusted the work of bird monitoring and implementation of Flamingos and birds related mitigation measures & bird monitoring program to Mangrove and Marine Biodiversity Foundation. • Rs. 31.92 Crore deposited to Mangrove foundation, Mumbai for periodical disbursement to BNHS.

3.4 Qualitative and Quantitative Data of Monitoring Indicators

Operation and Effect Indicator EIRR and/ or FIRR

Supporting data for Computing EIRR and/ or FIRR

Indicators	Original (Year 2015)	Target (Year 2024) 2 Years After Commercial Operation
Average Annual Daily Traffic (PCU/ day)	-	47,400
Daily Average Travel Time (min) * 1	61 min	15.8 min
Number of Users (Persons/ year) * 2	-	46,077,504
Cargo Volume (tons/ year) * 3	-	13,511,759

*1 Section on Sewri – Chirle

*2 Assumptions: average passengers of car and taxi (2.6 persons), bus (37.2 persons) based on JICA study. Number of passengers of LCV, HCV and MAV is assumed as 1 person each.

*3 Assumptions: the maximum capacity of respective vehicle (LCV: 1 ton, HCV and MAV: 15 tons) is used for estimation.

Attachment 2- Environmental & Social Impacts Attachments

- Attachment 2-3 – Envi. Monitoring Plan with Package wise Estimated Cost**
- Attachment 2-4 – Environmental Monitoring Result Reporting Form**
- Attachment 2-6 – MTHL Land Acquisition Status**
- Attachment 2-8 – RAP Internal Monitoring Form**
- Attachment 2-10 – Schedule of the RAP Implementation**



Environmental Monitoring Plan with Package-wise Estimated Cost

No. / Category	Impacted Item on JICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MOEF)	Remarks
1	Air pollution	SO ₂ , NO _x , PM ₁₀ , PM _{2.5} , O ₃ , CO, (6 items)	National Ambient Air Quality Standards, 2009	1. Sewri & Swrri bay area for package I 2. Navra temporary bridge & casting yard in Gadhani for package II 3. Gadhani & Chirle for package III	Fortnightly at all locations except 2 locations each near Beaching plants 4 Times / Year Fortnightly only for 3 months (June-2019 to Mar-2019). Then quarterly monitoring as per MOEF and CPCB norms	1,800,000	15,000,000	1,800,000	742,500	17,542,500	National Ambient Air Quality Standards (NAAQS) by Central Pollution Control Board (CPCB) (Standard for 24hrs: Industrial and Residential/ Ecological Sensitive area) - SO ₂ : 80 / 80µg/m ³ - NO _x : 80 / 80µg/m ³	P1 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. P2 contractor Monitoring plan has been designed as per EIA of 2015 P3 contractor team is conducting Ambient air quality monitoring with reference to National Standards and clause 1.2 of Employer's requirement. P1 received Consents CTE & CTO from MPCB and they are following MPCB frequency in addition to frequency set by Employer. GC: The NAAQs are showing High rate as that is the usual procedure. The frequency of monitoring is set by us which varies for different parameters as either Sanitary requirements or as required by us to ensure we have sufficient data in hands if there are additional claims for Compensation in C3 category. Summary : Although the contract conditions for all packages were same at the time of bid, after modifications proposed by GC were not accepted by P1 and P3 accepted the modifications and hence the difference. Second point is P1 carrying out monitoring as per the obtained CTE and CTO. Both other packages have applied for CTE but haven't obtained it yet. So we expect the monitoring frequency would change after obtaining CTE.
2	Water pollution	pH, BOD, DO, Turbidity and O&G	IS / AWWA	1. Sewri & Swrri bay area for package I 2. Navra temporary bridge & casting yard in Gadhani for package II 3. Gadhani & Chirle for package III	Quarterly 4 Times / Year Not applicable	810,000	2,400,000	810,000	0	3,210,000	Marine water quality Standards - Class SW-IV Harbour Waters (MPCB) pH: 6.5-9 DO: 3 mg/l Turbidity: 30 NTU BOD: 5 mg/l O & G: 10 mg/l	Water Pollution not applicable for Pkg. 3
3	Waste	Volume of waste soil, cutting tree and domestic garbage	Volumetric	1. Sewri & Swrri bay area for package I	Daily	500,000	299,100,000	500,000	600,000	300,300,000		The cost of waste disposal for P1 includes C&D waste, Pile muck etc. from all areas like, interchange, intertidal and marine. The disposal location is at MCGM approved location Bhayandarpada, Thane.



No.	Impacted Item on ICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg.1 (INR)	Cost Pkg.2 (INR)	Cost Pkg.3 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MOEF)	Remarks
4 and 8	Soil Contamination/ Heavy Metals & Oil & Grease	IS / Methods Manual Soil Testing in India by Department of Agriculture and Cooperation, January 2011	IS / Methods Manual Soil Testing in India by Department of Agriculture and Cooperation, January 2011	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gadhani for package II 3. Gadhani & Chirke for package III	1. Muck: 1 Time /Year 2. Sediments: 4 Times /Year	150,000	1,500,000	150,000	100,000	1,350,000	Soil Pollution Standard in India (MOEF)	P2 contractor has considered only Domestic garbage with respect to DICO. Other wastes are not considered. Construction wastes will be
5	Noise and vibration	Ambient and road side noise (dB(A) _{1m})	IS Standard	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gadhani for package II 3. Gadhani & Chirke for package III	1. Sewri & Sewri bay area for package I 2. Nhava temporary bridge & casting yard in Gadhani for package II 3. Gadhani & Chirke for package III	150,000	54,000	150,000	369,000	573,000	- Ambient Noise Standards in India (dB (A) _{1m}) 1. Industrial Area Day Time: 75 (6-22hr) Night Time: 70 (22-6hr) 2. Commercial Area Day Time: 65 (6-22hr) Night Time: 55 (22-6hr) 3. Residential Area Day Time: 55 (6-22hr) Night Time: 45 (22-6hr) 4. Silence Zone Day Time: 50 (6-22hr) Night Time: 40 (22-6hr) - Construction vibration 75dB	Not applicable for Pkg. 1
9 and 10	Protected Area /Ecosystem	1. Monitoring of mudlar conditions including flora-fauna 2. Monitoring of Cutting Tree and replantation/ 3. Monitoring of Mangrove Plantation area appointed by MOEF	Ocular inspection and quantitative survey	1. Location given area for package III Along MTHL alignment mangrove repair area for Package I Along MTHL alignment and mangrove replant area for package II Not applicable for Package III	Quarterly Along MTHL alignment mangrove repair area for Package I Along MTHL alignment and mangrove replant area for package II Not applicable for Package III	75,000	0	75,000	400,000	475,000	- Vibration Standards roadside 1. Commercial /Industrial Area Day Time: 70 (7-20hr) Night Time: 65 (20-7hr) 2. Residential Area Day Time: 65 (7-20hr) Night Time: 60 (20-7hr)	Not applicable for Pkg. 3

Significant impacts are not caused by the project

(Note)



Category	No.	Impacted from on ICA Guidelines	Parameter	Method	Location	Frequency a year	Cost (INR)	Cost Pkg. 1 (INR)	Cost Pkg. 2 (INR)	Total Cost (INR)	Standard Central Pollution Control Board (CPCB) - Ministry of Environment & Forest (MoEF)	Remarks
Natural environment	11	Hydrology	4. Monitoring of sedimentation soil and ecological parameter (Items specified in Table 6.1.15 for soil and 7 items such as 1) Nitrogen productivity, 2) Chlorophyll-a, 3) Phosphate, 4) Nitrate, 5) Nitrite, 6) Particulate Organic Carbon, 7) SO ₂ .)	1-2: Mangrove density and community survey	Not applicable for Package I	4 Times / Year	350,000	0	0	350,000	Detailed monitoring plan will be setup during basic design stage	Standard for Soil: Supplemental EIA Table 6.1.15 Standard for Ecological Parameter: Nitrogen Productivity <1,500 mgC/m ² /day at surface Chlorophyll-a <4mg/m ³ Phosphate: 0.1-90ug/l Nitrate: 1.0-500ug/l Nitrite: <125ug/l Particulate Organic Carbon: 10-100mg/m ³ SO ₂ : 10-5000ug/l Project activities and structures does not cause flooding and impacts on tidal conditions
				1-3: Benthos Survey								
				2-1: Cutting trees confirmation								
				3-1: Mangrove survey in the replanted area								
Social environment	12	Topography and Geology	Conditions in embankment area	Visual survey about Stability of embankment	2 Locations (CRZ at Sewri and Shivaji Nagar) for Package II Not applicable for Package I	4 Times / Year	115,000	0	115,000	Embankment shall be established without any landslide and cracks	Not applicable for Pkg 1 & 3	
Other	13	Local economy such as employment and livelihood and interest	Construction worker's township	Confirmation of health check list from contractor	Affected area	As per Actuals	125,000	0	125,000	Employment opportunity shall be provided fairly		
Other	14	Infectious diseases such as HIV/AIDS	Construction worker's condition	Confirmation of safety devices and conditions via interviews	2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	2 Times / Year	500,000	0	500,000	Infection disease rates shall not be caused by the project	"Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act,1996", "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Performance Standard 2 Labor and Working Conditions"	
Other	15	Accidents	Number of accidents	Confirmation of accidents list from local government and State Traffic Police Department	2 Locations (Camp site in Sewri and Shivaji Nagar) for Package II	4 Times / Year	400,000	0	400,000	Any accidents are not caused by construction		
Other	16	Total	Total		8140500	325,354,000	12,000,000	2,211,500	339,565,500			

The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction

Attachment 2-4

Attachment 2-4

This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMOIP are covered

Monitoring Period - January 2022 to March 2022

Area	No.	Item	Parameter	Location	Frequency a year	Item and Standard	Location 1- Pkg 1	Monitoring Result	Location 3- Pkg 3	Location 4	Remark
Air pollution	1	SO ₂ , NO ₂ , PM ₁₀ , PM _{2.5}	Quarterly monitoring is conducted at all locations.	1. Sewri & Sewri bay area for package I	4 Times / Year	National Ambient Air Quality Standards (NAAQS) (Standard for 24hrs: Industrial and Residential)	Sewri	Location 2- Pkg 2	Chirle		
				2. Nhava temporary bridge & casting yard in Gavhan for package II							
				3. Gavhan & Chirle for package III							
				1. SO ₂ 80µg/m ³							
				2. NO ₂ 80µg/m ³							
				3. PM ₁₀ 100µg/m ³							
				4. PM _{2.5} 60µg/m ³							
				5. CO 200µg/m ³							
				6. VOCs							
				7. Benzene							
8. Ozone											
Water pollution and O&G	2	pH, BOD, DO, Turbidity and O&G	Quarterly	1. Sewri & Sewri bay area for package I	4 Times / Year	Marine water quality Standards - Class SW-IV Harbour Waters (MFCB)	Sewri Camp Site	Zone I	Chirle Camp Site		Average is above permissible limit with OCP / Water sprinkling 3 times a day. Average is above permissible limit with OCP / Water sprinkling 3 times a day. Benzene is analysed in ambient air
				2. Nhava temporary bridge & casting yard in Gavhan for package II							
				3. Gavhan & Chirle for package III							
				1. pH: 6.5-9							
				2. DO: 3 mg/l							
				3. Turbidity: 30 NTU							
				4. BOD: 5 mg/l							
				5. O & G: 10 mg/l							
				6. COD							
				7. Ammonia Nitrogen							
8. Chlorophyll 'a'											
Waste	3	Volume of waste soil, cutting tree and domestic garbage	4 Times / Year	1. Sewri & Sewri bay area for package I	Once site clearing work/execution part of work start.	Municipal Solid Waste Management Rules, 2016 Generated Concrete and Debris from Construction	Sewri Camp Site	Chirle Camp Site	Chirle Camp Site		Comprehensive waste management plan is implemented with prior approvals of MCGM, PCB and Debris Disposed as authorized for MTHL
				2. Nhava temporary bridge & casting yard in Gavhan for package II							
				3. Gavhan & Chirle for package III							
				1. Tree Cutting: 384 trees (Till March 2022)							
				2. Transplanting: 445 Trees (Till March 2022)							
				3. Generated domestic waste (month) total							
				4. Confirmation of adequate disposal (visual survey)							
				5. Schedule Audited by EMS							
				6. MCGM - MTHL 1 - as per							
				7. NA							
8. Tree cutting work completed and Half yearly report submitted to Chant (Aug. 2021)											
Soil Contamination (sediment)	4	Heavy Metals & Oil & Grease	4 Times / Year	1. Sewri & Sewri bay area for package I	Soil Pollution Standard in India (MOEF)	Generated Concrete and Debris from Construction	Sewri Camp Site	Chirle Camp Site	Chirle Camp Site		Hazardous Storage is situated in low lying area at Gavhan area. Due to this reason complete ground area is covered by boulders to avoid further water logging in rainy season. Therefore soil sample is impossible to taken out from in and around the Oil & chemical storage area. Same has witnessed by GC during February-2020 monitoring.
				2. Nhava temporary bridge & casting yard in Gavhan for package II							
				3. Gavhan & Chirle for package III							
				1. Cadmium: 0.01 mg/l							
				2. total cyanide: not detected							
				3. Organic Carbon							
				4. lead: 0.01 mg/l							
				5. chromium (VI): 0.05 mg/l							
				6. arsenic: 0.01 mg/l or 15mg/kg (dry-land soil)							
				7. total mercury: 0.05 mg/l							
8. allyl mercury: not detected											
9. PCBs: not detected											

Regarding soil contamination/sedimentation, some items shall be selected from the total 25 standards/items during the Detailed Design. Only the selected items shall be reported to



1. Environmental Monitoring during Construction for 4.5 years

Item No.	Location	Monitoring Parameter	Frequency	Monitoring Method	Reference Standard	Remarks	Action Plan	Responsible Agency	Status
1	Sewri & Sewri Bay area for package I	Construction area Standard 85 dB(A) daytime (Japan standard) Not construction area : Ambient Noise Standard is India (dB(A) Leq) 75 Max.	Fortnightly - Noise levels	70.7					
			Noise levels - Night time	66.21					
2	Nhuva temporary bridge & casing yard in Gahlan for package II	Ambient and road side noise (dB(A)Leq)	2 Times / Year						
			Fortnightly						
3	Gahlan & Chitre for package III	Vibration (dB) shall be converted from mm/s to db	Half yearly						
			Quarterly during the construction period						
4	Along MTHL alignment and mangrove replant area for Package I	1. Monitoring of faunal/biota/vegetation including fauna-epifauna 2. Monitoring of Clump Tree and replantation/arrangement area 3. Monitoring of Mangrove	Quarterly during the construction period						
			4 Times / Year						
5	Along MTHL alignment and mangrove replant area for package II	1. Monitoring of faunal/biota/vegetation including fauna-epifauna 2. Monitoring of Clump Tree and replantation/arrangement area 3. Monitoring of Mangrove	Quarterly during the construction period						
			4 Times / Year						

JICA and the rest of items shall be deleted from this form.

Regarding protected area (R2 and Important Bird Area) and ecosystem, detailed long-term monitoring plan will be established during baseline survey of birds. This tentative monitoring form shall be updated based on the detailed long-term monitoring plan.

There is no reference standard in India for Vibration monitoring in marine area. QC has confirmed that vibration monitoring is not required for the project.

Biodiversity list in CEMP/EMP 2022 updates

Form for phytoplankton/ zooplankton density and list of fauna attached in original test records available from Tharach.



The Project for Construction of Mumbai Trans Harbour Link
Reporting Form of Environmental Monitoring during Construction
Attachment 2-4

Attachment 2-4
This form is prepared for reporting the monitoring results to JICA India Office. Only minimum required parameters are included in this form, and not all parameters in EMOF are covered.

Monitoring Period - January 2022 to March 2022

6		Plantation area appointed by M&EF	Plantation area appointed by M&EF	Domestic - Access to tp	Not required	Not required	Not required
Natural Environment	Protected Area	4. Monitoring of sedimentation soil and ecological parameter (25 items on EIA main text Table 6.1.15 for soil and 7 items such as 1)Net primary productivity, 2)Chlorophyll-a, 3)Phosphate, 4)Nitrate, 5)Nitrite, 6)Particulate Organic Carbon, 7) SiO2)	1) Number of species of mangrove (2) Density of mangrove (x trees/10m x 10m) 1-3) Benthos Survey 4) Number of species and quantity by species 2-1: Curing tree confirmation (1) Number of cutting tree and species 3-1: Mangrove survey in the replant area (1) Number of species of mangrove (2) Density of mangrove (x trees/10m x 10m) 4. Ecological Parameter (1) Net primary Productivity <1,500 mgC/m ² /day at surface (2) Chlorophyll-a <5mg/m ³ (3) Phosphate 0.1-50µg/l (4) Nitrate 1.0-500µg/l (5) Nitrite <125µg/l (6) Particulate Organic Carbon: 10-100mg/m ³ (7) SiO2 10-5,000µg/l	MFO, Flow, Benthos, phytoplankton, zooplankton 180 Species and 45 No/No2 1 Tree Curing: 304 trees (Till March 2022) 2 Transplanting: 445 trees (Till March 2022) 6C to integrate FD and environment	Not required	Not required	Not required
	Ecosystem			500	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
Hydrology	Flooding situation	Not applicable for Package I 2) Locations (CRZ at Sevri and Shivaji Nagar) for Package II Not applicable for Package III	Criteria for evaluation Project activities and structures does not cause flooding and impacts on tidal conditions Monitoring of flooding situation	4.5 3 3 80 (0+2) 1.1 33.13	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
	Hydrology				Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
Topography and Geology	Conditions in embankment area	2) Locations (major camp site in Shivaji Nagar and 2) Curing area at toll gate in Chirite)	Criteria for evaluation Embankment shall be stabilized without any landslide and cracks Monitoring of embankment	No Flooding	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
	Local conflict of interests	2) Locations (major camp site in Sevri and Shivaji Nagar)	Criteria for evaluation Employment opportunity shall be provided fairly Number of hired workers by community	Sevri Camp Site 1. Local labor: Jan 2022: 865 2. Local labor: Feb 2022: 900 3. Local Labor: Mar 2022: 527	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
Infectious diseases such as HIV/AIDS	Number of infected patient	2) Locations (major camp site in Sevri and Shivaji Nagar)	Criteria for evaluation Infection disease rate shall not be caused by the project Confirmation of health check record and inspect project site * PPE provisions for work, social distancing for covid protocol at work in TBT training, Posters for awareness at Kitchen and Labor camp. Medical camp: 220 Labor Covid Precautions: 1. L&T office and camps: Thermal screening / Sanitation. 2. Fogging: 2 times in a week 3. Pest control: 2 times in a week	Sevri Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
	Labour Environment	Construction worker's condition 2) Locations (major camp site in Sevri and Shivaji Nagar)	Criteria for evaluation "Building And Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" "The building and other construction worker's welfare cess Act, 1996" and international standards such as "IFC Conditions Standard 2 Labor and Working Conditions" BOCW Registration of Labor- 943 Labor BOCW Kit distribution: 496 Labour	Sevri Camp Site * 4164 labor for 3 months at 11 functional camps. * One mid-day meal introduced as per BOCW act and by Maharashtra state serves 11920 free meals from Jan 22 to Mar 22 * Entertainment (Movie) arranged for 600 labour on Sunday	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
Accident	Number of accidents	2) Locations (major camp site in Sevri and Shivaji Nagar)	Criteria for evaluation Any accidents are not caused by construction Number of recorded accident	1 RLTI reported	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
	Accident				Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
Other					Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site
					Shivaji Nagar Camp Site	Shivaji Nagar Camp Site	Shivaji Nagar Camp Site



MTHL Land Acquisition Status (Attachment 2-6):

The total land required on Navi Mumbai side- 108.09 ha
 Land in possession in MMRDA – 106.345 ha
 Balance land acquisition- 1.745 ha

Note: The acquisition of 1.745 ha is in progress by CIDCO. The balance acquisition would be likely completed by the end of June 2022.

Land Required in ha		Land Acquired in ha		Balance Land to be acquired in ha	Anticipated date for Land Acquisition	Payment status (Payment made to Land Owners by CIDCO)	Remarks
Govt.	Private	Govt.	Private	Private*			
98.75	9.34	98.75	7.595	1.745	31-07-2022	--	The payment status to the land owners is awaited from CIDCO. The same would be communicated to JICA on receipt of the same.
Total							
108.09		98.75	7.595	1.745			

***Portions of Private Land**

Sr. No.	Name of Village	Area (Hectare)	Acquired	Non-acquired
1	Gavhan	0.15	0.15	0.00
2	Jasai	8.72	7.306	1.414
3	Chirle	0.47	0.139	0.331
Total Area		9.34	7.595	1.745



**RAP Implementation Monitoring Form
For Mumbai Trans Harbour Link Project (MTHL)**

1. General Information

a. RAP Implementation Monitoring Results:	Progress Status Report (PSR) for the 1 st quarter of 2022
b. Date of Preparing This form	31-03-2022
c. Person Preparing This form	Name: Robin Sham Position: Engineer and Team Leader Department/Organizations: General Consultants

2. Scale of Impact**2.1 Project Affected Households (PAHs) and Project Affected Persons (PAPs) for Sewri side**

Total Project Affected Households (PAHs)	297 Hhs	Titleholders: 0 Hhs Non-titleholders: 297 Hhs
Total PAPs	1,282 persons*	Titleholders: 0 persons Non-titleholders: 1,282 persons*
PAHs who need relocation (as residents)	231 Hhs	Titleholders: 0 persons Non-titleholders: 231 (1,088 persons) *
PAPs who do not need relocation (as residents)	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons
Commercial PAPs who need relocation	66 (194 persons) *	Titleholders: 0 persons Non-titleholders: 66 (194 persons) *
Commercial PAPs who do not need relocation	0 persons	Titleholders: 0 persons Non-titleholders: 0 persons

* - Figures for number of persons do not include no. of family members of few additional PAPs.

2.2 Structures

Structures	Residential: 231 Commercial: 65 Residential + Commercial: 1 (counted in Commercial) Community: 9 (Religious Properties 6, Public Toilets 3) Government: 16 (MbPT Structures 9, Occupants of Leased Plots 6 & Police Chowki 1) Total: 322
-------------------	---

2.3 Fishery

Categories of Fisher-folks	Identified Number		Total	Remarks
	Mumbai side	Navi Mumbai side		
C1: Fishing stakes and nets in RoW (250 m.)	178	54	232	Funds for 230 nos C1 category fishermen are transferred to Commissioner of Fisheries on 17.03.2020 for payment to the beneficiaries. 2. The list of balance 2 Nos. of C1 category fishermen are in process of fund transfer to the



QPR No. 20 (January to March 2022) Attachment 2-8

				Commissioner of Fisheries.
C2: Fishing Stakes and Nets within 500 m. of RoW (Southern side)	296	567	863	1. Funds for 496 nos C2 category fishermen are transferred to the Commissioner of Fisheries in 2017-18. 2. The list of balance 367 Nos. of C2 category fishermen are under verification of validity.
C3: Hand Pickers	1498	4051	5549	Funds for 4141 nos of C3 category fishermen are already transferred to the Commissioner of Fisheries and the balance of 1408 Nos. of C3 category fishermen are in process of fund transfer to the Commissioner of Fisheries.
C4: Commercial and Artisanal Fisher-folks (Loss of Time and Increased Operating Costs)	Will be observed during the construction period	Will be observed during the construction period	---	Nil
C5: Fisher-folks with Loss due to Turbidity	Will be observed during the construction period	Will be observed during the construction period	----	Nil
C6: Fisher-folks with Damages due to Accidents	Will be observed during the construction period	Will be observed during the construction period	----	Nil

2.4 Land Acquisition / Transfer

Location	Land Required in Ha.		Land Acquired in Ha.		Balance Land to be acquired in Ha	Remarks
	Govt.	Private	Govt.	Private		
Sewri	10.089	0	10.089	0	0	
Navi Mumbai	98.75	9.34	98.75	7.595	1.745	
Total	118.179		108.839	7.595	1.745	

QPR No. 20 (January to March 2022)



QPR No. 20 (January to March 2022) Attachment 2-8

3. Monitoring Results

3.1 Sewri Section

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
Resettlement	No. of Residential PAHs provided with Allotment Letters of Alternate Tenements	231	197	29	226	97%	
	No. of Residential PAHs given possession of Alternate Tenements	231	197	29	226	97%	
	No. of Commercial/R+C PAPs provided with Allotment Letters of Alternate Shops/Tenements	66	23	38	61	92%	
	No. of Commercial R+C PAPs given possession of Alternate Shops/Tenements	66	23	38	61	92%	
	No. of Occupants of MbPT Leased Plots provided Compensation	6	5	1	6	100%	
	No. of Religious properties Relocated / Removed	6	1	5	6	100%	
	No. of Other Community properties Relocated / Removed	4	0	4	4	100%	
	No. of Structures in possession of MbPT Dismantled / Cleared	9	0	9	9	100%	
	No. of PAHs/PAPs provided Shifting Charges / Arrangement	297	0	0	0	0%	
Rehabilitation	No. of PAHs / PAPs identified for Livelihood Support in Post Resettlement Assessment						
	No. of PAHs / PAPs provided Livelihood Support under Program-I (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-II (to be identified)						
	No. of PAHs / PAPs provided Livelihood Support under Program-III (to be identified)						
	No. of new enterprises started						

QPR No. 20 (January to March 2022)



QPR No. 20 (January to March 2022) Attachment 2-8

Activity	Indicator	Total Target	Progress till Last Quarter	Progress during reporting Quarter	Cumulative Progress till Current Quarter	Cumulative Achievement of Total Target (%)	Remarks, If Any
Grievance Redress	No. of Grievances Received by FLGRC	4					
	No. of Grievances Disposed by FLGRC	2	1	1	2	100%	
	No. of Grievances Received by SLGRC	2					
	No. of Grievances Disposed by SLGRC	0					
Post Resettlement Assistance	No. of CHSs Registration helped						
	No. of CHSs provided Tenements for Social Amenities						
	No. of CHSs' Maintenance Fund Invested						
	No. of CHSs' Office Bearers provided training						

QPR No. 20 (January to March 2022)



SUMMARY OF FISHER FOLKS OF MTHL PROJECT (Influence Zone of 23 villages) Up to 31-03-2022						
Sr. No.	Village Name	Total number of forms Received	Total approved eligible family units			
			C1	C2	C3	Total
1	Bamandongri	273	1	1	28	30
2	Belapur	110	0	5	15	20
3	Belpada	1185	0	7	478	485
4	Diwale	455	12	201	52	265
5	Ganeshpuri	276	0	37	35	72
6	Gavhan	2162	0	14	1317	1331
7	Jasai	926	0	0	18	18
8	Jawale	51	0	1	0	1
9	Kombadbhuja	413	1	23	134	158
10	Kopar	994	2	5	228	235
11	Karave	178	0	44	67	111
12	Mahul	1062	129	76	604	809
13	Moha	475	22	25	134	181
14	Mora	818	0	102	375	477
15	Morave	539	14	21	88	123
16	Nhava	1646	0	32	307	339
17	Sarsole	266	0	30	83	113
18	Sewri	305	0	1	72	73
19	Shelghar	241	0	0	15	15
20	Shivajinagar	202	1	4	61	66
21	Trombay	1208	49	219	823	1091
22	Ulwe	218	1	3	14	18
23	Uran & Hanuman Koliwada	683	0	11	600	611
24	Vahal	411	0	2	1	3
Total		15097	232	864	5549	6645
Total applications						15097
Duplicate/Repeated Application						2428
Net Applications						12669
Approved applications						6645

Grievance Redressal Committee (GRC) for Fisher-folk Compensation

No. of Cases referred to GRC	No. of Cases		No. of Cases Rejected	No. of Cases under Consideration
	Allowed	Compensation Paid		
Nil	Nil	Nil	Nil	Nil



Implementation Schedule for Fisher-folks Compensation & Land Acquisition in Navi Mumbai

A. Implementation Schedule for Fisher-folks Compensation: -

Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
1	Approval of fisherfolk's compensation Policy	Fisher-folks Compensation Committee (FCC)	08-10-2015	23-12-2015
2	Approval by MMRDA	MMRDA	10-12-2015	23-12-2015
3	Submission to JICA	MMRDA	--	04-01-2016
4	A detailed list of PAP and compensation plan	1. Detailed list of Fisher-folk PAP up to list 1 (1165 Nos) & 2 (1399 Nos) are finalized by the Fisheries Department. 2. From 2018, FEVC committee is the approval authority of PAF and approved C1- 232 Nos. C2 - 368 Nos and C3- 3481 Nos are approved.	23-12-2015	Up to 31-03-2022 1. Total up to date applications scrutinized = 12669 Nos. 2. Eligible = 6645 Nos. 3. Rejected = 6024 Nos.
	Validation of compensation plan	Fisher-folks Compensation Committee (FCC)	23-12-2015	1. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk from Sewri, Mahul & Trombay (Mumbai side) – 12th September 2017 and 20th November 2018 for C-2 & C3 Category only.



Sr. No.	Task Designation	Approving authority	Start Date	Completion Date
			23-12-2015	2. Approval to the Fisher-folk PAP list obtained from Fisheries Department for Fisherfolk of Navi Mumbai of C2 & C3 on 25th April 2018. 3. Validation of compensation is in progress and would be completed in phases.
6	Approval of compensation plan	FCC	23-11-2015	28-12-2017
7	Approval by MMRDA	MMRDA	23-11-2015	09-03-2021

B. Implementation Schedule for Land Acquisition in Navi Mumbai: -

Land Required in Ha.	Land Acquired in Ha.		Balance Land to be acquired in Ha	The anticipated date for Land Acquisition	Payment status (Payment made to Landowners by CIDCO)	Remarks
	Govt.	Private				
98.75	9.34	98.75	1.745	31-07-2022	--	1. CIDCO is the land acquisition authority for land acquisition for Navi Mumbai 2. MMRDA has paid an amount of INR 59.16 Cr to CIDCO as per their demand. 3. The payment status to the landowners is awaited from CIDCO. The same would be communicated to JICA on receipt of the same.
Total	108.09	106.345	1.745			



Implementation Schedule for SIA (Sewri Section)

Task No.	Task Designation	Start Date	Completion / Forecast Date
1	Preparation of Final SIA		
1.1	MMRDA Approval	October 2015	January 2016
1.2	JICA Approval	November 2015	January 2016
1.3	Posting of project Information on MMRDA		
1.4	Translation and disclosure of entitlement policy in local language to all PAP's	December 2015	January 2016
2	LARP Implementation		
2.1	Grievance redress mechanism established	August 2016	August 2016
2.2	Staff deployment SIA implementation	June 2016	Dec. 2021
2.3	Staff Deployment Public Relation	June 2016	June 2016
2.4	Hiring of Independent Evaluation Agency	November 2018	November 2020
2.5	Preparation and issue of allotment letters to PAPs	June 2018	July 2022
2.6	Notice of PAPs for shifting (Sewri Section)	December 2018	Nov. 2021
2.7	Allotment of dwelling units to PAPs	September 2016	July 2022
2.8	Shifting of PAPs to resettlement Colony	December 2018	Nov. 2021
2.9	Transfer of compensation/allowance/ assistance to PAPs	December 2018	July 2022
2.10	Creation of Community Revolving fund (within 3 months post handing over)	April 2019	July 2022
2.11	Assessment of economic rehabilitation needs by individual household (within 6 months after handing over)	September 2019	July 2022
2.12	Registration of Co-operative housing societies transfer of maintenance funds. (6 months period)	December 2019	July 2022
2.13	Signing of Civil Contract		January 2018
2.14	Notice of Civil works to proceed		March 2018
3	Monitoring & Evaluation		
3.1	Internal Monitoring- Monthly/ Quarterly	June 2016	July 2020
3.2	Independent Evaluation Mid-term and End term evaluation		
	Mid Term	May 2019	June 2020
	End Term	November 2019	July 2022

