



## Vizhinjam International Seaport Limited

(A Government of Kerala Undertaking)

VISL/2014-15/EE&EI-9/266

08<sup>th</sup> June 2017

**Additional Director (S)**

**Ministry of Environment, Forest & Climate Change, Regional Office (Southern Zone)**

**Kendriya Sadan, IV Floor, E & F Wings 17<sup>th</sup> Main Road, IInd Block, Koramangala,  
Bangalore - 560 034,**

**PH: 080-25532577. Fax: 080-25537184**

Dear Sir,

Sub: Vizhinjam International Multipurpose Deepwater Seaport - Environmental Clearance - Half Yearly Compliance Report

Ref: 1) F.No. 11-122/2011-IA.III dated 3<sup>rd</sup> January 2014 of MoEF issuing Environmental Clearance  
2) No.1285/A3/13/KCZMA/S&TD dated 24<sup>th</sup> August 2013

This has reference to the Environmental & CRZ Clearance (EC) issued on 3<sup>rd</sup> January 2014 (ref 1) by the Ministry of Environment, Forest & Climate Change (MoEF&CC) to the proposed Vizhinjam International Multipurpose Deepwater Seaport at Vizhinjam in Thiruvananthapuram District of Kerala State based on the recommendation of KCZMA vide the reference cited (2).

The compliance report of the conditions stipulated in the cited references for the half yearly period from October 2016 to March 2017 is enclosed herewith, in both hard and soft copy for records and reference.

**Yours Sincerely**

**For Vizhinjam International Seaport Ltd**

**Managing Director & CEO**

Encl: Compliance Report (hard & soft copy)

- Copy to:
- (1) The Director (Monitoring-IA III Division, Ministry of Environment, Forest & Climate Change, Indra Paryavaran Bhavan, Jor Bagh, New Delhi )
  - (2) The Scientist D & in charge, Central Pollution Control Board (CPCB), Zonal Office, 1<sup>st</sup> & 2<sup>nd</sup> Floors, Nisarga Bhavan, A Block, Thimmiah Main Road, 7<sup>th</sup> D Cross, Shivanagar, Opp. Pushpanjalai Theatre, Bengaluru- 560 010.
  - (3) Chief Environmental Engineer, Kerala State Pollution Control Board, Thiruvananthapuram Regional Office, Plamoodu, Pattom P.O., Thiruvananthapuram- 695 004
  - (4) Member Secretary, KCZMA, Shatra Bhavan, Pattom P.O. Thiruvananthapuram- 695 004
  - (5) Shri. Santoshkumar Mohapatra, Director & CEO, Adani Vizhinjam Port Private Ltd (AVPPL), 2<sup>nd</sup> Floor, Vipanchika Tower, Near Govt. Guest House, Thycaud P.O., Thiruvananthapuram - 14



**VIZHINJAM INTERNATIONAL SEAPORT LIMITED**  
**(A Government of Kerala Undertaking)**

**Vizhinjam International Deepwater Multipurpose Seaport**

**Half yearly Compliance report of conditions of  
Environmental and CRZ Clearance**

**Period: October 2016 to March 2017**

**June 2017**

# **Vizhinjam International Deepwater Multipurpose Seaport Half yearly Compliance report on conditions stipulated in Environmental & CRZ Clearance**

## **Preface**

The Vizhinjam International Deepwater Multipurpose Seaport project is a flagship project of the Government of Kerala (GoK). The project site is located at Vizhinjam, 16 km south of the capital city of Thiruvananthapuram. A fully owned company of the GoK named Vizhinjam International Seaport Ltd.(VISL), was formed to oversee the activities related to the development of the project.

The Ministry of Environment, Forests & Climate Change (MoEF), Government of India issued Environmental & CRZ clearance to the project vide its letter F.No.11-122/2011- IA.III dated 3<sup>rd</sup> Jan 2014. This was based on the recommendations of the Expert Appraisal Committee (EAC) of the MoEF which considered (i) the Comprehensive Environmental Impact Assessment (EIA) study report, (ii) Environmental Public hearing report, (iii) other related reports and (iv) recommendations of the Kerala Coastal Zone Management Authority.

Pursuant to the Environmental Clearance, the Government of Kerala has entered into a concession agreement with M/s Adani Vizhinjam Port Private Ltd. (AVPPL), on 17<sup>th</sup> Aug 2015 for development and operation of the project for a concession period of 40 years. The preliminary works for the development of the project were initiated at the site on 16<sup>th</sup> November 2015, followed by official inauguration on 5<sup>th</sup> Dec 2015. As required under the Environmental & CRZ clearance, monitoring works were initiated by VISL and is being continued by AVPPL. This report contains the half yearly monitoring report for the period from **October 2016 to March 2017**.

**Managing Director & CEO**

**Vizhinjam International Seaport Ltd.(VISL)**

**Thiruvananthapuram**

**3<sup>rd</sup> June 2017**

	Adani Vizhinjam Port Private Ltd	From : Oct 2016 To : March 2017
Vizhinjam International Deepwater Multipurpose Seaport Status of conditions stipulated in Environmental and CRZ clearance.		

Half yearly Compliance report on conditions stipulated in Environmental & CRZ Clearance (Period: Oct 2016 to March 2017)		
Sr. No.	Conditions	Compliance Status as on 31-03-2017
11	<b>Specific Conditions</b>	
(i)	"Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Complied "Consent for Establishment" has been obtained from Kerala State Pollution Control Board (KSPCB) vide Consent No. PCB/HO/TVM/ICE/o8/2015 dated 15.09.2015. Copy submitted to MoEF with the compliance submission for the period ending June 2016. .
(ii)	Project Proponent shall carry out intensive monitoring with regulatory reporting six monthly on shore line changes to the Regional Office, MoEF.	Complied Shoreline monitoring of 20 Km area each side is being done. Report for the period from June 2016 to March 2017 is enclosed as <b>Annexure I</b> in CD. The shoreline data from Feb'2015 to Feb 2017 has been submitted to LnTIEL for mathematical modelling to assess the impact on shoreline. The report is expected by June 2017 and same will be submitted to concerned authorities.
(iii)	The capital dredged material (7.6 Mm <sup>3</sup> ) shall be utilized for reclamation of berths.	Being Complied The dredged materials till 31st March 2017 amounting to 2.03 Mm <sup>3</sup> has been utilized for reclamation of 24.25 Ha. The dredged material has been used for reclamation only.
(iv)	Additional fish landing centre shall be developed as part of the proposed Vizhinjam port for upliftment of fisheries sector.	Being Complied The work for construction of the fish landing centre and the fishery breakwater has been initiated as part of the funded work component of the concession agreement with AVPPL The EPC contractor for development of aforesaid activity has been finalized and work orders has been issued. Detail engineering for the same is under progress. A budgetary provision of 16 crores for Fish Landing Centre and 131.12 crore for fishery breakwater has been kept.

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(v)	The project shall be executed in such a manner that there is minimum disturbance to fishing activity.	Being Complied Regular interaction with fisher folk has been undertaken, Three meetings have been held during this period and grievances expressed have been addressed by the project personnel

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(vi)	Steps would be taken to safeguard the interests of the fisheries sector as detailed in the Resettlement Action Plan (RAP), Corporate Social Responsibility (CSR) and in the Integrated Fishing Community Management (IFCMP), namely a component of Rs.7.1 crores as part of the compensation package for the fisheries sector, as livelihood restoration measures for mussel collectors, shore seine fishermen and others. Rs.41.30 crores as part of CSR activities in the fisheries sector under (i) water supply scheme (7.3crores) (ii) new fishing landing centre (16crores) (iii) adoption of existing fishing harbor (5crores) (iv) sea food park (4crores) (iii) skill development centre (4crores) (iv) environmental sanitation (3crores) and (v) solid waste management (2crores).	<p>Being Complied</p> <p>In consultation with the fishermen, an enhanced livelihood compensation package amounting to Rs. 23.80 crores was sanctioned by GoK, instead of Rs.7.1 crores suggested earlier in the EIA stage. Out of this amount, Rs.17.30 crores have been disbursed till March 31<sup>st</sup> 2017 for a total number of 428 livelihood affected PAP's whose verification were complete in all respects. Verification of the documents of balance PAP's is in progress.</p> <p>The status of the CSR activities envisaged in the fisheries sector is as follows.</p> <p><b>Water supply:</b> Scheme has been commissioned in April, 2013 by VISL by expending an amount of Rs. 7.33 crores. For O&amp;M of the same an amount of Rs.2.99 crores has been spent till March 31<sup>st</sup> 2017.</p> <p><b>Fish Landing centre:</b> Construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated</p> <p><b>Existing fishing harbour:</b> Action for modernization of the existing fishing harbour will be carried out in consultation with the harbour engineering department.</p> <p><b>Seafood park:</b> Procurement of land for seafood park (Rs.26 crores) by VISL has been completed.</p> <p>CSR Activities for the period of Oct 2016 – March 2017 is enclosed as <b>Annexure II</b></p>

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Sr. No.	Conditions	Compliance Status as on 31-03-2017
(vii)	Rail connectivity shall be parallel to the harbour road on elevated structures at +4/5.00 m level without affecting the entry to the existing harbor.	Will be complied The same will be taken into consideration while designing the railway line.
(viii)	Compensation packages in accordance with the Central/State Government norms shall be given to all the authorized-cum-affected (having valid clearances as applicable) resort owners.	Based on G.O.(Rt) No.2021/2017/RD dated 27-04-2017, action is being taken .
(ix)	The port shall ensure that all ships under operation follow the MARPOL convention regarding discharge or spillage of any toxic, hazardous or polluting material like ballast water, oily water or sludge, sewage, garbage etc. The emission of NOx&SOx shall remain within permissible limits.	Will be complied Currently project is under construction. This shall be complied during operational phase.
(x)	CSR activities shall cover villages within 10 km radius of the project.	Complied As indicated in EIA report during Phase I implementation of the project CSR activities has been carried out in 5 wards namely; Mulloor, Kottapuram, Vizhinjam, Harbour and Venganoor. Details on CSR activities carried out by AVPPL during compliance period is enclosed as <b>Annexure II</b>
(xi)	Oil Contingency Management Plan shall be put in place.	Will be complied Oil Contingency Management Plan will be prepared prior to completion of the project and shall be implemented prior to operation.
(xii)	All the recommendations/conditions stipulated by Kerala Coastal Zone Management Authority (KCZMA) shall be complied with.	Complied Compliance report of KCZMA is enclosed as <b>Annexure III</b>
(xiii)	The responses/commitments made during public hearing shall be complied with in letter and spirit.	Complied The status of the commitments made during Public Hearing& actions on the same is enclosed as <b>Annexure IV</b>

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Sr. No.	Conditions	Compliance Status as on 31-03-2017
(xiv)	All the recommendation of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to MoEF along with half yearly compliance report to MoEF-RO.	Being Complied Project is in construction stage. Recommendations of the Construction stage EMP are being implemented. Status of EMP is enclosed as <b>Annexure V</b>
(xv)	The project proponent shall bring out a special tourism promotion package for the area in consultation with the State Government and implement the same along with the project.	Being Complied Draft Tourism Plan was presented by the Director, Tourism in a Stake Holder workshop organized by the Vizhinjam International Seaport Ltd on 19 <sup>th</sup> May 2017, the same is being finalized by the Director, Tourism.
(xvi)	The project proponent shall place on its website its response to the Public Hearing, and representations as presented to the EAC in the 128 <sup>th</sup> meeting held on 23 <sup>rd</sup> November 2013, for information of the general public.	Complied All the relevant details pertaining to EIA, ToR, EAC meetings, Public Hearing, etc related to the project have been placed on VISL website <a href="http://www.vizhinjamport.in/eia-30-5-13.php">http://www.vizhinjamport.in/eia-30-5-13.php</a>
(xvii)	There shall be no withdrawal of groundwater in Coastal Regulation Zone Area, for this project. In case any groundwater is proposed to be withdrawn from outside the CRZ area, specific prior permission from the concerned State/Central Groundwater Board shall be obtained in this regard.	Noted There will not be any withdrawal of groundwater in CRZ Area. In case of requirement of groundwater withdrawal outside CRZ area, specific prior permission will be obtained from State/Central Groundwater Board. The water supply scheme had already been commissioned with the source as Vellayani Lake. 3.00 MLD of raw water will be available for treatment with a net availability of 2.49 MLD of potable water . Out of this 1.49 MLD of water shall be distributed to the locality as part of social welfare measures of VISL. The balance 1.0 MLD is for the port use. Water requirement during construction will be met from the above quantity.. The tapping point has already been provided by KWA at a distance of approximately 50m from the port site. Water tapping arrangement is under process.



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Sr. No.	Conditions	Compliance Status as on 31-03-2017
(xviii)	The Hazardous waste generated shall be properly collected and handled as per the provision of Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008.	Complied During this compliance period 4.5 KL of used oil generated (from dredging operations) for the first time since the commencement of construction has been stored as per Hazardous Waste Rules, and shall be disposed to authorized (CPCB/SPCB) waste oil handlers .
(xix)	No hazardous chemicals shall be stored in the Coastal Regulation Zone area.	Complied No hazardous chemical is being stored in the Coastal Regulation Zone area.
(xx)	The waste water generated from the activity shall be collected, treated and reused properly.	Will be complied The project is in construction phase. The same shall be complied during operational phase
(xxi)	Sewage Treatment facility should be provided in accordance with the CRZ Notification.	Will be complied The detailed port facility layout planning is under progress. Provision for installing sewage treatment facility of capacity 50KLD in phased manner has been kept and will be implemented in line to CRZ Notification.
(xxii)	No solid waste will be disposed of in the Coastal Regulation Zone area. The solid waste shall be properly collected, segregated and disposed as per the provision of Solid Waste (Management and Handling) Rules, 2000.	Noted No solid waste is being disposed of in the Coastal Regulation Zone area. Solid waste will be properly collected, segregated and disposed as per the Solid Waste Management Rules, 2016
(xxiii)	Installation and operation of DG set if any shall comply with the guidelines of CPCB. Oil spills if any shall be properly collected and disposed as per the Rules. Project proponent shall install necessary oil spill mitigation measures.	complied 2 standby DG sets of 5KVA are present at site; one at site office and another at entrance to the breakwater (under construction). These are compliant to CPCB guidelines. DG Set Manufacturer's Test Certificate is attached as <b>Annexure VI</b>
(xxiv)	No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Noted Construction of the project is as per the approvals obtained.

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(xxv)	The approach channel shall be properly demarcated with lighted buoys for safe navigation and adequate traffic control guidelines shall be framed.	Will be complied The project is in construction phase. The same shall be complied during operational phase
(xxvi)	The project proponent shall take up development of green belt in the project area, wherever possible. Adequate budget shall be provided in the Environment Management Plan for such development.	Will be complied Currently reclamation of back up area is under progress. Greenbelt development plan has been considered in the Master Plan and adequate Budgetary provision has been kept for this purpose. A budgetary provision of 2.08 Crore has been kept for Greenbelt development
(xxvii)	The fund earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.	Noted An amount of 40 Crores has been kept solely for EMP implementation The breakup of EMP fund activity wise is enclosed as <b>Annexure VII</b> An amount of 1.41 Cr has been utilized towards implementation EMP measures during compliance period.
(xxviii)	The project proponent shall set up an organizational mechanism/institutional structure for Environment, Health & Safety & CSR under the supervision of a General Manager as outlined in the EIA Report for effective implementation of the stipulated EHS safeguards & CSR activities.	Complied An officer of VISL has been designated as Head (EHS & CSR) for effective implementation of the stipulated EHS safeguards & CSR activities. AVPPL, the concessionaire executing the project has also appointed officers for EHS & CSR. In addition to the above, independent environment, health and safety consultants have been appointed as required in the concession agreement signed with AVPPL. Organizational Structure for Environment, Health, Safety & CSR is enclosed as <b>Annexure-VIII</b>

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(xxix)	Staff Colony should be located beyond CRZ area.	Will be complied  Port facility planning will be done in such a way that staff Colony will be located beyond CRZ area
<b>12.</b>	<b>General Conditions</b>	
(i)	Construction of the proposed structures shall be undertaken meticulously conforming to the existing Central/local rules and regulations including Coastal Regulation Zone Notification, 2011 & its amendments. All the construction designs/drawings relating to the proposed construction activities must have approvals of the concerned Statutory Departments / Agencies.	Complied All the construction activities are being carried out as per existing Central/local rules. Necessary permissions under CRZ Notification 2011 & its amendments have been obtained. Further, necessary approvals from concerned Statutory Departments / Agencies have been obtained for the construction designs/drawings relating to the proposed construction as mentioned hereunder. ❖ Consent to Establish from State Pollution Control Board vide Consent No. PCB/HO/TVM/ICE/o8/2015, dated 15.09.2015. ❖ All permits required for construction of buildings as per building by laws will be obtained. ❖ Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 7.12.2015 (Submitted along with the previous compliance report for the period ending June 2016)
(ii)	Adequate provision for infrastructure facilities including water supply, fuel and sanitation must be ensured for construction workers during the construction phase of the project to avoid any damage to the environment.	Complied There was limited construction activity related to breakwater & dredging during the compliance period. On an average 300 nos. of construction worker were engaged in the said activity on a daily basis. The workers were accommodated in a resort near to the site and were provided necessary infrastructure facilities viz, water supply, fuel & sanitation, medical facility etc
(iii)	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Complied No digging activities other than dredging undertaken during the compliance period. Marine water quality is monitored on a monthly basis and analysis reports are enclosed as <b>Annexure IX</b> . There are no significant changes observed in the marine water quality during the compliance period.

	<b>Adani Vizhinjam Port Private Ltd</b>	<b>From : Oct 2016 To : March 2017</b>
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(iv)	<p>Borrow sites for each quarry sites for road construction material and dump sites must be identified keeping in view the following:</p> <p>(a) No excavation or dumping on private property is carried out without written consent of the owner.</p> <p>(b) No excavation or dumping shall be allowed on wetlands, forest areas or other ecologically valuable or sensitive locations.</p> <p>(c) Excavation work shall be done in close consultation with the Soil Conservation and Watershed Development Agencies working in the area, and</p> <p>(d) Construction spoils including bituminous material and other hazardous materials must not be allowed to contaminate water courses and the dump sites for such materials must be secured so that they shall not leach into the ground water.</p>	<p>Complied</p> <p>Quarry material is being obtained from approved quarry sites only.</p> <p>The road so far constructed (a temporary road for construction purposes) has been made with material available on site and</p> <p>a) No excavation has been carried out in private property</p> <p>b) No excavation or dumping has been carried out in wetlands, forest area etc.</p> <p>c) No major excavation has been undertaken</p> <p>d) No bituminous or hazardous material has been used</p>
(v)	<p>The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.</p>	<p>Complied</p> <p>The construction material was obtained from approved quarries.</p> <p>No new quarries have been opened for construction materials.</p> <p>In case of new quarries, necessary approvals will be obtained from the local competent authority.</p>

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(vi)	<p>The project authorities shall make necessary arrangements for disposal of solid wastes and for the treatment of effluents by providing a proper wastewater treatment plant outside the CRZ area. The quality of treated effluents, solid wastes and noise level etc must conform to the standards laid down by the competent authorities including the Central/State Pollution Control Board and the Union Ministry of Environment and Forests under the Environment (Protection) Act, 1986, whichever are more stringent.</p>	<p>Being complied</p> <ul style="list-style-type: none"><li>No solid waste is being disposed of in the Coastal Regulation Zone area.</li><li>Solid waste will be handled as per the Solid Waste Management Rules, 2016</li><li>Sewage Treatment Plant (STP) of 50 KLD will be installed in phased manner</li><li>Environment Monitoring is being carried out as per Environment Monitoring Plan prescribed in EIA by NABL and MoEF&amp;CC accredited agency; M/s. Ashwamedh Engineers &amp; Consultant. Summary of the Ambient Air Quality Monitoring (AAQM) for duration from Oct-16 to Mar-17 is mentioned below.</li></ul> <p><b>Total Monitoring Location 5</b></p> <table><tr><th>Parameter</th><th>Unit</th><th>Max</th><th>Min</th><th>Perm. Limit</th></tr><tr><td>PM<sub>10</sub></td><td>µg/m<sup>3</sup></td><td>100</td><td>21</td><td>100</td></tr><tr><td>PM<sub>2.5</sub></td><td>µg/m<sup>3</sup></td><td>43</td><td>5</td><td>60</td></tr><tr><td>SO<sub>2</sub></td><td>µg/m<sup>3</sup></td><td>11.2</td><td>3.91</td><td>80</td></tr><tr><td>NO<sub>x</sub></td><td>µg/m<sup>3</sup></td><td>15.3</td><td>3.03</td><td>80</td></tr><tr><td>CO</td><td>mg/m<sup>3</sup></td><td>BDL</td><td>BDL</td><td>4</td></tr><tr><td>HC</td><td>ppm</td><td>BDL</td><td>BDL</td><td>--</td></tr></table> <ul style="list-style-type: none"><li>Detailed Monitoring Reports for the period Oct 2016-Mar 2017 is attached as <b>Annexure IX</b>.</li><li>All the monitored parameters were found within the prescribed limit.</li></ul>	Parameter	Unit	Max	Min	Perm. Limit	PM <sub>10</sub>	µg/m <sup>3</sup>	100	21	100	PM <sub>2.5</sub>	µg/m <sup>3</sup>	43	5	60	SO <sub>2</sub>	µg/m <sup>3</sup>	11.2	3.91	80	NO <sub>x</sub>	µg/m <sup>3</sup>	15.3	3.03	80	CO	mg/m <sup>3</sup>	BDL	BDL	4	HC	ppm	BDL	BDL	--
Parameter	Unit	Max	Min	Perm. Limit																																	
PM <sub>10</sub>	µg/m <sup>3</sup>	100	21	100																																	
PM <sub>2.5</sub>	µg/m <sup>3</sup>	43	5	60																																	
SO <sub>2</sub>	µg/m <sup>3</sup>	11.2	3.91	80																																	
NO <sub>x</sub>	µg/m <sup>3</sup>	15.3	3.03	80																																	
CO	mg/m <sup>3</sup>	BDL	BDL	4																																	
HC	ppm	BDL	BDL	--																																	
(vii)	<p>The proponent shall obtain the requisite consents for discharge of effluents and emissions under the Water (Prevention and control of Pollution) Act, 1974 and the Air (Prevention and control of Pollution) Act, 1981 from the Kerala State Pollution Control Board before commissioning of the project and a copy of each of these shall be sent to this Ministry.</p>	<p>Will be complied</p> <p>Consent To Operate (CTO) under the Water (Prevention and control of Pollution) Act, 1974 and the Air (Prevention and control of Pollution) Act, 1981 will be obtained from Kerala State Pollution Control Board before commissioning of the project.</p> <p>Copy of the CTO will be sent to Ministry on receipt.</p>																																			

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<b>Vizhinjam International Deepwater Multipurpose Seaport</b> <b>Status of conditions stipulated in Environmental and CRZ clearance.</b>		

(viii)	Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.	<p>Complied</p> <p>Following precautionary measures are undertaken during transportation of the construction material as environment safeguard</p> <ul style="list-style-type: none"> <li>• Tarpaulin Cover is being used during transportation of construction material</li> <li>• All vehicles coming into the site are under a speed restriction of 20 kmph</li> <li>• Regular Water Sprinkling is done on the approach road by water tankers.</li> <li>• It is ensured that all vehicles entering the Port have a valid PUC certification</li> <li>• The dumpers have speed governors ensuring adherence to speed limit</li> </ul>
(ix)	Full support shall be extended to the officers of this Ministry/Regional Office at Bangalore by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environmental protection activities.	<p>Noted.</p> <p>There was no visit by officers of Ministry/Regional Office at Bangalore during the compliance period.</p>
(x)	Ministry of Environment & Forests or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted.
(xi)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied to the satisfaction of the Ministry.	Noted.
(xii)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment & Forests.	<p>Will be complied</p> <p>Adani Vizhinjam Port Private Ltd (AVPPL) is the concessionaire for implementing the project and operating it for the next 40 years, based on concession agreement signed between the Government of Kerala &amp;, AVPPL on 17<sup>th</sup> Aug 2015.</p> <p>There is no change in the project profile</p>

	<b>Adani Vizhinjam Port Private Ltd</b>	<b>From : Oct 2016 To : March 2017</b>
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(xiii)	The project proponent shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	Complied Concession agreement with M/s AVPPL was signed on 17 <sup>th</sup> Aug 2015. The layout of the port has been approved by Govt. of Kerala by letter No.308799/E1/15/F&PD dated 30-10-15 (Submitted along with the Compliance Report of the period ending June 2016).The preliminary construction activities commenced at site on 16 <sup>th</sup> November 2015 followed by official inauguration on 5 <sup>th</sup> Dec 2015. Financing agreement forming part of financial closure was submitted by the concessionaire on 13 <sup>th</sup> May 2016.
(xiv)	Kerala State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/Tehsildar's office for 30 days.	Noted This condition does not pertain to project proponent.However, it is learnt that KSPCB has complied with the same.
13.	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.	Noted for compliance
14.	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Complied All required clearances will be obtained before start of operation. However necessary approvals from concerned Statutory Departments / Agencies have been obtained for the construction designs/drawings relating to the proposed construction as mentioned below. ❖ Consent to Establish from State Pollution Control Board vide Consent No. PCB/HO/TVM/ICE/o8/2015, dated 15.09.2015. ❖ All permits required for construction of buildings as per building by laws will be obtained. ❖ Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 7.12.2015

	<b>Adani Vizhinjam Port Private Ltd</b>	<b>From : Oct 2016 To : March 2017</b>
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15.	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environment Clearance and copies of the clearance letters are available with the Kerala State Pollution Control Board and may also be seen on the website of the Ministry of Environment & Forest at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same should be forwarded to the Regional office of this Ministry at Bangalore.	<p>Complied</p> <p>Complied and intimated (with copy of advertisement) to the regional office of MoEF, vide letter No.VISL/EC/MoEF/2013 dated 20-01-2014</p> <p>Copy of the environment clearance is available on VISL website at <a href="http://www.vizhinjamport.in/eia-30-5-13.php">http://www.vizhinjamport.in/eia-30-5-13.php</a></p>
16.	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.	Noted
17.	Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	<p>Noted</p> <p>Three appeals challenging the EC granted to the project (two appeals filed at NGT, Southern Regional Bench, Chennai and one at NGT, Principal Bench, Delhi) and one original application (OA-filed at NGT, Principal Bench Delhi) indirectly challenging the CRZ Notification, 2011 were filed as per the NGT Act, 2010. The appeals filed at Chennai bench were later transferred to the Delhi bench. The Delhi Bench of NGT has upheld the Environment Clearance granted to the project vide its judgment dated 2<sup>nd</sup> September 2016</p>
18.	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZilaParishad/Municipal Corporation, Urban Local Body and the Local NGO, if any from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.	<p>Complied</p> <p>The Clearance Letter were submitted to the concerned Panchayat, ZilaParishad/Municipal Corporation, Urban Local Body and the Local NGOs from whom representations were received vide letter no VISL/EC/MoEF/2013 dated 29/01/2014</p>



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19.	The proponent shall upload the status of compliance of the stipulated Clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.	Complied The copy of the last compliance report (April 2016-Sep 2016) has been uploaded in company's web site <a href="http://www.vizhinjamport.in">http://www.vizhinjamport.in</a> and submitted to the MoEF Regional Office (Bangalore), Zonal office of CPCB (Bangalore) SPCB , KCZMA vide letter no. VISL/2014-15/EE&EI-9/1078, dated 25 <sup>th</sup> Nov 2016 Environment Monitoring is being carried out as per the Environment Monitoring Plan prescribed in EIA by Ashwamedh Engineers & Consultant (NABL Accredited & MoEFCC approved laboratory). Detailed Monitoring reports (Air, Water, Noise, Marine Water, Sediment) are enclosed as <b>Annexure IX</b> . The critical pollutant is being displayed at a location near the main gate
20.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Compliance Report for the period April 2016-September 2016 has been submitted to the MoEF, Regional Office (Bangalore), Zonal office of the CPCB (Bangalore), SPCB & KCZMA vide letter no. VISL/2014-15/EE&EI-9/1078, dated 20 <sup>th</sup> Nov 2016 in hard copy as well through e-mail
21.	The environmental statement for each financial year ending 31 <sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned Kerala State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the company along with the status of compliance of Clearance conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.	Will be complied The project is in construction phase. The same shall be complied post commissioning during operational phase.

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**Enclosures:**

**Annexure I: Report on Shoreline monitoring June'16 to Mar'17 (in CD)**

**Annexure II: CSR Activities AVPPL**

**Annexure III: Report on compliance of conditions of KCZMA**

**Annexure IV: Status of the commitments made during Public Hearing**

**Annexure V : Status of Environment Management Plan**

**Annexure VI: DG Set Manufacturer's Test Certificate**

**Annexure VII: EMP Budgetary Provision**

**Annexure VIII: Organizational Structure-EMP Implementation**

**Annexure IX – Environment Monitoring Report (Oct'16-Mar'17)**

**CSR Activities from October 2016 to March 2017 by Adani Vizhinjam Port Pvt Ltd (AVPPL) – Adani Foundation (AF)**

**1. Skill Development**

- a. Skill Development Programme “Saksham” was formally launched on 23.11.2016 with a participation of 1600 youth and public from Vizhinjam. The programme was inaugurated by Shri.Kadannappalli Ramachandran, Hon. Minister for Ports, presided over by the MLA Shri. M.Vincent in the presence of Shri.Santosh Kumar Mohapatra, CEO, AVPPL, Dr.Jayakumar, MD-VISL, Ward Councilors and other community leaders.
- b. The first batch of Skill training on General Duty Assistant (Nursing Assistant) was completed on 31st Jan 2017 with a batch size of 24 students from Vizhinjam. This was an NSDC certified course with 70%placement assurance and the training provider was IL&FS. A group of selected 24 students who qualified the entry gate exam have completed the course.
- c. Another batch of 39 students has undergone “Smart Phone Technician course” by 28.02.17 and nine students have undergone the A/C Mechanic training.
- d. 576 women from the project affected areas have undergone Basic Management Modules of Livelihood Training. Five groups have already started livelihood group enterprises and another 16 proposals are ready for execution including Agri-Karmasena, Goat Farm, Poultry Farm, Community Lab, Catering Unit, Food Processing unit, Cleaning Unit, Event Management Group, Paper and eco-friendly bag unit and Tailoring Group . 101 members were imparted with product training.
- e. Organic Farming: A batch of 43 women formed under the livelihood group of Agri-KarmaSena, have undergone five days intensive National Skill Development Crop-Recognized Prior Learning Certified training (Recognition of Prior Learning) course on organic farming. They are preparing plans for individual/group enterprises under organic farming. Another batch of 17 women underwent 30 days intensive NSDC-Certified Skill Training on Organic farming in January & February 2017

**2. Solid Waste Management**

- a. As per the MoU signed with Municipal Corporation of Thiruvananthapuram, 21 Thumboor Mozhi Aero Bins were installed under CSR in the areas of Vizhinjam Market, Kottappuram and Harbour areas. Each bin has a capacity to treat 1.5 tons of waste.
- b. 395 classes on better Solid Waste Management practices were carried out in the communities covering 10000 people. This included importance of segregation of waste, issue of burning of waste and generation point treatment of waste.
- c. A plan has been prepared by the community for the total cleaning of the ward.

**3. Disaster Response**

- a. Financial relief was provided as a continuation of the Disaster Response provided to the rain havoc affected families on 20 May 2016 at Kottapuram to repair their

damaged houses and giving livelihood support to those who lost equipment, boats etc.

#### **4. Public Sanitation**

- a. Two public toilets were renovated at Vizhinjam Market and Kottapuram community with facility of 15 toilets, four bath rooms and 8 urinals.
- b. One Public toilet with 8 toilet closets has been constructed at Harbour ward.
- c. Support extended for the construction of 200 individual toilets as part of Swatch Bharath Programme declaring rural Thiruvananthapuram ODF.

#### **5. Drinking Water Supply**

- a. 50,000 litres of drinking water is being supplied daily through tankers to the communities under CSR. For the same, 20 water tanks were also provided in the wards. The treated water from the Water Treatment Plant of VISL operated by KWA is used for this purpose.

#### **6. Community Volunteers Training Programme**

- a. In order to scale up community level interventions and to streamline the operations of voluntary system developed in the area, AVPPL-AF organized three batches of youth volunteers programme focused on capacity building workshops within the community. The sessions included Volunteering for the community, understanding Community Dynamics, Values, Leadership, Communication and Public Speaking Skills, Mapping area and planning for the identified issues and Preparation of an action plan were also part of these workshops. These members are now providing the training and awareness programmes in the community on various developmental issues

#### **7. Suposhan: (A project of Adani Foundation to eradicate malnutrition and anaemia from children, lactating mother and pregnant women)**

- a. A baseline survey conducted in the five wards covering 49 anganwadis to identify the children in need of special care and attention.
- b. 260 awareness classes covering 5700 mother, adolescent girls and pregnant women on malnutrition, anaemia and supplementary food.
- c. MUAC Test (Measurement of Upper Arm Circumference) was conducted covering 4200 children and identified 12 SAM (Severe Acute Malnutrition) and 253 MAM (Moderate Acute Malnutrition) children. SAM were given treatment after health check-up and provided RUTF (Ready to Use Therapeutic Food).

#### **8. Other Projects**

- a. Agreed to construct a two storied school building at HALP Government School.
- b. Knowledge-YAN Smart Class room device were being provided to nine Government schools at Vizhinjam

- c. Upgradation of CHC for which a conceptual plan was provided and AVVPL – AF has also agreed to construct one floor with necessary equipment under CSR.
- d. A Mobile Health Unit with a doctor, pharmacist and social worker is being mobilized to cover five wards of Vizhinjam.

S.No	Particulars	Oct 16 - Mar 17 (In Lakhs)
I	Admin & HR	13
II	Education	19
III	Community Health	56.4
IV	Sustainable Livelihood Devt	33.6
V	Infrastructure Development (RID)	60
	<b>CSR Expenditures during Compliance Period (Oct 16-Mar 17)</b>	<b>182</b>




Fig 1 : Skill Training imparted to local youth towards becoming Certified Nursing Assistant




Fig 2: Public Sanitation Facility renovated at Vizhinjam Market and inaugurated by the Hon' Mayor in the month of Oct 2016.

**Fig3** :39 students have undertaken SmartPhone Technician course at CSR training hall, Vizhinjam during this Compliance period

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Vizhinjam International Deepwater Multipurpose Seaport Status of conditions stipulated in KCZMA recommendation for Environmental / CRZ clearance.		

**Annexure III**

Half yearly compliance report of conditions stipulated in KCZMA recommendation for Environment and CRZ Clearance		
Sr. No.	Conditions	Compliance Status as on 31-03-2017
(i)	The developmental works and the construction of the structures may be undertaken as per the plans approved by the concerned local Authorities, local administration, conforming to the existing local and central rules and regulations including the existing provisions of CRZ Notification.	Complied Necessary approvals from concerned Statutory Departments / Agencies have been obtained ❖ Consent to Establish from State Pollution Control Board vide Consent No. PCB/HO/TVM/ICE/o8/2015, dated 15.09.2015. ❖ All permits required for construction of buildings as per building by laws will be obtained as and when required. ❖ Airport Authority of India NOC vide NOC no AAI/SR/NOC/RHQ dated 7.12.2015
(ii)	Since the project envisages development of roads, infrastructural facilities, dredging of the lake and kayals proper environmental safety measures must be ensured.	Complied All safety measures are being adopted. It is also submitted that dredging of lakes or kayals are not envisaged as part of this project
(iii)	The project proponent must obtain necessary clearance separately from the Kerala State Pollution Control Board, Health Department and other appropriate Authorities when such implementation programmes are undertaken.	Complied "Consent for Establishment" has been obtained from Kerala State Pollution Control Board vide Consent No. PCB/HO/TVM/ICE/o8/2015, dated 15.09.2015.
(iv)	The construction should be undertaken, if any with least damages to the existing mangroves. A buffer zone of 50m shall be provided for mangroves present in the area.	Not Applicable There is no mangrove in the vicinity of the project area.
(v)	The project proponent must take necessary arrangements for disposal of solid wastes and for the treatment of effluents / wastes. It must be ensured that the effluents/solid wastes are not discharged into the backwater area/sea.	Being Complied Necessary arrangement will be made for collection, segregation and disposal of Solid Waste as per Solid Waste Management Rules, 2016 • No solid waste is being disposed of in the Coastal Regulation Zone area. • Currently no effluent is generated

	Adani Vizhinjam Port Private Ltd	From : October 2016 To : March 2017
Vizhinjam International Deepwater Multipurpose Seaport Status of conditions stipulated in KCZMA recommendation for Environmental / CRZ clearance.		

Half yearly compliance report of conditions stipulated in KCZMA recommendation for Environment and CRZ Clearance		
Sr. No.	Conditions	Compliance Status as on 31-03-2017
(vi)	The project proponent should provide necessary facilities for official of the Kerala Coastal Zone Management Authority (KCZMA) for inspection of the project site and its premises at any time.	Noted Necessary facilities for officials of KCZMA for inspection of the project site and its premise will be provided There was no visit by official of KCZMA during the compliance period
(vii)	The KCZMA may be duly informed of any construction/developmental works/major activities undertaken in the CRZ area of the project	Complied Following construction activities are in progress: <ul style="list-style-type: none"> <li>• Temporary approach road of 1.2 KM</li> <li>• Till 31<sup>st</sup> March 2017 2.03 Mm<sup>3</sup> dredging has been done and by using dredge material 24.25 Ha area has been reclaimed.</li> </ul>
(viii)	Environmental clearance must be obtained from the Ministry of Environment & Forests.	Complied Environment & CRZ Clearance has been obtained from Ministry of Environment & Forest vide MoEF letter dated 03 <sup>rd</sup> January, 2014 (F.No.11-122/2011-IA.III)
(ix)	Adequate financial provisions has to be made for environmental protection measures.	Complied A total of Rs 40Crore has been set aside for environmental protection measures as per the EIA report
(x)	Scrutiny fee of Rs. 10,00,000/- (Rupees Ten lakh only) to be remitted under the head account 1425-800-97 applications for scrutiny fee etc. for CRZ clearance, in the district/Sub Treasury concerned, if private parties are involved in the project and the chalan receipt in original be forwarded to the Science & Technology Department quoting this letter.	Not Applicable The condition is not applicable since the application for CRZ/Environmental clearance was submitted by Vizhinjam International Seaport Ltd.(VISL), a Government of Kerala undertaking



## Compliance Status of Public Hearing Responses/Commitments

SI No	Responses/Commitments	Status
1	Good compensation package for all livelihood issues have been included for all related PAPs for all affected sectors including the fisheries sector. Strict adherence to EMP compliance with all relevant rules and regulations will be done	In consultation with the fishermen, an enhanced livelihood compensation package amounting to Rs. 23.80 crores was sanctioned by GoK, instead of Rs.7.1 crores suggested earlier in the EIA stage. Out of this amount, Rs.17.30 crores have been disbursed till March 31 <sup>st</sup> 2017 for a total number of 428 livelihood affected PAPs whose verification were complete in all respects. Verification of the documents of balance PAPs is in progress.
2	Land under the Jamaath which includes Karimppaly, Magham, Varuthari Pally, etc. need to be protected and should not be acquired.	Complied
3	Compensation for the land acquired (rail/road connectivity and back up areas) are paid promptly and any for additional land required also will be paid in the same way.	Compensation for all the procured land has been disbursed along with R&R package. Compensation for balance land to be acquired will also be disbursed promptly.
4	Additional fish landing centre will be constructed	The work for construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated as part of the funded work component of the concession agreement with AVPPL.
5	Existing harbour will be improved under the CSR provisions of the project	Action for modernization of the existing fishing harbour will be initiated through the harbour engineering department.
6	Fisherman will get first preference to cross the ship channel	Will be complied as per the applicable laws
7	GoK/VISL will monitor the shore line changes during construction and operational phases. If necessary, intervention to arrest erosion will be carried out.	Year round status of the shoreline is being mapped from Feb 2014 for a stretch of 40km. Change monitoring is being continued for the construction phase.
8	Water supply provision to the Vizhinjam fishing village	Scheme has been commissioned in April, 2013 by VISL by expending an amount of Rs. 7.33 crores. For O&M of the same an amount of Rs. 5.95 crores has been spent till March 31 <sup>st</sup> 2017 by

		VISL. AVPPL have installed 20 water tanks in the water scarce areas in the project neighbourhood and water is being supplied on a daily basis on mobile water tankers. An amount of Rs 13.54 lakhs has been spent by AVPPL on this account till date.
9	Construction of the new fishing harbour will be simultaneously completed with the port project	The work for construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated as part of the funded work component of the concession agreement with AVPPL
10	Railway work will be initiated after Environment Clearance (EC)	Action being taken through M/s Rail Vikas Nigam Ltd (RVNL)
11	Job Opportunity - Preference will be given to local people during construction stage	Being complied. Out of the total persons employed at site, 51 numbers are from the locality.
12	Rehabilitation measures ensures employment opportunities for fishermen	R&R package for fishermen has been finalised in consultation with the affected PAPs & is being disbursed
13	Take all possible measures for judicial use of lighting system as part of the Green Port concept to reduce the carbon footprint	Will be considered with appropriate planning.
14	Appropriate action like providing compensation or alternate employment etc to fishermen will be implemented wherever applicable after the Environment Clearance	R&R package for fishermen has been finalised in consultation with the affected PAPs & is being disbursed
15	Compensation, Resettlement and Rehabilitation benefits to all the livelihood affected and displaced fisherman will be implemented after the Environment Clearance	R&R package for fishermen has been finalised in consultation with the affected PAPs & is being disbursed
16	Waste management is included in the EMP and E&E waste management is part of the SWMP.	<p>A budgetary provision has been included for waste management.</p> <p>As per the MoU signed with Municipal Corporation of Thiruvananthapuram, 21 Thumboor Mozhi Aero Bins were installed under CSR in the areas of Vizhinjam Market, Kottappuram and Harbour areas. Each bin has a capacity to treat 1.5 tons of waste.</p> <p>395 classes on better Solid Waste</p>

		Management practices were carried out in the communities covering 10000 people. This included importance of segregation of waste, issue of burning of waste and different at-source treatment of waste.
17	Upgradation of PHC at Vizhinjam will be carried out	Revised Plan for upgrading Community Health Centre (CHC) –Vizhinjam was presented to the Department of Health, Government of Kerala by Adani Foundation. As per the revised plan Adani Foundation would construct the second floor in the upcoming building at CHC with necessary equipment support, whereas the basement and first floor would be constructed by harbour department
18	New fishing harbour with all the infrastructural facilities will be constructed with reserved rights to mooring/berthing the boats	The work for construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated as part of the funded work component of the concession agreement with AVPPL
19	Appropriate compensation will be given to the resort owners as per the regulatory advice of KCZMA and MoEF since the resorts are seen to be located in No Development Zone (NDZ) as per CRZ Notification 2011	Discussion for fixing of compensation packages for the affected resort owners have been initiated by the District level Planning Committee (DLPC) headed by the District Collector and is in progress
20	Rail, Road, Coastal and Inland Waterways connectivity will be ensured to the rest of Kerala and other Indian Peninsula Ports	This is one of the objectives of the project and this will be fully materialised once all phases of the project are implemented.
21	Waste Management, Water Treatment plants, etc. will be part of an operational EMP	Waste Management & Decentralized waste water management techniques as per EMP will be carried out.
22	Shoreline monitoring on 15 km both sides on regular basis during construction and operation as suggested in EIA report will be carried out	Year round shoreline monitoring is being carried out for a stretch of 40km. Shoreline Monitoring report is being submitted to MoEF & CC every Six Months along with EC Compliance report
23	VISL will ensure that appropriate dredging and reclamation methodology as suggested in EIA report will be adopted to contain the turbidity within applicable limits.	Being complied

24	Appropriate measures relating to maintenance of health, hygiene, safety and security will be implemented as per EIA report	Being complied. An officer of VISL has been designated as Head (EHS & CSR) for effective implementation of the stipulated EHS safeguards & CSR activities. AVPPL, the concessionaire executing the project has also appointed officers for EHS & CSR. In addition to the above, independent environment, health and safety consultants have been appointed as required in the concession agreement signed with AVPPL.
25	VISL will ensure that livelihood issues of Mussel collectors are addressed as per the EIA report	R&R package for fishermen has been finalised in consultation with the affected PAPs & disbursed
26	VISL will ensure all the project components i.e., including road/rail connectivity are implemented in time. In addition the planned CSR and EMP measures will also be implemented and monitored to ensure the socio-economic development of the region.	Being complied
27	The implementation of the EMP/RAP/CSR will be ensured through the institutional and regulatory mechanism with regular monitoring and periodic compliance reports to the MoEF	Being complied
28	Special care will be taken to minimise the tree felling in the backup area and to plan the development in tune with the topography.	Being complied to the extent possible, but in line with the technical requirements of the project
29	The livelihood restoration measures for fishermen affected during construction phase as reported in the EIA has to be implemented	R&R package for fishermen has been finalised in consultation with the affected PAPs & disbursed
30	Dredging materials will be used for reclaiming (filling) the sea and additional materials are not required	Being complied
31	The number of fishermen who will be temporarily affected in the Adimalathura stretch have been assessed and livelihood restoration measures have been framed for the construction period	As and when the works in this stretch is initiated, appropriate compensation will be disbursed during the affected period
32	There will be no erosion on the shoreline on account of dredging the deep sea at (-) 18m to (-) 20m	Year round status of the shoreline is being mapped for a stretch of 40km a (Last Six month Monitoring Report is attached as Annexure I.) No erosion has been observed on the shoreline since commencement of monitoring

33	An Area Development Plan (ADP) is being prepared by CEPT University (Ahmedabad) for planned development of the region to avoid haphazard development.	A workshop for finalisation of the periphery of the ADP was held on 19 <sup>th</sup> May 2017. A working group from concerned departments will be formed for finalisation of the periphery of ADP within 6 months.
34	Maximum 3 ships are expected per day in phase I. Appropriate traffic mechanism to cross the ship channel for fisherman with first priority will be practised as is happening in Cochin Port where fishing harbour, container berth, navy, shipyard, inland water transport etc are co-existing	Will be complied in the operation phase
35	An additional fish landing centre has been suggested at Vizhinjam to decongest the existing harbour, and to cater to the needs of the fisherman in the 15 km vicinity including Pozhiyur & Poovar, considering the suitability of the site having natural bay, increased tranquillity and operational / infrastructural convenience than location like Pozhiyur–Poovar estuary	The work for construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated as part of the funded work component of the concession agreement with AVPPL
36	Implementation of CSR measures and planned development of the region through well designed area development plan will arrest the formation of slums and the like.	Refer point 33 above
37	"Inconvenience Allowances" during construction period of three years to the fisherman (As per EIA Report)	Inconvenience allowance in the form of kerosene for outboard engines for circumventing the construction site will be provided to affected boats during the construction period.
38	As per the Entitlement Framework, Hardship Allowance is suggested in the EIA/EMP for resort workers who lost their job due to acquisition of the resort	Compensation for livelihood loss; Rs 6.08 Crores out of allocated 6.11 Crores has been disbursed to 211 out of 211 number of resort workers.
39	During the construction period of three years livelihood assistance to the shore seine fisherman in the 2km ship channel foot print beach has been suggested although they can move further southward and continue with their activity.	As and when the works in this stretch is initiated, appropriate compensation will be disbursed during the affected period
40	Ensure that all EMP related aspects are properly implemented during construction and operational phase	As the project is in construction stage, construction stage EMP is being implemented. Operation stage EMP will be implemented during operation stage
41	A dedicated port road directly connecting to NH-	This is part of the concession agreement

	47 bypass is envisaged.	signed with AVPPL
42	Rail connectivity is proposed along the outer side of the stream running parallel to the harbour road and that too on elevated structures without affecting the entry to the fishing harbour	Will be complied
43	The port project will not affect the inflow of Neyyar river and AVM canal	This is a fact, since both are away from the project site
44	The port road will be access controlled for the exclusive use of container and related port movements. The suggestion for a new approach road can be considered on technical feasibility and subject to surrendering of adequate land by the beneficiaries	Scope of providing connectivity for the local residents to the nearest Vizhinjam-Poovar road will be considered subject to surrendering of adequate land by the beneficiaries
45	The Master Plan has already included a reservoir/ground water recharge facility adjoining the road for water-shed management	Will be complied
46	Where ever possible and based on eligibility, local people will be employed	Will be complied
47	Reconstruction of Roads in the nearby area- Adequate provisions have been made for the old fishing harbour and its linkage roads as it will be adopted as a part of best practice and beautification process	Will be complied
48	The development of the warehouse area will be taken up	This is part of the proposed port estate development
49	Livelihood Compensation considered for those who were affected at Adimalathura during construction phase and those affected in the project foot print area at Mulloor and Valiyakadappuram during construction/ operation phase	R&R package for fishermen has been finalised in consultation with the affected PAP's & is being disbursed. As and when the works in Adimalathura stretch is initiated, appropriate compensation will be disbursed during the affected period
50	CSR activity suggested a skill development centre to equip the local people to adapt to the industrial needs of port/tourism and fisheries so that they can be appropriately employed based on their merit. However during construction period the EIA study has suggested to adequately employ local population to the maximum extent possible	Need Assessment Study conducted in a sample size of 12,300 youth for skill development programme. . Employability, Livelihood & Construction Skill Development Programme initiated through Adani Foundation.
51	Loss of livelihood to the traditional fisherman who do shell fishing in the Mulloor beach area is a real issue/impact. All necessary provisions for livelihood assistance have been considered in the	R&R package for fishermen has been finalised in consultation with the affected PAP's & disbursed

	EIA Report.	
52	Only prohibited area for fishing is inside the breakwater. However fishing will be restricted along ship channel and port limits subject to safety norms and operational requirements.	Will be complied during operation phase
53	The existing notification of the Vizhinjam Port includes the Vizhinjam Fishing harbour. The revised Notification will include the Vizhinjam Deep Water Port based on revised Port limit provided in the EIA report. Except inside the breakwater of the Deep Water Port in all other areas of the port limit fishing is allowed with all safety and operational restrictions.	Revised port limits for (i) fishing harbour/minor port and (ii) Vizhinjam seaport will be notified. Restrictions on fishing will be as per the applicable laws.
54	There will only be a movement of 8 barges per day during the construction period of 3 years and the same will not be a hindrance for the fisherman to cross since this is far less than the number of ships being crossed by them daily in the international ship channel.	Inconvenience, if any, to fishing will be monitored during the construction phase.
55	The maximum rate of accretion at southern side of the harbour will be 21.6 m/year in the 1 <sup>st</sup> year and by the end of tenth year it reduces to 0.5 m/year. The shoreline evolution along the south side of the port will get stabilized in the initial years. On stabilization, the maximum net increase in the shoreline accretion would be around 27m immediately south of the port which reduces to negligible levels within 2.3km alongshore. There will not be any impact on the shoreline along Poovar-Pozhiyar sector which is about 7km away from the proposed port.	Year round status of the shoreline is being mapped from Since Feb 2015 for a stretch of 40km. Shoreline Monitoring report is being submitted to MoEF&CC every Six Month along with EC Compliance report No impact has been observed on the shoreline since commencement of monitoring
56	The 8 resorts affected will be compensated in line with R&R package in place but subject to the advice of the KCZMA/MoEF considering that all these resorts are in NDZ as per CRZ Notification, 2011	Discussion for fixing of compensation packages for the affected resort owners have been initiated by the District level Planning Committee (DLPC) headed by the District Collector and is in progress
57	The cruise terminal proposed in the project, will promote tourism in the Kovalam-Poovar belt and the region may become the cruise hub/tourism gate way of India in future	Once the first phase of port becomes operational, it would naturally attract cruise tourism. Based on the development of cruise business, dedicated cruise berths will be planned in a phased manner. Action is also being taken in consultation with the State tourism department, to design port

		linked tourism packages covering the Kovalam-Vizhinjam- Poovar tourism corridor
58	CSR activity considers training the local people to adapt to the new economic development of the area	Need Assessment Study conducted in a sample size of 12,300 youth for skill development programme. . Employability, Livelihood & Construction Skill Development Programme initiated through Adani Foundation
59	The Coast Guard & Navy Berth are as per the needs of the Ministry of Defence on national security	Specific conditions have been included in the concession agreement relating to use of berths by Navy/Coast Guard.



## Annexure V

### Status of Environment Management Plan- Port site- Construction Stage

#### Potential Impacts and Mitigation Measures of Various Project Activities

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
<b>Construction Phase</b>					
1	Capital dredging	Marine water quality	<ul style="list-style-type: none"> <li>○ Increase in turbidity</li> <li>○ Change in marine water quality due to aqueous discharges (oily waste, sanitary wastes) from dredgers, barges and workboats</li> </ul>	<ul style="list-style-type: none"> <li>○ Check turbidity levels with baseline levels as reference during entire monitoring programme</li> <li>○ Preparation of Dredge/reclamation Management plan</li> <li>○ Discharge of waste into sea will be prohibited</li> <li>○ Oil Spill control measures will be adopted</li> <li>○ Ensure that slop tanks will be provided to barges/ workboats for collection of liquid/solid waste</li> <li>○ Marine environmental monitoring as per environmental monitoring programme</li> </ul>	<ul style="list-style-type: none"> <li>○ Capital dredging has started in a limited way since Dec 2015 with the use of a cutter suction dredger. Turbidity level is being monitored at three locations continuously and found comparable to baseline figures</li> </ul>
		Marine ecology	<ul style="list-style-type: none"> <li>○ Decrease in DO levels</li> <li>○ Increase in noise levels</li> <li>○ Removal of benthic communities</li> <li>○ Increase in species diversity and density in areas adjoining dredging site</li> <li>○ Smothering or blanketing of sub-tidal communities</li> </ul>		<ul style="list-style-type: none"> <li>○ Marine Environmental Monitoring has commenced since August 2016 and the parameters are within permissible limits.</li> </ul>
2	Material transport and construction activities	Air Quality	<ul style="list-style-type: none"> <li>○ Exhaust emissions from vehicles</li> <li>○ Windblown dust during material movement</li> <li>○ Fugitive dust during material unloading</li> <li>○ Dust suspension during site preparation, construction</li> </ul>	<ul style="list-style-type: none"> <li>○ Most of the Breakwater stones will be transported from the quarries to the nearest harbour. From there through Barges it will be transported to project site. This is will avoid substantiate flow of Heavy Vehicles during construction</li> </ul>	<ul style="list-style-type: none"> <li>○ Rejected rocks being cleared as part of quarry closure plan is being used for Breakwater Construction. Fugitive emission during transportation is contained by water sprinkling on approach roads and tarpaulin covering</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				<p>Phase thereby minimizing impact on Air and Noise Quality in the project region.</p> <ul style="list-style-type: none"> <li>○ To reduce impacts from exhausts, emission control norms will be enforced / adhered.</li> <li>○ All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards</li> <li>○ Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt</li> <li>○ Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment etc</li> <li>○ Provide enclosures on all sides of construction site</li> <li>○ Movement of material will be mostly during non-peak hours.</li> <li>○ On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic</li> <li>○ Water sprinkling will be carried out to suppress fugitive dust</li> </ul>	<p>of the transport trucks</p> <ul style="list-style-type: none"> <li>○ It is ensured that all vehicles entering the Port have a valid PUC certification</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				<ul style="list-style-type: none"> <li>Environmental awareness program will be provided to the personnel involved in developmental works</li> <li>Use of tarpaulin covers and speed regulations for vehicles engaged in transportation</li> </ul>	
		Noise	<p>Noise from following activities</p> <ul style="list-style-type: none"> <li>Vehicles transporting construction material</li> <li>Diesel run engines of construction machinery and dredgers</li> <li>Pile driving activities during construction of cargo berths</li> </ul>	<ul style="list-style-type: none"> <li>Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB</li> <li>Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A)</li> <li>Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used</li> <li>Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors</li> <li>Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers</li> </ul>	<ul style="list-style-type: none"> <li>Noise levels are being monitored every fortnight and are found to be well within the permissible limits within the project area.</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				<ul style="list-style-type: none"> <li>○ High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10pm) to minimise noise impacts</li> <li>○ Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc.</li> <li>○ Ambient noise levels will be monitored at regular intervals</li> </ul>	
		Disturbance to Natural Drainage pattern	<ul style="list-style-type: none"> <li>○ Impact to natural flow of runoff due to blockage and change of drainage course</li> </ul>	<ul style="list-style-type: none"> <li>○ Port development is mostly on reclamation</li> <li>○ Rainwater/surface water harvesting pond included in design</li> <li>○ Existing drainage near port boundary (backup area) will be integrated with port storm water drainage &amp; management plan</li> <li>○ Existing drains / Streams that are passing in ware house area will not be closed/ diverted. And these streams will be de-silted and enhanced to improve their carrying capacities</li> </ul>	<ul style="list-style-type: none"> <li>○ Measures have been taken for maintaining the natural flow of the streams debouching in the construction site, by laying drain pipes beneath the temporary road. A mix of water harvesting pond with appropriate drains are planned for the operational phase</li> </ul>
		Vegetation and Strain on existing infrastructure	<ul style="list-style-type: none"> <li>○ Loss of vegetation and strain on existing infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>○ Port development is planned mostly on reclaimed land;</li> <li>○ Land use at backup area, PAF Zone and warehouse area will be mostly coconut</li> </ul>	<ul style="list-style-type: none"> <li>○ Care is taken to limit the felling of trees to the bare minimum. Plantation of saplings along the road margins and port boundary are planned as part of the</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				plantation and low mixed plantation ○ Adequate green belt will be developed in port and its associated (backup area, PAF, warehouse and road & rail connectivity). ○ Temporary workers camp with self-sufficient infrastructure facilities.	master plan development
		Existing Traffic	○ Traffic addition	○ NH-47 bypass under construction around 2.0 km from the proposed Port site and the Transportation of construction materials will be carried out during non- peak hours. Hence a dedicated road of 45 M RoW is proposed to connect site with NH Bypass ○ Regularization of truck movement ○ Majority of rock for breakwater construction will be transported through sea route via barges from nearby quarry sites ○ A dedicated rail network of approximately 15 km is proposed from port to Nemom railway station	Traffic monitoring & regularization is being carried out for maximum efficiency
3.	Land Reclamation	Existing Water Resources like Groundwater	○ The surface water drainage system may get affected	○ Land to be reclaimed will be separated from adjoining land by creating containment bund. ○ Return sea water will be sent back to sea	○ The existing drains are maintained for unhindered disposal of surface drainage water.

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
		and surface water		through appropriate channels.	
4.	Solid Waste Management	Soil quality	<ul style="list-style-type: none"> <li>○ Impacts due to disposal of solid waste on ground without treatment</li> </ul>	<ul style="list-style-type: none"> <li>○ Construction waste will be used within port site for filling of low lying areas.</li> <li>○ Composted bio-degradable waste will be used as manure in greenbelt.</li> <li>○ Other recyclable wastes will be sold.</li> <li>○ Excavated soil at backup, PAF Zone and ware house area will be stockpiled in a corner of the site in bunded area to avoid run off with storm water.</li> <li>○ General refuse generated on-site will be collected in waste skips and separated from construction waste.</li> <li>○ Burning of refuse at construction sites will be prohibited.</li> <li>○ All control measure will be taken to avoid the contamination of groundwater during construction phase</li> </ul>	<ul style="list-style-type: none"> <li>○ Construction waste will be used within port site for filling of low lying areas.</li> <li>○ Burning of refuse at construction sites is prohibited.</li> <li>○ There is no disposal of waste in the project area which may lead to groundwater contamination</li> </ul>
5.	Handling of hazardous wastes	Human safety and property loss	<ul style="list-style-type: none"> <li>○ Fire accidents due to hazardous material handling</li> </ul>	<ul style="list-style-type: none"> <li>○ Adequate safety measures as per OSHA standards will be adopted</li> <li>○ Construction site will be secured by fencing with controlled/limited entry points.</li> <li>○ Hazardous materials such as lubricants, paints, compressed gases, and varnishes</li> </ul>	<p>Presently no hazardous waste is being handled as the present construction activities are of preliminary nature.,</p> <ol style="list-style-type: none"> <li>Adequate safety measures as per OSHA standards will be adopted as and when necessary.</li> <li>Construction site is being secured</li> </ol>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				<p>etc., will be stored as per the prescribed/approved safety norms.</p> <ul style="list-style-type: none"> <li>Construction site will be secured by fencing with controlled/ limited entry points</li> <li>Medical facilities including first aid will be available for attending to injured workers.</li> <li>Handling and storage as per statutory guidelines.</li> <li>Positive isolation procedures will be adhered</li> <li>Hazardous wastes will be disposed through approved KSPCB/CPCB vendors.</li> </ul>	<p>by fencing with controlled/limited entry points</p> <ul style="list-style-type: none"> <li>Medical facilities including first aid are available for attending to injured workers.</li> <li>Handling and storage as per statutory guidelines.</li> <li>Hazardous wastes will be disposed through approved KSPCB/CPCB vendors.</li> </ul>
6.	Water Resources	Water scarcity / Pollution	<ul style="list-style-type: none"> <li>Impacts to the surface water body</li> </ul>	<ul style="list-style-type: none"> <li>Water requirement during the construction is expected to be around 0.10 MLD</li> <li>Water will be sourced from Vellayani lake</li> <li>Avoid/minimise the loss during conveyance</li> <li>Optimized utilization of the water</li> <li>Care will be taken to prevent the runoff from the construction site to the nearby natural streams, if any</li> </ul>	<ul style="list-style-type: none"> <li>A water treatment plant of 3mld capacity is already commissioned. Source of the water is Vellayani lake.</li> </ul>
7.	Fishing	Fisherme	<ul style="list-style-type: none"> <li>Impact on fishing due to Construction</li> </ul>	<ul style="list-style-type: none"> <li>Signboards will be placed at the</li> </ul>	<ul style="list-style-type: none"> <li>Signboards have been placed for</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
		n and fishing villages	works	<p>construction activities in order to make fishermen aware of the ongoing construction activities</p> <ul style="list-style-type: none"> <li>○ Necessary marker buoys will be installed</li> <li>○ Interactions will be initiated with the fishing community before commencement of construction works</li> </ul>	<p>demarcation of construction area.</p> <ul style="list-style-type: none"> <li>○ Continuous interaction being done with fishing community for mutual understanding of construction activity.</li> </ul>
8.	Tourism	Effect on tourism	Loss of Pocket beach/access/expose to beach / loss of resorts and other tourist facilities in the acquired area	<ul style="list-style-type: none"> <li>○ Tourism activity is observed at Kovalam located about 2.0 km towards the North of Proposed Port. Mathematical Modelling studies on shoreline changes show the insignificant impact due to the port development on the existing coastline. However, the Shoreline monitoring during construction as well as operation Phases were proposed and given as Appendix 5.4.</li> <li>○ A cruise terminal and related facilities is part and parcel of the project. This is to largely compensate the losses made</li> <li>○ For all acquired properties and land adequate compensation will be provided based on legally valid documents</li> </ul>	<ul style="list-style-type: none"> <li>○ The tourism activity in the nearby Kovalam area is not impacted by the construction of the port.</li> <li>○ Once the first phase of port becomes operational, it would naturally attract cruise tourism. Based on the development of cruise business, dedicated cruise berths will be planned in a phased manner. Action is also being taken in consultation with the State tourism department, to design port linked tourism packages covering the Kovalam-Vizhinjam- Poovar tourism corridor</li> <li>○ Discussion for fixing of compensation packages for the affected resort owners have been initiated by the District level Planning Committee</li> </ul>



S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
					(DLPC) headed by the District Collector and is in progress
9	Breakwater	Change in shoreline	Erosion and accretion along the coast	<ul style="list-style-type: none"> <li>Shoreline monitoring shall be carried out</li> <li>Suitable Shoreline protection measures will be implemented based on the observations</li> </ul>	<ul style="list-style-type: none"> <li>Shoreline monitoring of 40 km area along the shore (20 km each on either side of project area) is being done. No need has arisen so far for any mitigation measures.</li> </ul>
10	Effect on existing fishing harbour	Movement of fishing boats	<ul style="list-style-type: none"> <li>Restriction on free movement of fishing boats to/ from fishing harbour</li> <li>Tranquillity in fishing harbour</li> <li>Loss of livelihood</li> </ul>	<ul style="list-style-type: none"> <li>Detailed modelling studies have been carried out on tranquillity conditions in the fishing harbour with port development. The studies reveal that the tranquillity conditions will be improved in fishing harbour with construction of the port. Further minor accretion happening within the fishing harbour will be arrested</li> <li>Traffic of Marine vessel/ fishing boats will be planned without affecting each other</li> <li>Adoption of fishing harbour to manage it to perform as per International standard</li> <li>A new fishing harbour provided under CSR initiatives because of additional tranquillity creator.</li> <li>Loss of livelihood will be either taken care of in the new port</li> </ul>	<ul style="list-style-type: none"> <li>Wave, current and tide data are being monitored along with the shoreline monitoring of 40 km stretch. Based on the above, the modelling studies done at the EIA stage will be further evaluated and related to the shoreline evolution.</li> <li>Traffic of Marine vessel/ fishing boats will be planned without affecting each other</li> <li>The work for construction of the fish landing centre (Rs.16 crores) and the fishery breakwater (Rs.131.12 crores) has been initiated as part of the funded work component of the concession agreement with AVPPL</li> <li>In consultation with the fishermen, an enhanced livelihood compensation package amounting to Rs. 23.80 crores was sanctioned by GoK,</li> </ul>

S.No	Activity	Relevant Environmental Components likely to be impacted	Likely Impacts in the absence of Mitigation Measures	Proposed Mitigation Measures	Status as on 31 <sup>st</sup> March 2017
				premises or adequately compensated mostly in the form of employment	instead of Rs.7.1 crores suggested earlier in the EIA stage. Out of this amount, Rs.17.30 crores have been disbursed till 31 <sup>st</sup> March 2017 for a total number of 183 livelihood affected PAP's whose verification were complete in all respects. Verification of the documents of balance PAP's is in progress.
11	Shoreline changes	erosion/accretion	Loosing of beach area Impact on houses/ structures along the coast	Final shoreline Impact management plan will be prepared in consultation with agencies like CESS/INCOIS, NGO and local bodies and will implemented. The draft shoreline impact management plan is given in Appendix 6.6.	<ul style="list-style-type: none"> <li>Shoreline monitoring of 40 km length (20 Km either side) is being done under the technical guidance of National Institute of Ocean Technology (NIOT), Chennai.</li> </ul>

## Environmental Management Plan - Road/Rail Corridors\*

\*Construction work has not commenced in this area

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
1	Environmental Management and Monitoring Facility Equipment for EMP (Meters, Vehicles and Buildings)	This will include institutional requirements, training, environmental management and monitoring. Provision for purchasing required equipment.	During and after construction (Five Years)	As a Project specific action this will have to be incorporated	<ul style="list-style-type: none"> <li>○ An Environment Management Cell has been established to look after day to day affairs like Monitoring, Training</li> <li>○ An officer of VISL has been designated as Head (EHS &amp; CSR) for effective implementation of the stipulated EHS safeguards &amp; CSR activities. AVPPL, the concessionaire executing the project has also appointed officers for EHS &amp; CSR. In addition to the above, independent environment, health and safety consultants have been being appointed as required in the concession agreement signed with AVPPL.</li> <li>○ Necessary equipment will be purchased.</li> <li>○ Third party environmental monitoring has commenced since August 2016 and the monitoring results are satisfactory</li> </ul>
2	Altered Road embankments	Retaining walls and gabions should be provided	During construction	Design standard requirement	Will be complied as and when required
3	Dust	<ul style="list-style-type: none"> <li>○ Water should be sprayed during</li> </ul>	During the	Design standard requirement	Will be Complied

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
		<p>the construction phase, at mixing sites, and temporary roads.</p> <ul style="list-style-type: none"> <li>○ In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried out at regular intervals to prevent dust.</li> <li>○ Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.</li> </ul>	Construction phase		
4	Air Pollution	<ul style="list-style-type: none"> <li>○ Vehicles and machinery are to be maintained so that emissions conform to National and State standards.</li> <li>○ All vehicles and machineries should obtain Pollution Under Control Certificates (PUC).</li> </ul>	Beginning with and continuing throughout construction phase	MORTH's Specifications	Will be Complied
5	Noise	<ul style="list-style-type: none"> <li>○ Machinery and vehicles will be maintained to keep their noise to a minimum.</li> <li>○ Construction of noise barriers of an average length of 100m and eight feet height where ever necessary.</li> </ul>	Beginning and throughout construction phase	MORTH's Specifications	Will be Complied

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
		<ul style="list-style-type: none"> <li>Proper maintenance of the rail track and rail wagon, by frequent lubrication to avoid frictional noise.</li> <li>Regular monitoring shall be carried out as per the Environmental Monitoring Plan.</li> </ul>			
6	Loss of low lying land and ponds	<ul style="list-style-type: none"> <li>Impacted ponds can be enhanced by constructing bridged structures like Gabions to avoid plugging of springs.</li> <li>Mitigation/Compensation shall be affected for the completely impacted ponds.</li> <li>At Chainage km 6.500 the Railway alignment goes below the Existing NH and then at km 6.600 it will hit pond. The pond will be excavated partially and the soil material shall be used to fill in the western part and an equivalent area lost may be excavated to compensate the loss of effective pond area.</li> </ul>	During Construction phase	MORTH's Specifications	Will be complied
7	Flood Impacts and Cross Drainage Structures	Formation level should be raised according to the design and the cross drainage structures suitably planned for the flood events.	During construction phase	MORTH's Specifications	Will be complied

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
8	Alteration of drainage	<ul style="list-style-type: none"> <li>○ In sections along watercourses, earth and stone will be properly disposed of so as not to block rivers and streams, thereby preventing any adverse impact on water quality.</li> <li>○ All necessary measures shall be taken to prevent earthworks and stone works from impeding cross drainage at streams and canals or existing irrigation and drainage systems in conformity to the Contractors visual integration and management plan and EMP.</li> </ul>	During construction phase	MORTH's Specifications	Will be complied
9	Contamination from Wastes	All justifiable measures will be taken to prevent the wastewater produced during construction from entering directly into rivers and irrigation systems	Throughout construction phase	MORTH's Specifications	Will be complied
10	Borrow pits	Borrow pits are to be identified, opened and closed after consultations and proper documentation	During construction phase	MORTH's Specifications	Will be complied as and when required
11	Quarrying and Material sources	<ul style="list-style-type: none"> <li>○ Quarrying will be carried out at approved and licensed quarries only.</li> <li>○ Details of Quarrying material</li> </ul>	During construction phase	MORTH's Specifications	Construction material is being procured from approved quarries belonging to third party contractors

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
		sources are given in Chapter 4.			
12	Soil Erosion and Soil Conservation	<ul style="list-style-type: none"> <li>On slopes and other suitable places along the two proposed corridors, trees and grass should be planted.</li> <li>On sections with filling and deep cutting their slopes should be covered by sod, or planted with grass, etc.</li> <li>If existing irrigation and drainage system, ponds are damaged, they will be suitably repaired.</li> <li>Retaining walls and gabions shall be suitably provided.</li> </ul>	During construction and upon completion of construction activities at these sites.	MORTH's Specifications	Will be complied
13	Loss of agricultural topsoil	<ul style="list-style-type: none"> <li>Arable land should not be used for topsoil borrowing.</li> <li>Topsoil will be kept and reused after excavation is over.</li> <li>Any surplus to be used on productive agricultural land.</li> </ul>	During construction phase	MORTH's Specifications	Arable land has not been used
14	Compaction of Soil and Damage to Vegetation	Construction vehicles should operate within the Corridor of Impact avoiding damage to soil and vegetation.	During construction	MORTH's Specifications	Will be Complied
15	Loss of trees and Avenue Planting	Areas of trees cleared will be replaced according to Compensatory Afforestation	After completion of construction activities	MORTH's Specifications	Will be complied alongside the road and port boundaries

Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
		<p>Policy under the Forest Conservation Act - 1980.</p> <ul style="list-style-type: none"> <li>Landscaping shall be done at major junctions.</li> </ul>			
16	Vegetation clearance	<p>Tree clearing within the ROW should be avoided beyond that which is directly required for construction activities and/ or to reduce accidents.</p> <p>Especially in plantation and house garden areas both along road and rail alignment.</p>	During cleaning operations	MORTH's Specifications	Will be complied
17	Fauna	<p>Construction workers should protect natural resources and animals. Hunting of birds and other local animals is prohibited.</p>	During construction phase	MORTH's Specifications	Will be complied
18	Traffic Jams and congestion	<p>If there is traffic congestion during construction, measures should be taken to relieve it as far as possible with the co-operation of the traffic police.</p>	During construction phase	MORTH's Specifications	Will be complied
19	Health and Safety	<p>All contractors' staff and workers must wear high visibility purpose made overalls or trousers/a waist coat at all times All operators working with any materials above head height (even in trenches) must wear hard hats all at times on the</p>	Health and Safety	MORTH's Specifications	Will be complied



Sl.No.	Environmental Impacts and Issues	Mitigation Measures	Time Frame	Contractual Clause	Current Status
		worksite.			
20	Pollution of Streams parallel or along the alignments	Construction material /waste should be disposed of properly so as not to block or pollute streams or ponds with special attention to confining concrete work.	During construction phase	MORTH's Specifications	Will be Complied
21	Cultural Remains	Construction should be stopped until authorised department assess the remains to preserve Archaeological relics and cultural structures like Temples, mosques and churches. Archaeologists will supervise the excavation to avoid any damage in the relics.	Throughout Construction phase	ASI Acts	Will be complied

### Environment Management Plan – Warehouse Area\* (Construction Phase)

\*Construction work has not commenced in this area

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
	<b>WAREHOUSE AREA</b>				
	<b>Construction Phase</b>				
1	Material transport and construction activities	Air Quality/Dust	<ul style="list-style-type: none"> <li>Exhaust emissions from vehicles</li> </ul>	<ul style="list-style-type: none"> <li>To reduce impacts from exhausts, emission control norms will be</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
			<ul style="list-style-type: none"> <li>○ Windblown dust during material movement</li> <li>○ Fugitive dust during material unloading</li> <li>○ Dust suspension during site preparation, construction and trenching</li> </ul>	<p>enforced / adhered.</p> <ul style="list-style-type: none"> <li>○ All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards.</li> <li>○ Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt.</li> <li>○ Providing adequately sized construction yard for storage of construction materials, equipment, tools, earthmoving equipment, etc.</li> <li>○ Provide enclosures on all sides of construction site</li> <li>○ Movement of material will be mostly during non-peak hours.</li> <li>○ On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic</li> <li>○ Water should be sprayed during the construction phase, at mixing sites, and temporary roads.</li> <li>○ In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried</li> </ul>	

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>out at regular intervals to prevent dust.</p> <ul style="list-style-type: none"> <li>○ Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.</li> <li>○ Environmental awareness program will be provided to the personnel involved in developmental works.</li> <li>○ Use of tarpaulin covers and speed regulations for vehicles engaged in transportation.</li> </ul>	
		Noise	<p>Noise from following activities</p> <ul style="list-style-type: none"> <li>○ Vehicles transporting construction material</li> <li>○ Diesel run engines of construction machinery</li> </ul>	<ul style="list-style-type: none"> <li>○ Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB.</li> <li>○ Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A).</li> <li>○ Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used</li> <li>○ Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				receptors. <ul style="list-style-type: none"> <li>Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers.</li> <li>High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimize noise impacts.</li> <li>Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc.</li> <li>Ambient noise levels will be monitored at regular intervals</li> </ul>	
2	Construction of Buildings, Roads, Sheds, etc.	Vegetation and Strain on existing infrastructure	Loss of vegetation and strain on existing infrastructure	Most of the land is covered with coconut trees and few other trees. Trees that are cut down will be accounted for and the same no. of trees of the same or some other species will be replanted at another location to compensate for the loss of greenery.	Will be complied alongside the road and port boundaries
		Water Environment	There are several streams that pass through the warehouse area and will be affected with the construction of new infrastructure on the land	<ul style="list-style-type: none"> <li>The streams 1 and 2 will be made to avoid entering the warehouse area by diverging them into the Karichal River.</li> <li>A tunnel like arrangement with RCC</li> </ul>	Will be appropriately planned in consultation with the concerned departments

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>structures will be used so as to not affect the streams (3 and 4) that will go through the warehouse area. The streams will be made to go under the warehouse areas through the tunnel. Another option is to divert through the boundary wall- an application was filed with the irrigation dept.</p> <ul style="list-style-type: none"> <li>○ Another option is to divert the stream through the boundary</li> <li>○ An application has been filed with the irrigation department for permission.</li> </ul>	
			<ul style="list-style-type: none"> <li>○ Loss of low lying area</li> </ul>	<ul style="list-style-type: none"> <li>○ The low lying area in the region is already made use by the local people, and has been degraded. There are no active ecological systems in the area. As far as possible, during operation phase the network of streams that add to the low lying area of the region will be diverted or channeled under the constructed buildings to avoid impact to the low lying area.</li> <li>○ Filling of low lying areas (if required) shall be done</li> </ul>	Will be appropriately planned in consultation with the concerned departments
			<ul style="list-style-type: none"> <li>○ Impact to the</li> </ul>	<ul style="list-style-type: none"> <li>○ Construction waste such as</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
			downstream due to pollution of the streams	cement, paint, and other construction waste will flow into the downstream parts of the streams and Karichal River. Construction will be avoided during rainy season. Good housekeeping practices, such as cement being stored in dry areas will be taken care of. Labour camps will be provided with proper support services.	
		Disturbance to Natural Drainage pattern	<ul style="list-style-type: none"> <li>○ Impact to natural flow of runoff due to blockage and change of drainage course</li> </ul>	<ul style="list-style-type: none"> <li>○ As mentioned above, formidable measures will be taken to avoid the disturbance to the natural flow of water. If some structure or building comes in the way of the existing flow of water, the flow will be redirected to the closest stream in the drainage pattern.</li> <li>○ In sections along watercourses, earth and stone will be properly disposed of so as not to block rivers and streams, thereby preventing any adverse impact on water quality.</li> <li>○ All necessary measures shall be taken to prevent earthworks and stone works from impeding cross</li> </ul>	Being complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				drainageat streams and canals or existing irrigation and drainage systems in conformity EMP.	
		Existing Traffic	Traffic addition	<ul style="list-style-type: none"> <li>○ Transportation of construction materials will be carried out during non- peak hours.</li> <li>○ Regularization of truck movement.</li> <li>○ Existing roads shall be strengthened and shall be used for the construction material transportation.</li> </ul>	Being complied
3	Solid Waste Management	Soil quality	<ul style="list-style-type: none"> <li>○ Impacts due to disposal of solid waste on ground without treatment</li> </ul>	<ul style="list-style-type: none"> <li>○ Construction waste will be used within warehouse site for filling of low lying areas.</li> <li>○ Composted bio-degradable waste will be used as manure in greenbelt. Other recyclable wastes will be sold.</li> <li>○ Excavated soil will be stockpiled in a corner of the site in bunded area to avoid run off with storm water.</li> <li>○ General refuse generated on-site will be collected in waste skips and separated from construction waste.</li> <li>○ Burning of refuse at construction sites will be prohibited.</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
	<p align="center"><b>Project Auxiliary Facility (PAF)* ZONE</b></p> <p align="center"><b>*Construction work has not commenced in this area</b></p>				
	<b>Construction Phase</b>				
1	Material transport and construction activities	Air Quality/Dust	<ul style="list-style-type: none"> <li>Exhaust emissions from vehicles</li> <li>Windblown dust during material movement</li> <li>Fugitive dust during material unloading</li> <li>Dust suspension during site preparation, construction and trenching</li> </ul>	<ul style="list-style-type: none"> <li>To reduce impacts from exhausts, emission control norms will be enforced / adhered.</li> <li>All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards.</li> <li>Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt.</li> <li>Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc.</li> <li>Provide enclosures on all sides of construction site</li> <li>Movement of material will be mostly during non-peak hours.</li> <li>On-site vehicle speeds will be controlled to reduce excessive dust suspension in air and dispersion by traffic</li> </ul>	Will be complied



Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<ul style="list-style-type: none"> <li>Water should be sprayed during the construction phase, at mixing sites, and temporary roads</li> <li>In laying sub-base, water spraying is needed to aid compaction of the material. After the compaction, water spraying should be carried out at regular intervals to prevent dust.</li> <li>Vehicles delivering materials should be covered to reduce spills and dust blowing off the load.</li> <li>Environmental awareness program will be provided to the personnel involved in developmental works.</li> <li>Use of tarpaulin covers and speed regulations for vehicles engaged in transportation.</li> </ul>	
		Noise	Noise from following activities <ul style="list-style-type: none"> <li>Vehicles transporting construction material</li> <li>Diesel run engines of construction machinery</li> </ul>	<ul style="list-style-type: none"> <li>Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB.</li> <li>Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A).</li> <li>Well-maintained construction</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>equipment, which meets the regulatory standards for source noise levels, will be used</p> <ul style="list-style-type: none"> <li>○ Any equipment emitting high noise, wherever possible, will be oriented so that the noise is directed away from sensitive receptors.</li> <li>○ Noise attenuation will be practised for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers.</li> <li>○ High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimise noise impacts.</li> <li>○ Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc.</li> <li>○ Ambient noise levels will be monitored at regular intervals</li> </ul>	
	Construction of Buildings, Roads, Parking features, etc.	Vegetation and Strain on existing infrastructure	Loss of vegetation and strain on existing infrastructure.	<ul style="list-style-type: none"> <li>○ Most of the land is covered with coconut trees and few other trees. Trees that are cut down will be accounted for and the same no. of</li> </ul>	Will be complied alongside the road and port boundaries

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>trees of the same or some other species will be replanted at another location to compensate for the loss of greenery.</p> <ul style="list-style-type: none"> <li>There are very few existing buildings and infrastructure on the PAF zone area land which will be acquired and people in that area will be rehabilitated.</li> </ul>	
		Existing Traffic	Traffic addition	<ul style="list-style-type: none"> <li>Transportation of construction materials will be carried out during non- peak hours.</li> <li>Regularization of truck movement.</li> <li>The existing roads shall be strengthened and shall be used for the construction material transportation.</li> </ul>	Will be complied
		Solid Waste Management	Impacts to Soil quality due to disposal of solid waste on ground without treatment	<ul style="list-style-type: none"> <li>Construction waste will be used within port site for filling of low lying areas.</li> <li>Composted bio-degradable waste will be used as manure in greenbelt. Other recyclable wastes will be sold.</li> <li>Excavated soil will be stockpiled in a corner of the site in bunded area to avoid run off with storm water.</li> <li>General refuse generated on-site</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>will be collected in waste skips and separated from construction waste.</p> <ul style="list-style-type: none"> <li>○ Burning of refuse at construction sites will be prohibited.</li> </ul>	
	<b>BACK UP AREA* – Construction Phase</b>				
	<b>*Construction work has not commenced in this area</b>				
1	Material transport and construction activities	Air Quality	<ul style="list-style-type: none"> <li>○ Exhaust emissions from vehicles</li> <li>○ Windblown dust during material movement</li> <li>○ Fugitive dust during material unloading</li> <li>○ Dust suspension during site preparation, construction and trenching</li> </ul>	<ul style="list-style-type: none"> <li>○ To reduce impacts from exhausts, emission control norms will be enforced / adhered.</li> <li>○ All the vehicles and construction machinery will be periodically checked to ensure compliance to the emission standards</li> <li>○ Construction equipment and transport vehicles will be periodically washed to remove accumulated dirt</li> <li>○ Providing adequately sized construction yard for storage of construction materials, equipment tools, earthmoving equipment, etc.</li> <li>○ Provide enclosures on all sides of construction site</li> <li>○ Movement of material will be mostly during non-peak hours.</li> <li>○ On-site vehicle speeds will be</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>controlled to reduce excessive dust suspension in air and dispersion by traffic</p> <ul style="list-style-type: none"> <li>○ Water sprinkling will be carried out to suppress fugitive dust</li> <li>○ Environmental awareness program will be provided to the personnel involved in developmental works</li> <li>○ Use of tarpaulin covers and speed regulations for vehicles engaged in transportation</li> </ul>	
		Noise	<p>Noise from following activities</p> <ul style="list-style-type: none"> <li>○ Vehicles transporting construction material</li> <li>○ Diesel run engines of construction machinery</li> </ul>	<ul style="list-style-type: none"> <li>○ Noise levels will be maintained below threshold levels stipulated by Central/Kerala State Pollution Control Board (CPCB)/KSPCB</li> <li>○ Procurement of machinery / construction equipment will be done in accordance with specifications conforming to source noise levels less than 75 dB (A)</li> <li>○ Well-maintained construction equipment, which meets the regulatory standards for source noise levels, will be used</li> <li>○ Any equipment emitting high noise, wherever possible, will be oriented so that the noise is</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				<p>directed away from sensitive receptors</p> <ul style="list-style-type: none"> <li>Noise attenuation will be practiced for noisy equipment by employing suitable techniques such as acoustic controls, insulation and vibration dampers</li> <li>High noise generating activities such as piling and drilling will be scheduled at daytime (6.00 am to 10 pm) to minimise noise impacts</li> <li>Personnel exposed to noise levels beyond threshold limits will be provided with protective gear like earplugs, muffs, etc.</li> <li>Ambient noise levels will be monitored at regular intervals</li> </ul>	
2	Construction Activities	Water Environment	Flood Impacts and Cross Drainage Structures	Formation level should be raised according to the design and the cross drainage structures suitably planned for the flood events.	Will be complied
			Contamination from Wastes	All justifiable measures will be taken to prevent the wastewater produced during construction from entering directly into the water bodies.	
		Land Environment	Soil Erosion and Soil Conservation	<ul style="list-style-type: none"> <li>On slopes and other suitable places along the two proposed corridors, trees and grass should be</li> </ul>	Will be complied

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				planted. ○ On sections with filling and deep cutting their slopes should be covered by sod, or planted with grass, etc. ○ If existing irrigation and drainage system, ponds are damaged, they will be suitably repaired. ○ Retaining walls and gabions shall be suitably provided.	
			Loss of agricultural topsoil	○ Arable land should not be used for topsoil borrowing. ○ Topsoil will be kept and reused after excavation is over. ○ Any surplus to be used on productive agricultural land.	Will be complied
			Compaction of Soil and Damage to Vegetation	○ Construction vehicles should operate within the Backup Areas avoiding damage to soil and vegetation.	Will be complied
			Loss of trees and Avenue Planting	Areas of trees cleared will be replaced according to Compensatory Afforestation Policy under the Forest Conservation Act - 1980. Landscaping shall be done at major junctions.	Will be complied alongside the road and port boundaries
			Vegetation clearance	Tree clearing within the backup areas should be avoided beyond that which is	Will be complied to the extent possible considering

Sl.No.	Activity	Relevant Environmental & Social Components likely to be impacted	Likely Impacts and their Significance in the absence of Mitigation Measures	Proposed Mitigation Measures	Current Status
				directly required for construction activities and / or to reduce accidents.	the technical requirements





Enriching Lives

**KIRLOSKAR OIL ENGINES LIMITED**

## **ENGINE TEST CERTIFICATE**

This is to certify that Kirloskar Engine Model EA10 G1 bearing Serial No. D3.9616 / 1600135 complies with Central Pollution Control Board (CPCB) norms as per the Environment (Protection) Rules 1986, in the Schedule I, in serial number 95 relating to Emission Limits for new diesel engine up to 800 KW for generator set(Genset) application- G.S.R. 771(E) dated 11 DEC 2013 & G.S.R. 232 (E) dated. 31<sup>st</sup> MARCH, 2014 notified by Ministry of Environment & Forests, Government of India.

The full load power at N.T.P. condition is 10 B.H.P. at 1500 RPM

Date: MAR-2016

Quality Assurance

Power rating is gross and conforms to ICXN/IFN/HD/LD/ISO3046/BS5514/IS10001/DIN6271 or equivalent.

Regd. Office : Laxmanrao Kirloskar Road, Khadki, Pune - 411003 INDIA Tel. : +91 (20) 2581 0341, 6608 4000. Fax : +91 (20) 2581 3208, 2581 0209, email : koel.helpdesk@kirloskar.com Website : www.koel.co.in



Enriching Lives

**KIRLOSKAR OIL ENGINES LIMITED**

## **KOEL CHHOTA CHILLI GENSET TEST CERTIFICATE**

This is to certify that KOEL CHHOTA CHILLI Genset Model KG1-5AS1  
bearing Serial No. D3.5301... / 1600135

with Engine Serial No. D3.9616/1600141 and Alternator

Serial No. BS1G016A19514-H complies with the provisions of  
Ministry of Environment & Forests, Government of India notification  
GSR No.371(E) dated 17.05.2002.

The full load at N.T.P. condition is 5 KVA with 0.8 Power  
Factor at 50 Hz.

Date: 16-MAR-2016

Quality Assurance

Genset rating conforms to ISO-8528 or equivalent.

**KOEL**  
**CHHOTA CHILLI**  
BY  
KIRLOSKAR

Regd. Office : Laxmanrao Kirloskar Road, Khadki, Pune - 411003 INDIA Tel. : +91 (20) 2581 0341, 6608 4000. Fax : +91 (20) 2581 3208, 2581 0209,  
email : koel.helpdesk@kirloskar.com Website : www.koel.co.in

QA/F/607/00

D3.340.17.0.PR



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**KIRLOSKAR OIL ENGINES LIMITED**

**ENGINE TEST CERTIFICATE**

This is to certify that Kirloskar Engine Model EA10 G1  
bearing Serial No. D3.9616 / 1600141 complies with Central  
Pollution Control Board (CPCB) norms as per the Environment (Protection)  
Rules 1986, in the Schedule I, in serial number 95 relating to Emission Limits for  
new diesel engine up to 800 KW for generator set(Genset) application- G.S.R.  
771(E) dated 11 DEC 2013 & G.S.R. 232 (E) dated. 31<sup>st</sup> MARCH, 2014  
notified by Ministry of Environment & Forests, Government of India.

The full load power at N.T.P. condition is 10 B.H.P. at  
1500 RPM

Date: MAR-2016

  
Quality Assurance

Power rating is gross and conforms to ICXN/IFN/HD/LD/ISO3046/BS5514/IS10001/DIN6271  
or equivalent.

Regd. Office : Laxmanrao Kirloskar Road, Khadki, Pune - 411003 INDIA Tel. : +91 (20) 2581 0341, 6608 4000. Fax : +91 (20) 2581 3208, 2581 0209,  
email : koel.helpdesk@kirloskar.com Website : www.koel.co.in





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**KIRLOSKAR OIL ENGINES LIMITED**

## **KOEL CHHOTA CHILLI GENSET TEST CERTIFICATE**

This is to certify that KOEL CHHOTA CHILLI Genset Model KG1-5AS1  
bearing Serial No. D3.5301... / 1600133

with Engine Serial No. D3.9616/1600135 and Alternator

Serial No. BS1G016A19268-H complies with the provisions of  
Ministry of Environment & Forests, Government of India notification  
GSR No.371(E) dated 17.05.2002.

The full load at N.T.P. condition is 5 KVA with 0.8 Power  
Factor at 50 Hz.

Date: 16-MAR-2016

  
Quality Assurance

Genset rating conforms to ISO-8528 or equivalent.

**KOEL**  
**CHHOTA CHILLI**  
BY  
KIRLOSKAR

Regd. Office : Laxmanrao Kirloskar Road, Khadki, Pune - 411003 INDIA Tel. : +91 (20) 2581 0341, 6608 4000. Fax : +91 (20) 2581 3208, 2581 0209,  
email : koel.helpdesk@kirloskar.com Website : www.koel.co.in

QA/F/607/00

D3.340.17.0.PR

## Annexure VII

Environmental Management		Commitment in EIA (in Crores)
1	Cost of Contractors EMP for all planned EMP implementation measures (Action plan report)	1.00
4	Cost of Capacity building- Training and Institutional strengthening (Training workshop)	0.20
5	Compensatory afforestation for the green cover lost for the port and its associated facilities (2500 plants per Ha for 25 Ha area)	1.25
6	Air quality monitoring at sensitive locations	0.252
7	Water quality monitoring at major water bodies	0.054
8	Noise monitoring at sensitive locations	0.009
9	Soil quality monitoring at sensitive locations	0.002
10	Marine water quality and sediment and marine biology	1.08
11	Shoreline changes	0.30
14	Cost of Median planting with a suitable species of creepers and metallic wire mesh fencing along the road (2000 m long median planting)	0.83
15	Solid waste management (sector wise)-Collection disposal system	2.50
16	Storm water Management	5.00
17	Marine Life Protection out of Oil Spill(Provision for scavenger boat)One tugboat with booms and skimmer and dust exhausting equipment	20.00
18	Cost of scavenger boat including manpower(Cost of boat)	0.20
19	Dust Sweeper (2 nos)	0.60
20	Air Pollution Control (Four water tankers for wetting of road surface and springing system)	1.00
21	Water and waste water treatment plants	4.00
22	Battery of toilets with bimonthly maintenance provision	1.00
23	Desilting and strengthen of Streams	0.50
24	Enhancement of water bodies (ponds along road & rail)	0.10
25	Enhancement of religious structures (Temple)	0.05
26	Cultural property rehabilitation cost for sacred grove	0.01
	<b>TOTAL</b>	<b>39.937 (Rounded off to 40 Crores)</b>

**Actual Expenditure:**

Activity	Expenditure in Crores (INR)
Shoreline Monitoring	0.81
Turbidity Monitoring	0.18
Air, Noise, Surface Water, Ground Water & Marine Water Monitoring	0.27
Due Diligence & Assessment	0.08
Modelling Studies	0.069
<b>Total</b>	<b>1.409</b>



## Annexure – VIII

### Environment Health, Safety & CSR Organizational Structure:

Name	Designation	Experience	Qualification	Organization
Ajit. S	Chief Project Coordinator & Head (EHS & CSR)	25 years experience in EIA studies, Env monitoring	B Tech (Civil Engg); M Tech (EnvEngg)	VISL
Anil Balakrishnan	Head – CSR	19 years	MSW, Phd	AVPPL
Y D Manmohan	Environment Specialist	28yrs	PG in Env Engineering	STUP
Sebastian Britto	Project Officer	20 years	MA , Economics	AVPPL
Stephen Vinod	Community Mobilizer	12 years	BA, Economics	AVPPL
George Zen	Community Mobilizer	31 years	BA, Sociology	AVPPL
Maya Mohan	Community Mobilizer	5 years	MSW	AVPPL
Amlan Dutta	Head – Env&Hort	18 yrs	MS, Ecology	AVPPL
AmrendraSinha	Head – Safety	17 Years	Diploma in Industrial Safety and Fire Safety	HOWE
Shaji Joseph	Safety Executive	8 Years	Diploma in mechanical & Diploma in fire and safety	HOWE