



Colombo West International Terminal
(Private) Limited

Environmental and Social Impact Assessment (ESIA) and Environment & Social Management Plan (ESMP) for West Container Terminal – 1: Colombo, Sri Lanka

Volume II: Appendix

03 April 2023

Project No.: 0661104

Document details	
Document title	Environmental and Social Impact Assessment (ESIA) and Environment & Social Management Plan (ESMP) for West Container Terminal
Document subtitle	Volume II: Appendix
Project No.	0574219
Date	03 April 2023
Version	2.0
Author	ERM Team
Client Name	Colombo West International Terminal (Private) Limited

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	ERM Team	Debanjan B	Santoshkumar K.	08.01.2023	Final
Final	02	ERM Team	Debanjan B	Santoshkumar K.	03.04.2023	Final

Environmental and Social Impact Assessment (ESIA) and Environment & Social Management Plan (ESMP) for West Container Terminal – 1: Colombo, Sri Lanka

Volume II: Appendix

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Note: The appendix numbering is not sequential; for example, 1, 2, 3, and 4 have not been developed or included in the ESIA. The appendix numbers represent the chapter number and then the sequential number of appendices in each chapter, like Appendix 2.1, 2.2, 2.3.

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- APPENDIX 5.21 CRITICAL HABITAT ASSESSMENT OF AMPHIBIANS**
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- APPENDIX 9.3 BIODIVERSITY MANAGEMENT PLAN**
- APPENDIX 9.4 STAKEHOLDER ENGAGEMENT PLAN**
- APPENDIX 9.5 COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN**
- APPENDIX 9.6 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN**
- APPENDIX 9.7 LABOUR MANAGEMENT PLAN**

APPENDIX 2.1 QUARRY LICENSE OF ACCESS



AE/CPO/PRO/GEO/2022/0427

01st November 2022

Project Director
Colombo West International Terminal (Pvt) Ltd,
No. 117, Sir Chittampalam A. Gardiner Mawatha,
Colombo – 02.

Dear Sir,

**PROVIDING THE LICENSES AND CLEARANCE DOCUMENT OF QUARRY OPERATION MIRIGAMA AND
QUARRY OPERATION THEBUWANA**

Please find enclosed the documents that you requested in regard to the Supply of Core Rock and Armour Rock for West Container Terminal Project and PO No. CWIT/Rock Supply/Colombo/PO/2022/001 dated 17th October 2022.

Should you require any further assistance in addressing the issues raised in the letter, please contact Mr. Mayon Narangoda (Senior Manager – Plant Operations) +94 77 362 3843, Mr. Dilshan Kommala (Senior Mining Engineer) +94 77 485 9356.

Your cooperation in this regard will be highly appreciated.

- Encl. 01. Industrial Mining License (IML/A/HO/N/11976/R/4) – Mirigama Quarry
02. Environmental Protection License (CEA A 127139) – Mirigama Quarry
03. Clearance from Department of Archaeology - Mirigama Quarry
04. Clearance from National Building Research Organisation – NBRO/LRRMD/KU/CEA/20/01
05. Explosives Permit (A No. 317391) - Mirigama Quarry
06. Trade License (No.3631) from Mirigama Pradeshiya Sabha – Mirigama Quarry
07. Industrial Mining License (IML/A/HO/N/16207) – Thebuwana Quarry
08. Environmental Protection License (A 06643/R8) – Thebuwan Quarry
09. Clearance from Department of Archaeology - Thebuwana Quarry
10. Clearance from National Building Research Organisation – NBRO/LRRMD/KT/HOP/LP22/0049
11. Explosives Permit (A No. 316782) - Thebuwana Quarry
12. Trade License (No. 402) from Dodangoda Pradeshiya Sabha – Thebuwana Quarry

Thanking You,

Yours faithfully,

ACCESS ENGINEERING PLC

LAGATH GAMALATHGE

GENERAL MANAGER – HEAD OF PRADUCTION PLANS

ACCESS ENGINEERING PLC

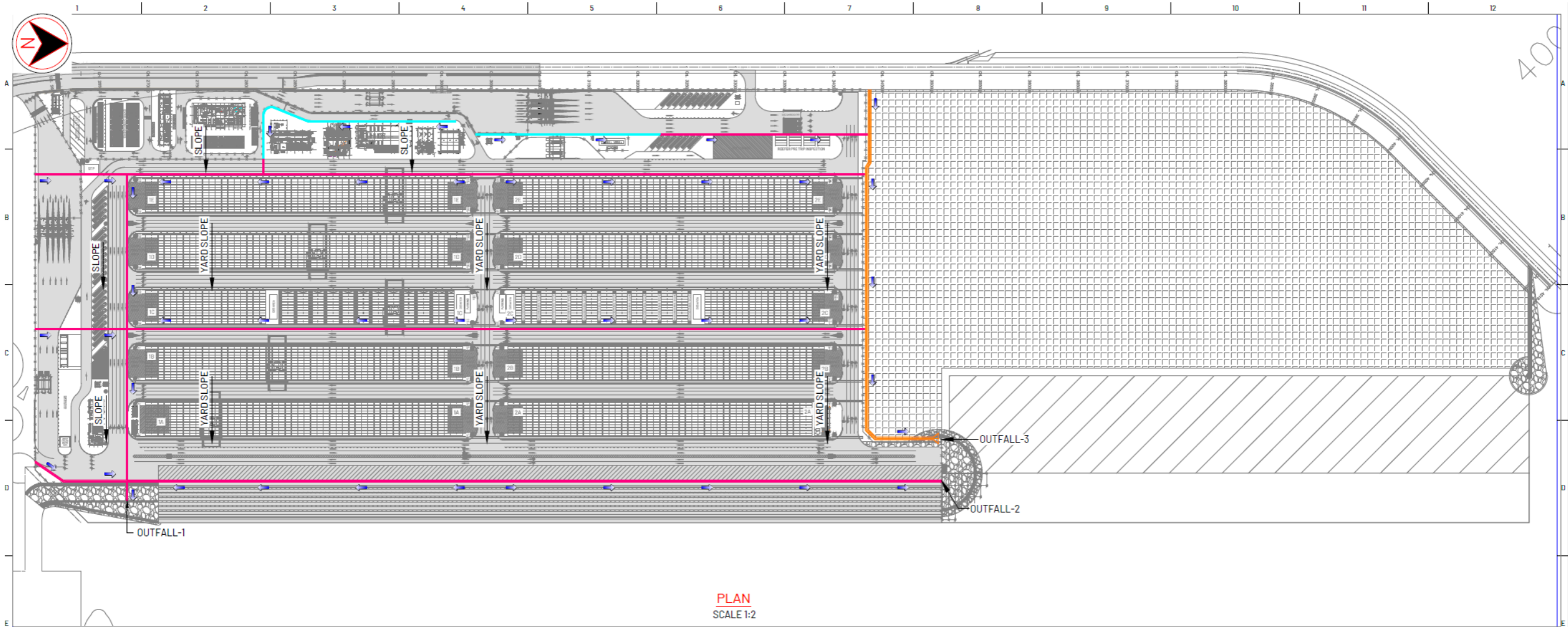
"Access Towers", 278, Union Place, Colombo 2, Sri Lanka.

Tel: +94 11 7606606 | Fax: +94 11 7606605

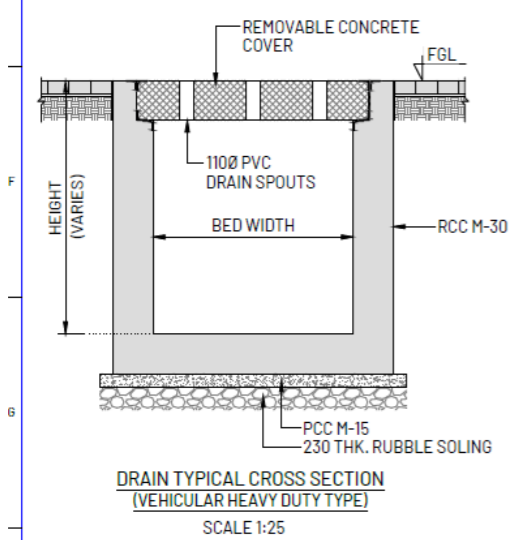
E-mail: engineering@accessengsl.com | Web: www.accessengsl.com | Reg. No. PB 200 PQ

APPENDIX 2.2 LOCAL POLICE LICENSE TO TRANSPORT OF QUARRY MATERIAL THROUGH COLOMBO CITY AREA

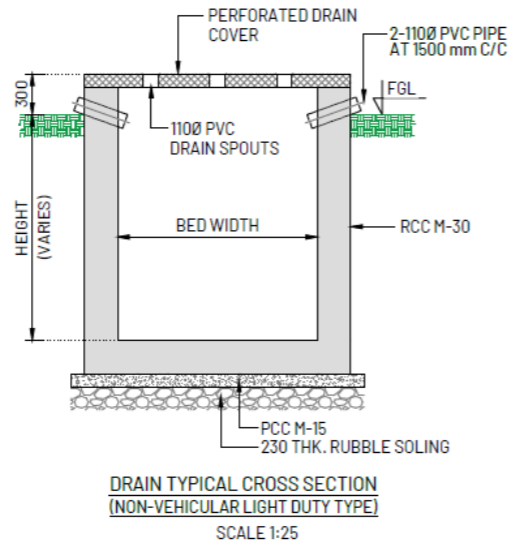
APPENDIX 2.3 STORM WATER DRAINAGE SYSTEM



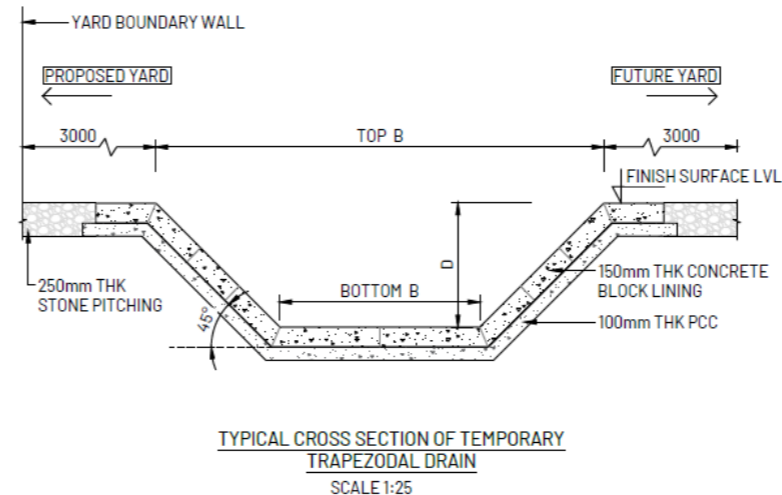
PLAN
SCALE 1:2



DRAIN TYPICAL CROSS SECTION
(VEHICULAR HEAVY DUTY TYPE)
SCALE 1:25



DRAIN TYPICAL CROSS SECTION
(NON-VEHICULAR LIGHT DUTY TYPE)
SCALE 1:25



TYPICAL CROSS SECTION OF TEMPORARY
TRAPEZODAL DRAIN
SCALE 1:25

NOTES :

1. ALL DIMENSION ARE IN MM AND LEVELS ARE IN METER UNLESS OTHERWISE SPECIFIED.
2. OUTFALL LOCATION SHOWN ARE TENTATIVE. CONTRACTOR SHALL VERIFY OUTFALL LOCATION DURING DETAILED ENGINEERING.
3. FOR GRADING PLAN REFER DRAWING NUMBER - B0293-500-I-CV-DG-001.
4. FOR GRADING PLAN SECTIONS REFER DRAWING NUMBER - B0293-500-I-CV-DG-002 & B0293-500-I-CV-DG-003.

LEGEND :

- STORM WATER DRAINAGE (VEHICULAR AREA)
- STORM WATER DRAINAGE (NON-VEHICULAR AREA)
- TEMPORARY STORM WATER DRAINAGE

Rev	Description	By	Verified	Date
1	GENERAL REVISION AS PER REVISED SCOPE LAYOUT	AP	SP	29.04.2022
0	ISSUED FOR TENDER	AP	SP	25.08.2021

Scales shown are for an A1 size original drawing

Owner
CWIT
COLOMBO WEST INTERNATIONAL
TERMINAL (PRIVATE) LIMITED.
Owner's Engineering Consultant
HOWE
Benchmarking Infrastructure

Drawn AP
Checked SP
Designed SP
Approved AB
Date 29.04.2022

Drawing Title
**WEST CONTAINER TERMINAL-1 (WCT-1)
CONTAINER TERMINAL
CIVIL & STRUCTURE
LAYOUT & DETAILS OF STORM WATER DRAINAGE**
Owner's Engineering Consultant Drawing No. B0293-500-I-CV-DG-011
Consultant/Contractor Drawing No. -
Rev 1

APPENDIX 2.4 STP DETAILS

Process Description

The STP process shall be designed with MBBR technology for treatment. MBBR or Moving bed biofilm reactor as the name suggests is a high rate attached growth aerobic treatment system wherein the bacterial growth takes place on a media submerged in wastewater. Treatment units based on MBBR are operating successfully worldwide, as the technology is rugged and simple to operate. Units can be pre- assembled for rapid on-site installation. The major advantages include a compact, efficient design (less than a half of conventional plants), low sludge generation, low odour and low visual impact, and simple maintenance requirements.

Given below are the treatment philosophy and the parameters for 100 m³ per day. Sewage treatment plant to meet the requirements of the Pollution Control Board authorities. The treated Sewage from the STP will meet all discharge parameters specified by the Pollution Control Board authorities and will be entirely capable of being used for landscaping, as it will be clear, free from color, and free from odour.

The STP is designed with following treatment parameters;

Table A: Characteristics of sewage before treatment

Nature of Effluent	Domestic Sewage
Quantity	100 m ³ per Day
Average Flow duration	20 hrs. operation
Type of Process	MBBR (Moving bed biofilm reactor) technology
pH	6.5 – 8.5
BOD	300-400 Mg/Lit
Suspended Solids	300-400 Mg/Lit
COD	500-600 Mg/Lit
Oil & Grease	≤ 50 Mg/Lit

Table B: Expected Treated Water Quality

pH	6.5 – 7.5
BOD	Less than 15 mg/lit
Suspended Solids	Less than 15 mg/lit
COD	Less than 50 mg/lit
Oil & Grease	Less than 05 mg/lit
Residual Chlorine	Less than 0.5 mg/lit
Fecal Coliform	Nil

SEWAGE TREATMENT SCHEME

Process description: MBBR: Moving Bed Bioreactor

- Type: Aerobic Biological treatment
- Combination of attached and suspended growth.
- Principle: MBBR reactor works on the principle of attached growth treatment where microorganisms are supported for attachment and their growth on specially designed PVC media which floating in the tank. Aerobic action is carried out using supply of diffuse aeration at bottom of tank.
- Due to presence of PVC media inside tank the more quantity of microorganisms accommodated in the reactor as surface area inside the tank is increased.

Treatment Technology

- The out fall sewer main from the last manholes, will be let into a screening chamber by gravity flow. Large solids particles shall be intercepted by a fine screen. The screen shall be manually cleaned with suitable rake arrangement.
- The Sewage after screening is collected in an Equalization sump for smoothing out peak flows. This sump is sized to accommodate peaks, as well as breakdown buffer. The provision of air shall be kept in this tank to break the solids in suspension and to homogenize the Sewage.
- Sewage from equalization tank will be pumped to MBBR reactor. The reactor is equipped with floating media to prevail the attached growth of microorganism. The bio media shall be of sufficient quantity suitable for the strength of the waste. The air shall be provided through an air diffusion system to ensure equal distribution of air in the reactor.
- The overflow from the MBBR reactor is passed through a Settler, and collected in Supernatant Tank by gravity, from where it is pumped to a pressure sand filter, which is capable of removing finely divided colloidal particles. An activated carbon filter will remove all traces of colour and odour. After carbon filter treated water collected in treated water tank for end use.
- For disinfection and residual effect Hypochlorite treatment provided.
- Filter backwash, and sludge filtrate, would be taken back into the collection sump.
- Sludge generated in the settler will be de-watered in a sludge treatment Unit, and bagged for removal outside the premises. This sludge can be used as organic manure, and sold as such. Excess treated Sewage can be discharge into the drain or can be recycled for various purposes like gardening, flushing etc. This treated water will meet PCB requirements.

Figure A: Typical MBBR Reactor

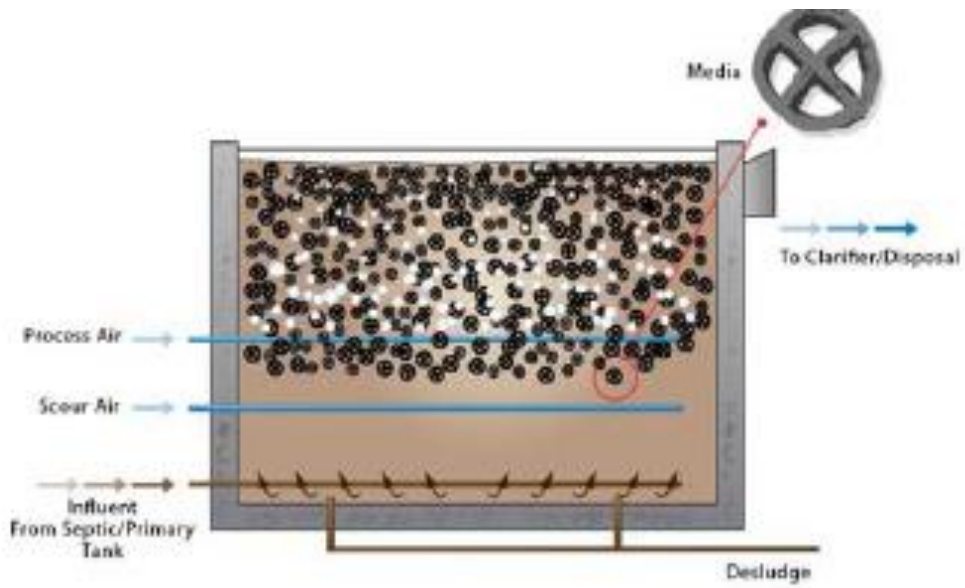
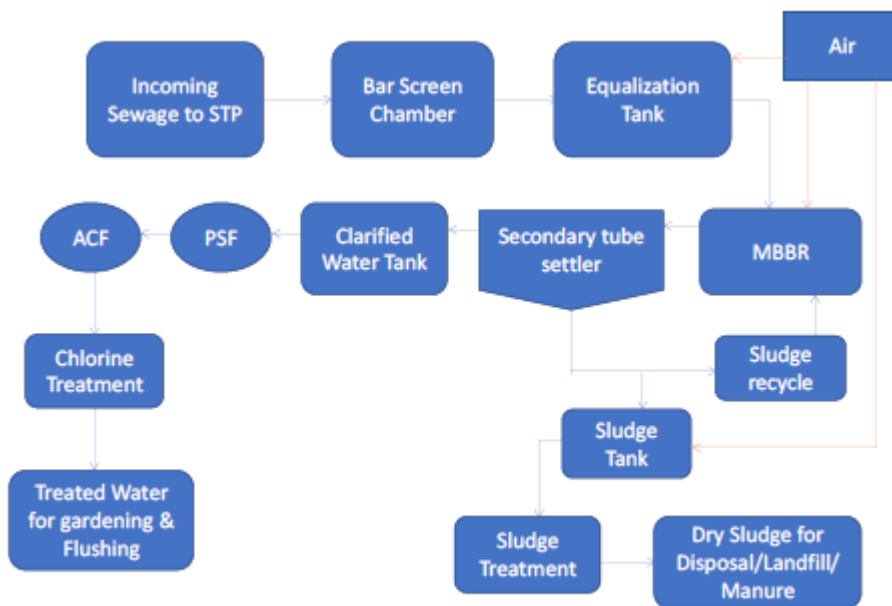


Figure B: Process Flow Diagram



**APPENDIX 3.1 ENVIRONMENTAL CLEARANCE GRANTED BY CEA
FOR EXTRACTION OF SAND FROM SLPA BORROW AREA FOR WCT
AND ECT**

මධ්‍යම පරිසර අධිකාරිය
மத்திய சுற்றாடல் அதிகாரசபை
Central Environmental Authority



පරිසර පිලස, 104, ඩෙන්සිල් කොබ්බෑකඩුව මාවත, බත්තරමුල්ල, ශ්‍රී ලංකාව.
 "Parisara Piyasa", 104, ඩෙන්සිල් කොබ්බෑකඩුව මාවත, බත්තරමුල්ල, ශ්‍රී ලංකාව.
 "Parisara Piyasa", 104, Denzil Kobbekaduwa Mawatha, Battaramulla, Sri Lanka. Web: www.cea.lk

අපේ යොමුව } 08/EIA/MIN/08/2021 } ඔබේ යොමුව } දිනය } 28 January 2022
 எமது தொடர்பு } } உமது தொடர்பு } திகதி }

Chairman
 Sri Lanka Ports Authority.

PROPOSED OFFSHORE SAND EXTRACTION FROM SLPA SAND BORROW AREA AT KERAWALAPITIYA FOR RECLAMATION OF EAST CONTAINER TERMINAL - PHASE 2 (ECT -II) AND WEST CONTAINER TERMINAL - 1 (WCT - I) IN PORT OF COLOMBO

This is to inform you that the Central Environmental Authority (CEA), being the Project Approving Agency (PAA) having carefully and extensively reviewed the Initial Environmental Examination (IEE) report dated January 2022, comments received from the Technical Evaluation Committee (TEC) appointed by the CEA, your responses for the clarifications sought by the TEC and the letter of Sri Lanka Ports Authority (SLPA) No. PD/WCT/02-D&R and dated 25.01.2022 has decided in terms of regulation 9 (i) of the National Environmental (Procedure for Approval of Projects) Regulations No. 01 of 1993, to grant approval for implementation of the above project subject to following terms and conditions.

1 GENERAL CONDITIONS

- 1.1 This environmental approval is valid only for implementation of the Proposed Offshore Sand Extraction from SLPA sand borrow area at Kerawalapitiya for reclamation of East Container Terminal - 2 (ECT -II) and West Container Terminal - 1 (WCT - I) in the Port of Colombo by the SLPA as specified in the IEE report dated January 2022 and the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022.
- 1.2 The borrow area should be restricted to the area of 54 km² as depicted in the Figure 2.1 of the IEE report dated January 2022 for which Geological Survey & Mines Bureau (GSMB) approval was obtained.
- 1.3 This approval is valid for 03 years from 28th January 2022 unless, upon written application to CEA, within 30 days prior to this date, the validity period is extended.
- 1.4 The SLPA is bound to ensure that the terms and conditions given in this letter are adhered to during project implementation. The SLPA shall have full control over a third party that may be involved in this project, by entering into agreements which should contain the conditions stipulated in this letter with such parties. The SLPA would be held responsible for the breach of any such conditions by any other third party. CEA should have access to the contract documents pertaining to the environmental aspects, entered into by the SLPA and any other third party.

Chairman Tel : 2872361, 2872348 Fax : 2872347	Director General Tel : 2872359 Fax : 2872608	General Office Tel : 2872278, 2873447, 2872419, 7872277-280	Page 5 of 5 Emergency Hot Line : 1981
D.D.G Tel : 2865296 Fax: 2877515	HRD, Admn. & Finance Tel : 2873453 Fax : 2872605	Envl. Pollution Control Tel : 2872388 Fax: 2872296	Envl. Edu. & Awareness Tel : 2872297 Fax : 2872609
Waste Mgt. Te. 2872409 Fax: 2882152	Regional Oper. Tel : 2872370		

පරිසර අධිකාරිය | சுற்றுமடல் அமைச்சு | Ministry Of Environment



- 1.5 The SLPA should intimate to CEA the date of commencement of project construction activities inclusive of phased implementation schedule. A time bound activity plan should be submitted to the CEA.
- 1.6 The SLPA where necessary should obtain fresh approval in respect of any alterations which are intended to be made to the initial project proposal.
- 1.7 Required approval from the relevant Government Agencies/ Local Authorities should be obtained prior to implementation of the project.
- 1.8 The SLPA should obtain a dumping permit under the Marine Environmental Protection (issuance of permits for dumping at sea) regulation No. 01 of 2013 from the Marine Environment Protection Authority.
- 1.9 Separate approvals from the Coast Conservation & Coastal Resources Management Department (CC&CRMD) should be obtained for activities (if any) to be implemented within the coastal zone.
- 1.10 It is the duty of the SLPA to inform CEA of any environmental impacts which are not anticipated at this stage. In such an event, relevant guidelines and mitigation measures should be implemented as directed by the CEA.
- 1.11 The SLPA will be bound to adhere to any additional conditions imposed by the CEA time to time. A copy of this approval and IEE report dated January 2022 and the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022 should be kept at the project site at all times, for purposes of perusal by concerned agencies.
- 1.12 This approval is granted on the basis of that all information provided by the SLPA is true and accurate. If, at any time, it is found that any information furnished by the SLPA in the IEE report dated January 2022 and subsequent documents used for decision making in granting of this environmental approval is incorrect, this Authority reserves the right to cancel the approval.
- 1.13 Costs to be incurred in giving effect to the implementation of the terms and conditions given in this letter should be borne by the SLPA as project implementation costs.

2. SPECIFIC CONDITIONS

2.1 Mining Aspects

- 2.1.1 The dredging area should be restricted to the area denoted by the coordinates as indicated in the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022.
- 2.1.2 A mining license should be obtained from the Geological Survey and Mines Bureau prior to commencement of dredging activities.



- 2.1.3 The quantity of sand to be extracted should be limited to the amount (20 million m³) as specified in the IEE report January 2022.
- 2.1.4 Dredging depth should be limited to 3 m from the surface of sand deposit as stated in the IEE report dated January 2022.
- 2.1.5 Dredging/ mining should be carried out in a controlled manner from the surface of the deposit, to ensure the underneath strata is not exposed.
- 2.1.6 All measures should be taken to reduce turbidity levels at the boundary of the mining and reclamation area as indicated in the Table 6.3 of the IEE report dated January 2022.
- 2.1.7 Sand extraction should be initially restricted to the grid area specified in the Figure 2 (Dredging area 1) of the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022.
- 2.1.8 The permission for areas specified in the Figure 3 (Dredging area 2) & Figure 4 (Dredging area 3) of the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022 will only be considered when the SLPA is unable to accomplish the qualitative and quantitative requirements from the grid area specified in the Figure 2 (Dredging area 1) of the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022.
- 2.1.9 In case SLPA requires to extract sand from areas identified by Figure 3 & 4 of the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022 prior approval from the GS&MB shall be obtained and CEA shall be informed in writing any such approval.
- 2.1.10 GPS coordinates of dredging areas (Dredging area I, II and III as indicated in SLPA letter No. PD/WCT/02-D&R dated 25.01.2022) shall be submitted to the CEA prior to commencement of the operational activities.
- 2.1.11 The SLPA should essentially confirm the tracking data of dredger, extracted quantities of each grid area and quality data of the extracted sand prior to conducting mining at areas identified by Figure 3 (Dredging area 2) & Figure 4 (Dredging area 3) of the SLPA letter No. PD/WCT/02-D&R dated 25.01.2022.
- 2.1.12A progress report relevant to sand extraction related to the above sites should be submitted to the CEA periodically.
- 2.1.13 Existing sea outfall structures managed by the Colombo Municipal Council area shall not be affected by the project/ project activities.
- 2.2 Fisheries/ Dredging Aspects**
- 2.2.1 A minimum number of dredgers shall be used for the sand extraction and dredgers should be equipped with navigational lights and signals as applicable.



- 2.2.2 The SLPA should establish a signal system with illumination to indicate the mining points.
- 2.2.3 The route of the dredgers should be selected to minimize the impact on fishing in the area and general navigation routes. All GPS track records of dredger movements shall be provided on request by the CEA.
- 2.2.4 An appropriate warning system should be established for the safety of maritime traffic including fishing vessels and dredgers operated by the SLDC.
- 2.2.5 The SLPA should issue Notices to Mariners, to educate the seafarers navigating near and around Colombo harbour, before the dredging operations are commenced.
- 2.2.6 The SLPA should establish a mechanism to inform the mining activities to the fishermen operating in the area through communication and timely contacts of fishermen.
- 2.2.7 In an event of accident to the fishing vessels, fishing gear or equipments due to project activities, a formal mechanism should be established in consultation with the Dept. of Fisheries and Aquatic Resources (DFAR) and the Divisional Secretary of the area to compensate any damages to fishing boats and other related equipments.
- 2.2.8 All registered fishermen should be provided with an insurance cover to compensate in the event of a damage or accident to fishing vessel, gear, equipments etc.
- 2.2.9 A grievance redress mechanism should be established to address grievances of the fishing community. Regular discussions should be held with the fishing communities in the area in close consultation of Department of Fisheries and the Divisional Secretary of the area to resolve any issues of the fishing community.

2.3 Biological Aspects

- 2.3.1 The bathymetry of the proposed borrow areas should be carried out before extraction and after extraction of sand for the monitoring purposes and reports should be submitted to CC&CRMD.
- 2.3.2 The SLPA should take appropriate mitigatory measures to minimize impact on bottom macro benthos/fishing grounds, breeding and spawning grounds as indicated in the Table 6.3 of the IEE report dated January 2022.

2.4 Coastal stability




- 2.4.1 All necessary mitigation measure should be taken to eliminate any possible impact on stability of the coastal area.
- 2.4.2 Measurements of beach profile should be carried out covering from the beach area of Sarakkuwa) $7^{\circ} 6'42.77''$ N, $79^{\circ}50'32.61''$ E) to Negombo estuary mouth ($7^{\circ}12'29.62''$ N, $79^{\circ}49'37.61''$ E) prior to the commencement of the project and after the completion of the project. Beach profile measurements should be carried out at 1 km intervals from Permanent Vegetation Line of the beach front to 6.0 m below from the Mean Sea Level. The details / results of measurements shall be included in to the monitoring report and shall be submitted to the Coast Conservation and Coastal Resource Management Department.
- 2.5 Accidental Oil Spillage and other wastes**
- 2.5.1 The SLPA should ensure the implementation of the Oil Spill Contingency Management Plan approved by the Marine Environmental Protection Authority during operation of the project.
- 2.5.2 In case accident proves to be beyond the handling capability of authorities identified in the plan a provision for comprehensive insurance coverage should be made by the SLPA.
- 2.6 Archaeological Aspects**
- 2.6.1 Approval of Department of Archaeology shall be obtained prior to commencement of operational activities of the borrow areas.
- 2.7 Monitoring Programme**
- 2.7.1 The SLPA should forward to the CEA an Environmental Management Plan (EMP) incorporating the mitigatory measures proposed precisely and the monitoring plan. It should contain the significant impacts identified at the site/s mitigation measures to be implemented for each significant impact, schedule of implementation of mitigation measures, parameters to be monitored, with interval/ frequency and the responsible agencies for monitoring of each parameter.
- 2.7.2 A suitably trained qualified officer who would be responsible for implementation of the EMP shall be assigned.
- 2.7.3 The SLPA should submit progress reports during the implementation period of EMP to the CEA with respect to progress of the project for monitoring purposes.
- 2.7.4 A monitoring committee consisting of representatives of the CEA, CC&CRMD, Geological Survey and Mines Bureau, National Aquatic Resources & Research Development Agency, Marine Environmental Protection Authority relevant Divisional Secretariats, relevant Local



Authorities and any other member deemed necessary by the CEA will be appointed at the cost of the SLPA.

- 2.7.5 This committee will supervise and monitor all activities of the project in order to ensure that stipulated environmental conditions and mitigatory measures are being complied with.

The CEA reserves the right to cancel/suspend/withdraw this approval in an event that any major environmental and/or social problems arise due to the operation of the project or in a situation where the surrounding environment has been altered or changed due to natural factors or otherwise.


P B Hemantha Jayasinghe
Director General

CC:

1. General Manager / Marine Environmental Protection Authority
2. Director General / Department of Fisheries & Aquatic Resources
3. Director General / National Aquatic Resources Research & Devt. Agency
4. Director General / Department of Coast Conservation & Coastal Resources Management
5. Director General / Geological Survey & Mines Bureau
6. Director General / Department of Wildlife Conservation
7. Deputy General Manager (R&D) / Sri Lanka Land Development Corporation
8. Chairman / Sri Lanka Tourism Development Authority
9. Commander of the Navy / Sri Lanka Navy
10. Director General / Department of Archeology
11. Divisional Secretary / Divisional Secretariat / Colombo
12. Divisional Secretary / Divisional Secretariat / Negombo
13. Divisional Secretary / Divisional Secretariat / Wattala
14. Mayor / Municipal Council / Colombo
15. Mayor / Municipal Council / Negombo
16. Secretary / Pradeshiya Sabha / Wattala
17. Director (Gampaha District Office) / Central Environmental Authority

emaanu\e\mydoc\tajira\Offshore sea sand dredging for East & West terminals SLPA approval letter

**APPENDIX 3.2 GEOLOGICAL AND MINES BUREAU, SRI LANKA
APPROVAL FOR SAND EXPLORATION**



**GEOLOGICAL SURVEY AND
MINES BUREAU
(SRI LANKA)**

No:EL/411

EXPLORATION LICENCE

This Exploration Licence is hereby issued to Sri Lanka Ports Authority of No.19, Chaktiya Road, Colombo-01 in the Western Province of Sri Lanka to exercise the exclusive right to explore for Sea Sand within that area falling within the territorial waters of Sri Lanka, and located off the west coast and comprising of 54 (Fifty Four) square kilometre grid units designated by the following metric grid co-ordinates as identified by the holder in accordance with regulation 4 (4) of Mining (Licensing) Regulations, No.1 of 1993.

METRIC GRID UNIT NUMBER:

082213	082214	082215	082216	082217	082218	083213
083214	083215	083216	083217	083218	084213	084214
084215	084216	084217	084218	085213	085214	085215
085216	085217	085218	086213	086214	086215	086216
086217	086218	087213	087214	087215	087216	087217
087218	088213	088214	088215	088216	088217	088218
089213	089214	089215	089216	089217	089218	090213
090214	090215	090216	090217	090218		

Falling within the Official Licensing Control System Map No. 59

The exploration licence area demarcated map is attached (Attachment 3)

This Exploration Licence is issued subject to the rights of the owner or occupant of the land covered by this licence and to the provisions of the Mines and Minerals Act, No.33 of 1992 and Regulations made thereunder and of any Act or Regulations in amendment thereof, and such other terms and conditions set out in Attachment 1 & 2 marked hereto and over leaf.

This licence shall be valid for a period of 24 months beginning from 2021.08.31 until 2023.08.30.

This licence is duly executed in the name of the Director General of Geological Survey and Mines Bureau this 30th August 2021 at No. 569, Epitamulla Road, Pitakotte.

Witness 


Director General
GEOLOGICAL SURVEY & MINES BUREAU

Director General
Geological Survey & Mines Bureau
No.569, Epitamulla Road
Pitakotte.


Page 1 of 5

Licence No: EL/411

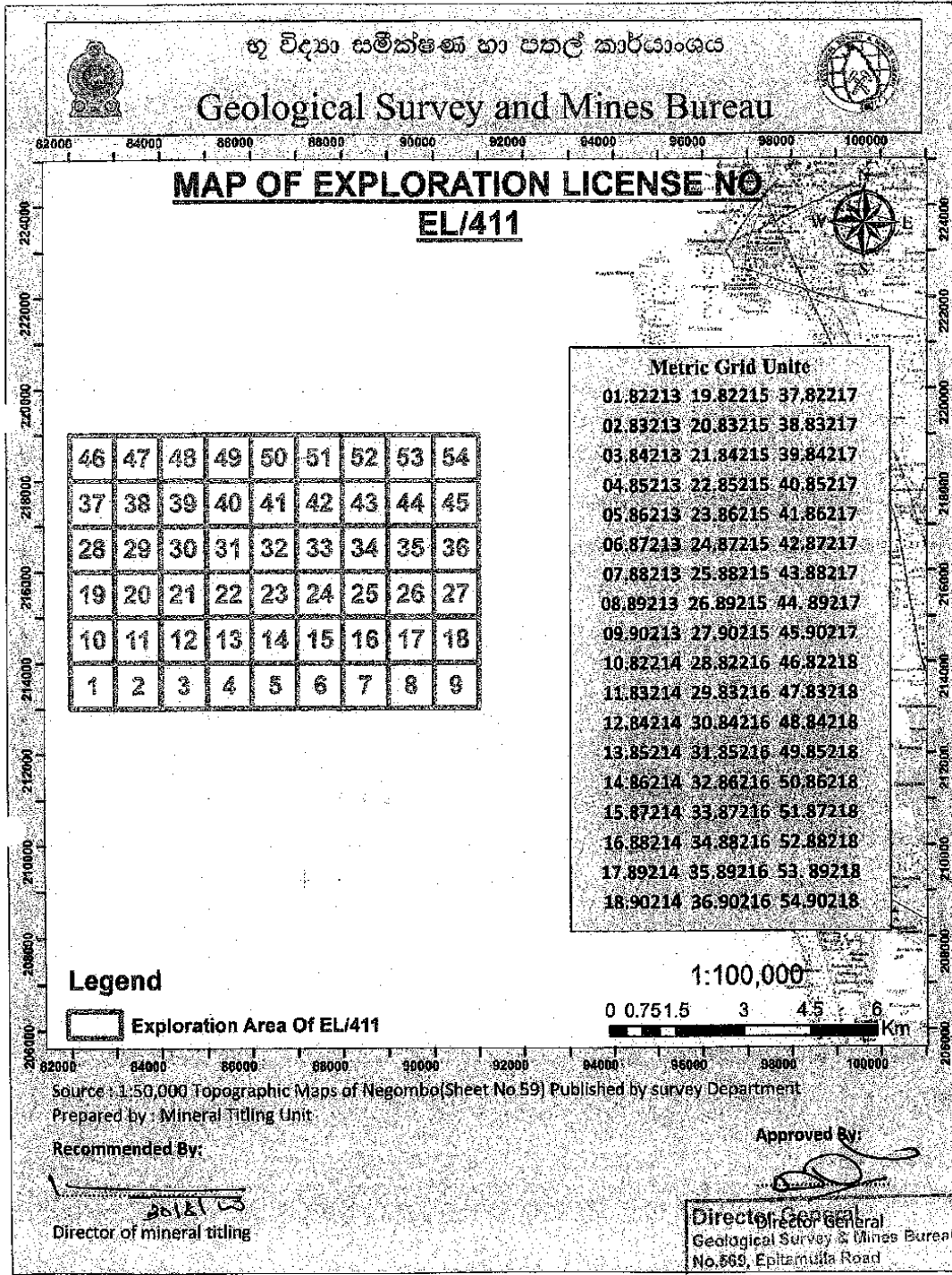
Attachment I

35 (4) Every licence issued under this Act shall in addition to the conditions referred to in subsection (2) of section 30 have attached thereto, inter alia, the following conditions :-

- (a) that the exploration, mining, processing, trading in and export of minerals authorized by the licence shall not be conducted in a fraudulent, reckless, grossly negligent or willfully improper manner;
- (b) that the licensee shall notify the Bureau, of the discovery of minerals discovered by him in the exercise of his rights under the licence;
- (c) that the licensee shall in the exercise of his rights under the licence, comply with all writing laws relating to the protection of the environment, health and safety standards and the protection of natural resources;
- (d) that the licensee shall on the completion of the exploration or mining authorized by the licence, rehabilitate the land to which such licence relates, to such condition as may be specified;
- (e) that the licensee shall not suspend, curtail or cease the activities authorized by the licence for a period exceeding six months, except with the prior permission of the Bureau;
- (f) that the licence shall comply with the provisions of this Act and any regulation made thereunder;
- (g) that the licensee shall maintain such books, records, other documents and materials as are required by the Bureau, to be maintained by him and shall enter the required particulars therein;
- (h) that the licensee shall pay to the Bureau, the fees in respect of such licence and any other payments he is required to pay by virtue of or under such licence, within such period as may be required by this Act or any regulation made thereunder;
- (i) that the licensee shall afford any authorized officer of the Bureau, access to any premises in which any activity authorized by the licence is carried on and to make available to such officer, all books, records and other documents maintained by the licensee as required by the licence; and to comply with any lawful direction or order given by such officer;
- (j) that the licensee shall submit to the Bureau such reports, and give to the Bureau such notices, within such period, as he is required to submit or give, by any provision of this Act or any regulation made thereunder.


Director
Geological Survey and Mines Bureau
No. 688, Epitankula Road
Pitakotte.

Page 3 of 5



**MAP OF EXPLORATION LICENSE NO
EL/411**

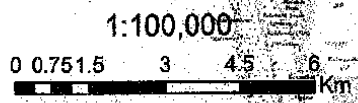
46	47	48	49	50	51	52	53	54
37	38	39	40	41	42	43	44	45
28	29	30	31	32	33	34	35	36
19	20	21	22	23	24	25	26	27
10	11	12	13	14	15	16	17	18
1	2	3	4	5	6	7	8	9

Metric Grid Uatre

01.82213	19.82215	37.82217
02.83213	20.83215	38.83217
03.84213	21.84215	39.84217
04.85213	22.85215	40.85217
05.86213	23.86215	41.86217
06.87213	24.87215	42.87217
07.88213	25.88215	43.88217
08.89213	26.89215	44.89217
09.90213	27.90215	45.90217
10.82214	28.82216	46.82218
11.83214	29.83216	47.83218
12.84214	30.84216	48.84218
13.85214	31.85216	49.85218
14.86214	32.86216	50.86218
15.87214	33.87216	51.87218
16.88214	34.88216	52.88218
17.89214	35.89216	53.89218
18.90214	36.90216	54.90218

Legend

Exploration Area Of EL/411



Source : 1:50,000 Topographic Maps of Negombo(Sheet No 59) Published by survey Department
Prepared by : Mineral Tiling Unit

Recommended By:

Director of mineral tiling

Approved By:

Director General
Geological Survey & Mines Bureau
No.569, Epitamilala Road
Pitakotte.

APPENDIX 3.3 BOI APPROVAL FOR INVESTMEN PURPOSE



BOARD OF INVESTMENT OF SRI LANKA

P.O Box 1768, World Trade Center - West Tower, Echelon Square, Colombo 01, Sri Lanka. 21.01.2022

Director

COLOMBO WEST INTERNATIONAL TERMINAL (PVT) LTD
117, Sir Chittampalam A. Gardiner Mawatha
Colombo 02.

Date : 42/LE/EA/01/3083/21
Our Ref :
Your Ref :

Dear Sir,

APPROVAL (INVESTMENT PURPOSE) FOR DEVELOPMENT AND OPERATION OF WEST CONTAINER TERMINAL (WCT)

This has reference with your application regarding the above and the investment approval dated 16.08.2021. We are pleased to inform you that you are permitted to locate your project in Colombo Port (Lot No. 1 in Survey Plan No. S/P/201 dated 08.10.2021, prepared by Mr. S. R. Illeperumachchi, Registered Licensed Surveyor, Extent : 160A 3R 24.6P), subject to the following conditions:

GENERAL CONDITIONS

1. This approval is valid only for the specific purpose referred to above. It should be implemented adopting only the processes outlined in the project application submitted to the BOI.
2. The premises ear-marked for the proposed project should be leased out in the name of the enterprise. This approval does not confer any claim to ownership of the land and the building/s within the particular premises.
3. All conditions stipulated in the BOI approval letter under reference should be complied with.
4. You are required to obtain approval for the building plans from **Colombo Municipal Council or Urban Development Authority as relevant** and to pay them taxes, rentals etc. as per regulations in force as relevant.
5. All statutory requirements/regulations stipulated under relevant legal enactments including the Factories Ordinance, National Environmental Act and the regulations should be adhered to when the project is implemented, improvements are made to the existing premises and during the operational period of the project.
6. Prior to commencing construction/commercial operations, plans of the buildings (including the modifications if any) should be forwarded to the Engineering Approvals Dept., and approval obtained. Certificate of Conformity should be obtained prior to going into commercial operations.
7. Health and safety of workers shall be ensured as stipulated in the Factories Ordinance and its amendments.

Contd.2/-
Tel : 94 11 2385972-6, 2346131-3, 2434403-5, 2435027,2447531

Fax : 94 11 2329795

E-mail : info@boi.lk

Web:www.investsrilanka.com

8. Approval is granted on the assumption that all information provided by you are correct and accurate. BOI will not be liable for any matter/issue arising due to such information.
9. In consultation with the Fire Brigade;
 - i adequate precautions shall be taken to prevent the occurrence of accidental fires.
 - ii adequate number of fire extinguishers shall be installed at strategic points to extinguish any accidental fires.
10. All the other relevant condition/s stipulated by the Government Institutions shall be complied with during project implementation as well as in the operational period.

ENVIRONMENTAL CONDITIONS

1. An Environmental Protection License (EPL) shall be obtained from the BOI/CEA for the operation of wastewater treatment plant. An application form for an EPL shall be collected from the Environment Department of the Board or local authority of the area. A completed application form shall be submitted to the Director (Environment Management) of the BOI one month prior to commencement of trial commercial operations.
2. Conditions laid down in the letter No. PA/01/MS/05/147(ii) dated 03.09.2021, issued by the Director General / Coast Conservation & Coastal Resource Management should be adhered to.

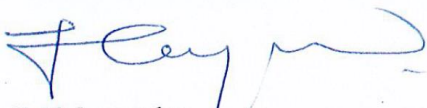
If the necessity arises to stipulate further mitigatory conditions when project is in operation, BOI will stipulate such conditions as and when necessary and such conditions shall be adhered to.

The above list is not exhaustive and it is obligatory for the enterprise to ensure that all mandatory requirements under applicable legal enactments are complied with.

We shall thank you to acknowledge receipt of this letter.

Yours faithfully

BOARD OF INVESTMENT OF SRI LANKA



H M Jayasundara
Executive Director (Engineering Approvals & Special Projects)

- cc:
1. The Commissioner / Colombo Municipal Council
 2. Executive Director (Project Monitoring) - BOI
 3. Executive Director (Project Implementation) - BOI
 4. Executive Director (Investor Services) - BOI
 5. Director (Environmental Management) - BOI
 6. Director (Legal) - BOI
 7. Director (Inv. Appr. - Apparel) - BOI

Sisira/ldi

**APPENDIX 3.4 COAST CONSERVATION AND COASTAL
MANAGEMENT DEPARTMENT APPROVAL FOR
CONSTRUCTION OF TERMINAL**



වෙරළ සංරක්ෂණ සහ වෙරළ සම්පත් කළමනාකරණ දෙපාර්තමේන්තුව
கரைபோரம் பேணல் மற்றும் கரையோர மூலவள முகாமை திணைக்களம்
COAST CONSERVATION AND COASTAL RESOURCE MANAGEMENT DEPARTMENT



වෙරළ සංරක්ෂණ හා පහත්වීම සංවර්ධන රාජ්‍ය අමාත්‍යාංශය
கரைபோர பாதுகாப்பு மற்றும் தாழ்நில அபிவிருத்தி இராஜாங்க அமைச்சு
State Ministry of Coast Conservation and Low-Lying Lands Development

නැ. පො. 556, නව මහලේකම් කාර්යාලය, මාලිගාවත්ත, කොළඹ 10,
த. பெ. இல. 556, புதிய செயலகம் மாளிகாவத்தை, கொழும்பு 10.
P.O. Box 556, New Secretariat, Maligawatta, Colombo 10.
Web : www.coastal.gov.lk E-mail : info@coastal.gov.lk

මගේ අංකය } PA/01/MS/05/147(ii)
எனது இல. }
My No. }

ඔබේ අංකය }
உமது இல. }
Your No. }

දිනය } 03/09/2021
திகதி }
Date }

Managing Director
Sri Lanka Ports Authority
Colombo 01

**Colombo Port Expansion Project- Development of West Container Terminal 1
Environmental Management Plan**

This has reference to the Environmental Management Plan – July 2021 (Revision R1) with letter No PD/WCT/09-EMP dated 03.08.2021 submitted by the Chief Engineer (Planning and Development) Sri Lanka Ports Authority regarding the above subject.

This is to inform you that in principal, the Environmental Management Plan -July 2021 (Revision R1) submitted to this department for the Proposed Development of West Container Terminal 1 Colombo Port Expansion Project is approved subject to following conditions.

1. The activity plan for the existing and proposed project activities should be submitted to this department to circulate among the members of Environmental Monitoring Committee.
2. Environmental Monitoring meetings and site visits should be arranged regularly.
3. Three sets of continuous monitoring reports on noise, vibration, air quality, water quality, etc. should be submitted to the CC & CRMD monthly basis.
4. Adequate amount of funds should be allocated to implement the Environmental Management Plan and Monitoring Program. Competent recognized institutions should employ to execute the monitoring plan. Adequate amount of funds should be allocated and/or insurance obtained to make necessary arrangements to pay compensation for affected parties or property due to any emergency situation directly due to proposed project.
5. In addition to the above monitoring programme, the project proponent should carry out self-monitoring programme of all the project activities and submit reports to the CC&CRMD.
6. Appropriate mitigation measures should be implemented if there is any non compliance.
7. The project proponent is bound to adhere to any additional conditions, amendments to the Environmental Monitoring Plan that could be imposed by the Environmental monitoring committee approved by CC & CRMD.

අධ්‍යක්ෂ ජනරාල් }
பணிப்பாளர் நாயகம் } 011 2449197
Director General }

කාර්යාලය }
அலுவலகம் } 011 2449754
Office }

ෆැක්ස් අංකය }
பெக்ஸ் இல. } 011 2438005
Fax No. }

8. All mitigation measures mentioned in the EIA report and conditions of the CC & CRMD permit should be implemented to mitigate all possible environmental and social economic impacts which could arise during the construction and operation period of the proposed project.



Eng.R.A.S.Ranawaka

Director General / Coast Conservation & Coastal Resource Management

Copy: Chief Engineer (Planning and Development)

Sri Lanka Ports Authority

**PERMIT FOR A DEVELOPMENT ACTIVITY ISSUED
UNDER PART III - SECTION 14 OF THE
COAST CONSERVATION & COASTAL RESOURCE
MANAGEMENT ACT No. 57 OF 1981**

Permit No. : P/21/28

Name of Permit Holder : Sri Lanka Ports Authority
(Surname) (Other Names)

Postal Address : 45, Leyden Bastian Road, Colombo 01

Nature of Development Activity : Renewal of the Permit No. P/20/134 for
Construction of New Commercial Harbour

Location of Development Activity : Adjacent to existing Colombo Port

Province : Western

District : Colombo


Local Authority : Colombo

Particulars of Survey Plan submitted by Applicant :

.....
.....

Duration of Permit : 28.02.2021 - 27.02.2022

Conditions Attached : 1. All constructions should be confined to the survey plan
indicated in the Environmental Impact Assessment
(EIA) report submitted to the Coast Conservation &
Coastal Resource Management Department.


.....
Director General
Coast Conservation &
Coastal Resource Management.

Date : 30-03-2021

CM 030381 - 5000 (2019/09) Dept. of Govt. Printing, Sri Lanka

**APPENDIX 3.5 MARINE ENVIRONMENT PROTECTION AUTHORITY
APPROVAL OF OIL SPILL CONTINGENCY PLAN**



Marine Pollution Prevention Act, No. 35 of 2008

MARINE ENVIRONMENT PROTECTION AUTHORITY (MEPA) SRI LANKA
APPROVAL OF OIL SPILL CONTINGENCY PLAN



(Issued under the provisions of Marine Pollution Prevention Act, No 35 of 2008)

Regulation No.01/2012

License No.: 2021/OSCP/03

Pursuant to the Oil Spill Contingency Plan Regulations No.01 of 2012, I hereby approve the Oil Spill Contingency Plan submitted by Colombo West International Terminal (Pvt) Ltd for West Container Terminal-I subject to terms and conditions listed below.

This approval shall be in force from **24th September 2021** to **23rd September 2023** unless otherwise cancelled or suspended by this Authority prior to the date of expiry.

Date: 30th September 2021

A.J.M Gunasekara
General Manager (Acting)
Marine Environment Protection Authority

Terms and Conditions

1. This Oil Spill Contingency Plan is not transferable.
2. It shall be lawful for the Marine Environment Protection Authority to suspend or cancel the approval, if it is satisfied that-
 - (a) The functions and duties connected with the Oil Spill Contingency Plan are not carried out sufficiently;
 - or
 - (b) The provisions of the Oil Spill Contingency Regulations No 01 of 2012 are not complied with.

**APPENDIX 3.6 NOC OF DEPARTMENT OF FISHERIES & AQUATIC
RESOURCES FOR PROPOSED OFFSHORE SAND
EXTRACTION AREA**



ධීර හා ජල සම්පත් රෙගුලාතරකරණ දෙපාර්තමේන්තුව
கடற்கரையில் நீரியல் வளத்துறை நிர்வாககளம்
DEPARTMENT OF FISHERIES & AQUATIC RESOURCES

web site : <http://www.fisheriesdept.gov.lk>

E - mail : info@fisheriesdept.gov.lk

මුහුදු සම්පත්, ගනුකරණ, සෞඛ්‍ය 10, මාලිගාපොළ නගරයේ, කොළඹ 10, ශ්‍රී ලංකාව New Secretariat, Malligawaththa, Colombo 10

සම මග
සංඛ්‍යා අංක
My Ref

DFAR/DEV./WECT/2022

ලේ
අංක
Date

21.02.2022

Addl. Managing Director (Technical)

Sri Lanka Ports Authority

Proposed Offshore Sand Extraction from SLPA Barrow Area at Kerawalapitiya for Reclamation
of East Container Terminal 1 (ECT-2) and West Container Terminal 1 (WCT-1)
Allocation of funds to Provide Relief and Benefits to the Fishing Community

This refers to the letter SLPA/PD/WCT-1 and dated 10.12.2021.

This inform that the Department of Fisheries and Aquatic Resources has no objection to Proposed Project subject to following conditions.

1. Allocation Rs.90 million funds to provide relief and benefits to the fishing community by the developers of East container Terminal and West container Terminal.
2. Proposed operation should be operated under minimum effect to the fishery industry.
3. Should not be interfered to the fish habitat within sand extraction area.
4. Sand extraction should be done with minimum effect to the marine environment and marine resources.
5. Use of minimum no of dredging vessels for sand extraction since underwater noise during the extraction can have an effect on marine mammals.
6. Fisheries Navigational routes should not be interfered within the sand extraction area.
7. Discharge of any pollutants to the water resource should not be done during the project period.
8. The implementation of this project will have a major impact on the fisheries sector and compensation should be paid for that and we recommend to provide that compensation to develop the infrastructure of the fisheries industry.
9. The safety of fishers/ vessels / fishing gear should be ensured during the implementation of the project.
10. A fisherman should be insured to pay compensation in the event of an accident.
11. A scheme of Damage compensation should be implement to compensate for fishing gear/craft in the event of a damage / accident.

12. Internal and external stakeholders should be aware about the implementation schedule of the above project.

13. In case of any damage or accident as determined by the Department of Fisheries and Aquatic Resources, a relief mechanism should be maintained.

We have no objection to implement this development project subject to appropriate mitigation measures mentioned above.


Susantha Kahawatta
Director General

Susantha Kahawatta
Director General
Department of Fisheries & Aquatic Resources

Department of Fisheries and Aquatic Resources

**APPENDIX 3.7 APPROVAL OF MARINE ENVIRONMENT
PROTECTION AUTHORITY FOR DREDGING AREA**



සමුද්‍ර පරිසර ආරක්ෂණ අධිකාරිය
මෙරටේ සංරක්ෂණ හා පහසුකම් සංවර්ධන රාජ්‍ය අමාත්‍යාංශය
கடல்சார் சூழல் பாதுகாப்பு அதிகாரசபை
கரைமேயரப் பாதுகாப்பு மற்றும் தாழ்நில அபிவிருத்தி இராஜாங்க அமைச்சு
MARINE ENVIRONMENT PROTECTION AUTHORITY (MEPA)
State Ministry of Coast Conservation & Low-Lying Lands Development



My No: 2021/EP/DM/013

Date: 14/12/2021

The Manager,
Colombo West International Terminal (Pvt) Ltd,
117, Sri Chittampalam A. Gardiner Mawatha,
Colombo 02.

Dear Sir,

Enforcement of Marine Environment Protection Regulation No.01/2013
(Permit for sea Dumping) – Kerawalapitiva Dredging Area

Reference: Application submitted by you to obtain a permit for sea dumping.

The application and details provided by your company are accepted.

As per the above calculated permit fee for the period of 14/12/2021 to 13/12/2024 (3 Years)
is as follows,

Application Fee	- Rs. 1,500.00
Annual permit Fee	- <u>Rs. 59,850,000.00</u>
Total amount	- <u>Rs. 59,851,500.00</u>

Accordingly, please take necessary action to make payment of the total amount by cheque
in favour of the "Chairman, Marine Environment Protection Authority", Permit should
be obtained prior one month of the operation.

Your cooperation in this regard is highly appreciated.

A.J.M Gunasekara
General Manager (Covering)

Copy: Deputy Manager (W/ NW) –MEPA-for information
District Marine Environment Officer-Colombo, MEPA –for follow up actions

**APPENDIX 3.8 APPROVAL OF ARCHAEOLOGICAL DEPARTMENT
FOR DREDGING AREA**



පුරාවිද්‍යා දෙපාර්තමේන්තුව
தொல்லியல் திணைக்களம்
DEPARTMENT OF ARCHAEOLOGY

ප්‍රධාන කාර්යාලය - පොදු අංක
 தலைமை அலுவலகம் - பொது இல. } 011-2692840
 Head Office - General Nos. } 011-2692841

ක්ෂණික අමතන
 உடனடி தொடர்பு } 1915
 Hot Line

අධ්‍යක්ෂ ජනරාල්
 பணிபுரளர் நாயகம் }
 Director - General }
 පුරාවිද්‍යා දෙපාර්තමේන්තුවේ
 தொலைபேசி இல. 011-2695255
 Telephone No.
 ෆැක්ස්
 தொலைநகல் 011-2696250
 Fax

හැ. පො. අංක 532, ශ්‍රීමත් මාකස් ප්‍රනාන්දු මාවත, කොළඹ 07.
 த.பெ. இல. 532, சீமர் மாக்கஸ் பர்ணாந்து மாவத்தை, கொழும்பு 07.
 P. O. Box No. 532, Sir Marcus Fernando Mawatha, Colombo 07.

E - mail : info@archaeology.gov.lk Website : www.archaeology.gov.lk

මගේ අංකය
 எனது இல. My No.

Arch/HO/EXP/AIA/WP/2022

ඔබේ අංකය
 உமது இல. Your No.

දිනය
 திகதி Date

2022-02-03

සුයන්ත අබේසිරිවර්ධන මයා,
 ප්‍රධාන ඉංජිනේරු,
 සැලසුම් හා සංවර්ධන අංශය,
 ශ්‍රී ලංකා වරාය අධිකාරිය,
 කොළඹ 01.

යෝජිත කොළඹ වරායේ නැගෙනහිර පැවිය ආශ්‍රිත සංවර්ධන කටයුතු සඳහා වැලි ලබාගැනීම.

උක්ක කැණුම අදාළව ඔබ ආයතන මගින් ඉදිරිපත් කරන ලද පුරාවිද්‍යා බලපෑම් ඇගයීම් සමීක්ෂණ අයදුම්පත හා 2022.02.03 දිනැතිව පැවති සාකච්ඡාව හා බැඳේ.

02. කොළඹ වරාය නව නගර සංවර්ධන ව්‍යාපෘතිය යටතේ 2012 වර්ෂයේ දී අප දෙපාර්තමේන්තුව විසින් සිදුකරන ලද පුරාවිද්‍යා බලපෑම් ඇගයීම් සමීක්ෂණය මගින් හඳුනාගත් පුරාවිද්‍යා ස්මාරක අනුව මාගේ අංක H/EXP/AIA/WP/2012 හා 2012.07.18 දිනැති ලිපියේ සඳහන් කොන්දේසි හා නිර්දේශය ඒ අයුරින්ම ක්‍රියාත්මක විය යුතු වේ.


03. උක්ක ව්‍යාපෘතිය සඳහා වැලි පොම්පකර ඉවත්කිරීමට යෝජිත වත්තල හා මීගමුව ප්‍රාදේශීය ලේකම් කොට්ඨාශවලට අයත් කෙරවලපිටිය ප්‍රදේශයේ ගොඩබිමේ සිට 7Km දුරින් 36 Km² පමණ කොටසේ ඔබ ආයතනය මගින් සිදුකරන ලද භූ විද්‍යාත්මක සමීක්ෂණ දත්ත සහිත වාර්තාව මත පදනම්ව මෙම නිර්දේශ ලබා දී ඇත.

04. ඒ අනුව වැලි පොම්ප කිරීමට යෝජිත කොටසේ පුරාවිද්‍යා අවශේෂ නොවන බව නිරීක්ෂණය වන බැවින් පහත සඳහන් කොන්දේසි යටතේ ව්‍යාපෘතියට අනුමැතිය ලබාදෙන බව කාරුණිකව දන්වමි.

කොන්දේසි -

- I. උක්ක සංවර්ධන ව්‍යාපෘතිය ක්‍රියාත්මක කිරීමේ දී පුරාවිද්‍යාත්මක වශයෙන් වැදගත් යම් සාධකයන් අනාවරණය වුවහොත් වහාම ව්‍යාපෘතියෙහි කටයුතු නවත්වා පුරාවිද්‍යා අධ්‍යක්ෂ ජනරාල් දැනුවත් කළ යුතු ය.

- II. අනුමැතිය ලබා දී ඇති සීමාවෙන් ඔබ්බට වැලි ඉවත්කිරීම සිදු නොකළ යුතු ය.
- III. ඉදිරි සංවර්ධන අවශ්‍යතා සඳහා යෝජිත වැලි ඉවත්කිරීම් ප්‍රදේශය පුළුල් කිරීමට සිදු වුවහොත් ඒ සඳහා නැවත පුරාවිද්‍යා නිර්දේශය ලබාගත යුතු ය.
- IV. අංක H/EXP/AIA/WP/2012 හා 2012.07.18 දිනැති ලිපියේ සඳහන් කොන්දේසි තව දුරටත් බලාත්මක වේ.
- V. මෙම දෙපාර්තමේන්තුවේ පුරාවිද්‍යා අධ්‍යක්ෂ ජනරාල්ගේ බලයලත් නිලධාරීන්ට ඕනෑම අවස්ථාවක ඉහත සඳහන් ස්ථාන පරීක්ෂා කිරීමේ අවකාශය තිබිය යුතු ය.
- VI. මෙම නිර්දේශය නිකුත් කරනු ලබන්නේ පුරාවිද්‍යාත්මක අගය පිළිබඳ සලකා බැලීමෙන් පමණක් වන අතර මහජන විරෝධතා හෝ පාරිසරික බලපෑම් සම්බන්ධයෙන් මෙම දෙපාර්තමේන්තුව හෝ දෙපාර්තමේන්තු නිලධාරියෙකු විසින් වගකීමක් දරණු නොලබන බව වැඩිදුරටත් දන්වා සිටිමි.
- VII. ඉහත කොන්දේසි සහ විධිවිධාන කඩකළහොත් පුරාවස්තු ආඥා පනත යටතේ නීතිමය පියවර ගනු ඇත.


 මහාචාර්ය අනුර මනතුංග
 පුරාවිද්‍යා අධ්‍යක්ෂ ජනරාල්

පිටපත් -

- 01. අතිරේක අධ්‍යක්ෂ ජනරාල් (EMA Division), මධ්‍යම පරිසර අධිකාරිය - කාරු. දැන ගැනීම සඳහා.
- 02. ප්‍රාදේශීය ලේකම්, වත්තල - කාරු. දැන ගැනීම සඳහා.
- 03. ප්‍රාදේශීය ලේකම්, මීගමුව - කාරු. දැන ගැනීම සඳහා.
- 04. සහකාර අධ්‍යක්ෂ (බටහිර) - කාරු. දැන ගැනීම සඳහා.

APPENDIX 5.1 SEDIMENT QUALITY MONITORING REPORT



Environmental Laboratory & Consultancy Services (ELCS)

889 1/3, Maradana Road, Colombo 10, Sri Lanka. Tel. 0094112684242

CEA Registered No-07/LM/LAB/29/2010 & 07/LM/Cons/76/2011

Date Reported: 09th December 2022

Lab Reference #: 22111805466

Test Report

<ul style="list-style-type: none"> • Customer Name : Colombo West International Terminal (CWIT) • Address : Port of Colombo • Sample Point : 06.960296 N, 79.831932 E (Terminal Area) – L1 • Date & Time Sampled : 18.11.2022 @ 1225hrs • Status : Sediment 	<ul style="list-style-type: none"> • Collected By : ELCS/ NARA • Date & Time in Lab : 18.11.2022 @ 1400hrs • Date Analysis Started : 19.11.2022 • Date Analysis Completed: 02.12.2022 • Weather @ Site : Sunny • Appearance : Blackish brown Clay Type
--	--

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Cadmium (as Cd)	mg/kg	APHA 3125 – Cd B	Not Detected	1.5	0.005	-
Zinc (as Zn)	mg/kg	APHA 3125 – Zn B	Not Detected	200	0.01	-
Nickel (as Ni)	mg/kg	APHA 3125 – Ni B	Not Detected	21	0.005	-
Copper (as Cu)	mg/kg	APHA 3125 – Cu B	0.01	65	0.01	-
Polycyclic Aromatic Hydrocarbon (PAH)						
Benzo (a) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.43	0.2	-
Benzo (e) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (a) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.261	0.2	-
Chrysene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.384	0.2	-
Benzo (b) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (j) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (k) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Dibenzo (a,h) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.063	0.2	-
Fluorene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.19	0.2	-
Phenanthrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.24	0.2	-
Anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.085	0.2	-
Fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.6	0.2	-
Pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.665	0.2	-
Indeno[1,2,3- cd]pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo[g,h,i]perylene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-

LOD – Limit of Detection, EU-Expanded Uncertainty, NARA - National Aquatic Resources Research and Development Agency, MEPA - Marine Environment Protection Authority

- Sampling as per Grab sample
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805466 **do comply** with the tolerance limits of Schedule 2, Regulation 2 (b)(i) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.

Chief Chemist

Laboratory Manager
G. Subasinghe

Authorized Signatory, MD
Susil Seneviratne

Content of this report shall not be published in total or part without written approval of Laboratory Manager, ELCS

Contact us on: 0712733779, 0778351657, 0716400365, 0776174778
manager.elcs@gmail.com, www.labenvi.com

& Consultancy Services (ELCS),

889 1/3, Maradana Road,

Page 4

CEA Registered No-07/LM/LAB/29/2010 & 07/LM/Cons/76/2011

Lab Reference #: 22111805467

 Date Reported: 05th December 2022

Test Report

• Customer Name : Colombo West International Terminal (CWIT),	• Collected By : ELCS/ NARA
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 06.952388 N, 79.831252 E (Terminal Area) – L2	• Date Analysis Started : 19.11.2022
• Date & Time Sampled : 18.11.2022 @ 1211hrs	• Date Analysis Completed: 02.12.2022
• Status : Sediment	• Weather @ Site : Sunny
	• Appearance : Blackish Brown Clay Type

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	1.5	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	Not Detected	200	0.01	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	21	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.01	65	0.01	-

Polycyclic Aromatic Hydrocarbon (PAH)

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Benzo (a) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.43	0.2	-
Benzo (e) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (a) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.261	0.2	-
Chrysene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.384	0.2	-
Benzo (b) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (j) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (k) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Dibenzo (a,h) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.063	0.2	-
Fluorene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.19	0.2	-
Phenanthrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.24	0.2	-
Anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.085	0.2	-
Fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.6	0.2	-
Pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.665	0.2	-
Indeno[1,2,3- cd]pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo[g,h,i]perylene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-

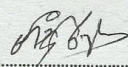
LOD – Limit of Detection, EU-Expanded Uncertainty, NARA - National Aquatic Resources Research and Development Agency,
MEPA - Marine Environment Protection Authority

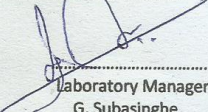
- Sampling as per Grab sample
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

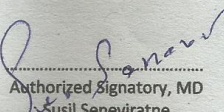
Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805467 **do comply** with the tolerance limits of Schedule 2, Regulation 2 (b)(i) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.


 Chief Chemist


 Laboratory Manager
 G. Subasinghe


 Authorized Signatory, MD
 Susil Seneviratne

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CEA Registered No-07/LM/LAB/29/2010 & 07/LM/Cons/76/2011

Date Reported: 05th December 2022

Lab Reference #: 22111805468

Test Report

<ul style="list-style-type: none"> • Customer Name : Colombo West International Terminal (CWIT), • Address : Port of Colombo • Sample Point : 7° 08' .05.953" N, 79° 43' 04.053" E (Sand Dredging Area) – L3 • Date & Time Sampled : 18.11.2022 @ 1041hrs • Status : Sediment 	<ul style="list-style-type: none"> • Collected By : ELCS/ NARA • Date & Time in Lab : 18.11.2022 @ 1400hrs • Date Analysis Started : 19.11.2022 • Date Analysis Completed: 02.12.2022 • Weather @ Site : Sunny • Appearance : Sand Type
--	---

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	1.5	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.08	200	0.01	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	21	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.05	65	0.01	-

Polycyclic Aromatic Hydrocarbon (PAH)

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Benzo (a) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.43	0.2	-
Benzo (e) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (a) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.261	0.2	-
Chrysene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.384	0.2	-
Benzo (b) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (j) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (k) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Dibenzo (a,h) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.063	0.2	-
Fluorene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.19	0.2	-
Phenanthrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.24	0.2	-
Anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.085	0.2	-
Fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.6	0.2	-
Pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.665	0.2	-
Indeno[1,2,3- cd]pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo[g,h,i]perylene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-

LOD – Limit of Detection, EU-Expanded Uncertainty, NARA - National Aquatic Resources Research and Development Agency, MEPA - Marine Environment Protection Authority

- Sampling as per Grab sample
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805468 **do comply** with the tolerance limits of Schedule 2, Regulation 2 (b)(i) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.

.....
Chief Chemist

.....
Laboratory Manager
G. Subasinghe

.....
Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22111805469

Date Reported: 05th December 2022

Test Report

<ul style="list-style-type: none"> • Customer Name : Colombo West International Terminal (CWIT), • Address : Port of Colombo • Sample Point : 7° 08' 06.164" N, 79° 44' 22.268" E (Sand Dredging Area) – L4 • Date & Time Sampled : 18.11.2022 @ 1119hrs • Status : Sediment 	<ul style="list-style-type: none"> • Collected By : ELCS/ NARA • Date & Time in Lab : 18.11.2022 @ 1400hrs • Date Analysis Started : 19.11.2022 • Date Analysis Completed: 02.12.2022 • Weather @ Site : Sunny • Appearance : Sand Type
---	---

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	1.5	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.02	200	0.01	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	21	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.02	65	0.01	-
Polycyclic Aromatic Hydrocarbon (PAH)						
Benzo (a) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.43	0.2	-
Benzo (e) pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (a) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.261	0.2	-
Chrysene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.384	0.2	-
Benzo (b) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (j) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo (k) fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Dibenzo (a,h) anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.063	0.2	-
Fluorene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.19	0.2	-
Phenanthrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.24	0.2	-
Anthracene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.085	0.2	-
Fluoranthene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.6	0.2	-
Pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	0.665	0.2	-
Indeno[1,2,3- cd]pyrene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-
Benzo[g,h,i]perylene	mg/kg	DIN 38407-39 Solvent extraction GC/MS	Not Detected	-	0.2	-

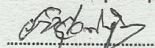
LOD – Limit of Detection, EU-Expanded Uncertainty, NARA - National Aquatic Resources Research and Development Agency, MEPA - Marine Environment Protection Authority.


- Sampling as per Grab sample
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017


Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805469 **do comply** with the tolerance limits of Schedule 2, Regulation 2 (b)(i) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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APPENDIX 5.2 MARINE WATER QUALITY REPORT



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ISO/IEC 17025
TL 058-01

CEA Registered No-07/LM/LAB/29/2010 & 07/LM/Cons/76/2011

Lab Reference #: 22111805462

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWA/ 12/ 02

Test Report

• Customer Name : Colombo West International Terminal (CWIT)	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 06.960296 N, 79.831932 E (Terminal Area) – L1	• Date Analysis Started : 19.11.2022
• Date & Time Sampled: 18.11.2022 @ 1225hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	9.0	5.5 – 9.0	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	28.9	45	2 -100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	-	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	7.0	150	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	9.8	-	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	253	250	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	9.4	100	6-500	5.56
Salinity	ppt	APHA 2520 A	17.8	-	0.1	-
Total Phosphorous	mg/l	APHA 4500 – P B & D	Not Detected	-	0.05	-
Total Nitrogen	mg/l	APHA 4500 – NO ₃ B	5.5	-	0.05	-
Ammonia as N – Top	mg/l	Nessler	4.9	50	0.01	-
Ammonia as N - Bottom	mg/l	Nessler	6.1	50	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	80	-	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	50	60	1	-


Parameters in *italic* do not cover accreditation, LOD - Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority


- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

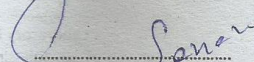
Conclusion

Chemical Oxygen Demand of the above mentioned tested parameters of the sample, Lab Reference No 22111805462 **do not comply** with the tolerance limits of Schedule 1, Regulation 2 (b) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Analyses were carried out by Chief Chemist G.B Ratnasuriya.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22111805462

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWA/ 12/ 02

Test Report

• Customer Name	: Colombo West International Terminal (CWIT),	• Collected By	: Mr. M. P. Kumara - ELCS
• Address	: Port of Colombo	• Date & Time in Lab	: 18.11.2022 @ 1400hrs
• Sample Point	: 06.960296 N, 79.831932 E (Terminal Area) – L1	• Date Analysis Started	: 19.11.2022
• Date & Time Sampled	: 18.11.2022 @ 1225hrs	• Date Analysis Completed	: 02.12.2022
• Status	: Sea Water	• Weather @ Site	: Sunny
		• Appearance	: Clear

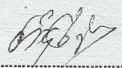
Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – C	Not Detected	0.2	0.005	-
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	2.0	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.03	5.0	0.01	-
Lead (as Pb)	mg/l	APHA 3125 – Pb B	Not Detected	1.0	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 - B	Not Detected	0.01	0.005	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	5.0	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.02	3.0	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	-	0.001	-
Aluminium (as Al)	mg/l	APHA 3125 – Al B	Not Detected	-	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3125 – Cr B	Not Detected	2.0	0.005	-
Aldrin	µg/L	FD–MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-
Dieldrin	µg/L	FD–MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-


LOD – Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

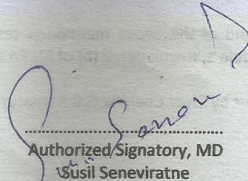
Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805462 do comply with the tolerance limits as MEPA cited as the Marine Environmental Protection Regulation No 1816/37 on 28 June 2013 (Schedule 1, Regulation 2 (b)) issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22111805463

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWB/ 12/ 02

Test Report

• Customer Name : Colombo West International Terminal (CWIT)	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 06.952388 N, 79.831252 E (Terminal Area) – L2	• Date Analysis Started : 19.11.2022
• Date & Time Sampled : 18.11.2022 @ 1211hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	8.8	5.5 – 9.0	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	28.8	45	2-100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	-	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	6.5	150	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	9.9	-	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	249	250	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	8.0	100	6-500	5.56
Salinity	ppt	APHA 2520 A	18.0	-	0.1	-
Total Phosphorous	mg/l	APHA 4500 – P B & D	Not Detected	-	0.05	-
Total Nitrogen	mg/l	APHA 4500 – NO ₃ B	5.0	-	0.05	-
Ammonia as N – Top	mg/l	Nessler	5.0	50	0.01	-
Ammonia as N - Bottom	mg/l	Nessler	5.5	50	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	80	-	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	50	60	1	-

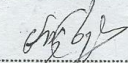
Parameters in italic do not cover accreditation, LOD – Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority


- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

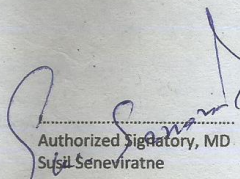
Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805463 do comply with the tolerance limits of Schedule 1, Regulation 2 (b) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Analyses were carried out by Chief Chemist G.B Ratnasuriya.


.....
Chief Chemist


.....
Laboratory Manager
G. Subasinghe


.....
Authorized Signatory, MD
Susi Seneviratne

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Lab Reference #: 22111805463

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWB/ 12/ 02

Test Report

• Customer Name : Colombo West International Terminal (CWIT),	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo Colombo 02	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 06.952388 N, 79.831252 E (Terminal Area) – L2	• Date Analysis Started : 19.11.2022
• Date & Time Sampled : 18.11.2022 @ 1211hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

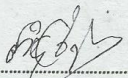
Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – C	Not Detected	0.2	0.005	-
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	2.0	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.40	5.0	0.01	-
Lead (as Pb)	mg/l	APHA 3125 – Pb B	Not Detected	1.0	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 - B	Not Detected	0.01	0.005	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	5.0	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.03	3.0	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	-	0.001	-
Aluminium (as Al)	mg/l	APHA 3125 – Al B	Not Detected	-	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3125 – Cr B	Not Detected	2.0	0.005	-
Aldrin	µg/L	FD–MTHD–010:2013 V 1.0	Not Detected	0.005	0.04	-
Dieldrin	µg/L	FD–MTHD–010:2013 V 1.0	Not Detected	0.005	0.04	-

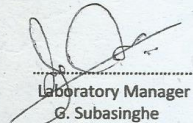
LOD – Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

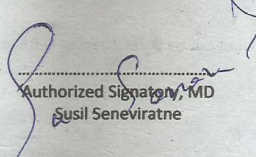
Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805463 do comply with the tolerance limits as MEPA cited as the Marine Environmental Protection Regulation No 1816/37 on 28 June 2013 (Schedule 1, Regulation 2 (b)) issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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Colombo 10, Sri Lanka

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Test Report

• Customer Name : Colombo West International Terminal (CWIT)	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 7° 08' 05.953" N, 79° 43' 04.053" E (Sand Dredging Area) - L3	• Date Analysis Started : 19.11.2022
• Date & Time Sampled: 18.11.2022 @ 1041hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	8.5	5.5 - 9.0	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	29.1	45	2 -100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	-	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	5.5	150	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	10.0	-	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	264	250	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	11.2	100	6-500	5.58
Salinity	ppt	APHA 2520 A	24.2	-	0.1	-
Total Phosphorous	mg/l	APHA 4500 - P B & D	Not Detected	-	0.05	-
Total Nitrogen	mg/l	APHA 4500 - NO ₃ B	5.6	-	0.05	-
Ammonia as N - Top	mg/l	Nessler	6.9	50	0.01	-
Ammonia as N - Bottom	mg/l	Nessler	7.0	50	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	Not Detected	-	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	Not Detected	60	1	-

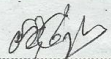
Parameters in italic do not cover accreditation, LOD - Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

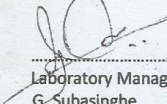
- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

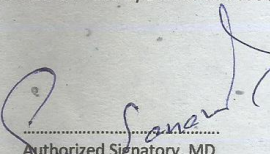
Conclusion

Chemical Oxygen Demand of the above mentioned tested parameters of the sample, Lab Reference No 22111805464 do not comply with the tolerance limits of Schedule 1, Regulation 2 (b) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Analyses were carried out by Chief Chemist G.B Ratnasuriya.


.....
Chief Chemist


.....
Laboratory Manager
G. Subasinghe


.....
Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22111805464

 Date Reported: 05th December 2022
 Sampling Plan No #: ELCS/ 2022/ SWC/ 12/ 02

Test Report

• Customer Name	: Colombo West International Terminal (CWIT),	• Collected By	: Mr. M. P. Kumara - ELCS
• Address	: Port of Colombo	• Date & Time in Lab	: 18.11.2022 @ 1400hrs
• Sample Point	: 7° 08' 05.953" N, 79° 43' 04.053" E (Sand Dredging Area) – L3	• Date Analysis Started	: 19.11.2022
• Date & Time Sampled	: 18.11.2022 @ 1041hrs	• Date Analysis Completed:	02.12.2022
• Status	: Sea Water	• Weather @ Site	: Sunny
		• Appearance	: Clear

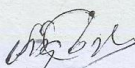
Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – C	Not Detected	0.2	0.005	-
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	2.0	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.04	5.0	0.01	-
Lead (as Pb)	mg/l	APHA 3125 – Pb B	Not Detected	1.0	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 - B	Not Detected	0.01	0.005	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	5.0	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.03	3.0	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	-	0.001	-
Aluminium (as Al)	mg/l	APHA 3125 – Al B	Not Detected	-	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3125 – Cr B	Not Detected	2.0	0.005	-
Aldrin	µg/L	FD–MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-
Dieldrin	µg/L	FD–MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-


LOD – Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

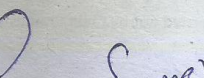
Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805464 **do comply** with the tolerance limits as MEPA cited as the Marine Environmental Protection Regulation No 1816/37 on 28 June 2013 (Schedule 1, Regulation 2 (b)) issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.


 Chief Chemist


 Laboratory Manager
 G. Subasinghe


 Authorized Signatory, MD
 Susil Seneviratne

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Page 10



Lab Reference #: 22111805465

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWD/ 12/ 02

Test Report

• Customer Name : Colombo West International Terminal (CWIT)	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 7° 08' 06.164" N, 79° 44' 22.268" E (Sand Dredging Area) – L4	• Date Analysis Started : 19.11.2022
• Date & Time Sampled: 18.11.2022 @ 1119hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	8.9	5.5 – 9.0	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	29.2	45	2 -100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	-	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	11	150	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	10.1	-	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	259	250	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	12.1	100	6-500	5.56
Salinity	ppt	APHA 2520 A	24.2	-	0.1	-
Total Phosphorous	mg/l	APHA 4500 – P B & D	Not Detected	-	0.05	-
Total Nitrogen	mg/l	APHA 4500 – NO ₃ B	5.0	-	0.05	-
Ammonia as N – Top	mg/l	Nessler	6.4	50	0.01	-
Ammonia as N - Bottom	mg/l	Nessler	6.6	50	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	Not Detected	-	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	Not Detected	60	1	-

Parameters in italic do not cover accreditation, LOD - Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

Conclusion

Chemical Oxygen Demand of the above mentioned tested parameters of the sample, Lab Reference No 22111805465 **do not comply** with the tolerance limits of Schedule 1, Regulation 2 (b) of MEPA Regulation No 1816/37 on 28 June 2013 issued by Democratic Socialist Republic of Sri Lanka.

Analyses were carried out by Chief Chemist G.B Ratnasuriya.

Chief Chemist

Laboratory Manager
G. Subasinghe

Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22111805465

Date Reported: 05th December 2022
Sampling Plan No #: ELCS/ 2022/ SWD/ 12/ 02

Test Report

• Customer Name : Colom̃bo West International Terminal (CWIT),	• Collected By : Mr. M. P. Kumara - ELCS
• Address : Port of Colombo	• Date & Time in Lab : 18.11.2022 @ 1400hrs
• Sample Point : 7° 08' 06.164" N, 79° 44' 22.268" E (Sand Dredging Area) – L4	• Date Analysis Started : 19.11.2022
• Date & Time Sampled : 18.11.2022 @ 1119hrs	• Date Analysis Completed: 02.12.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

Parameter	Unit	Test Method	Test Results	MEPA Limits	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – C	Not Detected	0.2	0.005	-
Cadmium (as Cd)	mg/l	APHA 3125 – Cd B	Not Detected	2.0	0.005	-
Zinc (as Zn)	mg/l	APHA 3125 – Zn B	0.08	5.0	0.01	-
Lead (as Pb)	mg/l	APHA 3125 – Pb B	Not Detected	1.0	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 - B	Not Detected	0.01	0.005	-
Nickel (as Ni)	mg/l	APHA 3125 – Ni B	Not Detected	5.0	0.005	-
Copper (as Cu)	mg/l	APHA 3125 – Cu B	0.04	3.0	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	-	0.001	-
Aluminium (as Al)	mg/l	APHA 3125 – Al B	Not Detected	-	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3125 – Cr B	Not Detected	2.0	0.005	-
Aldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-
Dieldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.005	0.04	-

LOD – Limit of Detection, EU-Expanded Uncertainty, MEPA - Marine Environment Protection Authority

Conclusion

Above mentioned tested parameters of the sample, Lab Reference No 22111805465 **do comply** with the tolerance limits as MEPA cited as the Marine Environmental Protection Regulation No 1816/37 on 28 June 2013 (Schedule 1, Regulation 2 (b)) issued by Democratic Socialist Republic of Sri Lanka.

Results of the Report specifically refer to the above item tested.

Chief Chemist

Laboratory Manager
G. Subasinghe

Authorized Signatory, MD
Susil Senewiratne

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ISO/IEC 17025
TL 058-01

Lab Reference #: 22103105443

Date Reported: 11th November 2022
Sampling Plan No #: ELCS/ 2022/ SWA/ 11/ 14

Test Report


• Customer Name : Colombo West International Terminal (CWIT)	• Collected By : M. K. Jayasekara-ELCS
• Address : Port Of Colombo Colombo 02	• Date & Time in Lab : 31.10.2022 @ 1830hrs
• Sample Point : 7° 08' 05.953" N, 79° 43' 04.053" E (Sand Dredging Area) - L3	• Date Analysis Started : 01.11.2022
• Date & Time Sampled: 31.10.2022 @ 1509hrs	• Date Analysis Completed: 11.11.2022
• Status : Sea Water	• Weather @ Site : Sunny
	• Appearance : Clear

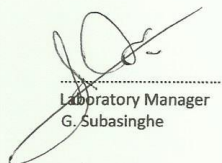
Parameter	Unit	Test Method	Test Results	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	8.4	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	30.3	2 -100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	Not Detected	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	12.4	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	258	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	15	6-500	5.56
Salinity	ppt	APHA 2520 A	23.1	0.1	-
Total Phosphorous	mg/l	APHA 4500 - P B & D	Not Detected	0.05	-
Total Nitrogen	mg/l	APHA 4500 - NO ₃ B	7.1	0.05	-
Ammonia as N - Top	mg/l	Nessler	6.1	0.01	-
Ammonia as N - Bottom	mg/l	Nessler	6.0	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	Not Detected	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	Not Detected	1	-

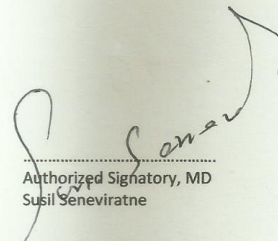
Parameters in *italic* do not cover accreditation, LOD - Limit of Detection, EU-Expanded Uncertainty

- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

SLAB Accredited analyses were carried out by Chief Chemist G.B Ratnasuriya.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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Lab Reference #: 22103105443

Date Reported: 11th November 2022
Sampling Plan No #: ELCS/ 2022/ SWA/ 11/ 14

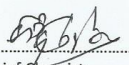
Test Report

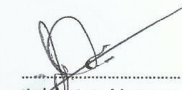
• Customer Name	: Colombo West International Terminal (CWIT),	• Collected By	: Mr. K. Jayasekara-ELCS
• Address	: Port of Colombo	• Date & Time in Lab	: 31.10.2022 @ 1830hrs
• Sample Point	: 7° 08' 05.953" N, 79° 43' 04.053" E (Sand Dredging Area) – L3	• Date Analysis Started	: 01.11.2022
• Date & Time Sampled	: 31.10.2022 @ 1509hrs	• Date Analysis Completed:	: 11.11.2022
• Status	: Sea Water	• Weather @ Site	: Sunny
		• Appearance	: Clear

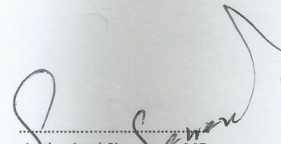
Parameter	Unit	Test Method	Test Results	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – B	Not Detected	0.005	-
Cadmium (as Cd)	mg/l	APHA 3500 – Cd B	Not Detected	0.005	-
Zinc (as Zn)	mg/l	APHA 3500 – Zn B	0.01	0.01	-
Lead (as Pb)	mg/l	APHA 3500 – Pb B	Not Detected	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 B	Not Detected	0.005	-
Nickel (as Ni)	mg/l	APHA 3500 – Ni B	Not Detected	0.005	-
Copper (as Cu)	mg/l	APHA 3500 – Cu B	0.03	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	0.001	-
Aluminium (as Al)	mg/l	APHA 3500 – Al B	Not Detected	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3500 – Cr B	Not Detected	0.005	-
Aldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.04	-
Dieldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.04	-

LOD – Limit of Detection, EU-Expanded Uncertainty

Results of the Report specifically refer to the above item tested.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Sunil Seneviratne

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ISO/IEC 17025
TL 058-01

Lab Reference #: 22103105444

Date Reported: 11th November 2022
Sampling Plan No #: ELCS/ 2022/ SWB/ 11/ 14

Test Report

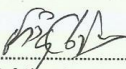
• Customer Name	: Colombo West International Terminal (CWIT)	• Collected By	: Mr. K. Jayasekara-ELCS
• Address	: Port Of Colombo Colombo 02	• Date & Time in Lab	: 31.10.2022 @ 1830hrs
• Sample Point	: 7° 08' 06.164" N, 79° 44' 22.268" E (Sand Dredging Area) – L4	• Date Analysis Started	: 01.11.2022
• Date & Time Sampled	: 31.10.2022 @ 1533hrs	• Date Analysis Completed	: 11.11.2022
• Status	: Sea Water	• Weather @ Site	: Sunny
		• Appearance	: Clear

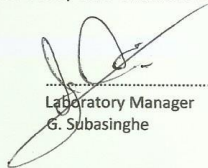
Parameter	Unit	Test Method	Test Results	LOD	EU (K=2)
pH @ Site	-	APHA, 4500 H,B	8.5	2-14	1.02
Temperature @ Site	°C	APHA 2550 B	30.2	2 -100	1.46
Turbidity @ 25°C	NTU	APHA 2130 B/ ELCS 01	Not Detected	1-700	1.8
Total Suspended Solids at 104°C	mg/l	APHA 2540 D	5.0	5	2.96
Dissolved Oxygen @ Site	mg/l	APHA 4500 OG & 5210 B	12.3	2.0	1.50
Chemical Oxygen Demand	As mg O ₂ /l	APHA 5220 D	251	151-1000	8.72
Biochemical Oxygen Demand	mg/l	APHA 5210 B/ 4500 OG	18	6-500	5.56
Salinity	ppt	APHA 2520 A	20.3	0.1	-
Total Phosphorous	mg/l	APHA 4500 – P B & D	Not Detected	0.05	-
Total Nitrogen	mg/l	APHA 4500 – NO ₃ B	6.4	0.05	-
Ammonia as N – Top	mg/l	Nessler	4.5	0.01	-
Ammonia as N – Bottom	mg/l	Nessler	4.7	0.01	-
Total Coliforms	MPN/100ml	SLS 1461 Part 1:2013	350	1	-
Faecal Coliform	MPN/100ml	SLS 1461:Part 2, 2013	25	1	-

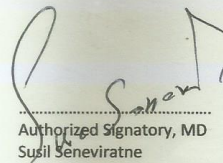
Parameters in *italic* do not cover accreditation, LOD – Limit of Detection, EU-Expanded Uncertainty

- Sampling as per APHA 1060 A, B & C 23rd Edition, 2017
- APHA Standard Methods for the Examination of Water and Wastewater, 23rd Edition, 2017

SLAB Accredited analyses were carried out by Chief Chemist G.B Ratnasuriya.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Susil Seneviratne

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Environmental Laboratory & Consultancy Services (ELCS)

889 1/3, Maradana Road, Colombo 10, Sri Lanka. Tel. 0094112684242

CEA Registered No-07/LM/LAB/29/2010 & 07/LM/Cons/76/2011

Lab Reference #: 22103105444

Date Reported: 11th November 2022
Sampling Plan No #: ELCS/ 2022/ SWB/ 11/ 14

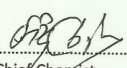
Test Report

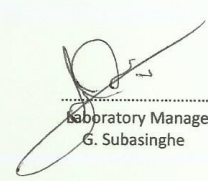
• Customer Name	: Colombo West International, Terminal (CWIT),	• Collected By	: Mr. K. Jayasekara-ELCS
• Address	: Port of Colombo Colombo 02	• Date & Time in Lab	: 31.10.2022 @ 1830hrs
• Sample Point	: 7° 08' 06.164" N, 79° 44' 22.268" E (Sand Dredging Area) – L4	• Date Analysis Started	: 01.11.2022
• Date & Time Sampled	: 31.10.2022 @ 1533hrs	• Date Analysis Completed:	11.11.2022
• Status	: Sea Water	• Weather @ Site	: Sunny
		• Appearance	: Clear

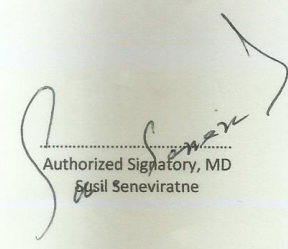
Parameter	Unit	Test Method	Test Results	LOD	EU (K=2)
Arsenic (as As)	mg/l	APHA 3114 – B	Not Detected	0.005	-
Cadmium (as Cd)	mg/l	APHA 3500 – Cd B	Not Detected	0.005	-
Zinc (as Zn)	mg/l	APHA 3500 – Zn B	0.01	0.01	-
Lead (as Pb)	mg/l	APHA 3500 – Pb B	Not Detected	0.005	-
Mercury (as Hg)	mg/l	APHA 3112 B	Not Detected	0.005	-
Nickel (as Ni)	mg/l	APHA 3500 – Ni B	Not Detected	0.005	-
Copper (as Cu)	mg/l	APHA 3500 – Cu B	0.05	0.01	-
Manganese (as Mn)	mg/l	APHA 3500 – Mn B	Not Detected	0.001	-
Aluminium (as Al)	mg/l	APHA 3500 – Al B	Not Detected	0.01	-
Total Chromium (as Cr)	mg/l	APHA 3500 – Cr B	Not Detected	0.005	-
Aldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.04	-
Dieldrin	µg/L	FD-MTHD-010:2013 V 1.0	Not Detected	0.04	-

LOD – Limit of Detection, EU-Expanded Uncertainty

Results of the Report specifically refer to the above item tested.


Chief Chemist


Laboratory Manager
G. Subasinghe


Authorized Signatory, MD
Gisil Seneviratne

Content of this report shall not be published in total or part without written approval of Laboratory Manager, ELCS

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APPENDIX 5.3 AMBIENT AIR QUALITY MONITORING REPORT



4.1 Results

Table 4.2: Air Quality Results @ Location 1

26 and 27 July 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.02	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.01	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SO ₂)	1	0.03	ppm	Pararosaniliene Method	0.08
Nitrogen Oxides (NO ₂)	1	0.07	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

July 2022



Baseline Environmental Monitoring Report
Proposed Construction of West Container Terminal – 1, Port of Colombo Project, Ref: 22072605223

Table 4.3: Air Quality Results @ Location 2

26 and 27 July 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.03	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.01	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SOx)	1	0.02	ppm	Pararosaniliene Method	0.08
Nitrogen Oxides (NOx)	1	0.06	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

4.2 Conclusion and Recommendations

Table 4.4

Analysis of Ambient Air Quality Monitoring Results		
	6.945905 N, 79.822897 E	6.956374 N, 79.822888 E
1	All measured parameters were below the limits.	
2	As observed there was no particulate matter, SO ₂ , NO ₂ and CO emission sources nearby except moving vehicles in existing harbor.	
3	As described above monitoring points, air quality may differ from time to time with atmospheric conditions (prevailing wind directions, wind speed and atmospheric stability).	

October 2022

Table 3: Air Quality Results @ Location 3

26 and 27 October 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.08	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.04	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SO ₂)	1	0.02	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NO ₂)	1	0.08	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

4.2 Conclusion and Recommendations

Table 4

Analysis of Ambient Air Quality Monitoring Results	
	6° 56.296'N, 79° 50.601'E
1	All measured parameters were below the limits.
2	As observed there was no particulate matter, SO ₂ , NO ₂ and CO emission sources nearby except moving vehicles in existing harbor area.
3	As described above monitoring points, air quality may differ from time to time with atmospheric conditions (prevailing wind directions, wind speed and atmospheric stability).

November 2022

Table 3: Air Quality Results @ Location 1

24 and 25 November 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.07	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.04	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SO ₂)	1	0.02	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NO ₂)	1	0.08	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

Table 4: Air Quality Results @ Location 2

24 and 25 November 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.05	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.02	mg/m ³	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SO _x)	1	0.02	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NO _x)	1	0.10	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

Table 5: Air Quality Results @ Location 3

25 and 26 November 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.08	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.04	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SOx)	1	0.02	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NOx)	1	0.09	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

7.0 Conclusion and Recommendations

Table 6

Analysis of Ambient Air Quality Monitoring Results			
	6.945432 N, 79.826157 E	6.956374 N, 79.822888 E	6° 56.296'N, 79° 50.601'E
1	All measured air quality parameters were below the CEA Standards.		
2	As reported and observed dust levels (particulate matter), were relatively higher near chairman office area due to moving vehicles in existing harbor comparatively other locations.		
3	As described above monitoring points, air quality may differ from time to time with atmospheric conditions (prevailing wind directions, wind speed and atmospheric stability).		

December 2022

Table 3: Air Quality Results @ Location 1

08 and 09 December 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.17	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.08	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SO ₂)	1	0.03	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NO ₂)	1	0.08	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

08 and 09 December 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.18	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.09	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SOx)	1	0.03	ppm	Pararosaniliene Method	0.08
Nitrogen Oxides (NOx)	1	0.12	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

Table 5: Air Quality Results @ Location 3

09 and 10 December 2022					
Pollutant	Averaging Time (hr)	Measured Results	Unit	Method	CEA Standard
Particulate Matter (PM10)	24	0.2	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.1
Particulate Matter (PM2.5)	24	0.1	mg/m3	High Volume Sampling with Selective Sampling Inlet & Gravimetric	0.05
Sulfur Oxides (SOx)	1	0.03	ppm	Pararosanilene Method	0.08
Nitrogen Oxides (NOx)	1	0.12	ppm	Colorimetric using Saltzman method	0.13
Carbon Monoxide (CO)	1	<0.1	ppm	Electrochemical Cell	26

4.2 Conclusion and Recommendations

Table 6

Analysis of Ambient Air Quality Monitoring Results			
	6.945432 N, 79.826157 E	6.956374 N, 79.822888 E	6° 56.296'N, 79° 50.601'E
1	All form of dust (particulate matter, PM 10 & PM 2.5) are above the CEA Standard while gaseous level of SOx and NOx were higher than the registered data during construction stage 1 and preconstruction stage (baseline). This higher levels could be attributed to the prevailing dark condition similar to fog in many parts of the country during testing campaign.		
2	As reported and observed there dust level (particulate matter), SO2, NO2 and CO were near chairman office area were relatively high due to moving vehicles in existing harbor comparatively other locations.		

APPENDIX 5.4 AMBIENT NOISE QUALITY MONITORING REPORT



5.1 Results

Table 5.2: Noise Level @ Location 1

	Noise Level Monitoring Location 1	Day		Night	
		Max	Min	Max	Min
1	Near CICT Jetty	62.1	57.2	61.8	56.9

Table 5.3: Noise Level @ Location 2

	Noise Level Monitoring Location 2	Day		Night	
		Max	Min	Max	Min
1	Near brake water bend	54.1	43.8	49.5	44.7

5.2 Conclusion and Recommendations

Table 5.4: Analysis of Noise Level Monitoring Results

Analysis of Noise Level Monitoring Results		
	Noise levels at (near) CICT Jetty – Location 1	Noise levels at (near) Breakwater (bend) – Location 2
1	As noted most of noise levels recorded resulted from sea waves, windy weather and cargo operations at the existing harbor.	

October 2022

5.1 Results

Table 6: Noise Level @ Location 3

	Noise Level Monitoring Location 3	Day		Night	
		Max	Min	Max	Min
1	Main Port access road	76.1	67.3	76.4	61.7

5.2 Conclusion and Recommendations

Table 7: Analysis of Noise Level Monitoring Results

Analysis of Noise Level Monitoring Results	
	Noise levels at Main Port access road – Location 3
1	As noted most of noise levels recorded resulted from cargo operations at the existing harbor.

November 2022

Reference No	22111005457				
Time	Date	Location 1	Location 2	Date	Location 3
05 to 06	11.11.2022	49.2	40.1	12.11.2022	68.3
06 to 07		54	42		63.4
07 to 08		54.5	51.3		67.8
08 to 09		54.3	51.6		65.6
09 to 10	10.11.2022	54.8	51.4	11.11.2022	65.5
10 to 11		53.1	52		64.1
11 to 12		62	51		71.2
12 to 13		56	53		71.4
13 to 14		61	51		63
14 to 15		76	52		64.3
15 to 16		62	51		63.4
16 to 17		69	47		65.5
17 to 18		64	46		62.3
18 to 19		71	41.3		65.6
19 to 20		51.7	42.6		71.5
20 to 21		53.1	44		70.3
21 to 22		46.7	44.6		69.8
22 to 23		44.6	41.7		70
23 to 00	52.7	40.1	67.6		
00 to 01	11.11.2022	51.6	41.5	12.11.2022	53.5
01 to 02		59.6	40.9		61.3
02 to 03		53.2	41.9		67.2
03 to 04		50.1	40.1		66.7
04 to 05		50.1	41.6		67.2

December 2022

Table 8: Noise Level @ Location 1

	Noise Level Monitoring Location 1	Day		Night	
		Max	Min	Max	Min
1	Near CICT Jetty	73.1	60.7	71.6	56.9

Table 9: Noise Level @ Location 2

	Noise Level Monitoring Location 2	Day		Night	
		Max	Min	Max	Min
1	Near brake water bend	75.7	68.2	76.6	67.2

Table 10: Noise Level @ Location 3

	Noise Level Monitoring Location 2	Day		Night	
		Max	Min	Max	Min
1	Main Port access road	74.3	63.5	72.8	63.2

5.2 Conclusion and Recommendations

Table 11: Analysis of Noise Level Monitoring Results

Analysis of Noise Level Monitoring Results			
	Noise levels at (near) CICT Jetty – Location 1	Noise levels at (near) Breakwater (bend) – Location 2	Noise levels at (near) Main Port access road – Location 3
1	During co construction stage 2 testing campaign noise levels are higher at breakwater bend due to prevailing weather with strong winds.		

APPENDIX 5.5 GROUND VIBRATION MONITORING RESULT

Location (As described in above Table)	Date	Time	Vibration Levels ppv (mm/sec)	Frequency range (Hz)	CEA Interim Standard in ppv (mm/sec)
L1	26 & 27 July 2022	11 hr	0.0	10 – 1 kHz	As observed category of the structure of the building is Type 1 (CEA Interim Standard, Table 1.1)
		12 hr	0.0		
		13 hr	0.0		
		14 hr	0.0		
		15 hr	0.0		
		16 hr	0.0		
		17 hr	0.0		
		18 hr	0.0		
		19 hr	0.0		
		20 hr	0.0		
		21 hr	0.0		
		22 hr	0.0		
		23 hr	0.0		
		1 hr	0.0		
		2 hr	0.0		
		3 hr	0.0		
		4 hr	0.0		
		5 hr	0.0		
		6 hr	0.0		
		7 hr	0.0		
8 hr	0.0				
9 hr	0.0				
10 hr	0.0				

Location (As described in above Table)	Date	Time	Vibration Levels ppv (mm/sec)	Frequency range (Hz)	CEA Interim Standard in ppv (mm/sec)
L2	26 & 27 July 2022	11.30 hr	0.0	10 – 1 kHz	category of the structure cannot be determined as there were no building or nearby structures except breakwater (CEA Interim Standard, Table 1.1)
		12.30 hr	0.0		
		13.30 hr	0.0		
		14.30 hr	0.0		
		15.30 hr	0.0		
		16.30 hr	0.0		
		17.30 hr	0.0		
		18.30 hr	0.0		
		19.30 hr	0.0		
		20.30 hr	0.0		
		21.30 hr	0.0		
		22.30 hr	0.0		
		23.30 hr	0.0		
		1.30 hr	0.0		
		2.30 hr	0.0		
		3.30 hr	0.0		
		4.30 hr	0.0		
		5.30 hr	0.0		
		6.30 hr	0.0		
		7.30 hr	0.0		
8.30 hr	0.0				
9.30 hr	0.0				
10.30 hr	0.0				

APPENDIX 5.6 TRAFFIC SURVEY MONITORING REPORT

Location (Gate No)	Date	Hourly Average	Incoming		Outgoing	
			Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
			Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles
Gate 3	26 & 27 October 2022	12 -13 hr	157	10	126	20
		13 - 14 hr	155	11	77	12
		14 - 15 hr	163	10	77	7
		15 - 16 hr	170	10	93	16
		16 – 17 hr	141	11	87	14
		17 – 18 hr	186	10	91	12
		18 – 19 hr	145	5	58	5
		19 – 20 hr	78	7	56	9
		20 – 21 hr	32	8	20	9
		21 – 22 hr	27	3	29	1
		22 – 23 hr	19	0	18	4
		23 – 24 hr	8	0	8	1
		24 – 25 hr	5	1	5	0
		1 -2 hr	6	0	14	1
		2 – 3 hr	3	0	16	1
		3 – 4 hr	2	1	24	0
		4 – 5 hr	2	0	5	0
		5 – 6 hr	30	2	13	7
		6 – 7 hr	95	8	39	2
		7 – 8 hr	79	10	53	6
		8 – 9 hr	89	14	90	3
		9 – 10 hr	145	15	133	8
		10 – 11 hr	112	8	42	7
		11 – 12 hr	200	16	99	25
		Total			2049	160

Location (Gate No)	Date	Hour	Incoming		Outgoing	
			Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
			Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles
Gate 6	27 & 28 October 2022	9 – 10 hr	94	52	57	32
		10 – 11 hr	92	76	91	53
		11 – 12 hr	102	130	104	84
		12 -13 hr	68	146	111	85
		13 - 14 hr	77	117	102	171
		14 - 15 hr	70	97	114	174
		15 - 16 hr	58	112	139	139
		16 – 17 hr	96	130	317	187
		17 – 18 hr	75	125	340	168
		18 – 19 hr	40	165	165	151
		19 – 20 hr	18	80	122	104
		20 – 21 hr	4	110	144	148
		21 – 22 hr	11	95	53	132
		22 – 23 hr	12	90	30	148
		23 – 24 hr	4	105	21	160
		24 – 25 hr	1	50	12	230
		1 -2 hr	6	38	10	55
		2 – 3 hr	2	39	11	52
		3 – 4 hr	3	45	6	44
		4 – 5 hr	1	12	3	30
		5 – 6 hr	1	15	15	18
		6 – 7 hr	74	29	40	30
		7 – 8 hr	174	40	122	41
		8 – 9 hr	108	13	86	20
		Total			1191	1911

Location (Gate No)	Date	Hour	In		Out	
			Light Vehicles	Heavy Vehicles	Light Vehicles	Heavy Vehicles
			Number of Vehicles	Number of Vehicles	Number of Vehicles	Number of Vehicles
Gate 8	28 & 29 October 2022	9 – 10 hr	25	21	17	7
		10 – 11 hr	61	71	35	34
		11 – 12 hr	62	48	80	31
		12 -13 hr	66	60	81	20
		13 - 14 hr	59	56	41	16
		14 - 15 hr	75	52	53	25
		15 - 16 hr	50	65	81	40
		16 – 17 hr	40	42	138	25
		17 – 18 hr	52	32	109	20
		18 – 19 hr	65	22	67	30
		19 – 20 hr	16	30	52	20
		20 – 21 hr	10	27	89	27
		21 – 22 hr	8	18	5	11
		22 – 23 hr	3	30	7	19
		23 – 24 hr	0	3	6	15
		24 – 25 hr	3	25	3	25
		1 -2 hr	6	15	0	22
		2 – 3 hr	0	21	10	18
		3 – 4 hr	1	14	0	14
		4 – 5 hr	5	15	3	15
		5 – 6 hr	7	7	5	11
		6 – 7 hr	230	16	15	10
		7 – 8 hr	232	12	70	10
		8 – 9 hr	38	18	41	9
Total			1114	720	1008	474

APPENDIX 5.7 IEE ECOLOGICAL BASELINE SURVEY REPORT

3.2.4.1 Sea turtles

Sri Lanka encounters five species of sea turtles out of seven species recorded in the world, denoting its species richness (Deraniyagala, 1953 and Ekanayake et al., 2002). The mass scale stranding of turtles coast since the sinking of the X-Press Pearl cargo ship, especially Green turtle (*Chelonia mydas*), and Olive ridley turtle (*Lepidochelys olivacea*) reported from the Negombo coast indicated that area may serve as a migration route or feeding ground mainly for Olive ridley, and Green turtle. They are highly migratory, moving between nesting and feeding grounds, which could be thousands of kilometres apart. Several scientific studies have been proven the existence of turtle species in and around the site of interest (Hewavisenthi and Kotagama, 1991; Wickramasinghe, 1991; Ekanayake, et al., 2002). The possible nesting beaches identified during the past are given in Table 3.5.

Table 3.5: Turtle nesting beaches around proposed sand extracting area

Beach	Nature of the beach	Species recorded	Occurrence
Poruthota	Sandy	Green turtle, Olive ridley	Rare
Eththukala	Sandy	Green turtle, Olive ridley, Logger head	Rare
Thalahena	Rocky & sandy	No information	Very rare
Dungalpitiya	Rocky & sandy	No information	Very rare
Seththappaduwa	Rocky & sandy	No information	Very rare
Uswatakeyyawa	Rocky & sandy	No information	Very rare
Dikkowita	Rocky & sandy	Olive ridley, Leatherback	Rare

(Source: CECEB, 2016; Amarasooriya 1997)

3.2.4.2 Marine mammals

The distribution of the whales in this particular region is not known well but, there are some records of stranded whales from the beach belong to the Negombo area (Ilangakoon, 2002; NARA, 2016). During the study period, two species of dolphins; Common dolphin (*Delphinus delphinus*) and Spinner dolphin (*Stenella longirostris*) were observed in more offshore seas of Negombo.

3.2.5 Description of fishing grounds and fish species available in the project sites and adjacent areas

Studies of fisheries employed in and around the proposed sand extraction site revealed that the area is rich in aquatic faunal biodiversity especially finfish and non-fish such as shellfish. The fish catches are mainly comprised of three dominant groups; fish which represent pelagic fish and bottom associated demersal, mollusc and crustaceans. Mollusc represent squid, cuttlefish and octopus of which last two are associated with sea bottom, while crustaceans mainly represent shrimp and crabs. They are also bottom living species except blue swimming crabs (*Portunus pelagicus*).

Table 3.6: Food fish species recorded during the fish catch survey

Family	Scientific Name	English Name
Clupeidae	<i>Amblygaster sirm</i> <i>Amblygaster clupeioides</i> <i>Dussumieria acuta</i> <i>Escualosa thoracata</i> <i>Hilsa kelee</i> <i>Sadinella longiceps</i> <i>Sardinella albella</i> <i>Sardinella gibbosa</i>	Spotted sardinella Bleeker's smoothbelly sardinella Rainbow sardine White sardine Kelee shad Indian oil sardine White sardinella Goldstripe sardine
Carangidae	<i>Decopterus russelli</i> <i>Scomberoides commersonianus</i> <i>Caranx sp.</i> <i>Atule mate</i> <i>Selar crumenophthalmus</i> <i>Selarroides leptosis</i>	Indian scad Talang queenfish Yellowtail scad Bigeye scad Yellowstripe scad
Engraulididae	<i>Encrasicholina heteroloba</i> <i>Stolephorus insularis</i> <i>Stolephorus commersonii</i> <i>Stelephorus indicus</i> <i>Thryssa dussumieri</i> <i>Thryssa mystax</i> <i>Thryssa setirostris</i>	Shorthead anchovy Hardenberg's anchovy Commerson's anchovy Indian anchovy Dussumier's thryssa Moustached anchovy Langjaw thryssa
Scombridae	<i>Rastrelliger kanagurta</i> <i>Scomberomorus guttatus</i> <i>Scomberomorus sp</i>	Indian mackerel Indo-Pacific king mackerel Seerfish species
Leiognathidae	<i>Secutor ruconius</i> <i>Leiognathus dussumieri</i> <i>Gazza minuta</i>	Deep punose ponyfish Dussumier's ponyfish Toothpony
Pteriidae	<i>Pterocaesio sp</i>	Fusilier
Sphyraenidae	<i>Sphyraena jello</i> <i>Sphyraena obtusata</i>	Pickhandle barracuda Obtuse barracuda
Pristigasteridae	<i>Opisthopterus tardoore</i> <i>Pellona ditchela</i> <i>Pellona dayi</i>	Tardoore Indian pellona Day's pellona

Table 3.7: Shrimp, lobster and crab species recorded during the fish catch survey

Family	Scientific Name	English Name
Penaeidae	<i>Penaeus indicus</i>	Indian white shrimps
	<i>Penaeus merguensis</i>	Banana prawn
	<i>Penaeus monodon</i>	Giant tiger prawn
	<i>Penaeus semisulcatus</i>	Green tiger prawn
	<i>Metapenaeus affinis</i>	Jinga shrimps
	<i>Metapenaeus elegance</i>	Fine shrimps
	<i>Metapenaeus dobsoni</i>	Kadal shrimps
	<i>Metapenaeus moyebi</i>	Moyebi shrimps
	<i>Parapenaeopsis coromandelica</i>	Coromandel shrimp
Palinuridae	<i>Panulirus ornatus</i>	Ornate spiny lobster
	<i>Panulirus homarus</i>	Scalloped spiny lobster
Portunidae	<i>Portunus pelagicus</i>	Blue swimming crab
	<i>Portunus sanguinolentus</i>	Bloodspotted crab
	<i>Scylla serrate</i>	Indo-pacific swamp crab

Table 3.8: Mollusca species recorded during the fish catch survey

Family	Scientific Name	English Name
Sepidae	<i>Sepia acculeata</i>	Needle Cuttlefish
	<i>Sepia pharaonis</i>	Pharaoh cuttlefish
Loliginidae	<i>Loligo duvauceli</i>	Indian squid
	<i>Loligo singhalensis</i>	Long barrel squid
Octopodidae	<i>Octopus sp.</i>	Octopus

3.2.6 Description and assessment of hatchery /breeding grounds for commercial and ecologically important marine organisms.

3.2.6.1 Spawning behaviour of species reported in the sand extraction site and its surroundings

Since there is no productive habitat such as coral or reef or sea grass beds in or around the proposed sand extraction site or its surroundings it is unlikely to have breeding or spawning habitat for marine species in the area. Also studies revealed that the area is not a favorable feeding grounds or migratory route/path of ecologically important marine species such as turtles, marine mammals or commercially important migratory large pelagic fish species like tuna, such as skipjack and yellowfin, and sharks etc. They are highly migratory and often take deeper routes than in shallow coastal sea. However, small pelagic species are common in the water column and are broadcast spawners which involve shedding of eggs and sperm into the water column. Such species may have more extensive spawning grounds, than those species, which deposits eggs on the seafloor or biogenic structures as demersal fish and non-fish.

Table 3.9: Spawning behavior of key species reported in the sand extraction site and its surroundings

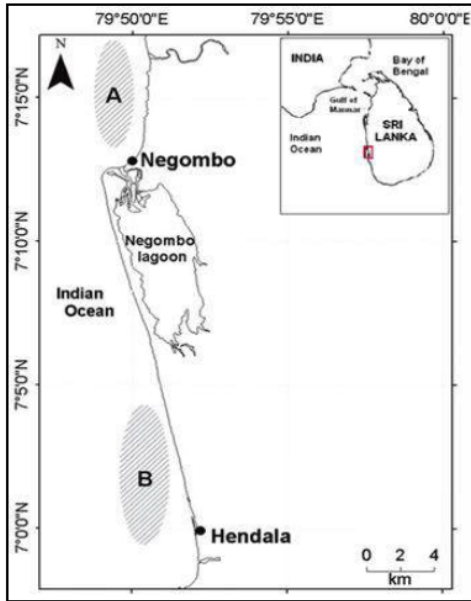
Species	Habitat	Distribution	Migration	Spawning ground	Location in water column		
					Adult	Larvae	Eggs
<i>Amblygaster sirm</i>	Pelagic	Wider spared-coastal	Coastal-localized	Water column->50m	Pelagic	Pelagic	Pelagic
<i>Sadinella longiceps</i>	Pelagic	Wider spared-coastal	Coastal-localized	Water column->50m	Pelagic	Pelagic	Pelagic
<i>Rastrelliger kanagurta</i>	Pelagic	Wider spared-coastal and offshore	Migratory	Water column-offshore >100m	Pelagic	Pelagic	Pelagic
<i>Sphyraena jello</i>	Pelagic	Wider spared coastal	Coastal-localized	Water column->50m	Pelagic/semi pelagic	Pelagic	Soft bottom
Crockles	Soft bottom	Wider spared coastal	No	Soft bottom	Sandy-muddy	Muddy	Muddy
Cuttlefish	Soft bottom	Wider spared coastal	No	Soft bottom	Sandy-muddy	Muddy	Muddy
Squids	Pelagic	Wider spared coastal	Coastal-localized	Water column->50m	Pelagic	Pelagic	Pelagic
<i>Metapenaeus dobsoni</i>	Soft bottom	Wider spared coastal	Lagoon-coastal sea	> 20 m coastal sea bottom	Sandy-muddy- sea	Demersal-lagoon soft bottom	Demersal-soft sea bottom
<i>Portunus pelagicus</i>	Pelagic	Wider spared coastal	Coastal-localized	Water column->50m	Pelagic	Pelagic	Pelagic

3.2.6.2 Shrimp breeding grounds

Negombo Lagoon and the adjacent shallow sea ecosystem function as the major nursery and sheltering grounds for many crustacean groups especially shrimps and fish during their life cycle.

There is a year around shrimp fishery both in the lagoon and associated coastal system using different varieties of fishing gears. Peneid shrimps (superfamily penaeoidea) are economically the most important group and the bulk of the catch is represented by eight species: *Penaeus monodon*, *Penaeus merguensis*, *P. indicus*, *P. semisulcatus*, *M. dobsoni* and *Parapenaeopsis coromandelica*.

The *Penaeus* shrimp spawn in the coastal sea at depths of about 10 m to 80 m and female release 50,000 to 1,300,000 eggs depending on the size and species. The larvae are planktonic and are carried out by currents towards the shore where they become migrating post larvae. The post larvae invade to lagoon (brackish) water, abandon their planktonic way of life and become bottom dwellers living in shallow littoral areas. Fishing or any other impact at one stage may reduce recruitment to the next fishery.



In coastal waters adult shrimps are exploited mainly by using small boats. Shrimp catching is done in the shallow depths of 10m to 20m from north of Colombo Harbour to Kepungoda (Hendala area) and from north of the Negombo lagoon entrance to Kamaltota (Figure 3.18).

This shows that the proposed sand extraction site is not intersecting with shrimp spawning or breeding grounds or shrimp catching area. It is revealed that the period from May-June until August-September is the best fishing season for shrimp in the west coast, which apparently coincided with the Southwest monsoon of the island (Haputhantri and Jayawardena, 2006).

Figure 3.18: Shrimp spawning or breeding grounds

APPENDIX 5.8 LIST OF PLANT SPECIES IN THE ZOI

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Family	Species	National Status	Conservation Status	RS / HS	WB / R	SL/M	Coast
Acanthaceae	<i>Asystasia variabilis</i>	Native	LC	X	X	X	
Acanthaceae	<i>Justicia procumbens</i>	Native	LC	X	X		
Acanthaceae	<i>Avicennia marina</i>	Native	LC		X	X	
Acanthaceae	<i>Hygrophila auriculata</i>	Native	LC			X	
Acanthaceae	<i>Ruellia prostrate</i>	Native	LC			X	
Aizoaceae	<i>Trianthema portulacastrum</i>	Native	LC		X		
Amaranthaceae	<i>Aerva lanata</i>	Native	LC	X			
Amaranthaceae	<i>Amaranthus viridis</i>	Native	LC	X			
Amaranthaceae	<i>Alternanthera sessilis</i>	Native	LC		X		
Anacardiaceae	<i>Mangifera indica</i>	Exotic		X			
Annonaceae	<i>Annona muricata</i>	Exotic		X			
Annonaceae	<i>Annona glabra</i>	IAS			X		
Apocynaceae	<i>Plumeria obtuse</i>	Exotic		X			
Apocynaceae	<i>Tabernaemontana divaricata</i>	Exotic		X			
Apocynaceae	<i>Cerbera odollam</i>	Native	LC		X		
Apocynaceae	<i>Calotropis gigantea</i>	Native	LC				X
Apocynaceae	<i>Hemidesmus indicus</i>	Native	LC			X	
Araceae	<i>Colocasia esculenta</i>	Native	LC		X	X	
Araceae	<i>Pistia stratiotes</i>	Native	LC		X		
Araceae	<i>Lemna perpusilla</i>	Native	LC		X		
Arecaceae	<i>Cocos nucifera</i>	Exotic		X			
Asparagaceae	<i>Asparagus racemosus</i>	Native		X			
Boraginaceae	<i>Heliotropium indicum</i>	Native	LC		X		
Caricaceae	<i>Carica papaya</i>	Exotic		X			
Cleomaceae	<i>Cleome ruidosperma</i>	Exotic		X		X	
Cleomaceae	<i>Cleome viscosa</i>	Native	LC		X		
Combretaceae	<i>Terminalia arjuna</i>	Native	LC	X			
Combretaceae	<i>Terminalia catappa</i>	Exotic		X			

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Family	Species	National Status	Conservation Status	RS / HS	WB / R	SL/M	Coast
Combretaceae	<i>Lumnitzera racemosa</i>	Native	NT		X	X	
Commelinaceae	<i>Commelina benghalensis</i>	Native	LC		X		
Compositae	<i>Ageratum conyzoides</i>	Exotic		X			
Compositae	<i>Cyanthillium cinereum</i>	Native	LC	X			
Compositae	<i>Synedrella nodiflora</i>	Exotic		X		X	
Compositae	<i>Eclipta prostrate</i>	Native	LC		X		
Compositae	<i>Tridax procumbens</i>	Exotic			X	X	
Convolvulaceae	<i>Ipomoea aquatic</i>	Native	LC		X		
Convolvulaceae	<i>Ipomoea pes-caprae</i>	Native	LC				X
Cucurbitaceae	<i>Coccinia grandis</i>	Native	LC	X			
Dilleniaceae	<i>Dillenia retusa</i>	Native		X			
Euphorbiaceae	<i>Acalypha indica</i>	Native	LC	X	X		
Euphorbiaceae	<i>Codiaeum variegatum</i>	Exotic		X			
Euphorbiaceae	<i>Euphorbia hirta</i>	Native	LC	X	X	X	
Euphorbiaceae	<i>Ricinus communis</i>	Exotic		X			
Euphorbiaceae	<i>Euphorbia heterophylla</i>	Exotic				X	
Euphorbiaceae	<i>Euphorbia thymifolia</i>	Native	LC		X	X	
Euphorbiaceae	<i>Excoecaria agallocha</i>	Native	LC				
Fabaceae	<i>Acacia auriculiformis</i>	Exotic		X			
Fabaceae	<i>Adenantha pavonina</i>	Native		X			
Fabaceae	<i>Alysicarpus vaginalis</i>	Native	LC	X		X	
Fabaceae	<i>Desmodium triflorum</i>	Native	LC	X		X	
Fabaceae	<i>Leucaena leucocephala</i>	IAS		X			
Fabaceae	<i>Mimosa pudica</i>	Exotic		X		X	
Fabaceae	<i>Acacia auriculiformis</i>	Exotic					
Fabaceae	<i>Senna tora</i>	Native	LC			X	
Fabaceae	<i>Tephrosia noctiflora</i>	Exotic				X	
Gisekiaceae	<i>Gisekia pharnaceoides</i>	Native	LC		X	X	
Goodeniaceae	<i>Scaevola taccada</i>	Native	LC				X
Lamiaceae	<i>Leucas zeylanica</i>	Native	LC	X		X	
Lamiaceae	<i>Mesosphaerum suaveolens</i>	Exotic				X	

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Family	Species	National Status	Conservation Status	RS / HS	WB / R	SL/M	Coast
Linderniaceae	<i>Torenia crustacean</i>	Native	LC		X		
Lythraceae	<i>Sonneratia caseolaris</i>	Native	LC				
Malvaceae	<i>Hibiscus rosa-sinensis</i>	Exotic		X			
Malvaceae	<i>Muntingia calabura</i>	Exotic		X			
Malvaceae	<i>Sida rhombifolia</i>	Native	LC			X	
Malvaceae	<i>Urena lobata</i>	Native	LC			X	
Meliaceae	<i>Azadirachta indica</i>	Exotic		X			
Menispermaceae	<i>Cyclea peltata</i>	Native	LC	X			
Moraceae	<i>Artocarpus heterophyllus</i>	Exotic		X			
Moraceae	<i>Ficus racemosa</i>	Native		X			
Moraceae	<i>Ficus religiosa</i>	Exotic		X			
Musaceae	<i>Musa x paradisiacal</i>	Exotic		X			
Nyctaginaceae	<i>Bougainvillea sp.</i>	Exotic		X			
Nyctaginaceae	<i>Boerhavia diffusa</i>	Native	LC		X	X	
Onagraceae	<i>Ludwigia hyssopifolia</i>	Native	LC		X		
Onagraceae	<i>Ludwigia perennis</i>	Native	LC		X		
Oxalidaceae	<i>Biophytum reinwardtii</i>	Native	LC	X			
Oxalidaceae	<i>Oxalis barrelieri</i>	Exotic		X			
Pandanaceae	<i>Pandanus odoratissimus</i>	Native	LC				
Passifloraceae	<i>Passiflora foetida</i>	Exotic		X			
Phyllanthaceae	<i>Phyllanthus amarus</i>	Native	LC	X		X	
Phyllanthaceae	<i>Phyllanthus urinaria</i>	Native	LC	X		X	
Phyllanthaceae	<i>Phyllanthus reticulatus</i>	Native	LC				X
Plantaginaceae	<i>Scoparia dulcis</i>	Exotic		X			
Poaceae	<i>Panicum maximum</i>	IAS		X		X	
Poaceae	<i>Spinifex littoreus</i>	Native					X
Pontederiaceae	<i>Eichhornia crassipes</i>	IAS			X		
Portulacaceae	<i>Portulaca oleracea</i>	Native	LC			X	
Pteridaceae	<i>Acrostichum aureum</i>	Native			X		
Rhamnaceae	<i>Ziziphus mauritiana</i>	Native	LC	X			
Rhizophoraceae	<i>Rhizophora mucronata</i>	Native	LC		X	X	

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Family	Species	National Status	Conservation Status	RS / HS	WB / R	SL/M	Coast
Rubiaceae	<i>Mitracarpus hirtus</i>	Exotic		X			
Rubiaceae	<i>Richardia brasiliensis</i>	Exotic		X			
Rubiaceae	<i>Spermacoce alata</i>	Exotic		X			
Rubiaceae	<i>Spermacoce articularis</i>	Native	LC	X			
Rubiaceae	<i>Spermacoce exilis</i>	Exotic		X			
Rubiaceae	<i>Oldenlandia corymbosa</i>	Native	LC		X		
Rutaceae	<i>Citrus aurantifolia</i>	Exotic		X			
Sapindaceae	<i>Filicium decipiens</i>	Native		X			
Sapindaceae	<i>Nephelium lappaceum</i>	Exotic		X			
Solanaceae	<i>Physalis angulata</i>	Exotic				X	
Salviniaceae	<i>Salvinia molesta</i>	IAS			X		
Typhaceae	<i>Typha angustifolia</i>	IAS	LC		X		
Urticaceae	<i>Laportea interrupta</i>	Native	LC	X			
Verbenaceae	<i>Lantana camara</i>	IAS		X		X	
Verbenaceae	<i>Stachytarpheta urticifolia</i>	Exotic				X	

RS - Roadside, WB - Water body, R - Riparian, SL - Scrubland, M-Marsh

Source: EIA Study for LNG / Gas Infrastructure Development Project, January 2019

APPENDIX 5.9 CRITICAL HABITAT ASSESSMENT OF PLANTS

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Cynanchum tunicatum</i>	-	-	EN	✓	-	-	<p>It is climber species, and the distribution range^{1 2 3 4}of the species is spread across Southern India and Sri Lanka, but it is not a range restricted species (EOO > 50000km²). The species was recorded from the surrounding homestead plantation, located in the EAAA.</p> <p>Overall, the EAAA is very small compared to the distribution range of the species in Sri Lanka and South India.</p>	<p>Considering small size of the EAAA, compared to the distribution range of the species, the EAAA is not likely to hold significant percentage (more than 0.5% and) of global population of <i>Cynanchum tunicatum</i>.</p> <p>So, <i>Cynanchum tunicatum</i> not considered as potential Critical Habitat Candidate.</p>
2.	<i>Crudia zeylanica</i>	-	CR	EX	✓	✓		<p>The species was originally collected in 1868 and no collections for the species had been made again until 2019⁵. In the intervening time the species has been considered Extinct, hence national Red List of Sri Lanka⁶ (updated in 2012) considers the species as “Extinct”. The species has recently been collected from</p>	<p>Considering all known records of the species is from outside the EAAA, <i>Crudia zeylanica</i> is not considered as potential Critical Habitat Candidate.</p>

¹ K. Praveenkumar. 2018. Floristic Diversity of Puliyanamkunnu, Chalavara Gram Panchayath, Palakkad District, Kerala State.

² M.P. Shivamanjunatha, P. Seema, K.G. Giriprashanth, H.S. Ashwini. 2019. Pharmacognostic Evaluation of *Cynanchum tunicatum* – A Rare medicinal Plant.

³ <https://www.gbif.org/species/3574014>

⁴ <http://www.theplantlist.org/tpl1.1/record/kew-2751650>

⁵ <https://www.iucnredlist.org/species/32556/149813852#geographic-range>

⁶ MOE 2012. The National Red List 2012 of Sri Lanka: Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

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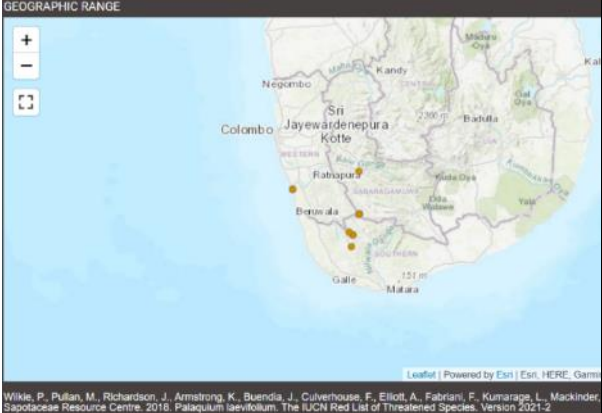
S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>the following areas and the overall population is represented by 6 mature individuals⁷.</p> <p>Two trees are located along the proposed route of the Colombo-Kandy Express way, local to the Daraluwa Railway Station. This area is located outside the EAAA;</p> <p>All known specimens are located in areas approximately 100km² surrounding Gampaha town and also outside the EAAA.</p>	
3.	<i>Palaquium laevifolium</i>	Wana-Mi	CR	EN	✓	✓		<p>According to available georeferenced herbarium specimens⁸ the extent of occurrence (EOO) is 1,285 km² and area of occupancy (AOO) 24 km². In a forest inventory for the National Conservation Review, only three trees were found⁹. This would suggest that the herbarium based EOO and AOO are highly over-estimated. These trees were all found in the same location and the AOO is therefore more likely to be 4-12 km² and the EOO less than 100 km².</p> <p>This species is a medium sized to tall tree and has, according to herbarium notes, been found in primary</p>	<p>The species is primarily recorded from “primary forests”, such habitat is not present in the EAAA, moreover known distribution range of the species is located outside the EAAA.</p> <p>So <i>Palaquium laevifolium</i> is not considered as Critical Habitat Candidate.</p>

⁷ <https://www.iucnredlist.org/species/32556/149813852#population>

⁸ Wilkie, P., Pullan, M., Richardson, J., Armstrong, K., Buendia, J., Culverhouse, F., Elliott, A., Fabriani, F., Kumarage, L., Mackinder, B., Purvis, D., Olander, S., Woods, E. 2008-. Sapotaceae Resource Centre. Available at: <http://padme.rbge.org.uk/sapotaceae>.

⁹ WCMC (World Conservation Monitoring Centre). 1998. *Palaquium laevifolium* 1998: e.T33538A9791058. *The IUCN Red List of Threatened Species*.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>forest at low altitudes along the southwestern part of Sri Lanka¹⁰, located outside the EAAA, more than 60km south of the proposed project site.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
4.	<i>Palaquium thwaitesii</i>	Rathatiya	EN	VU	✓	✓		<p>This species is found in wet evergreen forest at lower elevations¹¹ and is endemic to south-western part¹² of Sri Lanka. This region is located more than 60km south of the proposed project location.</p>	<p>The species is primarily recorded from wet evergreen forest, such habitat is not present in the EAAA, moreover known distribution range</p>

¹⁰ <https://www.iucnredlist.org/species/33538/126572246#geographic-range>

¹¹ World Conservation Monitoring Centre. 1998. *Palaquium thwaitesii*. *The IUCN Red List of Threatened Species 1998*: e.T32576A9715960.

¹² Wilkie, P., Pullan, M., Richardson, J., Armstrong, K., Buendia, J., Culverhouse, F., Elliott, A., Fabriani, F., Kumaraage, L., Mackinder, B., Purvis, D., Olander, S., Woods, E. 2008-. Sapotaceae Resource Centre. Available at: <http://padme.rbge.org.uk/sapotaceae>.


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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Based on available georeferenced herbarium collections¹³ the extent of occurrence (EOO) is 307 km², and the area of occupancy (AOO) 16 km².</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>of the species is located outside the EAAA.</p> <p>So <i>Palaquium thwaitesii</i> is not considered as Critical Habitat Candidate.</p>
5.	<i>Palaquium canaliculatum</i>	-	EN	VU	✓	✓		<p>This species is endemic to Sri Lanka where it occurs in the south-western part of the country¹⁴. According to available georeferenced herbarium collections¹⁵ the extent of occurrence (EOO) is 4,943 km² and the area</p>	<p>The species is primarily found in wet evergreen forest, such forest areas are no longer found in the EAAA. This is further supported by</p>

¹³ Wilkie, P., Pullan, M., Richardson, J., Armstrong, K., Buendia, J., Culverhouse, F., Elliott, A., Fabriani, F., Kumarage, L., Mackinder, B., Purvis, D., Olander, S., Woods, E. 2008-. Sapotaceae Resource Centre. Available at: <http://padme.rbge.org.uk/sapotaceae>.

¹⁴ <https://www.iucnredlist.org/species/33536/126572180#geographic-range>

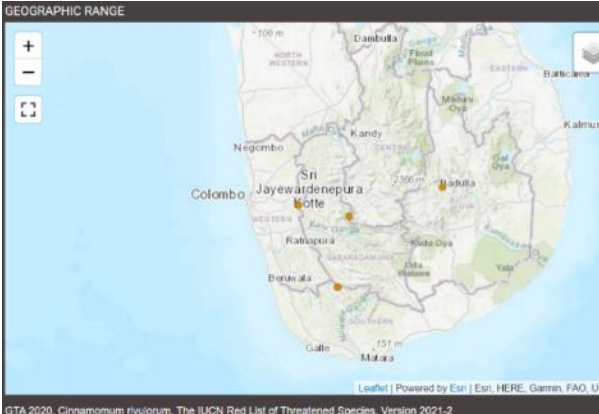
¹⁵ Wilkie, P., Pullan, M., Richardson, J., Armstrong, K., Buendia, J., Culverhouse, F., Elliott, A., Fabriani, F., Kumarage, L., Mackinder, B., Purvis, D., Olander, S., Woods, E. 2008-. Sapotaceae Resource Centre. Available at: <http://padme.rbge.org.uk/sapotaceae>.

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>of occupancy (AOO) is 36 km². This species is recorded from 8 separate locations¹⁶ and nearest such location is Colombo, located approximately 10km from the proposed project site, thus probably located within the EAAA, rest of the sites are located outside the EAAA.</p> <p>The species is a medium-sized tree found in wet evergreen forest of up to 1,300 m¹⁷.</p> <p><small>GEOGRAPHIC RANGE</small></p>  <p><small>Leaflet Powered by Esri Esri, HERE, DeLorme, Swatch, Mapbox, OpenStreetMap contributors, Imagery © Mapbox</small></p> <p><small>Wikke, P., Pullen, M., Richardson, J., Armstrong, K., Buendia, J., Culverhouse, F., Elliott, A., Fabrizio, F., Kumarage, L., MacKinnon, S., Palisot, B., Paudyal, K., Paudyal, M., Paudyal, N., Paudyal, R., Paudyal, S., Paudyal, T., Paudyal, U., Paudyal, V., Paudyal, W., Paudyal, X., Paudyal, Y., Paudyal, Z., Paudyal, AA, Paudyal, AB, Paudyal, AC, Paudyal, AD, Paudyal, AE, Paudyal, AF, Paudyal, AG, Paudyal, AH, Paudyal, AI, Paudyal, AJ, Paudyal, AK, Paudyal, AL, Paudyal, AM, Paudyal, AN, Paudyal, AO, Paudyal, AP, Paudyal, AQ, Paudyal, AR, Paudyal, AS, Paudyal, AT, Paudyal, AU, Paudyal, AV, Paudyal, AW, Paudyal, AX, Paudyal, AY, Paudyal, AZ, Paudyal, BA, Paudyal, BB, Paudyal, BC, Paudyal, BD, Paudyal, BE, Paudyal, BF, Paudyal, BG, Paudyal, BH, Paudyal, BI, Paudyal, BJ, Paudyal, BK, Paudyal, BL, Paudyal, BM, Paudyal, BN, Paudyal, BO, Paudyal, BP, Paudyal, BQ, Paudyal, BR, Paudyal, BS, Paudyal, BT, Paudyal, BU, Paudyal, BV, Paudyal, BW, Paudyal, BX, Paudyal, BY, Paudyal, BZ, Paudyal, CA, Paudyal, CB, Paudyal, CC, Paudyal, CD, Paudyal, CE, Paudyal, CF, Paudyal, CG, Paudyal, CH, Paudyal, CI, Paudyal, CJ, Paudyal, CK, Paudyal, CL, Paudyal, CM, Paudyal, CN, Paudyal, CO, Paudyal, CP, Paudyal, CQ, Paudyal, CR, Paudyal, CS, Paudyal, CT, Paudyal, CU, Paudyal, CV, Paudyal, CW, Paudyal, CX, Paudyal, CY, Paudyal, CZ, Paudyal, DA, Paudyal, DB, Paudyal, DC, Paudyal, DD, Paudyal, DE, Paudyal, DF, Paudyal, DG, Paudyal, DH, Paudyal, DI, Paudyal, DJ, Paudyal, DK, Paudyal, DL, Paudyal, DM, Paudyal, DN, Paudyal, DO, Paudyal, DP, Paudyal, DQ, Paudyal, DR, Paudyal, DS, Paudyal, DT, Paudyal, DU, Paudyal, DV, Paudyal, DW, Paudyal, DX, Paudyal, DY, Paudyal, DZ, Paudyal, EA, Paudyal, EB, Paudyal, EC, Paudyal, ED, Paudyal, EE, Paudyal, EF, Paudyal, EG, Paudyal, EH, Paudyal, EI, Paudyal, EJ, Paudyal, EK, Paudyal, EL, Paudyal, EM, Paudyal, EN, Paudyal, EO, Paudyal, EP, Paudyal, EQ, Paudyal, ER, Paudyal, ES, Paudyal, ET, Paudyal, EU, Paudyal, EV, Paudyal, EW, Paudyal, EX, Paudyal, EY, Paudyal, EZ, Paudyal, FA, Paudyal, FB, Paudyal, FC, Paudyal, FD, Paudyal, FE, Paudyal, FF, Paudyal, FG, Paudyal, FH, Paudyal, FI, Paudyal, FJ, Paudyal, FK, Paudyal, FL, Paudyal, FM, Paudyal, FN, Paudyal, FO, Paudyal, FP, Paudyal, FQ, Paudyal, FR, Paudyal, FS, Paudyal, FT, Paudyal, FU, Paudyal, FV, Paudyal, FW, Paudyal, FX, Paudyal, FY, Paudyal, FZ, Paudyal, GA, Paudyal, GB, Paudyal, GC, Paudyal, GD, Paudyal, GE, Paudyal, GF, Paudyal, GG, Paudyal, GH, Paudyal, GI, Paudyal, GJ, Paudyal, GK, Paudyal, 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VG, Paudyal, VH, Paudyal, VI, Paudyal, VJ, Paudyal, VK, Paudyal, VL, Paudyal, VM, Paudyal, VN, Paudyal, VO, Paudyal, VP, Paudyal, VQ, Paudyal, VR, Paudyal, VS, Paudyal, VT, Paudyal, VU, Paudyal, VV, Paudyal, VW, Paudyal, VX, Paudyal, VY, Paudyal, VZ, Paudyal, WA, Paudyal, WB, Paudyal, WC, Paudyal, WD, Paudyal, WE, Paudyal, WF, Paudyal, WG, Paudyal, WH, Paudyal, WI, Paudyal, WJ, Paudyal, WK, Paudyal, WL, Paudyal, WM, Paudyal, WN, Paudyal, WO, Paudyal, WP, Paudyal, WQ, Paudyal, WR, Paudyal, WS, Paudyal, WT, Paudyal, WU, Paudyal, WV, Paudyal, WW, Paudyal, WX, Paudyal, WY, Paudyal, WZ, Paudyal, XA, Paudyal, XB, Paudyal, XC, Paudyal, XD, Paudyal, XE, Paudyal, XF, Paudyal, XG, Paudyal, XH, Paudyal, XI, Paudyal, XJ, Paudyal, XK, Paudyal, XL, Paudyal, XM, Paudyal, XN, Paudyal, XO, Paudyal, XP, Paudyal, XQ, Paudyal, XR, Paudyal, XS, Paudyal, XT, Paudyal, XU, Paudyal, XV, Paudyal, XW, Paudyal, XX, Paudyal, XY, Paudyal, XZ, Paudyal, YA, Paudyal, YB, Paudyal, YC, Paudyal, YD, Paudyal, YE, Paudyal, YF, Paudyal, YG, Paudyal, YH, Paudyal, YI, Paudyal, YJ, Paudyal, YK, Paudyal, YL, Paudyal, YM, Paudyal, YN, Paudyal, YO, Paudyal, YP, Paudyal, YQ, Paudyal, YR, Paudyal, YS, Paudyal, YT, Paudyal, YU, Paudyal, YV, Paudyal, YW, Paudyal, YX, Paudyal, YY, Paudyal, YZ, Paudyal, ZA, Paudyal, ZB, Paudyal, ZC, Paudyal, ZD, Paudyal, ZE, Paudyal, ZF, Paudyal, ZG, Paudyal, ZH, Paudyal, ZI, Paudyal, ZJ, Paudyal, ZK, Paudyal, ZL, Paudyal, ZM, Paudyal, ZN, Paudyal, ZO, Paudyal, ZP, Paudyal, ZQ, Paudyal, ZR, Paudyal, ZS, Paudyal, ZT, Paudyal, ZU, Paudyal, ZV, Paudyal, ZW, Paudyal, ZX, Paudyal, ZY, Paudyal, ZZ</small></p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>analysis of satellite imagery¹⁸, indicating quality of habitat (for <i>Palaquium canaliculatum</i>) around Colombo is declining.</p>

¹⁶ <https://www.iucnredlist.org/species/33536/126572180#geographic-range>

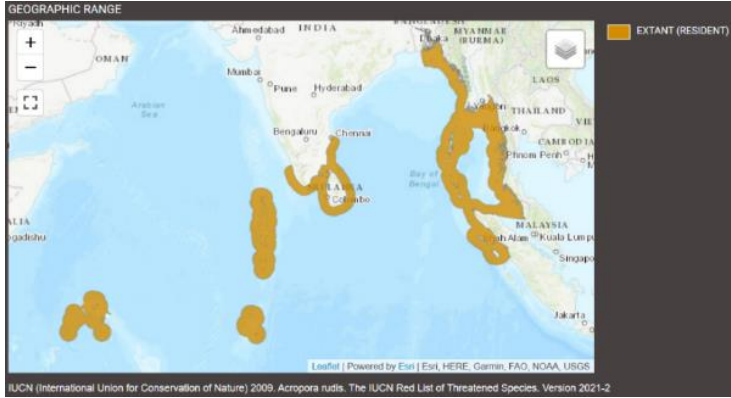
¹⁷ Royen, van P. 1960. Revision of the Sapotaceae of the Malaysian Area in a Wider Sense XXIII. Palaquium. Blumea 10.

¹⁸ GFW. 2018. Global Forest Watch. Available at: <http://www.globalforestwatch.org/>.

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
6.	<i>Cinnamomum rivulorum</i>	-	EN	EN	✓	✓		<p>It has been recorded from four localities since the 1970's, but during an extensive forest surveys conducted between 1991 and 1996 for the National Conservation Review, this species was found in only one forest locality in Badulla District¹⁹, located outside the EAAA.</p> <p>This species is a small tree up to 4 m tall and growing in mountain forests between 600 and 1,200 m altitude²⁰.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>Considering the known distribution range of the species is located outside the EAAA and the fact that suitable habitat like mountain forest is not present in the EAAA,</p> <p><i>Cinnamomum rivulorum</i> is not considered a Critical Habitat Candidate species.</p>

¹⁹ <https://www.iucnredlist.org/species/38045/138508106#geographic-range>

²⁰ <https://www.iucnredlist.org/species/38045/138508106#habitat-ecology>

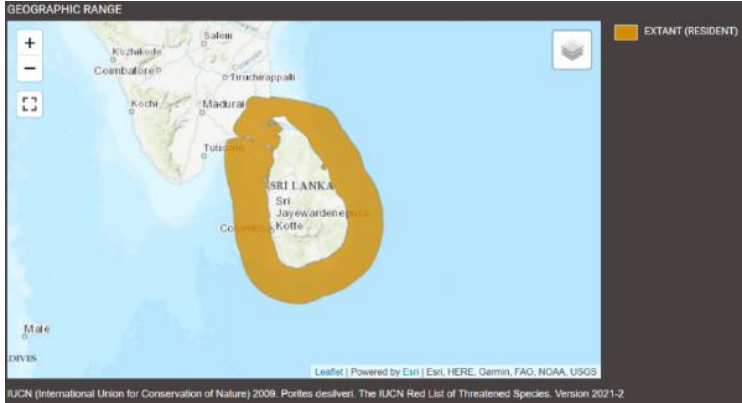
S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Acropora rudis</i>	(Hard Coral Species)	EN	-	✓			<p>This species is distribution²¹ in the northern Indian Ocean (including Sri Lanka²²) and the central Indo-Pacific in Thailand, west Indonesia, Rodrigues, Andamans, and American Samoa. It has a disjunct distribution. This species occurs in shallow reef environments²³. It can be found on fringing reefs.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>There are no Coral Reefs located within the EAAA as well as within Negombo Lagoon. Based on "Reefbase.org"²⁴ a coral reef is located approximately 19km west of Lagoon outfall of Negombo. The coral reef is located 18-20 km from the sand borrow area. The shallowest part of the reef is at a depth of 15 m and consists primarily of <i>Porites</i> domes that attain a diameter of approximately 5m.</p>

²¹ <https://www.iucnredlist.org/species/132913/3490569#geographic-range>

²² The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Weerakoon, D.K. & S. Wijesundara Eds., Ministry of Environment, Colombo, Sri Lanka.

²³ <https://www.iucnredlist.org/species/132913/3490569#habitat-ecology>

²⁴ http://reefbase.org/global_database/dbs1,31,LKA,87.aspx

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
2.	<i>Porites desilveri</i>	(Hard Coral Species)	EN	-	✓			<p>IUCN indicates that species is currently known only from Sri Lanka²⁵, but number of literature^{26 27} indicates that the species can be found in the Middle Andaman Archipelago (India), particularly in reefs around Long Island, located in north eastern Bay of Bengal, about 1200km from Sri Lanka.</p> <p>This species is from shallow reef environments, especially lagoons²⁸. Holotype was collected from 7m depth in Southern Sri Lanka²⁹.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>Considering both <i>Acropora rudis</i> and <i>Porites desilveri</i> are coral reef associated hard coral species, absence of Coral Reef within the EAAA, indicates that occurrence of these species within the EAAA is very unlikely.</p> <p>So, <i>Acropora rudis</i> and <i>Porites desilveri</i> are not considered as a critical habitat candidate species.</p>

²⁵ <https://www.iucnredlist.org/species/132959/3510441#geographic-range>

²⁶ Mondal. T., Raghunathan, C., Chandra. K. 2018. Status survey of scleractinian coral at Long Island and adjoining areas of Middle Andaman Archipelago.

²⁷ Ramakrishna, Tarnal Mondal, Raghunathan, C., Raghuraman, R. and Sivaperuman, C. 2010. New Records of Scleractinian Corals in Andaman and Nicobar Islands. Rec. zool. Surv. India, Occ. Paper No., 321 : 1-144. (Published by the Director, Zool. Surv. India, Kolkata)

²⁸ <https://www.iucnredlist.org/species/132959/3510441#habitat-ecology>

²⁹ Veron, J.E.N. 2000. Corals of the World. Australian Institute of Marine Science, Townsville.

**APPENDIX 5.10 AMPHIBIAN SPECIES RECORDED/ REPORTED IN
ZOI**

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English Name	DS	NCS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Bufonidae	Duttaphrynus melanostictus	Common toad	Native	LC						x
Dicroglossidae	Euphlyctis cyanophlyctis	Indian skipper frog	Native	LC		x			X	
Dicroglossidae	Euphlyctis hexadactylus	Indian Green Frog	Native	LC		x			X	
Dicroglossidae	Minervarya syhadrensis	Common paddy field frog	Native	LC		x	x	x	X	
Dicroglossidae	Hoplobatrachus crassus	Jurdon's bullfrog	Native	LC						x
Rhacophoridae	Pseudophilautus popularis	Common Shrub Frog	Endemic	NT	EN	x	x		X	
Rhacophoridae	Polypedates cruciger	Common Hourglass Tree-frog	Endemic	LC						x
Rhacophoridae	Polypedates maculatus	Spotted tree frog	Native	LC						x

APPENDIX 5.11 REPTILE SPECIES RECORDED/ REPORTED IN ZOI

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English Name	DS	NCS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Crocodylidae	<i>Crocodylus porosus</i>	Saltwater crocodile	Native	EN	LR/lc					x
Bataguridae	<i>Melanochelys trijuga</i>	Black turtle	Native	LC	LR/nt					x
Trionychidae	<i>Lissemys ceylonensis</i>	Flapshell turtle	Native	LC						x
Agamidae	<i>Calotes calotes</i>	Green garden lizard	Native	LC						x
Agamidae	<i>Calotes versicolor</i>	Common garden lizard	Native	LC			x			
Gekkonidae	<i>Hemidactylus frenatus</i>	Common house-gecko	Native	LC	LC		x			
Scincidae	<i>Eutropis carinata</i>	Common skink	Native	LC			x			
Varanidae	<i>Varanus bengalensis</i>	Land monitor	Native	LC	LC		x			
Varanidae	<i>Varanus salvator</i>	Water monitor	Native	LC	LC	x	x	X	X	
Acrochordidae	<i>Acrochordus granulatus</i>	Wart snake	Native	VU	LC					x
Pythonidae	<i>Python molurus</i>	Indian python	Native	LC	LR/nt					x
Natricidae	<i>Atretium schistosum</i>	Olive keelback water-snake	Native	LC	NT	x				
Natricidae	<i>Xenochrophis asperrimus</i>	Sri Lanka Keelback	Endemic	LC						x
Natricidae	<i>Xenochrophis piscator</i>	Checkered Keelback	Native	LC						x
Homalopsidae	<i>Cerberus rynchops</i>	Dog-faced water snake	Native	LC	LC					x
Colubridae	<i>Ahaetulla nasuta</i>	Green vine snake	Native	LC						x
Colubridae	<i>Dendrelaphis schokari</i>	Schokari's bronze back	Endemic	LC						x
Colubridae	<i>Dendrelaphis tristis</i>	Common bronze back	Native	LC						x
Colubridae	<i>Lycodon aulicus</i>	Wolf snake	Native	LC						x
Colubridae	<i>Lycodon osmanhilli</i>	Flowery wolf snake	Endemic	LC	LC					x
Colubridae	<i>Oligodon arnensis</i>	Common kukri snake/ Banded Kukri	Native	LC						x
Colubridae	<i>Oligodon sublineatus</i>	Dumerul's kuki snake	Endemic	LC	LC					x
Colubridae	<i>Ptyas mucosa</i>	Rat snake	Native	LC						x
Elapidae	<i>Naja naja</i>	Indian cobra	Native	LC						x
Viperidae	<i>Daboia russelii</i>	Russell's viper	Native	LC						x
Viperidae	<i>Hypnale hypnale</i>	Merrem's Hump nose viper	Native	LC						x
Emydidae	<i>Trachemys scripta</i>	Red-eared slider	Exotic							x

APPENDIX 5.12 BIRD SPECIES RECORDED/ REPORTED IN ZOI

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Anatidae	<i>Dendrocygna javanica</i>	Lesser Whistling-duck	LC	Resident	LC	x				
Podicipedidae	<i>Tachybaptus ruficollis</i>	Little Grebe	LC	Resident	LC	x				
Columbidae	<i>Columba livia</i>	Rock Dove	CR considering	Resident	LC					X
Columbidae	<i>Spilopelia suratensis</i>	Western Spotted Dove	LC	Resident	LC		X	X		
Columbidae	<i>Treron pompadora</i>	Sri Lanka Green-pigeon	LC	Endemic	LC					X
Columbidae	<i>Ducula aenea</i>	Green Imperial-pigeon	LC	Resident	LC					X
Caprimulgidae	<i>Caprimulgus asiaticus</i>	Indian Nightjar	LC	Resident	LC					X
Hemiprocnidae	<i>Hemiprocne coronata</i>	Crested Treeswift	LC	Resident						X
Apodidae	<i>Aerodramus unicolor</i>	Indian Swiftlet	LC	Resident	LC					X
Apodidae	<i>Cypsiurus balasiensis</i>	Asian Palm-swift	LC	Resident	LC					X
Cuculidae	<i>Centropus sinensis</i>	Greater Coucal	LC	Resident	LC					X
Cuculidae	<i>Clamator coromandus</i>	Chestnut-winged Cuckoo	NE	Migrant						X
Cuculidae	<i>Eudynamys scolopaceus</i>	Western Koel	LC	Resident	LC	x	x		x	
Cuculidae	<i>Hierococcyx varius</i>	Common Hawk-cuckoo	EN	Resident	LC					x
Cuculidae	<i>Cuculus micropterus</i>	Indian Cuckoo	LC	Resident	LC					x
Cuculidae	<i>Cuculus poliocephalus</i>	Lesser Cuckoo	NE	Presence uncertain						x
Rallidae	<i>Gallirallus striatus</i>	Slaty-breasted Rail	CR	Resident	LC					x
Rallidae	<i>Zapornia fusca</i>	Ruddy-breasted Crake	VU	Resident	LC					x
Rallidae	<i>Amaurornis phoenicurus</i>	White-breasted Waterhen	LC	Resident	LC	x				x
Rallidae	<i>Gallicrex cinerea</i>	Watercock	NT	Resident	LC					x
Rallidae	<i>Porphyrio porphyrio</i>	Purple Swamphen	LC	Resident	LC	x				x
Rallidae	<i>Gallinula chloropus</i>	Common Moorhen	LC	Resident	LC					x
Ciconiidae	<i>Mycteria leucocephala</i>	Painted Stork	LC	Resident	NT					x
Ciconiidae	<i>Anastomus oscitans</i>	Asian Openbill	LC	Resident	LC					x
Threskiornithidae	<i>Threskiornis melanocephalus</i>	Black-headed Ibis	LC	Resident	NT	x				
Ardeidae	<i>Ixobrychus sinensis</i>	Yellow Bittern	NT	Resident	LC					x

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Ardeidae	<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern	NT	Resident	LC					x
Ardeidae	<i>Ixobrychus flavicollis</i>	Black Bittern	LC	Resident	LC					x
Ardeidae	<i>Gorsachius melanolophus</i>	Malay Night-heron	NE	Migrant						x
Ardeidae	<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	NT	Resident	LC					x
Ardeidae	<i>Butorides striata</i>	Green-backed Heron	LC	Resident	LC					x
Ardeidae	<i>Ardeola grayii</i>	Indian Pond-heron	LC	Resident	LC	x		x		
Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret	LC	Resident	LC					x
Ardeidae	<i>Ardea cinerea</i>	Grey Heron	LC	Resident	LC			x		
Ardeidae	<i>Ardea purpurea</i>	Purple Heron	LC	Resident	LC	x		x		
Ardeidae	<i>Ardea alba</i>	Great White Egret	LC	Resident	LC					x
Ardeidae	<i>Ardea intermedia</i>	Intermediate Egret	LC	Resident	LC					x
Ardeidae	<i>Egretta garzetta</i>	Little Egret	LC	Resident	LC			x		
Pelecanidae	<i>Pelecanus philippensis</i>	Spot-billed Pelican	LC	Resident	NT	x				
Phalacrocoracidae	<i>Microcarbo niger</i>	Little Cormorant	LC	Resident	LC	x		x		
Phalacrocoracidae	<i>Phalacrocorax fuscicollis</i>	Indian Cormorant	LC	Resident	LC	x				
Anhingidae	<i>Anhinga melanogaster</i>	Oriental Darter	LC	Resident	NT	x		x		
Charadriidae	<i>Vanellus indicus</i>	Red-wattled Lapwing	LC	Resident	LC	x		x		
Scolopacidae	<i>Gallinago stenura</i>	Pintail Snipe	NE	Migrant						x
Scolopacidae	<i>Actitis hypoleucos</i>	Common Sandpiper	NE	Migrant						x
Laridae	<i>Chlidonias hybrida</i>	Whiskered Tern	NE	Migrant						x
Jacaniidae	<i>Hydrophasianus</i>	Pheasant-tailed Jacana	LC	Resident	LC					x
Strigidae	<i>Ninox scutulata</i>	Brown Boobook	LC	Resident	LC					x
Strigidae	<i>Otus bakkamoena</i>	Indian Scops-owl	LC	Resident	LC					x
Accipitridae	<i>Spilornis cheela</i>	Crested Serpent-eagle	LC	Resident	LC					x
Accipitridae	<i>Accipiter badius</i>	Shikra	LC	Resident	LC					x
Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-eagle	LC	Resident	LC					x
Accipitridae	<i>Haliastur indus</i>	Brahminy Kite	LC	Resident	LC	x		x	x	

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Meropidae	<i>Merops philippinus</i>	Blue-tailed Bee-eater	CR	Resident	LC					x
Alcedinidae	<i>Alcedo atthis</i>	Common Kingfisher	LC	Resident	LC					x
Alcedinidae	<i>Ceryle rudis</i>	Pied Kingfisher	LC	Resident	LC					x
Alcedinidae	<i>Pelargopsis capensis</i>	Stork-billed Kingfisher	LC	Resident	LC					x
Alcedinidae	<i>Halcyon smyrnensis</i>	White-breasted Kingfisher	LC	Resident	LC				x	x
Megalaimidae	<i>Psilopogon rubricapillus</i>	Sri Lanka Crimson Fronted Barbet	LC	Endemic	LC					x
Megalaimidae	<i>Psilopogon zeylanicus</i>	Brown-headed Barbet	LC	Resident	LC				x	
Picidae	<i>Dinopium psarodes</i>	Lesser Sri Lanka Flameback	NE	Endemic						x
Psittacidae	<i>Psittacula eupatria</i>	Alexandrine Parakeet	LC	Resident	LC					x
Psittacidae	<i>Psittacula krameri</i>	Rose-ringed Parakeet	LC	Resident	LC					x
Pittidae	<i>Pitta brachyura</i>	Indian Pitta	NE	Migrant						x
Oriolidae	<i>Oriolus xanthornus</i>	Black-hooded Oriole	LC	Resident	LC					x
Campephagidae	<i>Pericrocotus cinnamomeus</i>	Small Minivet	LC	Resident	LC					x
Campephagidae	<i>Coracina macei</i>	Indian Cuckoo-shrike	LC	Resident	LC					x
Campephagidae	<i>Lalage melanoptera</i>	Black-headed Cuckoo-shrike	LC	Resident	LC					x
Artamidae	<i>Artamus fuscus</i>	Ashy Woodswallow	LC	Resident	LC					x
Aegithinidae	<i>Aegithina tiphia</i>	Common Iora	LC	Resident	LC					x
Dicruridae	<i>Dicrurus caerulescens</i>	White-bellied Drongo	LC	Resident	LC					x
Monarchidae	<i>Terpsiphone paradisi</i>	Indian Paradise Flycatcher	LC	Resident	LC					x
Laniidae	<i>Lanius cristatus</i>	Brown Shrike	NE	Migrant						x
Corvidae	<i>Corvus splendens</i>	House Crow	LC	Resident	LC	x	x	x	x	
Corvidae	<i>Corvus macrorhynchos</i>	Large-billed Crow	LC	Resident	LC					x
Cisticolidae	<i>Cisticola juncidis</i>	Zitting Cisticola	LC	Resident	LC					x
Cisticolidae	<i>Prinia hodgsonii</i>	Gray-breasted Prinia	LC	Resident	LC		x			
Cisticolidae	<i>Prinia socialis</i>	Ashy Prinia	LC	Resident	LC	x				

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Cisticolidae	<i>Prinia inornata</i>	Plain Prinia	LC	Resident		x				
Cisticolidae	<i>Orthotomus sutorius</i>	Common Tailorbird	LC	Resident	LC		x		x	
Acrocephalidae	<i>Acrocephalus dumetorum</i>	Blyth's Reed-warbler	NE	Migrant						x
Acrocephalidae	<i>Acrocephalus stentoreus</i>	Clamorous Reed-warbler	NT	Resident	LC	x				
Hirundinidae	<i>Cecropis hyperythra</i>	Sri Lanka Swallow	LC	Endemic						x
Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	NE	Migrant						x
Pycnonotidae	<i>Pycnonotus cafer</i>	Red-vented Bulbul	LC	Resident	LC	x				
Pycnonotidae	<i>Pycnonotus luteolus</i>	White-browed Bulbul	LC	Resident	LC					x
Phylloscopidae	<i>Phylloscopus trochiloides</i>	Greenish Warbler	NE	Migrant						x
Zosteropidae	<i>Zosterops palpebrosus</i>	Oriental White-eye	LC	Resident	LC					x
Leiotrichidae	<i>Turdoides affinis</i>	Yellow-billed Babbler	LC	Resident	LC				x	
Sturnidae	<i>Pastor roseus</i>	Rosy Starling	NE	Migrant						x
Sturnidae	<i>Acridotheres tristis</i>	Common Myna	LC	Resident	LC	x	x		x	
Muscicapidae	<i>Copsychus saularis</i>	Oriental Magpie-robin	LC	Resident	LC				x	x
Muscicapidae	<i>Saxicoloides fulvicatus</i>	Indian Robin	LC	Resident	LC					x
Muscicapidae	<i>Muscicapa dauurica</i>	Asian Brown Flycatcher	NE	Migrant						x
Chloropseidae	<i>Chloropsis jerdoni</i>	Jerdon's Leafbird	LC	Resident	LC					x
Dicaeidae	<i>Dicaeum erythrorhynchos</i>	Pale-billed Flowerpecker	LC	Resident	LC					x
Nectariniidae	<i>Nectarinia zeylonica</i>	Purple-rumped Sunbird	LC	Resident	LC		x			
Nectariniidae	<i>Cinnyris asiaticus</i>	Purple Sunbird	LC	Resident	LC					x
Nectariniidae	<i>Cinnyris lotenius</i>	Loten's Sunbird	LC	Resident	LC		x			
Estrildidae	<i>Lonchura striata</i>	White-rumped Munia	LC	Resident	LC	x	x			
Estrildidae	<i>Lonchura punctulata</i>	Scaly-breasted Munia	LC	Resident	LC	x	x			
Estrildidae	<i>Lonchura malacca</i>	Tricoloured Munia	LC	Resident	LC					x
Motacillidae	<i>Dendronanthus indicus</i>	Forest Wagtail	NE	Migrant						x
Motacillidae	<i>Anthus rufulus</i>	Paddyfield Pipit	LC	Resident	LC					x
Motacillidae	<i>Motacilla flava</i>	Western Yellow Wagtail	NE	Migrant						x

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
		Black-winged Stilt	LC	Resident	LC			x		

APPENDIX 5.13 MAMMAL SPECIES RECORDED/ REPORTED IN ZOI

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English name	NS	NCS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Soricidae	Suncus etruscus	Pigmy shrew	Native	EN	LC					X
Soricidae	Suncus murinus	Common musk shrew	Native	LC	LC		x			
Pteropodidae	Cynopterus sphinx	Short-nosed fruit bat	Native	LC	LC	x	x	x	X	
Pteropodidae	Pteropus giganteus	Flying fox	Native	LC	LC	x	x	x	X	
Pteropodidae	Rousettus leschenaulti	Fulvous fruit bat	Native	LC	LC					X
Felidae	Prionailurus rubiginosus	Rusty-spotted cat	Native	EN	VU					X
Felidae	Prionailurus viverrinus	Fishing Cat	Native	EN	EN	x				
Herpestidae	Herpestes edwardsii	Grey mongoose	Native	LC	LC	x				
Mustelidae	Lutra lutra	Eurasian Otter	Native	VU	NT	x				
Viverridae	Paradoxurus hermaphoditus	Palm cat	Native	LC	LC		x			
Viverridae	Viverricula indica	Ring-tailed civet	Native	LC	LC					X
Hystricidae	Hystrix indica	Porcupine	Native	LC	LC		x			
Muridae	Bandicota indica	Malabar bandicoot	Native	LC	LC		x			
Muridae	Mus musculus	Indian house mouse	Native	LC			x			
Muridae	Rattus rattus	Common rat	Native	LC			x			
Sciuridae	Funambulus palmarum	Palm squirrel	Native	LC	LC		x			
Leporidae	Lepus nigricollis	Black-naped hare	Native	LC	LC		x			

**APPENDIX 5.14 BUTTERFLY SPECIES RECORDED/ REPORTED IN
ZOI**

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific name	English name	NCS	DS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Pieridae	Appias galene	Sri Lankan Lesser Albatross	LC	Endemic					x
Hesperiidae	Potanthus satra	Sri Lankan Dart/Tropic dart	LC	Endemic		x			
Hesperiidae	Cephrenes trichopepla	Yellow Palm Dart	LC	Exotic					x
Papilionidae	Pachliopta hector	Crimson Rose	LC	Native					x
Papilionidae	Pachliopta aristolochiae	Common Rose	LC	Native		x			
Papilionidae	Papilio demoleus	Lime Butterfly	LC	Native		x			
Papilionidae	Papilio polytes	Common Mormon	LC	Native		x		X	
Papilionidae	Papilio polymnestor	Blue Mormon	LC	Native					x
Papilionidae	Papilio clytia	Mime	LC	Native					x
Papilionidae	Graphium teredon	Narrow-banded Bluebottle	LC	Native					x
Papilionidae	Graphium agamemnon	Tailed Jay	LC	Native		x			
Pieridae	Leptosia nina	Psyche	LC	Native		x			
Pieridae	Delias eucharis	Jezebel	LC	Native		x		X	
Pieridae	Catopsilia pyranthe	Mottled Emigrant	LC	Native					x
Pieridae	Catopsilia pomona	Lemon Emigrant	LC	Native		x			
Pieridae	Eurema hecabe	Common Grass Yellow	LC	Native		x			
Pieridae	Eurema blanda	Three-Spot Grass Yellow	LC	Native					x
Nymphalidae	Tirumala limniace	Blue Tiger	LC	Native					
Nymphalidae	Parantica aglea	Glassy Tiger	LC	Native		x			
Nymphalidae	Danaus chrysippus	Plain Tiger	LC	Native		x	x		
Nymphalidae	Danaus genutia	Common Tiger	LC	Native	x	x	x	X	
Nymphalidae	Euploea core	Common Crow	LC	Native		x			
Nymphalidae	Euploea klugii	Brown King Crow	LC	Native					x
Nymphalidae	Phalanta phalantha	Common Leopard	LC	Native					x
Nymphalidae	Acraea terpsicore	Tawny Coster	LC	Native		x			
Nymphalidae	Junonia atlites	Grey Pansy	LC	Native		x		X	
Nymphalidae	Junonia iphita	Chocolate Soldier	LC	Native				X	
Nymphalidae	Junonia almana	Peacock Pansy	LC	Native		x			

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific name	English name	NCS	DS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Nymphalidae	Hypolimnas bolina	Great Eggfly	LC	Native		x			
Nymphalidae	Neptis hylas	Common Sailor	LC	Native		x			
Nymphalidae	Euthalia aconthea	Baron	LC	Native					x
Nymphalidae	Melanitis leda	Common Evening Brown	LC	Native		x			
Nymphalidae	Orsotriaena medus	Medus Brown	LC	Native					x
Nymphalidae	Mycalesis perseus	Common Bushbrown	LC	Native		x			
Nymphalidae	Ypthima ceylonica	White Four-ring	LC	Native		x			
Nymphalidae	Elymnias hypermnestra	Common Palmfly	LC	Native		x			
Lycaenidae	Spalgis epeus	Apefly	LC	Native					x
Lycaenidae	Arhopala amantes	Large Oakblue	LC	Native					x
Lycaenidae	Zesius chrysomallus	Redspot	LC	Native					x
Lycaenidae	Rathinda amor	Monkey-puzzle	LC	Native					x
Lycaenidae	Tajuria cippus	Peacock Royal	LC	Native					x
Lycaenidae	Jamides bochus	Dark Cerulean	LC	Native					x
Lycaenidae	Jamides celeno	Common Cerulean	LC	Native		x			
Lycaenidae	Lampides boeticus	Pea Blue	LC	Native					x
Lycaenidae	Leptotes plinius	Zebra Blue	LC	Native					x
Lycaenidae	Castalius rosimon	Common Pierrot	LC	Native		x			
Lycaenidae	Zizina otis	Lesser Grass Blue	LC	Native		x			
Lycaenidae	Zizula hylax	Tiny Grass Blue	LC	Native					x
Lycaenidae	Everes lacturnus	Oriental Cupid	LC	Native					x
Lycaenidae	Chilades lajus	Lime Blue	LC	Native					x
Riodinidae	Abisara echerius	plum Judy	LC	Native					x
Hesperiidae	Ampittia dioscorides	Bush Hopper	LC	Native					x
Hesperiidae	Iambrix salsala	Chestnut Bob	LC	Native	x				
Hesperiidae	Taractrocera maevius	Common Grass Dart	LC	Native		x			
Hesperiidae	Pelopidas mathias	Small Branded Swift	NT	Native		x			
Nymphalidae	Ideopsis similis	Blue Glassy Tiger	VU	Native					x

**APPENDIX 5.15 DRAGONFLY SPECIES RECORDED/ REPORTED IN
ZOI**

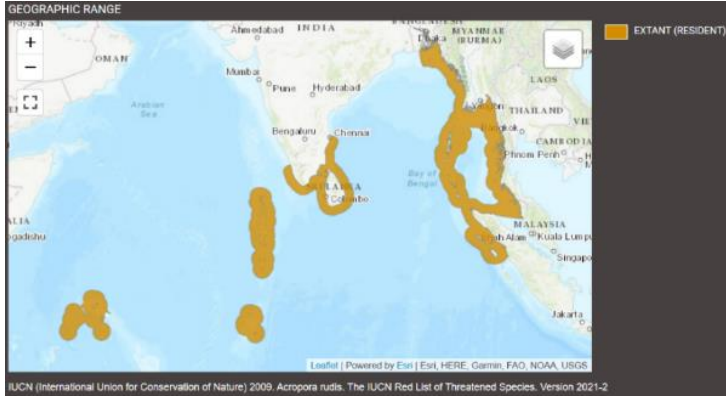
APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English Name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Coenagrionidae	Agriocnemis pygmaea	Wandering Wisp	LC	Native	LC	x				
Coenagrionidae	Onychargia atrocyana	Marsh Dancer	VU	Native	LC					x
Coenagrionidae	Paracercion malayanum	Malay Lilysquatter	LC	Native	LC					x
Coenagrionidae	Ischnura senegalensis	Marsh Bluetail	LC	Native	LC					x
Coenagrionidae	Ceriagrion cerinorubellum	Painted Waxtail	VU	Native	LC					x
Coenagrionidae	Ceriagrion coromandelianum	Yellow Waxtail	LC	Native	LC	x	x			
Coenagrionidae	Pseudagrion malabaricum	Malabar Sprite	LC	Native	LC					x
Coenagrionidae	Pseudagrion microcephalum	Blue Sprite	LC	Native		x				
Coenagrionidae	Pseudagrion rubriceps	Sri Lanka Orange-faced Sprite	LC	Native						x
latycnemididae	Copera marginipes	Yellow Featherleg	LC	Native	LC					x
Gomphidae	Ictinogomphus rapax	Rapacious Flangetail	LC	Native	LC	x			x	
Aeshnidae	Gynacantha dravida	Indian Duskhawker	NT	Native						x
Libellulidae	Brachydiplax sobrina	Sombre Lieutenant	LC	Native	LC					x
Libellulidae	Lathrecista asiatica	Pruinosed Bloodtail	NT	Native						x
Libellulidae	Orthetrum chrysis	Spine-tufted Skimmer	VU	Native	LC					x
Libellulidae	Orthetrum glaucum	Asian Skimmer	NT	Native	LC					x
Libellulidae	Orthetrum luzonicum	Marsh Skimmer	NT	Native	LC	x				
Libellulidae	Orthetrum pruinsum	Pink Skimmer	NT	Native	LC	x	x			
Libellulidae	Orthetrum sabina	Green Skimmer	LC	Native	LC	x	x		x	
Libellulidae	Potamarcha congener	Blue Pursuer	LC	Native	LC	x				
Libellulidae	Acisoma panorpoides	Asian Pintail	LC	Native	LC	x				
Libellulidae	Brachythemis contaminata	Asian Groundling	LC	Native	LC	x	x	x	x	
Libellulidae	Crocothemis servilia	Oriental Scarlet	LC	Native	LC	x		x	x	
Libellulidae	Diplacodes trivialis	Blue Percher	LC	Native	LC	x	x	x	x	
Libellulidae	Neurothemis intermedia	Paddyfield Parasol	NT	Native	LC	x	x			
Libellulidae	Neurothemis tullia	Pied Parasol	LC	Native	LC	x	x		x	

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

Family	Scientific Name	English Name	NCS	DS	GCS	Marsh	Woodland (Acacia)	Open water	Annona marsh	Potential Sp.
Libellulidae	Rhodothemis rufa	Spine-legged Redbolt	NT	Native	LC					x
Libellulidae	Trithemis aurora	Crimson Dropwing	LC	Native	LC	x	x	x	x	
Libellulidae	Rhyothemis variegata	Variegate Flutterer	LC	Native	LC	x	x	x	x	
Libellulidae	Pantala flavescens	Globe Skimmer	LC	Native	LC	x	x	x	x	
Libellulidae	Tholymis tillarga	TwisterFoggy-winged	LC	Native	LC				x	
Libellulidae	Zygomma petiolatum	Dingy Duskflyer	NT	Native	LC	x				
Libellulidae	Urothemis signata	Scarlet Basker	LC	Native	LC	x	x		x	

APPENDIX 5.16 CRITICAL HABITAT ASSESSMENT OF CORAL SPECIES

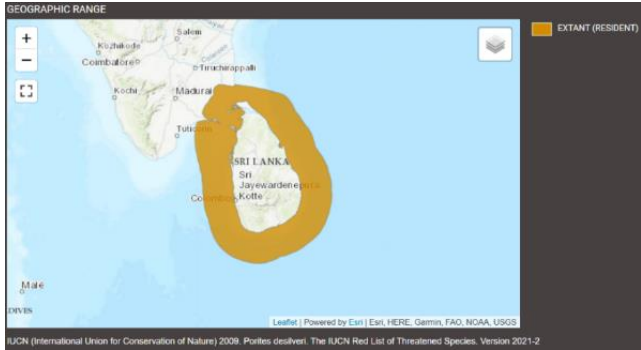
S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
3.	<i>Acropora rudis</i>	(Hard Coral Species)	EN	-	✓			<p>This species is distribution³⁰ in the northern Indian Ocean (including Sri Lanka³¹) and the central Indo-Pacific in Thailand, west Indonesia, Rodrigues, Andamans, and American Samoa. It has a disjunct distribution. This species occurs in shallow reef environments³². It can be found on fringing reefs.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>There are no Coral Reefs located within the EAAA as well as within Negombo Lagoon. Based on “Reefbase.org”³³ a coral reef is located approximately 19km west of Lagoon outfall of Negombo. The coral reef is located 18-20 km from the sand borrow area. The shallowest part of the reef is at a depth of 15 m and consists primarily of <i>Porites</i> domes that attain a diameter of approximately 5m.</p>

³⁰ <https://www.iucnredlist.org/species/132913/3490569#geographic-range>

³¹ The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Weerakoon, D.K. & S. Wijesundara Eds., Ministry of Environment, Colombo, Sri Lanka.

³² <https://www.iucnredlist.org/species/132913/3490569#habitat-ecology>

³³ http://reefbase.org/global_database/dbs1,31,LKA,87.aspx

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
4.	<i>Porites desilveri</i>	(Hard Coral Species)	EN	-	✓			<p>IUCN indicates that species is currently known only from Sri Lanka³⁴, but number of literature^{35 36} indicates that the species can be found in the Middle Andaman Archipelago (India), particularly in reefs around Long Island, located in north eastern Bay of Bengal, about 1200km from Sri Lanka.</p> <p>This species is from shallow reef environments, especially lagoons³⁷. Holotype was collected from 7m depth in Southern Sri Lanka³⁸.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>Considering both <i>Acropora rudis</i> and <i>Porites desilveri</i> are coral reef associated hard coral species, absence of Coral Reef within the EAAA, indicates that occurrence of these species within the EAAA is very unlikely.</p> <p>So, <i>Acropora rudis</i> and <i>Porites desilveri</i> are not considered as a critical habitat candidate species.</p>

³⁴ <https://www.iucnredlist.org/species/132959/3510441#geographic-range>

³⁵ Mondal. T., Raghunathan, C., Chandra. K. 2018. Status survey of scleractinian coral at Long Island and adjoining areas of Middle Andaman Archipelago.

³⁶ Ramakrishna, Tarnal Mondal, Raghunathan, C., Raghuraman, R. and Sivaperuman, C. 2010. New Records of Scleractinian Corals in Andaman and Nicobar Islands. Rec. zool. Surv. India, Occ. Paper No., 321 : 1-144. (Published by the Director, Zool. Surv. India, Kolkata)

³⁷ <https://www.iucnredlist.org/species/132959/3510441#habitat-ecology>

³⁸ Veron, J.E.N. 2000. Corals of the World. Australian Institute of Marine Science, Townsville.

**APPENDIX 5.17 CRITICAL HABITAT ASSESSMENT OF
ECHINODERMS**

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
1.	<i>Holothuria scabra</i>	Golden Sandfish (Sea Cucumber Species)	EN		✓			<p>This species is widespread throughout the Indo-Pacific between latitudes 30°N and 30°S³⁹. The species is found in Sri Lanka^{40 41} and is commercially important for local Sea Cucumber Fishery.</p> <p>This species is distributed mainly in low energy environments⁴² behind fringing reefs or within protected bays and shores. Individuals prefer ordinary coastal areas to coral reefs, particularly intertidal seagrass beds close to mangroves, however they are also found along inner reef flats and lagoons. This species is attracted to muddy sand or mud habitats⁴³. Recent studies on released juveniles have shown that mangrove/seagrass areas⁴⁴ were the most suitable habitat for settling juveniles, due mainly to low predation rates. In Jaffna Lagoon⁴⁵ (Northern Sri Lanka) the species is Mostly found in muddy sand substrates with sea grass beds. It prefers muddy sand however, it is also found in sandy bottom with less silt mud. In some sites adult and juvenile are buried under sand or mud. At most localities, it buries in sand or sandy mud. But occasionally, it lives in inter-tidal zone to about 10 m in depth. Juveniles are found near coastal shore and adults are found in deep area for reproduction in ground.</p>

³⁹ Hamel, J.-F., Conand, C., Pawson, D.L. and Mercier, A. 2001. The sea cucumber *Holothuria scabra* (Holothuroidea: Echinodermata): Its biology and exploitation as Beche-de-mer. *Advances in Marine Biology* 41: 129-223.

⁴⁰ Dissanayake. D.C.T., Athukoorala, S. 2010. Present status of the sea cucumber fishery in Sri Lanka.

⁴¹ Kumar. P.B.T.P., Cumaraanatunge. R., Linden. O. 2005. Present Status of the sea cucumber Fishery in Southern Sri Lanka: A resource Depleted Industry.


⁴² <https://www.iucnredlist.org/species/180257/1606648#habitat-ecology>

⁴³ Skewes, T., Haywood, M., Pitcher, R. and Willan, R. 2004. *Holothurians*. National Oceans Office, Hobart, Australia.

⁴⁴ Dance, S.K., Lane, I. and Bell, J.D. 2003. Variation in short-term survival of cultured sandfish (*Holothuria scabra*) released in mangrove–seagrass and coral reef flat habitats in Solomon Islands. *Aquaculture* 220(1-4): 495-505.

⁴⁵ Kuranathan, Sivashanthini (2014). Sea cucumber: Status and culture potential in the Jaffna Lagoon, Sri Lanka. Department of Fisheries, University of Jaffna, Sri Lanka.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
								<p>So, presence of <i>Holothuria scabra</i> in similar habitat within the EAAA, particularly within Negombo Lagoon, can not be ruled out.</p>  <p>The map displays the geographic range of <i>Holothuria scabra</i> in the Indian Ocean region. The range is indicated by orange shaded areas, primarily along the coasts of East Africa, the Arabian Peninsula, and South Asia. The map includes labels for countries such as Turkey, Iran, Saudi Arabia, India, Myanmar, and Australia, as well as the Arabian Sea and Indian Ocean. A legend indicates 'EXTANT (RESIDENT)' with an orange square. The map is titled 'GEOGRAPHIC RANGE' and includes a scale bar and a legend.</p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>
2.	<i>Holothuria lessoni</i>	Golden Sandfish	EN		✓			<p>This species can be found in the Western Central Pacific⁴⁶, Asia Coast⁴⁷ and the Africa and Indian Ocean regions⁴⁸. Though there are no record of the species from presently</p>

⁴⁶ Kinch, J., Purcell, S., Uthicke, S. and Friedman, K. 2008. Population status, fisheries and trade of sea cucumbers in the Western Central Pacific. In: V. Toral-Granda and A. Lovatelli and M. Vasconcellos. (eds), Sea cucumbers. A global review of fisheries and trade. Fisheries and Aquaculture Technical Paper. No. 516, pp. 7-55. FAO, Rome.

⁴⁷ Choo, P.S. 2008. Population status, fisheries and trade of sea cucumbers in Asia. In: M.V. Toral-Granda, A. Lovatelli, M. Vasconcellos. (ed.), Sea cucumbers. A global review on fisheries and trade.. FAO, Rome.

⁴⁸ Conand, C. 2008. Population status, fisheries and trade of sea cucumbers in Africa and the Indian Ocean. In: M.V. Toral-Granada, A. Lovatelli, M. Vasconcellos. (ed.), Sea cucumbers. A global review on fisheries and trade.. FAO, Rome.

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
		(Sea Cucumber Species)						<p>significant sea cucumber fishing areas⁴⁹ in North Western and Eastern Coast of Sri Lanka, or even from traditional sea cucumber fishing grounds⁵⁰ in Southern coast of Sri Lanka. But the species has been recorded from sea cucumber catch from Jaffna Lagoon in northern Sri Lanka⁵¹.</p> <p>In the Western Central Pacific, this species can be found in lagoons over sandy bottoms between 0 and 25 m, but occurs predominately from 0-10 m. It can be found over sandy and muddy areas and in reef flats⁵². In Jaffna Lagoon⁵³ the species is Commonly found in shallow water sea grass bed and muddy-sand habitats, where it buries during parts of the day. It occurs in 1 to 25 m depths.</p> <p>So, presence of <i>Holothuria lessona</i> in similar habitat within the EAAA, particularly within Negombo Lagoon, can not be ruled out.</p>

⁴⁹ Dissanayake. D.C.T., Athukoorala, S. 2010. Present status of the sea cucumber fishery in Sri Lanka.


⁵⁰ Kumar. P.B.T.P., Cumaraanatunge. R., Linden. O. 2005. Present Status of the sea cucumber Fishery in Southern Sri Lanka: A resource Depleted Industry.

⁵¹ Kuranathan, Sivashanthini (2014). Sea cucumber: Status and culture potential in the Jaffna Lagoon, Sri Lanka. Department of Fisheries, University of Jaffna, Sri Lanka.

⁵² Conand, C., Purcell, S. & Gamboa, R. 2013. *Holothuria lessona*. The IUCN Red List of Threatened Species 2013: e.T180275A1609567. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180275A1609567.en>. Downloaded on 23 September 2021.

⁵³ Kuranathan, Sivashanthini (2014). Sea cucumber: Status and culture potential in the Jaffna Lagoon, Sri Lanka. Department of Fisheries, University of Jaffna, Sri Lanka.

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

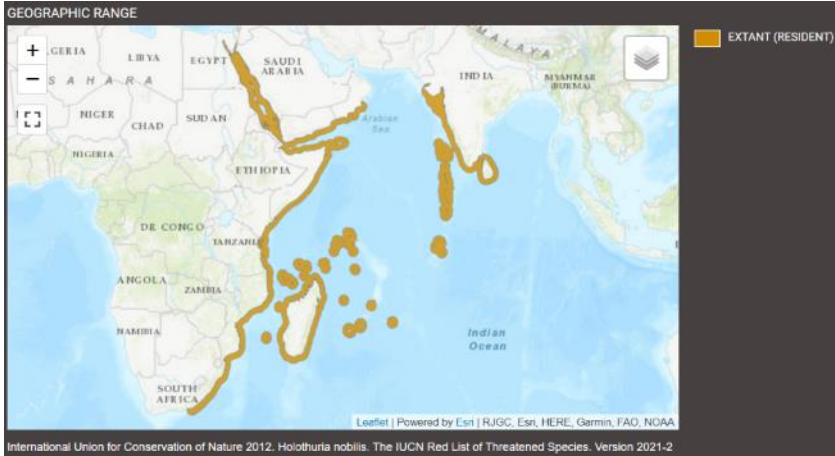
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>
3.	<i>Holothuria nobilis</i>	Black Teatfish (Sea Cucumber Species)	EN		✓			<p>This species only occurs in the Indian Ocean⁵⁴. The species is found in Sri Lanka^{55 56} and is commercially important for local Sea Cucumber Fishery.</p> <p>This species is largely restricted to coral reef habitat⁵⁷. It occurs on reef flats and outer slopes and it is generally solitary.</p>

⁵⁴ Conand, C., Purcell, S., Gamboa, R. & Toral-Granda, T.-G. 2013. *Holothuria nobilis*. The IUCN Red List of Threatened Species 2013: e.T180326A1615368. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180326A1615368.en>. Downloaded on 23 September 2021.

⁵⁵ Dissanayake, D.C.T., Athukoorala, S. 2010. Present status of the sea cucumber fishery in Sri Lanka.

⁵⁶ Kumar, P.B.T.P., Cumaraanatunge, R., Linden, O. 2005. Present Status of the sea cucumber Fishery in Southern Sri Lanka: A resource Depleted Industry.


⁵⁷ Conand, C. and Mangion, P. 2002. Sea cucumbers on La Reunion Island fringing reefs: Diversity, distribution, abundance and structure of the populations. SPC Beche-de-mer Information Bulletin 17(17): 27-33.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
								<p>So, Considering there are no Coral Reef Habitat located within the EAAA, distribution of the species within the EAAA, is unlikely.</p>  <p>The map displays the geographic range of <i>Thelenota ananas</i> in the Indian Ocean. The range is indicated by orange dots and lines, showing a distribution from the East African coast (including Madagascar, Mozambique, and South Africa) through the Arabian Sea and Persian Gulf region to the Indian subcontinent and Southeast Asia. A legend indicates 'EXTANT (RESIDENT)' with an orange square. The map includes labels for various countries and regions such as GERIA, LIBYA, EGYPT, SAUDI ARABIA, MALAYA, SAHARA, NIGER, CHAD, SUDAN, ETHIOPIA, DE CONGO, TANZANIA, ANGOLA, ZAMBIA, NAMIBIA, SOUTH AFRICA, INDIA, and MYANMAR. The Indian Ocean is also labeled. The map is powered by Esri, RJGC, Esri, HERE, Garmin, FAO, NOAA.</p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>
4.	<i>Thelenota ananas</i>	Prickly Redfish	EN		✓			<p>This species can be found in the Western Central Pacific and in the Africa and Indian Ocean⁵⁸. The species is found in Sri Lanka^{59 60} and is commercially important for local Sea Cucumber Fishery.</p>

⁵⁸ Conand, C., Gamboa, R. & Purcell, S. 2013. *Thelenota ananas*. The IUCN Red List of Threatened Species 2013: e.T180481A1636021. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180481A1636021.en>. Downloaded on 23 September 2021.

⁵⁹ Dissanayake, D.C.T., Athukoorala, S. 2010. Present status of the sea cucumber fishery in Sri Lanka.

⁶⁰ Kumar, P.B.T.P., Cumaraanatunge, R., Linden, O. 2005. Present Status of the sea cucumber Fishery in Southern Sri Lanka: A resource Depleted Industry.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information
		(Sea Cucumber Species)						<p>They are distributed⁶¹ mainly in shallow coral reef areas, on reef flats, reef slopes and near passes on sandy or hard bottoms with large rubble and coral patches. It is common in shallow waters of reef bottom where there is no terrigenous action, at depths from 0 to 20 m. They prefer rubble and hard bottoms covered with a layer of coral sand.</p> <p>So, Considering there are no Coral Reef Habitat located within the EAAA, distribution of the species within the EAAA, is unlikely.</p>  <p>The map displays the geographic range of Thelenota ananas, marked in orange, across the Indian Ocean basin. The range extends from the Red Sea and Persian Gulf in the west, through the Indian subcontinent, and into Southeast Asia and the western Pacific. A legend indicates that the orange areas represent 'EXTANT (RESIDENT)' populations. The map includes labels for various countries and regions such as Saudi Arabia, Iran, India, and Australia, as well as the Indian Ocean and Persian Sea.</p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>

⁶¹ Conand, C., Gamboa, R. & Purcell, S. 2013. Thelenota ananas. The IUCN Red List of Threatened Species 2013: e.T180481A1636021. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T180481A1636021.en>. Downloaded on 23 September 2021.

**APPENDIX 5.18 CRITICAL HABITAT ASSESSMENT OF PHYLUM
ARTHROPODA**

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Ceylonthelphusa nata</i>	- (Freshwater Crab species)	CR	CR	✓	✓	-	The species was described in 2001 ⁶² from Holotype was collected in 1998 from Panagula between Thunmodera and Puwakpitiya, 06°52'N, 80°10'E, alt. 275 m. located more than 30 km southeast of the proposed site. The area of collection is hilly and forested. Confirmed record of the species is known from only this one site, so the Estimated Extent of Occurrence (EOO) ^{63 64 65} is estimated to be not more than 5km ² . But as the species was recorded from an area located within the catchment of Kelani River, so IUCN has mapped entire Kelani River as the probable distribution range of the species, which include the EAAA and proposed project site.	Though the EAAA is mapped within the geographic range of the species, the actual EOO is probably much smaller and is located more than 35km from the EAAA. Moreover, the habitat within EAAA is very different from areas where the holotype was collected from.


⁶² Ng, P. K. L. & W. M. Tay, 2001. The freshwater crabs of Sri Lanka (Decapoda: Brachyura: Parathelphusidae). *Zeylanica*, 6: 113– 199.

⁶³ <https://www.iucnredlist.org/species/61698/12529360#geographic-range>

⁶⁴ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁶⁵ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>So, <i>Ceylonthelphusa nata</i> is not considered as a critical habitat candidate species.</p>
2.	<i>Clinothelphusa kakoota</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	<p>Occurs in freshwater aquatic habitats in the wet zone area of Sri Lanka. Collected from under wet boulders at a waterfall⁶⁶. This is a lowland species found near a city. Extent of occurrence^{67 68} (EOO) 100 km². Known from only one location⁶⁹. IUCN estimates the distribution range of the species to extend up to the EAAA.</p>	<p>The EAAA is located in heavily modified coastal habitat with presence of estuarine</p>

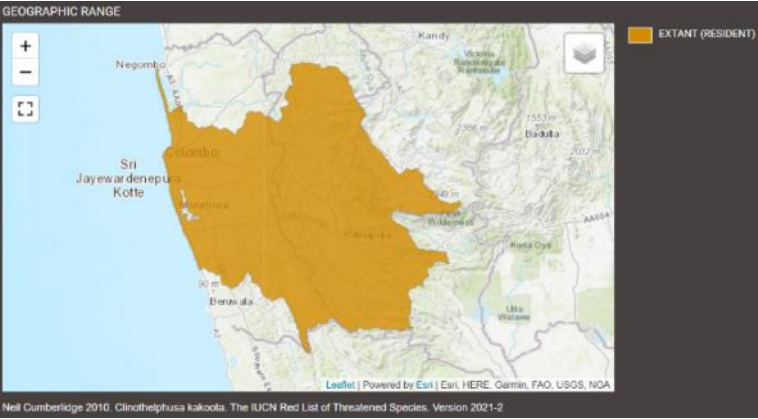
⁶⁶ <https://www.iucnredlist.org/species/61706/12538395#habitat-ecology>

⁶⁷ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

⁶⁸ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁶⁹ <https://www.iucnredlist.org/species/61706/12538395#geographic-range>

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT


S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>(brackish) mash land, lagoon and canals.</p> <p>So, considering limited availability of freshwater habitat, <i>Cliniothelphusa kakoota</i> is not considered as a critical habitat candidate species for this EAAA.</p>
3.	<i>Oziothelphusa intuta</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	Extent of occurrence (EOO) ^{70 71} 10 km ² . Known from only one location, close to Kurunegala ⁷² . This area is located outside the EAAA, more than 60km north east of the proposed project site.	Considering the EAAA is located outside the distribution

⁷⁰ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁷¹ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

⁷² <https://www.iucnredlist.org/species/61717/12543341#geographic-range>

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	range of the species, <i>Oziothelphusa intuta</i> is not considered as a critical habitat candidate species.
4.	<i>Perbrinckia enodis</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	The species is recorded from Adams Peak ⁷³ ⁷⁴ of Candy province ⁷⁵ , in central highlands of Sri Lanka. This area is located outside the EAAA and about 82km southeast of the proposed project site.	Considering suitable habitat (Hill stream) are not found within the EAAA and the EAAA is located outside the EOO of the

⁷³ <https://www.iucnredlist.org/species/61722/12545551#geographic-range>

⁷⁴ Bahir, M.M., Ng, P.K.L. 2005. Descriptions of Ten New Species of Freshwater Crabs from Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 47 - 75

⁷⁵ S. Klaus., D. Brandis., Peter K.L.NG. 2009. Phylogeny and Biogeography of Asian Freshwater Crabs of the Family Gecarcinucidae (Brachyura: Potamoidea)

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								Occurs in freshwater aquatic habitats like hill streams ⁷⁶ in the wet zone area of Sri Lanka. Extent of occurrence (EOO) ^{77 78} is estimated to be 10 km ² .	species, <i>Perbrinckia endotis</i> is not considered as a Critical Habitat Candidate.
5.	<i>Perbrinckia cracens</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	The species is recorded near Avisawella ^{79 80} of Sri Lanka. This area is located outside the EAAA and about 46km east of the proposed project site. Occurs in freshwater aquatic habitats in the wet zone area of Sri Lanka. Under rocks and in moist soil beside streams ⁸¹ . This species is not montane as others of this genus. Extent of occurrence (EOO) ^{82 83} is estimated to be 10 km ² . But as the species was recorded from an area located within the catchment of Kelani River, so IUCN has mapped entire	Though the EAAA is mapped within the geographic range of the species, the actual EOO is probably much smaller and is

⁷⁶ <https://www.iucnredlist.org/species/61722/12545551#habitat-ecology>

⁷⁷ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁷⁸ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

⁷⁹ <https://www.iucnredlist.org/species/61723/12545915#geographic-range>

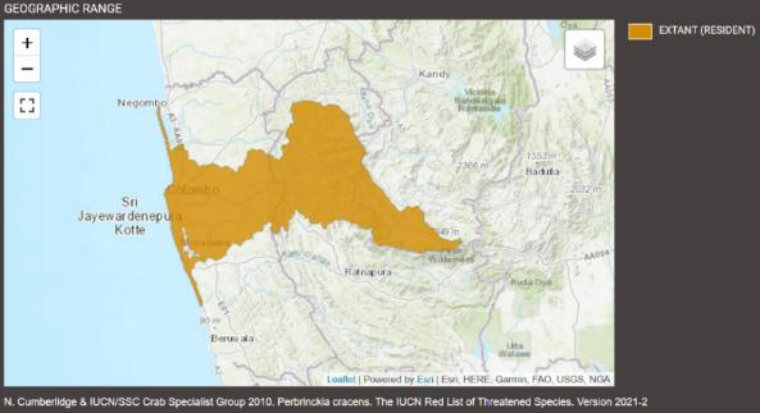
⁸⁰ Bahir, M.M., Ng, P.K.L. 2005. Descriptions of Ten New Species of Freshwater Crabs from Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 47 - 75

⁸¹ <https://www.iucnredlist.org/species/61723/12545915#habitat-ecology>

⁸² Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁸³ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Kelani River as the probable distribution range of the species, which include the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>located more than 35km from the EAAA. Moreover the habitat within EAAA is very different from areas where the holotype was collected from.</p> <p>So, <i>Perbrinckia cracens</i> is not considered as a critical habitat candidate species.</p>
6.	<i>Perbrinckia morayensis</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	<p>The species is recorded from Moray Estate^{84 85} near Rajamally, near Mousakelle Reservoir, 06°48'N, 80°31'E, alt. 1370 m, in central highlands of Sri Lanka. This area is located outside the EAAA and about 85km southeast of the proposed project site.</p>	<p>Though the EAAA is mapped within the geographic range of the</p>

⁸⁴ <https://www.iucnredlist.org/species/61729/12548303#geographic-range>

⁸⁵ Bahir, M.M., Ng, P.K.L. 2005. Descriptions of Ten New Species of Freshwater Crabs from Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 47 - 75

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Extent of occurrence (EOO)^{86 87} is estimated to be 100 km². But as the species was recorded from an area located within the catchment of Kelani River, so IUCN has mapped entire Kelani River as the probable distribution range of the species, which include the EAAA and proposed project site.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>species, the actual EOO is probably much smaller and is located more than 85km from the proposed project site. Moreover the habitat within EAAA is very different from habitats of the species.</p> <p>So, <i>Perbrinckia morayensis</i> is not considered as a critical habitat</p>

⁸⁶ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁸⁷ Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

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									candidate species.
7.	<i>Perbrinckia rosae</i>	(Freshwater Crab species)	CR	CR	✓	✓	-	<p><i>Perbrinckia rosae</i> was recorded only from the type locality, Morningside^{88 89}, Eastern Sinharaja, 06°24'N, 080°38'E, at 1060 m altitude. This region is located outside the EAAA, approximately 115km south east of proposed project location.</p> <p>As presently understood, its Extent of Occurrence^{90 91 92} (EOO) is 5 km². Occurs in freshwater aquatic habitats in the wet zone area of Sri Lanka. This species is found under stones in wet soil (<15 cm deep) in shade within a cardamom plantation⁹³.</p>	Considering suitable habitat are not found within the EAAA and the EAAA is located outside the EOO of the species, <i>Perbrinckia rosae</i> is not considered as a Critical Habitat Candidate.

⁸⁸ <https://www.iucnredlist.org/species/61733/12550071#geographic-range>

⁸⁹ Bahir, M.M., Ng, P.K.L. 2005. Descriptions of Ten New Species of Freshwater Crabs from Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 47 – 75

⁹⁰ Bahir, M.M., Ng, P.K.L. 2005. Descriptions of Ten New Species of Freshwater Crabs from Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 47 - 75

⁹¹ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology* Supplement 12: 121 - 126.

⁹² Bambaradeniya, C.N.B. (Editor), 2006. Fauna of Sri Lanka: Status of Taxonomy, Research and Conservation. The World Conservation Union, Colombo, Sri Lanka & Government of Sri Lanka. viii + 308pp

⁹³ <https://www.iucnredlist.org/species/61733/12550071#habitat-ecology>

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
8.	<i>Ceylonthelphusa cavatrix</i>	(Freshwater Crab species)	EN	CR	✓	✓	-	The species has been recorded from Knuckles mountains ^{94 95} , under moist stones and wet soil about 40 cm beneath ground level, at a small waterfall. This area is located in Central Highlands of Sri Lanka. Located more than 100km from the proposed project site.	The EAAA is located more than 100km from the known distribution range of the species and suitable highland aquatic habitat is not present in the EAAA. So, <i>Ceylonthelphusa cavatrix</i> is not considered a Critical Habitat Candidate species for the EAAA.

⁹⁴ Bahir, M.M. 1998. Three new species of montane crabs of the genus *Perbrinckia* (Crustacea: Decapoda: Parathelphusidae) from the central mountains of Sri Lanka. *Journal of South Asian Natural History* 3(2): 197-212.

⁹⁵ Bahir, M.M., Ng, P.K.L., Crandall, K. & Pethiyagoda, R. 2005. A conservation assessment of the freshwater crabs of Sri Lanka. *The Raffles Bulletin of Zoology Supplement* 12: 121 - 126.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
9.	<i>Oziothelphusa dakuna</i>	(Freshwater Crab species)	EN	CR	✓	✓	-	Endemic to Sri Lanka only. Extent of occurrence 1,000 km ² . Only known from the type locality (Godakawela, 06°30'N 80°38'E, Walawe River Basin) in the southern foothills of the central highlands of Sri Lanka ⁹⁶ . This area is approximately 100km southeast of the proposed project site, located in the Central Highlands of Sri Lanka.	Considering the known distribution range is located outside the EAAA, the species is not considered a Critical Habitat Candidate Species.
10.	<i>Oziotelphusa populosa</i>	(Freshwater Crab species)	EN	-	✓	✓	-	Extent of occurrence ⁹⁷ (EOO) is estimated to be 2,000 km ² . The species is restricted to the western lowlands of Sri Lanka. Known only from around Colombo. The type locality is a small waterway ,5cm deep in the Colombo University garden. Other examples of <i>Oziotelphusa populosa</i> were recorded from rice –field embankments elsewhere in the Colombo district ⁹⁸ . Colombo University is located 23km south of the project location and so, located outside the EAAA, but considering habitat preference and proximity	Colombo University is located 13km south of the project location and so, located outside the EAAA, and there

⁹⁶ Bahir, M.M., Ng Kee Lin, P., Crandall, K.A., Pethiyagoda, R. & Cumberlidge, N. 2008. *Oziothelphusa dakuna*. The IUCN Red List of Threatened Species 2008: e.T61714A12542149. <https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T61714A12542149.en>. Downloaded on 11 November 2021.

⁹⁷ Bahir, M.M., Ng Kee Lin, P., Crandall, K.A., Pethiyagoda, R. & Cumberlidge, N. 2008. *Oziotelphusa populosa*. The IUCN Red List of Threatened Species 2008: e.T61740A12551838. <https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T61740A12551838.en>. Downloaded on 11 November 2021.

⁹⁸ Bahir, M.M. & Yeo, D.C.J. 2005. A revision of the genus *Oziothelphusa* Mueller, 1887 (Crustacea: Decapoda: Parathelphusidae), with descriptions of eight new species. The Raffles Bulletin of Zoology Supplement no. 12: 77 - 120.

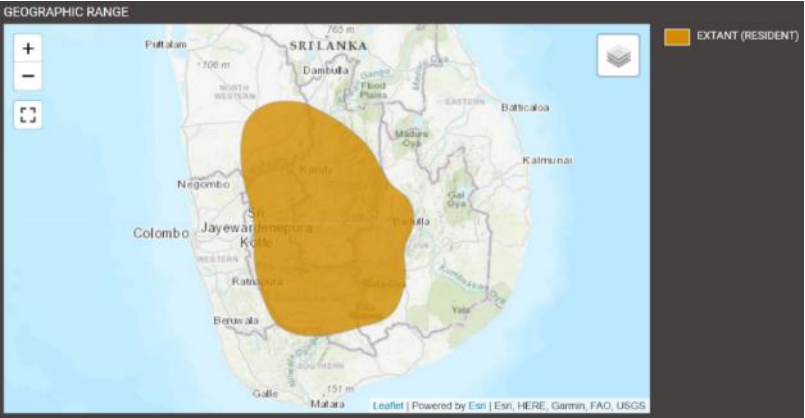
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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								of record, occurrence of the species in similar types of habitat (shallow waterbodies, paddy fields) cannot be ruled out.	are no record of the species from the EAAA. So, <i>Oziotelphusa populosa</i> is not considered a Critical Habitat Candidate species for the EAAA.
11.	<i>Elattoneura caesia</i>	Jungle Threadtail (Damsselflies Species)	EN	VU	✓	✓	-	A rare species that is endemic to Sri Lanka. Known from more than twelve localities in southwestern and central part of the island viz. Ratnapura, Matara, Badulla, Kandy, Colombo and Nuwara Eliya Districts ⁹⁹ . This region is located outside the EAAA, approximately more than 45km east of the proposed project location. The EOO is not expected to be larger than 20000km ² . The species inhabits small streams and springs in primary rainforest. Female and larval form undescribed ¹⁰⁰ .	Considering the distribution range of the species is located outside the EAAA, <i>Elattoneura caesia</i> is not considered as a

⁹⁹ <https://www.iucnredlist.org/species/60278/12320443#geographic-range>

¹⁰⁰ <https://www.iucnredlist.org/species/60278/12320443#habitat-ecology>

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	Critical Habitat Candidate.
12.	<i>Gomphidia pearsoni</i>	Rivulet Tiger (Dragonfly species)	EN	EN	✓	✓	-	The species inhabits pools of moderately fast to slow flowing streams and rivers in the mid-hill primary rainforest ¹⁰¹ . Such suitable habitat are not present in the EAAA.	Considering the EAAA, does not provide suitable habitat for <i>Gomphidia pearsoni</i> , the species is not considered as a Critical Habitat

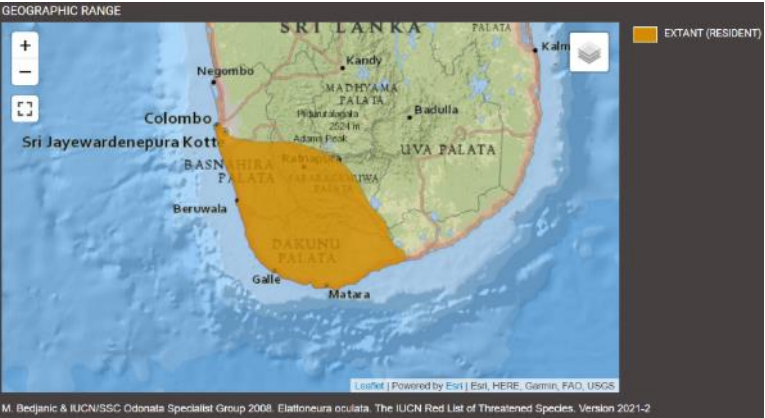
¹⁰¹ Bedjanič, M. 2009. *Gomphidia pearsoni*. The IUCN Red List of Threatened Species 2009: e.T60279A12320821. <https://dx.doi.org/10.2305/IUCN.UK.2009.2.RLTS.T60279A12320821.en>. Downloaded on 11 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									Candidate for the EAAA.
13.	<i>Microgomphus wijaya</i>	Wijaya's Scissortail (Dragonfly species)	EN	EN	✓	✓		The species inhabits rivers and streams with rich surrounding vegetation in mid-hills in the Central Highlands of Sri Lanka ¹⁰² . So the distribution range of the species is located outside the EAAA and also the EAAA does not provide suitable habitat for the species.	Considering the neither the EAAA is located within the distribution range of the species, nor the EAAA provide suitable habitat for the species, <i>Microgomphus wijaya</i> is not considered a Critical Habitat Candidate for the EAAA.
14.	<i>Elatoneura oculata</i>	Two-spotted Threadtail (Damselfly species)	EN	-	✓	✓	-	Distribution range of the species is located south of the EAAA. Though there may be some overlap between the northern part of the distribution range and southern part of the EAAA, the species inhabits small streams	Considering the EAAA does not provide suitable habitat for the species, the

¹⁰² Bedjanič, M. 2009. *Microgomphus wijaya*. The IUCN Red List of Threatened Species 2009: e.T60282A12322278. <https://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T60282A12322278.en>. Downloaded on 11 November 2021.

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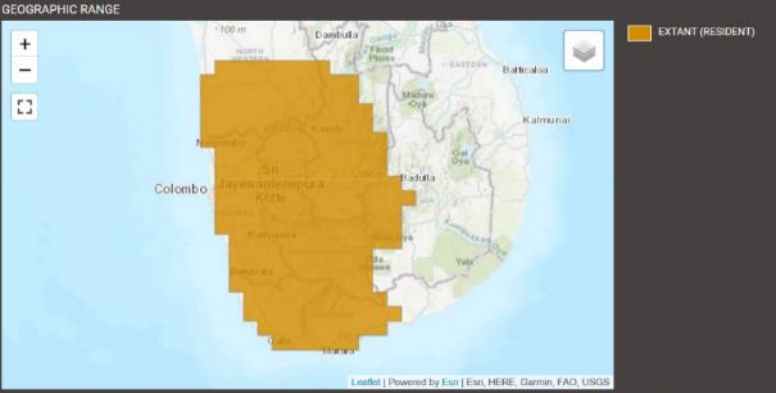
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>and rivulets in primary rainforest¹⁰³. Such primary rainforest habitat is not present in the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>EAAA is not likely to hold > 0.5% of global population of <i>Elattonaura oculata</i>.</p> <p>So, <i>Elattonaura oculata</i> is not considered a critical habitat candidate species for the EAAA.</p>
15.	<i>Pachliopta jophon</i>	Malabar Rose (butterfly species)	EN	EN	✓	✓	-	<p>This is endemic to Sri Lanka only, distributed in medium altitude of approximately 615-1,230 m across the wet, south-western zone of Sri Lanka¹⁰⁴. The estimated extent of occurrence¹⁰⁵ (EOO) is around 24,000</p>	<p>Considering the EAAA does not provide suitable habitat for the</p>

¹⁰³ Bedjanič, M. 2009. *Elattonaura oculata*. The IUCN Red List of Threatened Species 2009: e.T163519A5610633. <https://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T163519A5610633.en>. Downloaded on 11 November 2021.

¹⁰⁴ Collins, N.M. and Morris, M.G. 1985. Threatened Swallowtail Butterflies of the World. The IUCN Red Data Book. IUCN, Gland and Cambridge.

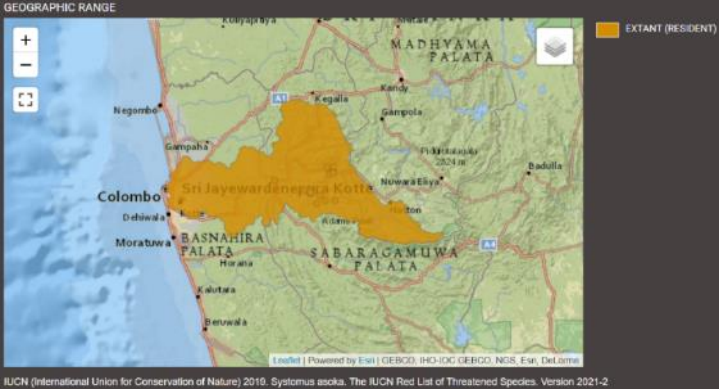
¹⁰⁵ Fernando, E., Jangid, A.K., Alwis, C., Jayasinghe, H.D., Moonen, J. & Rajapakshe, S.S. 2019. *Pachliopta jophon*. The IUCN Red List of Threatened Species 2019: e.T197314A122602081. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T197314A122602081.en>. Downloaded on 11 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>km². However, its area of occupancy is much reduced and supposedly less than 500 km².</p> <p>The species is likely to exist in areas with evergreen, tropical rainforests¹⁰⁶, exhibiting dense, closed canopy layers (growing to between 22-27 m, with emergent up to 45 m in height).</p> <p>The EAAA is not located within the suitable altitudinal range of the species and also suitable habitat like Tropical Rainforests no longer exists in the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>species, Malabar Rose is not considered a Critical Habitat Candidate species for the EAAA.</p>

¹⁰⁶ Collins, N.M. and Morris, M.G. 1985. Threatened Swallowtail Butterflies of the World. The IUCN Red Data Book. IUCN, Gland and Cambridge.

APPENDIX 5.19 CRITICAL HABITAT ASSESSMENT OF ACTINOPTERYGII

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Systemus asoka</i>	Asoka Barb	CR	EN	✓	✓		<p>The species is known from upper reaches of the Sitawaka River and its tributaries, and Kelani River near Kitulgala, Sri Lanka¹⁰⁷. EOO of the species is not expected to be larger than 97km². This region is located outside the EAAA, approximately 70 km east of the proposed project.</p> <p><i>S. asoka</i> is found in relatively deep (1-2 m) fast-flowing water (hill streams), clear and well oxygenated in areas with gravel or sand substrates¹⁰⁸. Such habitats are also not present within the EAAA.</p>  <p>The map displays the geographic range of <i>Systemus asoka</i> in Sri Lanka, with a yellow shaded area indicating the species' distribution. Key locations shown include Colombo, Negambo, Gampaha, Dehiwala, Moratuwa, Kandy, Kegala, Gangola, and Sabaragamuwa. The map also shows major roads (A1, A4) and geographical features like the Kelani River and the Sri Jayawardanegga Kotte. A legend indicates 'EXTANT (RESIDENT)' with a yellow square.</p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>Considering known occurrence of the species is located outside the EAAA, and also absence of suitable habitat within the EAAA, Asoka Barb, is not considered as a Critical Habitat Candidate species.</p>

¹⁰⁷ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Systemus asoka*. The IUCN Red List of Threatened Species 2019: e.T18883A150838859. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T18883A150838859.en>. Downloaded on 23 September 2021.

¹⁰⁸ <https://www.fishbase.de/summary/Systemus-asoka.html>

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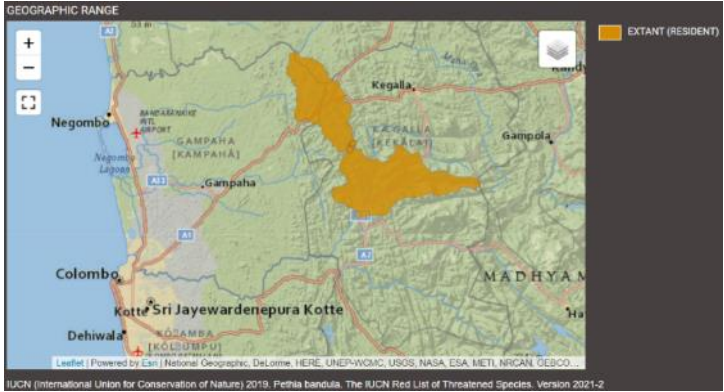
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
2.	<i>Pethia bandula</i>	Bandula Barb	CR	CR	✓	✓		<p>The EOO¹⁰⁹ of the specie has been estimated to be 4.427 km² and restricted to a small tributary running through Rabbidigala, Hapugoda, and Minimarukolaniya villages in the Kelani River basin at Galapitamada^{110 111}. In 2015 IUCN trans-located a population into a tributary of Maha Oya basin at Warakapola along the border of the Vilikulakanda Proposed Forest Reserve. Another small population was introduced to small stream at Alpitiya village near the type locality (Kelani basin) by villagers prior to description of the species.</p> <p>All these areas are located outside the EAAA, approximately more than 50km from the proposed project site.</p>	<p>Considering the distribution range of the species is located outside the EAAA, Bandula Barb is not considered as a Critical Habitat Candidate species.</p>

¹⁰⁹ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Pethia bandula* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T18905A174839322. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T18905A174839322.en>. Downloaded on 24 September 2021.

¹¹⁰ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹¹¹ Pethiyagoda, R., 1991. Freshwater fishes of Sri Lanka. The Wildlife Heritage Trust of Sri Lanka, Colombo. 362 p.


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								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
3.	<i>Stiphodon martenstyni</i>	Martenstyni's Goby	CR	-	✓	✓		<p>Martenstyni's Goby are found in a stream at Atweltota, Kalu River Basin in the lowland wet zone of Sri Lanka¹¹². The EOO¹¹³ of the species is estimated to be 4.798km².</p> <p>The distribution range of the species is located outside the EAAA and more than 80km southeast of the proposed project.</p>	<p>Considering the distribution range of the species is located outside the EAAA, Martenstyni's Goby is not considered as a Critical Habitat Candidate species.</p>

¹¹² Watson, R.E., 1998. *Stiphodon martenstyni*, a new species of freshwater goby from Sri Lanka.

¹¹³ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Stiphodon martenstyni*. The IUCN Red List of Threatened Species 2019: e.T196297A150839252. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T196297A150839252.en>. Downloaded on 24 September 2021.


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
4.	<i>Macrogathus pentophthalmos</i>	Sri Lankan Spiny Eel	CR	-	✓	✓		<p>This species is endemic to Sri Lanka and only known from single location from Kalu river basin at Ingiriya¹¹⁴. The EOO¹¹⁵ of the species is estimated to be 4.156 km².</p> <p>The distribution range of the species is located outside the EAAA and more than 40 km southeast of the proposed project.</p>	<p>Considering the distribution range of the species is located outside the EAAA, Sri Lankan Spiny Eel is not considered as a Critical Habitat Candidate species.</p>


¹¹⁴ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹¹⁵ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Macrogathus pentophthalmos*. The IUCN Red List of Threatened Species 2019: e.T196298A150839257. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T196298A150839257.en>. Downloaded on 24 September 2021.

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								 <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	
5.	<i>Monopterus desilvai</i>	Desilvai's Blind Eel	CR	CR	✓	✓		<p><i>Monopterus desilvai</i> is known only from two disjunct populations located in swamps of Marawila¹¹⁶ (located approximately 50km North of project site) and Bolgoda¹¹⁷ swamps (located approximately 30km South of project site) in the Bolgoda River Basin. Both these areas are located along the western coastal plains of Sri Lanka, about 70km apart from each other. In between these two locations, lies the city of Colombo and the EAAA (comprised of Muthurajawela swamp). These coastal swamps are</p>	<p>Suitable habitat is present in the EAAA, which is located in between two disjunct populations of the species,</p>

¹¹⁶ Bailey, R.M. and Gans, C. 1998. The new Synbranchid fishes, *Monopterus roseni* from Peninsular India and *M. desilvai* from Sri Lanka. Occasional Papers of the Museum of Zoology 726: 18.
¹¹⁷ Goonatilake, W.L.D.P.T.S. de A. 2000. Rediscovery of Endemic Brown Blind Swamp-eel, *Monopterus desilvai* Bailey & Gans, 1998; family: Symbbranchidae, after twenty years from Sri Lanka. Loris: the Journal of the Wildlife and Nature Protection Society of Sri Lanka 22(4): 8-10.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>probably hydrologically connected to the lower reaches of Kelani River¹¹⁸, flowing north of Colombo.</p> <p>This species lives a sedentary life in swampy and paddy areas¹¹⁹ and such habitat are present within the EAAA, particularly within and around Muthurajawela Wetland Sanctuary.</p> <p>During primary survey, the species was recorded from marsh and swamp habitat near the proposed project location.</p> <p>IUCN v2022-1 estimates the EOO of the species to be 76.994 km², but record of the species during primary survey indicated that the actual EOO may cover a larger area.</p>  <p><small>IUCN (International Union for Conservation of Nature) 2019. Monopterus desilvai. The IUCN Red List of Threatened Species. Version 2021-2</small></p>	<p>Moreover, the species was recorded during primary survey, confirming presence within the EAAA.</p> <p>Considering distribution range of the species can extend well beyond the estimated EOO, the actual EOO may extend further along the coast of Sri Lanka.</p> <p>So, it is less likely that the EAAA will hold more than</p>

¹¹⁸ Surasinghe. T., Kariyawasam. R., Sudasinghe. H., Karunaratha. S. 2019. Challenges in Biodiversity Conservation in a Highly Modified Tropical River Basin in Sri Lanka.

¹¹⁹ de Alwis Goonatilake, S., Kotagama, O. & Fernando, M. 2019. Monopterus desilvai. The IUCN Red List of Threatened Species 2019:e.T199468A150839499. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T199468A150839499.en>. Downloaded on 24 September 2021.

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								Global Distribution Range. Surce: IUCN RedList v2020-2	0.5% of global population of the species. So, Desilvai's Blind Eel can not be considered a Critical Habitat Candidate for the EAAA.
6.	<i>Ophisternon bengalense</i>	Asian Swamp Eel	LC	CR	✓	-	-	<p>The species has a distribution range¹²⁰ spread across South and Southeast Asia. In Sri Lanka the species is assessed¹²¹ to have become threatened during the past few decades due to loss of their habitat, land reclamation or habitat conversion as a result of reservoir projects.</p> <p>Adults inhabit both fresh and brackish waters of rivers and swamps, occurring mainly in thick vegetation of muddy, still water bodies, such as lagoons, swamps, canals and rice fields¹²².</p> <p>The species was also recorded during primary survey from marsh habitat. Literature¹²³ indicates that Asian Swamp Eel are found in coastal swamplands hydrologically connected to Kelani River.</p>	<p>Considering the species has a large distribution range, population of the species within the EAAA, is not expected to cross 0.5% threshold. Within Sri Lanka also, Asian Swamp eel is expected to occur in suitable</p>

¹²⁰ <https://www.fishbase.se/summary/22496>

¹²¹ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

¹²² Pethiyagoda, R., 1991. Freshwater fishes of Sri Lanka. The Wildlife Heritage Trust of Sri Lanka, Colombo. 362 p.

¹²³ Surasinghe. T., Kariyawasam. R., Sudasinghe. H., Karunaratha. S. 2019. Challenges in Biodiversity Conservation in a Highly Modified Tropical River Basin in Sri Lanka.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									<p>habitat (coastal swamp, mangrove, marshland etc.) spread across the coastline of Sri Lanka. So the EAAA is unlikely hold regionally/Nationally significant population of Asian Swamp Eel.</p> <p>So, Asian Swamp Eel is not considered a Critical Habitat Candidate for the EAAA.</p>
7.	<i>Paracanthocobitis urophthalma</i>	Tiger Loach	EN	CR	✓	✓	-	<p><i>Paracanthocobitis urophthalma</i> is endemic to South Western wet one of Sri Lanka. The EAAA is located in this region. Based on probable distribution mapping done by IUCN¹²⁴, the project area is located outside the probable distribution zone of the species, but</p>	<p>Considering absence of suitable habitat and record of the species from</p>

¹²⁴ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Acanthocobitis urophthalmus*. The IUCN Red List of Threatened Species 2019: e.T79A150839809. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T79A150839809.en>. Downloaded on 28 September 2021.

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								<p>some areas within the EAAA may come within the probable distribution range of the species.</p> <p>It occurs in freshwater streams in the lowland wet zone, This species prefers sandy substrates with fine silt. It is also found over pebble substrates. Typical habitats of this species are in clear slow flowing streams that flow through shaded forests or plantations¹²⁵. The EAAA, is located in coastal zone, which is predominantly dominated by settlement, mangrove, brackish marshland and lagoon, so probably the EAAA, do not provide suitable habitat for the species.</p> <p>Moreover there are no record of <i>Paracanthocobitis urophthalma</i> from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹²⁶ and Negombo Lagoon¹²⁷.</p>	<p>the EAAA, <i>Paracanthocobitis urophthalma</i> is not considered to be an Critical Habitat Candidate species.</p>

¹²⁵ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹²⁶ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹²⁷ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
8.	<i>Lepidocephalichthys jonklaasi</i>	Jonklaas's Loach	EN	CR	✓	✓		<p>Known distribution range of the specie is restricted to South Western wet Zone of Sri Lanka¹²⁸ and the EOO is estimated to be 92km². Type locality¹²⁹ in Wilpita, Akuressa in Sri Lanka; recent collections indicate presence of species in the Kalu River basin near Madakada (6°48'N, 80°10'E) and in the Kanneliya Reserve in the Gin River Basin, Sri Lanka.</p> <p>The EAAA is located outside the distribution range of the species.</p>	<p>Considering the known distribution range of the species is located outside the EAAA, <i>Lepidocephalichthys jonklaasi</i> is not considered to be an</p>

¹²⁸ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Lepidocephalichthys jonklaasi*. *The IUCN Red List of Threatened Species* 2019: e.T11532A150838836. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T11532A150838836.en>. Downloaded on 05 October 2021.

¹²⁹ Jayaneththi. H. B. 2015. Ecology and distribution of endemic Jonklaas's Loach, *Lepidocephalichthys jonklaasi* (Daraniyagala, 1956); (Cobititidae; Cypriniformes).

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								 <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	Critical Habitat Candidate species.
9.	<i>Malpulutta kretseri</i>	Ornate Paradisefish	EN	CR	✓	✓		<p>The Species distribution range¹³⁰ is spread across Kelani, Kalutara, Bentota, and Nilwala river basins in the lowland wet zone, and the EOO¹³¹ is estimated to be 96km². The EAAA being part of the Kelani River basin is located within the distribution range of the species but there are no record of <i>Malpulutta kretseri</i> from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹³² and Negombo Lagoon¹³³.</p>	Considering the EAAA covers relatively smaller part of the distribution range of the species, the fact that the species


¹³⁰ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹³¹ Kotagama, O., de Alwis Goonatilake, S. & Fernando, M. 2019. *Malpulutta kretseri*. The IUCN Red List of Threatened Species 2019: e.T12726A117405689. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T12726A117405689.en>. Downloaded on 05 October 2021.

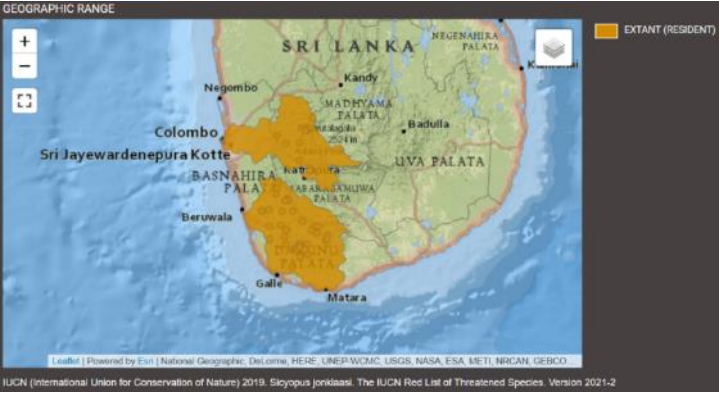
¹³² Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹³³ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>distribution range is spread across river systems other than Kelani River and absence of confirmed record from major wetland systems in the EAAA, <i>Malpulutta kretseri</i> is not considered as a Critical Habitat Candidate species.</p>
10.	<i>Sicyopus jonklaasi</i>	Lipstick Goby	EN	EN	✓	✓		<p>Adults are found in rocky mid-hill streams with fast flowing water¹³⁴. They adhere to the sides of submerged rock through sucking discs. Larvae are swept down river to the sea and mature adults migrate upstream to spawning grounds in the rocky mid hills.</p> <p>The EOO of the species is estimated to be 160km², and as there are records of the species from upstream Kelani River, entire Kelani River basin (including the EAAA) is part of its distribution range. There are no record of <i>Malpulutta kretseri</i> from two important wetland systems within the EAAA, viz. Muthurajawela</p>	<p>Presence of <i>Sicyopus jonklaasi</i> cannot be ruled out in the EAAA, but the species has distribution range outside the Kelani River Basin. Moreover, considering there</p>

¹³⁴ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Sicyopus jonklaasi*. The IUCN Red List of Threatened Species 2019: e.T20200A150838956. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T20200A150838956.en>. Downloaded on 05 October 2021.

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								<p>Wetland Sanctuary¹³⁵ and Negombo Lagoon¹³⁶, but that may be because the coastal wetland habitat is not suitable for adult <i>Sicyopus jonklaasi</i>. But, considering life history of the species, occurrence of larval and sub adult stages of the species within the EAAA, cannot be ruled out.</p>  <p>Global Distribution Range. Surce: IUCN RedList v2022-1</p>	<p>are no records of the species from prominent wetlands within the EAAA, indicating, even if the species is found within the EAAA, their occurrence is expected to be low and/or even sporadic.</p> <p>Considering the above mentioned factors, it is highly unlikely that population of the species (even if it is present) within the EAAA, is not expected to cross 0.5% threshold.</p>

¹³⁵ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹³⁶ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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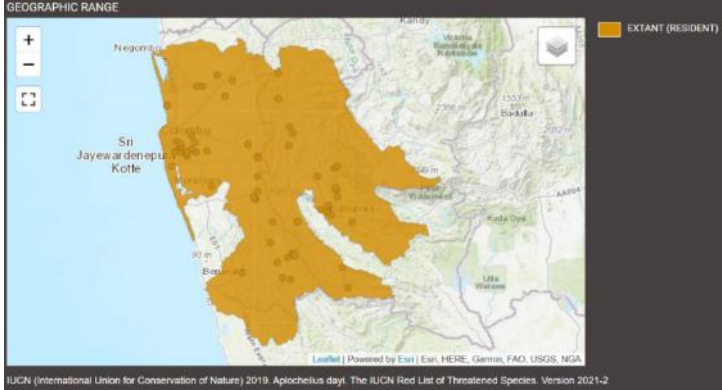
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									Therefore <i>Sicyopus jonklaasi</i> is not considered as Critical Habitat Candidate species.
11.	<i>Aplocheilus dayi</i>	Day's Killifish	EN	EN	✓	✓		<p>Previously the distribution range of the species was thought to be restricted to suitable habitat within the Kelani River Basin¹³⁷. Recent Studies however revealed it to be also found in Attanagalu, Kelani, Kalu, Benthara and Gin River Basins in South Western Sri Lanka^{138 139}. EOO¹⁴⁰ is estimated to be spread across 3742.418 km².</p> <p>Suitable habitat for the species includes shallow, heavily shaded forest streams with a silt substrate as well as brackish mangrove swamps. Such habitat are present in the EAAA and moreover there are record of the species from brackish mangrove habitats of two significant wetland systems within the EAAA, viz. Muthurajawela</p>	Considering occurrence of the EAAA within the distribution range, availability of suitable habitat and record of the species from wetland systems within the EAAA, occurrence of the species within the EAAA, has been

¹³⁷ Pethiyagoda, R. 1991. Freshwater Fishes of Sri Lanka. The Wildlife Heritage Trust of Sri Lanka, Colombo.

¹³⁸ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.


¹³⁹ IUCN. 2012. Biodiversity Inventory of Haycock National Biosphere Reserve; preliminary recommendations for management planning. . Colombo.

¹⁴⁰ de Alwis Goonatilake, S., Fernando, M. & Kotagama, O. 2019. *Aplocheilus dayi* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T180566A174825349. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T180566A174825349.en>. Downloaded on 11 October 2021.

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								<p>Wetland Sanctuary¹⁴¹ and Negombo Lagoon¹⁴². The species is common in Muthurajawela Wetland Sanctuary and is recorded from diverse habitat in and around the sanctuary like pond, canal, stream and marshy areas.</p> <p>The species was also recorded in earlier survey.</p>  <p>Global Distribution Range. Surce: IUCN RedList v2022-1</p>	<p>confirmed. In absence of global population estimate and population estimate from the EAAA, CH thresholds are hard to determine.</p> <p>But in terms of area the EAAA is significantly smaller than the EOO of the species. So, it is highly unlikely to cross the 0.5% population threshold.</p> <p>So, <i>Aplocheilus dayi</i> is not considered as a</p>

¹⁴¹ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹⁴² Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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									Critical Habitat Candidate species.
12.	<i>Amblypharyngodon grandisquamis</i>	Sri Lanka Large Silver Carplet	LC	EN	✓	✓		<p>This potamodromous species is found in marshlands, streams, rivers, irrigation canals, seasonal and perennial man made tanks and lakes. It prefers still water with a muddy substrate. The EOO¹⁴³ of the species is estimated to be 43686km² and is distributed almost throughout Sri Lanka, including the EAAA. The EAAA provides suitable habitat for the species and was also recorded during primary survey.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>The species was recorded during primary survey and the EAAA holds suitable habitat for the species.</p> <p>However, considering the EAAA is very small compared to the distribution range of the species, the EAAA is highly unlikely to hold more than 0.5% of global population of the species.</p>

¹⁴³ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Amblypharyngodon grandisquamis* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T153084893A174829601. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T153084893A174829601.en>. Downloaded on 11 November 2021.

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									So, the EAAA is not considered a Critical Habitat for the species.
13.	<i>Laubuka varuna</i>	Sri Lanka Western Laubuka	EN	-	✓	✓		<p>This species is endemic to Sri Lanka and restricted to streams in the Attanagalu, Kelani and Kalu river basins within the lowland dry zone¹⁴⁴. The EOO¹⁴⁵ of the species is spread across 2078.415 km², that includes the EAAA.</p> <p>The species inhabits rainforest streams¹⁴⁶ with sandy or leafy litter substrate. Such habitats are present within the EAAA and there are no record of <i>Laubuka varuna</i> from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹⁴⁷ and Negombo Lagoon¹⁴⁸,</p>	Considering there are no record of the species from major waterbodies of EAAA and unavailability of suitable habitat in the EAAA, <i>Laubuka varuna</i> is not considered as Critical Habitat Candidate Species.

¹⁴⁴ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

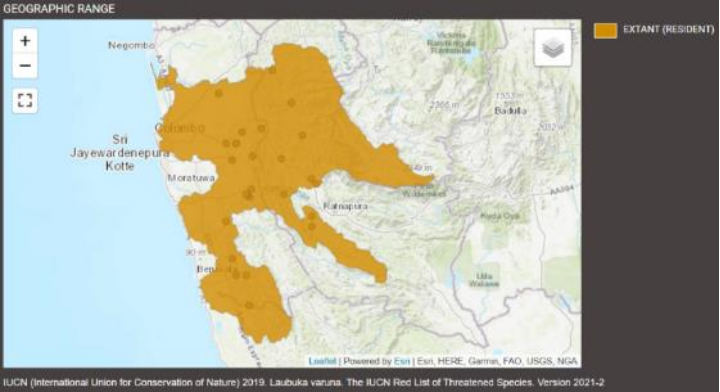
¹⁴⁵ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Laubuca varuna* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T195360A174838912. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T195360A174838912.en>. Downloaded on 11 October 2021.

¹⁴⁶ Pethiyagoda, R., M. Kottelat, A. Silva, K. Maduwage and M. Meegaskumbura, 2008. A review of the genus *Laubuca* in Sri Lanka, with description of three new species (Teleostei: Cyprinidae). *Ichthyol. Explor. Freshwat.* 19(1):7-26.

¹⁴⁷ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. *Occ. Pap. IUCN, Sri Lanka.*, 3:iv-48pp.

¹⁴⁸ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

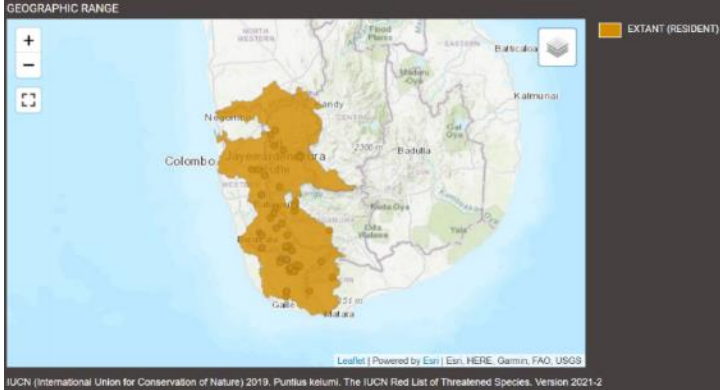
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14.	<i>Puntius kelumi</i>	Kelums Long snouted barb	EN	EN	✓	✓		 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
								<p>The EOO of the species is spread across 4682.168km², spread across Kelani River Basin and number of other river systems viz. Kalu, Bentara, Gin, and Nilwala river drainages¹⁴⁹.</p> <p><i>Puntius kelumi</i> Inhabits mainly larger, clear-water streams descending from the central mountains, close to the areas in which these reach the coastal floodplain¹⁵⁰. Substrates of these streams are composed of granite, pebble or sand. Whereas the EAAA is primarily located in coastal marsh areas, which is very different from the habitat preferred by the species.</p>	<p>Considering the EAAA is not expected to provide suitable habitat for the species, and absence of record of the species from two prominent wetland systems</p>

¹⁴⁹ <https://www.fishbase.in/summary/Puntius-kelumi>

¹⁵⁰ Pethiyagoda, R., A. Silva, K. Maduwage and M. Meegaskumbura, 2008. *Puntius kelumi*, a new species of cyprinid fish from Sri Lanka (Teleostei: Cyprinidae). Ichthyol. Explor. Freshwat. 19(3):201-214.


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								<p>Though the EAAA is located within the EOO of the species, the EAAA is not expected to provide suitable habitat for the species. Moreover, there are no record of the species from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹⁵¹ and Negombo Lagoon¹⁵².</p>  <p>Global Distribution Range. Surce: IUCN RedList v2022-1</p>	<p>within the EAAA, <i>Puntius kelumi</i> is not considered as a critical habitat candidate species.</p>
15.	<i>Puntius kamalika</i>	Sri Lanka Kamalika s Barb.	EN	EN	✓	✓		<p><i>Puntius kamalika</i> was previously known as <i>Puntius amphibious</i>¹⁵³. The species can be found along the Kelani to Nilwala river basins in south-western Sri Lanka. It is found in moderately flowing streams</p>	<p>Considering the EAAA is not expected to provide</p>

¹⁵¹ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹⁵² Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

¹⁵³ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>with a sandy or gravel substrate and with rich marginal vegetation^{154 155}. Considering the EAAA is mostly represented by mangrove marshland, intertidal canal and lagoon, so suitable habitat for the species is probably not present in the EAAA. Moreover, there are no record of the species from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹⁵⁶ and Negombo Lagoon¹⁵⁷.</p>  <p>Global Distribution Range. Surce: IUCN RedList v2022-1</p>	<p>suitable habitat for the species, and absence of record of the species from two prominent wetland systems within the EAAA, <i>Puntius kamalika</i> is not considered as a critical habitat candidate species.</p>

¹⁵⁴ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Puntius kamalika* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T195362A174842046. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T195362A174842046.en>. Downloaded on 28 October 2021.

¹⁵⁵ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹⁵⁶ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹⁵⁷ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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16.	<i>Pethia reval</i>	Redfin Two-banded carplet	EN		✓	✓		<p><i>Pethia reval</i> can be found throughout the Kelani drainage, and it has been recorded from the lowlands northwards to the Maha drainage and northwards up the Maha Oya River¹⁵⁸. It has been found in the districts of Gampaha, Colombo and Kegalle, overall the EOO of the species is 2557.843km²¹⁵⁹. The EAAA is located within the EOO of the species.</p> <p>This species occupies a wide range of habitats including sandy and rocky bottomed streams, but this species was not recorded in mud-bottomed streams¹⁶⁰. The EAAA is primarily located in coastal marsh areas, represented by mangrove marshland, intertidal canal and lagoons with heavy silt or muddy bottom. Though the EAAA is located within the EOO of the species, the EAAA is not expected to provide suitable habitat for the species.</p> <p>Moreover, there are no record of the species from two important wetland systems within the EAAA, viz. Muthurajawela Wetland Sanctuary¹⁶¹ and Negombo Lagoon¹⁶².</p>	Considering the EAAA is not expected to provide suitable habitat for the species, and absence of record of the species from two prominent wetland systems within the EAAA, <i>Pethia reval</i> is not considered as a critical habitat candidate species.

¹⁵⁸ Meegaskumbura, M., Silva, A., Maduwage, K. and Pethiyagofa, R. 2008. *Puntius reval*, a new barb from Sri Lanka (Teleostei: Cyprinidae). *Ichthyol. Explor. Freshwaters* 19: 141-152.

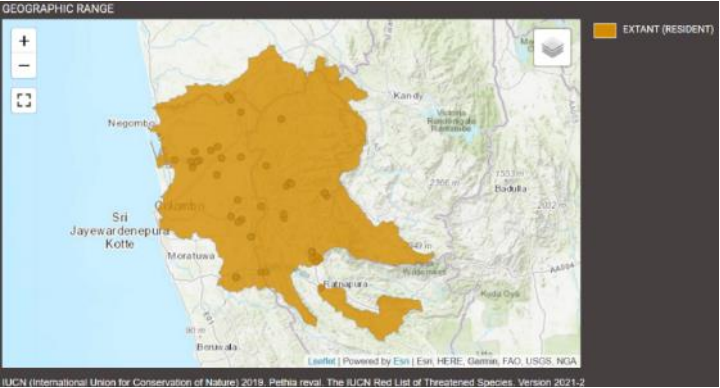
¹⁵⁹ Palmer-Newton, A., de Alwis Goonatilake, S., Fernando, M. & Kotagama, O. 2019. *Pethia reval* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T196103A174841471. <https://dx.doi.org/10.2305/IUCN.UK.2019.3.RLTS.T196103A174841471.en>. Downloaded on 28 October 2021.

¹⁶⁰ Jayaneththi, H.B. and Suranga, W.D.P. 2014. Preliminary study on *Pethia reval*, Meegaskumbura & Pethiyagoda 2008, and other related ichthyofauna of Attanagalu river Basin, Sri Lanka. *Sri Lanka NATURALIST* 7(3-4): 11-14.

¹⁶¹ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. *Occ. Pap. IUCN, Sri Lanka.*, 3:iv-48pp.

¹⁶² Jayaneththi, H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

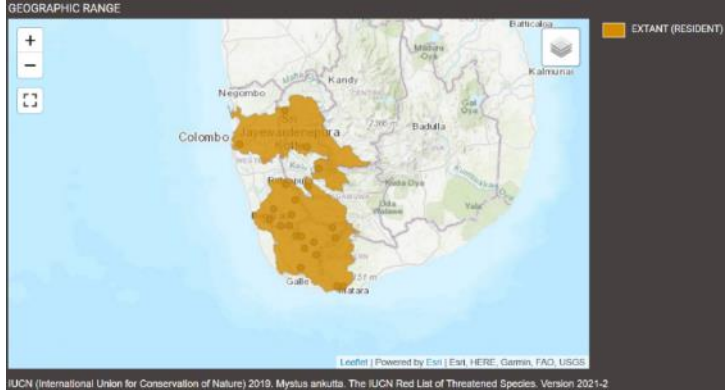
APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
17.	<i>Mystus ankutta</i>	Sri Lanka Dwarf Catfish	EN	EN	✓	✓		<p><i>Mystus ankutta</i>, was described in 2008¹⁶³. The species is restricted to marshes, streams and rivers in the lowland wet zone. <i>Mystus ankutta</i> inhabits rivers with muddy or sandy substrate. They are found to prefer stagnant or slow flowing turbid water with marginal vegetation¹⁶⁴. The EOO of the species is restricted to 4778.448 km² and the EAAA is located within the distribution range of the species. EAAA is expected to have suitable habitat for the species, but there are no record of the species from two important wetland systems</p>	<p>Considering the aquatic habitat within the EAAA is highly influenced by brackish water, the EAAA is less likely to be an Critical Habitat for Sri Lankan Dwarf Catfish.</p>

¹⁶³ Pethiyagoda, R., A. Silva and K. Maduwage, 2008. *Mystus ankutta*, a new catfish from Sri Lanka (Teleostei: Bagridae). *Ichthyol. Explor. Freshwat.* 19(3):233-242.


¹⁶⁴ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. *Sri Lankan Freshwater Fishes*. Wildlife Conservation Society - Galle.

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								<p>within the EAAA, viz. Muthurajawela Wetland Sanctuary¹⁶⁵ and Negombo Lagoon¹⁶⁶. This may be because Negombo Lagoon primarily provides marine and brackish habitat, whereas the species is primarily a freshwater species. Absence of record from Muthurajawela Wetland Sanctuary may have happened because the species was described in 2008, whereas the referred survey was carried out in 2002.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
18.	<i>Aplocheilus weneri</i>	Werner's Killifish	EN	EN	✓	✓		<p>This species of killifish is endemic to Sri Lanka where it occurs in slow moving streams belonging to Bentara, Gin and Nilwala River</p>	Considering the EAAA is located

¹⁶⁵ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹⁶⁶ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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								<p>Basins in wet lowland areas¹⁶⁷ and the estimated EOO¹⁶⁸ of the species is 2511km². The EAAA is primarily located in the Kelani River drainage system and the EAAA is located outside the known distribution range of the species.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>outside the distribution range of the species, Werner's Killifish (<i>Aplocheilus wernerii</i>) is not considered as a critical habitat candidate species.</p>
19.	<i>Rasboroides vaterifloris</i>	Vateria flower rasbora	EN	LR	✓	✓		<p><i>Rasboroides vaterifloris</i> is an endemic freshwater fish species to the south-western 'wet zone' of Sri Lanka. It has been recorded in</p>	<p>Considering that EAAA probably do not hold suitable habitat for the species and the fact</p>

¹⁶⁷ De Silva, M., Hapuarachchi, N. and Jayaratne, T. 2015. Sri Lankan Freshwater Fishes. Wildlife Conservation Society - Galle.

¹⁶⁸ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Aplocheilus wernerii* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T196111A174826478. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T196111A174826478.en>. Downloaded on 08 November 2021.

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								<p>the Kelani^{169 170} and Kalu River¹⁷¹ Basins. Considering the species has been recorded in the Kelani River System, probably the EAAA is Located in the distribution range of the species. Occurs in shallow, cool, clear, quiet, heavily shaded forest streams, usually with a silty substrate and often in areas with a large amount of leaf debris in the water¹⁷² and the species is thought to be restricted to forested streams¹⁷³. Though the EAAA is located in the distribution range of the species, the EAAA is not expected to provide suitable habitat, such as slow flowing freshwater streams located within forests or densely vegetated areas (streams within marshes of Muthurajawela WLS are expected to vary in terms of salinity). This is further supported by the fact that, there are no record of the species from Muthurajawela Wetland Sanctuary¹⁷⁴ and Negombo Lagoon¹⁷⁵.</p>	<p>that there are no record of the species from Muthurajawela WLS and Negombo Lagoon, <i>Rasboroides vaterifloris</i> is not considered a critical habitat candidate species.</p>

¹⁶⁹ R.R.A. Ramani Shirantha, M. Jayantha S. Wijeyaratne, and U.S. Amarasinghe. 2018. Life History of some selected endemic freshwater fish species inhabiting two major river basins of Sri Lanka.

¹⁷⁰ Goonatilake, S. de A., N. Perera, G.D. Silva, D. Weerakoon and A. Mallawatantri. 2016. Natural Resource Profile of the Kelani River Basin. International Union for Conservation of Nature Sri Lanka Country Office and Central Environment Authority, Colombo. 38 pp.

¹⁷¹ Palmer-Newton, A., de Alwis Goonatilake, S., Fernando, M. & Kotagama, O. 2020. *Rasboroides vaterifloris* (amended version of 2019 assessment). The IUCN Red List of Threatened Species 2020: e.T117512666A174845100. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T117512666A174845100.en>. Downloaded on 08 November 2021.

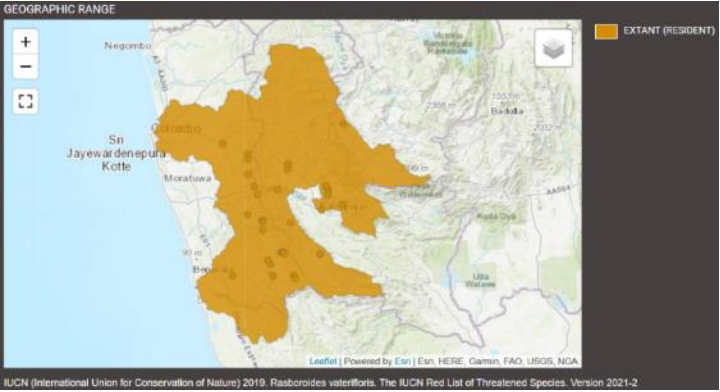
¹⁷² <https://www.fishbase.se/summary/6148>

¹⁷³ Palmer-Newton, A., de Alwis Goonatilake, S., Fernando, M. & Kotagama, O. 2020. *Rasboroides vaterifloris* (amended version of 2019 assessment). The IUCN Red List of Threatened Species 2020: e.T117512666A174845100. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T117512666A174845100.en>. Downloaded on 08 November 2021.

¹⁷⁴ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

¹⁷⁵ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

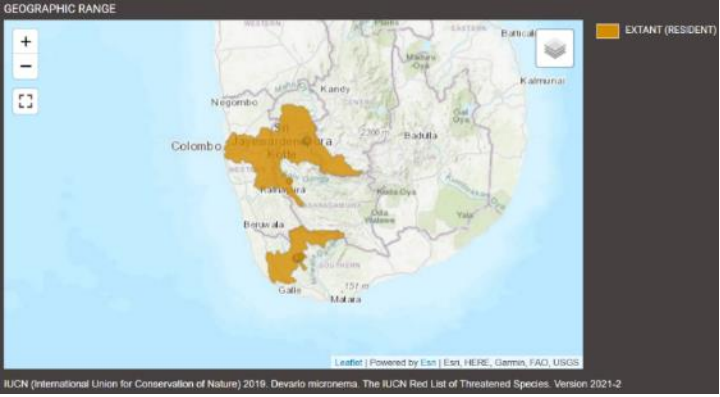
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								 <p>GEOGRAPHIC RANGE</p> <p>IUCN (International Union for Conservation of Nature) 2019. <i>Rasbora lateralis</i>. The IUCN Red List of Threatened Species. Version 2021-2</p> <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
20.	<i>Devario micronema</i>	Rainforest Giant Danio	EN		✓	✓		<p>The species has a disjunct distribution¹⁷⁶, one population located in Kelani River Basin and the other in Gin River basin, with a combined EOO of approximately 603km². Within the Kelani River basin the species is known from a small area located near Kitulgala¹⁷⁷, in the Central Highlands, located about 71km east of the proposed project site.</p>	<p>As the known distribution range of the species is located more than 50km from the proposed project site. Rainforest Giant Danio (<i>Devario</i></p>

¹⁷⁶ Fernando, M., Kotagama, O. & de Alwis Goonatilake, S. 2019. *Devario micronema* (errata version published in 2020). The IUCN Red List of Threatened Species 2019: e.T149844352A174833249. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T149844352A174833249.en>. Downloaded on 08 November 2021.

¹⁷⁷ Batuwita, S., De Silva, M. and Udugampala, S. 2017. A review of the genus *Devario* in Sri Lanka (Teleostei: Cyprinidae), with description of two new species. *FishTaxa* 2(3): 156-179.


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								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p><i>micronema</i>) is not considered as a critical habitat candidate species.</p>
21.	<i>Lethrinus mahsena</i>	Sky Emperor	EN	-	✓			<p>Sky Emperor is a marine species distributed¹⁷⁸ across coastal western Indian Ocean from the Sea of Oman, Red Sea and East Africa, Madagascar, Aldabra, Seychelles and Mascarenes east to Sri Lanka. This species is found in coral reef habitats¹⁷⁹ and coral reef associated sandy and seagrass areas. Though the EAAA is located within the larger distribution range of the species, there are no coral reef habitat present within the EAAA, so suitable habitat for the species is not present within the EAAA.</p>	<p>Considering absence of suitable habitat for the species in the EAAA, Sky Emperor (<i>Lethrinus mahsena</i>) is not considered as a</p>

¹⁷⁸ Al Abdali, F.S.H., Al Buwaiqi, B., Al Kindi, A.S.M., Ambuali, A., Borsa, P., Govender, A. & Russell, B. 2019. *Lethrinus mahsena*. The IUCN Red List of Threatened Species 2019: e.T16720057A16722325. <https://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T16720057A16722325.en>. Downloaded on 08 November 2021.

¹⁷⁹ Sommer, C., Schneider, W. and Poutiers, J.-M. 1996. FAO species identification field guide for fishery purposes. The living marine resources of Somalia. FAO, Rome.

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								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	critical habitat candidate species.
22.	<i>Argyrosomus japonicus</i>	Dusky Meagre	EN	-	✓			<p><i>Argyrosomus japonicus</i> is a marine species, occurring throughout coastal areas of the Indo-West Pacific region¹⁸⁰. This species occurs in nearshore, turbid coastal habitats and is found in estuaries, in the surf zone, and in the nearshore zone to depths of about 100 m¹⁸¹. Such near coastal, estuarine habitat are located within the EAAA, particularly in Negombo Lagoon and estuary of Kelani River, but there are no record of the species from Negombo Lagoon¹⁸².</p>	Considering the species has a large distribution range spread across Indo Pacific, even if the species is found in the estuarine and coastal habitats of

¹⁸⁰ <https://www.fishbase.se/summary/Argyrosomus-japonicus.html>

¹⁸¹ Fennessy, S. 2020. *Argyrosomus japonicus*. The IUCN Red List of Threatened Species 2020: e.T49145403A49234015. <https://dx.doi.org/10.2305/IUCN.UK.2020-1.RLTS.T49145403A49234015.en>. Downloaded on 08 November 2021.

¹⁸² Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>The map displays the geographic range of the Dusky Meagre (Argyrosomus japonicus) across the Indian and Pacific Oceans. The species is shown as extant/resident (indicated by orange shading) along the coastlines of East Africa, the Indian subcontinent, Southeast Asia, and Australia. The map includes labels for continents (EUROPE, ASIA, AFRICA, AUSTRALIA) and oceans (Indian Ocean, Pacific Ocean). A legend indicates 'EXTANT (RESIDENT)' with an orange square. The map is titled 'GEOGRAPHIC RANGE' and includes a scale bar and a source note: 'IUCN Marine Biodiversity Unit / GMSA 2019, Argysosomus japonicus. The IUCN Red List of Threatened Species. Version 2021-2'.</p>	<p>the EAAA, their numbers are not expected to cross the thresholds of Criterion 1. So, Dusky Meagre (<i>Argyrosomus japonicus</i>) is not considered a critical habitat candidate species.</p>

Global Distribution Range. Source: IUCN RedList v2022-1

**APPENDIX 5.20 CRITICAL HABITAT ASSESSMENT OF CHONDRICHTHYES
(SHARKS, RAYS, GUITARFISH & SAWFISH)**

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Carcharhinus longimanus</i>	Oceanic Whitetip Shark	CR	-	✓	-	✓	<p>Migratory Status: CMS Appendix I¹⁸³ ,Highly Migratory Species (HMS)¹⁸⁴ , Oceanodromous^{185 186 187} ,</p> <p>Range Restricted Species: No</p> <p>Depth Range: 0-230m¹⁸⁸</p> <p>Optimum Depth Range: 0-152m¹⁸⁹</p> <p>Global Population Estimate: Not Present</p> <p>The Oceanic Whitetip is one of the most widespread sharks, ranging across entire oceans in tropical and subtropical waters¹⁹⁰ , including Maldives.</p> <p>A common “Marine Oceanic” sharks’ species but sticks to the epipelagic part of water column (or upper open ocean, sunlight penetrates).</p> <p>Long line catch data from Central Pacific indicated that, frequency of Oceanic Whitetip Catch increases in abundance as a function of</p>	<p>Considering global distribution range of the species, the marine habitat in EAAA (approximately 112km²) is negligible compared to the EOO of the species.</p> <p>So, is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p>

¹⁸³ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.

https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

¹⁸⁴ FAO, Fisheries Department, 1994. World review of highly migratory species and straddling stocks. FAO Fish. Tech. Pap. No. 337. Rome, FAO. 70 p.

¹⁸⁵ Oceanodromous – Oceanic Migratory Species, demonstrating migratory behaviour over a large area of the ocean.

¹⁸⁶ <https://www.fishbase.se/summary/Carcharhinus-longimanus.html#:~:text=A%20stocky%20shark%20with%20a,5578>.

¹⁸⁷ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

¹⁸⁸ Mundy, B.C., 2005. Checklist of the fishes of the Hawaiian Archipelago. Bishop Mus. Bull. Zool. (6):1-704.

¹⁸⁹ Florida Museum of Natural History, 2005. Biological profiles: oceanic whitetip shark. Retrieved on 26 August 2005, from www.flmnh.ufl.edu/fish/Gallery/Descript/OceanicWT/OceanicWT.html. Ichthyology at the Florida Museum of Natural History: Education-Biological Profiles. FLMNH, University of Florida. www.flmnh.ufl.edu/fish/Gallery/Descript/OceanicWT/OceanicWT.html

¹⁹⁰ Young, C.N., Carlson, J., Hutchinson, M., Hutt, C., Kobayashi, D., McCandless, C.T., Wraith, J. 2017. Status review report: oceanic whitetip shark (*Carcharhinus longimanus*). Final Report to the National Marine Fisheries Service, Office of Protected Resources.

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								<p>increasing distance from land. Which probably indicates that the species is more abundant on open “Oceanic Habitat” than “Neritic Habitat”. The species occasionally ventures into shallow coastal “Marine Neritic” habitats¹⁹¹, but generally does not congregate around land masses.</p> <p>The location of nurseries has not been reported, but very young oceanic whitetip sharks have been found well offshore along the south-eastern US¹⁹², suggesting offshore nurseries over the continental shelves.</p> <p>Oceanic Whitetip sharks were regularly caught by fishermen from Sri Lanka^{193 194}, but now fishing Oceanic Whitetip Shark is banned in Sri Lanka indicating the species can be found within or outside the EEZ of Sri Lanka. But specific information on occurrence of the species within the EAAA is not available.</p>	<p>So, the EAAA is Not Considered as Critical Habitat for Oceanic White tip Shark.</p>

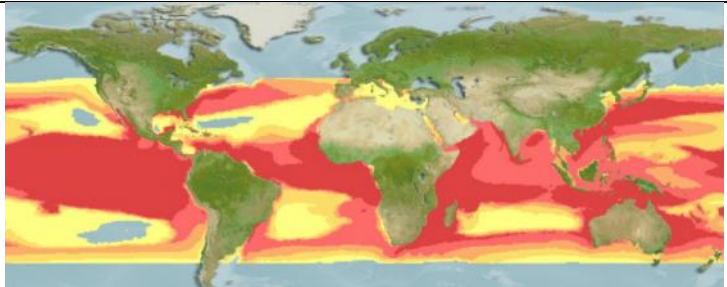
¹⁹¹ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

¹⁹² Seki T., Taniuchi T., Nakano H., Shimizu M. , 1998. Age, growth and reproduction of the oceanic whitetip shark from the Pacific Ocean. Fish. Sci. 64: 14-20.

¹⁹³ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo. <https://www.fao.org/3/x2097e/X2097E15.htm>

¹⁹⁴ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
2.	<i>Sphyrna lewini</i>	Scalloped Hammerhead	CR		✓	-	✓	<p>Migratory Status: CMS Appendix II¹⁹⁵, Oceanodromous¹⁹⁶, Range Restricted Species: No Depth Range – 0-1000 m¹⁹⁷ Optimum Depth Range – 0-25m¹⁹⁸ Global Population Estimate – Not Present</p> <p>Coastal pelagic, semi oceanic warm-temperate and tropical species occurring over continental and insular shelves (“Neritic Habitat”) and in deep water adjacent to such shallow areas, often</p>	Considering, the species has a global distribution range and the EAAA is significantly smaller in size than the global distribution range of the species. So, the EAAA (as a whole/or specific areas) is very

¹⁹⁵ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

¹⁹⁶ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

¹⁹⁷ Bacchet, P., T. Zysman and Y. Lefèvre, 2006. Guide des poissons de Tahiti et ses îles. Tahiti (Polynésie Française): Éditions Au Vent des Îles. 608 p.

¹⁹⁸ Sanches, J.G., 1991. Catálogo dos principais peixes marinhos da República de Guiné-Bissau. Publ. Avuls. Inst. Nac. Invest. Pescas 16:429 p.

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								<p>approaching close inshore and entering enclosed bays and estuaries¹⁹⁹. Forms large true schools at different stages of its life-history, often near coral reef drop-offs during day. Literature^{200 201 202 203} suggests that, adults move inshore in shallow areas, to drop young and mate. The smallest young are found close inshore but these move into deeper water as they grow, to eventually depart for open water. Though there are no record of the species from lagoon habitat (Negombo Lagoon²⁰⁴) within the EAAA, Scalloped Hammerhead are regularly caught by fishermen from Sri Lanka^{205 206}, indicating the species can be found within or outside the EEZ of Sri Lanka. But specific information on occurrence of the species within the EAAA is not available.</p>	<p>unlikely to holds >0.5% of the global population of this species, and >5 reproductive units. Therefore, the EAAA is not considered as Critical Habitat for the species.</p>

¹⁹⁹ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

²⁰⁰ Clarke, T.A. 1971. Ecology of the scalloped hammerhead shark, *Sphyrna lewini*, in Hawaii. *California Wild (formerly known as Pacific Science)* 25: 133–144.

²⁰¹ Klimley, A.P. and Nelson, D.R. 1984. Diel movement patterns of the scalloped hammerhead shark (*Sphyrna lewini*) in relation to El Bajo Espiritu Santo: a refuging central-position social system. *Behavioural Ecology and Sociobiology* 15: 45–54.

²⁰² Klimley, A.P. 1987. The determinants of sexual segregation in the scalloped hammerhead shark, *Sphyrna lewini*. *Environmental Biology of Fishes* 18(1): 27–40.

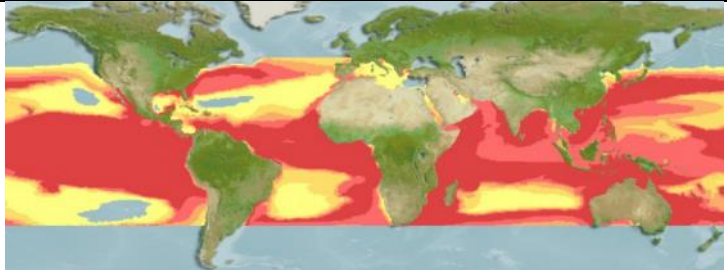
²⁰³ Stevens, J.D. and Lyle, J.M. 1989. The biology of three hammerhead sharks (*Eusphyrna blochii*, *Sphyrna mokarran* and *S. lewini*) from Northern Australia. *Australian Journal of Marine and Freshwater Research* 40: 129–146.

²⁰⁴ Jayanethi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

²⁰⁵ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo.
<https://www.fao.org/3/x2097e/X2097E15.htm>

²⁰⁶ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
3.	<i>Sphyrna mokarran</i>	Great Hammerhead	CR		✓	-	✓	<p>Migratory Status: CMS Appendix II²⁰⁷, Oceanodromous²⁰⁸, Range Restricted Species: No Depth Range – 0-300 m²⁰⁹ Optimum Depth Range – 0-100m²¹⁰ Global Population Estimate – Not Present</p> <p>A coastal pelagic (Marine Neritic²¹¹) and semi-oceanic (Marine Oceanic) tropical hammerhead occurring²¹² close inshore and well</p>	Considering global distribution range of the species, the marine habitat in EAAA (approximately 112km ²) is negligible compared to the EOO of the species.

²⁰⁷ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May, 2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

²⁰⁸ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

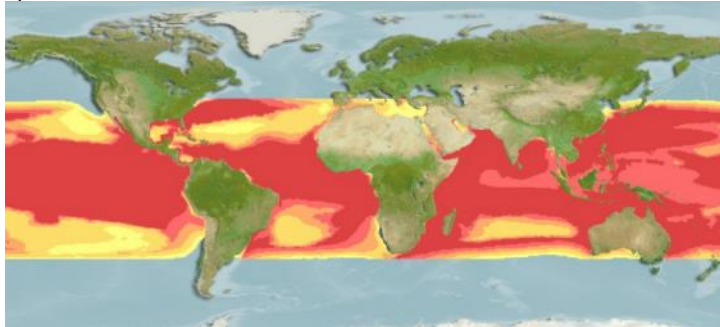
²⁰⁹ Myers, R.F., 1999. Micronesian reef fishes: a comprehensive guide to the coral reef fishes of Micronesia, 3rd revised and expanded edition. Coral Graphics, Barrigada, Guam. 330 p.

²¹⁰ Bacchet, P., T. Zysman and Y. Lefèvre, 2006. Guide des poissons de Tahiti et ses îles. Tahiti (Polynésie Française): Éditions Au Vent des Îles. 608 p.

²¹¹ <https://www.iucnredlist.org/species/39386/2920499#habitat-ecology>

²¹² Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes. FAO Fish.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>offshore, over the continental shelves, island terraces, and in passes and lagoons of coral atolls, as well as over deep water near land; depths range from near the surface and in water about a metre deep to over 80 m. The great hammerhead often favours continental and insular coral reefs.</p> <p>Scalloped Hammerhead were caught by fishermen from Sri Lanka²¹³, indicating the species can be found within or outside the EEZ of Sri Lanka. But specific information on occurrence of the species within the EAAA is not available.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>So, is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Great Hammerhead Shark.</p>
4.	<i>Pristis zijsron</i>	Green Sawfish	CR					<p>Migratory Status: CMS Appendix & II²¹⁴, migratory</p> <p>Range Restricted Species: No</p>	<p>Considering large distribution range of</p>

²¹³ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo.
<https://www.fao.org/3/x2097e/X2097E15.htm>

²¹⁴ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

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								<p>Depth Range – 5-70m²¹⁵ Global Population Estimate – Not Available</p> <p>Green Sawfish have a broad Indo-West Pacific distribution²¹⁶. Demersal on both insular and continental shelves, but now thought to be extinct through much of its original range²¹⁷. Inshore and intertidal species known to enter freshwater in some areas²¹⁸. Found in shallow bays, estuaries, and lagoons²¹⁹.</p> <p>There are no record of Bottlenose Wedgefish from lagoon habitat (Negombo Lagoon²²⁰) within the EAAA.</p>	<p>the species, the marine habitat in EAAA (approximately 112km²) is negligible compared to the EOO of the species. So, it is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Green Sawfish.</p>

²¹⁵ Last, P.R., W.T. White, M.R. de Carvalho, B. Séret, M.F.W. Stehmann and G.J.P. Naylor, 2016. Rays of the world. CSIRO Publishing, Comstock Publishing Associates. i-ix + 1-790.

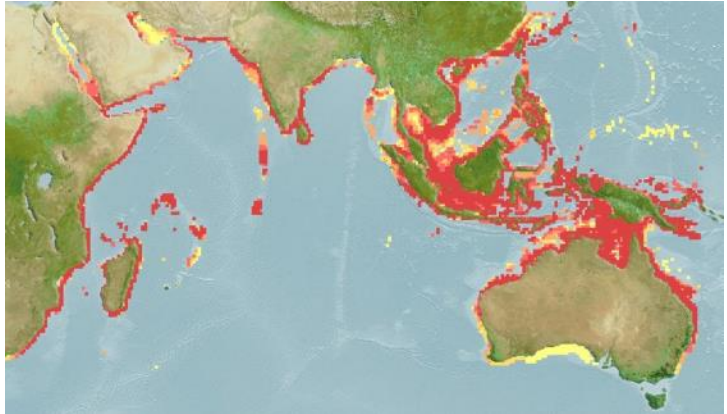
²¹⁶ Simpfendorfer, C. 2013. *Pristis zijsron* (errata version published in 2019). The IUCN Red List of Threatened Species 2013: e.T39393A141792003. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T39393A141792003.en>. Downloaded on 09 November 2021.

²¹⁷ Last, P.R., W.T. White, M.R. de Carvalho, B. Séret, M.F.W. Stehmann and G.J.P. Naylor, 2016. Rays of the world. CSIRO Publishing, Comstock Publishing Associates. i-ix + 1-790.

²¹⁸ Compagno, L.J.V. and P.R. Last, 1999. Pristidae. Sawfishes. p. 1410-1417. In K.E. Carpenter and V. Niem (eds.) FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

²¹⁹ Heemstra, P.C., 1995. Additions and corrections for the 1995 impression. p. v-xv. In M.M. Smith and P.C. Heemstra (eds.) Revised Edition of Smiths' Sea Fishes. Springer-Verlag, Berlin.

²²⁰ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

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								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
5.	<i>Rhina ancylostoma</i>	Bowmouth Guitarfish	CR		✓	-	-	<p>Migratory Status: Non-Migratory Species Range Restricted Species: No Depth Range – 3-90 m²²¹ Global Population Estimate – Not Present</p> <p>Primarily a bottom dweller (Benthic), Inhabits shallow “Marine Neritic²²²” coastal areas and is closely associate with shallow Coral</p>	<p>Considering absence of suitable microhabitat, and also considering wide distribution range throughout the Indo-Pacific, smaller size of the EAAA (approximately</p>

²²¹ Sommer, C., W. Schneider and J.-M. Poutiers, 1996. FAO species identification field guide for fishery purposes. The living marine resources of Somalia. FAO, Rome. 376 p.

²²² <https://www.iucnredlist.org/species/41848/124421912#habitat-ecology>

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								<p>Reefs²²³. Prefers sand and mud bottoms²²⁴, feeds mainly on bottom crustaceans and molluscs²²⁵.</p> <p>The species is known to occur in the coastal waters of Sri Lanka²²⁶, but no specific information is available from the EAAA. The species shows certain affinity towards coral reefs, so considering absence of coral reef within the EAAA, it is very likely that the EAAA does not provide suitable microhabitat for the species</p>	<p>112km²) compared to the global distribution range, the EAAA is not likely to hold significant percentage (more than 0.5% and >5 reproductive units) of global population of Bowmouth Guitarfish.</p> <p>So, the EAAA is Not Considered Critical Habitat for Bowmouth Guitarfish.</p>


²²³ Compagno, L.J.V. and P.R. Last, 1999. Rhinidae (=Rhynchobatidae). Wedgefishes. p. 1418-1422. In K.E. Carpenter and V. Niem (eds.) FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

²²⁴ Michael, S.W., 1993. Reef sharks and rays of the world. A guide to their identification, behavior, and ecology. Sea Challengers, Monterey, California. 107 p.

²²⁵ Compagno, L.J.V. and P.R. Last, 1999. Rhinidae (=Rhynchobatidae). Wedgefishes. p. 1418-1422. In K.E. Carpenter and V. Niem (eds.) FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

²²⁶ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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								 <p>Global Distribution Range. Surce: IUCN RedList v2022-</p>	
6.	<i>Rhynchobatus australiae</i>	Bottlenose Wedgefish	CR		✓	-	-	<p>Migratory Status: Non Migratory Species Range Restricted Species: No Depth Range – 0-60 m²²⁷ Global Population Estimate – Not Present</p> <p>The Bottlenose Wedge fish inhabits inshore waters on the continental shelves (Marine Neritic²²⁸), specifically enclosed bays,</p>	<p>Considering the species has a large distribution range and compared to the EAAA and absence of specific record from the EAAA, It is very unlikely that the Project EAAA holds</p>

²²⁷ Weigmann, S., 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. J. Fish Biol. 88(1):1-201.

²²⁸ <https://www.iucnredlist.org/species/41853/68643043#habitat-ecology>

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								<p>estuaries, and coral reefs²²⁹. It is found in South-East Asia and Australia. The species primarily feeds on bottom dwelling crustaceans, molluscs and fishes.²³⁰</p> <p>There are no record of Bottlenose Wedgefish from lagoon habitat (Negombo Lagoon²³¹) within the EAAA, even the species is not recorded from marine fish catch in Sri Lanka^{232 233},</p>	<p>>0.5% of the global population of this species, and >5 reproductive units of the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Bottlenose Wedgefish.</p>

²²⁹ Compagno, L.J.V. and P.R. Last, 1999. Rhinidae (=Rhynchobatidae). Wedgefishes. p. 1418-1422. In K.E. Carpenter and V. Niem (eds.) FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

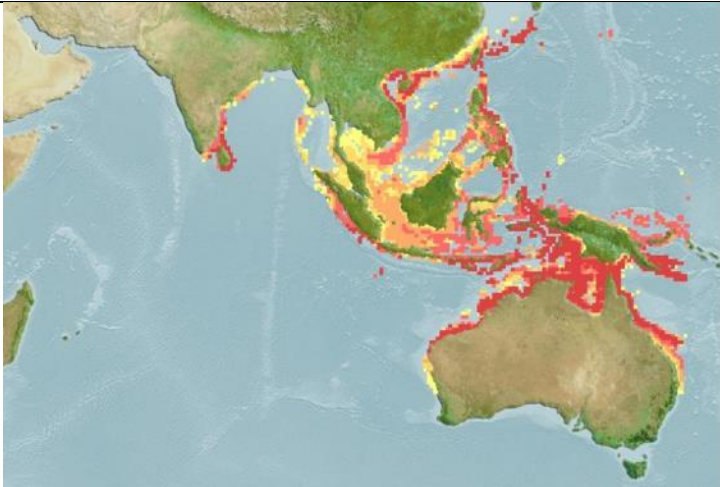
²³⁰ Last, P.R., W.T. White, M.R. de Carvalho, B. Séret, M.F.W. Stehmann and G.J.P. Naylor, 2016. Rays of the world. CSIRO Publishing, Comstock Publishing Associates. i-ix + 1-790.

²³¹ Jayaneththi. H. B. 2016. Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.

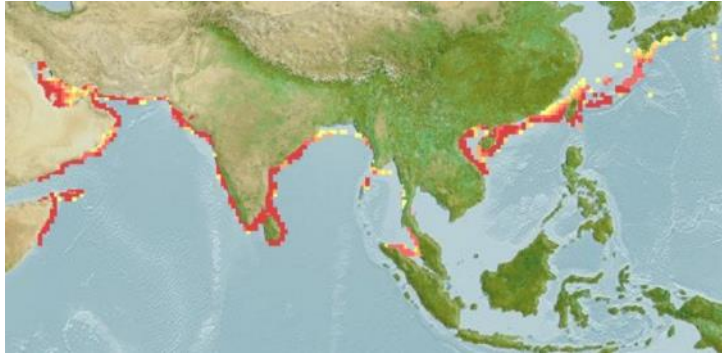
²³² L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo.
<https://www.fao.org/3/x2097e/X2097E15.htm>

²³³ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
7.	<i>Rhynchobatus laevis</i>	Smoothnose Wedgefish	CR		✓	-	-	<p>Migratory Status: non migratory Range Restricted Species: No Depth Range – 0-60m Global Population Estimate – Not Available</p> <p>The Smoothnose Wedgefish is widespread in the Indo-West Pacific; it was first described from India and has been widely</p>	<p>Considering the species has a large distribution range and compared to the EAAA and absence of specific record from the EAAA, It is very unlikely that the Project EAAA holds >0.5% of the global</p>

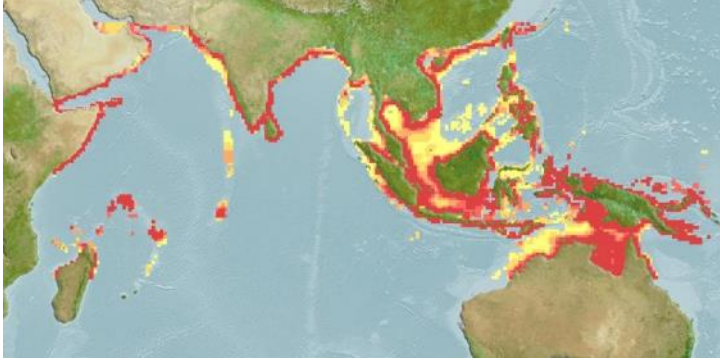
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S. No.	Scientific Name	Common Name	IUCN Status Global (2021 -V2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>confused with the Western Indian Ocean²³⁴. A benthic species mainly found near the coast in shallow bays and off river mouths²³⁵. Though there are suitable habitat like Negombo Lagoon and estuary of Kelani river, there are no specific record of the species from the EAAA.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>population of this species, and >5 reproductive units of the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Smoothnose Wedgefish.</p>
8.	<i>Glaucostegus granulatus</i>	Sharpnose Guitarfish	CR		✓	-	-	<p>Migratory Status: Non migratory Range Restricted Species: No Depth Range – 0-119²³⁶ Global Population Estimate – Not Available</p>	<p>Considering the species has a large distribution range and compared to the</p>

²³⁴ yne, P.M. & Jabado, R.W. 2019. Rhynchobatus laevis. The IUCN Red List of Threatened Species 2019: e.T41854A124422344. <https://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T41854A124422344.en>. Downloaded on 09 November 2021.

²³⁵ Last, P.R., W.T. White, M.R. de Carvalho, B. Séret, M.F.W. Stehmann and G.J.P. Naylor, 2016. Rays of the world. CSIRO Publishing, Comstock Publishing Associates. i-ix + 1-790.

²³⁶ <https://www.fishbase.in/summary/Glaucostegus-granulatus>

S. No.	Scientific Name	Common Name	IUCN Status Global (2021 -v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>The Sharpnose Guitarfish is moderately widespread²³⁷ in the northern Indian Ocean, where it occurs from the Arabian/Persian Gulf to Myanmar. The species prefers intertidal to offshore continental shelves down to 119 m²³⁸.</p> <p>The Species is recorded from territorial waters of Sri Lanka^{239 240}, but specific information on the species from the EAAA is not available.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>EAAA and absence of specific record from the EAAA, It is very unlikely that the Project EAAA holds >0.5% of the global population of this species, and >5 reproductive units of the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Sharpnose Guitarfish.</p>

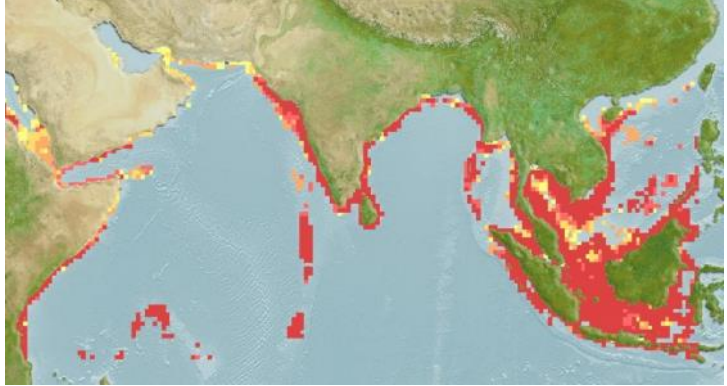
²³⁷ Kyne, P.M. & Jabado, R.W. 2019. *Glaucostegus granulatus*. The IUCN Red List of Threatened Species 2019: e.T60166A68623788. <https://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T60166A68623788.en>. Downloaded on 09 November 2021.

²³⁸ Compagno, L.J.V. and P.R. Last, 1999. Rhinobatidae. Guitarfishes. p. 1423-1430. In K.E. Carpenter and V.H. Niem (eds.) FAO identification guide for fishery purposes. The living marine resources of the Western Central Pacific. Rome, FAO.

²³⁹ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

²⁴⁰ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

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9.	<i>Glaucostegus thouin</i>	Clubnose Guitarfish	CR		✓	-	-	<p>Migratory Status: Non Migratory Range Restricted Species: No Depth Range – 0-60m²⁴¹ Global Population Estimate – Not Available.</p> <p>The Clubnose Guitarfish has a moderately widespread distribution²⁴² in the Indo-West Pacific from India to Borneo. But there are no confirmed record of the species from Sri Lanka.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>Considering the species has a large distribution range and compared to the EAAA and absence of specific record from the EAAA, It is very unlikely that the Project EAAA holds >0.5% of the global population of this species, and >5 reproductive units of the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Clubnose Guitarfish.</p>

²⁴¹ <https://www.fishbase.se/summary/Glaucostegus-thouin.html>

²⁴² Kyne, P.M. & Jabado, R.W. 2019. *Glaucostegus thouin*. The IUCN Red List of Threatened Species 2019: e.T60175A124447684. <https://dx.doi.org/10.2305/IUCN.UK.2019-2.RLTS.T60175A124447684.en>. Downloaded on 09 November 2021.

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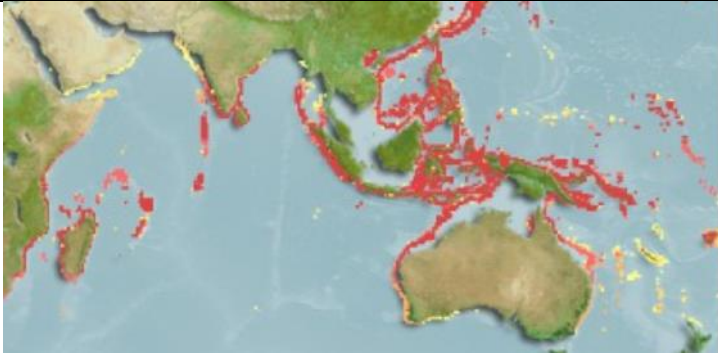
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
10.	<i>Centrophorus atromarginatus</i>	Dwarf Gulper Shark	CR		✓	-	-	<p>Migratory Status: non migratory Range Restricted Species: No Depth Range – 183 - 450 m²⁴³ Global Population Estimate – Not available</p> <p>The Dwarf Gulper Shark is patchily distributed²⁴⁴ across the Northwest and Western Central Pacific, and the Eastern and Western Indian Oceans. It occurs in southern Japan, Taiwan, northern Papua New Guinea, Indonesia, India, Sri Lanka, Somalia (Gulf of Aden), and Oman. It is a little-known deep-water dogfish found on the upper continental slopes to at least 180-450 m²⁴⁵. Marine habitat within the EAAA is of much shallower depth, so the EAAA is not expected to provide suitable habitat for the species.</p>	<p>Considering the shallow profile of the marine component of EAAA, the EAAA does not provide suitable habitat for the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Dwarf Gulper Shark.</p>

²⁴³ <https://www.fishbase.se/summary/53922>

²⁴⁴ Rigby, C.L., Ebert, D.A. & Herman, K. 2020. *Centrophorus atromarginatus*. The IUCN Red List of Threatened Species 2020: e.T161384A124474968. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T161384A124474968.en>. Downloaded on 09 November 2021.

²⁴⁵ Compagno, L.J.V. and V.H. Niem, 1998. Squalidae. Dogfish sharks. p. 1213-1232. In K.E. Carpenter and V.H. Niem (eds.) FAO Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

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								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
11.	<i>Acroteriobatus variegatus</i>	Stripenose Guitarfish	CR					<p>Migratory Status: CMS Appendix & II²⁴⁶, migratory Range Restricted Species: No Depth Range – 100-400m, considered to be a deep water species. Global Population Estimate – Not Available</p> <p>The Stripenose Guitarfish is mostly recorded from Gulf of Mannar region (located approximately 200km north of EAAA) located between Southern India (Tamil Nadu and Kerala States) and North Eastern Sri Lanka, so earlier distribution range was thought to be restricted to Gulf of Mannar region only²⁴⁷, but in more recent assessment based on recent record of the species have extended</p>	<p>Considering that the EAAA is not expected to provide suitable microhabitat for the Species, even if Stripenose Guitarfish is distributed along the western coast of Sri Lanka, the EAAA is not expected to hold >0.5% of the global</p>

²⁴⁶ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020. https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

²⁴⁷ Ebert, D.A. (2014a) Deep-sea Cartilaginous Fishes of the Indian Ocean. Volume 2. Batoids and Chimaeras. FAO Species Catalogue for Fishery Purposes. No. 8, Rome, Italy, 129 pp.

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								<p>the range of the species along the Western Coast of India and all around Sri Lanka (map presented)²⁴⁸. So the species is not considered as a Range restricted species. Presence of the species in Sri Lankan waters²⁴⁹ was confirmed in 2019, based on gene sequencing, carried out on four specimens collected from fish landing station in Mutur in the Eastern Province (concerned project is located in Western Coast).</p> <p>It is a deep-water guitarfish known from the upper continental slope to at least 366 m deep^{250 251}. Considering the marine component of the EAAA is located in shallow waters (< 100m), even if the species is found along the West Coast of Sri Lanka, the EAAA is not expected to provide suitable micro habitat for the species.</p>	<p>population of this species, and >5 reproductive units of the species.</p> <p>So, the EAAA is Not Considered Critical Habitat for Stripenose Guitarfish.</p>


²⁴⁸ Kyne, P.M., Simpfendorfer, C., Bineesh, K.K., Moore, A., Jabado, R.W. & Valinassab, T. 2017. *Acroteriobatus variegatus*. The IUCN Red List of Threatened Species 2017: e.T161476A109905030. <https://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T161476A109905030.en>. Downloaded on 09 November 2021.

²⁴⁹ FERNANDO, D., BOWN, R. M. K., TANNA, A., GOBIRAJ, R., RALICKI, H., JOCKUSCH, E. L., EBERT, D. A., JENSEN, K., & CAIRA, J. N. (2019). New insights into the identities of the elasmobranch fauna of Sri Lanka. *Zootaxa*, 4585(2), 201–238. <https://doi.org/10.11646/zootaxa.4585.2.1>

²⁵⁰ Ebert, D.A. (2014a) Deep-sea Cartilaginous Fishes of the Indian Ocean. Volume 2. Batoids and Chimaeras. FAO Species Catalogue for Fishery Purposes. No. 8, Rome, Italy, 129 pp.

²⁵¹ Last, P.R., W.T. White, M.R. de Carvalho, B. Séret, M.F.W. Stehmann and G.J.P. Naylor, 2016. Rays of the world. CSIRO Publishing, Comstock Publishing Associates. i-ix + 1-790.

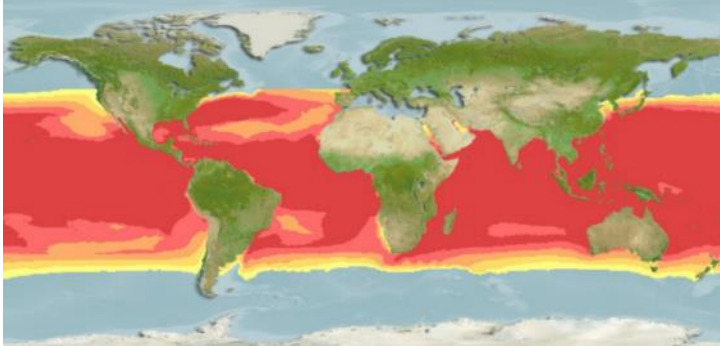
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								 <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	
12.	<i>Rhincodon typus</i>	Whale Shark	EN		✓	-	✓	<p>Migratory Status: CMS Appendix I & II²⁵², Oceanodromous²⁵³ Range Restricted Species: No Optimum Depth Range – 200-400m²⁵⁴ Global Population Estimate – Not Present</p> <p>Whale Sharks are found in both coastal (Marine Neritic) and oceanic habitats (Marine Oceanic), mostly close to the water</p>	Considering global distribution range of the species, the marine habitat in EAAA (approximately 112km ²) is negligible

²⁵² Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

²⁵³ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329

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²⁵⁴ <https://www.fishbase.se/summary/2081>

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>surface (Pelagic)²⁵⁵, sometimes entering lagoons or coral atolls²⁵⁶. Sometimes seen cruising near outer wall²⁵⁷ of reef. Occasionally the species is known to form congregation²⁵⁸ of over 100 individuals.</p> <p>The species was earlier fished from waters surrounding Sri Lanka, but presently fishing has been banned Sri Lanka²⁵⁹.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>compared to the EOO of the species. So, is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Whale Shark.</p>

²⁵⁵ Weigmann, S., 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. J. Fish Biol. 88(1):1-201.

²⁵⁶ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1 - Hexanchiformes to Lamniformes. FAO Fish. Synop. 125(4/1):1-249. Rome, FAO.

²⁵⁷ Smith, C.L., 1997. National Audubon Society field guide to tropical marine fishes of the Caribbean, the Gulf of Mexico, Florida, the Bahamas, and Bermuda. Alfred A. Knopf, Inc., New York. 720 p.

²⁵⁸ Compagno, L.J.V., D.A. Ebert and M.J. Smale, 1989. Guide to the sharks and rays of southern Africa. New Holland (Publ.) Ltd., London. 158 p.

²⁵⁹ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
13.	<i>Isurus oxyrinchus</i>	Shortfin Mako	EN		✓	-	✓	<p>Migratory Status: CMS Appendix II²⁶⁰, Oceanodromous²⁶¹</p> <p>Range Restricted Species: No</p> <p>Depth Range – 0-750 m²⁶²</p> <p>Optimum Depth Range – 100-150m²⁶³</p> <p>Global Population Estimate – Not Present</p> <p>It is an oceanic shark species (Marine Oceanic), which prefers open water, rarely ventures into coastal waters²⁶⁴. The species has a global distribution range, spread across tropical and subtropical seas and oceans.</p> <p>Shortfin Mako are regularly caught by fishermen from Sri Lanka²⁶⁵²⁶⁶, indicating the species can be found within or outside the EEZ of Sri Lanka. But specific information on occurrence of the species within the EAAA is not available.</p>	<p>Considering global distribution range of the species, the marine habitat in EAAA (approximately 112km²) is negligible compared to the EOO of the species.</p> <p>So, is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p>

²⁶⁰ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

²⁶¹ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

²⁶² Weigmann, S., 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. J. Fish Biol. 88(1):1-201.

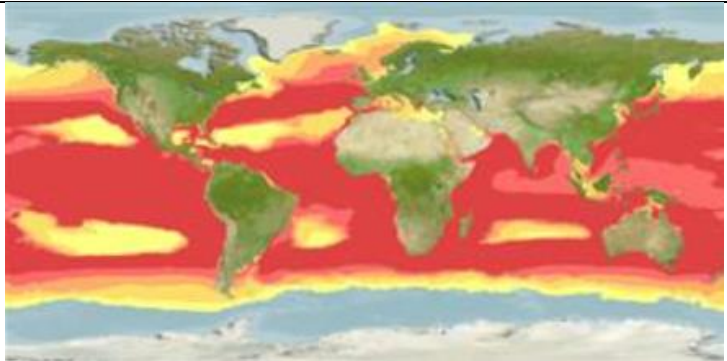
²⁶³ Bianchi, G., K.E. Carpenter, J.-P. Roux, F.J. Molloy, D. Boyer and H.J. Boyer, 1999. FAO species identification guide for fishery purposes. Field guide to the living marine resources of Namibia. FAO, Rome. 265 p.

²⁶⁴ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

²⁶⁵ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo.
<https://www.fao.org/3/x2097e/X2097E15.htm>

²⁶⁶ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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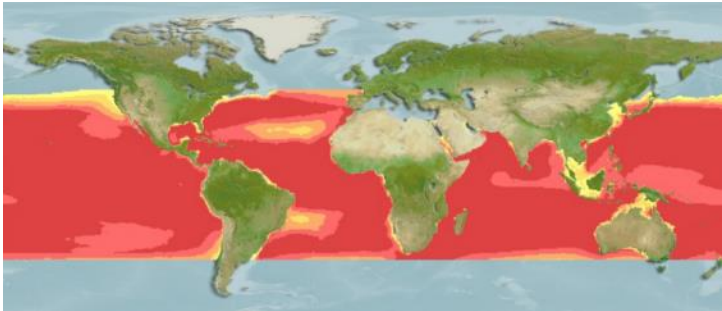
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	So, the EAAA is Not Considered as Critical Habitat for Shortfin Mako Shark.
14.	<i>Isurus paucus</i>	Longfin Mako	EN		✓	-	✓	<p>Migratory Status: CMS Appendix II²⁶⁷, Oceanodromous²⁶⁸ Range Restricted Species: No Depth Range – 0-1750m²⁶⁹ Optimum Depth Range – 0-200m (considering epipelagic species) Global Population Estimate – Not Present</p>	Considering global distribution range of the species, the marine habitat in EAAA (approximately 112km ²) is negligible compared to the EOO of the species.

²⁶⁷ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020. https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

²⁶⁸ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

²⁶⁹ Weigmann, S., 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. J. Fish Biol. 88(1):1-201.

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								<p>The Longfin Mako is epipelagic species²⁷⁰, widespread in tropical and warm temperate waters, and likely occurs in all oceans, although its distribution is poorly recorded²⁷¹. Oceanic shark species (Marine Oceanic), prefers open water, rarely ventures into coastal waters²⁷².</p> <p>The species is not commonly caught from waters around Sri Lanka^{273 274} but is known to be found in Sri Lankan waters²⁷⁵.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>So, is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Longfin Mako Shark.</p>

²⁷⁰ Mundy, B.C., 2005. Checklist of the fishes of the Hawaiian Archipelago. Bishop Mus. Bull. Zool. (6):1-704.

²⁷¹ <https://www.iucnredlist.org/species/60225/3095898#geographic-range>

²⁷² <https://www.fishbase.se/summary/753>

²⁷³ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo. <https://www.fao.org/3/x2097e/X2097E15.htm>

²⁷⁴ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

²⁷⁵ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

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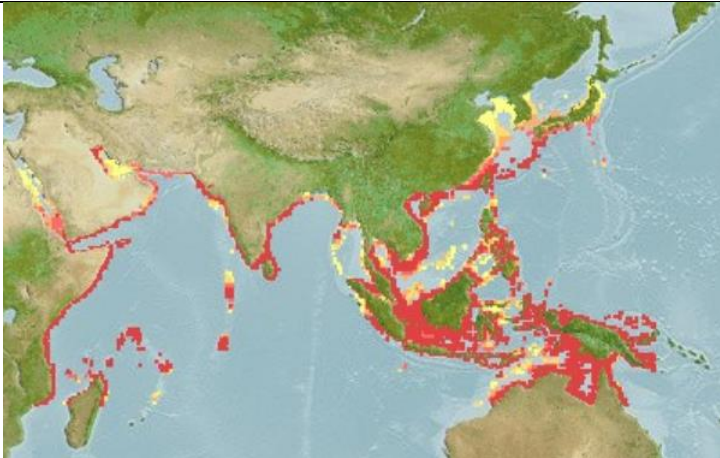
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
15.	<i>Anoxypristis cuspidata</i>	Narrow Sawfish	EN		✓	-	-	<p>The exact historic distribution^{276 277} of Narrow Sawfish is uncertain, but it is highly likely that its full range extended from the Persian (Arabian) Gulf, across southern Asia and the Indo-Australian Archipelago, and north to Japan and South Korea.</p> <p>The narrow sawfish is largely euryhaline and moves between estuarine and marine environments²⁷⁸. Inshore and estuarine waters are used by juveniles and pupping females, whilst adults predominantly occur offshore (Peeverell 2005)²⁷⁹. Such habitats are present in the EAAA, particularly along the mouth of Negombo Lagoon and estuary of Kelani River. But there are no confirmed record of the species from the EAAA.</p>	<p>Considering large distribution range of the species, the marine habitat in EAAA (approximately 112km²) is negligible compared to the EOO of the species.</p> <p>So, it is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Narrow Sawfish.</p>

²⁷⁶ Compagno, L.J.V. and P.R. Last, 1999. Pristidae. Sawfishes. p. 1410-1417. In K.E. Carpenter and V. Niem (eds.) FAO identification guide for fishery purposes. The Living Marine Resources of the Western Central Pacific. FAO, Rome.

²⁷⁷ D'Anastasi, B., Simpfendorfer, C. & van Herwerden, L. 2013. *Anoxypristis cuspidata* (errata version published in 2019). The IUCN Red List of Threatened Species 2013: e.T39389A141789456. <https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T39389A141789456.en>. Downloaded on 10 November 2021.


²⁷⁸ Federal Register / Vol. 79, No. 239 / Friday, December 12, 2014

²⁷⁹ <https://www.iucnredlist.org/species/39389/141789456#habitat-ecology>

S. No.	Scientific Name	Common Name	IUCN Status Global (2021 -v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
16.	<i>Centrophorus uyato</i>	Little Gulper Shark	EN		✓	-	-	<p>Migratory Status: Non Migratory Species Range Restricted Species: No Optimum Depth Range – 50-1400m²⁸⁰ Global Population Estimate – Not Present</p>	<p>Considering the species has a global distribution range spread across tropical and subtropical seas, and also considering the species prefers deeper water, it is very unlikely to holds</p>

²⁸⁰ <https://www.fishbase.in/summary/Centrophorus-uyato>

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>The Little Gulper Shark has a widespread, yet patchy, global distribution^{281 282} in the Mediterranean Sea, Atlantic and Indo-Pacific Oceans including Sri Lanka^{283 284}.</p> <p>A common deep-water dogfish²⁸⁵ of the outer continental shelves and upper slopes, on or near the bottom. Most of the marine component of the EAAA is shallower than the suitable depth profile required for the species.</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>>0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Little Gulper Shark.</p>
17.	<i>Eusphyra blochii</i>	Winghead Shark	EN		✓	-	-	<p>Migratory Status: Non Migratory Species</p> <p>Range Restricted Species: No</p>	Considering large distribution range of

²⁸¹ Finucci, B., Bineesh, K.K., Cotton, C.F., Dharmadi, Kulka, D.W., Neat, F.C., Pacoureau, N., Rigby, C.L., Tanaka, S. & Walker, T.I. 2020. *Centrophorus uyato*. The IUCN Red List of Threatened Species 2020: e.T41745A124416090. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T41745A124416090.en>. Downloaded on 10 November 2021.

²⁸² Ebert, D.A., Fowler, S. and Compagno, L. 2013. *Sharks of the World*. Wild Nature Press, Plymouth.

²⁸³ FERNANDO, D., BOWN, R. M. K., TANNA, A., GOBIRAJ, R., RALICKI, H., JOCKUSCH, E. L., EBERT, D. A., JENSEN, K., & CAIRA, J. N. (2019). New insights into the identities of the elasmobranch fauna of Sri Lanka. *Zootaxa*, 4585(2), 201–238. <https://doi.org/10.11646/zootaxa.4585.2.1>

²⁸⁴ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

²⁸⁵ White, W.T., D.A. Ebert, G.J.P. Naylor, H.-H. Ho, P. Clerkin, A. Verissimo and C.F. Cotton, 2013. Revision of the genus *Centrophorus* (Squaliformes: Centrophoridae): Part 1 -Redescription of *Centrophorus granulosus* (Bloch & Schneider), a senior synonym of *C. acus* and *C. niukang* Teng. *Zootaxa* 3752(1):035-072.

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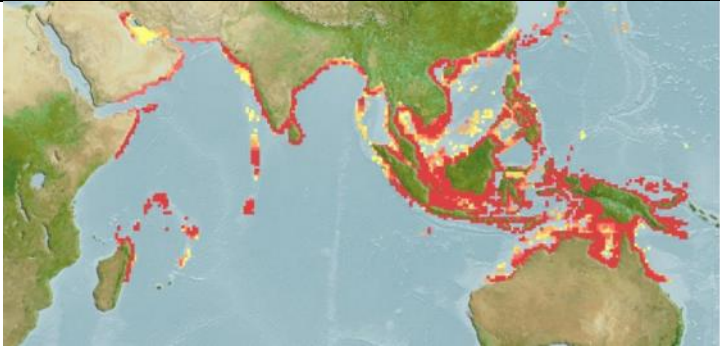
S. No.	Scientific Name	Common Name	IUCN Status Global (2021 -V2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Optimum Depth Range – near shore shallow waters. Global Population Estimate – Not Present</p> <p>It is a species of hammerhead shark that occurs²⁸⁶ on and near continental shelf waters of the Indo-West Pacific from the Persian Gulf through South Asia, Maldives, to northern Australia and Papua New Guinea. The species can be found in Marine as well as brackish waters. It is primarily a benthopelagic specie, prefers to feed in the mid and bottom sections of shallow seas²⁸⁷.</p> <p>Winghead Shark are regularly caught by fishermen from Sri Lanka^{288 289}, indicating the species can be found within or outside the EEZ of Sri Lanka. But specific information on occurrence of the species within the EAAA is not available.</p>	<p>the species, the marine habitat in EAAA (approximately 112km²) is negligible compared to the EOO of the species. So, it is very unlikely to holds >0.5% of the global population of this species, and >5 reproductive units.</p> <p>So, the EAAA is Not Considered as Critical Habitat for Winghead Shark.</p>

²⁸⁶ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

²⁸⁷ <https://www.fishbase.in/summary/Eusphyra-blochii>

²⁸⁸ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo. <https://www.fao.org/3/x2097e/X2097E15.htm>

²⁸⁹ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
18.	<i>Negaprion acutidens</i>	Sharptooth Lemon Shark	EN		✓	-	-	<p>Migratory Status: Non Migratory Species Range Restricted Species: No Optimum Depth Range – 0-92m²⁹⁰ Global Population Estimate – Not Present</p> <p>The Sharptooth Lemon Shark is widespread in coastal waters of the tropical and subtropical Indian and Northwest, Western Central,</p>	<p>Sicklefin Devilray has a widespread distribution globally. Considering there is lack of literary evidence to support presence of the species from EAAA, it is very unlikely that the Project EAAA holds >0.5% of the global population of</p>

²⁹⁰ <https://www.fishbase.se/summary/Negaprion-acutidens.html>

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>and Eastern Central Pacific Oceans²⁹¹. There are multiple records of the species from Sri Lanka^{292 293}.</p> <p>Found on continental and insular shelves and terraces²⁹⁴. Common on coral reefs²⁹⁵ and in shallow, sandy lagoons and turbid, mangrove swamps in Australia²⁹⁶. Though suitable habitat like lagoons and mangrove swamps are present within the EAAA, there are no record of Sharptooth Lemon Sharks from Muthurajawela Wetland Sanctuary²⁹⁷ (mangrove swamp habitat) and Negombo Lagoon²⁹⁸.</p>	<p>this species, and >5 reproductive units (pairs).</p> <p>So, the EAAA is Not Considered Critical Habitat for Sharptooth Lemon Shark.</p>

²⁹¹ Simpfendorfer, C., Derrick, D., Yuneni, R.R., Maung, A., Utzurum, J.A.T., Seyha, L., Haque, A.B., Fahmi, Bin Ali, A., D., Bineesh, K.K., Fernando, D., Tanay, D., Vo, V.Q. & Gutteridge, A.N. 2021. *Negaprion acutidens*. The IUCN Red List of Threatened Species 2021: e.T41836A173435545. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T41836A173435545.en>. Downloaded on 10 November 2021.

²⁹² Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy

²⁹³ FERNANDO, D., BOWN, R. M. K., TANNA, A., GOBIRAJ, R., RALICKI, H., JOCKUSCH, E. L., EBERT, D. A., JENSEN, K., & CAIRA, J. N. (2019). New insights into the identities of the elasmobranch fauna of Sri Lanka. *Zootaxa*, 4585(2), 201–238. <https://doi.org/10.11646/zootaxa.4585.2.1>


²⁹⁴ Compagno, L.J.V., 1984. *FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 2 - Carcharhiniformes.* FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

²⁹⁵ Compagno, L.J.V., D.A. Ebert and M.J. Smale, 1989. *Guide to the sharks and rays of southern Africa.* New Holland (Publ.) Ltd., London. 158 p.

²⁹⁶ Last, P.R. and J.D. Stevens, 1994. *Sharks and rays of Australia.* CSIRO, Australia. 513 p.

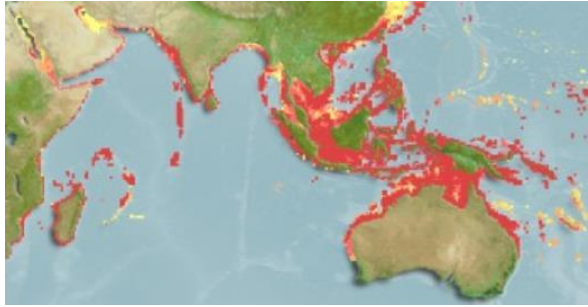
²⁹⁷ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. *An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary.* Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

²⁹⁸ Jayaneththi. H. B. 2016. *Ichthyofauna Checklist of Short Study on Negombo Lagoon, Western Sri Lanka.*

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
19.	<i>Stegostoma tigrinum</i>	Zebra Shark	EN		✓	-	-	<p>Migratory Status: Non Migratory Species Range Restricted Species: No Optimum Depth Range – shallow waters. Global Population Estimate – Not Present</p> <p>The Zebra Shark occurs in tropical and subtropical, shallow inshore and offshore waters, often found on and around coral and rocky reefs and on sandy plateaus near coral, at depths down to at least 62 m.²⁹⁹</p> <p>The species is distributed throughout the costal and reef areas from Eastern Africa, Persian Gulf, Red Sea, South Asian coast, Islands of Indian Ocean and Asia Pacific Region.</p>	<p>Considering large distribution range of the species and also as it is not commonly recorded from Sri Lanka, it is unlikely to cross threshold of Criterion 1.</p> <p>So, the EAAA is Not Considered as Critical</p>

²⁹⁹ <https://www.iucnredlist.org/species/41878/161303882#geographic-range>

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								<p>The species is not commonly recorded from territorial waters of Sri Lanka ^{300 301}</p>  <p>Source: AquaMaps Data sources: GBIF OBIS</p>	Habitat for Zebra Shark.
20.	<i>Mobula tarapacana</i>	Sicklefin Devilray	EN		✓	-	✓	<p>Migratory Status: CMS Appendix I & II³⁰², Oceanodromous³⁰³ Range Restricted Species: No Depth Range – 0-1896m³⁰⁴ Optimum Depth Range – 0-20m Global Population Estimate – Not Available</p>	Sicklefin Devilray has a widespread distribution globally. Considering there is lack of literary

³⁰⁰ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

³⁰¹ R.I. De Silva. 2006. Taxonomy and Status of the Sharks and Rays of Sri Lanka.

³⁰² Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May, 2020.

https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

³⁰³ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329

p.
³⁰⁴ Pardo, A., R.H.L. Walls and J.S. Bigman, 2016. *Mobula tarapacana* (errata version published in 2016). The IUCN Red List of Threatened Species 2016: e.T60199A121705844. Downloaded on 14 February 2018.

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								<p>All rays of Genus <i>Mobula</i> are large-bodied, migratory, planktivorous and ichthyophagous rays³⁰⁵. Mostly oceanic (Marine Oceanic), but also venture into coastal waters (Marine Neritic)³⁰⁶³⁰⁷. The Sicklefin Devilray has a patchy circum-global distribution and is found in tropical and warm temperate waters of the Pacific, Atlantic, and Indian Oceans³⁰⁸.</p> <p>The Species is recorded from territorial waters of Sri Lanka^{309 310}, but specific information on the species from the EAAA is not available.</p>	<p>evidence to support presence of the species from EAAA, it is very unlikely that the Project EAAA holds >0.5% of the global population of this species, and >5 reproductive units (pairs).</p> <p>So, the EAAA is Not Considered Critical Habitat for Sicklefin Devilray.</p>

³⁰⁵ Inclusion of mobula rays, Genus *Mobula*, in Appendix I and II. Convention of Migratory Species. UNEP/CMS/COP11/Doc.24.1.10/ Rev.1 4 November 2014

³⁰⁶ Michael, S.W., 1993. Reef sharks and rays of the world. A guide to their identification, behavior, and ecology. Sea Challengers, Monterey, California. 107 p.

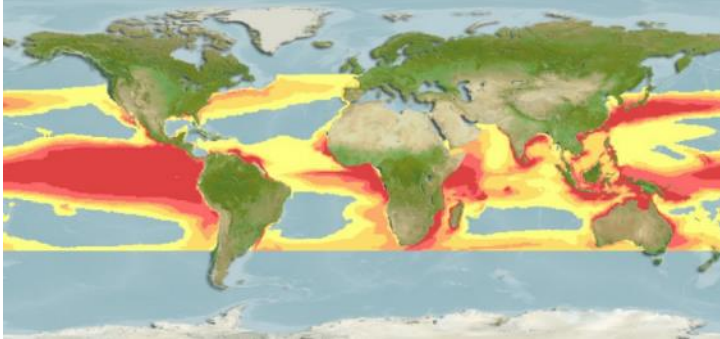
³⁰⁷ <https://www.fishbase.in/summary/Mobula-tarapacana.html>

³⁰⁸ <https://www.iucnredlist.org/species/60199/124451161#geographic-range>

³⁰⁹ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

³¹⁰ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	
21.	<i>Mobula thurstoni</i>	Bentfin Devilray	EN		✓	-	✓	<p>Migratory Status: CMS Appendix I & II³¹¹, Oceanodromous³¹² Range Restricted Species: No Depth Range – 0-100m³¹³ Global Population Estimate – Not Available</p> <p>As discussed in the above row, rays of Genus <i>Mobula</i> are large-bodied, migratory, planktivorous and ichthyophagous. Bentfin Devilray is a seasonal visitor along productive coastlines with regular upwelling, off oceanic island groups, and near offshore</p>	<p>Bentfin Devilray has a widespread distribution in coastal regions, spread across the globe. Considering there is lack of literary evidence to support presence of the</p>

³¹¹ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020. https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

³¹² Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

³¹³ Michael, S.W., 1993. Reef sharks and rays of the world. A guide to their identification, behavior, and ecology. Sea Challengers, Monterey, California. 107 p

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>pinnacles and seamounts³¹⁴. The Bentfin Devilray has a circum-global distribution and is found in tropical, subtropical, and temperate waters of the Pacific, Atlantic, and Indian Oceans³¹⁵. The Species is record of the species from territorial waters of Sri Lanka³¹⁶, but specific information on the species from the EAAA is not available.</p>  <p>Source: UNEP/CMS/COP11/Doc.24.1.10/ Rev.1 4 November 2014</p>	<p>species from EAAA, it is very unlikely that the Project EAAA holds >0.5% of the global population of this species, and >5 reproductive units (pairs).</p> <p>So, the EAAA is Not Considered Critical Habitat for Bentfin Devilray.</p>

³¹⁴ Gadig, O.B.F., Namora, R.C. and Motta, F.D.S. 2003. Occurrence of the bentfin devil ray, *Mobula thurstoni* (Chondrichthyes: Mobulidae), in the western Atlantic. *Journal of the Marine Biological Association of the United Kingdom* 83:869–870.

³¹⁵ <https://www.iucnredlist.org/species/60200/124451622#geographic-range>

³¹⁶ Sri Lanka National Plan of Action for the Conservation and Management of Sharks. 2018-2022. Ministry of Fisheries and Aquatic Resource Development and Rural Economy.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
22.	<i>Alopias pelagicus</i>	Pelagic Thresher	EN		✓	-	✓	<p>Migratory Status: CMS Appendix II³¹⁷, Oceanodromous³¹⁸</p> <p>Range Restricted Species: No</p> <p>Depth Range – 0-300m³¹⁹</p> <p>Optimum Depth Range – 0-150m³²⁰</p> <p>Global Population Estimate – Not Available</p> <p>Primarily an oceanic (Marine Oceanic), epipelagic, Mesopelagic, circum-tropical species³²¹, found throughout Indian and Pacific Ocean. Though primarily oceanic, the species occasionally ventures into coastal waters, even shallow lagoons of reefs³²². The Species is recorded from territorial waters of Sri Lanka^{323 324}, but specific information on the species from the EAAA is not available.</p>	<p>Pelagic Thresher has a widespread distribution in coastal regions, spread across the globe. Considering the species is generally not recorded from the EAAA, it is very unlikely that the Project EAAA holds >0.5% of the global population of this species, and >5</p>

³¹⁷ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020. https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

³¹⁸ Riede, K., 2004. Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081. Federal Agency for Nature Conservation, Bonn, Germany. 329 p.

³¹⁹ Weigmann, S., 2016. Annotated checklist of the living sharks, batoids and chimaeras (Chondrichthyes) of the world, with a focus on biogeographical diversity. J. Fish Biol. 88(1):1-201.

³²⁰ <https://www.fishbase.se/summary/5891>

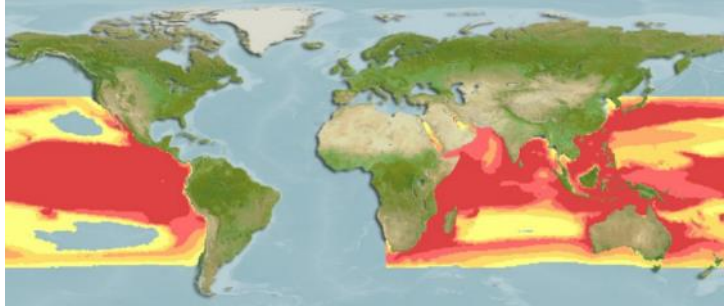
³²¹ Compagno, L.J.V., 1984. FAO Species Catalogue. Vol. 4. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. Part 1 - Carcharhiniformes. FAO Fish. Synop. 125(4/2):251-655. Rome: FAO.

³²² Myers, R.F., 1999. Micronesian reef fishes: a comprehensive guide to the coral reef fishes of Micronesia, 3rd revised and expanded edition. Coral Graphics, Barrigada, Guam. 330 p.

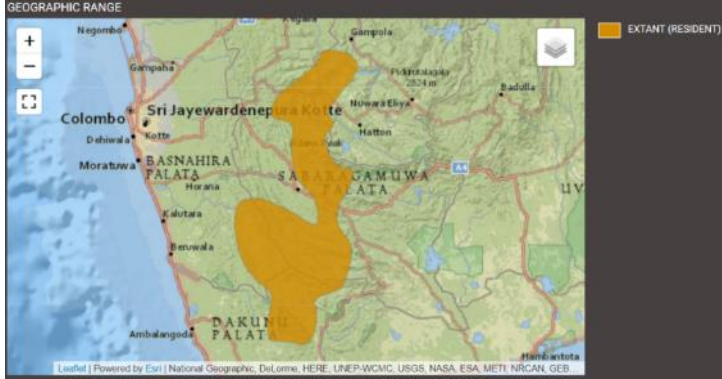
³²³ MOE 2012. The National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

³²⁴ L. Joseph, S. Ross.1999. Management of Shark Fisheries in Sri Lanka. FAO, Rome and Ministry of Fisheries and Aquatic Resource Development Maligawate. Colombo. <https://www.fao.org/3/x2097e/X2097E15.htm>


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021 -v2)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: AquaMaps Data sources: GBIF OBIS</p>	<p>reproductive units (pairs).</p> <p>So, the EAAA is Not Considered Critical Habitat for Pelagic Thresher.</p>

APPENDIX 5.21 CRITICAL HABITAT ASSESSMENT OF AMPHIBIANS


S. No.	Scientific Name	Common Name	IUCN Status Global (2022-V1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Duttaphrynus noellerti</i>	Noellert's Toad	CR		✓	✓	-	<p>This species has a restricted distribution³²⁵ in southwestern Sri Lanka, where it has been recorded at elevations between 50-500 m asl. Its extent of occurrence (EOO) is 3,289 km². The EAAA is located outside the distribution range of the species.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	Considering the EAAA is located outside the distribution range of the species, Noellert's Toad (<i>Duttaphrynus noellerti</i>) is not considered a Critical Habitat Candidate for the Concerned EAAA.
2.	<i>Pseudophilautus cuspis</i>	Sharp-snouted Shrub Frog	EN		✓	✓	-	<p>This species was previously known only from the general Sinharaja region (approx. 80km South east from project site) of southwestern Sri Lanka, but is now also known from the Dombagaskanda region (approx.. 55km south east of project site) within the Ingiriya Forest</p>	Considering the EAAA is located outside the distribution range of the species, Sharp-snouted

³²⁵ IUCN SSC Amphibian Specialist Group. 2020. *Duttaphrynus noellerti*. The IUCN Red List of Threatened Species 2020: e.T54716A156578206. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T54716A156578206.en>. Downloaded on 10 November 2021.

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-V1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Reserve³²⁶. So the known distribution range of the species is located outside the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>Shrub Frog (<i>Pseudophilautus cuspis</i>) is not considered a Critical Habitat Candidate for the Concerned EAAA.</p>
3.	<i>Pseudophilautus popularis</i>	Common Shrub Frog	VU	NT	✓	✓	-	<p>This species occurs widely in south western Sri Lanka³²⁷, where it has been recorded at elevations ranging between 15-1,200 m. EOO of the species is 10263.15 km².</p> <p>This species inhabits lowland moist forest, where it is found on leaves and twigs up to 1 m above the ground. It has also been found in degraded forest, small farms, urban gardens, and in the lowland wet zone. It is fairly adaptable to loss of forest cover, and is</p>	<p>Considering the EAAA is significantly smaller than the EOO of the species, and also considering that</p>

³²⁶ IUCN SSC Amphibian Specialist Group. 2020. *Pseudophilautus cuspis*. The IUCN Red List of Threatened Species 2020: e.T58833A156581648. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T58833A156581648.en>. Downloaded on 10 November 2021.

³²⁷ IUCN SSC Amphibian Specialist Group. 2020. *Pseudophilautus popularis*. The IUCN Red List of Threatened Species 2020: e.T58889A156584101. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T58889A156584101.en>. Downloaded on 12 November 2021.

S. No.	Scientific Name	Common Name	IUCN Status Global (2022-V1)	IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>therefore thought to be tolerant of a degree of habitat disturbance. So, It is a widely distributed³²⁸ species found in many localities within the wet zone. The species was also recorded during primary survey, from homestead plantations and marsh habitat.</p>  <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	<p>the species is resilient to habitat change and can be commonly found through out it's range, the EAAA is not expected to support globally-important concentrations of the IUCN Red-listed VU species (Criterion 1,b) or >10% of global population (Criterion 2). So, Common Shrub Frog is not considered to be a Critical Habitat Candidate for this EAAA.</p>

³²⁸ J.S.S. Dinal. 2011. Description of the complex advertisement call of *Pseudophilautus popularis*. (Manamendra-Arachchi & Pethiyagoda, 2005) (Amphibia: Rhacophoridae)

APPENDIX 5.22 CRITICAL HABITAT ASSESSMENT OF REPTILES

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S. No.	Scientific Name	Common Name	IUCN Status Global	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Crocodylus porosus</i>	Saltwater Crocodile	LC	CR	✓	-	-	Saltwater Crocodile is one of the most widely distributed of all crocodylians, ranging from Eastern India and Sri Lanka, throughout southeast Asia, east through the Philippines to Micronesia, and down through Indonesia, Papua New Guinea and the Solomon Islands to northern Australia. Throughout its range saltwater crocodiles are found in mangroves, brackish marshlands, mudflats and estuarine areas. Global population of the species is estimated to be 500000 ³²⁹ . So 0.5% threshold of global population is 2500. Population estimate ³³⁰ of adult Saltwater Crocodiles in Sri Lanka is estimated to be at least 2000. So overall population estimate of the species from Sri Lanka is close to the 0.5% threshold of global population. The coastline of Sri Lanka is dotted with multiple estuaries, lagoons and brackish marshlands and the species is distributed in suitable habitats along the coastal areas all across Sri Lanka ^{331 332 333} . Population estimate of the species from EAAA (Negombo Lagoon, Muthurajawala Mash, Canals till Kelani River estuary) is estimated ³³⁴ to be 130-140 adult individuals.	The population estimate of Saltwater Crocodile from the EAAA is less than 0.5% of global population and as the species is spread across multiple sites spread across coastal Sri Lanka, the EAAA can not be considered as nationally important site holding significant population of the species. So, Saltwater Crocodile is not considered a

³²⁹ Webb, G.J.W., Manolis, C., Brien, M.L., Balaguera-Reina, S.A. & Isberg, S. 2021. *Crocodylus porosus*. The IUCN Red List of Threatened Species 2021: e.T5668A3047556. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T5668A3047556.en>. Downloaded on 12 November 2021.

³³⁰ A.A.T. Amarasinghe, M.B. Madawala, D.M.S.S. Karunaratna, S.C. Manolis, A. de Silva, R. Sommerlad. 2015. Human-Crocodile conflict and conservation implications of Saltwater Crocodiles *Crocodylus porosus* in Sri Lanka.

³³¹ <https://news.mongabay.com/2020/05/photos-up-close-with-the-saltwater-crocs-of-sri-lankas-nilwala-river/>

³³² <https://www.pressreader.com/>

³³³ <https://threatenedtaxa.org/index.php/JoTT/article/view/1967/3210>

³³⁴ A.A.T. Amarasinghe, M.B. Madawala, D.M.S.S. Karunaratna, S.C. Manolis, A. de Silva, R. Sommerlad. 2015. Human-Crocodile conflict and conservation implications of Saltwater Crocodiles *Crocodylus porosus* in Sri Lanka.

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S. No.	Scientific Name	Common Name	IUCN Status Global	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									Critical Habitat Candidate species.
2.	<i>Eretmochelys imbricata</i>	Hawksbill Turtle	CR		✓	-	✓	<p>Migratory Status: Hawksbill Turtle is a Migratory species, CMS Appendix I³³⁵</p> <p>Range Restricted Species: No</p> <p>Global Population Estimate: At least 8000+ adult nesting female³³⁶,</p> <p>Coral reefs are the main feeding ground for the Hawksbill Turtle³³⁷. They feed mainly on sponges³³⁸, but anemones, soft corals, urchins, jellyfish, squid, and shrimp are also in their diet. Once a convenient feeding area is located, hawksbills remain loyal to that site, moving only when there is increased competition, decreased food availability, or to make their nesting migrations. Marine biologists and divers, stationed around Maldives, report seeing the same turtles on their house reefs³³⁹ year after year.</p> <p>Although generally not found in large concentrations, hawksbills are widely distributed across the Indian Ocean. Largest nesting (more than 6000 annually³⁴⁰) occurs in vicinity of Great Barrier Reef. In</p>	Population from different foraging grounds around the world have recorded a female biased population structure and the sex ration varied ³⁴² . So it is not possible determine global population estimate (including juvenile and adult males) from adult nesting female population estimate. So, 0.5% population threshold cannot be determined.

³³⁵ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May,2020.
https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

³³⁶WWF.https://www.panda.org/discover/knowledge_hub/endangered_species/marine_turtles/hawksbill_turtle/?#:~:text=A%20disturbingly%20large%20amount%20of%20trade%20in%20hawksbills%20continues&text=There%20are%20difficulties%20in%20accurately,than%201%2C000%20females%20nesting%20annually.

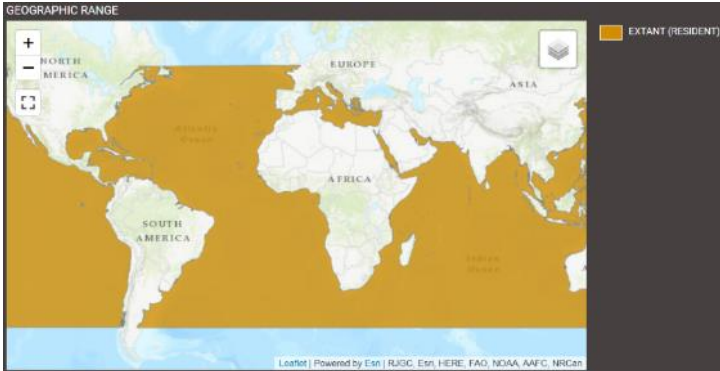
³³⁷ <https://www.iucnredlist.org/species/8005/12881238#habitat-ecology>

³³⁸ Meylan, A. B. 1988. Spongivory in hawksbill turtles: a diet of glass. Science 239: 393-395.


³³⁹ Hudgins, J., Mancini, A, and Ali, K. (2017). *Marine turtles of the Maldives – A Field Identification Guide*. Gland, Switzerland: IUCN and Government of Maldives. 90 pp

³⁴⁰ <https://www.fisheries.noaa.gov/species/hawksbill-turtle>

³⁴² Leon, Y.M.1999. Population structure of Hawksbill Turtle on a foraging ground in the Dominican Republic

S. No.	Scientific Name	Common Name	IUCN Status Global	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>the Indian Ocean, large nesting populations occur in the Seychelles, Indonesia, and Australia (North West Coast). Smaller nesting populations can be found in the Lakshadweep Islands, the Andaman and Nicobar Islands, Chagos Islands, Oman, Saudi Arabia, the Maldives, and Madagascar.</p> <p>Overall considering turtle nesting pattern in Sri Lanka, coastline along the EAAA, including coastline till north of Negombo Lagoon is not considered significant³⁴¹ in terms of turtle nesting in Sri Lanka (refef map of turtle nesting grounds in Sri Lanka). Apart from that the EAAA doesnot provide suitable foraging areas (eg. coral reef habitat) for Hawsbill turtle.</p>  <p><small>IUCN 2014. Eretmochelys imbricata. The IUCN Red List of Threatened Species. Version 2021-2</small></p>	<p>However, considering the species has a global distribution range, absence of past nesting record from the EAAA, absence of suitable feeding habitat and the fact that major/significant nesting populations are not located within Sri Lanka, the EAAA is Not Considered to be a Critical Habitat for the Species.</p>

³⁴¹ De Silva, K. Shanker, B.C. Choudhury. 2006. Marine Turtle of Indian Subcontinent-Chapter 5: Marine turtle of Sri Lanka, A historic Account.

S. No.	Scientific Name	Common Name	IUCN Status Global	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Global Distribution Range. Source: IUCN RedList v2022-1</p>  <p>Marine Turtle Nesting areas in Sri Lanka (de Silva, 2006)</p>	

APPENDIX 5.23 CRITICAL HABITAT ASSESSMENT OF AVIFAUNA

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-V1)		IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Calidris pygmaea</i>	Spoon-billed Sandpiper	CR			✓	-	✓	<p>Breeding or summer grounds of the species is located along the coast of Pacific coast through Russia, Japan, North Korea, South Korea, mainland China, Hong Kong (China), Taiwan (China) and Viet Nam. Main wintering grounds are located in coastal areas of southern China, Viet Nam, Thailand, Bangladesh and Myanmar.</p> <p>The species is not regularly recorded from Sri Lanka. After, more than 40 years the species was recorded from Gulf of Mannar region of Sri Lanka³⁴³. This region is located more than 200km from the EAAA.</p>	<p>There are no record of the species from the EAAA.</p> <p>So, Spoon-billed Sandpiper is not considered a Critical habitat Candidate for the EAAA.</p>
2.	<i>Otus thilohoffmanni</i>	Serendib Scops-owl	EN			✓	✓	-	<p><i>Otus thilohoffmanni</i> is endemic to the wet zone of Sri Lanka, where it occurs in larger areas of lowland rainforest, at 30-530 m altitude³⁴⁴. The species is known from five sites³⁴⁵ and all these sites are located more than 50km from the proposed project site. These sites are Kitugala (60 km east), Sinharaja (100km south east), Morapitiya-</p>	<p>The EAAA is located outside the present distribution</p>

³⁴³ Darshana, T. W. R. (2018) Rediscovery of the Spoon-billed Sandpiper *Calidris pygmaea* in Sri Lanka after 40 years. Indian BIRDS 14: 111–112.

³⁴⁴ Warakagoda, D. H.; Rasmussen, P. C. 2004. A new species of scops-owl from Sri Lanka. Bulletin of the British Ornithologists' Club 124: 85-105.

³⁴⁵ BirdLife International. 2016. *Otus thilohoffmanni*. The IUCN Red List of Threatened Species 2016: e.T22732040A95041044. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22732040A95041044.en>. Downloaded on 16 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-V1)		IUCN Status Sri Lanka	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									<p>Runakanda (60km south east), Kanneliya (100km south) and Eratna-Gilimale (60km east).</p>  <p><small>GeoLife International and Handbook of the Birds of the World (2016) 2006. Olus Thibhoffmann. The IUCN Red List of Threatened Species, Version 2021.2</small></p>	<p>range of the species.</p> <p>So, Serendib Scops-owl is not considered a Critical Habitat Candidate for the EAAA.</p>

**APPENDIX 5.24 CRITICAL HABITAT ASSESSMENT OF MIGRATORY
AVIFAUNA**

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	CH Criterion 1	CH Criterion 3	Population Estimate	Distribution range
1.	<i>Numenius phaeopus</i>	Whimbrel	LC	-	✓	1,000,000-2,300,000 ³⁴⁶	EOO ³⁴⁷ – 31100000km ² Wintering ground is spread across tropical coastal areas, throughout the planet.
2.	<i>Numenius arquata</i>	Eurasian Curlew	LC	-	✓	835,000-1,310,000 ³⁴⁸	EOO ³⁴⁹ – 20700000 km ² Wintering ground is spread across tropical coastal areas, throughout Asia and Africa.
3.	<i>Actitis Hypoleucos</i>	Common Sandpiper	LC	-	✓	2,600,000-3,200,000 ³⁵⁰	EOO ³⁵¹ – 47200000 km ² Wintering ground is widespread across Sub-Saharan Africa, tropical areas of South and South East Asia.
4.	<i>Calidris ferruginea</i>	Curlew Sandpiper	NT	-	✓	1,085,000-1,285,000 ³⁵²	EOO ³⁵³ – 3050000 km ² Wintering ground is widespread throughout tropical areas of South and South East Asia.

³⁴⁶ Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁴⁷ BirdLife International. 2016. *Numenius phaeopus*. *The IUCN Red List of Threatened Species* 2016: e.T22693178A86585436. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693178A86585436.en>. Downloaded on 16 November 2021.

³⁴⁸ Wetlands International. 2016. Waterbird Population Estimates. Available- at: wpe.wetlands.org.

³⁴⁹ BirdLife International. 2017. *Numenius arquata*. *The IUCN Red List of Threatened Species* 2017: e.T22693190A117917038. <https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T22693190A117917038.en>. Downloaded on 16 November 2021.

³⁵⁰ Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁵¹ BirdLife International. 2016. *Actitis hypoleucos*. *The IUCN Red List of Threatened Species* 2016: e.T22693264A86678952. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693264A86678952.en>. Downloaded on 16 November 2021.

³⁵² Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁵³ BirdLife International. 2017. *Calidris ferruginea* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22693431A110631069. <https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22693431A110631069.en>. Downloaded on 16 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	CH Criterion 1	CH Criterion 3	Population Estimate	Distribution range
5.	<i>Tringa stagnatilis</i>	Marsh Sandpiper	LC	-	✓	260,000-1,200,000 ³⁵⁴	EOO ³⁵⁵ – 3050000 km ² Wintering ground is widespread throughout tropical areas of South and South East Asia.
6.	<i>Gallinago stenura</i>	Pintail Snipe	LC	-	✓	50,000-2,000,000 ³⁵⁶	EOO ³⁵⁷ – 12900000 km ² Wintering ground is widespread throughout tropical areas of South and South East Asia.
7.	<i>Gelochelidon nilotica</i>	Gull-billed Tern	LC	-	✓	150,000-420,000 ³⁵⁸	EOO ³⁵⁹ – 163000000 km ² Wintering grounds are widespread throughout tropical coastal areas of the plant from North & South America, Africa, Asia and South East Asia, Southern Europe, Nile River Basin.
8.	<i>Chlidonias hybridus</i>	Whiskered Tern	LC	-	✓	300,000-1,500,000 ³⁶⁰	EOO ³⁶¹ – 130000000 km ² Wintering grounds are widespread throughout South & South East Asia, Australia and Tropical Sub-Saharan Africa

³⁵⁴ Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁵⁵ BirdLife International. 2017. *Calidris ferruginea* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22693431A110631069. <https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22693431A110631069.en>. Downloaded on 16 November 2021.

³⁵⁶ Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁵⁷ BirdLife International. 2016. *Gallinago stenura*. *The IUCN Red List of Threatened Species* 2016: e.T22693085A86630671. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22693085A86630671.en>. Downloaded on 16 November 2021.

³⁵⁸ Delany, S. and Scott, D. 2006. *Waterbird population estimates*. Wetland-s International, Wageningen, The Netherlands.

³⁵⁹ BirdLife International. 2019. *Gelochelidon nilotica*. *The IUCN Red List of Threatened Species* 2019: e.T62026481A153842241. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T62026481A153842241.en>. Downloaded on 16 November 2021.

³⁶⁰ Wetlands International. 2015. Waterbird Population Estimates. Available at: wpe.wetlands.org. (Accessed: 17/09/2015)

³⁶¹ BirdLife International. 2017. *Chlidonias hybrida* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22694764A111750380. <https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22694764A111750380.en>. Downloaded on 16 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	CH Criterion 1	CH Criterion 3	Population Estimate	Distribution range
9.	<i>Sterna bengalensis</i>	Lesser Crested Tern	LC	-	✓	Unknown, but considered to be stable ³⁶² .	EOO ³⁶³ – 41500000 km ² Wintering grounds are widespread throughout South & South East Asia, Australia and Tropical Sub-Saharan Africa
10.	<i>Circus aeruginosus</i>	Western Marsh Harrier	LC	-	✓	199,000-367,000 mature individuals ³⁶⁴	EOO ³⁶⁵ – 24800000 km ² Wintering grounds are widespread throughout South & South East Asia, Australia and Tropical Sub-Saharan Africa
11.	<i>Circus macrourus</i>	Pallid Harrier	NT	-	✓	18,000-30,000 mature individuals ³⁶⁶	EOO ³⁶⁷ – 8440000 km ² Wintering grounds are widespread throughout South Asia, Myanmar and Tropical Sub-Saharan Africa
12.	<i>Merops philippinus</i>	Blue-tailed Bee-eater	LC	-	✓	Unknown, but Stable	EOO ³⁶⁸ – 18300000 km ² Wintering grounds are widespread throughout northern plains of India, Northern Sri Lanka and South East Asia.

³⁶² Delany, S. and Scott, D. 2006. *Waterbird population estimates*. Wetlands International, Wageningen, The Netherlands.

³⁶³ BirdLife International. 2018. *Thalasseus bengalensis*. *The IUCN Red List of Threatened Species* 2018: e.T22694561A132560333. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22694561A132560333.en>. Downloaded on 16 November 2021.

³⁶⁴ BirdLife International. 2015. European Red List of Birds. Office for Official Publications of the European Communities, Luxembourg.

³⁶⁵ BirdLife International. 2019. *Circus aeruginosus* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2019: e.T22695344A155490248. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22695344A155490248.en>. Downloaded on 16 November 2021.

³⁶⁶ Galushin, V.; Clarke, R.; Davygora, A. 2003. *International Action Plan for the Pallid Harrier* (*Circus macrourus*).

³⁶⁷ BirdLife International. 2018. *Circus macrourus*. *The IUCN Red List of Threatened Species* 2018: e.T22695396A132304131. <https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22695396A132304131.en>. Downloaded on 16 November 2021.

³⁶⁸ BirdLife International. 2016. *Merops philippinus*. *The IUCN Red List of Threatened Species* 2016: e.T22683750A92998513. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22683750A92998513.en>. Downloaded on 16 November 2021.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2022-v1)	CH Criterion 1	CH Criterion 3	Population Estimate	Distribution range
13.	<i>Hirundo rustica</i>	Barn Swallow	LC	-	✓	58-97.4 million mature individuals ³⁶⁹	EOO ³⁷⁰ – 251000000 km ² Wintering grounds are widespread throughout tropical areas of the planet
14.	<i>Lanius cristatus</i>	Brown Shrike	LC	-	✓	Unknown	EOO ³⁷¹ – 23500000 km ² Wintering grounds are widespread throughout South Asia and South East Asia
15.	<i>Motacilla cinerea</i>	Grey Wagtail	LC	-	✓	1,380,000-3,960,000 mature individuals ³⁷²	EOO ³⁷³ – 60700000 km ² Wintering grounds are widespread throughout South Asia and South East Asia
16.	- <i>Dendronanthus indicus</i>	Forest Wagtail	LC	-	✓	Unknown	EOO ³⁷⁴ – 7080000 km ² Wintering grounds are widespread throughout South Asia, South East Asia, Northern and Central Africa
17.	<i>Pitta brachyura</i>	Indian Pitta	LC	-	✓	Unknown	EOO ³⁷⁵ – 336000 km ² Wintering grounds are widespread throughout South Asia, South East Asia, Northern and Central Africa

³⁶⁹ BirdLife International. 2015. European Red List of Birds. Office for Official Publications of the European Communities, Luxembourg.

³⁷⁰ BirdLife International. 2019. *Hirundo rustica*. *The IUCN Red List of Threatened Species* 2019: e.T22712252A137668645. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T22712252A137668645.en>. Downloaded on 16 November 2021.

³⁷¹ BirdLife International. 2016. *Lanius cristatus*. *The IUCN Red List of Threatened Species* 2016: e.T22705011A93995637. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22705011A93995637.en>. Downloaded on 16 November 2021.

³⁷²

³⁷³ BirdLife International. 2017. *Motacilla cinerea* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22718392A111215843. <https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22718392A111215843.en>. Downloaded on 16 November 2021.

³⁷⁴ BirdLife International. 2017. *Dendronanthus indicus* (amended version of 2016 assessment). *The IUCN Red List of Threatened Species* 2017: e.T22718392A111215843. <https://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22718392A111215843.en>. Downloaded on 16 November 2021.

³⁷⁵ BirdLife International. 2016. *Pitta brachyura*. *The IUCN Red List of Threatened Species* 2016: e.T22698681A93696932. <https://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22698681A93696932.en>. Downloaded on 16 November 2021.

APPENDIX 5.25 CRITICAL HABITAT ASSESSMENT OF MAMMALS

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
1.	<i>Prionailurus viverrinus</i>	Fishing Cat	VU	EN	✓	-	-	<p>The Fishing Cat is widely distributed in South and Southeast Asia from Pakistan in the west to Cambodia in the east, and from the Himalayan foothills in the north to Sri Lanka and peninsular Thailand in the south. Its distribution was probably always patchy because of its strong association with wetlands. Current known occurrence is extremely localized across the range except for West Bengal in India, Bangladesh and Sri Lanka³⁷⁶.</p> <p>Apart from having a vast distribution range globally, within Sri Lanka³⁷⁷ the species present in suitable habitat (Wetland Marsh) throughout the country, particularly in protected areas along the coast and in the island's interior (Andrew Kittle in litt. 2012). Individuals have also been recorded in densely human-populated urban areas of Colombo and outside protected areas in Kandy, Mathle³⁷⁸ and Nuwaraeliya districts³⁷⁹ (Ratnayaka 2016, Thudugala 2016).</p> <p>The species was recorded during primary survey as well as reported from Muthurajawela Wetland Sanctuary³⁸⁰, located in the</p>	<p>The species is present in suitable habitat of the EAAA. Fishing cat has a widespread distribution throughout Sri Lanka and in other parts of Asia and the EAAA is very small compared to the distribution range of the species. So, it is unlikely that the EAAA will hold >0.5% population of the species.</p> <p>So, Fishing Cat is not considered as a Critical Habitat candidate for the EAAA.</p>


³⁷⁶ Mukherjee, S., Appel, A., Duckworth, J.W., Sanderson, J., Dahal, S., Willcox, D.H.A., Herranz Muñoz, V., Malla, G., Ratnayaka, A., Kantimahanti, M., Thudugala, A., Thaug, R. & Rahman, H. 2016. *Prionailurus viverrinus*. *The IUCN Red List of Threatened Species* 2016: e.T18150A50662615. <https://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T18150A50662615.en>. Downloaded on 16 November 2021.

³⁷⁷ Miththapala, S. 2006. The ecology of the wild cats of Sri Lanka. . In: C.N.B Bambaradeniya (ed.), *The Fauna of Sri Lanka*, pp. 235-256. The World Conservation Union (IUCN), Colombo.

³⁷⁸ Ratnayaka, A. 2016. Radio-collaring Fishing Cats in urban wetlands. In: A. Appel and J. W. Duckworth (eds), *Proceedings of the First International Fishing Cat Conservation Symposium, 25–29 November 2015, Nepal*. Fishing Cat Working Group, Bad Marienberg, Germany and Salford, Bristol, United Kingdom, pp. 34-36.


³⁷⁹ Thudugala, A. 2016. Fishing Cat conservation in hill country, Sri Lanka. In: A. Appel and J. W. Duckworth (eds) (eds), *Proceedings of the First International Fishing Cat Conservation Symposium, 25–29 November 2015, Nepal*. Fishing Cat Working Group, Bad Marienberg, Germany and Salford, Bristol, United Kingdom, pp. 29–31.

³⁸⁰ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. *Occ. Pap. IUCN, Sri Lanka*, 3:iv-48pp.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>northern part of the EAAA. This indicates that the species is present in contiguous marsh habitat of the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
2.	<i>Prionailurus rubiginosus</i>	Rusty Spotted Cat	NT	EN	✓	-	-	<p>Distribution range³⁸¹ of the Rusty Spotted Cat is spread across much of India (except for extreme western and eastern parts), Sri Lanka and parts of Nepal. It is a habitat generalist and can be found in wide variety of habitat types, including in close proximity to human settlement.</p> <p>Within Sri Lanka³⁸² the species present throughout the country in almost all forested landscapes and even in close proximity to large</p>	<p>Rusty Spotted cat has a widespread distribution throughout Sri Lanka and in other parts of South Asia and the EAAA is very small compared to the distribution range of the species. So, it is unlikely that the EAAA will</p>

³⁸¹ Mukherjee, S., Duckworth, J.W., Silva, A., Appel, A. & Kittle, A. 2016. *Prionailurus rubiginosus*. The IUCN Red List of Threatened Species 2016: e.T18149A50662471. <https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T18149A50662471.en>. Downloaded on 16 November 2021.

³⁸² Miththapala, S. 2006. The ecology of the wild cats of Sri Lanka. . In: C.N.B Bambaradeniya (ed.), The Fauna of Sri Lanka,, pp. 235-256. The World Conservation Union (IUCN), Colombo.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>cities. The species was reported from Muthurajawela Wetland Sanctuary³⁸³, located in the northern part of the EAAA.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	<p>hold >0.5% population of the species.</p> <p>So, Rusty Spotted Cat is not considered as a Critical Habitat candidate for the EAAA.</p>
3.	<i>Semnopithecus vetulus ssp. nestor</i>	Western Purple Faced Langur	CR		✓	✓	-	<p>This subspecies is found in Western Sri Lanka, north of the Kalu Ganga up to 1,000 m where urban development around Colombo, the country's capital, has resulted in extensive deforestation. The EAAA is located within the Distribution Range of the species.</p> <p>It is estimated that nearly 80% of this monkey's range is deforested³⁸⁴ (Rudran 2007) as a result large section of the</p>	<p>Considering the species was not recorded during earlier surveys as well as primary survey carried out during the ecological studies carried out for this particular project, Western Purple Faced Langur is not considered as a</p>

³⁸³ Bambaradeniya, C. N. B., S. P. Ekanayake, L. D. C. B. Kekulandala, V. A. P. Samarawickrama, N. D. Ratnayake and R. H. S. S. Fernando. 2002. An Assessment of the Status of Biodiversity in the Muthurajawela Wetland Sanctuary. Occ. Pap. IUCN, Sri Lanka., 3:iv-48pp.

³⁸⁴ Rudran, R. 2007. A survey of Sri Lanka's Endangered and Endemic Western purple-faced langur (*Trachypithecus vetulus nestor*) . Primate Conservation 22: 139-144.

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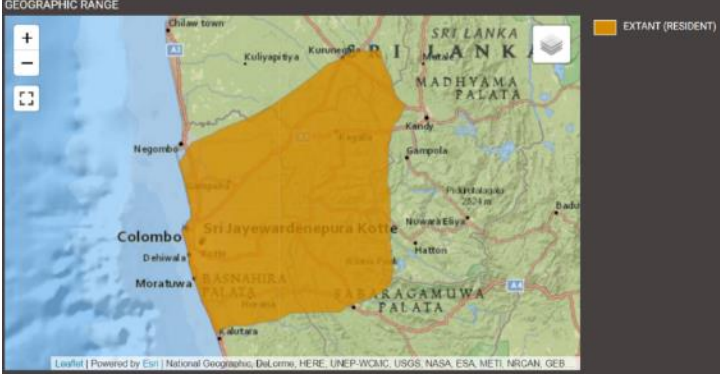
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>population survives mainly in home gardens, rubber plantation³⁸⁵ and several small forest fragments. The largest of these fragments is no more than 20 km². <i>Semnopithecus vetulus nestor</i> ranges up to 1,000 m in elevation. Its extent of occurrence³⁸⁶ (EOO) is 6,162 km², although only a small fraction of this area is natural forest; its area of occupancy (AOO) is likely less than 2,000 km².</p> <p>Primary Survey carried out for the proposed project, did not record the species from immediate surrounding of the proposed project site. Suitable secondary habitat like rubber plantations are not located within 5km of the proposed plant.</p> <p>Moreover, earlier survey³⁸⁷ carried out within the EOO of the species, failed to establish presence of the species within areas surveyed inside the EAAA.</p>	Critical Habitat Candidate Species.

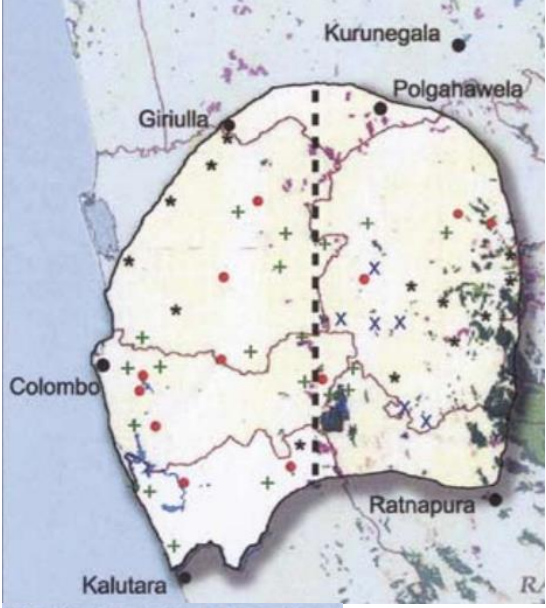
³⁸⁵ Nekkaris, K.A., A. Boulton, V. Nijman. 2013. An ethnoprimateological approach to assessing levels of tolerance between human and commensal non-human primates in Sri Lanka. Jour. of Anthropological 91: 1-14.

³⁸⁶ Rudran, R., Dittus, W., Gamage, S.N. & Nekaris, K.A.I. . 2020. *Semnopithecus vetulus* ssp. *nestor*. The IUCN Red List of Threatened Species 2020: e.T39844A17988280. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T39844A17988280.en>. Downloaded on 10 November 2021.

³⁸⁷ Rudran, R. 2007. A survey of Sri Lanka's Endangered and Endemic Western purple-faced langur (*Trachypithecus vetulus nestor*) . Primate Conservation 22: 139-144.

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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: Rudran, R. 2007</p>	

APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
4.	<i>Balaenoptera musculus</i>	Blue Whale	EN		✓	-	✓	The Blue Whale is a cosmopolitan species, found in all oceans but absent from some regional seas such as the Mediterranean, Okhotsk, and Bering seas ³⁸⁸ . Blue whales in the northern Indian Ocean, including the Sri Lanka, appear to be pygmy blues (<i>B. musculus brevicauda</i>) although their exact taxonomic status is uncertain ³⁸⁹ . The first records of blue whales in Sri Lankan waters date from 1894 ³⁹⁰ (Haly, 1894 as referenced in De Silva, 1987). Since then they have been observed all around the island. It is widely accepted that northern Indian Ocean stock migrates seasonally (CMS Appendix I ³⁹¹) ^{392 393} . During the SW monsoon, the long-shore flow of the West Indian Coastal Current induces upwelling along the SW coast of India, promoting a major phytoplankton bloom there ^{394 395} . This productive water is carried	Global Population Estimate of the species is 5000-15000 ³⁹⁸ individuals. So 0.5% threshold stands at 25-75 individuals. Overall number of whales recorded along the Western Coast of Sri Lanka hovers around 10, which is less than the threshold. So, even if the species periodically occurs within the Marine Component of EAAA,

³⁸⁸ <https://www.iucnredlist.org/species/2477/156923585#geographic-range>

³⁸⁹ Mikhalev, Y.A. 1996. Pygmy blue whales of the northern-western Indian Ocean. Paper SC/48/SH30 presented to IWC Scientific Committee, June 1996, Aberdeen, UK (unpublished). 30pp. [Paper available from the Office of this Journal].

³⁹⁰ De Silva, P.H.D.H. 1987. Cetaceans (whales, dolphins and porpoises) recorded off Sri Lanka, India, from the Arabian Sea and Gulf, Gulf and Aden and from the Red Sea. J. Bombay Nat. Hist. Soc. 84(3): 505–523.

³⁹¹ Appendices I and II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) Effective 22nd May, 2020.

https://www.cms.int/sites/default/files/basic_page_documents/appendices_cop13_e_0.pdf

³⁹² Yochem, P.K. and Leatherwood, S. 1985. Blue whale – *Balaenoptera musculus* (Linnaeus, 1758). pp. 193-240. In: S.H. Ridgway and R. Harrison (eds.) Handbook of Marine Mammals. Vol. 3. The Sireniacs and Baleen Whales. Academic Press, London and Orlando. xviii+362pp.

³⁹³ Anderson, R.C., Branch, T.A., Baldwin, R., Marsac, F. 2012. Seasonal distribution, movement and taxonomic status of blue whale (*Balaenoptera musculus*) in Northern Indian Ocean. Journal of Cetacean Research and Management.

³⁹⁴ Banse, K. 1968. Hydrography of the Arabian Sea shelf of India and Pakistan and effects on demersal fishes. Deep-Sea Res. 15: 45–79.

³⁹⁵ Longhurst, A. 1998. Ecological Geography of the Sea. Academic Press, San Diego. 398pp

³⁹⁸ <https://www.iucnredlist.org/species/2477/156923585#population>


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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>southward around the west and south coasts of Sri Lanka, which results in congregation of Blue whale along the Western Coast of Sri Lanka during South West Monsoon³⁹⁶ (from April to October). But such congregation occurs along the length of western coast of Sri Lanka, the marine component of the EAAA is comparatively very small to the area of congregation. Apart from Western Coast of Sri Lanka, North Eastern coast and Southern Coast of the country are also significant as Blue Whale congregation site. In terms of number of whale sighted, western coast is least significant compared to other two areas. Historic data³⁹⁷ indicates that, highest count in east coast is generally recorded during June, and it ranges around 10 individual. Highest count in North Eastern Coast is recorded during March, and it ranges around 80. Highest count in Southern Coast is recorded during April and it ranges around 160.</p>	<p>it is not likely to cross the threshold of Criterion 1.</p> <p>So, Blue Whale is not considered as a Critical Habitat Candidate Species.</p>

³⁹⁶ Anderson, R.C., Branch, T.A., Baldwin, R., Marsac, F. 2012. Seasonal distribution, movement and taxonomie status of blue whale (*Balaenoptera musculus*) in Northern Indian Ocean. Journal of Cetacean Research and Management.

³⁹⁷ Anderson, R.C., Branch, T.A., Baldwin, R., Marsac, F. 2012. Seasonal distribution, movement and taxonomie status of blue whale (*Balaenoptera musculus*) in Northern Indian Ocean. Journal of Cetacean Research and Management.

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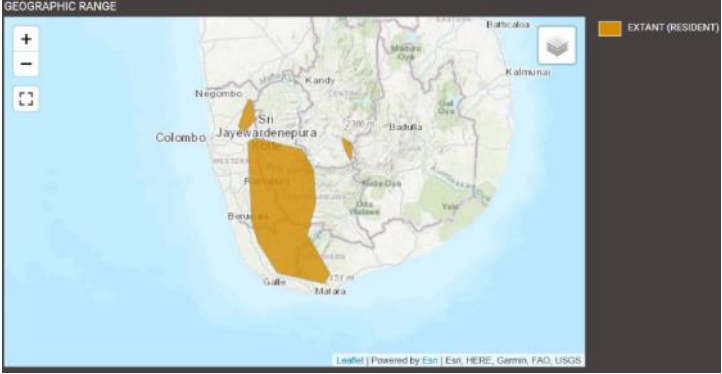
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2020-2</p>	
5.	<i>Loris tardigradus</i>	Red Slender Loris	EN		✓	✓	-	<p>This species is endemic to the rainforests in Sri Lanka, and is typically found in the “south-western wet zone” of the island, up to the central highland³⁹⁹ and the EOO is estimated to be 25000km²⁴⁰⁰. The EAAA is located outside the distribution range of the species⁴⁰¹.</p>	<p>Considering the EAAA is located outside the distribution range of the species, Red Slender Loris is not considered as a Critical Habitat Candidate Species.</p>

³⁹⁹ Nekaris, K. A. I. and Jayewardene, J. 2004. Survey of the slender loris (primates: Lorisidae Gray, 1821: *Loris tardigradus* Linnaeus, 1758 and *Loris lydekkerianus* Cabrera, 1908) in Sri Lanka. *Journal of Zoology (London)* 262(4): 327-338.

⁴⁰⁰ Gamage, S.N., Nekaris, K.A.I. & Rudran, R. 2020. *Loris tardigradus*. The IUCN Red List of Threatened Species 2020: e.T12375A17970163. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T12375A17970163.en>. Downloaded on 10 November 2021.

⁴⁰¹ Gamage, S.N., Hettiarachchi, C.J., Mahanayakage, C.A., Padmalal, U.K.G.K. and Kotagama, S.W. 2016. The red slender loris (*Loris tardigradus*). *Wildlanka* 4(2): 66-74.

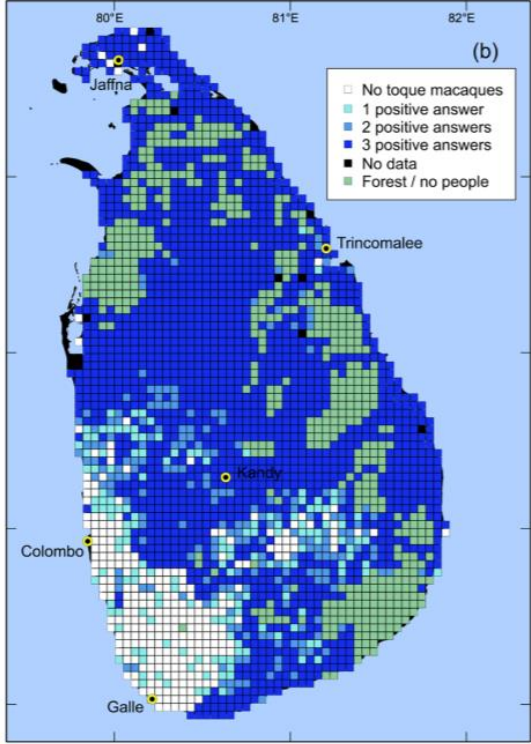
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S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	
6.	<i>Macaca sinica</i>	Toque Macaque	EN		✓	✓	-	<p>The species is spread across large parts of Sri Lanka and the EOO⁴⁰² is estimated to be 58373km². The EAAA is located in the present distribution range of the species, however recently published⁴⁰³ results from questionnaire-based community consultation carried out throughout the country indicates that, the species is not reported from samples grids within the EAAA. Primary Survey carried out for the proposed project, did not record the species from immediate surrounding of the proposed project site.</p>	<p>Considering the species was not recorded during earlier surveys as well as primary survey carried out during the ecological studies carried out for this particular project, Toque Macaque is not considered as a Critical Habitat Candidate Species.</p>

⁴⁰² Dittus, W. & Watson, A.C. 2020. *Macaca sinica*. The IUCN Red List of Threatened Species 2020: e.T12560A17951229. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T12560A17951229.en>. Downloaded on 10 November 2021.

⁴⁰³ Pastorini, J., M.K.C.R. De Silva, L.K.A. Jayasinghe, Prithviraj Fernando. 2021. Island-wide Distribution of Sri Lankan Promates Nased on a Questionnaire Survey of Residents.

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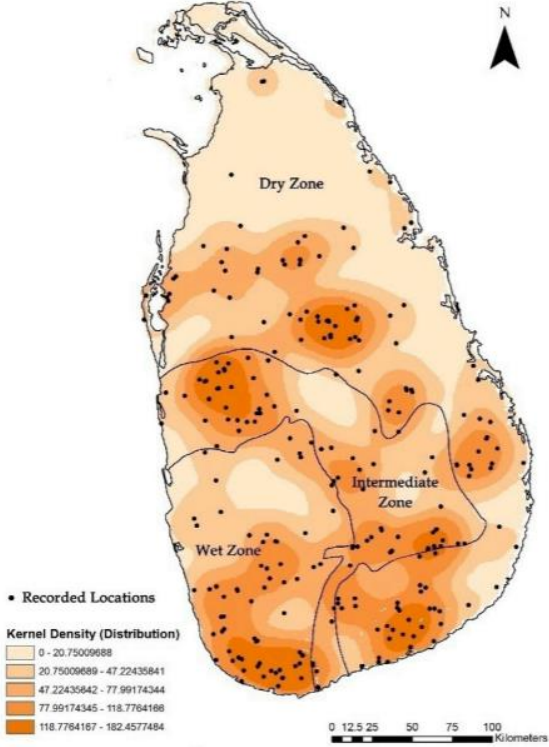
S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
									
Source: Jennifer Pastorini, (2021).									

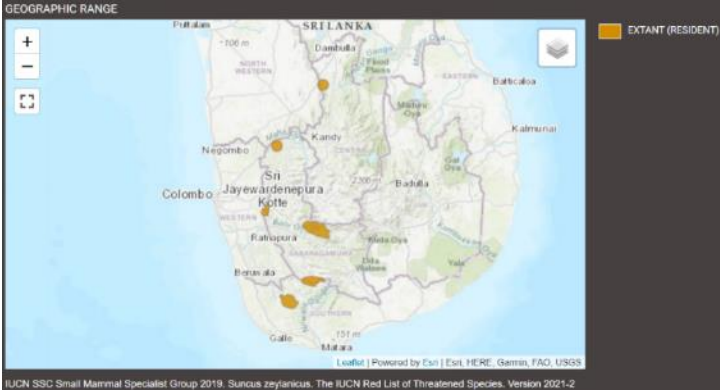
APPENDICES TO EIA REPORT FOR LNG / GAS INFRASTRUCTURE DEVELOPMENT PROJECT

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
7.	<i>Manis crassicaudata</i>	Indian Pangolin	EN		✓	-	-	Distribution range of Indian Pangolin is spread across major areas of mainland South Asia and the entire island of Sri Lanka ⁴⁰⁴ . In an attempt to map the distribution pattern of Indian Pangolin in Sri Lanka, a recent study ⁴⁰⁵ has used multiple data sources, ranging from primary data, historic records from secondary sources, community consultation as well as reports of crime involving Indian Pangolin. ArcGIS based Kernel density tool, was used in the study to calculate the density of points that represent the pangolin occurrences. The mapping assessment indicates that the EAAA is not very significant in terms of distribution of Indian Pangolin in Sri Lanka and no records of the species is available from the EAAA (map Provided below).	Considering the overall distribution range of the species, EAAA is very small and within Sri Lanka also the EAAA is not significant in terms of distribution/presence of Indian Pangolin. So, Indian Pangolin is not considered as a Critical Habitat Candidate Species.

⁴⁰⁴ Mahmood, T., Challender, D., Khatiwada, A., Andleeb, S., Perera, P., Trageser, S., Ghose, A. & Mohapatra, R. 2019. *Manis crassicaudata*. The IUCN Red List of Threatened Species 2019: e.T12761A123583998. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T12761A123583998.en>. Downloaded on 10 November 2021.

⁴⁰⁵ P. Priyan, K. Hasitha. 2020. An update of distribution, habitats and conservation status of the Indian Pangolin (*Mania Socrassicaudata*) in Sri Lanka.

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								 <p>Source: P. Perera, H. Karawita (2020)</p>	
8.	<i>Suncus zeylanicus</i>	Sri Lankan Shrew	EN		✓	✓	-	This species is endemic to Sri Lanka, where it is known from several distinctly fragmented and locations in Central, Western and	Considering the EAAA is located outside the distribution range of the

S. No.	Scientific Name	Common Name	IUCN Status Global (2021-v2)	IUCN Status Sri	CH Criterion 1	CH Criterion 2	CH Criterion 3	Overall Species Information	CH Rationale
								<p>Sabaragamuwa provinces⁴⁰⁶, but the EAAA is located outside the distribution range of the species and none of the sites known to hold population of Sri Lankan Shrew are located within 40km of the proposed project site.</p> <p>Moreover the species primarily inhabits rainforests and trapping effort⁴⁰⁷ failed to record the species within areas of abandoned land and plantation woodland within Sinharaja forest, indicating susceptibility to habitat loss and land conversion.</p>  <p>Global Distribution Range. Source: IUCN RedList v2022-1</p>	species and absence of the species from modified habitat, Sri Lankan Shrew is not considered as a critical habitat candidate for this EAAA.

⁴⁰⁶ Dando, T. & Kennerley, R. 2019. *Suncus zeylanicus*. The IUCN Red List of Threatened Species 2019: e.T21148A22289100. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T21148A22289100.en>. Downloaded on 10 November 2021.

⁴⁰⁷ Wijesinghe, M. R. and de Brooke, M. L. 2005. Impact of habitat disturbance on the distribution of endemic species of small mammals and birds in a tropical rain forest in Sri Lanka. *Journal of Tropical Ecology* 21(6): 661-668.

APPENDIX 9.1 WASTE MANAGEMENT PLAN

Document details	
Document title	Waste Management Plan
Document subtitle	Final
Project No.	0665102
Date	01 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Arpan Shome Salil Das	Debanjan B	Santoshkumar K.	14.03.2023	Text
Final	02	Salil Das	Debanjan B	Santoshkumar K.	01.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

Waste Management Context

The solid and liquid waste will be generated from WCT-1 project during construction and operational stages of the project; same has been discussed in following section.

Solid Wastes

Waste generation during construction stage

The proposed WCT-1 will be constructed within the South Colombo Harbour (SCH). The WCT-1 terminal area will be reclaimed by sand from the sea. Prior to the placement of reclamation fill, the existing superficial soft material which is considered “unsuitable” will be dredged and disposed in the existing offshore dredge material disposal area of SLPA, which is located south-eastern side of the proposed WCT-1 and approximately 4 km away from the proposed terminal.

Construction and demolition (C&D) waste likely to be generated during site establishment stage includes mostly inert and non-biodegradable materials such as concrete, plaster, metal, wood and plastics.

Municipal solid waste (MSW) during the site development and construction stage is expected to be comprised of food waste and recyclables viz. packaging material, etc.

Hazardous waste in the form of used oil, oily cotton rags and containers (for hazardous chemicals) will be generated.

Waste generation during construction stage

Municipal solid waste (MSW) during the operation and maintenance stage is expected to be comprised of food waste and recyclables viz. packaging material, etc.

The other wastes like ship supply (plastic) - 0.3 tons/ day and solid waste from vessel 0.5 tons/day is estimated to be generated.

Liquid Wastes

Site Development & Construction Stage

The main source of wastewater during site development & construction stage would be wash water generated from the washing of construction equipment and machinery.

The sewage will be generated from on-site sanitation facilities and onsite workers accommodation facility.

Operation and Maintenance Stage

The sewage will be generated from on-site sanitation facilities and onsite workers accommodation facility.

During the periods of construction and the operation of WCT-1 the bilge/ballast water of vessels are collected by Government Approved waste collectors.

Objectives

The objectives of WMP are:

- Ensure measures are identified and implemented to minimise waste, manage waste throughout the construction and operational stages of the project.
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements.

Regulatory Framework and Safeguards

This WMP is prepared as per the requirements of the following Sri Lankan regulations and relevant benchmark/standards:

Table Error! No text of specified style in document.-1: Regulatory Framework & Safeguards

Reference	Regulation	Details
National Regulations	Oil Spill Contingency Plan (OSCP)	As per the Marine Pollution Prevention Act, No. 35 of 2008, (section 39) developments like CSH should include sufficient facilities for pollution abatement of marine waters as well as contingency measures in place to cope with the failure of such systems. The purpose of the plan is to ensure that there is a timely, measured and effective response to pollution incidents.
	Marine Pollution Prevention Act No. 59 of 1981	The Act establishes the Marine Pollution Prevention Authority to administer the Act (sect. 2, sub 3). Part II and III define the criminal and civil liabilities in case of a pollution accident, and contain the obligation to be compulsorily insured when carrying a cargo of more than two thousand metric tonnes. The preventive measures taken against pollution include the obligation to carry record books relating to oil and other pollutants, the restriction of hours when oil may be transferred from one ship to another, and the duty to report any oil or other pollutant that escapes or is discharged or spilled in Sri Lanka waters.
	National Environmental Act, 1988	Under Part IV A, the Environmental protection section of the Act, no person is allowed to deposit, discharge, or emit waste into the environment unless the person holds a license for issuing waste. Under Part IV B, the Environmental quality section of the Act, offenses and penalties is being tabulated.

Reference	Regulation	Details
	The National Environmental (Protection and Quality) Regulations, No.1 of 2008	This regulations deals with hazardous waste from specific and nonspecific sources and these wastes are called scheduled waste. As per serial no. 15 of Part II, No person shall generate collect, transport, store, recover, recycle or dispose waste or establish any site or facility for the disposal of any waste specified in the Schedule VIII (herein after referred to as "scheduled waste") except under the authority of a license issued by the Authority and in accordance with such standards and other criteria as may be specified by the Authority.
International Finance Corporation (IFC) – World Bank Group	WBG General EHS Guidelines: Construction and Decommissioning, 30 April,2007	Section 4.1 aims to provide techniques for prevention, minimisation and control of impact from hazardous material generated from construction and decommissioning activities.
	WBG General EHS Guidelines, 30 April, 2007	Section 1.5 of this guideline applicable to all projects or facilities that handle or store any quantity of hazardous materials.
	IFC PS 3: Resource Efficiency and Pollution Prevention	The Site must take appropriate measures to avoid the generation of waste where possible, and where not possible, to reduce, reuse, and recycle waste.
	WBG EHS Guidelines: Ports, Harbours and Terminals, 2 February, 2017	The EHS Guidelines for Ports, Harbors, and Terminals are applicable to marine and freshwater ports, harbors, and terminals for cargo and passengers. This guideline include reuse and disposal of dredging material, management of waste generated by vessels at the port in accordance with MARPOL and national regulations.

POTENTIAL IMPACTS

Potential impact on soil, ground water and surface water quality

Construction and demolition (C&D) waste will be generated various construction activities. As this waste is not chemically active, these waste materials do not influence the chemical properties of the soil; but if the C&D waste is stored on the bare soil it can influence the physical properties of the soil.

Hazardous wastes including waste oil, residual wastes containing oil and sludge from effluent treatment plant require to be collected, stored, and disposed of as per national regulation and industrial good practices.

Anticipated impact on marine water quality and marine environment

Runoff from the spill area (oil and chemical) and direct discharge may impact marine water quality and marine aquatic life.

Waste from ships and other port activities if discharge directly into basin area can result in loss or degradation of habitat areas and can also harm marine life.

Discharge of unsuitable dredge material may have impact on marine water quality and sediment quality at disposal site.

MITIGATION AND MANAGEMENT ACTIONS

Overview

This management plan aims to provide guidelines on waste reduction, segregation, collection and disposal practices in accordance with national laws and IFC guidelines to avoid deterioration of natural environment and negative impacts on the health and safety of communities of project area as well as the project surrounding vicinity.

Management Actions

Demolition and Construction Waste Management

- On completion of work all temporary structures, surplus materials and wastes shall be completely removed from site
- To be ensured that the construction contractor correctly segregate waste materials, it is the responsibility of the site in-charge to ensure all staff are informed by means of clear signage and verbal instruction and made responsible for ensuring site housekeeping and the proper segregation of construction waste materials.
- The construction debris needs to be collected from the point of its generation in a manner to prevent emission of dust.
- Any excess metal generated on site from reinforcement steel and from the demolition element of the project will be kept in the one area and to be sold by the contractor to the local traders/ authorised recyclers. Records of disposal needs to be maintained.
- Materials shall be correctly stored and handled to minimise the generation of damaged materials.
- Construction waste material such as damaged or broken concrete slabs, blocks, bricks and tiles shall be reused on the Project site if possible.
- Non-recyclable or non-recoverable components shall be sent to authorised treatment storage and disposal facilities.
- Construction waste (inert materials) will be utilised for filling of site as applicable, stored in designated area and finally disposed through third party vendor.

Municipal Solid Waste Management

- Separate storage bins should be provided at site for collection of biodegradable and non-biodegradable waste separately.
- Segregated MSW will be temporarily stored in different bins within the existing facility temporary collection area;
- Plastic arising from general waste or packaging will be segregated and stored in designated bins and will be disposed through third party vendor.
- Food wastes storage to be kept covered at all times and subject to regular pest/rodent control activities and disposed through third party vendor.
- Biodegradable waste shall be subjected to onsite composting or being deposited third party vendor.

Hazardous Waste Management

- Different types of hazardous waste collection bins will be provided for oily substances and non-oily hazardous waste at construction area and operational area;

- All hazardous material and waste containers should be secured and labelled with the contents and associated hazards;
- Hazardous wastes are to be stored in closed containers away from direct sunlight, wind and rain;
- Hazardous wastes generated from the construction activity will be stored in the hazardous waste storage area, having secondary containment
- Hazardous materials storage and handling facilities should be constructed away from traffic zones and should include protective mechanisms (e.g., reinforced posts, concrete barriers, etc.) to protect storage areas from vehicle accidents;
- Provide enough space to allow for inspection between waste containers so as to identify any leaks or spills;
- Ensure storage areas have impermeable floor and containment, of capacity to accommodate 110% of the volume of the largest waste container.
- Hazardous waste will be finally disposed through third-party vendors.
- A log book should be maintained for quantity and type of hazardous material and hazardous waste;
- All manifests and other records that document the amount of waste generated and its destination are to be documented and maintained for the entire period including construction and operational phase.

Spill Control Measures

- Fuels, paint, chemicals and lubricants will be stored in the dedicated storage areas having secondary containment;
- Implement the standard operating procedures for the transfer and use of fuel and chemicals to prevent accidental releases;
- As per spill response procedure and associated spill kit to contain any incidental spillage of fuel, chemicals and hazardous waste;
- Once a spill incident has occurred, the Contractors will identify the chemical involved and check hazardous property of the chemical from the Safety Datasheet (SDS);
- The substance will be properly collected and stored in a separate labelled container and disposed through third party vendor.

Management of Waste from Ships

- Oily waste and wastewater should be collected in barges, vehicles, or central collection systems and storage tanks. The capacity of oily waste collection should be established based on applicable MARPOL provisions;
- Wastewater with noxious chemicals from bulk tank cleaning should be collected through appropriate on-site or off-site treatment prior to discharge;
- Discharge of solid waste from vessels should be prohibited while in port in accordance with MARPOL and national regulations;
- Information should be available for ship captains to identify solid waste reception facilities and acceptable handling procedures at ports;
- A collection and disposal system should be developed for ship-generated garbage for ships alongside and at anchor, consistent with the International Maritime Organization (IMO) Comprehensive Manual on Port Reception Facilities

Surface Runoff Management

- A designated machinery and equipment storage area will be developed for the Project;
- Fuels, lubricants will be stored in dedicated storage area having secondary containment;
- Different types of hazardous waste collection bins will be provided for oily substances and non-oily hazardous waste at construction area;
- Hazardous wastes generated from the site establishment stage will be stored in designated waste storage area, having secondary containment;
- Hazardous waste will be finally disposed through third-party vendors;
- Channelize all surface runoff from the construction site through storm water drainage system and provide adequate size double chambered sedimentation tank;
- Compact site (proposed terminal area) to reduce the amount and rate of infiltration;
- WCT-1 has a Site Specific Emergency Response Plan (SSERP) for soil clean-up remediation, in case of any accidental spills
- Implement the standard operating procedures for the transfer and use of fuel to prevent accidental releases;
- Once a spill incident has occurred, the Contractors will identify the chemical involved and check hazardous property of the chemical from the Safety Datasheet (SDS);
- The substance will be properly collected and stored in a separate labelled container and disposed in accordance with Waste Management Practice of WCT-1.
- Periodic monitoring, verification and check for implementation of waste management plan.

Sewage Treatment and Disposal from Land side

- Sewage generated during construction and operational stage will be treated through STP;
- Periodic de-sludging will be carried out and sludge will be disposed through third party vendor.

RESPONSIBLE STAFF AND IMPLEMENTATION ARRANGEMENT

Responsibility

CWIT will be responsible for the operationalization and overall implementation of this WMP. CWIT will have a dedicated Environment and Social (E&S) Cell, who will be responsible for implementation of E&S management system.

Table Error! No text of specified style in document.-2 Roles and Responsibilities for WMP Implementation

Roles	Responsibilities
CWIT	<ul style="list-style-type: none"> ■ Obtaining statutory clearances required during pre-construction stage of the Project ■ Overall project co-ordination and management through EPC Contractors and supported by the third party environmental consultant/s ■ Overall supervision of EMP implementation ■ Addressing grievances of local community and information dissemination ■ Environmental monitoring through laboratory
Contractors	<ul style="list-style-type: none"> ■ Inclusion of environmental mitigation measures in construction activities and budgets as specified in project EMP. ■ Environmental supervision to ensure that all mitigation is provided as specified in the project EMP by their own staff, sub-Contractors, and other

Roles	Responsibilities
	service providers. Monitor the environmental compliance of the project according to the EMP.

Implementation

Monitoring and Review

The EHS Team will conduct and document frequent site inspections to ensure compliance with the EMP, licences, permits, and approvals, as well as other environmental obligations. Corrective and preventative measures will be implemented if inspections reveal that environmental management methods are ineffective.

The inspections will be supplemented with monitoring, which will document the practical achievement of essential tasks. Sampling and analysis shall be carried out in accordance with the identified monitoring plan to ensure that discharges, emissions, and environmental conditions are in compliance (Refer to Table 4.2).

Training

Toolbox talk will be organised by the WCT-1 Project EHS team which will include air emission suppression measures, waste management, spill management, fire safety at site etc. A site specific environmental induction training module will also be developed by the EHS team.

Record keeping and documentation

The EHS Team for the CWT-1 Project will prepare a quarterly environmental report covering monitoring, inspection, and V&V results, as well as details of any environmental non-compliances and actions taken/recommended as needed.

Allocation of Funds

The sub-contractor will be responsible for the financial allocation of resources to implement the waste management plan. Sub-contractors for the various aspects of the project will be responsible for incorporating the cost of implementing the waste management plan at the bidding stages itself. CWIT and its contractors in their quotation request from the contractors will be responsible for putting up the requirements from its contractor regarding the waste management plan.

CWIT will be responsible operation and maintenance cost of STP and other waste management facilities.

Table Error! No text of specified style in document.3 Environmental Monitoring Programme

S. No.	Aspect	Environmental quality/ Performance Indicator	Monitoring Parameter	Location	Period & Frequency	Responsibility
A. Stage 1: Construction of Terminal						
A.1	Generation of construction waste and disposal	Offsite disposal, if any	Inspection and Audit	Disposal site	As and when required	EPC Contractors
A.2	Accidental spillage of oil, lubricant & chemical from storage area and handling site; Accidental spillage of hazardous waste Accidental release of untreated sewage	Soil and ground water impacts	Analysis for suite of constituents (heavy metals, TPH, organic carbon, pH) for soil Analysis for suite of constituents (heavy metals, TPH, organic carbon, pH, oil & grease) for ground water	Site, adjacent areas	In event of spills	EPC Contractors
A.3		Spill prevention measures	Time taken to control the spill	Spill location	In event of spills	EPC Contractors
A.4	Surface Runoff	Surface water quality	pH, DO, BOD, COD, Total dissolved solids, oil & grease, total coliform, Chloride, Fluoride, heavy metals	Four locations in the basin	As and when required during construction sate	EPC Contractors
A.5	Treated STP water	Quality of water - untreated and treated	pH, EC, TDS, Chloride, Oil & Grease, BOD, COD, ICP metals	At the process tank and at system outlet	Monthly	EPC Contractors
B Stage 2: Operation of Terminal						
B.1	Treated STP water	Quality of water - untreated and treated	pH, EC, TDS, Chloride, Oil & Grease, BOD, COD, ICP metals	At the process tank and at system outlet	Monthly	CWIT
B.2	Accidental spillage of oil & lubricant from storage area and handling site	Soil impacts	Analysis for suite of constituents (heavy metals, TPH, organic carbon, pH,).	Site, adjacent areas	In event of spills	CWIT

S. No.	Aspect	Environmental quality/ Performance Indicator	Monitoring Parameter	Location	Period & Frequency	Responsibility
B.3	Surface Runoff	Surface water quality	pH, DO, BOD, COD, Total dissolved solids, oil & grease, total coliform, Chloride, Fluoride, heavy metals	Discharge points	As and when required during site decommissioning	CWIT

ANNEXURE I

CHECKLIST FOR RECORDKEEPING AND DOCUMENTATION

Documentation	Record keeping (Yes/ No)	Evidence/ Document reference and date	Remarks
Different storage facility for different waste	<input type="checkbox"/> Yes/ <input type="checkbox"/> No		
Regular clearing of waste container	<input type="checkbox"/> Yes/ <input type="checkbox"/> No		
Adequate number of bins	<input type="checkbox"/> Yes/ <input type="checkbox"/> No		
Authorised vendor for collection of waste	<input type="checkbox"/> Yes/ <input type="checkbox"/> No		
Training Log	<input type="checkbox"/> Yes/ <input type="checkbox"/> No		

ANNEXURE 2: WASTE MONITORING CHECKLIST

Management of municipal and recyclable waste generated from Project activities				
Type of waste	<input type="checkbox"/> Municipal/ <input type="checkbox"/> Recyclable	<input type="checkbox"/> Municipal/ <input type="checkbox"/> Recyclable	<input type="checkbox"/> Municipal <input type="checkbox"/> Recyclable	<input type="checkbox"/> Municipal/ <input type="checkbox"/> Recyclable
Monthly quantity of generation, m ³				
Location of storage				
Disposed through	Name of the agency	Name of the agency	Name of the agency	Name of the agency
Management of construction and demolition waste generated from Project activities				
Monthly quantity of generation, m ³				
Location of storage				
Disposed through	Name of the agency	Name of the agency	Name of the agency	Name of the agency
Management of Hazardous and Other Wastes from Project activities and Transportation Fleet Maintenance				
Type of waste	<input type="checkbox"/> Hazardous / <input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous / <input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous / <input type="checkbox"/> Non-hazardous	<input type="checkbox"/> Hazardous / <input type="checkbox"/> Non-hazardous
Monthly quantity of generation, m ³				
Location of storage and safe storage arrangements				
Disposed through	Name of the agency	Name of the agency	Name of the agency	Name of the agency

APPENDIX 9.2 TRAFFIC MANAGEMENT PLAN

Document details	
Document title	Traffic Management Plan
Document subtitle	Final
Project No.	0665102
Date	2 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	02	Arpan Shome Salil Das	Debanjan B	Santoshkumar K.	14.03.2023	Text
Final	02	Salil Das	Debanjan B	Santoshkumar K.	02.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

This Traffic Management Plan (TMP) outlines the traffic control and traffic management procedures to be implemented by CWIT and contractors to manage potential hazards associated with the traffic environment during the project activities.

Traffic Management Context

During construction stage, rock/boulder will be required for site reclamation activity. The rock will be brought to site by road through dumper/ truck of 15 ton capacity (approx.). Estimated truck loads per day will be 150-200 from transportation of rocks. Boulders from quarry site; activity will be completed within 36 months. Apart from the transportation of rock/boulder, some civil construction material and manpower will be transported through the existing roads.

Regulatory Framework and Safeguards

This WMP is prepared as per the requirements of the following Sri Lankan regulations and relevant benchmark/standards:

Table Error! No text of specified style in document.-4: Regulatory Framework & Safeguards

Law	Description
Motor Traffic Act, 1951, amended 1981	Traffic rules laid out in these regulations are to be strictly followed for road safety and better implementation of traffic management.
WBG General EHS Guidelines	Traffic generated due to the Project directly or indirectly have impact on health and safety of workers and community. Section 2.3 provides guidelines on industrial vehicle driving and site traffic and Section-3.4 discuss on traffic safety which are applicable to the traffic management plan.

POTENTIAL IMPACTS

0.0 Project Activities

During the construction stage, the traffic in the existing roads will increase due to transportation of boulders, construction material, and equipment. The project will also require workforce during construction activity. The workforce will be transported to the project site every day by small buses or cars.

0.1 Anticipated Impacts

The following key impacts are anticipated -

- Increase in localized traffic will have impact on air quality and noise levels in the locality;
- Safety near sensitive locations like schools and hospitals would be impacted during transportation of construction material.
- Residents of settlements along narrow road stretches will face inconvenience in commuting due to increased traffic;

MITIGATION AND MANAGEMENT ACTIONS

Overview

This management plan aims to provide guidelines on management of traffic related impacts associated with the construction and operations phase of the WCT1 project and in accordance with national laws and IFC guidelines to avoid deterioration of natural environment and negative impacts on the health and safety of communities of project area as well as the project surrounding vicinity.

Management Actions

Permit Requirements

- Ensure compliance with legal and other permitting requirements;
- All necessary transportation permits shall be applied for at this stage and obtained from the relevant authorities, including permits for abnormal loads if required.

Transportation Routing & Scheduling

The rock/boulder from quarry to WCT-1, existing road network work will be utilised. For transport management, Access (contractor) had obtain approval from Sri Lanka Police to use two designated routes within the Colombo city limits for the haulage of rocks and boulders as required by the local regulations. The location of quarries and transport route has been presented in **Annexure 1**.

To minimise risk to other road users and residents along the transport route.

- Prior to the transport of abnormal loads, if required, the hauler must liaise with local authorities, police and emergency services to ensure they are aware of the abnormal load movements;
 - Any conditions given in the abnormal load permit must be adhered to (if required);
 - Construction vehicles must obey all road signs on public roads.
 - Deploy Traffic Marshal at important junction; and
 - Obey the traffic movement time as suggested for sensitive location.

On site driving

To minimise risks to drivers and other site users while vehicles are moving on site.

- The vehicles of the contractor and his suppliers shall not exceed a speed of 20 km/h on gravel or earth roads on site and within 500 m of the site;
- One way systems must be implemented to ensure the flow of vehicles and to reduce the need to reverse vehicles
- All vehicle traffic routes must be kept clear of obstruction;
- Ensure suitable signage to warn pedestrians about vehicle movements are clearly visible in appropriate zones, such as delivery zones; and
- Ensure vehicle reverse warning lights and alarms are in working order.

Deliveries of Construction / Quarry Materials

To minimise potential risks during deliveries to the site.

- Deliveries must be limited to working hours.
- Prior notice must be given for abnormal load deliveries to ensure that adequate staff are available to guide vehicles.
- Deliveries should be scheduled to prevent congestion on site.

Management of Site laydown areas

- Ensure that layout of the laydown area and temporary construction camp allow for ease of vehicle movement;
- The layout of the construction camp must allow for sufficient space for vehicles to turn on site and avoid the need to reverse as far as possible;
- Ensure potential blind spots are eliminated when layout is being finalised;
- Ensure adequate crossing points (roads and delivery zones) for pedestrians are indicated in the final layout;
- Ensure storage areas, particularly Above Ground Storage Tanks (ASTs), etc. are protected from potential impacts with vehicles;
- Ensure adequate parking exists on site for all construction vehicles; and
- Internal roads must have adequate turning circles and over taking zones for delivery vehicles.

Prevent damage to road infrastructure

- All internal and access roads that will be used during the construction stage of the project will be maintained by contractors.
- CWIT will develop a policy and procedure for assessing all damages and losses (e.g. damage to property, injury or death of people or livestock) resulting from project vehicles.

Prevention of community accidents

- Identify the sensitive location and road condition of site access road (quarry to the Site).
- Route sensitivity study should be undertaken at least three months prior to construction for:
 - Schools besides the transport route and its school hours (Starting and ending time);
 - Markets besides the transport route and its timing;
 - Religious places (Mosque, Temple, etc.) and its special function / festival period;
- Identify the congested stretch/ populated stretches/ important traffic junction;
- Identify the road condition including conditions of the bridge /culverts in the site access road
- Based on the road condition assessment, prepare alternative route plan.
- Prepare a journey management plan; considering:

- Avoidance of movement of project vehicles during schooling hours (start and end)
- Avoidance of movement of project vehicles during market hours
- Avoidance of movement of project vehicles during annual religious gathering /festival period
- Prepare a plan for deployment of Traffic Marshal at important traffic junction, sensitive locations (schools/ religious place/ market).

Driver Education

To ensure all drivers are aware of driving protocols and familiar with the TMP.

- Driver education must be included in the contractor’s induction process; and
- A copy of the TMP must be readily available on site at all times.

RESPONSIBILITY & IMPLEMENTATION ARRANGEMENTS

Responsibility

CWIT will be responsible for the operationalization and overall implementation of this TMP. CWIT will have a dedicated Environment and Social (E&S) Cell, who will be responsible for implementation of E&S management system.

Table Error! No text of specified style in document.-5 Roles and Responsibilities for TMP Implementation

Roles	Responsibilities
CWIT	<ul style="list-style-type: none"> ■ Obtaining statutory clearances required during pre-construction stage of the Project ■ Overall project co-ordination and management through EPC Contractors and supported by the third party environmental consultant/s ■ Overall supervision of EMP implementation ■ Addressing grievances of local community and information dissemination ■ Environmental monitoring through laboratory
Contractors	<ul style="list-style-type: none"> ■ Inclusion of environmental mitigation measures in construction activities and budgets as specified in project EMP. ■ Environmental supervision to ensure that all mitigation is provided as specified in the project EMP by their own staff, sub-Contractors, and other service providers. Monitor the environmental compliance of the project according to the EMP.

Implementation

Monitoring and Review

The EHS Team will conduct and document frequent site inspections to ensure compliance with the EMP, licences, permits, and approvals, as well as other environmental obligations. Corrective and preventative measures will be implemented if inspections reveal that traffic management methods are ineffective.

The inspections will be supplemented with monitoring, which will document the practical achievement of essential tasks. The monitoring will be carried out as per Annexure 2, Annexure 3 and Annexure 4.

Training

Quarterly induction or training will be organised by the WCT-1 Project EHS team to all drivers and newly appointed drivers will also be trained before starting their work. Through this training workers will be taught how they can drive safely within the construction site and what are the rules they must follow for safe driving.

Record keeping and documentation

The EHS Team for the CWT-1 Project will prepare a quarterly report covering monitoring, inspection, and V&V results, as well as details of any non-compliances and actions taken/recommended as needed.

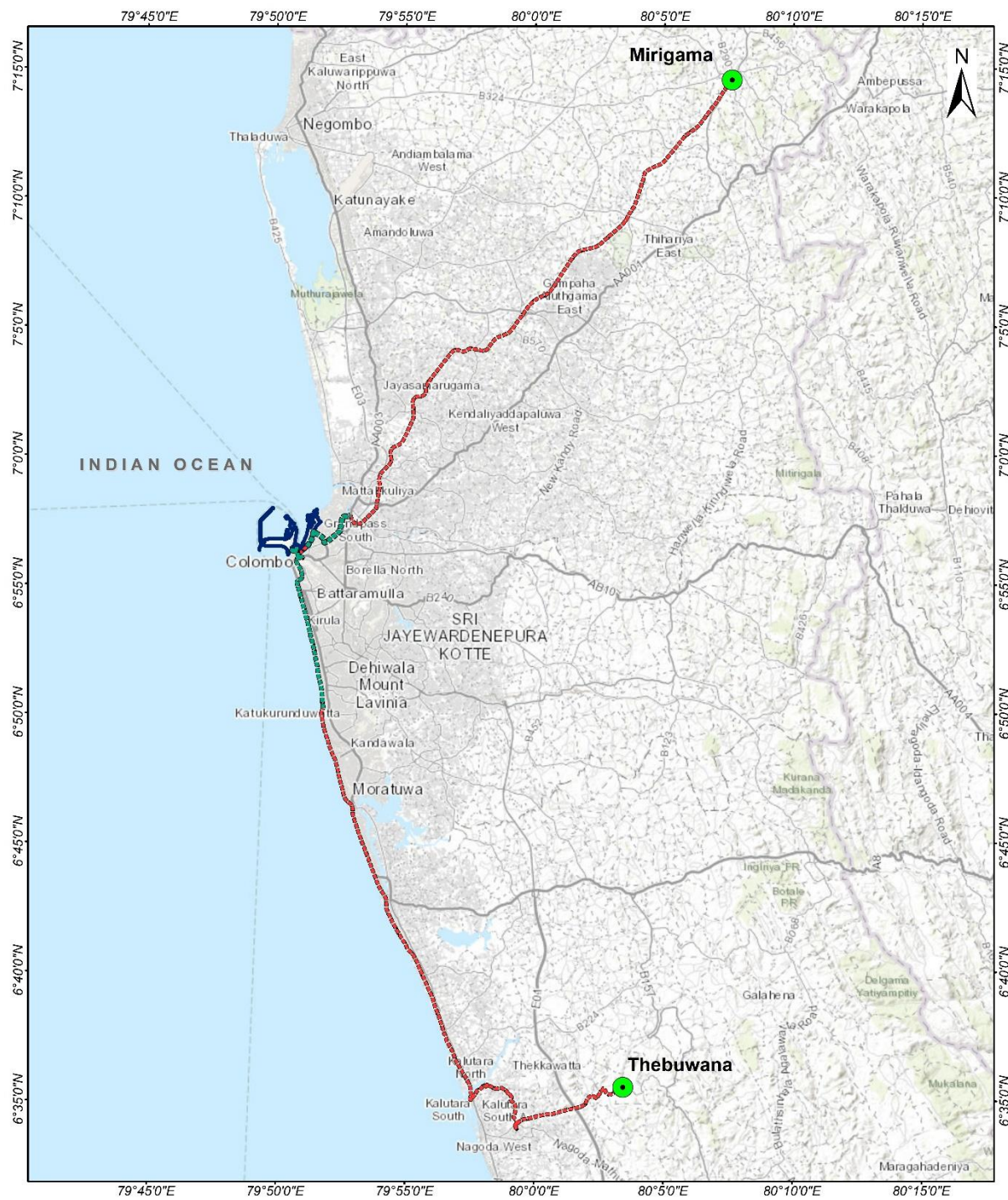
Allocation of Funds


The sub-contractor will be responsible for the financial allocation of resources to implement the traffic management plan. Sub-contractors for the various aspects of the project will be responsible for incorporating the cost of implementing the traffic management plan at the bidding stages itself. CWIT and its contractors in their quotation request from the contractors will be responsible for putting up the requirements from its contractor regarding the traffic management plan.

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ANNEXURE 1

ROCK/BOULDER QUARRY LOCATION AND TRANSPORT MAP



<p>Legend</p> <ul style="list-style-type: none"> ● Quarry Point Rock/Boulder Transport Route Approval received from PS Colombo Port 	<p style="text-align: center;">Rock/Boulder Transport Route</p> <p>Scale:</p> <p>0 3.75 7.5 15</p> <p style="text-align: center;">Kilometers</p>	<p>Source:</p> <p><small>Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, Incentiv P Corp., GEBCO, USGS, FAO, NPS, NRIAN, GEBCO, SIO, Kangaroo NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox Contributors, and the GIS User Community</small></p> 
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ANNEXURE 2: CHECKLIST FOR ACCESS ROUTE MAINTENANCE

S. No.	Aspects	Yes/ No	Remarks
1	Are routes clearly separated from pedestrian routes by fencing and/or a kerb, or other suitable means	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
2	Are routes wide enough to safely accommodate the number of vehicles likely to use them at peak times?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
3	Do routes allow easy access to delivery areas	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
4	Are routes kept free of obstructions	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	
5	Are routes clearly and suitably signed	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
6	Can pedestrians safely cross the main vehicle route?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
7	Do pedestrians have a clear view of traffic movements at crossings and at gates which lead onto traffic routes?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
8	Do routes eliminate or reduce the need for reversing?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
9	At the final point of exit can the driver see pedestrians on the pavement?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
10	Are temporary structures protected from vehicle impact?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	

ANNEXURE 3: CHECKLIST FOR DAILY/ WEEKLY TRAFFIC MANAGEMENT

Traffic management plan

Name of the location –

Latitude:

Longitude:

Date:

Aspects	Details	Remarks
Plan for vehicle movement with timings	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
Number of vehicles for the activity		
List of type of vehicles and number of each type		
Is width of the road adequate for proposed vehicle movement to the site	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
Sensitive locations along the route of transportation	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
Are alternate routes planned for regular traffic diversion due to construction activities along the road	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
Safety barricades, signages along diversions	<input type="checkbox"/> Yes/ <input type="checkbox"/> No	
Dedicated parking areas – locations		
Alternate public transportation routes due to Project activities		
Incidents/ near misses		
Driver license check		

APPENDIX 9.3 BIODIVERSITY MANAGEMENT PLAN

Document details	
Document title	Biodiversity Management Plan
Document subtitle	Final
Project No.	0665102
Date	03 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Dr. Abhishek R.G	Debanjan B	Santoshkumar K.	17.03.2023	Draft
Final	02	Dr. Abhishek R.G	Debanjan B	Santoshkumar K.	03.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5 million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

The proposed WCT-1 will be constructed within the South Colombo Harbour (SCH). The WCT-1 terminal area will be reclaimed by sand from the sea. The required sand will be sourced from SLPA sand borrow area at Kerawalapitiya, located 9 km away from Kepungoda and 7.2 km from Basiyawatta towards offshore and 20 km away from Colombo Port. The dredge material (silt part) from the proposed WCT-1 area will be disposed in the existing offshore dredge material disposal area of SLPA, which is located south-eastern side of the proposed WCT-1 and approximately 4 km away from the proposed terminal.

Requirement of Biodiversity Management Plan (BMP)

The proposed WCT-1 project may potentially cause impact to biodiversity of the area. Hence, there is a need to develop a Biodiversity Management Plan for the project to safeguard the impacts to the biodiversity. The BMP has been developed in accordance to World Bank's Environmental and Social Standard- 6 (ESS6) *Biodiversity Conservation and Sustainable Management of Living Natural Resources* and International Finance Corporation's Guidance Note 6: *Biodiversity Conservation and Sustainable Management of Living Natural Resources (2019)*

Objective of BMP is presented below;

- To protect and conserve biodiversity and habitats.
- To apply the mitigation measures and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.
- To promote the sustainable management of living natural resources.

Regulatory Framework and Safeguards

National Legislation

Fauna and Flora Protection (Amendment) Act, No. 22 of 2009

The Fauna and Flora Protection (Amendment) Act, No. 22 of 2009 (Government of Sri Lanka, 2009) enables the creation and management of national reserves and sanctuaries and also provides schedules of fauna and flora that are protected. A National Reserve can be made only on state land while a sanctuary can be declared on state and/or private land. The ordinance provides the protection, conservation and preservation of the fauna and flora of Sri Lanka and prevention of the commercial exploitation of such fauna and flora. Amendments have been made to include the control and management of national reserves, the protection of elephants and buffaloes in areas outside national reserves and sanctuaries, the capture and keeping protected animals, offences and penalties, prohibition of the import or export of protected animals, and protection of plants.

Section 75 of the 1970's Fauna and Flora Protection Ordinance (Chapter 469) section specifies that "The Provisions of the Fisheries Ordinance shall cease to be in operation in any National Reserve or Sanctuary as from the date on which such National Reserve or Sanctuary is duly constituted under

section 2; but subject as aforesaid, the provisions of the Ordinance shall continue to be in operation in any area outside a National Reserve or a Sanctuary”.

The Fauna and Flora Act also stipulates that “no person or organization, whether private or State shall within a distance of one mile of the boundary of any National Reserve declared by Order made under section 2, carry out any development activity of any description whatsoever without obtaining the prior written approval of the Director Genera.

0.1.0 IFC Performance Standards

The IFC Performance Standards (updated in January 2012) are recognized as the benchmark for international financial institutions. The principles provide a framework for an accepted international approach to the management of social and environmental issues and integration of these issues into loan agreements.

Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

IFC Performance Standard 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development.

POTENTIAL IMPACTS

Potential impacts due to construction and operation of phase of the project have been presented in following table.

Table Error! No text of specified style in document..6 Potential Impacts during Construction and Operation Stages

S.No.	Project Phase	Project Impact
1	Construction Stage	
A.	Dredging at Sand Borrow Area	
A.1.	Dredging of sand at borrow area	Impact on benthic communities <ul style="list-style-type: none"> ■ Physical removal of benthic communities; ■ Disturbance of fish ,shrimps and benthic faunal feeding habits and habitats and larval stages ■ Burial of benthic communities;
A.2		Impact on plankton and fish, mammals <ul style="list-style-type: none"> ■ Physical disturbance of nesting and spawning areas, destruction of habitats, especially disturbance of spawning habitats or marine organisms; ■ Detrimental effects of suspended sediments, turbidity and sedimentation, especially effects on the behaviour of organisms;
A.3.	Transportation of dredge materials and construction material and equipment	<ul style="list-style-type: none"> ■ Direct mortality or injury of marine fauna from vessel movements
B.	Site reclamation work at basin area	

B.1	Dredging of sediment and disposed in offshore disposal site	Impact on benthic communities <ul style="list-style-type: none"> ■ Physical removal of benthic communities; ■ Disturbance of fish ,shrimps and benthic faunal feeding habits and habitats and larval stages ■ Burial of benthic communities;
B.2	Reclamation works in the reclamation area;	
B.2.1		Impact on Benthic communities <ul style="list-style-type: none"> ■ Burial of benthic communities;
B.2.2		Impact on plankton and fish, mammals <ul style="list-style-type: none"> ■ Physical disturbance of nesting and spawning, destruction of habitats, especially disturbance of spawning habitats or marine organisms; ■ Disturbance of fish ,shrimps and benthic faunal feeding habits and habitats and larval stages; ■ Detrimental effects of suspended sediments, turbidity and sedimentation, especially effects on the behaviour of organisms;
B.2.3		<ul style="list-style-type: none"> ■ Degradation of marine habitats and ecological communities from invasive marine species (IMS)
C.	Piling operation	<ul style="list-style-type: none"> ■ Potential increase of underwater noise and impact on aquatic fauna
2.	Operation of Terminal	
A.	Discharge of operational wastewater, sewage and surface runoff	<ul style="list-style-type: none"> ■ Impact to marine flora and fauna
B.	Accidental spillage	<ul style="list-style-type: none"> ■ Impact to marine flora and fauna
C.	Ships anchoring at the terminal from other parts of the World	<ul style="list-style-type: none"> ■ Introduction of marine invasive species at the area

BIODIVERSITY MANAGEMENT PLAN (BMP) AND BIODIVERSITY MONITORING & EVALUATION PLAN (BEMP)

Biodiversity Management Actions

The tasks, mitigation actions and responsibilities are outlined in **Table 3.1**.

Monitoring and Evaluation

Monitoring and evaluation measures are to be implemented for all of the biodiversity mitigation actions are outlined in **Table 3.2**.

Roles and Responsibilities

To ensure action ownership, each measure has been assigned to a particular designation within CWIT. EHS Director will overview the execution of the management plan and process all relevant document. Project Director will review all documents and make sure that the management plan is being carried out smoothly. Environmental and Social. Manager must have knowledge of biodiversity issues, legislation and frameworks/

standards and must have working knowledge in executing Biodiversity Management Plan. If required company must hire key resource with proper knowledge base and knowhow to assist site and corporate E&S.

Plan review and update

The BMP is to be reviewed and updated on an annual basis with consideration of changes to project operations or areas where refinement is required. Annual changes to the BMP must be approved by the Project Director prior to implementation.

Allocation of Funds

The sub-contractor will be responsible for the financial allocation of resources to implement the BMP during construction phase. During operation phase the cost of implementation of the BMP will be borne by CWIT.

Table Error! No text of specified style in document..7 Biodiversity Management Plan for Construction and Operation Stages

Impact Ref	Impact	Mitigation Measures	Responsible Person for Ensuring Implementation	Implementation Action Reference
A.	Operation at Sand Borrow Area			
A.1	Impact on benthic communities <ul style="list-style-type: none"> ■ Physical removal of benthic communities; ■ Disturbance of fish, shrimps and benthic faunal feeding habits and habitats and larval stages ■ Burial of benthic communities 	<ul style="list-style-type: none"> ■ A Trailing Suction Hopper Dredger (TSHD) has been used for the sand dredging in the offshore sand extraction area. The spill residual is generally small during dredging operation. ■ The dredger is equipped with a Global Positioning System (GPS) to ensure accurate position fixing to restrict the dredging within the designated area. ■ Proactive and informed management of the dredging programme as it is executed can often significantly reduce the risk of or minimize the negative impacts. Through modelling and monitoring during execution, impacts may be predicted before being realized, and the dredging programme may be optimized to achieve the environmental objectives. A combination of monitoring, both of the dredge plume and at receptor sites, and dredge plume modelling to guide the dredging works need to be conducted before the beginning of dredging operations; ■ Potential impacts on sensitive receptors would also be minimized by conducting dredging works in phases in order to minimize the long term smothering. ■ Overflow shall be avoided during dredger sailing including sailing from the sand borrow area to the reclamation area ■ Use of silt curtains wherever possible, i.e., along the boundaries of the dredge pocket and the reclamation area within the port basin and/or maintain turbidity level of the site to the standard level with other appropriate methods ■ The loading should be made precautionary by reducing the pumping flow during the final stages of the loading process or by reducing the total loading time 	Dredging contractor	<ul style="list-style-type: none"> ■ Environment friendly dredging procedure has been adopted for the project ■ Prior planning for each of the activities is required. A detailed dredging schedule with activities to be undertaken with sufficient time gaps should be planned. ■ Global Positioning System (GPS) to ensure accurate position fixing to restrict the dredging within the designated area ■ Biodiversity induction to Dredging contractor people,

Impact Ref	Impact	Mitigation Measures	Responsible Person for Ensuring Action Implementation	Implementation Action Reference
A.2	Impact on plankton and fish, mammals <ul style="list-style-type: none"> ■ Physical disturbance of nesting and spawning areas, destruction of habitats, especially disturbance of spawning habitats or marine organisms; ■ Detrimental effects of suspended sediments, turbidity and sedimentation, especially effects on the behaviour of organisms; 	<ul style="list-style-type: none"> ■ Extraction should be completed within a shorter period of time ■ Timing of the dredging to be carefully planned to avoid rainy season and least impact on small-scale fishing operations; ■ Potential impacts on sensitive receptors would also be minimized by conducting dredging works in phases in order to minimize the long term smothering. ■ Overflow shall be avoided during dredger sailing including sailing from the sand borrow area to the reclamation area ■ Extraction should be completed within a shorter period of time ■ Monitoring should be conducted in the sensitive receptors such as developing corals for turbidity and possible impacts, rather than the site of the plume or hopper; ■ It is recommend that, as a minimum standard, the World Bank guidelines are adhered to, in terms of the acceptable limit of suspended sediment concentration allowed. This equates to 2,000 mg /l. (World Bank Technical Paper 140) and is derived in order to prevent covering valuable benthic species (e.g. shellfish) which are particularly sensitive to increased suspended sediment concentration. ■ A Construction Stage Cetacean Mitigation Plan will be prepared and implemented to reduce the potential impact upon marine mammals 	Dredging contractor	Planning and implementation of dredging calendar; Plume dispersion monitoring as per monitoring plan
B.	Site reclamation work at basin area			
B.1	Impact on Benthic communities <ul style="list-style-type: none"> ■ Burial of benthic communities; 	<ul style="list-style-type: none"> ■ A TSHD has been used for the sand dredging in the offshore sand extraction area. The spill residual is generally small during dredging operation. ■ It is recommend that, as a minimum standard, the World Bank guidelines are adhered to, in terms of the acceptable limit of suspended sediment concentration allowed. This equates to 2,000 	CWIT and Dredging contractor	Appendix A – Biodiversity Induction and Training Procedure

Impact Ref	Impact	Mitigation Measures	Responsible Person for Ensuring Action Implementation	Implementation Reference Action
		<p>mg /l. (World Bank Technical Paper 140) and is derived in order to prevent covering valuable benthic species (e.g. shellfish) which are particularly sensitive to increased suspended sediment concentration.</p> <ul style="list-style-type: none"> ■ Proactive and informed management of the reclamation programme as it is executed can often significantly reduce the risk of or minimize the negative impacts. ■ Use of silt curtains wherever possible, i.e., along the boundaries of the dredge pocket and the reclamation area within the port basin and/or maintain turbidity level of the site to the standard level with other appropriate methods ■ Monitoring should be conducted in the sensitive receptors such as developing corals for turbidity and possible impacts 		
B.2	<p>Impact on plankton and fish, mammals</p> <ul style="list-style-type: none"> ■ Physical disturbance of nesting and spawning, destruction of habitats, especially disturbance of spawning habitats or marine organisms; ■ Disturbance of fish ,shrimps and benthic faunal feeding habits and habitats and larval stages ■ Detrimental effects of suspended sediments, turbidity and sedimentation, especially effects on the behaviour of organisms; 	<ul style="list-style-type: none"> ■ Timing of the dredging to be carefully planned to avoid rainy season and least impact on small-scale fishing operations; ■ Construction site runoff and drainage should be prevented or minimized in accordance with international best practices and standards. Sand/silt retaining facilities such as traps and sediment basins should be provided to limit the runoff; ■ Proactive and informed management of the reclamation programme as it is executed can often significantly reduce the risk of or minimize the negative impacts. ■ Use an efficient trailing suction hopper dredger, wherever possible; ■ Monitoring should be conducted in the sensitive receptors such as developing corals for turbidity and possible impacts; ■ It is recommend that, as a minimum standard, the World Bank guidelines are adhered to, in terms of the acceptable limit of suspended sediment concentration allowed. This equates to 2,000 mg /l. (World Bank Technical Paper 140) and is derived in order to prevent covering valuable benthic species (e.g. shellfish) which are 	CWIT and Dredging contractor	<ul style="list-style-type: none"> ■ Environment friendly dredging procedure has been adopted for the project ■ Prior planning for each of the activities is required. A detailed dredging schedule with activities to be undertaken with sufficient time gaps should be planned. ■ GPS to ensure accurate position fixing to restrict the dredging within the designated area

Impact Ref	Impact	Mitigation Measures	Responsible Person for Ensuring Implementation	Implementation Action Reference
		particularly sensitive to increased suspended sediment concentration.		<ul style="list-style-type: none"> ■ Biodiversity induction to Dredging contractor people,
B 3	Introduction of marine invasive species at the reclamation area	<ul style="list-style-type: none"> ■ Unintentional introductions of alien species should be minimised. Ballast water transfer, hull fouling etc. need to be identified, assessed and addressed (e.g. through ballast water exchange, treatment etc.). ■ Provisions should be in place for detection and response system so that a new incursion can be eradicated before it spreads. Baseline surveys, surveillance, monitoring and contingency planning are important 	CWIT and Dredging contractor	Vessel and Ballast Water Management Plan, to be submitted before start of activity
B 4	Potential increase of underwater noise and impact on aquatic fauna	<ul style="list-style-type: none"> ■ A Construction Stage Cetacean Mitigation Plan will be prepared and implemented to reduce the potential impact upon marine mammals. ■ Generate low intensity impulsive noise prior to start of pile driving activities and ensure that any visible marine fauna moves away from the underwater noise source; ■ Periodic monitoring of underwater noise during pile driving activity; ■ Using High frequency - low energy piling technology. 	CWIT and Dredging contractor	Appendix A – Biodiversity Induction and Training Procedure
C.	Operation of Terminal			
C.1.	Discharge of operational wastewater, sewage and surface runoff and Impact to marine flora and fauna	<ul style="list-style-type: none"> ■ Sewage will be treated through STP; ■ The periphery drainage structure will be provided with sedimentation tank; ■ The drainage facility will be provided around the fuel storage area, waste storage area, chemical storage area with oil –water separator, ■ Periodic cleaning will be undertaken of storm water drainage structures to maintain uninterrupted storm water flow; 	CWIT	Installation of STP Periodic monitoring of STP treated water quality

Impact Ref	Impact	Mitigation Measures	Responsible Person for Ensuring Implementation	Implementation Action Reference
		<ul style="list-style-type: none"> ■ Sediment control measures in the form of silt traps and sedimentation tank will be provided to treat surface run-off before disposal ■ An Operational Stage Cetacean Mitigation Plan will be prepared and implemented to reduce the potential impact upon marine mammals. 		
C.2.	Accidental spillage and impact to marine flora and fauna	<ul style="list-style-type: none"> ■ Proper labelling of hazardous wastes; ■ Special care shall be taken in the storage areas to prevent any spillage of hazardous wastes and restrict access (except for trained staff) to such areas; ■ Periodic audits shall be carried out for such areas and containers; also on the segregation and collection systems and the findings will be documented and appropriate action taken against irregularities; and ■ A spill response plan and emergency plan shall be prepared to address accidental spillages or release of hazardous wastes. 	CWIT	Implementation of spill response plan
C.3.	Ships anchoring at the terminal from other parts of the World and introduction of marine invasive species at the	<ul style="list-style-type: none"> ■ Unintentional introductions of alien species should be minimised. Ballast water transfer, hull fouling etc. need to be identified, assessed and addressed (e.g. through ballast water exchange, treatment etc.). ■ Provisions should be in place for detection and response system so that a new incursion can be eradicated before it spreads. Baseline surveys, surveillance, monitoring and contingency planning are important 	CWIT	Vessel and Ballast Water Management Plan to be implemented

Table Error! No text of specified style in document..8 Biodiversity Action Monitoring and Evaluation

S.N.	Required Mitigation	Responsibility	Means of Verification	Monitoring & Inspection			
				Timing frequency	Parameters	Location	Reporting Requirements
A	Direct loss, disturbance and degradation of seabed and marine habitats due to offshore sand dredging at sand borrow area						
1.	Project shall follow a dredging plan to allow the settling time for sea bed disturbances in a phased manner for the planned activities	Environmental & Social Manger of CWIT HSE Manger of Dredging contractor	Development of a dredging plan	On acceptance of BMP actions	Implementation of the dredging plan	-	-
2.	GPS equipment or other navigational aids to ensure dredging will occur at the specified dredging site at sand borrow area and basin area and any disturbance at the designated offshore disposal site	Environmental & Social Manager of CWIT HSE Manger of Dredging contractor	Records are to be kept	On acceptance of BMP actions	Dredging vessel equipped with GPS aids	Within the borrow area, basin area, and offshore disposal	Access records
B	Degradation of marine habitats and ecological communities from invasive marine species (IMS)						
1.	<i>Ballast Water Management Plan</i> and a ballast water record book will be implemented and maintained on board. The dredging and any vessels coming from outside of the Indian Ocean will have vessel hull and niches confirmed to be free of IMS prior to mobilisation to the local waters of the Project area.	Environmental & Social Manager of CWIT HSE Manger of Dredging contractor	Records of implementation of the Ballast Water Management Plan & Invasive Species Management Plan	Yearly	Implementation of the Ballast Water Management Plan and Invasive Species Management Plan	Terminal	Access records

S.N.	Required Mitigation	Responsibility	Means of Verification	Monitoring & Inspection			
				Timing frequency	Parameters	Location	Reporting Requirements
C Direct mortality or injury of marine fauna from dredger, construction vessels and ships during operational period							
1.	Biodiversity Induction training records are to be kept and regularly conduct refresher training (6 monthly) for the mortality or injury of marine fauna from vessel movements	Environmental & Social Manager of CWIT HSE Manger of Dredging contractor	Records are to be kept and regularly conduct refresher training.	Prior to any piling activity during the construction stage Monthly during operation	Zero incidences of mortality or injury of marine fauna from vessel movements	Within and around project area	Access records
D Disturbance and displacement of marine fauna by underwater noise generated by pile driving activities and support vessel activities during construction							
1	Biodiversity Induction & pile driving technique should be such that minimum noise generated.	Environmental & Social Manager of CWIT HSE Manger of Dredging contractor	Induction slides and pile driving technique	Prior to any piling activity during the construction stage	Induction & noise level within accepted range.	Within and around project area	Access records
E. Treatment of wastewater from construction site and terminal operational area							
1.	Periodic monitoring of ETP and STP treated water and meet the discharge standard	Environmental & Social Manager of CWIT HSE Manger of Dredging contractor	Records are to be kept	Quarterly during construction and operational stage	pH, EC, TDS, Chloride, Oil & Grease, BOD, COD, ICP metals discharge standards to be met	STP outlet	Monitoring report and submission to CEA

ANNEXURE A

BIODIVERSITY INDUCTION AND TRAINING PROCEDURE

Title	Biodiversity Induction and Training Procedure
Document Reference	Biodiversity Management Plan
Last Updated	
Objective	A document outlining the steps to educate the workforce regarding the protection of biodiversity values

Application

This Biodiversity Induction and Training Procedure is to be incorporated into CWIT's induction program for new and old hires. The program is to apply to all personnel who work at CWIT facility. All existing personnel are to be inducted, with a refresher training session conducted every six months. New personnel are to be inducted prior to the commencement of any form of work on site. An attendance register is to be kept of staff's completion of the training and refresher training program.

CWIT are to prepare a slide deck in relevant languages for the biodiversity induction and training procedure in English and Sinhala and Tamil. The slide deck should include pictures of species (protected species identified in the study) and be conducted by suitably qualified persons (preferably engaging local NGOs / government authorities). The components of the induction and training procedure will be regularly updated and improved, and will include the following topics:

- Requirements for the implementation of the “no-poaching and no-hunting” policy within the Project Area, and sanctions for non-compliance.
- Awareness of biodiversity values that exist in the Project Area and surrounds, and potential impacts to these values from project activities.

Induction of the “no-poaching and no-hunting” policy

All personnel will be briefed on the CWIT zero tolerance policy on possession of wildlife and forest resources that must be committed to for all operations:

All CWIT staff and contractors are strictly prohibited from the possession, purchase, trade or collection of wildlife or forest resources that are legally protected under Sri Lanka Law, are CITES-listed, or classed as threatened by the IUCN Red List.

The purpose of the policy is to prohibit the collection of wildlife and forest resources by CWIT staff and contractors.

Awareness of biodiversity values that exist in the Project Area and surrounds

All personnel are to be briefed on flora and fauna species in the Project Area and surrounds, highlighting the critical habitat species identified during the baseline studies and their conservation status. Personnel are also to be briefed on the importance of conserving these biodiversity values. Photos of the flora and fauna species are to be included in the slide deck.

APPENDIX 9.4 STAKEHOLDER ENGAGEMENT PLAN

Document details	
Document title	Stakeholder Engagement Plan
Document subtitle	Final
Project No.	0665102
Date	2 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Dwaipayan D	Debanjan B	Santoshkumar K.	11.03.2023	Text
Final	02	Dwaipayan D	Debanjan B	Santoshkumar K.	02.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

The proposed WCT-1 will be constructed within the South Colombo Harbour (SCH). The WCT-1 terminal area will be reclaimed by sand from the sea. The required sand will be sourced from SLPA sand borrow area at Kerawalapitiya, located 9 km away from Kepungoda and 7.2 km from Basiyawatta towards offshore and 20 km away from Colombo Port. The dredge material (silt part) from the proposed WCT-1 area will be disposed in the existing offshore dredge material disposal area of SLPA, which is located south-eastern side of the proposed WCT-1 and approximately 4 km away from the proposed terminal. The dredging and discharge activities will be completed within 8 months from the start of the activity. Therefore, there will be some disturbances for the fishery activities for the fisherman who will fish within the area allocated for the dredging (6km*6km) due to the dredger operations during the construction phase of the project. However, direct employment loss is not anticipated as there will not be any restrictions on the areas for fishing.

Objectives

This document presents the Stakeholder Engagement Plan (SEP), which will be applicable for all activities proposed to be undertaken for the WCT-1 project. The main objective of this document is to guide stakeholder consultations across various stages of the project, while meeting the requirements of the applicable reference framework for the Project. Overall, this SEP will enable stakeholder engagement to be undertaken in a systematic and meaningful manner, where the various stakeholder groups are able to express their individual views, opinions and concerns, while allowing the Project to appropriately respond to them.

The objective of the Stakeholder Engagement Plan are as follows:

- Identification of the stakeholder groups in the project location and analysis of their profiles, interests, issues/impacts and concerns relevant to the project;
- Identification of specific measures to allow meaningful engagement with different stakeholder groups identified in a manner that is transparent and accessible and using culturally appropriate communication methods with a specific focus on the stakeholders with high influence/impact ;
- Facilitate adequate and timely dissemination of information to the stakeholder groups in a culturally appropriate manner;
- Provide systems for prior disclosure/dissemination of information and consultation including seeking inputs from affected persons, incorporation of inputs, as applicable, providing feedback to affected persons/groups on whether and how the input has been incorporated; and
- Providing a mechanism for documentation of the activities undertaken and the reporting and monitoring of the same.

Regulatory Framework and Safeguards

This SEP is prepared as per the requirements of the following Sri Lankan regulations and relevant benchmark/standards:

1. Relevant policies, laws, regulations and rules of Sri Lanka Government regarding environment, labour;

- Constitution (1987) - Fish and fisheries within territorial waters are under concurrent control.
- The Coast Conservation (Amendment) Act, No. 49 of 2011- Development permits in the coastal zone. Coastal resources inventory and management plan
- Marine Pollution Prevention Act, No. 35 of 2008- provides the mechanism to establish the Marine Environmental Protection Authority (MEPA) and the Marine Environmental Council (MEC), with the function (among other things) of: the “prevention, reduction, control and management of pollution arising out of ship based activity and shore based maritime related activity, in the territorial waters or any other maritime zone, its fore-shore and the coastal zone of Sri Lanka”; and taking “measures to manage, safeguard and preserve the territorial waters of Sri Lanka or any other maritime zone, its fore-shore and the coastal zone from any pollution caused by any oil, harmful substance or any other pollution.”
- The National Environmental Act No 47 of 1980 and Amendment Act, No. 53 of 2000 and Regulation 9 (i) of the National Environmental Regulations No. 1 of 1993 under which the Initial Environment Examination (IEE) prepared for the offshore Sand Extraction from the Sri Lanka Ports Authority (SLPA) borrow area which was approved by the Central Environmental Authority (CEA) in 2022 - Environmental Approval for projects outside the coastal zone. Pollution prevention and control from land-based sources.
- Pradeshiya Sabha Act No. 15 of 1987- Local authority responsibility for health and sanitation and public thoroughfares..

2. IFC Performance Standards, 2012

IFC has prepared a set of Guidance Notes, corresponding to the Performance Standards on Environmental and Social Sustainability. These Guidance Notes offer helpful guidance on the requirements contained in the Performance Standards, including reference materials, and on good sustainability practices to improve project performance. This SEP is prepared as per the guidelines of performance standards

PS 1- Assessment and Management of Environmental and Social Risks and Impacts: **Stakeholder Engagement:** The client will develop and implement a Stakeholder Engagement Plan that is scaled to the project risks and impacts and development stage and be tailored to the characteristics and interests of the Affected Communities.

External Communications and Grievance Mechanisms: Client will implement and maintain a procedure for external communications that includes methods to (i) receive and register external communications from the public; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses, if any; and (iv) adjust the management program, as appropriate. In addition, client are encouraged to make publicly available periodic reports on their environmental and social sustainability. Where there are Affected Communities the client will establish a grievance mechanism to receive and facilitate resolution of Affected Communities’ concerns and grievances about the client’s environmental and social performance.

STAKEHOLDERS IDENTIFICATION AND MAPPING

Identification of Stakeholder Groups

A stakeholder for the proposed Terminal project will be defined as “a person, group, or organization that has direct or indirect stake in a Project/organization because it can affect or be affected by the Project or its Proponent’s actions, objectives, and policies”. Stakeholders vary in terms of degree of interest, influence and control they have over the Project or the proponent.

During the environmental and social impact assessment consultations process, ERM conducted various activities as part of the development of the public consultation program to determine the relevant stakeholders. From the field-consultations, ERM has identified approximately key stakeholders groups and categorised them as Primary and Secondary stakeholders, based on the nature and extent of impact of project and influence of stakeholders on the project, as presented in **Table 2.1**.

Table Error! No text of specified style in document.-9: Identification of Key Stakeholders

Sl. No.	Stakeholder Category	Key Stakeholders
1	Primary Stakeholder	<ul style="list-style-type: none"> ■ CWIT ■ Fishermen Community (permanent and seasonal) including the local parishes- (Negombo and Wattala DS of Gampaha district and Colombo DS of Colombo district) ■ Negombo DS- Doowa, Pitapana Cental,-SW, Thaladena, Dungalpitiya, Kepungoda, Settipaduwa GN ■ Wattala DS- Pamunugama, Paranambalama, Uswetakeiyawa,Dikovita, Palliyawatta N &S GN ■ Colombo DS- Mattakkuliya, Modara, Aluthmawatha, Lunopokuna, Pettah GN ■ Women Family members of fishermen family ■ Boat Owners at fish Landing point ■ Local community from coastal villages at Negombo, Wattala and Colombo DS ■ Central Environment Authority (CEA) ■ Coast Conservation & Coastal Resource Management Department (CC&CRMD) ■ Sri Lanka Port Authority (SLPA) ■ Master Contractors for terminal development ■ Dredging contractor ■ Quarry contractors & quarry material transporters
2	Secondary Stakeholder	<ul style="list-style-type: none"> ■ Department of Fisheries & Aquatic Resources (DFAR)- Negombo and Colombo ■ Grama Niladhari/ village officer of respective Grama Niladhari division ■ Marine Environment Protection Authority (MEPA) ■ Geological Survey and Mines Bureau (GSMB) ■ Municipal Council, Colombo ■ Emergency response agencies (Police/Fire Brigade / Hospital) ■ Central Environmental Authority & Disaster Management Centre

Stakeholder Mapping and Analysis

Stakeholder mapping is a process of examining the relative influence that different individuals and groups have over a project as well as the influence of the project over them. The purpose of a stakeholder mapping is to:

- Identify each stakeholder group;

- Study their profile and the nature of the stakes;
- Understand each group's specific issues, concerns as well as expectations from the project that each group retains.
- Gauge their influence on the Project.

Apart from categorization, stakeholders have also been classified in accordance with the level of influence they have over the Project as well as their priority to the Project proponent in terms of importance. The influence and priority have both been primarily rates as:

- **High Influence/Priority:** Which implies a high degree of influence of the stakeholder on the Project in terms of participation and decision making or a high priority for the Project proponent to engage that stakeholder
- **Medium Influence/Priority:** Which implies a moderate level of influence and participation of the stakeholder in the Project as well as a priority level for the Project proponent to engage the stakeholder who are neither highly critical nor are insignificant in terms of influence.
- **Low Influence/Priority:** Which implies a low degree of influence of the stakeholder on the Project in terms of participation and decision making or a low priority for the Project proponent to engage that stakeholder

The overall significance of the stakeholder group is assessed as per the matrix provided below in **Table 2.2**.

Table Error! No text of specified style in document..10 Stakeholder Significance and Engagement Requirement

Magnitude of Influence / Impact	Urgency / Likelihood of Influence on / by Stakeholder		
	Low	Medium	High
Negligible	Negligible	Negligible	Negligible
Small	Negligible	Minor	Moderate
Medium	Minor	Moderate	Urgent
Large	Moderate	Urgent	Urgent

The following **Table 2.3** provides brief profiles of the various stakeholders in the project as discussed in the previous sub section along with their key concerns about the project and their degree of influence.

Table Error! No text of specified style in document..11 Stakeholder Profile and Influence Mapping

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)	Urgency/ Likelihood of Influence (Low, Medium, High)	Rating of Stakeholder Influence	
A	Primary Stakeholder					
1.	<p>Fishermen Community from Community at large around Doowa, Pitapana Cental, SW, Thalahena, Dungalpitiya, Kepungoda, Settippaduwa GN of Negombo DS, Pamunugama, Paranambalama, Uswetakeiyawa, Dikovita, Palliyawatta N & S GN of Wattala DS, Mattakkuliya, Modara, Aluthmawatha, Lunopokuna, Pettah GN of Colombo DS</p> <p>Boat Owners at fish Landing point</p>	<p>Fishermen Community Level</p> <ul style="list-style-type: none"> Fishermen community Fishermen involved with deep-sea fishing Active fishermen societies in Negombo, Wattala and Colombo <p>There are approximate 1000 numbers of active fishermen in Negombo, Wattala and Colombo DS as per the data Fisheries department Negombo, Colombo and Wattala division.</p>	<ul style="list-style-type: none"> Restriction of fishing in the area demarcated for sand mining and the immediate vicinity at the time of dredging activity. Disruption of fishing while the dredger is transporting sand.. The deep-sea fishing boats may face temporary disruption during dredger movement. 	Medium	<p>Concerned about safety due to the operation of the dredger in fishing route.</p> <p>Medium</p>	Moderate

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)		Urgency/ Likelihood of Influence (Low, Medium, High)		Rating of Stakeholder Influence
2.	Women Family members of fishermen family at different GNs of Negombo, Wattala and Colombo DS	Women of project influence GNs	As reported during consultation with community women are mostly staying at home for household work as there are no employment opportunities for them within the villages Women are not associated with fishing activities.	Small	As the women group may get impacted indirectly if any impact on income activities of the fishermen. As reported during consultation with community women are mostly staying at home for household work as there are no employment opportunities for them.	Low	Negligible
3.	CWIT		CWIT would have a high magnitude of influence on the project, as being the primary stakeholder of the project, with a need to engage with all other primary and secondary stakeholders.	Large	The project is directly in the zone of influence of the CWIT and has a high likelihood of being influenced by their plans /activities.	High	Urgent

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)		Urgency/ Likelihood of Influence (Low, Medium, High)		Rating of Stakeholder Influence
4.	Central Environment Authority (CEA)	<p>The CEA is responsible for administering the provisions of the National Environmental (Amendment) Act, No. 53 of 2000</p> <p>According to Part IV C of the NEA, which requires the submission of an IEE or EIA report in respect of offshore mining project.</p> <p>The CEA is mandated to manage the Environmental Protection Licensing (EPL) system nationally</p> <p>CEA is also responsible for ensuring compliance with air quality, and noise, regulations.</p>	<p>The project obtained Environment Clearance from CEA</p> <p>Responsible for monitoring the Project's Environmental compliance throughout the Project lifecycle.</p>	Small	Periodical monitoring of clearance from CEA	High	Moderate
5.	Coast Conservation & Coastal Resource Management Department (CC&CRMD)	<p>The department is mandated under the Coast Conservation (Amendment) Act, No. 49 of 2011 (Government of Sri Lanka, 2011) to conserve the "coastal zone", as defined in the Act;</p> <p>Responsible for shoreline management projects and maintenance of the existing coast protective structures</p>	<p>The project has obtained development permit for construction of terminal;</p>	Small	Renewal of development permit may be required from CC&CRMD	Medium	Moderate

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)		Urgency/ Likelihood of Influence (Low, Medium, High)		Rating of Stakeholder Influence
6.	Sri Lanka Port Authority (SLPA)	SLPA executed the Colombo Port Expansion Project (CPEP) to build a deep-water harbour basin (Colombo South Harbour) with three container terminals on its three sides (south, east, and west)	SLPA has obtained all the regulatory permits for WCT-1 project	Small	Periodic renewal of permits; Providing common port facility and infrastructure to WCT-1 project	High	Moderate
7.	Master Contractors for terminal development	Responsible for construction of terminal area	Construction of terminal as per design	High	Regulatory compliance and implementation of ESMP during construction stage	High	Urgent
8.	Dredging contractor	Responsible for dredging and transportation of dredge material from sand borrow area	Dredging contractor will supply entire dredge material from sand borrow area	High	Regulatory compliance and implementation of ESMP during construction stage	High	Urgent
9.	Quarry contractors & quarry material transporters	Responsible for operation of quarry and transport of bolder for the project	Contractor agreement signed for supply of required quantity of stone/boulder from approved mine	Medium	Regulatory compliance for mining operation and transport of material with minimum impact on environment and community health and safety	Medium	Moderate
B.	Secondary stakeholder						

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)	Urgency/ Likelihood of Influence (Low, Medium, High)	Rating of Stakeholder Influence
1.	Department of Fisheries & Aquatic Resources- Negombo and Colombo	<p>For the easy implementation of its functions Department of Fisheries and Aquatic Resources (DFAR) has been decentralized into Coastal Fisheries Districts and each district is divided into number of Fisheries Inspectors Divisions (FIs).</p> <ul style="list-style-type: none"> Assistant Directors (AD) Office of the concerned districts within the project area – Colombo and Negombo fishing Districts 	<ul style="list-style-type: none"> The borrow site area being on the coastal region, the area has high dependence on fishing as the livelihood option. The fishermen are registered with the fisheries department who are responsible for enforcing the laws and manage the fishermen and their activities and development at the local level. Laws and regulation abiding the sustainability fishing practices in the region Responsible for registration of fishermen and provide Fisherman Card 	<p>Medium</p> <p>Concern about temporary disruption of fishing route and fishing zone.</p>	<p>Medium</p> <p>Moderate</p>
2.	(Grama Niladhari/ village officer of respective Grama Niladhari division)	They are the main administrative group who are responsible for the development activity of the villages	<ul style="list-style-type: none"> Concerned about dredging activity and any potential risks associated with it. 	<p>Medium</p> <ul style="list-style-type: none"> Local administration may be required to play a role in grievance redress mechanism to address issues related to any impact on fishermen due to dredging activity. 	<p>Low</p> <p>Minor</p>

S. No.	Relevant Stakeholder	Profile/ Status	Magnitude of Influence/Impact (Negligible, Small, Medium, Large)		Urgency/ Likelihood of Influence (Low, Medium, High)		Rating of Stakeholder Influence
3.	Marine Environment Protection Authority (MEPA)	MEPA is mandated under the Marine Pollution Prevention Act (Government of Sri Lanka, 2008) MEPA is responsible for: the Sri Lanka National Oil Spill Contingency Plan	Project has obtain approval for oil spill management plan and has obtained approval for reclamation at WCT-1 and the dumping of unsuitable material for reclamation at MEPA approved site.	Small	Periodical renewal required from MEPA	Medium	Minor
4.	Geological Survey and Mines Bureau (GSMB)	To identify and assess the mineral resources of Sri Lanka. To regulate the exploration and mining for minerals and processing, trading and export of minerals by issuing licenses.	The project has obtained permits for operation of sand borrow area	Small	Renewal of permits may be required from GSMB for operation of sand borrow area	Medium	Minor
5.	Municipal Council, Colombo	Responsible for sanitation (waste, sewage) health and environmental issues. emergency services	Municipal solid waste management required for project and city road for project vehicle movement	Medium	Regular service required during entire project lifecycle	Medium	Moderate
6.	Emergency response agencies (Police/Fire Brigade / Hospital)	Responsible of public services	Emergency support	Small	Support during emergency	High	Moderate
7.	Disaster Management Centre (DMC)	DMC within the Ministry of Disaster Management (MDM), is mandated under the Disaster Management Act No. 13 of 2005	The DMC works closely with the Climate Change Secretariat (CCS) on climate change related disaster management issues.	Small	Support during emergency	High	Moderate

STAKEHOLDER CONSULTATIONS SUMMARY AND FEEDBACK RECEIVED

Methodology for stakeholder consultation

Information-Sharing

Providing factual information to stakeholders early in the project planning process assists in the development and maintenance of constructive stakeholder relationships. To facilitate this process, during the consultation, stakeholders were presented with information about the Project which was then used as a starting point for discussion.

Consultation Methods and Materials

A range of stakeholder consultation and engagement methods have been applied depending on the stakeholder group, their level of interest and likely concerns. These include:

- Face-to-face individual interviews- stakeholders are provided with a Project briefing and information is gathered through specific pre-prepared consultation checklists;
- Face-to-face small group discussion (3-5 persons)- stakeholders are provided with a Project briefing and information is gathered from them through specific pre-prepared consultation checklists;
- Face-to-face focus group discussions (5-15 persons)- stakeholders are provided with a Project briefing and information is gathered from them through specific pre-prepared focus group consultation protocols.
- The selection of the consultation groups were done based on the impact area. Where samples of the Fishing Communities, Boat Owners, Net Weavers, Boat Repair Workers, Labourers of the fishing harbour, Fish Traders/Businessmen, Fishing Vendors, Spouses of Fishermen and other stakeholder groups were identified and were selected through the Divisional Secretariates and Grama Niladhari divisions of each locality to ensure that each type of stakeholder is fairly represented. Most discussions were arranged through the Fishing Community/Association Leaders, Parish and the Fishing Inspectors of the Department of Fisheries and Aquatic Resources.
- The sample size of each type of stakeholders ranged from 5-6 people and the information was gathered based on a terms of reference prepared by the Environmental Consultants.

Stakeholder Consultation Summary

This sections captures a summary of the consultations held with key stakeholders groups in the ZOI. The key points discussed in the stakeholder consultations has been presented in **Table 3.1**.

Table Error! No text of specified style in document..12 Stakeholders and Key Points Discussed

S. No.	Stakeholder Category	Key Points Discussed
1	Stakeholder associated with fishing activities DS: Negombo Doowa GND, Dunagalpitiya GND, Kepungoda GND, Pitapana Central GND, Pitapana SW, Settapaduwa GND, Thaladena GND DS: Wattala	<ul style="list-style-type: none"> ■ The consultation with fishermen at different GNDs of Negombo and Wattala took place in the month of October and November 2022. The consultations were conducted in small groups of 5-6 peoples in each GNDs who are associated with fishing activities. The people were selected based on the impact area and categorization like type of fishing, different types of boats use for fishing activities. ■ The fishermen reported that there are three types of fishing activities i.e. Deep sea fishing, daily/ one day fishing and near shore fishing, ■ 65% of the fishermen undertake daily/one day fishing, 25% near shore and 10% deep sea fishing; ■ The fishermen from Wennappuwa and Chilaw comes to Doowa GND and fishermen from Wattala and Pamunugama comes to Kepungoda GND for fishing activities; ■ Consultation with the fishing communities identifying the different types of boats that are used for different types of fishing like OFRP (One day boat) which is 25-40 HP, Multiday boat including roller which

S. No.	Stakeholder Category	Key Points Discussed
	<p>Palliyawatta GND, Palliyawatta South GND, Pamunugama GND, Paranaambalama GND, Uswatakeiyawa GND</p> <p>DS: Colombo</p> <p>Modara GND, Mattakkuliya GND, Lunupokuna GND, Aluthmawatala GND</p>	<p>is 250-300 HP and I.M.U.L. (mainly for catching prawns/ shrimp) which is 700-1000 HP;</p> <ul style="list-style-type: none"> ■ Each boats contains nearly 3, 8 and 5 number of fishermen; ■ For OFRP/ one day boat the fish catch may be upto 50-80 kg in one trip. The one day boat mostly sail upto 6-10 km.; ■ The IMUL boats and lagoon rafts mostly use for prawn catch. 40-50 kg prawn catches per trip with this type of boat; ■ There are 100 numbers of OFRP, 15 number of Multiday boat and 14 number of IMUL at Doowa GND; ■ The common fishing gear used by the community is stake net which is locally called <i>kattudel</i>. This is an ancient (from early 1950s) lagoon fishing technique in many regions of Sri Lanka to catch prawn, lobster, crab; ■ Fish catches are mostly big fishes like Giant Trevally, Grouper, Cuttlefish, Skipjack Tuna, Amblygster sirm, Bigeye scad, red snapper. The price of these catch varies accordingly the type of fish; ■ It was reported that 10-12 people at this GND are associated with boat repairing work and 20 people associated with net weaving; ■ Boat owners make a contract with boat repair worker for their boat repairing. The contact amount differs as per the type of the boats. For multiday boats including trollers usually charges Rs. 2 lakh. It took 7 days to repair a boat. The OFRP and IMUL boats charges Rs.10000-15000 and it takes 1-2 days to repair; ■ Average cost of net weaving is Rs.5000.; ■ Cost of net- Dello Net is Rs.10000, Kattu net 15000 and other types of net is Rs.60000; ■ As per the discussion with fishermen a place called '<i>harasna</i>' locally which is a rock reef area habitat of large number of prawn population. This place is 10 km from the shoreline of Negombo. ■ The fishermen express their concern regarding there has been change in fish catch in the last 5 years due to sand mining activities, dredging at sea for port city project. Also, climate change is another reason which impact on overall fish population; ■ The fishermen mentioned different type of fish catch as per distance. Like Prawns and mullet fish catch usually within 2 km. Giant Trevally, Grouper, Cuttlefish catch till 6 km, Skipjack Tuna, Amblygster sirm, Bigeye scad catch upto 10 km and sail fish, Red snapper are deep sea fish catch which is more than 10 km. ■ During the month of May to September which is called <i>Warakan</i> locally i.e. high sea season/ south west monsoon period the average fish catch per trip at shallow sea worth Rs. Upto 40 thousand and at deep sea its Rs.1 lakh. During <i>Harawa</i> season which is December to March i.e. low sea season that is fish intensive season. The fish catch at swallow sea worth Rs.70 thousand and at deep sea its 1.5 lakh. ■ The market price of Tuna fish varies in between Rs.800-1000, price of prawn varies Rs.1000-1500, price of Mullet fish varies in between Rs.750-850. ■ As stated by the fishermen the fish catch is directly brought to the landing point cum selling centre. The auctioneer auctions the price of 90% of the fish catch. Only the small fish catch directly sell by the fishermen at fish selling centre or local market; ■ on a day to day basis a small vendor buys about 50 Kg of various fish from the small boats per day and sells about 25-50 Kg of it on a daily basis. During the festive seasons they earn about 18,000 LKR of fish with an average income of 100,000 LKR per day. Sundays and special Christian holidays such as Christmas, is the peak period for business. During Hindu religious events during the month of September, October

S. No.	Stakeholder Category	Key Points Discussed
		<p>the income reduces to about 6000 LKR. These shops are accessed by the local residents to buy fish for their daily consumption. The large shops incur more profit since they sell large quantities of fish on a daily basis;</p> <ul style="list-style-type: none"> ■ Majority are small fish vendors who generally sell small fishes in their roadside fish huts since the large fishes are costly for them to afford. These small fish huts are functional from 8:00 AM in the morning to 8:00 PM in the evening every day; ■ As reported during consultation the landing points or the fish selling points is reported to be the main center where the buyers and sellers especially the middlemen/fish trader would collect/buy the fish-catch from the fishermen. Fish is directly sold to middlemen or taken by the boat/trawler owners; ■ First the total cost for boat operation (like fuel cost and other maintenance of the boat) is deducted from the total income and then balance income is divided into two parts. 50% is taken by the boat owner and the balance 50% is shared among persons involved in the boat operation. If boat owner is involved in fishing activities, he also got the sharing of the 50% additionally; ■ The fishermen also mentioned that the proposed project has national level significant benefits, but activities such as sea sand extraction will generate some negative impacts. Therefore, such impacts should be properly mitigated. Also, completion of the sand extraction should be done within a short period of time. The sand mining locations and also transport route may be demarcated with illuminate measures for fishermen to identify such locations even from far distance; ■ The fishermen stated that due to sand mining activity coastal sand erosion happen at Negombo area. The authority should keep this in mind;
2	GN Officer, Doowe	<p>The key informant interview (KII) was conducted on 22nd October 2022 with M. A. Sita Fernando, President, Samurdhi organization, Doowe.</p> <p>Expressed some positive opportunities like</p> <ul style="list-style-type: none"> ■ Opportunities for short and long term employment and other income generation, Opportunity to country to generate foreign income, Further improvements to the Colombo port, as one of the most important economic infrastructure of the country. <p>Expressed some negative impacts like</p> <ul style="list-style-type: none"> ■ There can be reduction of fish population in shallow sea area close to the sand extraction locations due to noise and sediments generated during sand extraction activities; ■ There can be tendency for generated sediments during sand extraction to get deposited in fish breeding locations of rock reefs in the area. This will lead to reduce the fish population in the long run; ■ A rock reef known as “<i>harasna</i>” might get affected with sea sediments. This is one of the important locations of fish breeding in the area; ■ There can be incidents of damages to the fishing nets operated in the sea sand transportation route in the sea; ■ The operations of sea sand transportation equipment may also create disturbances of the free moment of fishing boats. There also can be rare incidents of damaging to the fishing boats in this area. <p>The mitigation measures will be mentioned below:</p> <ul style="list-style-type: none"> ■ Minimum number of machines for sand extraction and transportation may be used in the sea; ■ Possibilities should be explored to avoid disturbances to the fish breeding locations especially rock reefs in the area;

S. No.	Stakeholder Category	Key Points Discussed
		<ul style="list-style-type: none"> ■ Action should be taken to complete the sand extraction activities within a short period of time; ■ The fishermen should be informed with sand extraction time schedule in the sea. This communication can be implemented through leaders of the fishery associations and fishery inspectors in the respective area; ■ Operation activities in the sea sand extraction and sand transportation may not be carried out during night; ■ Whatever employment opportunities emerge should be provided to the suitable local youth in the area, depending on their qualifications <p>Also, few points which will be benefitted for the community can be implemented by project proponents like:</p> <ul style="list-style-type: none"> ■ Possibilities should be explored to provide high quality fishing nets to the fishermen in project affected area, especially in Negombo; ■ Project investors may consider to provide some financial assistance to the fishery associations located in the project impacted area; ■ The boat owners also stated that company provide insurance for their boats.
3	Boat Owners at fish Landing point Doowa GND, Negombo	<p>The consultation with boatowners at Doowa GND of Negombo took place in the month of October 2022. The consultations were conducted in small groups of 5-6 boatowners.</p> <ul style="list-style-type: none"> ■ Name of fish landing point- Mahalellama which is controlled by fisheries association; ■ Daily fish unloading quantity is 150 thousand kg.; ■ During <i>Harawa</i> season which is December to March i.e. low sea season daily fish unloading is 180 - 200 thousand kg of different fishes like Tuna, Amblygaster sirm, Bigeye scad, mullet, <i>Thora</i>, <i>Madu</i> and during the month of May to September which is called <i>Warakan</i> the daily fish unloading is 60-70 thousand kg.; ■ The office of fish landing point reported that there has been change in fish unloading in the last 5 years due to sand mining activities, dredging at sea for port city project; ■ The fishermen from Chilaw, Wennappuwa, Mulative, Nayaru and also from southern province come at this fish landing point for unloading and selling fishes; ■ As reported the fish catch is directly brought to the landing point cum selling centre. The auctioneer auctions the price of 90% of the fish catch. Only the small fish catch directly sell by the fishermen at fish selling centre or local market; ■ 2 labours work at every fish landing points for unloading the fishes. These labours are usually from local villages.
4	Women Family members of fishermen family	<ul style="list-style-type: none"> ■ As reported during consultation with community women are mostly staying at home for household work; ■ Some women are associated with tailoring work, daily wage work, housekeeping work, pickle making, and animal husbandry; ■ For daily wage work women need to travel at Negombo, Katunayake, Colombo. They work in different industries there; ■ Women are not associated with fishing activity; ■ Weaving net, maintenance of fishing gears etc are usually done by male. ■ The women community stated that they have small group account under Samurdhi program. These small groups are mainly involved in providing credits to the group members; ■ Also, many of them have account in different microfinance institution;

S. No.	Stakeholder Category	Key Points Discussed
		<ul style="list-style-type: none"> ■ As an option for alternative livelihood, women groups proposed following options- poultry farming, food processing; ■ The women communities also mentioned that if there is no disturbances of fishing activity they are not against the project.
5	Local community from coastal villages at Negombo, Wattala and Colombo DS	<ul style="list-style-type: none"> ■ The coastal area of Negombo, Wattala and Colombo DS consists mainly of fishing families. They engage in traditional coastal, near shore and deep-sea fishing activities throughout the year; ■ As reported during consultation due to sand dredging activity the beach at Negombo coastal region may get unstable; ■ There is not any active tourism activity at the offshore region in the proposed sand dredging area; ■ The locals expressed their concern regarding any job opportunity during construction phase for WCT-1 project; ■ Most of the fishermen in Negombo area used to do fishing in the sea area demarcated for sand extraction. Therefore, there can be negative impact on fishermen in Negombo area due to sand mining and sand transportation;
6	CWIT	<ul style="list-style-type: none"> ■ Consultations were done with the CWIT team regarding the existing grievance redress mechanism and the institutional arrangement for the project implementation; ■ The proposed extraction site is located at about 7.2km - 9km away from the existing coastline; ■ The dredger hopper transportation will be used to transport extracted sand to the Colombo port. The distance of the transport route is about 20km; ■ The sand extraction from the identified location of the sea may create some disruption to the fishermen involved in fishing in the coastal waters in the Negombo area. However, since the dredging activities will be limited to a small area, the disturbances for the fishing activities will not affect the entire fishing population. The disturbances will be only limited to the dredging location and along the sailing route of the dredger, at the time of dredging being undertaken ■ A mechanism of providing Life Insurance and Personal Accident Cover has been implemented for all registered fishermen falling under the dredging area during the entire dredging period. CWIT has obtained a personal accident Insurance cover (Policy Number G/010/PA/ 39755 dated 9 Feb 23 to 8 Feb 2024) from Sri Lanka Insurance Company Ltd. of sum insured LKR 12 lakh and LKR 9,785,631 for 6034 number of persons. The policy has been attached in Appendix A. ■ CWIT has also implemented an insurance program to safeguard the fishermen. The insurance program will be effective/ confined for the period of the project implementation. The needs for compensation through insurance will also be monitored through proper institutional mechanism to avoid possible conflicts. ■ Formal mechanism has been set up with the consultation of the Fisheries Department to address any damages to fishing boats and other related equipment due to dredging operations. Based on the evaluation and approval of this committee, CWIT will compensate damages arising due to dredging activity, through the insurance proceeds. CWIT has obtained a separate Insurance cover from Sri Lanka Insurance Company particularly for Damages of Boats, fishing Gears and Equipment of the Fishermen Related to the Dredging Operation of CWIT. (Policy No: H/81/2022/P dated 12th November 2022). ■ Regular awareness programmes are being conducted for fishing community, government officials etc. in the area to enhance their knowledge on the project activities. So far 11 awareness programs

S. No.	Stakeholder Category	Key Points Discussed
		<p>have been taken during the period of May to November 2022 with DFAR and MoF officials, DS office Colombo, Negombo and Wattala GNs and other related officials, Fisheries Inspectors of DFAR, Fishing community at Nagombo, and fisheries associations, The Minutes of the awareness programs has been attached in Appendix B.</p> <ul style="list-style-type: none"> ■ As recommended in the IEE the developer has facilitated General Insurance policy No. G/01/PA/39755 dated 17th November 2022 to cover first 4000 nos of fishermen out of target 12,000 nos of fishermen in the region. SLIC and CWIT have been obtaining the list of beneficiaries from the field with the assistance of DFAR. The insurance cover different aspects like 1,200,000 for accidental death or permanent total disablement, 600,000 for partial disablement, 7500 per month for 12 month up to maximum 1,200,000 of missing of fishermen due to accident during fishing activity, 500 per day for hospitalization for maximum 14 days, 1000 per month per child for education allowance; ■ The secretary of Ministry of Fisheries by his letter No DFAR/ DEV/ DEV/ .W&E/ CT 2023 dated 24.02.23 has informed SLPA to deposit the agreed amount of Rs. 140 million as compensation for fishermen. ■ Apart from the implementation of legitimate obligatory measures for possible impact mitigation the project developer as responsible and accountable private sector institution intends to assist community development and environment enhancement projects to be implemented in the affected areas. The intended assistance is proposed as Corporate Social Responsibility (CSR) of reputed private industry. ■

PROPOSED STAKEHOLDER ENGAGEMENT STRATEGY

Principles

The Stakeholder Engagement Plan (SEP) shall be informed by a set of principles defining its core values underpinning interactions with identified stakeholders. Common principles based on “International Best Practice” include the following:

- Commitment is demonstrated when the need to understand, engage and identify the community is recognized and acted upon early in the process;
- Integrity occurs when engagement is conducted in a manner that fosters mutual respect and trust;
- Respect is created when the rights, cultural beliefs, values and interests of stakeholders and affected communities are recognized;
- Transparency is demonstrated when community concerns are responded in a timely, open and effective manner;
- Inclusiveness is achieved when broad participation is encouraged and supported by appropriate participation opportunities;
- Trust is achieved through open and meaningful dialogue that respects and upholds community’s beliefs, values and opinions.

The SEP is an overarching guidance document that will need to be implemented throughout the project lifecycle. Certain sections and templates will need to be maintained by CWIT as a live document and additional measures, engagement strategies will be incorporated through the project cycle based on the experience gathered on the effectiveness of the existing methods of engagement and the implementation strategies. The engagement strategy proposed in this SEP is informed by mapping of relevant stakeholder groups identified on the basis of the review of project activities and feedback received through extensive field consultations undertaken as part of the study.

Based on the stakeholder identification and analysis undertaken, a detailed plan is prepared that guides the engagement process with each stakeholder group, as identified in table below **Table 4.1**. The Social and Community Supervisor shall be responsible for maintenance of the records of along with the members that engage with stakeholders during construction and operations phase, along with addition of addition of any new categories identified.

Table Error! No text of specified style in document..13 Stakeholder Engagement Plan

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
Construction Phase					
(Grama Niladhari/ village officer of respective Grama Niladhari division)	<ul style="list-style-type: none"> ■ Information given regarding the project, including the background of the project; ■ To understand the key concerns related to the projects like employment opportunities, social disruption between local inhabitants and workforce; ■ Understood socio economic profile of fishermen community; ■ Understanding potential impact of the project on stakeholders; ■ To identify and document, if there is any grievance, query or recommendation of GN or local community 	<ul style="list-style-type: none"> ■ Consultations, meetings with Gram Niladhari members and local community, individual meeting/ discussion; ■ Sharing of documents, ideas pertaining to development activities; ■ For issues concerning Grievances Redressal Mechanism (GRM) 	Once in a month, while dredging is ongoing	WCT-1 project team	Minutes of the meetings needs to be recorded
Department of Fisheries and Aquatic Resources (DFAR) has been decentralized into Coastal Fisheries Districts and each district is divided into number of Fisheries Inspectors Divisions (FIs). Assistant Directors (AD) Office of the concerned districts within the project area – Colombo and Negombo fishing Districts	<ul style="list-style-type: none"> ■ On maintaining compliance to regulatory requirements; ■ To obtain initial clearances or concerns or permits for implementation of the project ■ Laws and regulation abiding the sustainability fishing practices in the region ■ Responsible for registration of fishermen and provide Fisherman Card ■ Enforcing the laws and manage the fishermen and their activities and development at the local level. 	<ul style="list-style-type: none"> ■ Face to face discussion. ■ Through applications, letters, etc. ■ GRM 	Compliance review meeting periodically	WCT-1 project team with contractors	Minutes of the meetings, emails, letters and other correspondence needs to be recorded for future communication
Fishermen Community (permanent and seasonal)	<ul style="list-style-type: none"> ■ While dredging if there is temporary disruption of fishing route and fishing zone 	<ul style="list-style-type: none"> ■ Face to face discussion and/or Focus Group Discussion; ■ GRM 	Monthly	WCT-1 project team with contractors	Minutes of the meetings needs to be recorded

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
Local Community from costal villages at Negombo, Wattala and Colombo DS	<ul style="list-style-type: none"> ■ To identify labour class in the village and site area; ■ To identify their skill set and adequacy for engaging them in the on-going construction activity, i.e. as construction worker, security guard, cook, technician etc.; ■ To understand more about their expectation from project; 	<ul style="list-style-type: none"> ■ Focus Group Discussion and/or Open Public Meetings 	Monthly	WCT-1 project team	Minutes of the meetings needs to be recorded
Women Family members of fishermen family at different GNs of Negombo, Wattala and Colombo DS	<ul style="list-style-type: none"> ■ Understand the role and engagement of women in the workforce; ■ Understanding the livelihood/ employment opportunities at village level; ■ To understand, if there is any need based demand from youth especially women/ girls, regarding skill development 	<ul style="list-style-type: none"> ■ Face to face discussion and/or Focus Group Discussion; ■ GRM 	Quarterly	WCT-1 project team	Minutes of the meetings needs to be recorded
Central Environment Authority (CEA)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits ■ Submission of compliance report as per approval condition for sand borrow area and terminal area 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc 	Periodic As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Coast Conservation & Coastal Resource Management Department (CC&CRMD)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits for construction of terminal 	<ul style="list-style-type: none"> ■ Through applications, letters, etc 	As required	SLPA and WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Marine Environment Protection Authority (MEPA)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits for oil spill contingency plan ■ Approval/renewal of permits for reclamation at WCT-1 and 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion 	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
	dumping of material unsuitable for reclamation ■ Reporting of any oil spill during construction stage of the project				
Geological Survey and Mines Bureau (GSMB)	■ Approval/ renewal of permits for operation of offshore borrow site; ■ Reporting of dredging operation as per approval condition (borrow area/ dredging depth)	■ Through periodical reporting	Periodic As required	SLPA and WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Sri Lanka Port Authority (SLPA)	■ Approval/ renewal of permits by (i) CCRMD, (ii) CEA, (iii) GSMB, (iv) DFAR, (v) MEPA ■ Port facility for treatment of ships waste water and hazardous waste; ■ Maintaining the shipping channel	■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Municipal Council, Colombo	■ Municipal solid water management ■ Maintenance of road condition within the Colombo city for movement of inward and out ward traffic during construction stage	■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Emergency response agencies (Police/Fire Brigade / Hospital) Central Environmental Authority & Disaster Management Centre	■ Emergency management at the time emergency for man made and natural disasters (e.g. Oil spill, cyclones, tsunamis)	■ Telephonic discussion	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Master Contractors for terminal development	■ Ensuring smooth operations and timely construction; ■ Implementation the environmental and social management plan	■ Face to face discussion; ■ Emails; ■ Telephonic discussion ■ GRM	Periodic As required as per the respective contracts	WCT-1 project team	• Contractual agreement, Emails, letters and other correspondence needs to be

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
	<ul style="list-style-type: none"> ■ Resolution of disputes ■ Encourage contractors to hire semi-skilled and un-skilled position from the local community. ■ Implement the occupational health and safety management plan, community health and safety management plan, labour management plan; ■ Periodic reporting to WCT-1 Project team 				<p>recorded for future communication</p> <ul style="list-style-type: none"> • Periodic monitoring report
Dredging contractor	<ul style="list-style-type: none"> ■ Sand dredging as per approval conditions provided by the regulatory agencies; ■ Maintaining the record of the dredging area, depth of dredging, volume of dredge materials and reporting to WCT-1 project team ■ An appropriate warning system for the safety of maritime traffic and fishing vessels ■ Maintain the dredging material transport route to maritime traffic and fishing vessels; ■ Prevent any spillage of dredge materials during transportation; ■ Prevent any oil spillage and in case of any spillage report to WCT-1 project team and SLPA 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Emails; ■ Telephonic discussion ■ GRM 	Periodic As required	SLPA and WCT-1 project team	<ul style="list-style-type: none"> • Contractual agreement, Emails, letters and other correspondence needs to be recorded for future communication • Periodic monitoring report
Quarry contractors & quarry material transporters	<ul style="list-style-type: none"> ■ Timely supply of required boulder for the WCT-1 project ■ Renewal of permits for operation of quarry 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Emails; ■ Telephonic discussion ■ GRM 	Periodic As required	WCT-1 project team	<ul style="list-style-type: none"> • Contractual agreement, Emails, letters and other correspondence needs to be recorded for

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
	<ul style="list-style-type: none"> ■ Environmental compliance as per clearance/ permit conditions; ■ Transport of quarry materials with minimum impact on environment and community health and safety 				future communication <ul style="list-style-type: none"> • Periodic monitoring report
Operation Phase					
Local Community from coastal villages at Negombo, Wattala and Colombo DS	<ul style="list-style-type: none"> ■ Understanding the employment opportunities at village level; ■ To understand, if there is any need based demand from youth regarding skill development and income generation activity,. 	<ul style="list-style-type: none"> ■ Face to face discussion and/or Focus Group Discussion; ■ GRM 	<ul style="list-style-type: none"> ■ Quarterly 	WCT-1 project team	Minutes of the meetings, emails, letters and other correspondence needs to be recorded for future communication
Central Environment Authority (CEA)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits ■ Submission of compliance report as per approval condition for terminal area 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc 	Periodic As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Marine Environment Protection Authority (MEPA)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits for oil spill contingency plan ■ Reporting of any oil spill during operational stage of the project 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion 	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Sri Lanka Port Authority (SLPA)	<ul style="list-style-type: none"> ■ Approval/ renewal of permits by (i) CEA, (ii) MEPA ■ Port facility for treatment of ships waste water and hazardous waste; ■ Maintaining the shipping channel 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion 	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication
Municipal Council, Colombo	<ul style="list-style-type: none"> ■ Municipal solid water management ■ Maintenance of road condition within the Colombo city for movement of inward and out 	<ul style="list-style-type: none"> ■ Face to face discussion; ■ Through applications, letters, etc ■ Telephonic discussion 	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication

Stakeholder Group	Objective	Proposed Engagement and Disclosure Method	Timing of engagement	Teams	Record keeping method
	ward traffic during construction stage				
Emergency response agencies (Police/Fire Brigade / Hospital) Central Environmental Authority & Disaster Management Centre	<ul style="list-style-type: none"> ■ Emergency management at the time emergency for man made and natural disasters (e.g. Oil spill, cyclones, tsunamis) 	<ul style="list-style-type: none"> ■ Telephonic discussion 	As required	WCT-1 project team	Emails, letters and other correspondence needs to be recorded for future communication

IMPLEMENTATION ARRANGEMENT AND MONITORING MECHANISM

Responsibilities for Implementing Stakeholder Engagement Activities

CWIT has already established a team of officers who are undertaking Stakeholder Engagement. The team is headed by the Project Director. The SEP may be implemented through an Implementing Agency that will be hired by CWIT, or a dedicated team within CWIT (environmental & social manager or community liaison officer) will manage the SEP. The implementing agency selected will report to the Project Director and will work in close coordination and with support of Environmental & Social Manager and Community Liaison Officer.

Roles and Responsibility of WCT-1 Project Team

- Engage in grievance redress and ensure the prompt resolution of complaints.
- Engage the services of an external monitor, if required.
- Track the implementation of the SEP

CWIT Monitoring and Supervision team

CWIT in-house team like environmental & social manager or community liaison officer will be deployed for monitoring and supervision for the project.. The responsibilities will be:

- Assisting the PMU to appoint an implementing agency (if required) for the proper implementation of the stakeholder engagement activities and monitor the performance of the agency in the implementation of the plan;
- Ensure establishment of GRM and effective functioning of it;
- Track the implementation of the SEP and Preparation of periodic progress reports to the project management on progress of the project and shared with CWIT on a quarterly basis.

SEP Implementing Agency (if required)

The PMU will engage the services of an agency to implement the Stakeholder engagement plan. They will facilitate the process of GRM. They will be responsible to deliver the following:

- Develop rapport with affected fishermen and engage into community mobilization;
- Carry out information dissemination activities to create awareness about the project;
- Screen and identify the affected fishermen based on eligibility criteria and create a database of the same;
- The implementing agency shall keep the monitoring consultant updated on the conduct of Project on a monthly basis by providing reports in the approved format.
- Implementing agency will be responsible for mobilizing the identified fishermen and will support them to open bank accounts (if required, for receiving grants and loan amount).
- The agency shall seek to infuse Government support wherever possible, and shall give particular emphasis on convergence with the DFAR for stakeholder engagement of the fishermen.

Monitoring and Reporting

The Monitoring and Reporting (M&R) mechanism is an integral part of any project implementation to measure project performance and achieve project objectives and provides the basis to assess the overall success of the SEP and its effectiveness.

The monitoring will be done by the CWIT Monitoring and Supervision (M&S) team. The M&S team will be responsible for reporting to CWIT in regular intervals. The M&S Consultant will conduct periodic

assessment of the SEP implementation. The reports of the M&S Consultant on monitoring should be prepared bi- annually and submitted to CWIT.

Budget for SEP implementation

Tentative budget provision for implementation of stakeholder engagement plan during the project life cycle is provided below given in the Table below.

Table Error! No text of specified style in document.-14 Tentative Budget for SEP implementation

S. No	Activities	Total Cost (Lumpsum) in LKR (million)
1	Consultations with identified stakeholders	2
2	Videography/Social Media/Electronic and others	1
3	Orientation program and workshop on SEP	1
	Total	4

GRIEVANCE REDRESSAL MECHANISM

A grievance would usually mean some form of concern by a stakeholder which needs to be redressed in order to continue smooth implementation of the project. The GRM to uphold the Project's development outcomes as well as its social and environmental performance is designed to address concerns and complaints promptly and transparently with no direct or indirect retaliation on the aggrieved party. Grievances raised by stakeholders will need to be managed through an accountable and transparent process, at no cost. The GRM will work within the existing national and state's legal and accountability frameworks and will provide an additional opportunity to stakeholders and interested parties to resolve their project specific grievances.

The need for an institutional mechanism which operates independently to validate the grievances and efficiently compensate for such grievances was identified as a critical measure in the IEE and was conditional on the approval given by the CEA for the IEE. Therefore, a Grievance Redress Committee (GRC) was established to address this need.

According to the consultations undertaken with the local community like fishermen community, women group and the project team, it was understood that the public meetings were used by the local community to voice their concerns and there have been agitations and demonstrations by the community at the DSD and GND level Government offices.

0.2 Composition of the GRC

The GRC will be driven internally by the Project team and shall have representation from the following teams to ensure fair and timely solution to the grievances:

- Project Director;
- Environmental and Social Manager;
- Community Liaison Officer;
- Divisional Secretary (Negombo),
- Divisional Secretary (Katana)
- Assistant Divisional Secretary (Wattala)
- Assistant Director Fisheries (Negombo)
- Marine Engineer Assistance, DFAR (Negombo)
- Fisheries Inspectors from Pitipana, Aluthkuruwa & Kepungoda FI Divisions,
- Grama Niladari officials from Dungalpitiya, Kepungoda, Settappaduwa & Thaladena and
- Manager Samurdhi programme
- Planning Engineer, Sri Lanka Ports Authority
- Head of Security, Colombo West International Terminal Ltd.
- Consultant Engineer, Colombo West International Terminal Ltd

Functioning of the GRC for Grievance Redress

The GRC meetings will be held on a regular basis (at least monthly) at the Divisional Secretary's Divisions (DSD) office at Negombo. The key responsibilities of the GRC shall be as follows:

- Receive, review, consider and resolve grievances related to the social and environmental aspects of the project;
- Entertain grievances of indirectly affected persons and/or persons affected during project implementation;
- Resolve grievances within a period of two weeks at the GRC level and communication of the resolution to the aggrieved party.

Grievance Handling Procedure

Any grievance reported in any FI division along the Wattala/Negombo shoreline will be brought to the notice of the GRC through the relevant FI of the relevant area.

Once the Grievances are validated by the GRC, CWIT as the Project Developer is required to provide swift compensation that would be agreed between the GRC and the Grieving Party. To this end, CWIT has also availed a third-party liability insurance cover and life covers for the fishermen to effect the compensation payments effectively. Cost for GRC related activities will be borne by the Project Developer.

The grievance procedure is as follows:

- Depending on each grievance escalated from community, the relevant Grama Niladhari and Fishery inspector are participated to the meetings, when required.
- The fishery inspectors obtain grievances from fishermen and forward to GRC.

Further, depending on each grievance escalated from community, the relevant Grama Niladhari and Fishery inspector participate the meetings, when required. The fishery inspectors obtain grievances from fishermen and forward to GRC.

Annexure A: Life Insurance and Personal Accident Cover Insurance for Fishermen

Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance

Colombo Head Office

VAT Reg.No.2940015907000 SVAT Reg.No.000645
Sri Lanka Insurance Sri Lanka Insurance
General Accident DEBIT NOTE (N.B) **THIS IS NOT A TAX INVOICE**

Debit Note No. :D/2022/010/31/004872 Date:2022/11/16

Proposal/Policy No. :G/010/PA/39755

Sum Insured :Rs. 4,800,000,000

Period of Insurance :From 2022/11/12 To 2023/11/11

Name of Insured :M/S.COLOMBO WEST INTERNATIONAL TERMINAL (PVT) LTD

Address :NO 117 SIR CHITTAMPALAM A

GARDINER MW COLOMBO 02

Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance

	Rs.Cts.	වැදගත් / முக்கிய அறிவிக்கல் / IMPORTANT
Net Premium	6,302,760.00	අප වෙත පමණක් ඉන්ශුරන්ස් දීමට සිටින ඔබේ ඉන්ශුරන්ස් කොන්දිසානවලට අනුකූලව පුනර් විමර්ශනයක් සිදු කිරීමට අපට අවස්ථා ඇත. ඔබේ ඉන්ශුරන්ස් ගිණුමේ මුදල සුදුසු ලෙසින් පුනර් විමර්ශනය කිරීමට අපට අවස්ථා ඇත. Settle your premium within 30 days from Policy commencement date.
Policy Fee	500.00	
Administrative Fee	184,247.18	

Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance

Total Debit Amount 6,487,507.18
Sri Lankan Rupees Six Million Four Hundred Eighty Seven Five Hundred Seven and Cts. Eighteen Only.

Paid On : PERSONAL ACCIDENT Client ID : 5397000434
Service Code : 106309 S.N. JAYAWARDENA (ME) (N)
File Service Branch : Business Dev

Name of Debtor : 1262 MR. N. JAYAWARDENA
If you disagree with the contents of this debit note please inform us within 14 days of the debit note. Otherwise we will consider this as correct. Please settle the Premium within thirty days and quote Debit Note Number when Making payments.
The cover provided is subject to the conditions stipulated in the premium payment Warranty attached.

ANUSHA CHANDRAN
Manager - Personal Accident
SHE/PA - UW & Clams Dept.
Sri Lanka Insurance Corporation Ltd.

2022/11/16, 05:03:49, 8972

Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance Sri Lanka Insurance

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28531019

Company Registration Number: PB 289
21, Vauxhall Street, Colombo 2, Tel : 011 - 2357457 Fax : 011 - 2357236
(Form No. 7(2A)) e-mail : slc@sri.lankainsurance.com web : www.sri.lankainsurance.com
CUSTOMER COPY 11/16/2022

PREMIUM PAYMENT WARRANTY FOR POLICIES OF GENERAL INSURANCE

Debit Note No: D/2022/010/31/004872

1. Notwithstanding anything herein contained but subject to clause 2 and 3 hereof, it is hereby agreed and declared that the full premium due and payable in respect of this insurance is required to be settled to the Insurer (Sri Lanka Insurance Corporation Ltd.) on or before the premium due date specified in the Schedule of this Policy, Renewal Certificate, Endorsement or Cover Note (which shall be a date not exceeding 60 days from the date of inception of the policy) and in the absence of any such premium due date, the full settlement of the premium is required to be made or effected on or before the expiry of the 60th day from the date of inception of this policy, Renewal Certificate, Endorsement or Cover Note (hereinafter referred to as the "due date")

For the purpose of the warranty the "due date" shall be recognized from the date of inception or commencement of the coverage

2. It is also declared and agreed that the settlement of the full premium on or before the due date shall operate as a condition precedent to the insurer's (Sri Lanka Insurance Corporation Ltd.) liability or an obligation to settle a claim under this Policy, Renewal Certificate, Endorsement or Cover Note.

In the event any claim arises between date of commencement of this insurance and the "due date" for the settlement of premium, the Insurer (Sri Lanka Insurance Corporation Ltd.) may defer any decision on liability or postpone the settlement of any such claim until full settlement of the premium is effected on or before the "due date".

3. It is also declared and agreed that where the full premium payable hereunder remains outstanding as at the closure of business of the insurer on the "due date" then the cover under this insurance and any obligations assumed or imputed under this insurance shall stand to be cancelled, ceased and revoked immediately.

However such cancellation will not prejudice the right of the insurer (Sri Lanka Insurance Corporation Ltd.) to invoke any legal defenses or to recover the full or any part of the defaulted premium attributable to the expired period of the insurance.

28531020

Company Registration Number: PB 289
 21, Vauxhall Street, Colombo 2, Tel : 011 - 2357457 Fax : 011 - 2357236
 e-mail : slic@sri.lk www.sri.lk

(Form No. 7/24)

CUSTOMER COPY

ශ්‍රී ලංකා ඉන්ශුරන්සන් කොරපරේෂන් ලිමිටෙඩ්
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 Sri Lanka Insurance Corporation Ltd



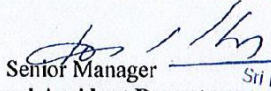
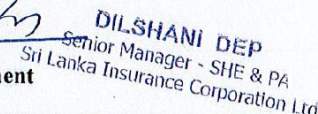
M/S. COLOMBO WEST INTERNATIONAL TERMINAL(PVT) LTD
 No.117, Sir Chittampalam A. Gardiner Mawatha,
 Colombo -02.

Dear Sir,

Date : 17/11/2022

COVER CONFIRMATION OF INSURANCE COVER FOR THE FISHERMAN INSURANCE SCHEME

We hereby confirm the subject fisherman insurance cover for the period of one year with effect from 12/11/2022 to 11/11/2023 subject to pending proposal form and details of the insured members.

Class of (Insurance) business	Personal Accident Insurance
Insured Name : M/S. COLOMBO WEST INTERNATIONAL TERMINAL(PVT) LTD	
Policy No	: G/010/PA/39755
Sum Insured [Per Person]	: Rs.1,200,000/-
No of persons	: 4000
Period of Insurance	: 12/11/2022 to 11/11/2023 (One Year)
Coverage	: Please refer the attachment
Age Limit	: 18 - 65 Years 18 -64 Years (Entry age)
<u>Total Premium</u>	
Net	: 6,302,760.00
Admin Fee	: 184,247.18
Policy Fee	: 500.00
Total Premium	: 6,487,507.18
**Cover Commence after submission of proposal form & name list	
Subject to Personal Accident standard policy terms, conditions and exclusions.	
SRI LANKA INSURANCE CORPORATION LTD	
 Senior Manager Personal Accident Department	
 DILSHANI DEP Senior Manager - SHE & PA Sri Lanka Insurance Corporation Ltd	

හල: 21, වොක්හාල් ස්ට්‍රීට්, කොළඹ 02. ශ්‍රී ලංකා, ඉන්ශුරන්සන් (94-11) 2357000, 2357457 ෆැක්ස් (94-11) 2447742
 21, Vauxhall Street, Colombo 02, Sri Lanka. Tel: (94-11) 2357000, 2357457, ෆැක්ස්: (94-11) 2447742
 සමාජී අංකය: PB 289 සර්පනි පත්‍රිකා අංකය: PB 289 Company Registration No: PB 289
 www.srilankainsurance.com

Scope of Cover	Sum Insured [Per Person][Rs.]
01. Personal Accident Cover [Fisherman only]	
1.1 Accidental Death	1,200,000
1.2 Permanent Total Disablement	1,200,000
1.3 Permanent Partial Disablement	600,000
<ul style="list-style-type: none"> ● Motorcycling [Whether as a driver or pillion rider] ● 24 hours Cover & World Wide Cover. <i>(SRCC & TC not covered under this policy)</i> <i>(Death & Disability due to illness not covered under this policy)</i> <i>Please refer the attachment - Annexe 01</i>	
02. Funeral Expenses Cover [Fisherman Only]	
Funeral Expenses due to Natural Death only	200,000/- [Per Fisherman]
03. Missing of fisherman compensation [Fisherman Only]	
03-I Missing of fisherman due to accident during the fishing activities. - Subject to providing police report and other proof document to prove the disappearance (claims will be payable after the 05 months from the date of disappearance) (Maximum 05 events only for annum covered under this policy for entire fisherman member count)	7,500/- Per month subject to maximum 12 months.
03-II Missing of fisherman more than one (01) year whilst on fishing activities Benefits will be payable after deducting the amount being paid as monthly compensation under 3.1 subject to provide the Alternative death certificate. (Maximum 05 events only for annum covered under this policy for entire fisherman member count)	Maximum of 1,200,000
04. Hospitalization Allowance (Fisherman & family members only)	
Hospitalization due to accident or illness Maximum 14days payable for each fisherman family <ul style="list-style-type: none"> ● Fisherman / Spouse - 18 to 65 years ● Unemployed unmarried children - Up to 21 years (Minimum three (03) days hospitalization required to obtain benefit under this cover) Geographical limit within Sri Lanka only.	Rs.500/- Per Day (Maximum 14 days only)

Handwritten signature

05. Ticket Fare Cover [Fisherman only]	
Repatriation air ticket cost for repatriation due to accidents during the fishing activities. (Air ticket and Proof document compulsory for the payment)	Maximum of 40,000/-
	Ticket fare cost subject to maximum 40,000/- per air ticket on reimbursement basis.
06. Education Allowance	
Education allowance for school going children due to accidental death of the fisherman - Subject to providing proof documents of education (Maximum 02 children only.)	1,000/-per child, per month Maximum 01 year only

Age Limit : Between 18 – 65 Years. (Fisherman & Spouse)
Between 00 - 21 Years. [Unmarried unemployed child]

For Funeral Expenses Cover

Between 18 - 64 years [Fisherman only]
Cover cease at the age of 65Y.

Handwritten signature



PAYMENT INVOICE

PERSONAL ACCIDENT INSURANCE COVER

Our Vat Registration No. 294001590 - 7000

INSURED : M/S. COLOMBO WEST INTERNATIONAL TERMINAL(PVT) LTD
ADDRESS : No.117, Sir Chittampalam A. Gardiner Mawatha, Colombo -02.
POLICY NO : G/010/PA/39755
PERIOD : 09/02/2023 to 08/02/2024
SUM INSURED : Rs 1,200,000/- - Option 01
NO OF PERSONS : 6034

ADDITIONAL PREMIUM :

Net Premium	Rs.	9,507,713.46
Admin Fee	Rs.	277,917.54
Total Premium	Rs.	9,785,631.00

10th February 2023 Yours faithfully,
SRI LANKA INSURANCE CORPORATION LIMITED.
Manager - Personal Accident
HE/PA - PAW P. Claims Dept.
Sri Lanka Insurance Corporation Ltd.
Authorized Officer
PA/SHE



PERSONAL ACCIDENT INSURANCE DEPARTMENT

ENDORSEMENT

Policy No: G/010/PA/39755	Endorsement No: ORD/2023/01	Date: 10/02/2023
Insured: M/S. M/S. COLOMBO WEST INTERNATIONAL TERMINAL(PVT) LTD		

It is here by declared and agreed that the period of insurance has been amended to read as follows under the within written policy.

Amended period of insurance

From 2023/02/09 to 2024/02/08

Subject otherwise to the terms, exceptions, conditions and endorsements of the policy.

Colombo, 10th February 2023
SRI LANKA INSURANCE CORPORATION LTD.

ANUSHA CHANDRANATHAN
Manager - Personal Accident
Member - UWP-2, Claims Dept.
Sri Lanka Insurance Corporation Ltd
Personal Accident Department



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 Sri Lanka Insurance Corporation Ltd

Colombo Head Office

VAT Reg.No.2940015907000

SVAT Reg.No.000645

General Accident

DEBIT NOTE (O) **THIS IS NOT A TAX INVOICE**

Debit Note No. :D/2023/010/31/000602 Date:2023/02/10

Proposal/Policy No. :G/010/PA/39755

Sum Insured :Rs. 7,240,800,000

Period of Insurance :From 2023/02/09 To 2024/02/08

Name of Insured :M/S.COLOMBO WEST INTERNATIONAL TERMINAL (PVT) LTD

Address :NO 117 SIR CHITTAMPALAM A
 GARDINER MW COLOMBO 02

Rs.Cts.

දැනටමත් / முக்கிய அறிவித்தல் / IMPORTANT

Net Premium : 9,507,713.46

Administrative Fee : 277,917.54

දෙපයටම පමණක් පවතින බැවින් මෙය වෙනම දැනුම් දෙනු ලබන බවට සලකුණු කර ඇත. මෙයට අමතරව 60 நாட்களுக்குள் உங்களுக்கு உரிய தொகையை செலுத்தவும்.
 Settle your premium within 60 days from Policy commencement date

Total Debit Amount 9,785,631.00

Sri Lankan Rupees Nine Million Seven Hundred Eighty Five Six Hundred and Thirty One Only.

Paid On : PERSONAL ACCIDENT Client ID : 5397000434

Service Code : 106309 S.N. JAYAWARDENA (ME) (N)

File Service Branch : Business Dev

Name of Debtor : 1262 MR. N. JAYAWARDENA

If you disagree with the contents of this debit note please inform us within 14 days of the debit note. Otherwise we will consider this as correct. Please settle the Premium within thirty days and quote Debit Note Number when Making payments.

The cover provided is subject to the conditions stipulated in the premium payment Warranty attached.

Manager

2023/02/10, 04:07:24, 8972, 172.24.113.85

20378552

Company Registration Number: PB 289
 21, Vauxhall Street, Colombo 2, Tel : 011-2357457 Fax : 011-2357236
 Form No. <http://receipt-app/Beegama> <mailto:beegama@sri.lankainsurance.com> www.sri.lankainsurance.com

CUSTOMER COPY 2/10/20



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 ශ්‍රී ලங்கා ඉන්ෂුරන්ස් කොපරේෂන් ලිමිටඩ්
 Sri Lanka Insurance Corporation Ltd

99 - F2E P5 0008

D

Colombo Head Office
ENDORSEMENT (ADDITION)

GENERAL ACCIDENT

Endorsement No. : 001148 Date : 2023/02/10
 Policy No. : G/010/PA/39755
 Sum Insured : Rs. 17,240,800,000
 Debit No. : 602 2023/02/10 Rs. Cts. 9,785,631.00
 Amount Debited : 9,785,631.00
 Additional Premium : Rs. 9,507,713.46
 Period of Insurance : From 2023/02/09 To 2024/02/08
 Name of Insured : ----- M/S.COLOMBO WEST INTERNATIONAL TERMINAL (PVT) LTD
 Address : NO 117
 SIR CHITTAMPALAM A
 GARDINER MW COLOMBO 02

	Rs. Cts.
Net Premium	9,507,713.46
Administrative Fee	277,917.54
NBT	0.00

Class of Insurance : PERSONAL ACCIDENT
 Service Code : 106309 MR. S.N. JAYAWARDENA (ME) (N)
 Name of Debtor : 1262 MR. N. JAYAWARDENA

The cover provided is subject to the conditions stipulated in the premium payment Warrantly attached.

ANUSHA CHANDRAN
 Manager - Personal Accident
 SHE/PA - UW % Claims Dept.
 Sri Lanka Insurance Corporation Ltd

Checked
 2023/02/10 16:09:50 8972 172.24.113.85

20378554

Company Registration Number: PB 289
 21, Vauxhall Street, Colombo 2, Tel : 011-2357457 Fax : 011-2357236
 (Form No. 24) <http://www.srilankainsurance.com>

CUSTOMER COPY 2023

Appendix B: MoM of Stakeholder Consultation & Awareness Program

Summary of Stakeholder Engagement Program Conducted by CWIT

- Program # 3- for DFAR and MoF officials on 31st May 2022
- Program # 4- for DS office-Colombo, GNs and other related officials on 15th July 2022
- Program # 5- for DS office-Negombo, GNs and other related officials on 19th July 2022
- Program # 6- for DS office-Wattala, GNs and other related officials on 20th July 2022
- Program # 7- for FIs of DFAR- on 31st August 2022
- Program # 8- for Fishery Communities (Negombo) - on 28th October 2022
- Program # 9- for Fishery Communities (All Fishery Associations) - on 8th November 2022
- Program # 10 - for Fishery Communities (Wattala and Handala Fishery Associations) - on 14th November 2022
- Program # 11 - for Fishery Communities (Wattala and Handala Fishery Associations) - on 18th November 2022
- Program # 10 - for Fishery Inspectors - on 24th November 2022
- Grievance Redressal Committee Meeting #1 - 8th September 2022
- Grievance Redressal Committee Meeting #2 - 1st December 2022

Subject: Minutes of Awareness Program #3 – Offshore Sand Dredging for East Container Terminal and West Container Terminal, Port of Colombo

Date: 31.05.2022

Participants: DG, AD and other officials- DFAR ,

Director (Development)-MoF,

Officers of CWIT

Presented by: Sri Lanka ports Authority and CWIT

An Awareness program on Dredging operation was conducted on 31.05.2022 for Officials of DFAR and MoF.

1. SLPA & CWIT presented the importance of the project to the country, details of dredging operations including tentative timelines and activities to be executed during the dredging period.
2. DFAR requested to commence community awareness programs to regional politicians, local authorities and priests at least two to three months prior to the commencement of dredging operation so that a plan could be drafted to manage the community. Awareness programs to fisherman to be done later. DFAR committed to arrange these programs.
3. SLPA & CWIT mentioned that awareness programs were conducted for MPs in the region and priests earlier.
4. On request of SLPA & CWIT, DG-DFAR committed to provide details of proposed development projects in the region for agreed 90Mn.
5. DFAR conveyed that the Ministry had mentioned that Rs.90Mn may not be sufficient for the planned development projects owing to the present adverse situation in the country.
6. SLPA & CWIT requested DFAR to provide details of the proposed insurance policy for the fishermen similarly practiced in previous projects.
7. DFAR will propose a mechanism of how the payment of Rs.90mn will be made, including the receiving institutions. DFAR proposed SLPA&CWIT to conduct the construction of development projects. SLPA&CWIT requested DFAR or any nominated government institution (DS office) to carry out the design, procurement, construction and supervision relating to the development projects. However, DFAR pushed back on this and this yet remains unresolved.
8. DFAR requested that the operators to be present at the Operations Room should be conversant in both the Sinhala and Tamil languages.
9. DFAR is requested to establish the Grievance Redress Committee (GRC)

AWARENESS PROGRAM # 4,5,6

Sand Extraction from SLPA Barrow Area at Offshore Kerawalapitiya for

Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Attendance – On line meetings

Minutes of the programs

- Program # 4- for DS office-Colombo, GNs, FIs and other related officials on 15th July 2022
- 5. Program # 5- for DS office-Negombo, GNs, FIs and other related officials on 19th July 2022
- 6. Program # 6- for DS office-Wattala, GNs, FIs and other related officials on 20th July 2022

Outcomes/ Comments received,

1. DS Negombo office requested to Install of a Screen displaying real time trace/ position of dredger for public viewers in Negombo DS office.
SLPA/CWIT agreed to provide the same.
2. ADF(Negombo) needed to include ADF(Katana) into the GRC.
SLPA/CWIT agreed.
3. Area Engineer (CCCRMD) queried about the monitoring after completion of dredging work.
SLPA/CWIT explained the beach profile survey and the bathymetry survey in the area (as recommended in the IEE) to be carried out after dredging work.
4. ADF(Negombo) needed to engage the other relevant government organizations for a committee to monitor the project works jointly , continuously.
SLPA/CWIT explained that there is a Environmental Monitoring Committee(EMC) already formed under leadership of CEA to monitor the project works as recommended in IEE.
5. officers of DS Colombo and DS Negombo have mentioned the need of conducting awareness programs for fishing communities.
SLPA/CWIT explained that some separate programs are to be conducted for leaders of the fishing communities with the participation of DFAR/ FIs.
6. Officer of DS Negombo discussed to summon the first GRC meeting in first week of August 2022.
SLPA/CWIT committed to arrange the same.
7. SLPA/CWIT explained the policy for life insurance of fisherman and proposed package for infrastructure development projects are in progress and under further discussion with DFAR
8. SLPA/CWIT explained Operation Room will be installed before beginning of dredging operation, to disseminate the necessary information to fishermen.

Related information

DS- Negombo – Mrs. Ayesha Peris- 0714960701

DS- Colombo – Mr. Rathnayaka- 0718458970

ADS- Wattala – Mrs. Sadamali- 0778030021

ADF- Negombo- Mr. Dinesh Peris-0716121585

ADF- Assistant Fishery Director, DS- Division secretariat

AWARENESS PROGRAM #7

FOR FISHERY INSPECTORS(FIs)

Sand Extraction from SLPA Barrow Area at Offshore Kerawalapitiya for Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Awareness of Fishery Community

Location : Regal Réseau Hotel, negambo

Date : **31.08.2022**

Time : 10.00 AM

Attendance - As attached

Minutes of the program

1. CWIT/SLPA has conducted a presentation on the project and the dredging operation.
2. FIs has proposed following CSR projects,
 - a. Removal of mud/sludge at some landing sites.
 - b. Repairing sunshades at selected landing sites.
 - c. Repairing the community hall constructed by the Port City project.
 - d. Removal of sand dunes at Kepungoda fishing anchorage.
 - e. Demarcation of Madel sites coordinating with department of survey and DFAR.
 - f. Improving of infrastructure facilities at FI offices. (basic needs like water, toilets etc..)
3. CWIT/SLPA has explained, the infrastructure projects shall be developed by the DFAR on the proposed package to be contributed by SLPA/CWIT.
4. Other requests
 - Installing of a LED display which shows the real time position of the dredger at Duwa estuary. (at navy/ coastguard point) – coordinated with Coast Guard and Navy and the same was provided.
 - Initiate action to provide an incentive for FIs for their additional jobs during the dredging period – discussed the matter with DFAR
 - Educating of Grama Niladharis' on dredging projects and CSR work.
 - Help more schools in coastal belt with JKH food programme.
5. SLPA/CWIT committed to address all above requests as much as possible.

Photograph



AWARENESS PROGRAM #8

Fishery Communities (Negombo) - on 28th October 2022

Sand Extraction from SLPA Barrow Area at Offshore Kerawalapitiya for Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Location : Olanro Canal View Garden, Negombo
 Date : 28th October 2022
 Time : 10.00 AM

Attendance - As attached

Minutes of the program

1. CWIT/SLPA conducted a detailed presentation on the project and the dredging operation.
2. Community leaders of following Fishery Associations in respective areas were attended for the meeting

01	Kammalthuraya (කමි මිලිතරය)	ශ්‍රී ලංකා මහජන රජයේ සේවය ශ්‍රී ලංකා මහජන රජයේ සේවය
02	Eththukala (එත්තුකල)	දකුණු එත්තුකල ඉංජිනේරු සේවය උතුරු එත්තුකල ඉංජිනේරු සේවය
03	Kudapaduwa (කුඩා පදව)	ශ්‍රී ලංකා මහජන රජයේ සේවය කුඩා පදව දුරකථන සේවය

3. CWIT/SLPA explained the following schedule of awareness programs covering all the communities where allocating separate dates and venues for communities from the same area as follows.

Fishery Inspector Division	Nos of Association	Scheduled Time and Date
Kammalthuraya (කමි මිලිතරය)	2	2.00 PM -28.10.2022
Eththukala (එත්තුකල)	4	
Kudapaduwa (කුඩා පදව)	2	
Town i(නගරය i)	7	10.00AM-
Town ii(නගරය ii)	2	01.11.2022
Town iii(නගරය iii)	3	
Doowa(දව)	2	10.00AM-
Pitipana(පිටිපාන)	3	02.11.2022
Aluthkuruwa (අලුත්කුරුව)	3	
Kapungoda(කපුංගොඩ)	1	
Ja Ela(ජා ඒල)	5	10.00AM-
Uswetakeiyawa(උස්වැටිකොයියාව)	4	03.11.2022
Wattala(වත්තල)	5	

4. During the discussion Community leaders raised following points,

- a. All the communities attended stated need of conducting a single meeting for all the community leaders in above (3) rather than conducting awareness programs separately as they cannot take any decision alone.
5. CWIT/SLPA explained, the infrastructure projects shall be developed by the DFAR on a proposed package to be contributed by SLPA/CWIT.
 6. CWIT/SLPA explained the other arrangements as follows,
 - Installing of a LED display depicting the real time position of the dredger at Duwa estuary. (at Duwa coastguard point)
 - Proposed Life insurance package for all the fishermen in the region
 - Addressing grievances Redress Mechanism through Grievance Redress committee (GRC)
 - If any accident occurred due to the dredger movement, the victim need to forward the information to Fishery Inspector in respective area for evaluation at the GRC.
 - Group SMS system to communicate with fishermen about the schedule / movement of dredger before commencing each trip of operation
 7. SLPA/CWIT explained the community services conducted up to now in the region.
 8. SLPA/CWIT committed to address all above requests as much as possible.

Photograph



AWARENESS PROGRAM # 9

Fishery Communities (All Fishing Communities)

Sand Extraction from SLPA Barrow Area at Offshore Kerawalapitiya for

Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Location : Olanro Canal View Garden, Negombo

Date : 8th November 2022

Time : 10.00 AM

Attendance - As attached

Minutes of the program

1. CWIT/SLPA conducted a detailed presentation on the project and the dredging operation.
2. All Community or society leaders of Fishery Associations in the region as attached (informed by DFAR) were attended for the meeting
3. CWIT/SLPA explained that based on the request of the community during the meeting held on 28th October 2022, this meeting was arranged.
4. CWIT/SLPA explained, about the infrastructure projects shall be developed by the DFAR on a proposed package to be contributed by SLPA/CWIT.
5. CWIT/SLPA explained about the other arrangements as follows,
 - Installing of a LED display depicting the real time position of the dredger at Duwa estuary. (at Duwa coastguard point)
 - Proposed Life insurance package for all the fishermen in the region
 - Addressing grievances through Grievance Redress committee (GRC)
 - If any accident occurred due to the dredger movement, the victim need to forward the information to Fishery Inspector in respective area for evaluation at the GRC.
 - Group SMS system to communicate with fishermen about the schedule / movement of dredger before commencing each trip of operation
6. SLPA/CWIT explained the community services conducted up to now in the region.
7. The community explained their disagreement for dredging operation citing following facts

- Obstacles/disturbances for fishing activities
- Damage to fishing grounds

SLPA/CWIT explained commitment to address all above requests as much as possible.

අනු අංකය	ඩී.ප. කොට්ඨාශය	ධීවර සමිතියේ නම
01	Kammalthuraya (කම්මල්තුරය)	ශාන්ත අන්තෝනි ධීවර සමිතිය
		ශාන්ත පීතර සමුපකාර ධීවර සමිතිය
02	Eththukala (ඒත්තුකාල)	පළභතුරය ශාන්ත ආනා ග්‍රාමීය ධීවර සංවිධානය
		දකුණු ඒත්තුකාල ග්‍රාමීය ධීවර සංවිධානය
		උතුරු ඒත්තුකාල ග්‍රාමීය ධීවර සංවිධානය
03	Kudapaduwa (කුඩාපාඩුව)	ශු.ජපමාල මානා ග්‍රාමීය සමිතිය
		කුඩාපාඩුව දේවමානා සමිතිය
04	නගරය 1	සාන්ත පීතර ග්‍රාමීය සංවිධානය
		සාන්ත සෙනසිතියන් ග්‍රාමීය සංවිධානය
		දේව දයාවේ ග්‍රාමීය සංවිධානය
		තානිමා ග්‍රාමීය ධීවර සංවිධානය (කාන්තා)
		නිර්දෝශී මැණියන්ගේ ග්‍රාමීය ධීවර සංවිධානය
		සින්දාත්‍රී මානා කරවල වෙලන්තන්ගේ ග්‍රාමීය ධීවර සංවිධානය
05	නගරය 11	මහාවිදිය ග්‍රාමීය ධීවර සංවිධානය
06	නගරය 111	තලාදුව කඩොල්කැලේ ග්‍රාමීය ධීවර සංවිධානය
		සිරිවර්ධන පෙදෙස ග්‍රාමීය ධීවර සංවිධානය
		මංකුලිය ග්‍රාමීය ධීවර සංවිධානය
07	දුව	දුව ග්‍රාමීය ධීවර සමිතිය
		පිටිපන විදිය ග්‍රාමීය ධීවර සමිතිය
08	පිටිපන	උතුරු පිටිපන ග්‍රාමීය ධීවර සංවිධානය

		මැද පිටිපන ග්‍රාමීය ධීවර සංවිධානය
		දකුණු පිටිපන ග්‍රාමීය ධීවර සංවිධානය
09	අළුත්කුරුව	අළුත්කුරුව ග්‍රාමීය ධීවර සංවිධානය
		බසියාවත්ත ග්‍රාමීය ධීවර සංවිධානය
		කලාහේන ග්‍රාමීය ධීවර සංවිධානය
10.00	කැපුන්ගොඩ	කැපුන්ගොඩ ග්‍රාමීය ධීවර සංවිධානය
11.00	ජාඇල	වහටියගම ධීවර සමිතිය
		මුකලන්ගමුව ධීවර සමිතිය
		කුරුණ ධීවර සමිතිය
		කටුනායක ධීවර සමිතිය
		සිදුව කාන්තා ධීවර සමිතිය (මැල්වත්ත)
12.00	උස්වැටකෙයියාව	ඒපාමුල්ල සාගරසිරිගම ග්‍රාමීය ධීවර සංවිධානය
		පමුණුගම ශාන්ත සෙබස්තියන් ග්‍රාමීය ධීවර සංවිධානය
		පුද්ගලික ග්‍රාමීය ධීවර සංවිධානය
		තල්දියවත්ත අළුත් අකකරය ග්‍රාමීය ධීවර සංවිධානය
13.00	වත්තල	ඇලකන්ද සදාසරන ග්‍රාමීය ධීවර සංවිධානය
		අවරකොටුව ශ්‍රී හෘදය ග්‍රාමීය ධීවර සංවිධානය
		දික්ඹිට්ට ශා. අන්තෝනි ග්‍රාමීය ධීවර සංවිධානය
		පල්ලියවත්ත උතුර කර්මේල්මානා ග්‍රාමීය ධීවර සංවිධානය
		පල්ලියවත්ත දකුණ ශා. සෙබස්තියන් ග්‍රාමීය ධීවර සංවිධානය

Photograph



AWARENESS PROGRAM # 10

Fishery Communities (Hadala/Pamunugama) - on 14th November 2022

Sand Extraction from SLPA Borrow Area at Offshore Kerawalapitiya for Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Location : Our Lady of Mount Carmel Church, Wellapalliya

Date : 14th November 2022

Time : 10.00 AM

Attendance - As attached

Minutes of the program

1. This meeting is called as requested by the fishing community in Handala and Pamunugama area (9 nos of Associations)
2. CWIT/SLPA explained details on the project and the dredging operation.
3. CWIT/SLPA explained the other arrangements as follows,
 - Installing of a LED display depicting the real time position of the dredger at Duwa estuary. (at Duwa navy/coastguard point)
 - Proposed Life insurance package for all the fisherman in the region
 - Addressing grievances Redress Mechanism through Grievance Redress committee (GRC)
 - If any accident occurred due to the dredger movement, the victim has to forward the information to Fishery Inspector in respective area for evaluation of the GRC.
 - Group SMS system to communicate with fishermen about the schedule / movement of dredger before commencing each trip of operation
4. SLPA/CWIT explained the community services conducted up to now in the region.
5. The community explained that there are several projects such as Port city, LLDC dredging and reclamation for sand stockpiling, Highway project, WCT-1 , etc., which affects their fishing activities. Further they need to get all the projects together and pay a compensation of LKR 100,000.00 per fisherman and Rs, 200,000.00 per boat per month.
6. CWIT/SLPA explained that the project proponent supposed to agree on a package for DFAR to conduct required community services/ projects as CSR projects.
7. Further CWIT/SLPA explain them that this request shall be forwarded to DFAR with whom SLPA/CWIT has correspondence on Fishery Matters.

Photograph



AWARENESS PROGRAM # 11

Fishery Communities (Hadala/Pamunugama) - on 18th November 2022

Sand Extraction from SLPA Barrow Area at Offshore Kerawalapitiya for Reclamation of East Container Terminal 1 (ECT-phase II) and West Container Terminal 1 (WCT-1)

Location : Our Lady of Mount Carmel Church, Wellapalliya

Date : 18th November 2022

Time : 10.00 AM

Attendance - As attached

Minutes of the program

1. This meeting is called as requested by the fishing community in Handala and Pamunugama area (9 nos of Associations) as an extension to the last meeting on 14 Nov 2022.
2. The fishing community has distributed a leaflet regarding their proposal for short term and long term against the dredging operation.

Short term Proposal

Monetary Compensation package directly for them during the period of dredging

Long Term Proposal

Donating/ Providing Multiday boats for the community

3. Further CWIT/SLPA explain them that this request shall be made through DFAR with whom SLPA/CWIT deals with on Fishery Matters.

Photograph





APPENDIX 9.5 COMMUNITY HEALTH AND SAFETY MANAGEMENT PLAN

Document details	
Document title	Community Health and Safety Management Plan
Document subtitle	Final
Project No.	0574219
Date	01 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Arpan S Salil D	Debanjan B	Santosh Kumar K.	14.03.2023	Draft for review by Client & Lender
Final	02	Salil D	Debanjan B	Santosh Kumar K.	01.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

The Community health and safety issues during the construction of terminal include dust, noise, and vibration from construction vehicle transit, and communicable diseases associated with the influx of temporary construction labor. The following operational phase issues are specific to terminal as below:

- Port marine safety;
- Port security

This management plan has been developed to outline the contractor's approach to managing community health and safety. The key reference document for this Guideline is the IFC, World Bank Group's *Environmental, Health, and Safety (EHS) Guidelines* (April 2007) together with the relevant Sectoral community health, safety and security guidelines

Objective

- Avoid or limit risks to, and impacts on, the health, safety of the community during the proposed activities from both routine and non-routine circumstances. This will achieve through implementing targeted prevention programs to reduce risks, along with the implementation of an effective monitoring and evaluation program.
- Maintain a monitoring and evaluation program that is community-based, participatory, transparent and covers all phases of the proposed project.

Scope

This management plan covers all activities related to the implementation of the proposed project, including contractors and sub-contractor activities. It outlines CWIT commitment and approach to avoid and reduce community health, safety risks that may arise as the result of the project.

Legislative Framework

With regard to community health and safety, the proposed project will comply with applicable national laws and regulations, applicable IFC requirements.

WBG General EHS Guidelines: Ports, Harbors and Terminal: Section1.3 of this guideline provides guidance for managing community health and safety issues during the construction of ports.

IFC PS 1-its objectives are:

- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise, and where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment
- To ensure that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately

- To promote and provide means for adequate engagement with affected communities throughout the Project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated

IFC PS 4 and its objectives are

- To anticipate and avoid adverse impacts on the health and safety of the affected communities throughout the Project from both routine and non-routine circumstances.
- To ensure the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to affected communities

WB ESS 4 and its objective is:

- To address the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of Borrowers to avoid or minimize such risks and impacts, with particular attention to people who, because of their circumstances, may be vulnerable.

WB ESS 10 and its objective is

- To recognize the importance of open and transparent engagement between the Borrower and project stakeholders as an essential element of good international practice. Effective stakeholder engagement can improve the environmental and social sustainability of projects, enhance project acceptance, and make a significant contribution to successful project design and implementation.

MANAGEMENT OF IDENTIFIED HAZARD

Management of Air and Noise Emission at land based construction site

Air Emission Control Measures

- Site development area will be compacted to reduce the fugitive dust emissions;
- Dust suppression measures will be adopted through periodic water sprinkling during dry period in working area;
- Construction materials would be stored in designated storage area;
- During construction, the approach road will be kept clean and free from mud and slurry;
- All construction material will be transported in covered trucks to reduce the potential for emission of dust;
- Construction material will not be loaded above the freeboard of the truck to avoid spillage;
- All vehicles utilized in transportation of raw material and personnel will have fitness certified vehicle;
- Vehicular speed limit of 10 km/hr. will be maintained within the project site;
- All diesel-powered equipment will be regularly maintained and idling time reduced to minimize emissions;
- DG set with adequate stack will be used for sourcing of power for construction activities.

Noise Emission Control Measures

- Vehicle, equipment, and machinery used for construction activities would conform to applicable noise standards;
- Only well-maintained equipment will be operated on-site;

- Regular maintenance of equipment such as lubricating moving parts, tightening loose parts and replacing worn-out components would be undertaken;
- Machinery and construction equipment that may be in intermittent use, e.g. trucks, shall be shut down or throttled down during non-work periods;
- Low-noise equipment shall be used where practicable;
- The number of equipment operating simultaneously shall be reduced where practicable;
- Equipment known to emit noise strongly in one direction should be orientated so that the noise is directed away from nearby noise-sensitive receptors where practicable

Management of Road Traffic during transportation of Boulder and other Construction Materials

- The Master Contractors has prepared a traffic management plan and same has been reviewed by CWIT. The Contractors has undertake consultations with key stakeholders; i.e. Colombo Municipal Council in order to finalise the transport route and necessary approval has been obtained;
- Contractors/ CWIT will require drivers to follow all legal and project related safety requirements applicable to road safety;
- Traffic movement will be restricted during religious festival, school entry and dispersal hours, market times in proximity to mosque, schools and markets along site access road;
- Contractors will provide instructions to drivers to maintain the speed limit at congested area as per traffic management plan;
- Road conditions will be monitored and any damage of road or structures shall be remedied immediately to reduce the potential for significant impacts to the local communities.

Management of River Traffic during Transportation of Dredge Material

Transport routes:

- The dredge material will be transported through Trailer Suction Hopper Dredgers (TSHD) to reclamation site. The transport route has been finalised and same has been presented in the IEE report. IEE report obtained necessary approval from Central Environmental Authority (CEA), Coast Conservation Department (CCD) and Department of Fisheries and Aquatic Resource.

Sensitive Fishing Areas:

- TSHD will travel along the defined routes and at definite time to avoid conflict with fishermen.
- As per CEA approval the following measures should be implemented during dredging activity and its compliance has been presented in following table

Table Error! No text of specified style in document.-15: Potential Hazards and Control Measures

S. No.	Clearance Condition	Compliance
1	The SLPA should establish a signal system with illumination to indicate the mining points.	The dredger is illuminated to the required standards
2	The route of the dredgers should be selected to minimize the impact on fishing in the area and general navigation routes. All GPS track records of dredger movements shall be provided on request by the CEA.	This is tracked using data obtained from the Marine Traffic Software on dredger movement. This has been shared with CEA and GSMB.

S. No.	Clearance Condition	Compliance
3	An appropriate warning system should be established for the safety of maritime traffic including fishing vessels and dredgers operated by the SLLDC.	Requisite measures proposed in the ESMP are followed.
4	The SLPA should issue Notices to Mariners, to educate the seafarers navigating near and around Colombo harbor, before the dredging operations are commenced.	An Operation room has been setup to inform SLPA, Navy, etc. about the movement of the dredger
5	The SLPA should establish a mechanism to inform the mining activities to the fishermen operating in the area through communication and timely contacts of fishermen.	Sending SMS, distribution of notices, illumination on vessel, conducting awareness programs are amongst the measures adopted to inform mining activities
6	In an event of accident to the fishing vessels, fishing gear or equipment due to project activities, a formal mechanism should be established in consultation with the Dept. of Fisheries and Aquatic Resources (DFAR) and the Divisional Secretary of the area to compensate any damages to fishing boats and other related equipment.	GRC meetings were conducted in which the grievance mechanism was finalised. Further, the developer has obtained a 3 rd party insurance cover to protect fishing boats and equipment.
7	All registered fishermen should be provided with an insurance cover to compensate in the event of a damage or accident to fishing vessel, gear, equipment etc.	We have obtained a 3 rd party insurance cover and working on obtaining a life insurance cover for the fishermen. Currently SLIC is obtaining the list of fishermen from DFAR.
8	A grievance redress mechanism should be established to address grievances of the fishing community. Regular discussions should be held with the fishing communities in the area in close consultation of Department of Fisheries and the Divisional Secretary of the area to resolve any issues of the fishing community.	GRM has been established. Continuous awareness sessions are been conducted.

Journey Management Plan:

- Prepare a journey management plan; considering:
 - Avoidance of movement of TSHD during peak fishermen movement time (which during the start and end of tide).
 - Avoidance of movement of TSHD along the identified travel routes.

Labour Influx and Disease Control Measures

Vector Borne Disease Control Measures

- Implementation of a vector control programme in worker camps and surrounding areas;
- Avoiding formation of stagnant water pools in and around the site;
- Prevention of larval and adult mosquito propagation through sanitary improvements and elimination of breeding habitats close to human settlements in the close vicinity of the Site; and
- Educating area residents and workers on risks, prevention, and available treatment for vector-borne diseases.

Communicable disease control measures

- Exposure control plans are required, among other circumstances whenever a worker has or may have occupational exposure to a blood borne pathogen or to other biohazardous material;
- Workers must be provided with education and training over the exposure control plan and working safety with or near potentially hazardous material; and
- Records of exposure to biohazardous materials must be kept, along with records of training sessions. The employer must provide free vaccination against hepatitis B on request, where there is potential or actual exposure to the hepatitis B virus.

COVID Health Safety Measures:

- The guidance for construction employers and workers to remain alert of changing outbreak conditions, including as they relate to community spread of the virus and testing availability, and implement infection prevention measures accordingly.

RESPONSIBLE STAFF AND IMPLEMENTATION ARRANGEMENT

Roles and Responsibilities

CWIT will be responsible for the operationalization and overall implementation of this Community Health and Safety Management Plan (CH&SMP). CWIT will have a dedicated Environment and Social (E&S) Cell, who will be responsible for implementation of E&S management system.

Table Error! No text of specified style in document.-16 Roles and Responsibilities for CH&SMP Implementation

S. No	Entity	Responsibility in SEP implementation
1	Project Director	<ul style="list-style-type: none"> ■ Responsible for implementation of ESMP action plan including CH&SMP implementation; ■ Supervision of CH&SMP implementation by contractor and sub-contractors
2	EHS Director	<ul style="list-style-type: none"> ■ Monitor CH&SMP implementation by the contractor and sub-contractor; ■ Provide feedback to Project Director on CH&SMP related matters, including periodic data on implementation
4	Environment & Social Manager	<ul style="list-style-type: none"> ■ Implement actions as proposed in CH&SMP with the guidance from EHS Director; ■ Maintain records of monitoring at their offices. ■ Provide periodic monitoring update on CH&SMP implementation to EHS Director;
5	Contractors/sub-contractors engaged by CWIT	<ul style="list-style-type: none"> ■ Adhere to terms of contract on CH&SMP aspects ■ Deploy required staff to ensure accomplishment of CH&SMP objectives at their respective sites; ■ Ensure alignment of working conditions of the contractor workers deployed at site with the objective and requirement of this CH&SMP; ■ Adhering to safe working practices and other provisions of CH&SMP; ■ Mandatory and repeated training and awareness raising for the workforce about CH&SMP

S. No	Entity	Responsibility in SEP implementation
		<ul style="list-style-type: none"> ■ Complaint handling Mechanism at the project level.

Implementation

Training

Provisions should be made to provide periodic health and safety orientation training to all workers involved in construction activities to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees. Training should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate.

Monitoring and Review

The EHS Team will conduct and document frequent site inspections to ensure compliance with the EMP, licences, permits, and approvals, as well as other environmental obligations. Corrective and preventative measures will be implemented if inspections reveal that environmental management methods are ineffective.

The inspections will be supplemented with monitoring, which will document the practical achievement of essential tasks. Sampling and analysis shall be carried out in accordance with the identified monitoring plan to ensure that discharges, emissions, and environmental conditions are in compliance.

Record Keeping and Documentation

To support the correct and timely maintenance of Project records, a record keeping system will be created and implemented along with records of all grievances received, including contact details of complainant, date of complaint is received, nature of grievance, agreed corrective actions and date the date these are effected and final outcome will be kept with CWIT.

The existing Community Grievance Management Process (CGMP) at CWIT provides a systematic method for capturing and resolving all genuine community grievances relating to both basic business and development projects.

As needed to promote uniform awareness and to properly investigate and resolve grievances by the Stakeholder Management Committee (SMC), with oversight from the GRC, grievances are discussed on a regular basis at the periodic grievance resolution committee (GRC) meetings, which are chaired by the EHS Team and Project Team

Allocation of Finances

The sub-contractor will be responsible for the financial allocation of resources to implement the OH&SMP. Sub-contractors for the various aspects of the project will be responsible for incorporating the cost of implementing the CH&SMP at the bidding stages itself. CWIT and its contractors in their quotation request from the contractors will be responsible for putting up the requirements from its contractor regarding the CH&SMP.

APPENDIX 9.6 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT PLAN

Document details	
Document title	Occupational Health and Safety Management Plan
Document subtitle	Final
Project No.	0574219
Date	01 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Arpan S Salil D	Debanjan B	Santosh Kumar K.	14.03.2023	Draft for review by Client & Lender
Final	02	Salil D	Debanjan B	Santosh Kumar K.	01.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

This management plan has been developed to provide an outline of the contractor's approach to managing worker's occupational health and safety. The key reference document for this Guideline is the World Bank Group's *Environmental, Health, and Safety (EHS) Guidelines* (April 2007) together with the relevant Sectoral EHS Guidelines.

Objective

- Key principles involved in ensuring the health and safety of the working personnel and the fence line communities are protected;
- Preparation of Health and Safety Management Plan that guides the adoption of occupational health and safety measures for workmen involved in both the construction and operations phase of the WCT project.

Scope

The scope involves preparation of an Occupational Health and Safety Management Plan in accordance with IFC's Performance Standards and National Law conforming to Good International Industry Practices (GIIP). The plan describes the measures that will be taken to ensure the safe working condition and minimize the occurrence of occupational hazards. Potential sources of occupational hazard and the required prevention and mitigation measures are described in this plan.

Legislative Framework

Applicable regulation and guidelines has been presented in following table.

Table Error! No text of specified style in document.-17: Applicable Regulation & Guidelines

Reference	Law	Remarks
National Regulations	The Employment of Women, Young Persons and Children Act No. 47 of 1956	This act regulates the work, working hours and conditions of children and young persons. The act defines a child as a person under the age of 14 years and young person as a person has attain the age of 14 but is under 18 years. The EWYPCA, Regulation of 2010, per Gazette Notification No. 1695/32 of March 2011 determines a list of hazardous forms of child labour, to protect children above the minimum age of employment.
	Factories Ordinance, 1942	Different provisions such as Section 32, 51, 53 and 58 require the employer to provide free protective equipment

Reference	Law	Remarks
		to the worker whose work involves exposure to wet or injurious substances. Section 26 of the Factories Ordinance requires that no young worker (under the age of 18) is allowed to work on a machine unless he has been fully instructed about the dangers involved in operating the machine, has received sufficient training in that regard and is working under supervision of an experienced and knowledgeable worker.
International Finance Corporation (IFC) – World Bank Group (WBG)	WBG General EHS Guidelines: Ports, Harbours and Terminal	Section 1.2 of this guideline provides guidance for managing health and safety issues during the construction and decommissioning of ports.
	IFC General EHS Guidelines: Occupational Health and Safety	This guideline provides guidance and example of reasonable precautions to implement in managing principle risks to occupational health and safety.

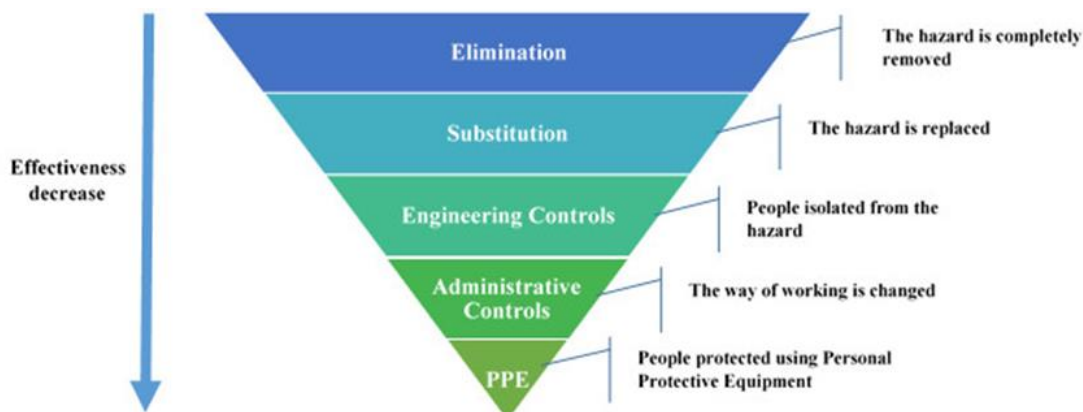
HAZARD IDENTIFICATION & MANAGEMENT

Principle

CWIT and its contractors will take all reasonably practicable steps to protect the health and safety of workers, and maintain a safe and healthy working environment. The proposed project activities involve dredging and disposal of unsuitable matter from basin area to SLPA offshore disposal area, dredging of sand from offshore sand borrow area, transportation to the basin area, reclamation of site, transportation of stone and boulders from Govt. approved onshore quarries and transport to site, construction of terminal and operation of the proposed WCT.

Risk Management

The hierarchy of control can be used as an effective tool to deal with health and safety issues at work. CWIT and its contractor would use a standardised hazard control hierarchy like the one suggested below to deal with project related hazard. The aim would be to use control measures from as high on the hierarchy of control list as possible. If that is not possible, the next option down the list or a combination of the measures should be implemented. The least effective control measure would be the use of personal protective equipment (PPE) and it should be used as a last resort or a support to other control measures. Information and training should be integrated with all levels of control to explain how controls work.



Source: The National Institute of Occupational Safety and Health (NIOSH), US

Identification and Assessment of Hazard

CWIT will establish and maintain effective methods for:

- Systematically identifying existing and potential hazards to employees;
- Systematically identifying, at the earliest practicable time, new hazards to employees;
- Regularly assessing the extent to which a hazard poses a risk to employees.

MANAGEMENT OF IDENTIFIED HAZARD

Management of Identified Hazard

CWIT will apply prevention and control measures to control hazards which are identified and assessed as posing a threat to the safety, health or welfare of employees and where practicable, the hazard shall be eliminated. The following preventive and protective measures must be implemented order of priority:

Table Error! No text of specified style in document.-18: Potential Hazards and Control Measures

Activity	Identified hazard	Control Measure
Construction of civil structure	<ul style="list-style-type: none"> ■ High Noise ■ Fall, slip, trip ■ Dust inhalation ■ Extreme heat ■ Work at height ■ Excavated area ■ Working near the water body 	<ul style="list-style-type: none"> ■ Ear plug shall be required while working ■ Proper lighting to be arranged ■ All work surface should be properly installed ■ Work surface, floor will be free from nail, binding wires and all other obstacles. ■ Face masks to be used to reduce the inhalation of dust or other emission. ■ Induction training for all new workers to be arranged to have a detailed module on occupational health and safety. ■ Excavated area to be barricaded at least 1.5 meter from the edge of the excavation or opening. ■ No workers shall be allowed to work alone in a trench at any time. ■ Necessary certification to be obtained before working over or near to water bodies ■ Life jacket to be used during execution of work ■ Rescue team to be readily available in case person falls in the water
Vehicle & Equipment movement, Driving & Transportation inside the Project site	<ul style="list-style-type: none"> ■ Vehicle / equipment accident ■ Personal injury/ death ■ Vehicle rollover ■ Over speeding ■ Bursting of tire 	<ul style="list-style-type: none"> ■ Vehicle's fitness certificate to be checked. ■ The driver shall not be less than twenty five (25) years of age with minimum of five (5) years of driving experience with good eyesight. ■ Drivers shall not be allowed to drive for more than 12 hours. ■ Transportation of passengers shall only be permitted in the passenger compartment of vehicles. ■ 15km/h speed limit to be maintained within the site. ■ Barricades, in areas with night traffic by vehicles or people, must be lit with warning flashers (red or yellow) every fifty (50) meters and there shall be caution boards and warning flags.

Activity	Identified hazard	Control Measure
Manual handling of materials during construction and operation	<ul style="list-style-type: none"> ■ Improper handling of dangerous material/goods ■ Back pain and body injury due to poor manual handling ■ Accident due to sharp-edged materials ■ Loss of control, slip/trip 	<ul style="list-style-type: none"> ■ To control the inflow of substances under the category of "Dangerous goods". Proper handling of import and export commodities as per provision of Sri Lanka Ports Authority Act No.51 of 1979 (Amended in 1992) ■ All dangerous goods must be handled in line with CWIT's Dangerous goods policies ■ All persons must be trained for safe manual handling ■ Proper PPE shall be used while handling any kind of material. ■ The weight of all lifting material should be known prior to lifting ■ Training on proper posture for manual lifting shall be imparted to all labours. ■ Manual handling of heavy material should be avoided ■ All persons to be made aware of danger through Toolbox talk
Working from Heights	<ul style="list-style-type: none"> ■ Fall protection equipment failure or improper use ■ Anchor point failure ■ Improperly donned equipment ■ Walk off unprotected edge ■ Trips and falls 	<ul style="list-style-type: none"> ■ Workers who will work above 1.8 meter height shall be secured through use of full body harness with double lanyard including shock absorber ■ Working platform shall have hand rail, mid rail and toe board. Certified horizontal life line shall be used, preferably 8mm wide rope. ■ Falling objects safety net shall be installed to arrest such objects. ■ Step ladder / platform should be used if any personnel intends to work at height. Use of empty drums to climb up is banned.
Welding	<ul style="list-style-type: none"> ■ Burns ■ Injury to eyes of workers and co-located workers from the exposure Inferred light (IR) generated from welding arc ■ Inhalation hazards associated with welding activities ■ Fires and explosions 	<ul style="list-style-type: none"> ■ Only trained workers will be allowed to conduct welding ■ Welding PPE will be worn to protected exposed skin, i.e. welding gloves, welding sleeves, or welding jacket. ■ Hardhat mounted face shield with welding shade for the type of welding being conducted must be worn along with safety glasses. ■ Welding screens or shields must be used to protect co-located workers from the exposure to the welding arc flash. ■ Fire extinguisher to be provided during hot work which shall be periodically inspected and checked for the purpose of being fit to use.
Use of hand and power tools	<ul style="list-style-type: none"> ■ Electrocution ■ Hand/finger injury 	<ul style="list-style-type: none"> ■ Electrical equipment must be checked by competent electrician ■ Only trained person is allowed to use this tool. ■ Specific PPE to be ensured ■ Pre task briefing through toolbox training should be provided prior to start of the work ■ All cables overhead should be more than 2.5 meter on insulated or wooden support and no temporary cable shall be laid over the ground. ■ Any temporary power distribution system including the source shall be designed and approved by Employer's electrical engineer. ■ Panel rooms/ distribution box pathways should be clear and free from any obstruction

Activity	Identified hazard	Control Measure
Working in high Temperature / under direct sunlight	<ul style="list-style-type: none"> ■ Headache ■ Loss of concentration ■ Dehydration ■ Heatstroke 	<ul style="list-style-type: none"> ■ Rest shelter to be provided ■ Drinking water will be provided in the site always ■ Heat stress precautionary measures and symptoms of heat stress will be highlighted to all employees in the daily toolbox talks in the summertime ■ Qualified first aider should be available at site. ■ Ambulance needs to be available at site. ■ All workers will be advised to take a short break if feeling fatigued
Transportation of dredged material by water mode	<ul style="list-style-type: none"> ■ Collision with other passing by crafts and barges ■ Capsizing of the dredger 	<ul style="list-style-type: none"> ■ Necessary permission to be obtained from the port traffic master or other relevant port authorities prior to start the work. ■ Usage of calibrated navigation & radio communication between land & sea to be maintained during navigation ■ No work shall be carried out during rough weather condition ■ To tackle the emergency situations like drowning, capsizing, extreme rough weather i.e. cyclone, heavy wind flow- the deployed must be trained, wear life jackets.
Operation Stage	<ul style="list-style-type: none"> ■ Hazards relating to electrical installations ■ Structural failures of port infrastructure ■ Mechanical and electrical malfunction of port (cargo handling) equipment/ plant ■ Safety of navigation and associated risks in the port basin 	<ul style="list-style-type: none"> ■ Electrical equipment must be checked by competent electrician ■ Only trained person is allowed to use main electrical tools. ■ Specific PPE to be ensured ■ Regular maintenance on equipment and plants to be done to reduce possibility of malfunctions ■ Navigation to be handled by only skilled and experienced pilots and staff with adequate equipment/resources deployed to warrant safe navigation of ships

General duty of Employees

CWIT will ensure that the employees would conform to the following duties:

- ✓ Take all reasonable care to protect their own and fellow workers health and safety at the workplace and, as appropriate, other persons in the vicinity of the workplace.
- ✓ Use PPE and other safety equipment supplied as required; and
- ✓ Not use PPE or other safety equipment for any purpose not directly related to the work for which it is provided.

Personal Protective Equipment (PPE)

CWIT would make provision for adequate PPE's for workmen and ensuring conformity of their use to:

- ✓ Provide, maintain, and make accessible to employees the PPE necessary to avoid injury and damage to their health.
- ✓ Take all reasonably practicable steps to ensure that employees use that PPE in the circumstances for which it is provided; and
- ✓ Make provision at the workplace for PPE to be cleaned and securely stored without risk of damage when not required.

The table below presents general examples of occupational hazards and types of PPE available for different purposes.

Table Error! No text of specified style in document.-19: List of PPEs

Objective	Hazard	Suggested PPE
Eye and face protection	Flying particles, gases or vapours	Safety Glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance,	Hard hats
Hearing protection	Noise.	Hearing protectors (ear plugs or ear muffs).
Foot protection	Construction activity, working with hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.
Hand protection	Hazardous materials, extreme temperatures.	Gloves made of rubber or synthetic materials
Respiratory protection	Dust, fogs, fumes, mists, gases, smokes, vapours.	Facemasks with appropriate filters for dust removal and air purification (chemicals, mists, vapours and gases).
Body/leg protection	Extreme temperatures, hazardous materials, biological agents,	Insulating clothing, body suits aprons etc. of appropriate materials.

Job Safety Analysis (JSA)

CWIT will ensure that a Job Safety Analysis will be conducted to help integrate accepted safety and health principles and practices into jobs. CWIT will follow four basic stages in conducting a JSA;

Selecting the job to be analyzed

Breaking the job down into a sequence of steps

Identifying potential hazards

Determining preventive measures to overcome these hazards

Emergency Response Plan

The emergency response measures to be followed in relation to the health and safety of the workers will be in line with the Emergency Response Plan of CWIT.

Emergency Procedures

The emergency procedures to be followed in relation to the health and safety of the workers will be in line with the Emergency Response Plan of CWIT.

RESPONSIBILITIES AND IMPLEMENTATION ARRANGEMENT

Roles and Responsibilities

CWIT will be responsible for the operationalization and overall implementation of this Occupational Health and Safety Management Plan (OH&SMP). CWIT will have a dedicated Environment and Social (E&S) Cell, who will be responsible for implementation of an E&S management system.

Table Error! No text of specified style in document. -20 Roles and Responsibilities for OHSMP Implementation

S. No	Entity	Responsibility in SEP implementation
1	Project Director	<ul style="list-style-type: none"> ■ Responsible for implementation of ESMP action plan including OH&SMP implementation; ■ Supervision of OH&SMP implementation by contractor and sub-contractors
2	EHS Director	<ul style="list-style-type: none"> ■ Monitor OH&SMP implementation by the contractor and sub-contractor; ■ Provide feedback to Project Director on OH&SMP related matters, including periodic data on implementation
4	Environment & Social Manager	<ul style="list-style-type: none"> ■ Implement actions as proposed in OH&SMP with the guidance from EHS Director; ■ Maintain records of monitoring at their offices. ■ Provide periodic monitoring update on OH&SMP implementation to EHS Director; ■ Environment & Social Manager will use the checklist provided under Annexure 2, 3 & 4, for OH&SMP management monitoring and maintaining records
5	Contractors/sub-contractors engaged by CWIT	<ul style="list-style-type: none"> ■ Adhere to terms of contract on OH&SMP aspects ■ Deploy required staff to ensure accomplishment of OH&SMP objectives at their respective sites; ■ Ensure alignment of working conditions of the contractor workers deployed at site with the objective and requirement of this OH&SMP; ■ Adhering to safe working practices and other provisions of OH&SMP; ■ Maintains records at site on applicable regulatory requirements (license, permit, registration certificate etc.), wage payment, OHS, worker's grievance etc. ■ Mandatory and repeated training and awareness raising for the workforce about OH&SMP ■ Complaint handling Mechanism at the project level.

Implementation

Training

Provisions should be made to provide periodic health and safety orientation training to all workers involved in construction activities to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees. Training should consist of

basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate.

Visitors to worksites must be provided with a site induction prior to entering and must be escorted at all times while on site. This induction must include details of site hazards, provision of necessary PPE and emergency procedures. Visitors are not permitted to access to areas where hazardous conditions or substances may be present, unless appropriately inducted.

Monitoring and Review

The EHS Team will conduct and document frequent site inspections to ensure compliance with the EMP, licences, permits, and approvals, as well as other environmental obligations. Corrective and preventative measures will be implemented if inspections reveal that environmental management methods are ineffective.

The inspections will be supplemented with monitoring, which will document the practical achievement of essential tasks. Sampling and analysis shall be carried out in accordance with the identified monitoring plan to ensure that discharges, emissions, and environmental conditions are in compliance.

Record Keeping and Documentation

An Occupational Health and Safety Management Plan must be prepared and approved prior to any works commencing on site. The Health and Safety Management Plan must demonstrate the Contractor understands of how to manage safety and a commitment to providing a workplace that enables all work activities to be carried out safely. The Health and Safety Management Plan must detail reasonably practicable measures to eliminate or minimise risks to the health, safety and welfare of workers, contractors, visitors, and anyone else who may be affected by the operations. The Occupational Health and Safety Management Plan must be prepared in accordance with the World Bank Group EH&S Guidelines.

The EHS Team for the CWIT Project will prepare a quarterly environmental report covering monitoring, inspection, and as well as details of any OHS non-compliances and actions taken/recommended as needed.

Allocation of Finances

The sub-contractor will be responsible for the financial allocation of resources to implement the OH&SMP. Sub-contractors for the various aspects of the project will be responsible for incorporating the cost of implementing the OH&SMP at the bidding stages itself. CWIT and its contractors in their quotation request from the contractors will be responsible for putting up the requirements from its contractor regarding the OH&SMP. The cost of the OH&SMP will therefore be already included in the bidding document, especially with regard to provision of the health and safety PPEs, safety managers and construction of the labour camp as required.

Annexure 1 - Monthly Incident Register

Month/Year:

Location:

SI No	Date	Name of Person	Sex	Age	Time	Designation	Nature of Injury	Location of Injury	Root Cause	Action Taken

Name and signature of Contractor's EHS Officer

Annexure 2 - Monitoring Checklist

Safety Performance	
Safe work-hours	
No. of new joiners (workers)	
No. of safety induction trainings provided	
No. of participants in each of the induction trainings	
No. of safety trainings provided	
No. of Tool-Box-Talks conducted	
No. of work permits issued	
No. of mock drills conducted	
No. of PPEs provided	
Details of activities carried out to promote safe work culture	
Internal/ External EHS audits	<input type="checkbox"/> Yes/ <input type="checkbox"/> No
Display of emergency contact details in English, Tamil and local languages	
Display of safety signage, as required	
EHS Incidents and First Aid Cases	
No. of fatalities recorded	
No. of Lost Time Injuries (LTIs) recorded	
No. of near-miss events recorded	
No. of first aid cases	
No. of observations recorded (unsafe conditions and unsafe behaviours)	
No. of first-aid boxes along with their locations	
Content of all the available first-aid boxes has been checked?	<input type="checkbox"/> Yes/ <input type="checkbox"/> No If yes, mentions the modifications made (i.e., change of medicine, removal of expired medicine, etc.), if any.

Annexure 3 - Record Keeping and Documentation Checklist

Documentation	Record keeping (Yes/ No)	Evidence/ Document reference and date	Remarks
First aid register	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
Incident record register	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
Training log	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
Mock Drill Record	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
Induction log	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		

APPENDIX 9.7 LABOUR MANAGEMENT PLAN

Document details	
Document title	Labour Management Plan
Document subtitle	Final
Project No.	0574219
Date	01 April 2023
Version	2.0
Client Name	CWIT

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	01	Salil D	Debanjan B	Santosh Kumar K.	08.03.2023	Draft for review by Client & Lender
Final	02	Salil D	Debanjan B	Santosh Kumar K.	01.04.2023	Final

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INTRODUCTION

Background

In Sri Lanka, the amount of cargo handled in seaports has been rapidly increasing as its economy has grown steadily in recent years. Colombo Port, which is the largest port in the country, has functioned as a leading transshipment hub port in the South Asia region, and approximately 80% of the 2018 container throughput was transshipment freight to neighbouring countries such as India. The annual container throughput at the Colombo Port doubled in the last ten years from 3.5million TEUs in 2009 to 7 million TEUs in 2022 and is forecast to reach nearly 10.4 million TEUs by 2030 and approximately 15 million TEUs by 2040. With such increase in the cargo demand, The West Container Terminal (WCT)-1 is aiming to construct the container terminal with a capacity of 3.2 million TEUs at the western part of the Colombo Port.

Objective

The contractor and labour management plan has been developed with the objective of defining the procedures to manage and regulate the standards of labour and working conditions for the labourers hired for construction of terminal.

The WCT-1 terminal will be developed by CWIT. CWIT will hire contractors and sub-contractors, who will be held responsible for all on-ground activities for the project; however CWIT as the Developer will monitor the progress of the project on regular basis and will be responsible to oversee that the labour conditions. The operations would be undertaken by CWIT themselves, by deploying own team.

In the context of the project, WCT-1 requires a management plan that could provide guidance and become monitoring tool to assess and align the labour and working conditions during construction and operations, either that for contractors or itself with the applicable regulatory as well as IFC PS-2 and World Bank ESS-2 requirements.

Scope

This plan applies to all the two stages of the project, i.e. construction and operations. This plan will be applicable for all the contractors and their workers that are going to be engaged in the both the phases of the project.

Context for the Labour Management Plan

This labour management Plan (LMP) has been developed to manage and regulate the standards of labour and working conditions for all categories of workers that will be directly or indirectly engaged in WCT-1 Project, in alignment with the requirements of IFC Performance Standard 2 (PS2), WB Environment Social Standards 2 (ESS2). Manpower are recognised under four broad categories as per PS-2, ESS-2 and these are delineated below:

- ✓ **Direct Worker:** is a worker with whom the Borrower has a directly contracted employment relationship and specific control over the work, working conditions, and treatment of the project worker. The worker is employed or engaged by the Borrower, paid directly by the Borrower, and subject to the Borrower's day-to-day instruction and control. Examples of direct workers may include persons employed or engaged by the Borrower's project implementation unit to carry out design and supervision, monitoring and evaluation, or community engagement in relation to the project;
- ✓ **Contracted Worker:** is a worker employed or engaged by a third party to perform work or provide services related to the core functions⁴⁰⁸ of the project, where the third party exercises control over

⁴⁰⁸ 'Core functions' of a project constitute those production and/or service processes essential for a specific project activity without which the project cannot continue.

the work, working conditions, and treatment of the project worker. In such circumstances, the employment relationship is between the third party and the project worker, even if the project worker is working on an ongoing basis on project activities;

- ✓ **Primary Supply Workers:** is a worker employed or engaged by a primary supplier⁴⁰⁹, providing goods and materials to the project, over whom a primary supplier exercises control for the work, working conditions, and treatment of the person. As part of the definition, there is a requirement that the goods or materials be provided directly to the project for its core functions on an ongoing basis.

Manpower Requirement for the Project

Construction Stage

The work force requirement during peak construction stage will be approximately 1000 person. It is estimated that about 70% man power requirement will be sourced from the local area. About 100 to 150 workforce will stay inside the Project area.

Operational Stage

During operational stage, work force requirement will be approximately 350-400 employees out of which ~40-50% will be for the yard operations. Yard operations are very specialized in nature and are unique to a terminal operation. CWIT team would be deploying local resources after giving them adequate training.

ASSESSMENT OF KEY POTENTIAL LABOUR RISKS

The main labour risks associated with the project are assessed to be related to compliance of key labour regulations of the country, associated risk of accidents, occupational health and safety (OHS), community health and safety, human rights issues, sexual exploitation abuse/sexual harassment (SEA/SH) related issues etc. potential labour risks are explained below.

- ✓ **Non-compliance to key labour regulation:** Potential key risks could be in form of wage payment below prevailing minimum national wage rate, daily working hours exceeding the permissible limit, overtime payment not aligned with regulatory provision, lack of registration certificate of the contractors under The Shop and Office Employees' Act, 1954.;
- ✓ **Employment of Women, Young persons and Children Act, No. 47 of 19651956 and Amendment Act, No. 2 of 2021:** Part 1 of the Act deals with the restrictions on night work in industrial undertakings. Part 2 of the Act deals with the employment in industrial undertakings and at sea. The employer in a public or private industrial undertaking shall keep a register of the names and dates of birth of all women and young persons employed in that undertaking (Sec.8). According to Section 10, the master of a vessel which is registered in Ceylon as a British ship or which is owned by any person or body of persons resident or carrying on business in Ceylon shall keep a register of the names and dates of birth of all persons under the age of sixteen years employed on that vessel, or a list of such names and dates of birth in the articles of agreement with the crew of that vessel. Part 3 of the Act shall apply in relation to employment other than employment in industrial undertakings and at sea. Section 13-15 provides for the restrictions on employment of children and restrictions by Commissioner of Labour on employment of children. During construction period of terminal, there is a risk of engaging women, young persons and children in different activities.

⁴⁰⁹ 'Primary suppliers' are those suppliers who, on an ongoing basis, provide directly to the project goods or materials.

- ✓ **Forced Labour:** PS-2 and ESS-2 defines forced labour as any work or service not voluntarily performed by an individual, will not be used in connection with the project. This prohibition covers any kind of involuntary or compulsory labor, such as indentured labour, bonded labour, or similar labour-contracting arrangements. No trafficked persons will be employed in connection with the project. CWIT and its contractor would be responsible to ensure avoidance of any form of forced labour scenario amongst different categories of workers engaged in their operation including primary supply workers.
- ✓ **Gender-Based Violence (GBV including SEA and SH):** workers engaged in the project (construction and operation stage) are mostly from local areas and therefore the GBV including sexual exploitation and abuse (SEA) and sexual harassment (SH) risk is expected to be low and manageable. The contractors mobilized during construction phase will need to ensure that workers are provided with the necessary GBV/SEA/SH training and Code of Conduct (CoCs) are signed prior to commencement of works.
- ✓ **Occupational Health and Safety (OHS):** Potential OHS related hazard to the workers in the regulation operation of terminal and to the construction workers, could be associated with key activities of the project. For example, accident and injury risks may happen during various construction and operational activities.

APPLICABLE STANDARDS AND REGULATORY PROVISIONS FOR LMP

Labour Regulations

The terms and condition of employment for all categories of workers including construction workers and operational workers, will be primarily governed by applicable labour regulation of the country that are listed in table given below.

Table Error! No text of specified style in document.-21: Applicable Regulation & Guidelines

Sl. No	Applicable labour regulation	Brief description
1	National Minimum Wages of Workers Act, 2016	The minimum monthly wage for all employees, irrespective of industry is LKR 10,000 and the minimum daily wage is LKR 400. These rates are revised periodically and would need to be tracked.
2.	The Shop and Office Employees' Act, 1954	The maximum number of working hours is 9 in a day, including a 1-hour meal-break and 45 hours in a week. A rest-break will also be given to employees if they work for more than 8 hours. This rest-break must be given between 11 am and 2 pm during the day and the rest break for employees working during the night should be given between 7 pm and 10pm.
3.	The Employment of Women and Young Persons and Children Act, No. 47 of 1956 and Amendment Act, No. 2 of 2021	Part 1 of the Act deals with the restrictions on night work in industrial undertakings. Part 2 of the Act deals with the employment in industrial undertakings and at sea. The employer in a public or private industrial undertaking shall keep a register of the names and dates of birth of all women and young persons employed in that undertaking (Sec.8). According to Section 10, the master of a vessel which is registered in Ceylon as a British ship or which is owned by any person or body of persons resident or carrying on business in Ceylon shall keep a register of the names and dates of birth of all persons under the age of sixteen years employed on that vessel, or a list of such names and dates of birth in the articles of agreement with the crew of that vessel. Part 3 of the Act shall apply in relation to employment other than employment in

Sl. No	Applicable labour regulation	Brief description
		industrial undertakings and at sea. Section 13-15 provides for the restrictions on employment of children and restrictions by Commissioner of Labour on employment of children. Regulation 2.23 prohibits employment of Young Persons in priority areas like harbours and ports engaged in activity that can result in bodily harm.
4.	The Factories Ordinance, 1942	The Factories Ordinance provides the minimum standards for health, safety and welfare of workers in factories. It makes provisions regarding the following: <ul style="list-style-type: none"> ■ Supply of drinking water ■ Regulations regarding washing facilities ■ Accommodation for clothing ■ Facilities for resting for female workers ■ Sanitary conveniences for persons employed in the factory, including a separate accommodation for persons of each sex.
5.	The Workmen's Compensation Ordinance, 1934 and The Factories Ordinance, 1942	Both the Workmen's Compensation Ordinance, 1934 and the Factories Ordinance, 1942 cover the employer's responsibilities regarding employee's occupational health and safety. The WCO provides for the payment of compensation towards injuries faced by workers, while working. Aspects such as exposure to Electro Magnetic Force while working on electrical systems are covered under Factories Ordinance.
6.	National Institute of Occupational Safety and Health Act, 2009	The Act was passed to establish the National Institute of Occupational Health and Safety and the formulation of related policies and standards.
7.	The Trade Unions Regulations, 1935 and The Industrial Disputes Act of 1950	Both, Trade Unions Regulations, 1935 and The Industrial Disputes Act of 1950 cover the rights provided to labour to form unions as a collective bargaining method and also lay down procedure on how the collective bargaining can be used by the trade unions.

IFC- PS2 and WB ESS-2 requirements

The Performance Standard 2 (PS2) Labour and Working Conditions and Environmental and Social Standard on Labour and Working Conditions (ESS2), requires Borrowers to:

- ✓ *Promote safety and health at work* – CWIT will prioritise OHS aspects of the workers for during the construction and operation stages of the WCT-1 project, safety and health at work shall be prioritize by incorporating the labour health and safety conditions in contractor/ sub-contractors' agreement.
- ✓ *Promote the fair treatment, non-discrimination, and equal opportunity of project workers* – To ensure the fair treatment, non-discrimination and providing equal opportunity to the project workers, applicable labour law provisions shall be implemented under construction and operational stages of the project.
- ✓ *Protect project workers, with emphasis on vulnerable workers* – Various projects activities may involve labours from vulnerable communities. By implementing the various applicable national regulations their rights and benefits shall be safeguarded.
- ✓ *Prevent the use of all forms of forced labour and child labour* – Forced labour and child labours shall be strictly prohibited under various stages of the project ensuring the provisions of national labour laws. Thus, young persons (aged 16-18) will be not be employed in the project.

- ✓ *Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law* –Following the national laws on freedom of association and collective bargaining throughout the different stages of the project will help to achieve the objective.

International Labour Standards

International Labour Organization (ILO) has set up the international labour standards in the form of global conventions or recommendations. These recommendations are non-binding and set of guidelines which orient the national policies and actions. By ratifying the Convention, a country enters into the legal obligation to implement it. There are 41 ILO Conventions ratified by Sri Lanka, which includes the eight core conventions, and these are listed below along with their corresponding ratification status:

Table Error! No text of specified style in document.-22 Fundamental ILO conventions

S. No	Core Conventions of ILO	Ratified by Sri Lanka
1	C 29: Forced Labour Convention	Ratified
2	C 105: Abolition of Forced Labour Convention	Ratified
3	C 100: Equal Remuneration Convention,	Ratified
4	C 111: Discrimination (Employment Occupation) Convention,	Ratified
5	C 138: Minimum Age Convention,	Ratified
6	C 182: Worst forms of Child Labour Convention. During the construction, operation stages of the project	Ratified
7	C 87: Freedom of Association and Protection of Right to Organised Convention	Ratified
8	C 98: Right to Organise and Collective Bargaining Convention	Ratified
9	C 155: Occupational Safety and Health Convention, 1981	Ratified
10	C 187: Promotional Framework for Occupational Safety and Health Convention, 2006. but the guidelines provided under these Core Conventions have also been incorporated under different national regulations	Not ratified

SUGGESTED SAFEGUARDS POLICIES

CWIT and its contractors will be required to formulate or evaluate/update their existing human resources policies and procedures catering to different categories of workforce engaged in their operations in light of the key aspects as discussed below. The updated policies adopted for the project will contribute to the achievement of PS-2 and ESS2 objectives.

Terms and Conditions of Employment

- ✓ Documented employment contract/appointment letters to all categories of workers including third workers and construction workers by their respective employer;

- ✓ Employment contract should include information as appropriate with applicable labour regulations such as worker's name, job title, date of joining, anticipated duration of the contract (for contract workers), place of work, housing and accommodation provisions, provisions regarding food and payment required (if any), hours of work, rest breaks, leave entitlements & other related matters, overtime compensation, timing of payment & deductions, applicable labour welfare arrangement, notice period etc.

Non-discrimination & Equal opportunity

- ✓ Policy on fair treatment, non-discrimination, and equal opportunity of project workers in the process of recruitment;
- ✓ The project workers will be recruited and assessed based on their competence and professional achievements.
- ✓ Gender, birth, language, race, colour of the skin, age, pregnancy, health condition, and/or disablement, ethnic origin, religion, marital status, family obligations, sexual orientation, political or other belief, social background, financial status, membership in political organisations, trade unions, or any other personal characteristic unrelated to inherent job requirements cannot be ground for making any decision regarding employment and the employment relationship.

Protection of the workforce

- ✓ Clear policy on minimum age of recruitment to ensure compliance w.r.t applicable regulatory provision on this matter;
- ✓ Policy statement on prohibition of forced labour in any form in project related activities.

Worker's organisation

- ✓ Freedom to the workers for joining a trade union or any other worker organization of their choice;
- ✓ The principle of free association and collective bargaining will be strictly respected.
- ✓ The third party must not condition the participation of a project worker in the project, his/her status, remuneration or entitlements on the project worker's membership or activity in any organization.

Accommodation arrangement

Where accommodation arrangement is necessitated by contractors for their workers or for the construction workers by their contractor/sub-contractors during construction stage of the Project will adopt the accommodation arrangement procedure as provided under **Annexure 3** of this document.

The CWIT and/or its contractors are recommended to adopt the following approach to handle the issues of workers accommodation and it should be dealt systematically in following manner:

- ✓ Assessment of the type and number of workers who will be requiring accommodation facility;
- ✓ Impact assessment of workers accommodation on local community and accordingly plan mitigation measures;
- ✓ Identify applicable regulatory requirements on establishment of workers colony and housing provisions and facilities / infrastructure; including local regulations and IFC Standards (Guidance on Workers' Accommodation) ; and
- ✓ Managing accommodation.

If local working population of the project area cannot meet total project workforce requirement, then it is likely that workers from outside will need to be recruited. The outside workers will require adequate accommodation arrangements. Types of workers requiring accommodation arrangement can be classified in the following categories:

- ✓ Migrant labourers during construction phase;

- ✓ Supervisors and executives of the contractors engaged in construction phase;
- ✓ Regular workers, supervisors, and executives during operational phase.

Primary Supply Worker

CWIT/Principal contractor will be required to identify primary suppliers, specifically for their supply of construction material (boulder and civil construction materials) and communicate them on applicable requirements of LMP for their workers. As part of monitoring process, contractors shall be required to carry out due diligence procedure to identify if there are significant risks with their suppliers like whether that is any issue of child or forced labour engagement, exposing worker to serious safety issues etc..

Age of Employment

In accordance with the The Employment of Women and Young Persons and Children Act, No. 47 of 1965/1956 and Amendment Act, No. 2 of 2021, the employer in a public or private industrial undertaking shall keep a register of the names, dates of birth, and hours of work of all persons under the age of eighteen years employed in that undertaking,

Contractors will be required to verify and identify the age of all workers. This will require workers to provide official documentation, which could include a birth certificate and other national identification cards, passport, or medical or school record. If a minor under the minimum labour eligible age is discovered working on the project, measures will be taken to immediately terminate the employment or engagement of the minor in a responsible manner, taking into account the best interest of the minor.

CWIT will also be required to identify primary suppliers for their respective operations and ensure that requirement of minimum wage of employment is also followed by their primary suppliers.

Terms and Conditions OF EMPLOYMENT

The terms of employment of the direct project workers of regular category will be governed by the National Minimum Wages of Workers Act, 2016, whereas the terms of employment of the contractual staffs at the construction site will be governed by their terms of contract as mentioned above and in all cases the principles of non-discrimination will be and equal opportunity apply.

The terms of employment of the contract workers engaged in regular operations as well as for civil work during construction phase, would be based on the terms of contract and governed by the policies/codes laid down by the government and as would be applicable for specific categories of workers. For example, terms and conditions for workers employed in project site will be primarily governed by requirement of the Shop and Office Employees Act, 1954, the Factories Ordinance, 1942 These regulations requires that no worker shall be required or allowed to work for more than nine hours a day or forty-eight hours a week. Over that s/he shall, in respect of overtime work, be entitled to wages at double the ordinary rate of wages.

Grievance Mechanism

PS-2 and ESS-2 requires that a grievance mechanism should be provided for all direct workers and contracted workers to raise workplace concerns. Workers should be informed of the grievance mechanism at the time of recruitment and the measures put in place to protect them against reprisal for its use. Measures should also be put in place to make the grievance mechanism easily accessible to all such project workers. In view of this, CWIT will be required to assess their existing procedures to address workplace concerns of worker and ensure that their procedure gets aligned with PS-2 and ESS-2 requirements. At the minimum, grievance mechanism of CWIT for workers should:

- ✓ Specify to whom the employee should lodge the grievance;
- ✓ Refer to the time frame allowed for the grievance to be dealt with;

- ✓ Allow the employee to refer to a more senior level within the organization if the grievance is not resolved at the lower level;
- ✓ Have transparency in redress process;
- ✓ Include right to representation;
- ✓ Guarantee non-retribution practice;
- ✓ Not impede access to other judicial or administrative remedies that might be available under the law or through existing arbitration/dispute resolution procedures, if the grievance is not resolved within the organization;
- ✓ Provide for anonymous complaints to be raised and addressed.

The project workers should be informed on available grievance mechanisms at the time of recruitment as well as in staff induction training. Information about the existence of the grievance mechanism will be readily available to all project workers (direct and contracted) through notice boards, the presence of "suggestion/complaint boxes", and other means as needed.

GRM for construction worker during construction phase

Construction workers to be engaged during construction stage for WCT-1 Project will allowed to access to formal GRM established by CWIT for their workers. In addition to this, CWIT will make it a contractual obligation for the contractors to establish a 'Construction Site Specific Grievance Mechanism'. It shall include site specific Grievance Focal Point (GFP) assigned by the Contractor who will file the grievances and appeals of contracted workers and will be responsible to facilitate addressing them. If the issue cannot be resolved at contractor's level within 7 working days, then it will be escalated to site supervising authority on behalf of CWIT and then to CWIT Management for final decision.

The GFP will register the grievances in a formal manner in register or in electronic format to be easily tracked for its resolution. The GRM will include the process of screening, investigation, resolution of grievances, documentation, and reporting of grievances as the steps mentioned below.

Step 1: Raising and registering the grievances using various mechanism including through written or verbal complaints and registered in grievance logbook at the construction site of the WCT-1;

Step 2: Grievance raised is screened by the GFP and forward to concern site in-charge of the contractor/sub-contractor for redress;

Step 3: Grievance discussed at the GFP/ respective contractor/ sub-contractor level, and addressed

Step 4: If not addressed in stipulated period it is escalated to next level at CWIT's site supervising authority and then to CWIT Management for final decision site;

Step 5: Once addressed, feedback is given/ sent to the complainant;

Step 6: If not satisfied, appeal to the other public authorities.

GRM established under Stakeholder Engagement Plan of the Project

CWIT will also be required to establish a uniform GRM process as recommended in Stakeholder Engagement Plan (SEP) document of the project. This GRM process is expected to serve all potential categories of project stakeholders including workers engaged in project related activities. Workers will be allowed to access this GRM platform as well, in case they are having any issue in raising their workplace related concern through their regular channel. This will be more meaningful channel for any community worker or primary supply worker engaged in project activities.

Contractor Management

Any Contractor selected by CWIT for the construction phase or for the activities involved in regulation operation must be a legitimate and reliable entity and must have their own labour management procedure and practice materially consistent with the requirement of PS-2 and ESS2. CWIT will be recommended to use WB's 2017 Standard Procurement Document (SPD) for solicitations and contracts, and these include labour and occupational, health and safety requirements.

The requirement of PS-2 and ESS2 will be incorporated in the bidding documents and contractual agreement and will include non-compliance remedies. Any subcontractors engaged will also have similar requirements in their agreement including non-compliance remedies. As part of selection of bidders for contract floated, CWIT may consider reviewing the following information;

- ✓ Information in public records, for example, corporate registers and public documents relating to violations of applicable labour law, including reports from labour inspectorates and other enforcement bodies;
- ✓ Business licenses, registrations, permits, and approvals;
- ✓ Documents relating to a labour management system, including OHS issues, for example, labour management procedures;
- ✓ Identification of labour management, safety, and health personnel, their qualifications, and certifications;
- ✓ Workers' certifications/permits/training to perform required work;
- ✓ Records of safety and health violations, and responses;
- ✓ Accident and fatality records and notifications to authorities;
- ✓ Records of legally required worker benefits and proof of workers' enrolment in the related programs;
- ✓ Worker payroll records, including hours worked and pay received;
- ✓ Copies of previous contracts with contractors and suppliers, showing inclusion of provisions and terms reflecting PS-2 and ESS2.

The contracts with selected contractors will include provisions related to labour and occupational health and safety, as provided in the IFC-World Bank SPD and applicable Sri Lanka regulations.

CWIT will manage and monitor the performance of Contractors in relation to contracted workers, focusing on compliance by contractors with their contractual agreements (obligations, representations, and warranties). This may include periodic audits, inspections, and/or spot checks of project locations or work sites and/or of labour management records and reports compiled by contractors.

Contractors' labour management records and reports may include:

- ✓ A representative sample of employment contracts or arrangements between third parties and contracted workers;
- ✓ Records relating to grievances received and their resolution;
- ✓ Reports relating to safety inspections, including fatalities and incidents and implementation of corrective actions;
- ✓ Records relating to incidents of non-compliance with applicable Sri Lanka regulation; and
- ✓ Records of training provided for contracted workers to explain labour and working conditions and OHS for the project.

The contract condition for each Contractor shall include the right to terminate the Contract, should the Contractor fail, within the reasonable time given, to comply with any notice to correct non-compliance issue with applicable regulation of Sri Lanka, OHS laws & regulations and this LMP requirements.

RESPONSIBLE STAFF AND IMPLEMENTATION ARRANGEMENT

Responsibility

CWIT will be responsible for the operationalization and overall implementation of this LMP. CWIT will have a dedicated Environment and Social (E&S) Cell, who will be responsible for implementation of E&S management system.

Table Error! No text of specified style in document.-23 Roles and Responsibilities for LMP Implementation

S. No	Entity	Responsibility in SEP implementation
1	Project Director	<ul style="list-style-type: none"> ■ Responsible for implementation of ESMP action plan including LMP implementation; ■ Updating LMP on regular basis based on feedback received from contractor and sub-contractors; ■ Supervision of LMP implementation by contractor and sub-contractors
2	EHS Director	<ul style="list-style-type: none"> ■ Monitor LMP implementation by the contractor and sub-contractor; ■ Provide feedback to Project Director on LMP related matters, including periodic data on implementation
4	Environment & Social Manager	<ul style="list-style-type: none"> ■ Implement actions as proposed in LMP with the guidance from EHS Director; ■ Dedicate competent workforce at Site to ensure effective implementation of project specific LMP; ■ Maintain records of monitoring at their offices. ■ Provide periodic monitoring update on LMP implementation to EHS Director; ■ Environment & Social Manager will use the checklist provided under Annexure 3 & 4, for labour management monitoring and maintaining records
5	Contractors/sub-contractors engaged by CWIT	<ul style="list-style-type: none"> ■ Adhere to terms of contract on LMP aspects ■ Deploy required staff to ensure accomplishment of LMP objectives at their respective sites; ■ Ensure alignment of working conditions of the contractor workers deployed at site with the objective and requirement of this LMP; ■ Adhering to safe working practices and other provisions of LMP; ■ Maintains records at site on applicable regulatory requirements (license, permit, registration certificate etc.), wage payment, OHS, worker's grievance etc.

S. No	Entity	Responsibility in SEP implementation
		<ul style="list-style-type: none"> ■ Mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; ■ Informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; ■ Introducing a Workers' Code of Conduct as part of the employment contract and including sanctions for non-compliance (e.g., termination), manual scavenging, engagement with local residents, child labour, non-discrimination, harassment of co-workers including women; ■ Contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about gender-based violence; ■ Training programs on HIV/AIDS and other communicable diseases; ■ Workers' Camp Management Plan addressing specific aspects of the establishment and operation of workers' camps provided the Local Body/ Executing Agency is unable to cater to the demand for affordable housing for this additional workforce in terms of rentals, hostels, apartments, etc.; and ■ Complaint handling Mechanism at the project level.

Implementation

Monitoring & Evaluation

CWIT will put in place a robust mechanism for the purpose of monitoring and evaluation of the Labour management practices for its project. The monitoring would not only help keeping track of labour related management practices on ground, but also to improve the existing identified gaps which will require to be addressed while meeting the need to comply with the regulatory and International standards. CWIT will ensure setting up of both internal and external monitoring systems to assess the progress and evaluate the performance on the labour management practices.

Internal Monitoring

The Environmental & Social Manager of CWIT will do internal monitoring of the labour management implementation in case the labour officer is not appointed; however preferably a labour officer will be appointed. The labour officer will coordinate with the Environmental and Social Manager and representatives from the sub coordinator part to conduct internal monitoring from time to time. Internal monitoring will also be done through regular submission of the reports from the sub-contractor side on various monitoring indicators as mentioned in tables above.

Apart from daily or weekly reporting, monitoring will also be carried out on quarterly basis to assess the performance on the various labour related issues. The findings of these internal monitoring and will be documented and brought before the advisory committee for review and guidance.

External Monitoring/ Evaluation

A third party will do external monitoring of the labour management practices carried out under the project, independently at the end of each financial year to monitor the labour management practices. External monitoring will also be based on various monitoring indicators as mentioned earlier.

Allocation of Finances

The sub-contractor will be responsible for the financial allocation of resources to implement the contractor and labour management plan. Sub-contractors for the various aspects of the project will be responsible for incorporating the cost of implementing the construction and labour management plan at the bidding stages itself. CWIT and its contractors in their quotation request from the contractors will be responsible for putting up the requirements from its contractor regarding the labour management plan. The cost of the labour management plan will therefore be already included in the bidding document, especially with regard to provision of the health and safety PPEs, safety managers and construction of the labour camp as required.

ANNEXURE 1: PRIMARY SUPPLIER STATEMENT OF COMPLIANCE ON APPLICABLE LABOUR REGULATIONS AND PROJECT'S LMP REQUIREMENTS

Date and place of issuance: _____

Name and address of the Supplier: _____

STATEMENT OF LEGAL AND REGULATORY COMPLIANCE

Hereby we declare that

- ✓ We conform to all national labour regulation concerning employment, labour and employee relations, and labour and working conditions;
- ✓ We are committed to providing a safe and healthy environment for our employees and to implementing all occupational health and safety requirements as stipulated by national legislation;
- ✓ We do not tolerate any form of child, forced or slavery work.
- ✓ We prohibit any form of harassment (including sexual) abuse, violence and Gender Based Violence at work and forbid direct or indirect discrimination against any employee or groups of employees on any ground and for whatever reason.
- ✓ We shall maintain records related to labour, occupational injuries, illness, near misses and incidents.

We hereby acknowledge our understanding that our company may be subjected to announced and unannounced visits, site checks and labour and working condition audits by the CWIT to whom materials and good are supplied and by independent third parties with the aim to verify compliance with the above statement.

We understand that the failure to respect any of the above stated commitments could lead to termination of the contract and exclusion from the project.

Signature:

Name:

Position:

ANNEXURE 2: LABOUR ACCOMMODATON GUIDELINE AND MONITORING CHECKLIST

Housing standards for workers accommodation

CWIT will be recommended to adopt the following approach to handle the issues of worker's accommodation and it should be dealt systematically in following manner:

- ✓ Assessment of the type and number of workers who will be requiring accommodation facility;
- ✓ Impact assessment of workers accommodation on local community and accordingly plan mitigation measures;
- ✓ Identify applicable regulatory requirements on establishment of workers colony; and
- ✓ Determining the standards to apply to the location of facilities, the construction of housing and provision of facilities;
- ✓ Managing accommodation.

If local working population of the project area cannot meet total project workforce requirement, then it is likely that workers from outside will need to be recruited. The outside workers will require adequate accommodation arrangements. Types of workers requiring accommodation arrangement can be classified in the following categories:

- ✓ Operation workers employed directly by CWIT or through manpower supply agency
- ✓ Migrant laborers during construction phase

Labour Colony:

The contractors would be recommended to prepare temporary accommodation facilities for the construction laborers preferably within the site area, away from existing local community to leave minimum possible adverse impact upon local community. The standards that are to be maintained for labour colonies will be:

- ✓ Allocation of minimum space per person or per family;
- ✓ Supply of safe water in the workers' dwelling in sufficient quantity;
- ✓ Adequate sewage and garbage disposal systems;
- ✓ Adequate sanitary and washing facilities, ventilation, cooking and storage facilities and natural and artificial lighting;

The contractors will have to abide by all applicable rules and regulations pertaining to the design and construction of the building as well as facilities to be provided therein while planning for the accommodation arrangements for the workers. In addition, a suggestive guideline for workers accommodation arrangement based on international standards has been prescribed below.

Standards for Workers Colony

Standards Parameter	Requirements as well as Monitoring indicators
Location	<ul style="list-style-type: none"> ✓ Reasonable distance from Project Site ✓ Adequate Transportation arrangement
Drainage	<ul style="list-style-type: none"> ✓ Proper drainage system ✓ Avoid accumulation of stagnant water
Ventilation	<ul style="list-style-type: none"> ✓ Adequate ventilation and air conditioning system ✓ Natural lighting available ✓ Artificial lighting available
Water	<ul style="list-style-type: none"> ✓ Adequate and convenient water supply ✓ Drinking water meeting national and WHO standards ✓ Regular monitoring of drinking water

Standards Parameter	Requirements as well as Monitoring indicators
Waste water and solid waste	<ul style="list-style-type: none"> ✓ Proper discharge of waste water and sewage ✓ Establish Sewage Treatment Plant (STP) if required ✓ Solid waste management system ✓ Pest control mechanism
Toilet facilities	<ul style="list-style-type: none"> ✓ Adequate number of toilets ✓ Convenient location ✓ Constructed of good materials ✓ Easily cleanable ✓ Kept in working condition ✓ Separate for male and female except for family accommodation
Bathrooms and other sanitary facilities	<ul style="list-style-type: none"> ✓ Made of anti-slip hard washable materials ✓ Adequate number of bathroom and hand wash facilities ✓ Kept in working condition ✓ Convenient location. Separate for male and female except for family accommodation ✓ Adequate supply of cold and hot running water
Canteen and cooking arrangement	<ul style="list-style-type: none"> ✓ Adequate space ✓ Constructed of good and easy to clean material ✓ Option for separate cooking ✓ Adequate space for separate cooking ✓ Hygiene in canteen/dining halls and cooking facilities ✓ Adequate facilities for cleaning, disinfecting and storage of cooking utensils and equipment ✓ Adequate food waste disposal
Nutrition and food safety	<ul style="list-style-type: none"> ✓ Appropriate level of nutrition value ✓ Consideration of religious and cultural background of workers in food selection ✓ Workers could have choice of food
Medical facilities	<ul style="list-style-type: none"> ✓ First aid facility ✓ Own dispensary
Safety arrangements	<ul style="list-style-type: none"> ✓ Availability of fire extinguishers
Recreational, social and market facilities	<ul style="list-style-type: none"> ✓ Community centre for social gathering ✓ Market complex

COVID-19 SOP for Labour Camps

Although the Covid 19 pandemic situation is almost over for now, but in case of reoccurrence of such situation during project execution period, it will be recommended to follow the SOPs on COVID 19 as mentioned below.

- ✓ The speed of COVID 19's spread, and the nature of virus, has given rise to concerns with respect to safety of workers as well as that of members of the public with whom workers may come into contact.
- ✓ To better understand physical & economic risks to workers, contractor should ensure that these considerations are properly integrated into the emergency response plan. A brief and non-exhaustive overview of prevention and response measure has been provided below though the understanding and medical advice is being updated frequently, and the measures must be updated to the most recent advice, including central, state and district level guidelines:

- ✓ Providing information about COVID 19 to engaged staff & workers at site level
- ✓ This process will include awareness campaigns, training, or the establishment of specific communication channels. No practice of discrimination against or stigmatization of person affected, or his family;
- ✓ Encourage workers to stay at home, in-case they report symptoms of COVID 19.
- ✓ In this case, a contractor shall ensure a separate accommodation facility for the affected/ or COVID symptomatic person;
- ✓ Awareness about proper cough hygiene should be given, also a proper use of soap, frequent hand wash, sanitizers should be given;
- ✓ Staff & workers to strictly follow social distancing at work place;
- ✓ Shall ensure that workers maintain a safe distance of 2 meters at workplace, limit gatherings and work in shifts, up to large extent;
- ✓ Cleaning and dis-infecting protocols should be extended to food preparation facilities, kitchen staff should be strictly prohibited if they discover any symptoms of COVID 19;
- ✓ Shall improve ventilation or air- filtration, when not in open space. The accommodation facilities provided, should be ensured to have proper ventilation and air-filtration facility;
- ✓ Usage of PPEs at workplace;

Checklist for labour accommodation monitoring

Sl. No.	Standards Parameter	Requirements as well as Monitoring indicators	Status
1.	Location	Reasonable distance from Project Site	
2.		Adequate Transportation arrangement	
3.	Drainage	Proper drainage system	
4.		Avoid accumulation of stagnant water	
5.	Ventilation	Adequate ventilation and air conditioning system	
6.		Natural lighting available	
7.		Artificial lighting available	
8.	Water	Adequate and convenient water supply	
9.		Drinking water meeting national and WHO standards	
10.		Regular monitoring of drinking water	
11.	Wastewater and solid waste	Proper discharge of wastewater and sewage	
12.		Establish Sewage Treatment Plant (STP) if required	
13.		Solid waste management system	
14.		Pest control mechanism	
15.	Toilet facilities	Adequate number of toilets at convenient location constructed of good materials.	
16.		Easily cleanable and kept in working condition.	
17.		Separate for male and female except for family accommodation	
18.	Bathrooms and other sanitary facilities	Made of anti-slip hard washable materials	
19.		Adequate number of bathroom and hand wash facilities	
20.		Easily cleanable and kept in working condition.	

Sl. No.	Standards Parameter	Requirements as well as Monitoring indicators	Status
21.		Separate for male and female except for family accommodation	
22.		Adequate supply of cold and hot running water	
23.	Canteen and cooking arrangement	Constructed of good and easy to clean material.	
24.		Adequate space for separate cooking	
25.		Hygiene in canteen/dining halls and cooking facilities	
26.		Adequate facilities for cleaning, disinfecting and storage of cooking utensils and equipment.	
27.		Adequate food waste disposal facility	
28.	Nutrition and food safety	Appropriate level of nutrition value	
29.		Consideration of religious and cultural background of workers in food selection	
30.		Workers could have choice of food	
31.	Medical facilities	First aid facility	
32.		Own dispensary	
33.	Safety arrangements	Availability of fire extinguishers	
34.		Display of emergency contact numbers	
35.	Recreational, social and market facilities	Community centre for social gathering	
		Market complex	

ANNEXURE 3: CHECKLIST FOR LABOUR MANAGEMENT MONITORING AND REPORTING

Checklist for Labour Management - Monitoring and Reporting

CWIT	Purpose of Monitoring	Aspects to be covered	Monitoring Mechanism	Timeline for Monitoring
Environment & Social Manager	<ul style="list-style-type: none"> ■ Ensure Contractor's compliance to labour laws /requirements ■ Monitor Contractor's EHS performance 	<ul style="list-style-type: none"> ■ Worker Accommodation ■ PPE usage by Workers for decontamination works ■ Following safety protocols in tasks ■ Maintenance of Documentation ■ Toolbox talks ■ Fire safety emergency preparedness drills 	■ Accident Register Review	■ Weekly and Monthly
			■ Visual observation	■ At least weekly
			■ Discussion with Workers	■ Monthly
			■ Discussion with Contractor	■ Monthly
			■ Review of grievances (if any)	■ Monthly
			■ Toolbox talks /trainings (as applicable)	■ Daily and quarterly training
			■ Register of Migrant workers	■ Daily
			■ Records/ Registers of wage payments and overtime	■ Monthly
			■ Review of identification documentation of workers	■ At the time of contractor signing and renewal

ANNEXURE 4: CHECKLIST FOR RECORD KEEPING AND DOCUMENTATION

Labour Management checklist

Documentation	Record keeping (Yes/ No)	Evidence/ Document reference and date	Remarks
Training curriculum and log on grievance handling			
Workers Accommodation (Cleanness, Health and Hygiene)			
Accidents and Incidents			
Security Measures			
Training log			
Gender-based violence issues			

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