

SIRAJGANJ ECONOMIC ZONE LIMITED

Environmental and Social Impact Assessment (ESIA) Draft Report Annexure (Part 2)



August 2021



SIRAJGANJ
ECONOMIC ZONE
NESTING INNOVATION AND INVESTMENT

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Annex D: ToR of ESIA Study

(ToR Provided by IDCOL with amendment of Section F-H)

TERMS OF REFERENCE (TOR) OF ESIA SERVICES

1. PROJECT IN BRIEF

The proposed economic zone, Sirajganj Economic Zone Limited (SEZL), is being developed as a separate entity by a group of reputed organizations and professionals with an objective to develop various industries in the Economic Zone along with reliable infrastructure facilities and professional management to attract and support investments in industrial sectors. BEZA has mandated SEZL via a license issued on 4 Oct 2018 to undertake financing, construction, operation and maintenance activities towards the Economic Zone and SEZL already received final license from BEZA. The project site is spread over ~1,035.93 acres of land, which is under complete ownership of the group. The project is divided in phases and the scope of this ESIA is limited to Phase 1 measuring approx. 415 acres of land. As informed by SEZL, this land parcel is collateral free and necessary social/resettlement issues have been addressed.

The zone is well connected with Dhaka and other parts of the country through the Elenga Nalka Hatikamrul Road (N405), which would serve as the primary trunk connectivity for accessing the project site. The distance of the proposed economic zone from Dhaka is approx. 107 km.

The zone has access to utilities such as power, water and gas which are critical enablers for development of economic zone. There is adequate supply of unskilled labor from the rural areas in the vicinity, however skilled and semi skilled labor needs to be procured from the nearby urban agglomerations since there is a dearth of quality educational infrastructure in the region.

The proposed Sirajganj Economic Zone (SEZ) falls under the "Red Category" as per The Environment Conservation Rules, 1997. And according to Safeguard Policy Statement, 2009 of Asian Development Bank it is expected to be a **B category project**. According to Environmental and Social Safeguards Framework (ESSF) of IDCOL, it is a **High Risk** project. So, SEZ has initiated to conduct a detail Environmental and Social Impact Assessment (ESIA) for this project by complying with the standards and regulation of Environmental and Social Framework of The World Bank and ESSF, IDCOL. In this regard, SEZ also expects to comply with the EHS Guidelines of International Finance Corporation (IFC).

2. LIST OF ON-SITE AND OFF-SITE FACILITIES

To be provided by SEZL upon finalization of detailed project layout plan.

3. OBJECTIVES OF THE ESIA

The objective of the ESIA is to assess the environmental, social and occupational health safety impacts of the project in respect of pre construction, construction and operation phases.

4. SCOPE OF THE ESIA

The ESIA covers assessment of pertinent physical, biological, socioeconomic and health safety impacts of the following three phases of the project in respect of land development, off site facilities and on site facilities as will be required to establish and operate the SEZ:

- Pre construction phase
- Construction phase
- Operation phase

5. REFERENCE GUIDELINES AND DOCUMENTS

While conducting the ESIA, the consultant has to make sure the compliance of following guidelines and standards:

- Department of Environment (DOE) including Environment Conservation Rules, 1997, practices all applicable guidelines and standards as.
- Environmental and Social Risk Management Guidelines, 2018 of Investment Promotion and Financing Facility (IPFF), Bangladesh Bank
- Environmental and Social Risk Management Guidelines, 2017 of Bangladesh Bank
- Environmental and Social Policy and Procedure, 2018 of Investment Promotion and Financing Facility (IPFF), Bangladesh Bank
- Safeguard Policy Statement, 2009 and other relevant guidelines and standards as are introduced by Asian Development Bank.
- The World Bank practices Environmental and Social Framework, 2017 and other relevant guidelines and standards including Operational Policies (OP) and Bank Policies (BP) as.
- Other best practice guidelines as are practiced widely environmental, social and occupational safeguards purpose

6. APPROACH AND METHODOLOGY

a. Principles

The guiding approach of the ESIA will be based on following five principles:

- Completeness: The consultant will provide all facts and figure in a complete manner;
- Consistency: All facts and figures will be presented in a consistent manner;
- Relevancy: There will be no irrelevant discussion or illustration in the ESIA;
- Accuracy: All information and description should be accurate and they are supported with the source of reference (as is possible);
- Transparency: The consultant will prepare the ESIA from a neutral and ethical position, which means that all the issues will be depicted in a transparent manner with due importance and honest judgment.

b. Content

The ESIA report shall contain but not limited to the following contents:

A. Executive Summary

This section will describe the project activities, critical environmental and social issues, significant findings, and recommended actions.

B. Introduction

- a) Background of the Project
- b) Brief description of the Project
- c) Rationale of the Project
- d) Extend of the ESIA study
- e) Scope of the ESIA study
- f) ESIA methodology in detail
- g) Limitation of the study
- h) The ESIA Team Composition basic qualification and competence of Team members in brief with respective contribution in the ESIA;
- i) Acknowledgement,

C. Policy, Legal, and Administrative Framework

- a) Project relevant national environmental, social and health safety, and labour safety laws, rules, regulation including laws and rules as are followed by the Department of Environment.
- b) ESRM Guidelines, 2018 in relevant to IPPF as well as ESRM Guidelines, 2018 of Bangladesh Bank
- c) Brief description of EHS related rules/regulation/guidance of Asian Development Bank, The World Bank, IPC
- d) Project relevant international environmental agreements to which the country is a party;
- e) Please mention the environmental and social categorization of the project with the respective national and international standards

D. Description of Project

a) Background and Rationale of the Project

- 1) Rationale for the proposed project;
- 2) Outline of Project objectives.

b) Project Description

- 1) Description of site location and area with reflection on proximity to nearby communities, designated environmentally sensitive areas and heritage sites¹² ;
- 2) Please describe the accessibility to site in detail with approximate length and width of different types of roads and waterways

¹ In addition of satellite image, please insert relevant photographs.

² Please use relevant maps and illustrations.

- 3) Details of proposed layout plan of the project by clearly demarcating various facilities of the project with required area
- 4) Description of civil works and electro mechanical components with detail technical specification.
- 5) Detail activity schedule with mentioning tentative time period to accomplish each major task³
- 6) Approximate work force/personnel required during construction and operation phases
- 7) Approximate amount water and energy to be used during construction and operation phases and their potential source⁴.
- 8) Project activities: A list of the main project activities to be undertaken during site clearing construction as well as operation
- 9) Resources and utilities demand resources required to develop the project, such as soil and construction material and demand for utilities (water, electricity, sewerage, waste disposal and others) as well as infrastructure (road, drains and others)
- 10) Map and survey information location map, cadastral map showing land plots (project and adjacent area), geological map showing geological units, fault zone, and other natural features.
- 11) Project plan, design, standards, specification, quantification etc.

E. Environmental and Social Baseline Condition (by assuming 5 km radius air shed)

This section will cover the following aspects of the project area:

a) Meteorology

Please analysis the following meteorological conditions/parameters by considering the data of (2009-2018)

- 1) Temperature
- 2) Humidity
- 3) Rainfall
- 4) Evaporation
- 5) Wind speed
- 6) Sunshine Hours

b) Air Quality and Noise

- 1) Ambient air quality of the project with respect to standards of ECR, 1997
- 2) Ambient noise quality of the project with respect to standards of ECR, 1997
- 3) Air pollution and noise sources from existing sources within the project area

c) Water Resources

- 1) Surface water system
- 2) Tropical cyclones and tidal flooding

³ Preferably in work break structure (WBS) format

⁴ Please provide a tentative break down of water and energy consumption in various activities during construction and operation.

- 3) Salinity
- 4) Drainage congestion and water logging
- 5) Erosion and sedimentation
- 6) River morphology
- 7) Navigation Ground water system
- 8) Potential sources of water pollution in the project area

a) Land resources

- 1) Agro ecological regions
- 2) Land types
- 3) Soil textures
- 4) Landuse

c) Agricultural resources

- 1) Farming practice
- 2) Cropping pattern and intensity
- 3) Cropped area
- 4) Crop production crop damages
- 5) Main constraints of crop production

d) Livestock and poultry

- 1) Feed and fodder shortage
- 2) Livestock/poultry diseases

g) Fisheries

- 1) Habitat description
- 2) Fish production and effort
- 3) Fish migration
- 4) Fish biodiversity
- 5) Fisheries management

h) Ecological resources

- 1) Bio ecological zone
- 2) Common flora and fauna
- 3) Eco system service and function
- 4) Presence of endangered species

i) Climate change impact

- 1) Describe the risk of climate change impact in the project area and potential major concern in relevant to the project

j) Socio-economic condition

- 1) Quality of life indicators
- 2) Income and poverty
- 3) Gender and women
- 4) Common property resources

- 5) Conflict of interest and law and order situation
- 6) Historical, cultural and archaeological sites

F. Identification and analysis of key environmental issues (analysis need to be presented with scenarios, maps, graphics etc. for the case of anticipated impacts on baseline)

- a) Environmental sensitivity investigation
- b) Environmental assets
- c) Environmental hot spots
- d) Likely beneficial impacts
- e) Community recommendation
- f) Alternative analysis
- g) Environmental, social and health safety impacts
 - 1) Impacts on air quality and noise at (i) pre construction (ii) construction and (iii) operation phases
 - 2) Impacts on water resources at (i) pre construction (ii) construction and (iii) operation phases
 - 3) Impacts on land resources at (i) pre construction (ii) construction and (iii) operation phases
 - 4) Impacts on agricultural resources at (i) pre construction (ii) construction and (iii) operation phases
 - 5) Impacts on fisheries at (i) pre construction (ii) construction and (iii) operation phases
 - 6) Impacts on eco system at (i) pre construction (ii) construction and (iii) operation phases
 - 7) Socio economic impacts at (i) pre construction (ii) construction and (iii) operation phases
- h) If there is any issue regarding resettlement, loss of livelihood or economic displacement, required resettlement actions with compensation measures is to be determined.

G. Stakeholder consultation and disclosure

- a) Objectives of stakeholder consultation and public disclosure meeting
- b) Approach and methodology of stakeholder consultation and public disclosure meeting
- c) Major findings of stakeholder consultation
- d) Public disclosure meetings and major findings

H. Environmental and social management plan and monitoring indicators

- a) Mitigation plan
- b) Enhancement plan
- c) Contingency plan
- d) Compensation plan
- e) Monitoring plan and monitoring indicators

- I. Cost estimation for environmental mitigation and monitoring**
- J. Emergency response plan and disaster impact assessment**
- K. Conclusion and recommendation**

8. Disclaimer

This is apparently an indicative ToR. Because, the audience of this ESIA Report is expected to be Department of Environment, Bangladesh as well as The World Bank, Asian Development Bank and other recognized organizations. So, it is highly required that the ESIA consultant will consider all sorts of aspects as are necessary to satisfy the requirement of these organizations with the ultimate objective to get the ESIA approved by them smoothly.

Annex-E: Documentation of Field Surveys (Biological Environment)



Preparation of fishing in Jamuna River



Present status of Jamuna river



Set net operation in adjacent Khal (straem)



River along with the Jamuna Bridge

Figure E 1: Common problems and issues regarding the ecological system in the study area



Collection of fish found within the study area



Aor (Sparat aor)



Bagha Air ((Bagarius bagarius)



Tengra Fish (Mystus tengra)



Kancila (Xenentodon cancila)



Boirali (Barilius barila)



Bail fish (Awaous guamensis)



Phulo chela (Salmostoma phulo)



Boal (Wallgo attu)



Pabda fish (Ompak pabda)



Chingri (Macrobrachium spp.)



Activity of fishing in Jamuna river



Fishermen setting net in Khal (Stream)



Floating net operation in canal



Set net operation in Khal (Stream)



Long ling fishing in canal



Long line fishing



Use of set net in khal (stream)



Hilsha(Hilsa ilisha)



Gigot tengra (Gagata youssoufi)



Kajuli (Ailia coila)



Darkina (Rasbora daniconius)



Awaous guamensis



Wallago attu and Eutropiichthys vacha



Wallago attu



Gagata youssoufi



Macrobrachium lamerrai and Ailia coila



Macrobrachium rosenbergii



Rita rita and Mastacembelus armatus



Bagarius bagarius



Eutropiichthys vacha



Chitala chitala with Labeo sp.



Labeo kalbasu



Ompak pabda

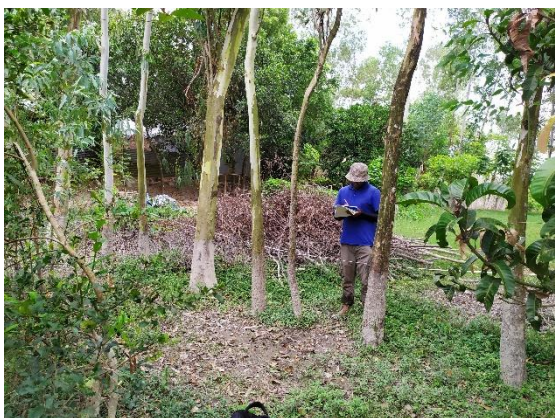


Rita rita



Labeo bata

Figure E 2: Fishing activity and diversity of species in and around the study area



Location 2 (Q1)



Location 2 (Q2)



Location 3 (Q3)

Figure E 3: Pictorial View of Quadrat study within the study area



Eucalyptus spp.



Bamboo spp.



Musa sapientum



Lannea coromandelica



Swietenia mahagoni



Zizyphus sp



Erythrina ovalifolia



Areca catechu



Syzygium cumini



Cascabela thevetia



Tamarindus indica



Dalbergia sissoo

Figure E 4: Homestead plants in the study area



Colocasia esculenta



Ipomoea carnea



Nymphaea nouchali



Calotropis gigantea



Glareola lacteal



Streptopelia decaocto



Passer domesticus



Halcyon smyrnensis



Streptopelia chinensis



Acridotheres tristis



Turdoides striata



Dinopium benghalense



Alcedo atthis



Motacilla alba



Lanius schach



Anthus richardi



Phalacrocorax sulcirostris



Milvus migrans



Oriolus xanthornus



Ardea intermedia



Dicrurus macrocercus



Copsychus saularis



Butorides striata



Corvus splendens



Dendrocitta vagabunda



Vanellus indicus



Glareola lactea



Glareola lactea



Upupa epops



Tringa ochropus



Centropus sinensis



Ardeola grayii



Vanellus duvaucelii



Folks of River Lapewing



Folks of River Lapewing



Actitis hypoleucos

Figure E 5: Avifaunal species found within the project area



Bengal Monitor (Varanus bengalensis)



Common Asian toad (Hoplobatrachus tigerinus)

**Source: Internet*



*Small Indian Mongoose(Herpestes
auropunctatus)*



Golden Jackel (Canis aureus)

Figure E 6: Common Mammals and Herpetofauna found within the study area



Consultation with fishermen



Consultation with fishermen

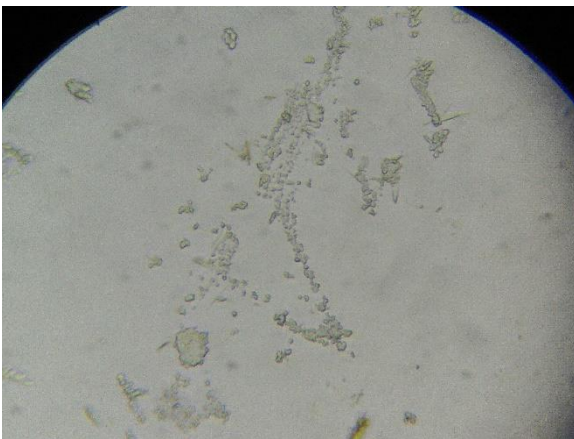


Consultation with Local residents



Consultation with Local residents

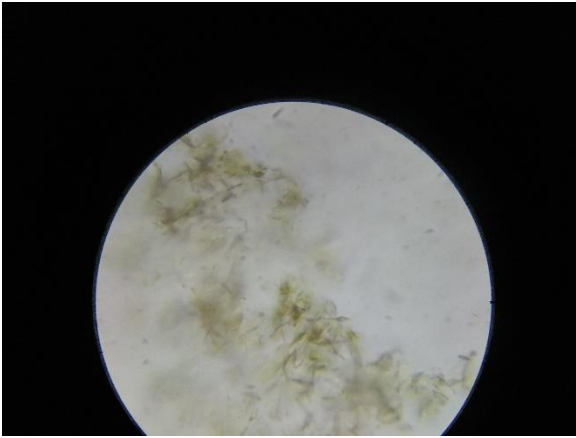
Figure E 7: Consultation with fishermen and resident in the project area



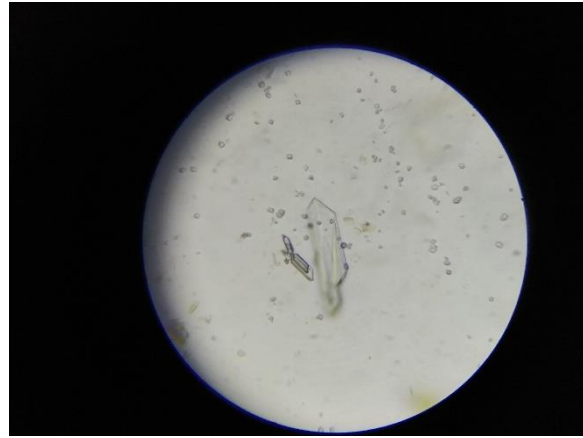
Skeletonema spp.



Dinophysis spp.



Rhizosolenia spp.



Pinnularia spp.



Chaetoceros spp.



Microscopic analysis



Rhizosolenia spp.



Noctiluca spp.

Figure E 8: Study of Aquatic Micro-organisms within ELRC Lab

Annex F: List of Species Available in Project Site

Table F 1: Floral species found within the study area

SL#	Local Name	Common name	Scientific name	Family	Types	Uses	*Local status
1	Aam	Mango	<i>Mangifera indica</i>	Anacardiaceae	Tree	Fruit	VC
2	Aamra	Hog Palm	<i>Spondias mombin</i>	Anacardiaceae	Tree	Fruit	VC
3	Jika	Indian ash tree	<i>Lannea coromandelica</i>	Anacardiaceae	Tree	Medicinal	C
4	Debdaru	False ashoka	<i>Polyalthia longifolia</i>	Annonaceae	Tree	Aesthetic	C
5	Kath Maloti	Eve's apple	<i>Tabernaemontana Dichotoma</i>	Apocynaceae	Shrub	Aesthetic	VC
6	Koromcha	Bengal currant	<i>Carissa carandas</i>	Apocynaceae	Shrub	Fruit	R
7	Khezur	Date palm	<i>Phoenix dactylifera</i>	Arecaceae	Tree	Fruit	VC
8	Narikel	Coconut	<i>Cocos nucifera</i>	Arecaceae	Tree	Fruit	C
9	Supari	Areca palm	<i>Areca catechu</i>	Arecaceae	Tree	Fruit	C
10	Taal	Palm	<i>Borassus flabellifer</i>	Arecaceae	Tree	Fruit	C
11	Pui	Malabar spinach	<i>Basella alba</i>	Basellaceae	Herb	Vegetable	C
12	Pepe	Papaya	<i>Carica papaya</i>	Caricaceae	Shrub	Fruit	VC
13	Kath Badam	Indian-almond	<i>Terminalia catappa</i>	Combretaceae	Tree	Fruit	R
14	Chalta	Chalta	<i>Dillenia indica</i>	Dilleniaceae	Tree	Fruit	R
15	Garjan Tree	Gurjan Tree	<i>Dipterocarpus turbinatus</i>	Dipterocarpaceae	Tree	Timber	R
16	Bherenda	Castor oil plant	<i>Ricinus communis</i>	Euphorbiaceae	Shrub	Medicinal	C
17	Pitali	False White Teak	<i>Trewia nudiflora</i>	Euphorbiaceae	Tree	timber	VC
18	Akasmoni	Acacia	<i>Acacia auriculiformis</i>	Fabaceae	Tree	Timber	C
19	Dhoncha	Sesbania	<i>Sesbania bispinosa</i>	Fabaceae	Shrub	Fuel	VC
20	Koroi	Rain tree	<i>Samanea saman</i>	Fabaceae	Tree	Timber	VC
21	Krishno chura	Dwarf Poinciana	<i>Caesalpinia pulcherrima</i>	Fabaceae	Tree	Aesthetic	C
22	Mandar	African coral tree	<i>Erythrina ovalifolia</i>	Fabaceae	Tree	Aesthetic	C
23	Sada koroi	White Siris	<i>Albizia procera</i>	Fabaceae	Tree	Timber	C
24	Sisu	Sisu	<i>Dalbergia sissoo</i>	Fabaceae	Tree	Timber	R
25	Sonalu	Golden rain tree	<i>Cassia fistula</i>	Fabaceae	Tree	Aesthetic	C
26	Tetul	Tamarind tree	<i>Tamarindus indica</i>	Fabaceae	Tree	Fruit	VC

27	Mehendi	Henna	<i>Lawsonia inermis</i>	Lythraceae	Shrub	Medicinal	C
28	Dharosh	Okra	<i>Abelmoschus esculentus</i>	Malvaceae	Herb	Vegetable	C
29	Shimul	Showy Silk Cotton Tree	<i>Bombax insigne</i>	Malvaceae	Tree	Aesthetic	R
30	Shimul	Cotton tree	<i>Bombax ceiba</i>	Malvaceae	Tree	Fruit	R
31	Mehegony	Mehegoni	<i>Swietenia mahagoni</i>	Meliaceae	Tree	Timber	VC
32	Neem	Neem	<i>Azadirachta indica</i>	Meliaceae	Tree	Medicinal	C
33	Royna	Pithraj tree	<i>Aphanamixis polystachya</i>	Meliaceae	Tree	Timber	C
34	Chambol	Silk tree	<i>Albizia richardiana</i>	Mimosaceae	Tree	Fuel	R
35	Bot	Banyan tree	<i>Ficus bengalensis</i>	Moraceae	Tree	Aesthetic	C
36	Chapalish	Chapalish	<i>Artocarpus chaplasha</i>	Moraceae	Tree	Timber	R
37	Kathal	Jackfruit	<i>Artocarpus heterophyllus</i>	Moraceae	Tree	Fruit	C
38	Kola	Banana	<i>Musa sapientum</i>	Musaceae	Herb	Fruit	VC
39	Eucalyptus	Eucalyptus	<i>Eucalyptus spp.</i>	Myrtaceae	Tree	Timber	C
40	Eucalyptus	Eucalyptus	<i>Eucalyptus camaldulensis</i>	Myrtaceae	Tree	Timber	VC
41	Jam	Java Plum	<i>Syzygium cumini</i>	Myrtaceae	Tree	Fruit	VC
42	Peyara	Guava	<i>Psidium guajava</i>	Myrtaceae	Tree	Fruit	VC
43	Bash	Bamboo	<i>Bamboo spp.</i>	Poaceae	Herb	Timber	VC
44	Boroi	Indian Jujube	<i>Zizyphus mauritiana</i>	Rhamnaceae	Shrub	Fruit	VC
45	Kodom	Bur flower Tree	<i>Neolamarckia cadamba</i>	Rubiaceae	Tree	Flower	C
46	Jambura tree	Pomelo	<i>Citrus maxima</i>	Rutaceae	Tree	Fruit	C
47	Lebu	Lemon	<i>Citrus spp.</i>	Rutaceae	Shrub	Fruit	VC
48	Zambura	Pomelo fruit	<i>Citrus maxima</i>	Rutaceae	Shrub	Fruit	R
49	Lychu	Lychee	<i>Litchi chinensis</i>	Sapindaceae	Tree	Fruit	VC
50	Begun	Brinjal	<i>Solanum melongena</i>	Solanaceae	Shrub	Vegetable	C
51	Ulot Kombol	Devils Cotton	<i>Abroma augusta</i>	Sterculiaceae	Shrub	Medicinal	R
52	Shegun	Teak tree	<i>Tectona grandis</i>	Verbenaceae	Tree	Timber	VC

Table F 2: Number of Avifaunal species Found within the study area

Sl. No	Common Name	Local Name	Scientific Name	Family	IUCN Global Status	IUCN Local Status
1.	House sparrow	Pati choroi	<i>Passer domesticus</i>	Passeridae	LC	LC
2.	White Romped Vulture	Shokun	<i>Gyps bengalensis</i>	<u>Accipitridae</u>	CR	CR
3.	Hoopoes	Hudhud	<i>Upupa epops</i>	Upupidae	LC	LC
4.	Pied kingfisher	Pakra Machranga	<i>Ceryle rudis</i>	Cerylidae	LC	LC
5.	White-throated kingfisher	Dhola gola Machranga	<i>Halcyon smyrnensis</i>	Alcedinidae	LC	LC
6.	Common King fisher	Chhoto Maachranga	<i>Alcedo atthis</i>	Alcedinidae	LC	LC
7.	Black Drongo	Kala Fingey	<i>Dicrurus macrocercus</i>	Dicruridae	LC	LC
8.	Jungle Myna	Jhuti Shalik	<i>Acridotheres fuscus</i>	Sturnidae	LC	LC
9.	Common myna	Salik/BhatSalik	<i>Acridotheres tristis</i>	Sturnidae	LC	LC
10.	Asian Pied Starling	Go shalik	<i>Sturnus contra</i>	Sturnidae	LC	LC
11.	Spotted dove	Tila Ghughu	<i>Streptopelia chinensis</i>	Columbidae	LC	LC
12.	Collared Dove	Raj Ghughu	<i>Streptopelia decaocto</i>	Columbidae	LC	LC
13.	Blue Rock pigeon	Gola Paira	<i>Columba livia</i>	Columbidae	LC	LC
14.	House Crow	Patikak	<i>Corvus splendens</i>	Corvidae	LC	LC
15.	Large-billed Crow/Jungle Crow	Dar kak	<i>Corvus macrorhynchos</i>	Corvidae	LC	LC
16.	Rufous Treepie	Harichacha, Khoira Harichacha	<i>Dendrocitta vagabunda</i>	Corvidae	LC	LC
17.	Black kite	Bhubon chil	<i>Milvus migrans</i>	Accipitridae	LC	LC
18.	Indian pond heron	Kani Bok	<i>Ardeola grayii</i>	Ardidae	LC	LC
19.	Intermediate Egret	Majhari Bok	<i>Ardea intermedia</i>	Ardeidae	LC	LC
20.	Long-tailed Shrike	Lenja Latora	<i>Lanius schach</i>	Laniidae	LC	LC

Sl. No	Common Name	Local Name	Scientific Name	Family	IUCN Global Status	IUCN Local Status
21.	Black hooded Oriole	Halde Pakhi	<i>Oriolus xanthornus</i>	Oriolidae	LC	LC
22.	Little Cormorant	Choto Pankowri	<i>Microcarbo niger</i>	Phalacrocoracidae	LC	LC
23.	Asian palm swift	Ashio Talbatashi	<i>Cypsiurus balasiensis</i>	Apodidea	LC	LC
24.	Asian Koel	Kokil, koel	<i>Eudynamys scolopaces</i>	Cuculidae	LC	LC
25.	Common Krestrel	Pati Krestrel	<i>Falco tinnunculus</i>	Falconidae	LC	LC
26.	House Swift	Ghor Batashi	<i>Apus affinis</i>	Apodidea	LC	LC
27.	Brahminy Kite	Shonkho Chil	<i>Haliastur indus</i>	Accipitridae	LC	LC
28.	Oriental magpie robin	Doel	<i>Copsychus saularis</i>	Muscicapidae	LC	LC
29.	Green bee-eater	Suichora	<i>Merops orientalis</i>	Meropidae	LC	LC
30.	Black-rumped Flameback	Sonali kaththokra	<i>Dinopium benghalense</i>	Picidae	LC	LC
31.	Red-vented Bulbul	Bangla bulbul	<i>Pycnonotus cafer</i>	Pycnonotidae	LC	LC
32.	White Wagtail	Dhola Khonjon	<i>Motacilla alba</i>	Motacillidae	LC	LC
33.	White Breasted Water Hen	Dahuk	<i>Amaurornis phoenicurus</i>	Rallidae	LC	LC
34.	Spotted owlet	Khurley pecha	<i>Athene brama indica</i>	Srtigidae	LC	LC
35.	Common Tailor Bird	Tuntuni	<i>Orthotomus sutorius</i>	Sylviidae	LC	LC
36.	Barn Owl	Lokkhi pecha	<i>Tyto alba</i>	Tytonidae	LC	LC
37.	Common Red Shank	Kada Khocha	<i>Tringa totanus</i>	Scolopacidae	LC	LC
38.	Common Sandpiper	Pati Batan	<i>Actitis hypoleucos</i>	Scolopacidae	LC	LC
39.	Small Pranticole	Babui Batan	<i>Glareola lactea</i>	Scolopacidae	LC	LC
40.	Green sandpiper	Shobuj Batan	<i>Tringa ochropus</i>	Scolopacidae	LC	LC
41.	Oriental White Eye	Shetakkhi/ Babunai	<i>Zosterops palpebrosus</i>	Zosteropidae	LC	LC

Sl. No	Common Name	Local Name	Scientific Name	Family	IUCN Global Status	IUCN Local Status
42.	Red Wattled Lapwing	Hot Titi	<i>Vanellus indicus</i>	Charadriidae	LC	LC
43.	Sand Lark	Udoi Ovroborot	<i>Alauda gulgula</i>	Alaudidae	LC	LC
44.	Jungle Babbler	Bon Chatare	<i>Turdoides striata</i>	Leiothrichidae	LC	LC
45.	Rose-Ringed Parakeet	Sobuj Tia	<i>Psittacula krameri</i>	Psittaculidae	LC	LC
46.	Richard's Pippit	Richarder Tulika	<i>Anthus richardi</i>	Motacillidae	LC	LC
47.	Greater Coucal	KanaKua	<i>Centropus sinensis</i>	Cuculidae	LC	LC
48.	River Lapewing	Nodi Titi	<i>Vanellus duvaucelli</i>	Charadriidae	NT	NT
49.	Green Backed Heron	Khudey bok	<i>Butorides striata</i>	Ardeidae	LC	LC
Specification of term LC= Least Concern; CR= Critically Endangered.						

Table F 3: Number of fish species found within the study area

No.	Scientific Name	Local Name	Availability in Local	*IUCN Red List Status
1	<i>Bagarius bagarius</i>	Bagha Air	Rare	CR
2	<i>Wallago attu</i>	Boal	Available	VU
3	<i>Sprata aor</i>	Air	Rare	VU
4	<i>Notopteru chitala</i>	Chital	Rare	EN
5	<i>Labeo rohita</i>	Rui	Available	LC
6	<i>Labeo bata</i>	Bata	Available	EN
7	<i>Labeo boga</i>	Bhangan	Available	CR
8	<i>Labeo gonius</i>	Gonia	Available	EN
9	<i>Labeo culbasu</i>	Kalbaosh	Available	EN
10	<i>Catla catla</i>	Katol	Available	LC
11	<i>Puntius sophore</i>	Punti	Available	NT
12	<i>Puntius sarana</i>	Punti	Available	CR
13	<i>Puntius ticto</i>	Punti	Available	VU
14	<i>Puntius phutunio</i>	Punti	Available	NT
15	<i>Awaous guamensis</i>	Baila	Available	LC
16	<i>Mystus cavasius</i>	Cavasi Tengra	Available	NT
17	<i>Hilsa ilisha</i>	Elish	Available	LC
18	<i>Chaca chaca</i>	Chaca	Available	VU
19	<i>Chanda nama</i>	Chanda	Available	LC
20	<i>Eutropiichthys vacha</i>	Bacha	Available	LC
21	<i>Chela laubuca</i>	Chela	Available	LC
22	<i>Channa orientals</i>	Cheng Taki	Rare	LC
23	<i>Macrobrachium lamerrai</i>	Chingri	Available	NL
24	<i>Oxygaster bacaila</i>	Chlea	Available	NT
25	<i>Rasbora daniconius</i>	Darkina	Rare	NT
26	<i>Osteobrama cotio</i>	Dhela	Available	NT
27	<i>Clupisoma garua</i>	Garua	Rare	EN
28	<i>Macrobrachium rosenbergii</i>	Golda Chingri	Available	NL
29	<i>Aspidoparia jaya</i>	Jaya	Rare	NT
30	<i>Corica soborna</i>	Kachki	Available	NT
31	<i>Xenentodon cancila</i>	Kankila	Available	LC
32	<i>Gagata youssoufi</i>	Kea Kata	Available	NT
33	<i>Ailia coila</i>	Kajuli	Available	LC
34	<i>Anabas testudineus</i>	Koi	Available	LC
35	<i>Colisa latius</i>	Kolisha	Available	NL
36	<i>Ompok pabda</i>	Madhu pabda	Rare	EN
37	<i>Clarias batrachus</i>	Magur	Available	LC
38	<i>Amblypharyngodon microlepis</i>	Mohula	Available	NT
39	<i>Amblypharyngodon mola</i>	Mola	Available	NT
40	<i>Clupisoma murius</i>	Murius	Rare	NL
41	<i>Pangasius pangasius</i>	Pangas	Rare	EN

No.	Scientific Name	Local Name	Availability in Local	*IUCN Red List Status
42	<i>Setipinna phasa</i>	Phasa	Available	NT
43	<i>Notopterus notopterus</i>	Pholi	Rare	VU
44	<i>Oxygaster phulo</i>	Phulo Chela	Available	NT
45	<i>Cirrhinus reba</i>	Raikhor	Rare	VU
46	<i>Mustacembelus armatus</i>	Tara Baim	Rare	EN
47	<i>Mystus tengara</i>	Tengra	Available	LC
48	<i>Mystus vittatus</i>	Tengra	Available	LC
49	<i>Gagata cenia</i>	Tengra	Available	LC
50	<i>Nandus nandus</i>	Veda	Rare	NT
51	<i>Rita rita</i>	Rita	Rare	EN
52	<i>Mastacembelus pancalus</i>	Shal Baim	Available	LC
53	<i>Heteropneustes fossilis</i>	Sing	Available	LC
54	<i>Channa punctatus</i>	Taki	Available	LC
55	<i>Channa striatus</i>	Taki	Available	LC
Note: LC= Least Concern, NT= Near Threatened, VU= Vulnerable, DD= Data Deficient.				

Table F 4: Number of phytoplankton species found within the riverine area

Serial	Phytoplankton	P1 (Individual/L)	P2(Individual/L)	P3(Individual/L)
1	<i>Thalassionema spp.</i>	17	10	12
2	<i>Prorocentrum spp.</i>	23	20	18
3	<i>Diatoma spp.</i>	131	97	100
4	<i>Amphora spp.</i>	65	56	51
5	<i>Asterinella spp.</i>	76	78	60
6	<i>Pinnularia spp.</i>	15	9	10
7	<i>Lauderia spp.</i>	18	7	8
8	<i>Rhizosolenia spp.</i>	21	12	13
9	<i>Chaetoceros spp.</i>	12	21	18
1	<i>Biddulphia spp.</i>	14	11	9
1	<i>Cosmorium spp.</i>	323	256	280
1	<i>Gyrosigma spp.</i>	1	3	8
1	<i>Peridinium spp.</i>	12	8	9
1	<i>Cyclotella spp.</i>	32	18	20
1	<i>Diatoma spp.</i>	131	97	90
1	<i>Fragilaria spp.</i>	53	67	40
1	<i>Dinophysis spp.</i>	12	14	17
1	<i>Phalcroma spp.</i>	12	13	11
1	<i>Bacillaria spp.</i>	120	90	95
2	<i>Anabaena spp.</i>	180	195	110
2	<i>Noctiluca spp.</i>	18	15	23

Serial	Phytoplankton	P1 (Individual/L)	P2(Individual/L)	P3(Individual/L)
2	<i>Melosira spp.</i>	45	56	38
2	<i>Navicula spp.</i>	343	226	210
2	<i>Nitzschia spp.</i>	332	342	280
2	<i>Pleorosigma spp.</i>	121	96	90
2	<i>Spirogyra spp.</i>	133	134	110
2	<i>Rhizosolenia spp.</i>	64	56	40
2	<i>Uroglena spp.</i>	34	21	17
2	<i>Volvox spp.</i>	161	176	152
3	<i>Ceratium spp.</i>	30	28	21

Table F 5: Number of Zooplankton species found within the riverine area

Serial	Zooplankton	Z1 (Individual/L)	Z2(Individual/L)	Z3(Individual/L)
1	<i>Asplanchna spp.</i>	8	9	10
2	<i>Bosmina spp.</i>	12	5	7
3	<i>Cyclops spp.</i>	18	7	8
4	<i>Daphnia spp.</i>	21	12	13
5	<i>Diaptomus spp.</i>	12	21	18
6	<i>Diplota spp.</i>	14	11	9
7	<i>Mesocyclops spp.</i>	17	10	12
8	<i>Moina spp.</i>	1	3	8
9	<i>Nauplius spp.</i>	12	8	9
1	<i>Polyarthra spp.</i>	23	20	18
1	<i>Trichocerca spp.</i>	12	14	17
1	<i>Brachionus spp.</i>	12	13	11
1	<i>Brachionus spp.</i>	10	9	10

Table F 6: A Checklist on Aquatic Micro-organism (Benthos)

Serial	Benthos	Benthos (Individual/L)	Benthos (Individual/L)	Benthos (Individual/L)
1.	<i>Batillaria spp.</i>	1	2	1
2.	<i>Umbonium vestiarium</i>	4	3	5
3.	<i>Dosinia spp.</i>	2	2	1
4.	<i>Nematode spp.</i>	-	1	2
5.	<i>Crustacea spp.</i>	2	4	3
6.	<i>Bivalvia spp.</i>	3	1	1
7.	<i>Lumbrineris spp.</i>	7	8	6
8.	<i>Nereis spp.</i>	10	9	2

Serial	Benthos	Benthos (Individual/L)	Benthos (Individual/L)	Benthos (Individual/L)
9.	<i>Scapharsa spp.</i>	1	3	2

Annex-G: Environmental and Social Audit

G.1 Introduction

The project activities of SEZ has been in progress from last year. The Master Plan of the total area is given in **Error! Reference source not found.**. SEZL project has obtained EIA approval from the DOE based on EIA (**Error! Reference source not found.**). The environmental clearance allows construction to proceed on the site for the site development and also the utility connections and operation of the facilities constructed. The purpose of the current study is to prepare an ESIA report following the WB requirements; i.e., compliance to existing related national and international laws. As the project was in greenfield area, so no audit was taken place. At this moment, the land development was going on at the project site which is targeted to be completed by the third quarter. Design Consultant has been appointed already to start the design section. As per updated information from the SEZL authority, all the PAPs have been compensated by the DC office. Also, resettlement area is also under construction for resettling them at the proposed site. But after the establishment of the industries, Environmental and social audit is required to find out the environmental performance in relation with the legislative requirement. A format (it is not limited to this item and can be updated as and when required) of environmental and social audit is given in this part for future audit.

G.2 Environmental and Social Audit

An Audit report will be prepared based on the situation of the SEZ and project site scenario following the assessment of the checklists listed below

- (a) Section 1 - Environmental Management Systems Audit Checklist
- (b) Section 2 - Site Audit Checklist
- (c) Section 3 - Gap Identification and Recommended Remedial Measures
- (d) Section 4 - Social Checklist

A. Section 1-Environmental Management Systems Audit Checklist

SL. NO.	Management	Issues	Yes/No	Comments
1	Management Issues	a. Are the environmental management responsibilities clearly assigned?		
		b. Is there an ESIA document available for the facility approved by the DOE?		
		c. Does SEZ have a systematic documentation process by which the current environmental activities including trainings are recorded?		
		d. Does SEZ have a budget for Environmental activities?		
		e. Does SEZ regularly produce environmental reports (6 monthly)?		

		f. Does SEZ has a grievance redress system for the stakeholders?		
		g. Are the responsibilities of the Chief Executive of SEZ in regard to the environment adequately documented and agreed with the relevant authorities?		
2	Training and awareness	a. Has SEZ conducted a Training Needs Analysis (TNA) for environmental management including Ecological Sustainable Development issues?		
		b. Does SEZ provide necessary training for the employees?		
		c. How does SEZ assess the adequacy of resources and training of staff with designated responsibilities for environmental management and/or protection?		
		d. Are employees encouraged to take the initiative, submit suggestions for improvement, and to suggest actions or policies to reduce SEZ environmental impact?		
		e. Does the training include response to emergencies and drills, and working with external agencies such as fire brigade?		
3	Documentation	a. Has SEZ established and maintained procedures for controlling all key documents?		
		b. Are the procedures adequate so that the documents can be located, are at relevant locations essential to the effective functioning of the EMS, are periodically reviewed and revised as necessary and approved for adequacy by those authorized to approve alterations to documentation?		
4	Monitoring and Measurement	a. Does SEZ have procedures to regularly monitor and measure the significant operations and activities that can have a significant impact on the environment?		
		b. Does SEZ have systematic and documented procedures to evaluate compliance with relevant environmental legislation and regulations?		

B. Section 2-Site Audit Checklist

The following table provides a starting point for assisting auditors in preparing for a site audit. In most cases additional questions supporting information and clarification from site staff will be necessary. As much information should be gathered in advance of the site visit. Verify that the items are present or documented, in particular environmental impact and risk assessments, operating permits and other licenses during Audit Preliminary Meeting and Site Inspection.

SL NO	Site Audit	Issues	Yes/No	Comments
1	Site Inspection (Walkaround)	a. Is the site well organized and maintained in good condition?		
2	Air Emissions	a. Are site processes and operations free of significant fugitive air emissions?		
3	Water Discharges	a. If the site's discharge of liquid effluent to ground, surface water (including streams, rivers and lakes) meet DOE standard?		
4	Solid & Hazardous Waste	a. Does SEZ have an inventory of both hazardous and Non-hazardous waste?		
		b. Does the site have details of where wastes are finally disposed of (including by waste)?		
		c. Does any industry produce any hazardous waste?		
5.	Storage	a. Are containers storing hazardous materials: i. In good condition fit for purpose labelled properly? ii. Are liquid hazardous materials stored as follows: • On impervious surface? • With secondary containment (capable of volume of the largest stored container prevailing regulations and guidance)?		
		b. Are storage areas: i. well maintained; ii. clearly identified;		

		iii. protected from weather as necessary?		
6.	Labor Management	a. Are there any under age workers in the project work? b. Are the workers provided with PPE? c. Is the work practice gender friendly? d. Are the hygienic facilities adequate? e. Are there provision for drinking water and other standard facilities? f. Are the work camps clean and hygienic?		
7.	Emergency planning and community relations	a. Are the site emergency procedures regularly reviewed and exercised? b. a. Are the site emergency procedures regularly reviewed and exercised?		
8	Hazardous substances	a. Is there a program to eliminate, or if not possible reduce the use of hazardous substances? b. Is there a list of the hazardous substances on site, plus information on handling, disposal, MSDS etc.? c. Does SEZ, routinely or in specific circumstances, track chemical use through materials accounting or some other method as distinct from, or in addition to, tracking environmental releases?		
9.	Legacy Issues	Are there any legacy issues (e.g., dumps of wastes) for the site?		

C. Section-3: Gap Identification and Recommended Remedial Measures

SL. NO.	Issues	Current status	Comments
1.			
2.			
3.			

D. Section-4: Checklist for Social Audit

Sirajganj Economic Zone Limited							
Cod e	Social Auditing Questionnaire						
1a	Name						
2b	Age						
3c	Sex	I. Male	II. Female				
4d	Residence	I. Local	II. Outsider				
5e	Marital Status	I. Single	II. Married	III. Unmarri ed	IV. Divorc ed	V. Separat ed	VI. Widow/Wid ower
6f	Child	I. Yes	II. No				
7g	If yes, what is his/her age	I. Breastfeedi ng age	II. School going	III. Disabilit ies	IV. Others		
8h	Is there any system for the working mother for their children	I. Day Care	II. Breastfeedi ng Room	III.Schoo l	IV. No System		
9i	Working Industry Name						
10j	Designatio n						
11k	Monthly Salary						
12l	Salary disburses timely?	I. Yes	II. NO	III. Delay			
13m	How they provide bonus?	I. Production based	II. As per policy	III. No Bonus			

14n	Are there any Overtime options?	I. Yes	II. No				
15o	Is overtime payable?	I. Yes	II. No				
16p	Discrimination	I. Salary	II. Promotion	III. Gender	IV. Overtime	V. Force Work	
17q	Grievance System	I. Yes	II. No	III. Don't Know			
18r	Grievance Redress Process	I. Yes	II. No	III. Don't Know			
19s	Accidental fund	I. Yes	II. No	III. Don't Know			
20t	Is there any insurance for accident	I. Yes	II. No	III. Don't Know			
21u	Medical Fund	I. Yes	II. No	III. Don't Know			
22v	Appointment Letter	I. Yes	II. No	III. Don't Know			
23w	Gratuity Fund	I. Yes	II. No	III. Don't know			
24x	Maternity Leave	I. Yes	III. No	III. Don't Know			
25y	Festival Leave	I. Yes	II. No	III. Don't Know			
26z	Personal Protective Equipment	I. Enough	II. Not enough	III. Don't Know			
27aa	Sanitation	I. Enough	II. Not enough	III. Don't Know			

28ab	Drinking Water	I. Enough	II. Not enough	III. Don't Know			
29ac	Child Labir	I. Yes	II. NO	III. Don't Know			
30ad	Firefightin g System	I. Yes	II. NO	III. Don't Know			
31ae	Firefightin g drill	I. Yes	II. NO	III. Don't Know			

General regulatory framework	Y	N	N/A	Comments
Have the international/national/local regulatory frameworks been reviewed?				
Are mandatory provisions on workers' accommodation identified?				

Assessing the need for workers' accommodation

Availability of the workforce

General regulatory framework	Y	N	N/A	Comments
Has there been an assessment of workers' availability in the neighboring communities?				
Has there been an assessment of the skills and competencies of the local workforce and how do those skills and competencies fit the project's need?				
Has there been an assessment of the possibility of training a local workforce in order to fulfill the project's needs?				
Availability of housing				
Has there been a comprehensive assessment of the different type of housing available in the surrounding communities prior to building any workers' accommodation?				
For a larger project: is that assessment included in the Environmental and Social Impact Assessment?				
Has there been an assessment of the impact on the communities of using existing housing opportunities?				
Have measures to mitigate adverse impacts on the local housing market been identified and included in the Environmental and Social Action Plan (ESAP) or other relevant action plan?				

General regulatory framework	Y	N	N/A	Comments
Assessing impacts of workers' accommodation on communities				
Has a community impact assessment been carried out as part of the Environmental and Social Assessment of the overall project with a view to mitigate the negative impacts of the workers' accommodation on the surrounding communities and to enhance the positive ones?				
Have the potential health and safety impacts and consequences of land acquisition and involuntary resettlement occurring during the construction phase of the workers' accommodation been included in the assessment?				
Have the impacts of workers accommodation on community infrastructures, services and facilities been included in the assessment?				
Have the impacts on local community's businesses and local employment been included in the assessment?				
Have general impacts of workers' accommodation on communities' health, (notably the increased risk of road accidents and of communicable diseases), and community social cohesion been included in the assessment?				
Does the assessment include appropriate mitigation measures to address any adverse impacts identified?				
Types of workers' accommodation				
Has consideration been given to provision of family accommodation?				
Are individual accommodations comprising bedrooms, sanitary and cooking facilities provided as part of the family accommodation?				
Are adequate nursery/school facilities provided?				
Standards for workers' accommodation				
National/local standard				
Have the relevant national/local regulations been identified and implemented				
Is the location of the facilities designed to avoid flooding or other natural hazards?				
Are the living facilities located within a reasonable distance from the worksite?				
Is transport provided to worksite safe and free?				
Are the living facilities built using adequate materials, kept in good repair and kept clean and free from rubbish and other refuse?				

General regulatory framework	Y	N	N/A	Comments
Drainage				
Is the site adequately drained?				
Heating, air conditioning, ventilation and light				
Depending on climate are living facilities provided with adequate heating, ventilation, air conditioning and light systems including emergency lighting?				
Water				
Do workers have easy access to a supply of clean/ potable water in adequate quantities?				
Does the quality of the water comply with national/local requirements or WHO standards?				
Are tanks used for the storage of drinking water constructed and covered to prevent water stored therein from becoming polluted or contaminated?				
Is the quality of the drinking water regularly monitored?				
Wastewater and solid waste				
Are wastewater, sewage, food and any other waste materials adequately discharged in compliance with local or World Bank standards and without causing any significant impacts on camp residents, the environment or surrounding communities?				
Are specific containers for rubbish collection provided and emptied on a regular basis?				
Are pest extermination, vector control and disinfection undertaken throughout the living facilities?				
Rooms/dormitories facilities				
Are the rooms/dormitories kept in good condition?				
Are the rooms/dormitories aired and cleaned at regular intervals?				
Are the rooms/dormitories built with easily cleanable flooring material?				
Are the rooms/dormitories and sanitary facilities located in the same buildings?				
Are residents provided with enough space?				
Is the ceiling height high enough?				
Is the number of workers sharing the same room/dormitory minimized?				
Are the doors and windows lockable and provided with mosquito screens when necessary?				

General regulatory framework	Y	N	N/A	Comments
Are mobile partitions or curtains provided?				
Is suitable furniture such as table, chair, mirror, bedside light provided for every worker?				
Are separate sleeping areas provided for men and women?				
Bed arrangements and storage facilities				
Is there a separate bed provided for every worker?				
Is the practice of “hot-bedding” prohibited?				
Is there a minimum space of 1 meter between beds?				
Is the use of double deck bunks minimized?				
When double deck bunks are in use, is there enough clear space between the lower and upper bunk of the bed?				
Are triple deck bunks prohibited?				
Are workers provided with comfortable mattresses, pillows and clean bed linens?				
Are the bed linen washed frequently and applied with adequate repellents and disinfectants (where conditions warrant)?				
Are adequate facilities for the storage of personal belongings provided?				
Are there separate storages for work clothes and PPE and depending on condition, drying/ airing areas?				
Sanitary and toilet facilities				
Are sanitary and toilet facilities constructed from materials that are easily cleanable?				
Are sanitary and toilet facilities cleaned frequently and kept in working condition?				
Are toilets, showers/bathrooms and other sanitary facilities designed to provide workers with adequate privacy including ceiling to floor partitions and lockable doors?				
Are separate sanitary and toilet facilities provided for men and women?				
Toilet facilities				
Is there an adequate number of toilets and urinals?				
Are toilet facilities conveniently located and easily accessible?				
Showers / bathrooms and other sanitary facilities				
Is the shower flooring made of anti-slip hard washable materials?				

General regulatory framework	Y	N	N/A	Comments
Is there an adequate number of hand wash basins and showers / bathrooms facilities provided?				
Are the sanitary facilities conveniently located?				
Are shower facilities provided with an adequate supply of cold and hot running water?				
Canteen, cooking and laundry facilities				
Are canteen, cooking and laundry facilities built with adequate and easy to clean materials?				
Are the canteen, cooking and laundry facilities kept in clean and sanitary condition?				
If workers cook their own meals, is kitchen space provided separately from the sleeping areas?				
Laundry facilities				
Are adequate facilities for washing and drying clothes provided?				
Canteen and cooking facilities				
Are workers provided with enough space in the canteen?				
Are canteens adequately furnished?				
Are kitchens provided with the facilities to maintain adequate personal hygiene are places for food preparation adequately ventilated and equipped?				
Are kitchen floor, ceiling and wall surfaces adjacent to or above food preparation and cooking areas built in non-absorbent, durable, non-toxic, easily cleanable materials?				
Are wall surfaces adjacent to cooking areas made of fire-resistant materials and food preparation tables equipped with a smooth, durable, non-corrosive, non-toxic, washable surface?				
Are adequate facilities for cleaning, disinfecting and storage of cooking utensils and equipment provided?				
Are there adequate sealable containers to deposit food waste and other refuse?				
Is refuse frequently removed from the kitchen to avoid accumulation?				
Standards for nutrition and food safety				
Is there a special sanitary process such as the WHO “5 keys to safer food” implemented in relation to food safety?				
Does the food provided contain appropriate nutritional value?				

General regulatory framework	Y	N	N/A	Comments
Does the food provided take into account workers' religious/cultural backgrounds?				
Medical facilities				
Are first aid kits provided in adequate numbers?				
Are first-aid kits adequately stocked?				
Is there an adequate number of staff/workers trained to provide first aid?				
Are there any other medical facilities/services provided on site? If not, why?				
Leisure, social and telecommunications facilities				
Are basic social collective spaces and adequate recreational areas provided to workers?				
Are workers provided with dedicated places for religious observance?				
Can workers access a telephone at an affordable/public price?				
Are workers provided with access to internet facilities?				
Managing workers' accommodation Management and staff				
Are there carefully designed worker camp management plans and policies especially in the field of health and safety (including emergency responses), security, workers' rights and relationships with the communities?				
Where contractors are used, have they clear contractual management responsibilities and duty to report?				
Does the person appointed to manage the accommodation has the required background, competency and experience to conduct his mission and is he/ she provided with the adequate responsibility and authority to do so?				
Is there enough staff to ensure the adequate implementation of housing standards (cleaning, cooking and security in particular)?				
Are staff members recruited from surrounding communities?				
Have the staffs received basic health and safety training?				
Are the persons in charge of the kitchen particularly trained in nutrition and food handling and adequately supervised?				
Charging fees for accommodation and services				
Are the renting arrangements fair and transparent?				
Are workers provided with adequate information about payment made?				

General regulatory framework	Y	N	N/A	Comments
Where appropriate, are renting arrangements and regulations clearly included in workers' employment contracts?				
Are food and other services provided for free or reasonably priced, that is, not above the local market price?				
Is the payment in kind for accommodation and services prohibited?				
Health and safety on site				
Have health and safety management plans including electrical, mechanical, structural and food safety been designed and implemented?				
Has the accommodation manager a duty to report to the health authority specific diseases, food poisoning or casualties?				
Is there an adequate number of staff/workers trained in providing first aid?				
Has a specific and adequate fire safety management plan been designed and implemented?				
Is guidance on alcohol, drug and HIV/AIDS and other health risk-related activities provided to workers?				
Are contraception measures (condoms in particular) and mosquito nets (where relevant) provided to workers?				
Do workers have an easy access to medical facilities and medical staff, including female doctors/nurses where appropriate?				
Have emergency plans on health and fire safety been prepared?				
Depending on circumstances, have specific emergency plans (earthquakes, floods, tornadoes) been prepared?				
Has a security plan including clear measures to protect workers against theft and attack been designed and implemented?				
Has a security plan including clear provisions on the use of force been designed and implemented?				
Have the backgrounds of security staff been checked for previous crimes or abuses?				
Has the recruitment of security staff from both genders been considered?				
Have security staffs received clear instruction about their duty and responsibility?				
Have security staffs been adequately trained in dealing with domestic violence and the use of force?				
Are body searches only performed in exceptional circumstances by specifically trained security staff of both genders?				

General regulatory framework	Y	N	N/A	Comments
Do security staffs have a good understanding about the importance of respecting workers' rights and the rights of the surrounding communities and adopt appropriate conduct?				
Do workers and communities have specific means to raise concerns about security arrangements and staff?				
Workers' rights, rules and regulations on workers' accommodation				
Are limitations on workers' freedom of movement limited and justified?				
Is an adequate transport system to the surrounding communities provided?				
Is the practice of withholding workers' ID papers prohibited?				
Is freedom of association expressly respected?				
Are workers' religious, cultural and social backgrounds respected?				
Are workers made aware of their rights and obligations and provided with a copy of the accommodations' internal rules, procedures and sanction mechanisms in a language or through a media they understand?				
Are house regulations nondiscriminatory, fair and reasonable?				
Is a fair and non-discriminatory procedure to implement disciplinary procedures, including the right for workers to defend themselves, set up?				
Consultation and grievance mechanisms				
Have mechanisms for workers' consultation been designed and implemented?				
Are workers provided with processes and mechanisms to articulate their grievances in accordance with PS2/PR2?				
Have workers subjected to disciplinary proceedings arising from conduct in the accommodation had access to a fair and transparent hearing with the possibility to appeal the decision?				
Are there fair conflict resolution mechanisms in place?				
In cases where serious offences occur, are there mechanisms to ensure full cooperation with police authorities?				
Management of community relations				
Have community relation management plans addressing issues around community development, community needs, community health and safety and community social and cultural cohesion been designed and implemented?				

General regulatory framework	Y	N	N/A	Comments
Do community relation management plans include the setting up of liaison mechanisms to allow a constant exchange of information and consultation of the surrounding communities?				
Is there a senior manager in charge of implementing the community relation management plan?				
Is there a senior manager in charge of liaising with the surrounding communities?				
Are the impacts generated by workers' accommodation periodically reviewed, mitigated or enhanced?				
Are community representatives provided with easy means to voice their opinions and lodge complaints?				
Is there a transparent and efficient process for dealing with community grievances, in accordance with PS1/PR10?				

Annex H: Environmental and Social Action Plan (ESAP)

Table H 1: Environmental and Social Action Plan

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
Site Preparation and Construction Phase						
1.	Soil Compaction and Erosion	• Demarcate routes for movement of heavy vehicles;	ESMP	Traffic Management Plan	Contractor	December 2021
		• Restrict the height of topsoil stockpiles to minimize erosion and compaction during gas pipeline RoW excavations	ESMP		Contractor	February 2022
		• Strip and place soils when dry, and not when wet	ESMP		Contractor	December 2021
		• Build small bunds in areas with slope to prevent soil erosion.	ESMP		Contractor	December 2021
		• All areas of excavation will be closed and compacted before monsoon season	Specification Manual		Contractor	May 2022
		• Storm water channelized to settling tanks	Specification Manual		Contractor	June 2022
2.	Management Plan for the Construction Period	• SEZL will prepare a Construction period Environmental Management Plan to commit their action against of each item under ESMP.	ESMP	Construction Environmental Management Plan (CEMP)	Contractor	Before starting of the Construction Work.

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
3.	Soil and Sediment contamination (spills and leaks)	Prepare guidelines and procedures for immediate clean-up actions following any spillages of oils, fuels or chemicals	Specification Manual and ESMP	- Chemical storage and handling Protocols - Site specific Emergency Response Plan for immediate soil clean up and decontamination/Spill management Plan	Contractor	December 2021
		Storage and handling of chemicals and fuels on impervious areas only and storage areas with bunds or other containment device	Specification Manual and ESMP	Chemical storage and handling Protocols	Contractor	December 2021
4.	Soil Contamination from waste	Design processes to prevent/minimize quantities of wastes generated and hazards associated with the waste generated	Specification manual	Waste Management Plan	Contractor	December 2021
		Implementation of construction materials inventory management system	Specification Manual and ESMP	Inventory of construction material	Contractor	December 2021
		Inventorization and storage of waste in designated areas/containers.	Specification Manual and ESMP	Waste Management Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		• Bitumen or any hazardous wastes will be disposed off to licensed contractors	Specification Manual and ESMP	Waste Management Plan	Contractor	December 2021
		• Storage areas will impermeable floors and containment	Specification Manual and ESMP	Waste Management Plan	Contractor	December 2021
5.	Spill management and soil quality conservation	• Trainings of workers related to handling and responding to spills and soil management	ESMP	Training Plan	Contractor	December 2021
6.	Waste management	• Trainings of workers	ESMP	Training Plan	Contractor	December 2021
7.	Wastewater Discharge	• Ensure that wastewater discharged from washing of machinery equipment meets the standards stipulated in Schedule 10 of ECR, 1997 and the applicable World Bank/ IFC General EHS Guidelines prior to discharge.	Specification Manual	Wastewater Management Plan	Contractor	February 2022
		• Sanitary facilities for workforce with septic tanks	Specification Manual and ESMP	Wastewater Management Plan	Contractor	February 2022

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Ensure that any wastewater discharges from sanitary facilities meet the standards stipulated in Schedule 9 of ECR, 1997 and the applicable World Bank/ IFC General EHS Guidelines	Specification Manual and ESMP	Wastewater Management Plan	Contractor	February 2022
		Vehicle servicing areas and wash bays will be located within roofed and cemented areas. The drainage in these covered areas will be connected to oil/ water separator and channelized properly to the land/ inland waters ;	ESMP	Wastewater Management Plan	Contractor	February 2022
		Oil and grease separator shall be used for wastewater generated from cleaning activities;	ESMP	Wastewater Management Plan	Contractor	February 2022
		Any surplus wastewater from the concrete batching will be treated to comply with discharge standards before it is discharged	ESMP	Wastewater Management Plan	Contractor	February 2022

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
8.	Exhaust Emissions	Implementation of the good site practices such as the regular maintenance of vehicles and equipment, using cleaner fuels and switching off vehicles when not in use.	ESMP	Traffic/Equipment Management Plan	Contractor	December 2021
		All diesel-powered equipment will be regularly maintained and idling time reduced to minimise emissions.	ESMP	Traffic/Equipment Management Plan	Contractor	December 2021
		Low sulphur diesel ($S < 0.5\%$) will be used in diesel powered equipment in collaboration with best management practices.	ESMP	Traffic/Equipment Management Plan	Contractor	December 2021
		Vehicle / equipment exhausts observed emitting significant black smoke in their exhausts will be serviced/ replaced.	ESMP	Traffic/Equipment Management Plan	Contractor	December 2021
9.	Dust Generation	Implementation of a regular watering and sprinkling dust suppression regime, during the dry season.	ESMP	Dust Management Plan	Contractor	September 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Concrete batching plant will be located within the power generation complex to keep it away from sensitive receptor;	ESMP	Dust Management Plan	Contractor	September 2021
		- Material transport will be totally enclosed with impervious sheeting and wheel washing will be carried out at site ; - Stockpiles will be maintained at site only, which is a fenced area. No stockpiles will maintained outside, and maximum possible distance between the stockpiles and receptors will be maintained; - Covering and/or watering of all stockpiles of dusty materials such as excavated spoils to avoid fugitive dust emissions;	ESMP	Dust Management Plan	Contractor	September 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Approach road will be kept clean, free from mud and slurry.	ESMP	Dust Management Plan	Contractor	September 2021
10.	Air Quality	Waste from construction will not be burned.	ESMP	Waste Management Plan	Contractor	December 2021
11.	Noise	Only those vehicles meeting the standards stipulated in Schedule 5 of the Environmental Conservation Rules, 1997 will be used	Specification Manual	Traffic Management Plan	Contractor	December 2021
		Normal working hours of the contractor will be between 06:00 and 21:00 hours from Monday to Sunday.	Specification Manual and ESMP		Contractor	December 2021
		If work needs to be undertaken outside these hours, it should be limited to activities that do not exceed the noise criteria at nearby noise sensitive receptors.	ESMP	Equipment Management Plan	Contractor	December 2021
		Only well-maintained equipment will be operated on-site.	ESMP	Equipment Management Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Regular maintenance of equipment such as lubricating moving parts, tightening loose parts and replacing worn out components should be conducted.	ESMP	Equipment Management Plan	Contractor	December 2021
		Machinery and construction plant that may be in intermittent use (e.g. trucks) shall be shut down or throttled down during non-work periods.	Specification Manual and ESMP	Equipment Management Plan	Contractor	December 2021
		Low noise equipment shall be used as far as practicable	Specification Manual and ESMP	Equipment Management Plan	Contractor	December 2021
		The number of equipment operating simultaneously shall be reduced as far as practicable	ESMP	Equipment Management Plan	Contractor	December 2021
		Equipment known to emit noise strongly in one direction should be orientated so that the noise is directed away from nearby residential area;	ESMP		Contractor	December 2021
		Noisy plant (such as breakers and rollers) shall	ESMP		Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		be located as far away from receptors as practicable.				
12.	Terrestrial Flora and fauna	Pre-construction surveys to be conducted by qualified ecologist hired by project developer to identify the floral and faunal species of conservational significance. The location of CR/EN species (if chance found) shall be marked in advance and the area will be avoided.	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
		If tree removal cannot be avoided, adequate compensatory afforestation including conservation of EN species in consultation with Forest Department shall be undertaken.	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
		Efforts to be taken to replant the species nearby where no disturbance due to project activity is envisaged;	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
		Vegetation clearing will be kept to the minimum extent practicable for the project site;	ESMP	Biodiversity management Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Construction schedule to be managed such that the foundation work is not done during monsoon season;	ESMP		Contractor	December 2021
		Strict instruction shall be given to the construction workers not to cut trees from the nearby areas for their kitchen fuel and timber use;	ESMP		Contractor	Before starting of the construction work
		Use of LPG/ Kerosene for cooking need to be provided/ encouraged in order to reduce the impacts on vegetation from the vicinity of the Project site;	ESMP		Contractor	Before starting of the construction work
		Construction workers shall be given conservation and awareness training to promote sustainable resource use;	ESMP	Training Plan	Contractor	Before starting of the construction work
		Improved management of eco-park needs to be supported by the project to reduce impacts during the construction phase of the project.	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
13.	Aquatic Flora and Fauna	Experts will be appointed to understand any area near the river usage by terrapin of conservational significance prior to start of construction activities for identification of egg laying sites of aquatic	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
		Reptiles at the equipment loading sites for avoidance.	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
		Conservation training will be given and a ban on capture of species or its eggs with any contractor/subcontractor/construction worker working on water pipeline including logistics contractor not complying being immediately removed from the project;	ESMP	Biodiversity management Plan	Contractor and Project Developer	December 2021
14.	Transportation	During transportation of equipment's the vessel speed will be regulated	ESMP	Traffic Management Plan	Contractor	December 2021
		All vessels plying the river are to be properly maintained with oil seals. All containers used for hydrocarbons storage	ESMP	Traffic Management Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
15.		(vessels) to be sealed tightly and secured to prevent accidental spillage or leaks into the river. Vessels plying the river and on shore facilities to be routinely inspected by the site security to ensure compliance to these principles.				
		Water Intake areas will be extensively surveyed prior to the construction activities and during unloading of machinery. Awareness of the need for protection of species and actions required in case of "chance encounters" with any such species is to be provided to construction workers.	ESMP	Biodiversity management Plan	Contractor	During the design phase of the intake point
		Avoiding peak hours for heavy vehicles movement where possible;	ESMP	Traffic Management Plan	Contractor	December 2021
		Regular maintenance of vehicles to avoid break downs leading to congestions;	ESMP	Traffic and Equipment Management Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Training and awareness amongst driver's to encourage systematic parking, following traffic rules, preventing unnecessary stoppages and overtaking.	ESMP	Traffic Management Plan and Training Plan	Contractor	December 2021
		Collaboration with local communities and responsible authorities to improve signage (eg pedestrian crossings, speed limits etc), visibility and awareness of traffic and pedestrian safety; and	ESMP	Traffic Management Plan and Training Plan	Contractor	December 2021
		Coordination with emergency responders to ensure that appropriate first aid is provided in the event of accidents.	ESMP	Emergency response Plan and Traffic Management Plan	Contractor	December 2021
		To ensure the easy movement of all kind of transports in the SEZ area.	ESMP	Traffic Circulation Plan	Contractor and SEZ authority	December 2021
16.	Community Health and Safety	Barriers will be provided to prevent ingress of persons into the construction site and also to protect public exposure to hazards associated	ESMP		Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
17.		with construction activities;'				
		Screening, surveillance and treatment of workers, through the provision of medical facilities and, where required, immunization programmes;	ESMP		Contractor	December 2021
		Undertaking health awareness and education initiatives among workers;	ESMP		Contractor	December 2021
		Implementation of a vector control programme in labour camps and surrounding areas; and	ESMP	Vector Control Management Plan	Contractor	December 2021
	Social Scenario	- Providing labour related infrastructure such as camps, sanitation facility, drinking water facility, etc. in accordance with local regulations as well as IFC handbook for labour accommodation; - Consulting with the local community prior to finalization of location of	ESMP	Construction Management Plan covering labour accommodation and related aspects	Contractor	December 2021
			ESMP		Contractor and project Developer	Before starting of the Construction work

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		labour camp to get their consent;				
		Preparation of a detailed plan, in keeping with lender requirements, for the construction of the labour camp and the mitigation measures to be put in place Ensure proper administrative channel to manage labour related statutory compliance, such as payment of wages, provident fund, insurance etc. as well as labour issues arising during the construction phase activities;	ESMP	Construction Management Plan covering labour accommodation and related aspects	Contractor	December 2021
		Prevent illegal labour practices such as child labour, bonded labour or forced labour through internal vigilance mechanisms and surveillance;	ESMP		Contractor	December 2021
		Awareness shall be generated amongst migrant labourers in	ESMP	Training Plan	Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		maintaining congenial relations with local labourers as well as community.				
		The reduction in fish catch for these fishing households should be compensated through cash payment.	ESMP		Contractor	December 2021
		Engaging closely with local NGOs to understand the key collective requirements of the surrounding community and identify one or more of the highlighted concerns to support	ESMP	CSR Management Plan	Contractor and project Developer	December 2021
		Enhance employment opportunities by maximizing utilization of the local population, as far as possible.	ESMP	CSR Management Plan	Contractor and project Developer	December 2021
		Communication of a clear plan of action to improve the welfare of the neighboring	ESMP	CSR Management Plan	Contractor and project Developer	December 2021
18.	Labour Management Procedure	Migrant labor is a serious issue and need to be dealt with as per WB guidelines.	ESMP	Labour Management Plan	Project Developer and Contractor	December 2021

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		Some labors may reside in the work camps to avoid commute, but these labors can't be classified as migrant labor. Day care, maternity leave, bonus, provision of group life insurance, rules related to job termination, retrenchment, resignation, dismissal, removal, death, compensation policy etc. should be well defined, informed and should be addressed.				
Pre-operation Phase						
1.	Air Quality	Predicting the cumulative air quality impact in or around the project area	ESMP	Air Quality Modeling using Aeromod	SEZL	December 2022
2.	Noise Level	Predicting the cumulative noise level impact in or around the project area	ESMP	Noise Modeling using SoundPLAN	SEZL	December 2022
Operation Phase						
3.	Soil and Sediment Quality	Proper Storage and labelling of wastes	ESMP	Waste Management Plan	Project O & M	February 2023
		Special care shall be taken in the storage areas to prevent any spillage of hazardous wastes and	ESMP	Waste Management Plan	Project O & M	February 2023

Sl. No.	Aspect	Commitment	Reference	Outcome Plan/Protocol	Responsibility	Timeline
		restrict access (except for trained staff) to such areas;				
4.	Use of Water	As per condition of the EIA Approval, the SEZL authority will go for Hydrological Study which will include both the assessment of the groundwater and surface water availability for the project.	ESMP	Hydrological Study	Project O & M	June 2023