Initial Environmental Examination

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India: Rajasthan Secondary Towns Development Sector Project – Additional Financing (PART A)

Redevelopment of Five Lakes and a Playground in Sagwara Town

Prepared by Rajasthan Urban Drinking Water Sewerage and Infrastructure Corporation Limited-External Aided Project (RUDSICO-EAP) for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 16 February 2023)

Currency unit	–	Indian rupee (₹)
₹1.00	=	$ 0.01
$1.00	=	₹ 82.76

ABBREVIATIONS

ADB	–	Asian Development Bank
BOCW	–	Building and other Construction Workers
CLC	–	City Level Committee
CPCB	–	Central Pollution Control Board
CTO	–	Consent To Operate
DPR	–	Detailed Project Report
EHS	–	Environmental Health and Safety
EIA	–	Environmental Impact Assessment
FCO	–	Fertilizer Control Ordinance
FSSM	–	Faecal Sludge and Septage Management
IEE	–	Initial Environmental Examination
IFC	–	International Finance Corporation
LSGD	–	Local Self Government Department
MOEFCC	–	Ministry of Environment, Forest and Climate Change
PHED	–	Public Health Engineering Department
PIU	–	Project Implementation Unit
PMU	–	Project Management Unit
PWD	–	Public Works Department
REA	–	Rapid Environmental Assessment
ROW	–	Right-Of-Way
RSPCB	–	Rajasthan State Pollution Control Board
RSTDSP	–	Rajasthan Secondary Towns Development Sector Project
RUDSICO-EAP	–	Rajasthan Urban Drinking Water Sewerage and Infrastructure Corporation Limited-Externally Aided Projects
RUDSICO	–	Rajasthan Urban Drinking Water Sewerage and Infrastructure Corporation
SEIAA	–	State Environmental Impact Assessment Authority
SPS	–	Safeguard Policy Statement, 2009
STP	–	Sewage Treatment Plant
ULB	–	Urban Local Body
WHO	–	World Health Organization

WEIGHTS AND MEASURES

m^3	–	cubic meter
dB	–	decibels
^oC	–	degree centigrade
dia	–	diameter
kg	–	kilogram
kl	–	kilolitre
km	–	kilometre
kmph	–	kilometre per hour
KLD	–	kilolitres per day
ha	–	hectare
HP	–	horsepower
LPCD	–	liters per capita per day
lps	–	liters per second
m	–	meter
mg	–	milligram
mm	–	millimetre
MCM	–	million cubic meter
MLD	–	million litres per day
km^2	–	square kilometre

NOTE

In this report, "$" refers to United States dollars.

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APPENDICES

Appendix C1 – C25 – common appendices, attached separately, provide statutory standards, guidelines, reporting templates etc. are applicable to all subproject IEEs.

EXECUTIVE SUMMARY

ADB approved a loan for the Rajasthan Secondary Towns Development Sector Project (RSTDSP, Loan 3972: IND) in September 2020. This is currently under implementation and will close by May 2028. The additional financing (the project) will expand the improved access to WSS services in at least ten urban local bodies (ULBs), benefiting 1.2 million people. Important value addition of the proposed project to the ongoing project is that it will provide innovative solutions to address climate change to respond to the growing climate risks and vulnerability and also to improve livability and prosperity through enhancing natural and/or built heritage at least ten ULBs in Rajasthan, benefiting 1.0 million people. The overall project is aligned with the following impacts: (i) access to potable, affordable, reliable, equitable, environmentally sustainable drinking water supply in all urban areas of Rajasthan improved, (ii) health status of urban population, especially the poor and under-privileged improved, and (iii) productivity, livability and prosperity for the citizens in Rajasthan cities and towns enhanced. Reflecting the additional measures to enhance climate resilience and heritage-sensitive urban development of the project, impact statement (iii) was added; the outcome statement is modified as quality, reliability, equity, and sustainability of urban assets and services in project towns of Rajasthan improved; and additional output was also added, resulting in four outputs.

Sagwara is one of the project towns, and lakes restoration and redevelopment and playground upgradation in Sagwara is proposed under the RSTDSP-AF. Following are the proposed components:

- **Masaniya lake.** cleaning of the lake weeds, plantation of native trees in high water level (HWl), rammed earthen track bunds for walking and running, shrubs in mid water level (MWL), and sub-merged plants to minimize erosion, small decorative fountain, wooden jetty, decorative light pole, toilet block, security.
- **Lohariya lake.** Development of existing deck, walkway of a rammed earth and both side interlocking tiles with shrubs, plantation and light poles. Amenities and facilities like toilet, decorative light, places to sit and gather, fountain and landscape lawn area.
- **Hariyala lake.** Native tree plantation at high water level and rammed earthen track for walking and running. Shrubs are provided in MWL. Sub-merged plants for erosion control at lower water level, development of small decorative fountain, decorative light, toilet block
- **Gemariya lake– 02** cleaning of the weeds, Native trees are to be planted in HWL and rammed earthen track for walking and running. Shrubs are provided in MWL. Sub-merged plants for erosion control at lower water level, decorative fountain and decorative light.
- **Gemariya lake– 01** cleaning of the weeds, Native trees are to be planted in HWL and rammed earthen track for walking and running. Shrubs are provided in MWL. Sub-merged plants for erosion control at lower water level, small decorative fountain, wooden jetty, decorative lights
- Improvement of interconnecting channel; plantation along the 12 m wide and 2.1 km long channel, connecting all lake in town.
- **Government school playground** development - facilities for mini soccer, lawn tennis, running, shot-put, volleyball and other athletic games.

Screening and Categorization. assessment of potential impacts. Sagwara City Beautification subproject is classified as environmental category B per ADB's Safeguard Policy Statement

(SPS), 2009, and accordingly this initial environmental examination (IEE) assesses the environmental impacts and provides mitigation and monitoring measures to ensure that there are no significant impacts as a result of the subproject. As per the Government of India environmental impact assessment (EIA) Notification, 2006, this subproject does not require EIA study or environmental clearance.

Description of the Environment. Subproject components are in Sagwara town and in its immediate surroundings. The five lakes to be improved are of different sizes (0.32 ha to 11.6 ha) located within the municipal area. Masaniya lake is almost in the middle of the town with residential areas to the northeast and southwest, and rest of the lakes are situated in the northeast, east and northwest of the town, just outside the residential area. These four are connected with an outflow channel that carries discharge from upstream to downstream lakes, and finally to natural drains to finally reaches River Mahi. Subproject also improves restoration and beautification (tree plantation) of this channel, which is about 1.2 km length. Lakes are rain-fed, and usually have high water level during monsoon/post monsoon, and very minimal level (some gets mostly dry) during summers. Except evapotranspiration and seepage losses, water is not used for any purpose. Lakes are used for religious rituals, like for *Moharram*, idol immersion, bathing etc. by all communities. There are temples close to some lakes. There is no notable biodiversity, flora or fauna, lakes are covered with aquatic weeds extensively, domestic wastewater entry is noticed. Gemariya lake-01 has an island with thick local vegetation, is home to domestic water birds, especially during the post-monsoon and winters (October-March).

Potential Environmental Impacts and Mitigation measures. In this draft IEE, negative impacts were identified in relation to location, design, construction and operation of the improved infrastructure. Environmental impacts as being due to the project design or location were not significant as various measures are already included in site planning and preliminary design. Improvements will be confined to lake area and bunds. Removal of weeds, improvement of bunds, improvement of inflow and outflow channels, etc, together with proposed tree plantation is will contribute to improve lake environment. The improvements may increase the movement of people, however, this is not considered significant impact as lakes are already located close to the town, and necessary facilities are being provided. Species of plants and shrubs suited for local conditions and to enhance biodiversity will be planted. The improvement will help create environmental awareness, provide recreational and leisure place for people of Sagwara, which will help protect lakes, and its habitat. No works are proposed in bird island; works on this lake (Gemariya-01) will not be scheduled during winters, the birds nesting season. Existing school playground will be developed with facilities for various sports within the available land. No notable impacts envisaged. Potential impacts during construction are considered significant but temporary and are common impacts of construction, and there are well developed methods to mitigate the same. Measures will be taken to avoid pollution of lake water. No desilting of lakes proposed, therefore no notable soil will be generated, and any soil that may be generated will be utilized in bunds. Aquatic weeds will be composted on site and used as manure. All construction activities will be confined to the selected sites and the interference with the general public and community around is minimal. In these works, the temporary negative impacts arise mainly from construction dust and noise, hauling of construction material, waste and equipment on approach roads/lake bunds (traffic, dust, safety etc.), mining of construction material, occupational health and safety (OHS) aspects. These are general impacts, and will be mitigated or minimized to acceptable levels with measures in EMP.

Environmental Management. An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels, along with the delegation of responsibility to appropriate agency. Various design related measures are already

included in the project design. During construction, the EMP includes mitigation measures such as (i) proper planning and scheduling of works to minimize public inconvenience; (ii) measures to avoid negative impacts on biodiversity and water birds nesting season (iii) barricading, dust suppression and noise control measures; (iv) traffic management measures for works along the approach roads and for hauling activities; (v) occupational and community health and safety, labour welfare, (vi) reuse of excavated materials to extent possible, (vii) spill and sediment control measures to avoid water and soil pollution, etc.,. EMP will guide the environmentally-sound construction of the subproject. EMP includes a monitoring program to measure the effectiveness of EMP implementation and include observations on- and off-site, document checks, and interviews with workers and beneficiaries. A copy of the updated EMP/ site environmental management plan (SEMP) shall be kept on-site during the construction period at all times. The EMP will be included in bids and contracts, and implementation shall be binding on contractors.

Implementation Arrangements. The executing and implementing agencies will remain unchanged from the current project, which are Government of Rajasthan's Local Self Government Department (LSGD) and Rajasthan Urban Drinking Water, Sewerage and Infrastructure Corporation (RUDSICO), respectively. The AF project retains the project management unit (PMU) at the implementing agency, as well as the two Zonal Offices in Jaipur and Jodhpur. Project implementation units (PIUs) have been established in project towns. A total of eight PIUs will manage 18 ULBs under the AF Project. Consultants will support the PMU and PIUs. Project Officer (Environment) at PMU and Safeguard and Safety Officer at each of the PIUs will be responsible for environment management and monitoring activities and will be supported by Safeguard support staff from Supervision Consultant, town staff/team and Environment Safeguard Specialist of Supervision Consultants. Contractor personnel will also include an Environment, Health and Safety (EHS) Engineer in the project construction team.

Consultation, Disclosure and Grievance Redress. The stakeholders were involved in developing the IEE. Informal and formal consultation are conducted with local population of the area at 5 places along with proposed project sites with about 47 persons in July 2021. A town level consultation meeting was also conducted at Sagwara on 13-08-2022, this meeting was attended by Municipal President, Vice President local public, NGOs and other officials of Sagwara municipality. A City Level Committee (CLC) was held and CLC has appreciated and approved the subproject. The IEE will be made available at public locations; this draft IEE will be disclosed to a wider audience via the ADB and RUDSICO websites. Consultation process will continue during project implementation. A grievance redress mechanism (GRM) will be established.

Monitoring and Reporting. The PMU, PIU and consultants will be responsible for monitoring and reporting. During construction, results from internal monitoring by the Contractor will be reflected in their monthly EMP implementation reports to the PIU. PIU with the assistance of CMSC, will monitor the compliance of contractor, prepare a quarterly environmental monitoring report (QEMR) and submit to PMU. The PMU will oversee the implementation and compliance and will submit semi-annual environmental monitoring reports (SEMR) to ADB. SEMRs will be disclosed on ADB and RUDSICO websites.

Conclusions. The proposed project is unlikely to cause significant adverse impacts, and potential impacts are mainly due to construction and can be mitigated or minimized to acceptable levels through measures included in the EMP. The citizens of the Sagwara will be the major beneficiaries. Implementation of project will Improve overall environment and living quality of Sagwara, and will help improve lake habitat. This create environmental awareness, provide recreational and leisure place for people of Sagwara, which will help protect lakes, and its habitat. Interlinking of lakes will help in flood mitigation during the rainy season. Development of

playground will provide sports opportunities to the students and youth.

Based on the findings of the IEE, the classification of the project as Category “B” is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009) or GoI EIA Notification (2006).

I. INTRODUCTION

A. Rajasthan Secondary Town Development Section Project – Additional Financing

1. Sector Project (RSTDSP, Loan 3972: IND) from its regular ordinary capital resources on 25 September 2020 and became effective on 4 January 2021. The closing date of the current project is 31 May 2028. This project is on track and has performed well consistently since the first quarter of 2021. Under this project, water supply systems are being improved in eight urban local body (ULB) towns (Output 1), and sanitation systems in 13 ULBs (Output 2). During the implementation, an additional 13 ULBs were added to the project for fecal sludge and septage management system development. Under Output 3, capacity building and training activities on sustainable and resilient water supply and sanitation (WSS) operations, hygiene, gender equality and social inclusion conducted.

2. The additional financing (the project) will expand the improved access to WSS services in at least ten urban local bodies (ULBs), benefiting 1.2 million people. Important value addition of the proposed project to the ongoing project is that it will provide innovative solutions to address climate change to respond to the growing climate risks and vulnerability and also to improve livability and prosperity through enhancing natural and/or built heritage at least ten ULBs in Rajasthan, benefiting 1.0 million people. The overall project is aligned with the following impacts: (i) access to potable, affordable, reliable, equitable, environmentally sustainable drinking water supply in all urban areas of Rajasthan improved, (ii) health status of urban population, especially the poor and under-privileged improved, and (iii) productivity, livability and prosperity for the citizens in Rajasthan cities and towns enhanced. Reflecting the additional measures to enhance climate resilience and heritage-sensitive urban development of the project, impact statement (iii) was added; the outcome statement is modified as quality, reliability, equity, and sustainability of urban assets and services in project towns of Rajasthan improved; and additional output was also added, resulting in four outputs.

(i) **Output 1: Resilient water supply systems developed or improved.** By 2028, the project will (i) At least 1,300 km of water supply pipelines will be commissioned through a district-metered area approach for effective non-revenue water (NRW) management, (ii) at least 79,000 households will be connected to an improved water supply system, including at least 95% below poverty line households, with 100% functional meters allowing for the introduction of volumetric billing, (iii) three new water treatment plants (WTPs) will be commissioned with a total capacity of at least 24 million liters per day (mld).

(ii) **Output 2: Resilient and inclusive sanitation systems developed or improved.** By 2028, (i) at least 500 km of sewers will be constructed; (ii) seven sewage treatment plants (STPs) with co-treatment of wastewater and fecal sludge and with a total capacity of at least 30 mld will be commissioned and one existing STP with 10 mld capacity will be upgraded to meet current effluent standards; and (iii) at least 54,000 new household connections (including at least 95% below poverty line households) to the sewer system will be installed.

(iii) **Output 3: Urban assets to enhance climate resilience and heritage living developed or improved.** By 2028, (i) at least 50 km of drainage networks will be constructed in five ULBs; (ii) at least five either kunds or baories rehabilitated and/or reconstructed in three ULBs that were heritage structures built for drainage, rainwater harvesting, and reuse, but currently are not properly functioning; (iii) five water parks rehabilitated in one ULB to enhance water retention and storage

capacity and/or to improve people's well-being, both residents and visitors; and (iv) at least four heritage structures are refurbished in five ULBs to improve the living environment and attract more tourists.

(iv) **Output 4: Institutional and human capacities strengthened for sustainable service delivery, gender equality, and improved public health**.

3. The executing and implementing agencies will remain unchanged. GOR's Local Self Government Department (LSGD) is executing agency and the Rajasthan Urban Drinking Water, Sewerage and Infrastructure Corporation (RUDSICO) is implementing agency.

4. **Sagwara City Beautification subproject.** This is one of the subprojects proposed under RSTDSP-AF. It will restore and redevelop 5 lakes, lakes connecting channel and upgrade school playground in the town.

B. Purpose of Initial Environmental Examination Report

5. Per ADB's Safeguards Policy Statement, 2009, ADB requires the consideration of environmental issues in all aspects of the Bank's operations. Using rapid environmental assessment (REA) checklist (Appendix 1), subproject is unlikely to cause significant adverse impacts, and classified as category B and per ADB SPS requirements this IEE is conducted.

C. Scope of IEE

6. This IEE is based on the project design report, and some aspects like tree species to be planted will be finalized during the implementation phase in consultation with forest department and local experts. The IEE is conducted mainly based on field reconnaissance surveys and secondary sources of information. Stakeholder consultation was an integral part of the IEE. This IEE will be updated during the detailed design to reflect changes and submitted to ADB for approval. IEE will be further updated during implementation if there are any changes in project scope, design or sites updates will supersede the earlier version.

D. Report Structure

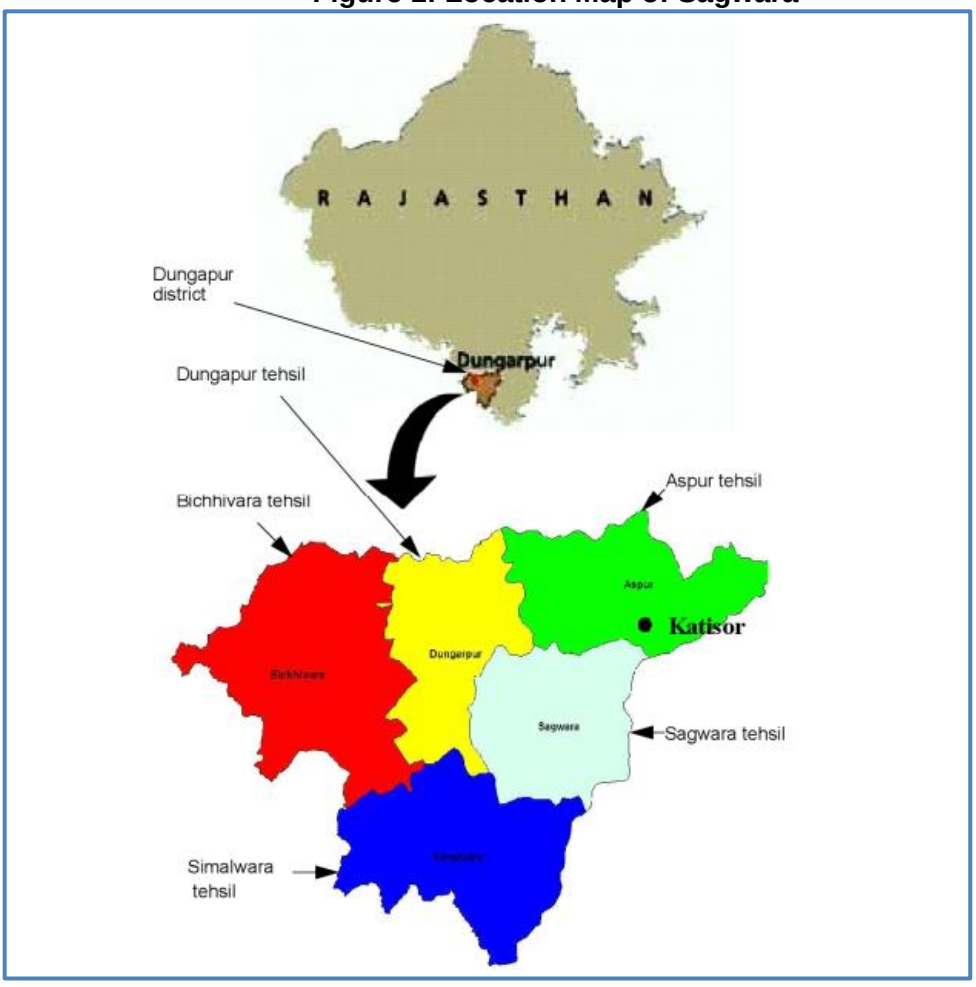
7. This Report contains the following sections:

(i) Executive summary;
(ii) Introduction;
(iii) Description of the project;
(iv) Analysis of alternatives;
(v) Policy, legal and administrative framework;
(vi) Description of the environment;
(vii) Anticipated environmental impacts and mitigation measures;
(viii) Public consultation and information disclosure;
(ix) Grievance redress mechanism;
(x) Environmental management plan; and
(xi) Conclusions and recommendations.

II. DESCRIPTION OF PROJECT

8. Sagwara is a town in Dungarpur district of Rajasthan state in India. It is situated 525 km off from State capital Jaipur. It is well connected to other major cities of Rajasthan by road and rail network. The town is situated at latitude 23.668° in the north and longitude 74.02° in the east (Figure 1). It has an average elevation of 244 metres. The geographical area of the city is about 7.68 sq. km. As per 2011 census, population of the town is 29,349 people. Sagwara is famous for its sculpture, marble carving, temple architecture and gold jewellery. It is a major trading hub for nearby villages.

Figure 1: Location Map of Sagwara



9. There are five lakes in the municipal area of Sagwara (Figure 2). These urban lakes are surrounding mostly by residential areas and in the outskirts by agricultural lands. Minor roads make the approach to the lakes. The five lakes of Sagwara, namely Masaniya, Lohariya Gameria -01, Gameriya -02 and Hariyala, despite being the important repository of water and biodiversity in the city are in dilapidated state. Restoration of these lakes, their sustainable management and protection and stabilization their ecosystem health and water quality is urgently needed along with development of public amenities. The five lakes of Sagwara have the potential to be developed as an active zone, as a centre of recreation for local population. Implementation of the subproject will restore the five lakes and their ecosystem health and beautification of their lake front will improve the ambiance over there. Restoration of Interconnection of lakes will help in flood

mitigation and development of green zone along the link channel will help in restoring the natural environ of the city. Development of a playground and will provide sport opportunity to students and youth for various sports. Basic details of the five lakes in Sagwara as follows:

10. **Masaniya Lake** The area of lake is 10.6 ha. Lake is protected by a bund on two sides – northeast and southeast. The main road connecting the town traverses on the bund, another bund connects substation. A ghat is developed on the lake front on the bund with steps up to low water level. This ghat is constructed using red stone. There are no bunds on the other sides, and water reaches up to natural contour level. All lands up to this water level are under the water body as per land records.

11. Lake receives runoff mainly from hilly and agricultural areas in the northwest. No wastewater enters into the lake from the town areas. Lake is filled with aquatic weeds mainly lotus plants. Lake water is not used for any purpose such as drinking, irrigation etc., This lake mainly used by local people for religious activities of various communities (mohrram, idol immersion, religious rituals such as bathing etc.,). Outflow / discharge from Masaniya lake flows downstream and reach Mahi River.

12. The source of water pollution is mainly from religious activities and agricultural runoff. Water quality is generally poor during low water levels. During post monsoon season, when the lake is full, water quality is generally good

13. **Lohariya Lake.** The area of lake is 11.6 ha. Lake is protected by bunds on all sides. On Eastern side bund, there is a *ghat on the lake front*, and temple comp*lex* next to the ghat. Ghat is in poor condition. Bunds on the northeast side also acts as a road connecting the town.

14. Lake receives runoff mainly from hilly and agricultural areas in the north. No wastewater enters into the lake from the town areas. Lake is filled with aquatic weeds mainly lotus and water lilies plants. Lake water is not used for any purpose such as drinking, irrigation etc., This lake mainly used by local people for religious activities of various communities (idol immersion, religious rituals such as bathing etc.,). Outflow / discharge from Lohariya lake flows downstream into Hariyala lake.

15. The source of water pollution is mainly from religious activities and agricultural runoff. Water quality is generally poor during low water levels. During post monsoon season, when the lake is full, water quality is generally good

16. **Hariyala Lake.** Hariayala lake is situated at the north-eastern side of town. Lake is mostly surrounded by agriculture areas. The area of lake is 0.32 ha and is the smallest lake. There are no defined bunds. Small amount of water is noticed during the visit in the post monsoon season.

17. There is one temple and a primary school in south of the lake. Lake connected with motorable kuccha road. Lake receives runoff mainly from agricultural areas and overflow/discharge from Loharia lake in the north. Lake water is not used for any purpose such as drinking, irrigation etc., No algae or aquatic weeds noticed in the lake. Outflow / discharge from Hariyala lake flows into Gemariya Lake-02.

18. **Gemariya Lake– 02** Gemariya lake– 02 (Boariya) is the small lake in Sagwara, situated at the eastern side of town. Lake is mostly surrounded by agriculture areas.

19. The area of lake is 0.64 ha. Lake is protected by bunds on two sides – north and east.

Bunds are also used as connecting roads. There are no bunds on the other sides, and water reaches up to natural contour level. All lands up to this water level are under the water body as per land records. Outflow/discharge from Gamariya lake-02 flows into Gamariya Lake-01.

20. A *ghat* is developed on the lake front on the bund with steps up to low water level on the eastern bund.

21. Lake receives runoff mainly from agricultural areas and overflow/discharge from Hariyala lake in the north. A drain carrying runoff during rains, and wastewater from town areas discharges into the lake from northern side. Lake water is not used for any purpose such as drinking, irrigation etc., Washing of cloths by local people observed. It is also not used for religious purposes. Algal growth has been observed in the lake with water in green colour, indicating sewage contamination

22. **Gemariya Lake-01.** The lake is situated in the south eastern side of town, and is mostly surrounded by residential areas (except north). In the north, there are agricultural fields. There is a small island within the lake thickly covered with babul (*acacia* species) trees.

23. The area of lake is 5.5 ha. Lake is protected by bunds on all sides, except in the north from where it receives water from its catchment areas. This lake also receives water/discharge of Gemariya lake-02, which is located on the upstream side (north), about 600 m.

24. This lake areas is used by local people for recreation purposes. There are sitting areas, walkways / footpaths, street lights, etc., on the southside bund. There are steps leading (like *ghat*) up to low water level. Bhairavji temple and sai temple are situated near the lake.

25. Lake receives runoff mainly from agricultural areas and overflow/discharge from Gemariya lake-02 in the north. It also receives wastewater from surrounding residential areas. Lake is filled with aquatic weeds mainly water hyacinth. Lake water is not used for any purpose such as drinking, irrigation etc., It is also not used for religious purposes.

26. Following problems/issues identified on the basis of in-depth analysis of Sagwara lakes and discussions with the stakeholders.

(i) Existing channel linking the Sagwara lakes is in dilapidated status and is not able to discharge the water from one lake to other lakes. This channel is important in view of flood discharge also.
(ii) Draining and encroachment of lakes and ponds – they are fast becoming a lost heritage and loss of biodiversity.
(iii) Lack of tourist infrastructure for visitors including local public
(iv) The tourism potential of the lake is not being explored due to poor infrastructure in Lakefront
(v) Entry of wastewater
(vi) Impact on human and animal health – lake pollution can cause serious diseases, like jaundice, typhoid, gastroenteritis, and malaria, especially in poorer areas.
(vii) Poor condition of lake and surrounding area; poor aesthetic appeal
(viii) No basic amenities / facility for visitors (no signage boards, no waste bins, lack of parking space, etc.,)

A. Proposed Subproject Components

27. This project encompasses redevelopment of five lakes (Masaniya Lake, Lohariya Lake, Gemaria Lake-01, Gemaria Lake-02, and Hariyala lake) and development of a playground in the

town. The collective area five lakes is 39.7 Ha opting nature based solution and interconnecting the lakes for efficient flood mitigation. Government school playground will be developed for providing facilities for mini soccer, lawn tennis, running, shot-put, volleyball and other athletic games.

28. No new construction or public activity proposed in lake water submergence area. Highest water level of lake are determined with outflow level of lakes and area of lakes are marked using revenue records. Location of lakes, proposed improvements and improvement plans are given in Figures 2-21.

Table 1: Proposed Subproject Components

Component	Description	Location & Ownership
Improvement of lakes	• Cleaning of the lake (cleaning / removal of aquatic weeds, improvement of bunds, creating walking tracks, plantation with native tree species above high water level, shrubs above mid water level, and submergent plants above low-water level. • Besides the above, Interlocking tiles on bund at Lohariya lake is also proposed • Lohariya lake is highly infested with exotic weed 'water hyacinth' and is responsible for infilling of this lake (decaying and degenerating water hyacinth resulting in infilling of lake and losses of fish habitat). It is proposed to remove the water hyacinth. As water hyacinth absorbs most of the nutrients from water for self-growth, it has a high nutrient content and may be used to prepare good quality compost. Final disposal of water hyacinth will be done, preferably, using it to prepare compost by Sagwara Municipality.	These works will be taken up in all five lakes – Masaniya, Lohariya Gameria -01, Gameriya -02 and Hariyala.
Development of Jetty	Wooden jetties are proposed to be developed in Lakes to facilitate boating in the lakes.	Jetties will be constructed in Masaniya lake, Gameriya lake -01
Construction of Public Toilet	Four toilet blocks are proposed to be constructed in order to provide amenities to the visitors. Toilet blocks to be constructed near the Lohariya Lake, Masaniya Lake and Gemeriya Lake -1. These areas are proposed to be covered under the Sagwara WS&WW subproject (under execution in RUIDP -Phase IV) and the sewage generated in proposed toilets will be	Toilet blocks are proposed near Masaniya Lake, Lohariya Lake, Hariyala Lake and the proposed site for construction of toilet blocks is government land.

Component	Description	Location & Ownership
	taken care of by connecting them with sewerage networks. The toilet block to be constructed near the Hariyala lake is also proposed to be covered under the FSSM in the same ongoing project and the sewage will be managed under FSSM scheme.	
Development of existing Deck	Re development of existing deck is proposed.	Renovation of existing deck is proposed at Lohariya Lake which is government owned.
Development of Walk way	Walkways around the five lakes are proposed.	Walkways are proposed around Lohariya Lake, Gameria Lake-01, Gameriya Lake -02 and Hariyala Lake. The land for walkway development is government land.
Installation of decorative fountain	Five decorative fountains are proposed in lakes.	Decorative fountains are proposed to be installed in Lohariya Lake, Gameria Lake-01, Gameriya Lake -02 and Hariyala Lake. The lakes are owned by government.
Lighting, beautification, landscaping and providing street furniture.	Lighting, beautification and landscaping is proposed in all five lakes under subproject.	Lighting, beautification, landscaping and providing street furniture is proposed in the lakefront of Lohariya Lake, Gameria Lake-01, Gameriya Lake -02 and Hariyala Lake. The lakes as well as area for landscaping, lighting and beautification is owned by government.
Improvement of interlinking channel for lakes	Lakes will be interconnected through a link channel and along the link channel plantation will be done with native plant species. Selection of species of plant will be done based on water level (Submerged, emerged, shrubs and tree species. Length of the link channel is 2.1 km. and the width of the link channel including the plantation area is 12 meters. Thus, an aera of 2.52 ha is covered under the linking of lakes and development of green cover along it.	Link channel will connect Lohariya Lake, Gameria Lake-01, Gameriya Lake -02 and Hariyala Lake. Lakes as well as the Channel to be redeveloped is government land.
Plantation	It is proposed to develop green area along the link channel connecting the lake. Avenue plantation around the lakes is also proposed. A total of 60,000 plants are to be planted under the subproject.	Plantation is to be taken up around the Lohariya Lake, Masaniya Lake, Gameria Lake-01, Gameriya Lake -02 and Hariyala Lake. A green strip is proposed alongside the link channel connecting the lake. Lakes as well link channel and other areas proposed for plantation are owned by government. Tree, shrubs, etc., specifies suitable for local conditions and beneficial to support biodiversity will be identified during the implementation. Sagwara municipal

Component	Description	Location & Ownership
		council and PIU, will consult forest department and local experts, if any, such as one expert identified during the IEE preparation as specified in Section VII.
Development of Playground	A playground near Government School is proposed to be developed covering an area of 12287 sq. m. This playground will have Tennis Court, Volleyball Court, Soccer ground, running track, etc. Many sports activities can be performed in this playground.	This is a vacant land near Government School under the ownership of Government.

Table 2: Coordinates of Subproject Locations

COMPONENTS	Latitude	Longitude
Masaniya Lake	23°40'26.95"N	74° 1'6.77"E
Lohariya Lake	23°40'56.83"N	74° 1'7.30"E
Gemariya Lake- 01	23°40'23.20"N	74° 1'53.72"E
Gemariya Lake-02	23°40'9.97"N	74° 1'47.34"E
Hariyala Lake	23°40'46.79"N	74° 1'37.87"E
Playground	23°39'26.12"N	74° 0'25.64"E

Figure 2: Google base map showing the land use in surrounding of lake

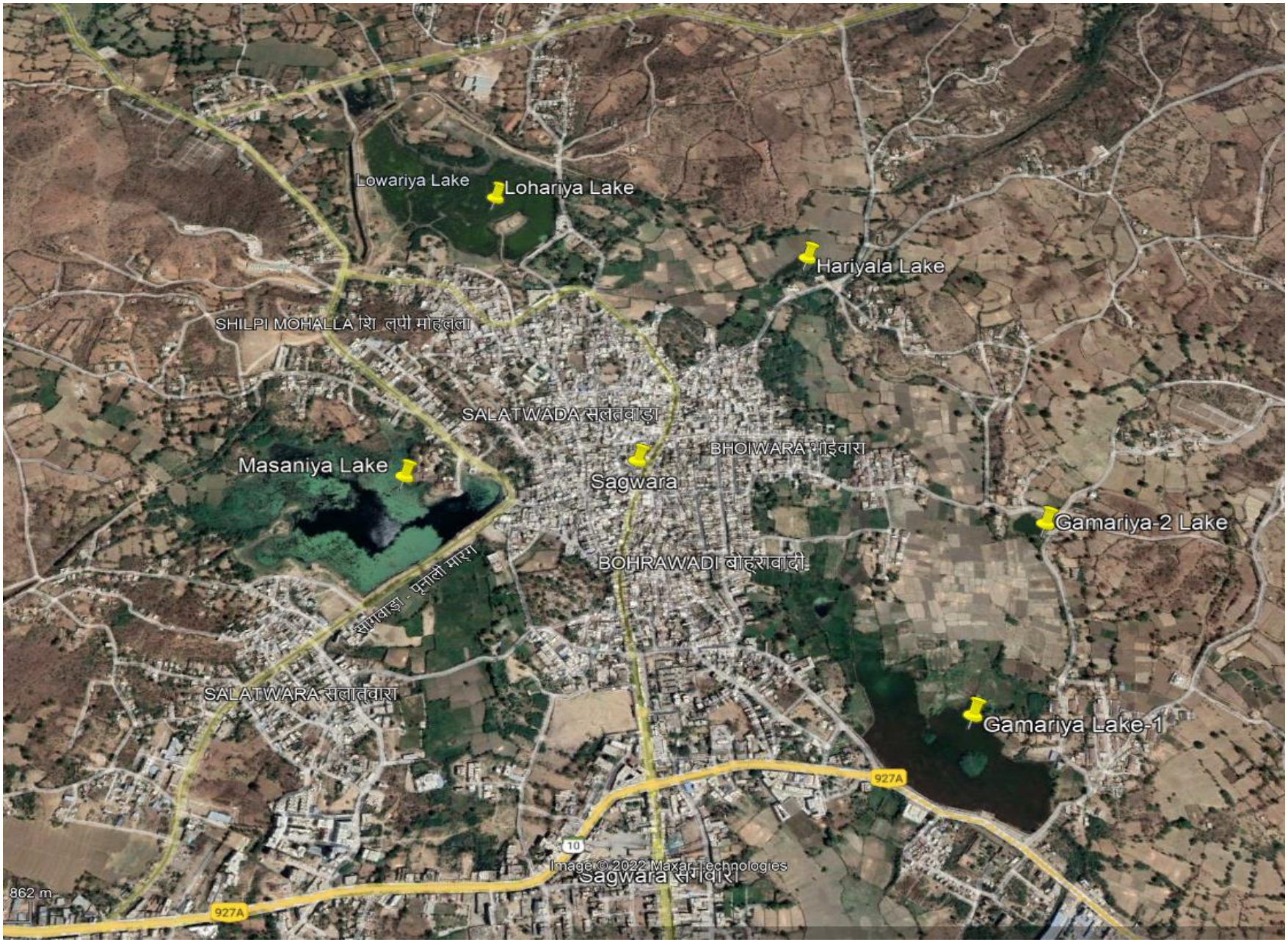
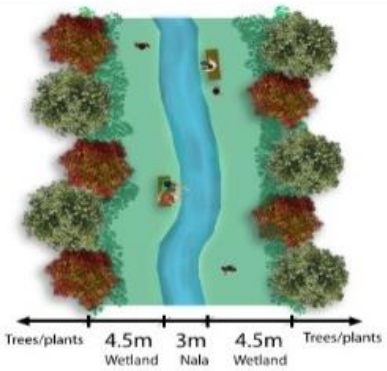


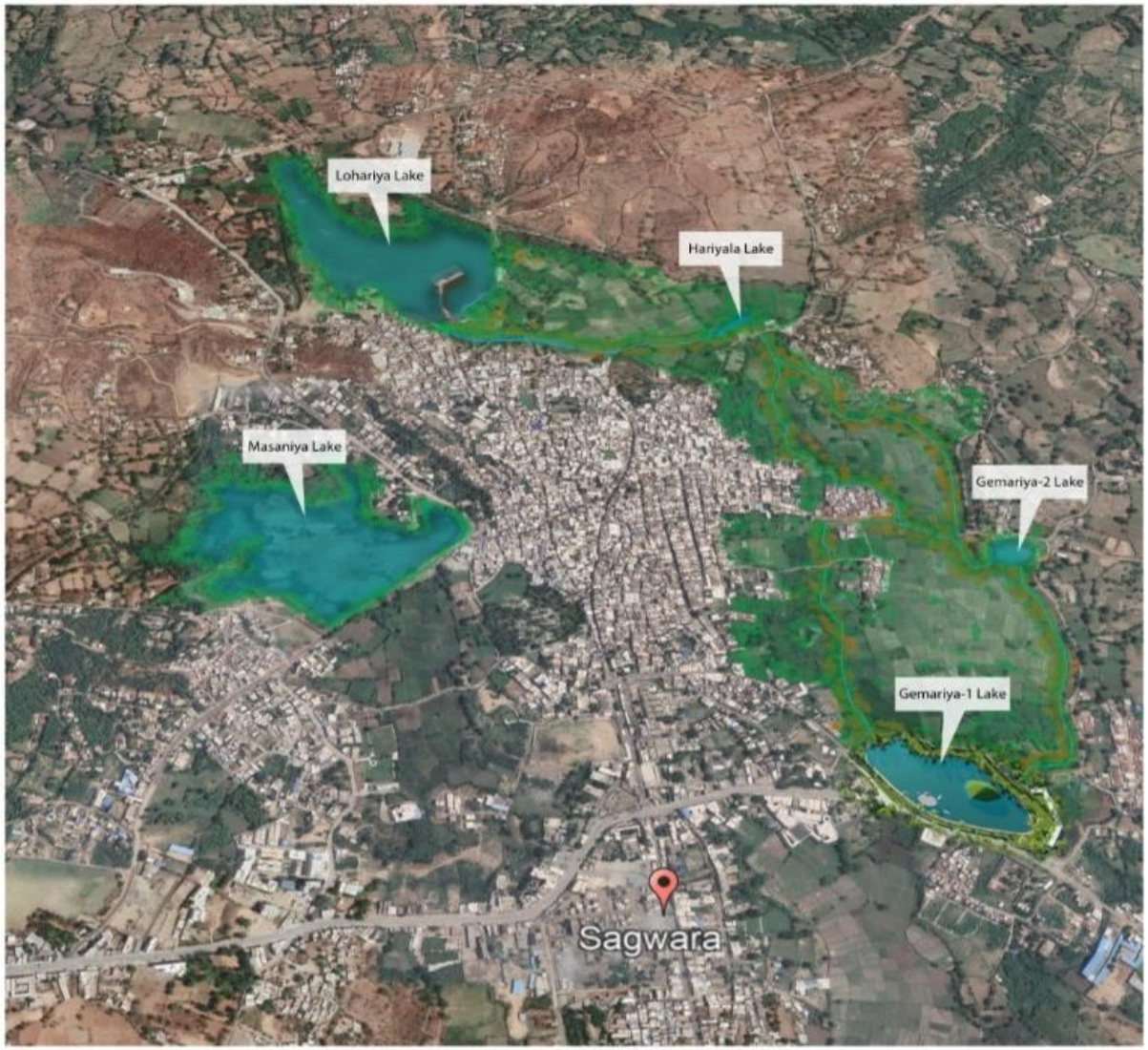
Figure 3: Development works at Five Lakes of Sagwara Mater layout in google map



Nala proximity in detail (conceptual)

Plants suitable for ecology of Sagwara

Concept Reference visuals



Lake Connectivity Mapping and Redevelopment plan

Figure 4: Layout showing interconnecting channel and Playground

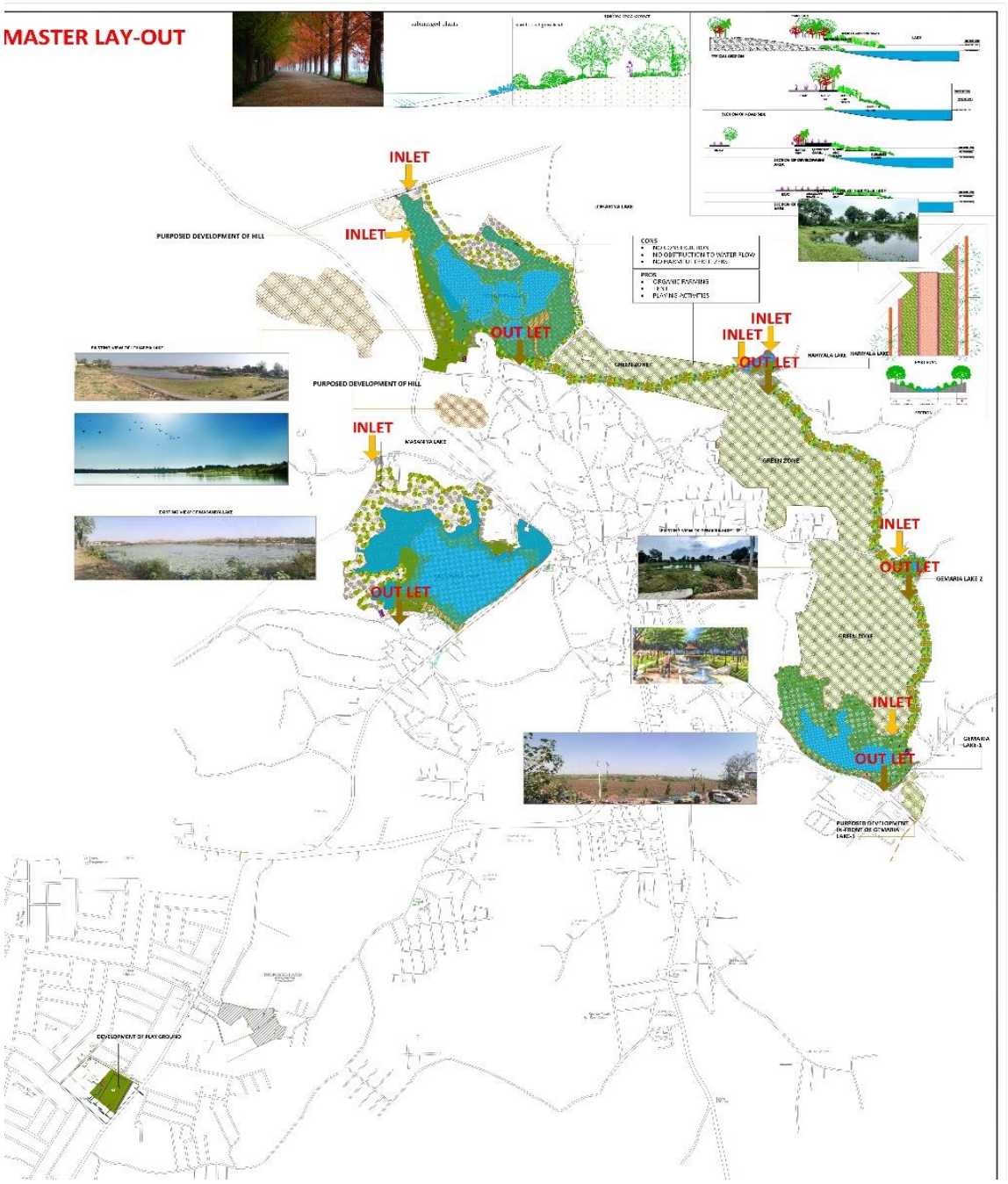


Figure 5: Plan and Section of channel, Interconnecting the lakes

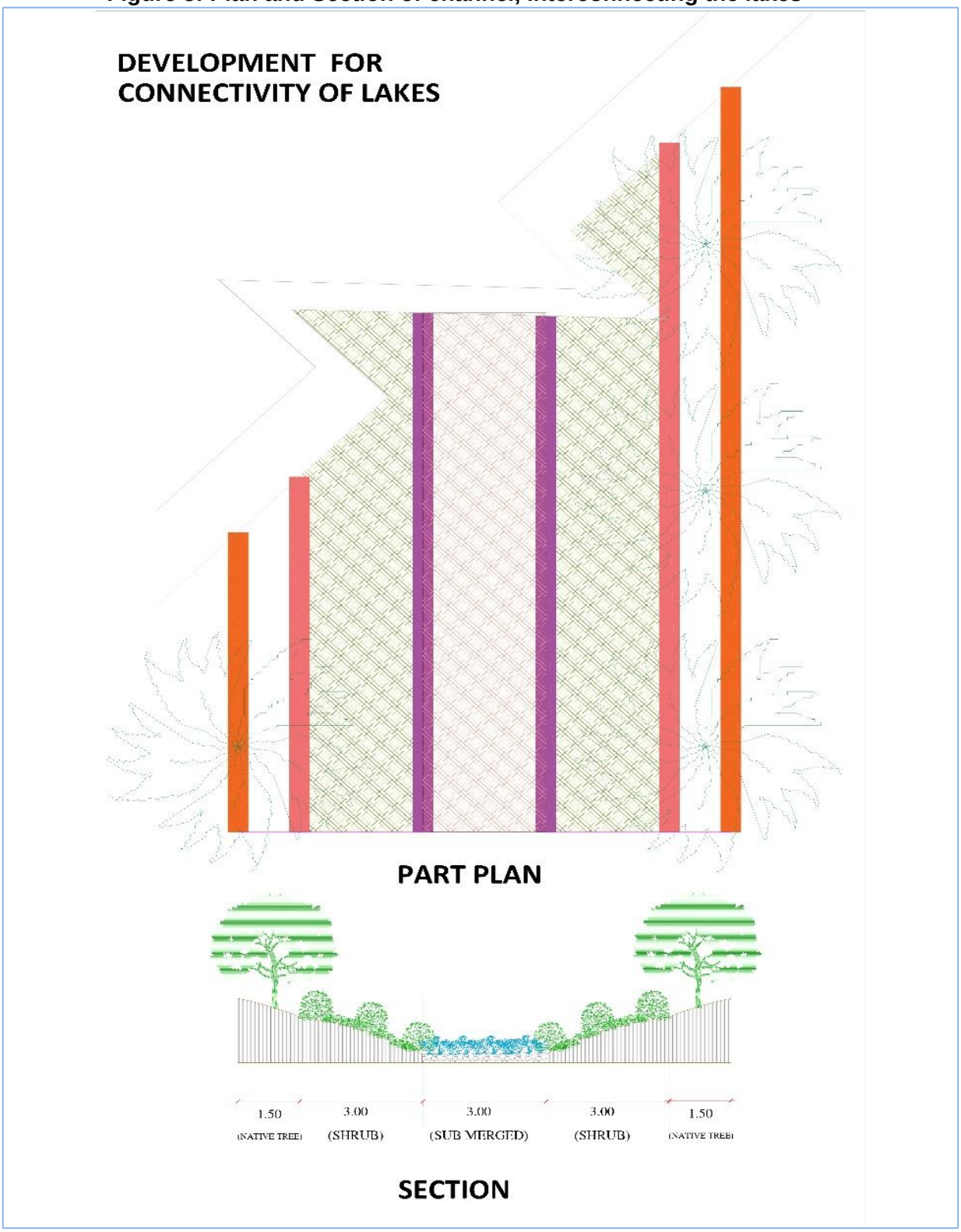
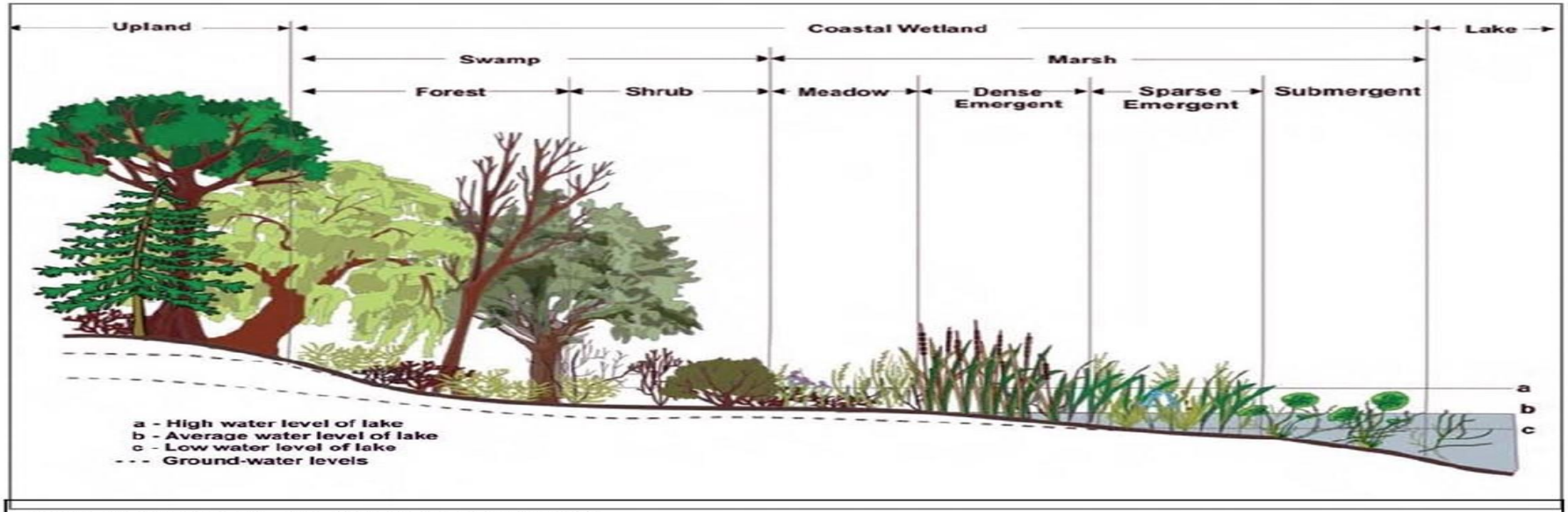


Figure 6: Development of wetland with arrangement of plant species in different elevation of land surrounding the lakes



QUANTITY OF PLANTATION

Following quantities of plantation are proposed in the subproject based on ecosystem specific habitats.

S.No.	Plant	Quantity (Numbers)
1.	Submerged Plants	20397
2.	Shrub	37400
3.	Native Trees	8055

Figure 7: Google earth image showing Masaniya lake

Figure 8: Various Work Components Proposed under Masaniya Lake Restoration

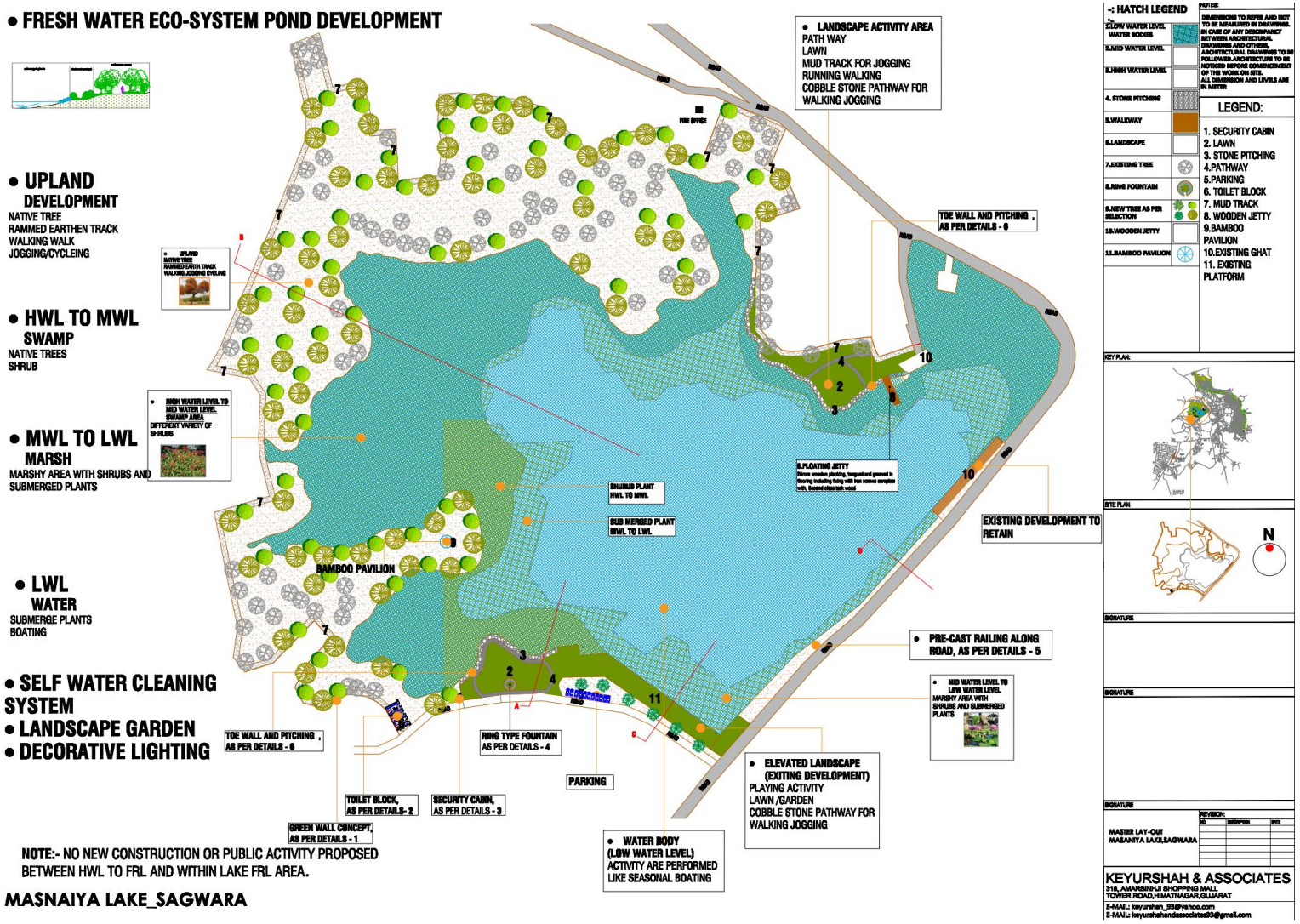


Figure 9: Google earth image Showing Lohariya lake

Figure 10: Proposed developments at Lohariya lake

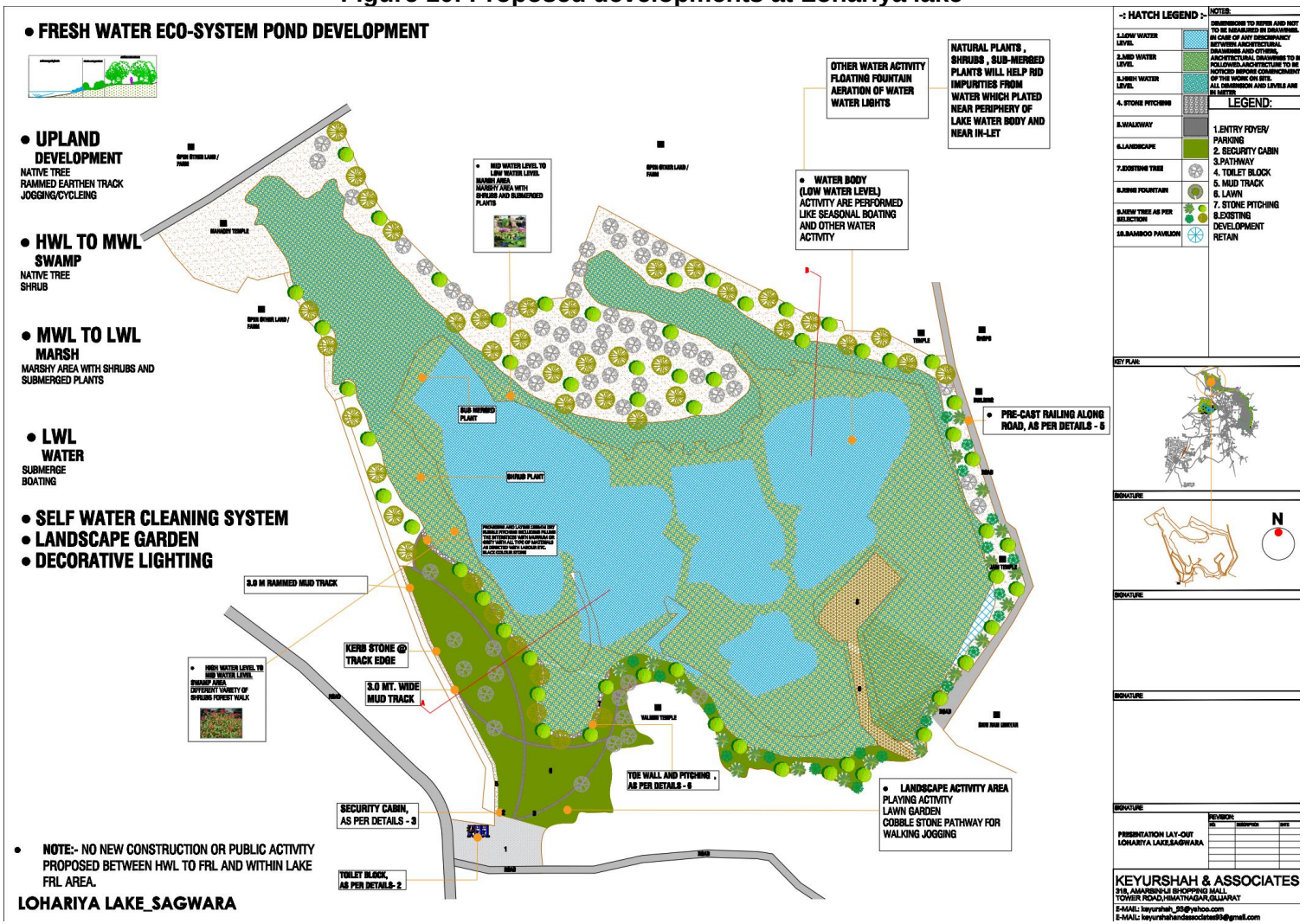


Figure 11: Google earth image Showing Hariyala Lake and nearby area

Figure 12: Various work components under Hariyala Lake restoration

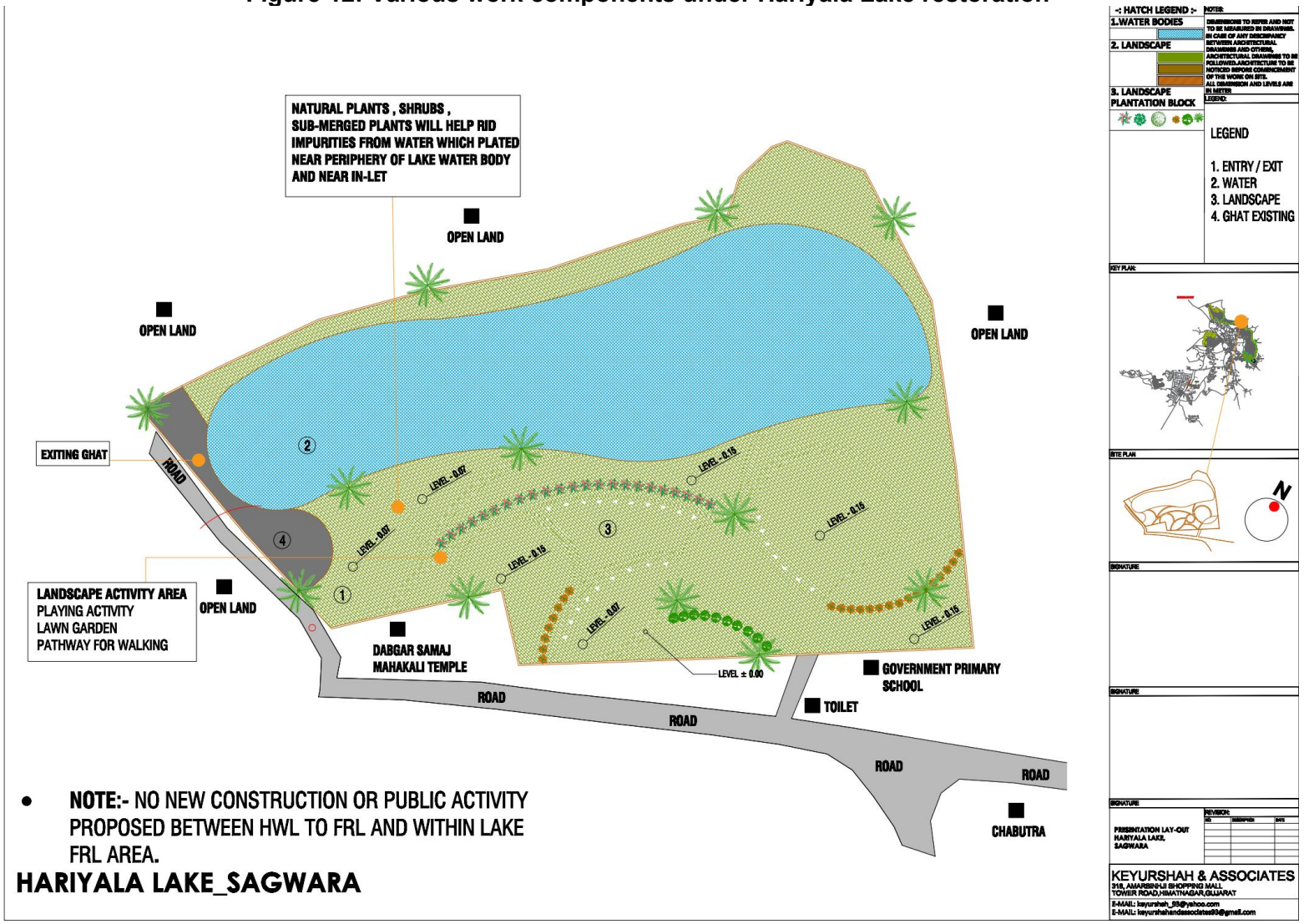


Figure 13: Google earth Image of Gamariya Lake-02 lake and nearby area

Figure 14: Various work components under Gamariya Lake-02 restoration

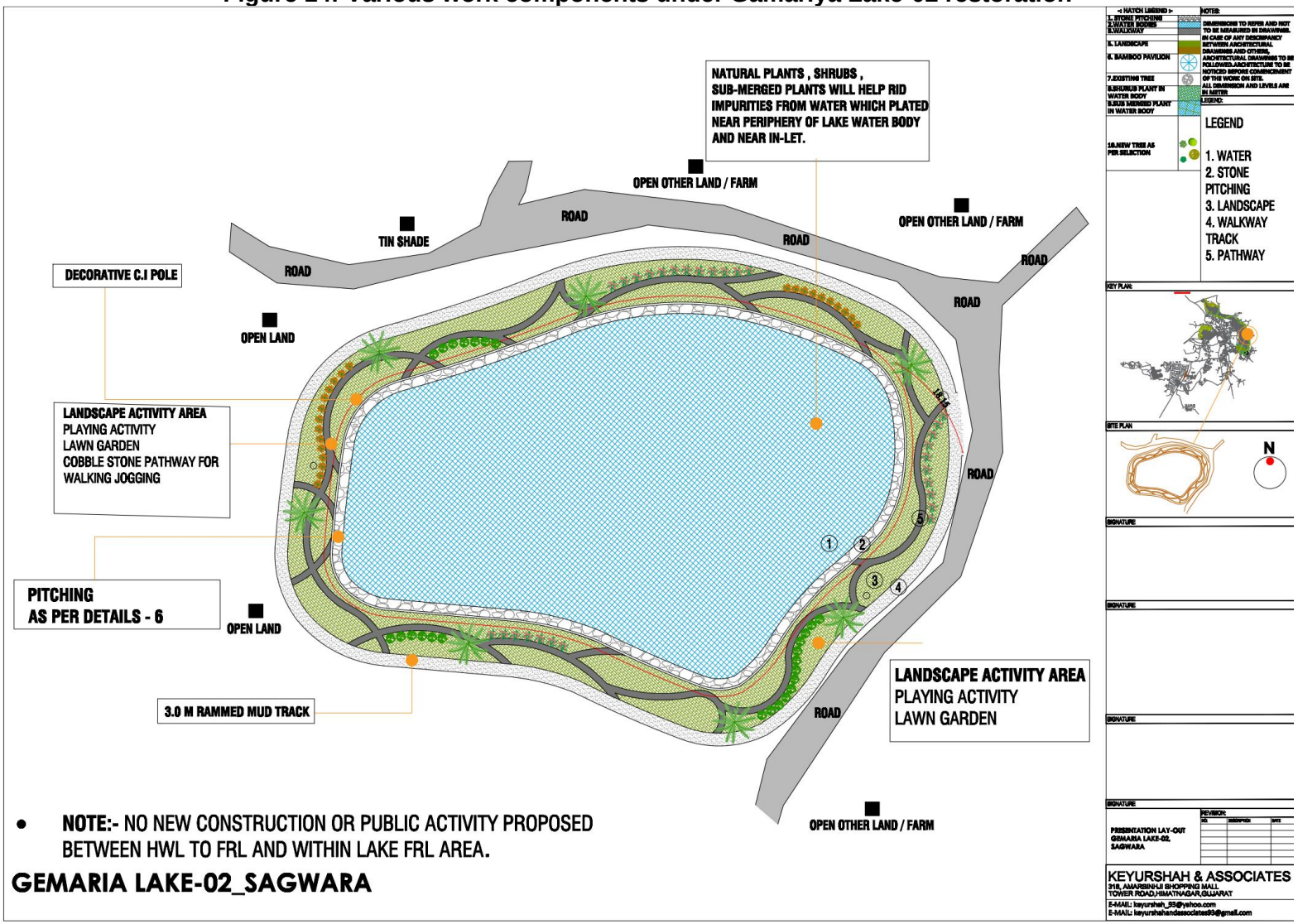


Figure 15: Google earth Image Showing Gamariya Lake-01 and nearby area

Figure 16: Various work components under Gamariya Lake-01 restoration

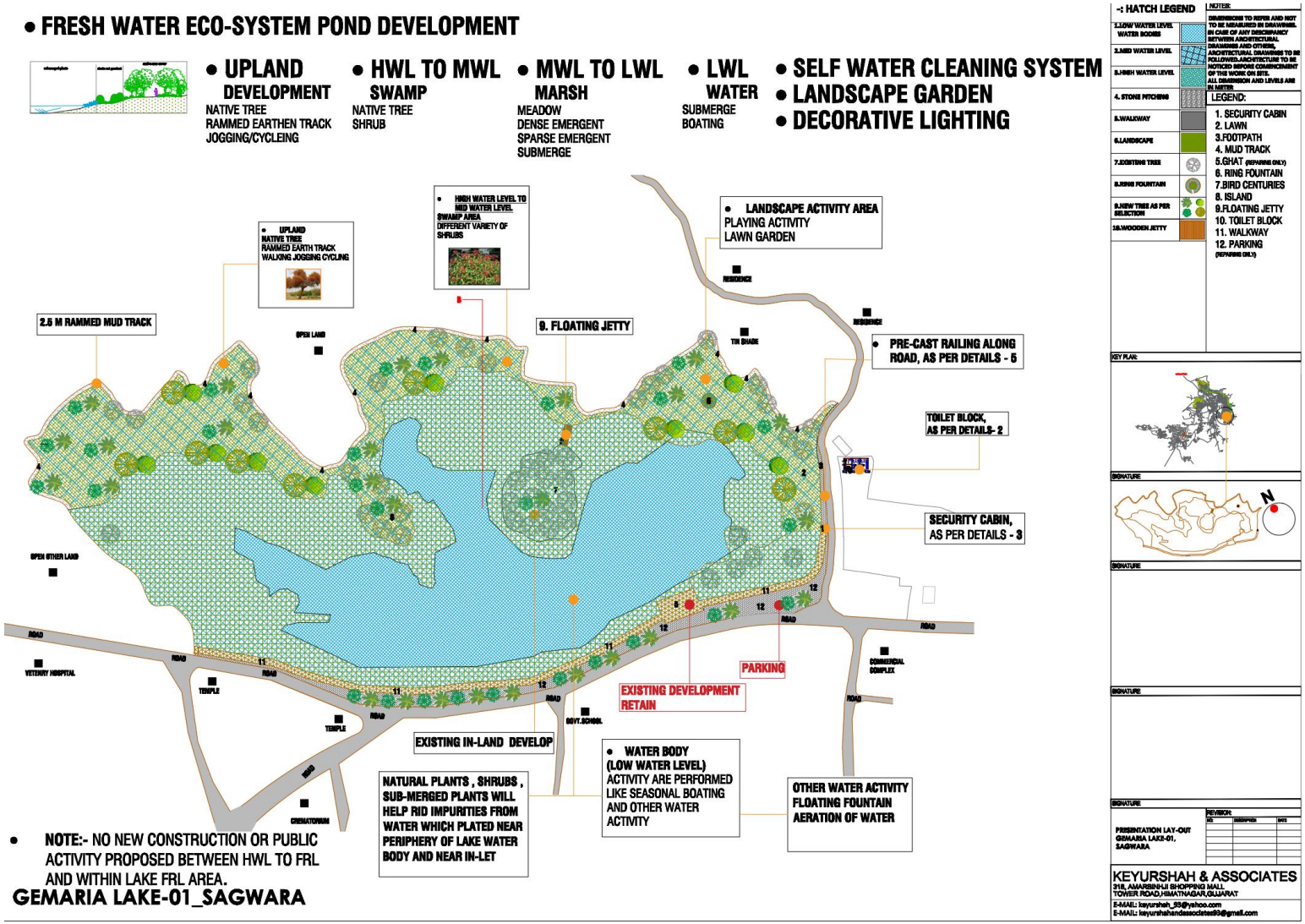


Figure 17: Google earth Image of Playground and nearby area

Figure 18: Proposed development plant for Playground

Figure 19: Section of Volleyball court

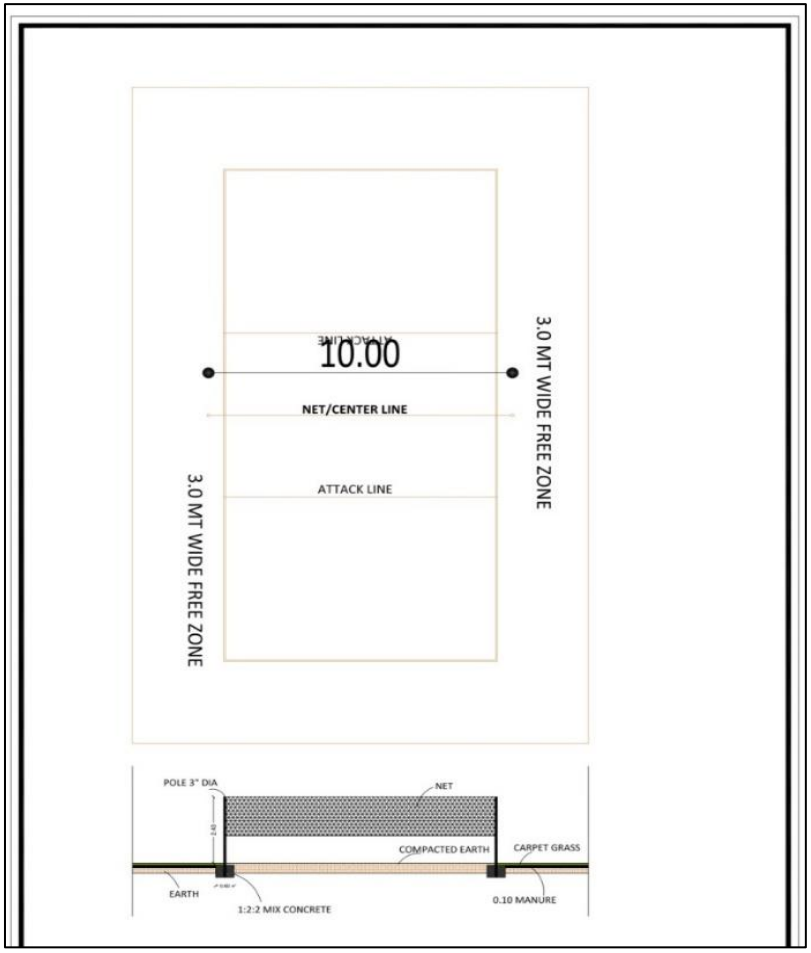


Figure 20: Section of Tennis court

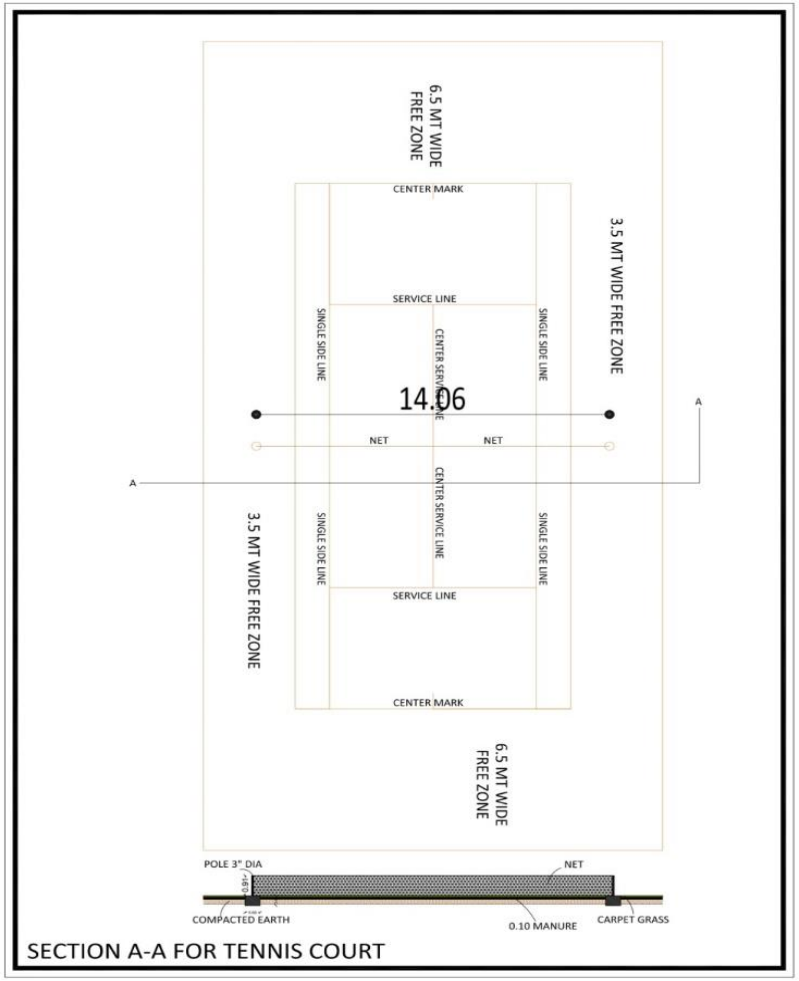
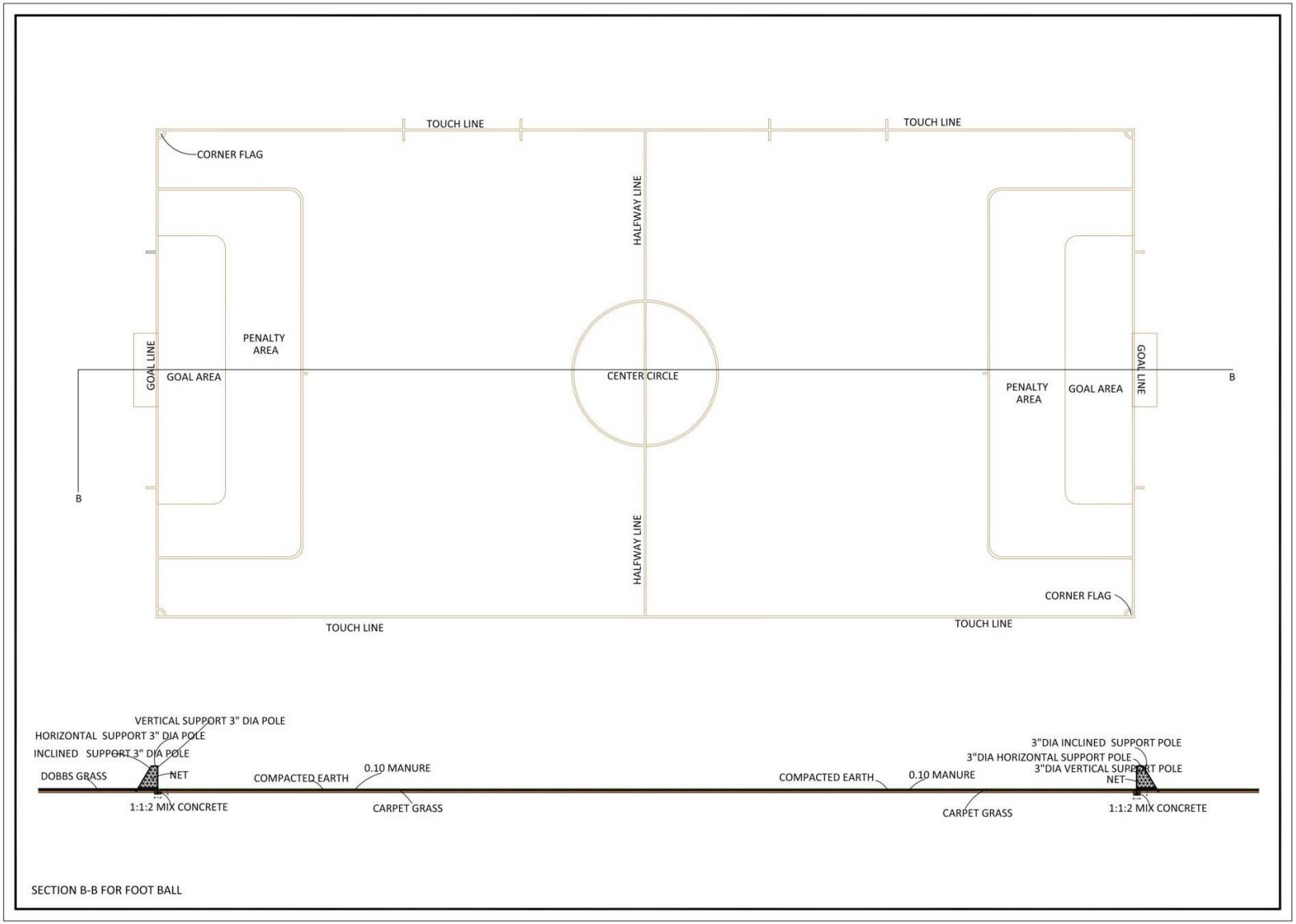


Figure 21: Section of Football Ground



B. Subproject Benefits

29. The subproject is primarily designed to restore the five lakes of Sagwara and interconnect them in a series to maximize storage and efficient discharge of surplus water during floods. Following benefits are envisaged from subproject; (i) interconnecting of lakes will also help in improving the water quality of lake waters as the link channel is designed applying ecosystem approach and while water travels through the link channel it will get filtered in channel bed sediments. (ii) the Lake front development and beautification of lakes will develop new venues of recreation for the people and improve the lakefront infrastructure including lighting, plantation, providing street furniture and other amenities. (iii) development of playground will provide sport opportunity to the student and youth. (iv) above all restoration and landscaping in five lakes will restore the five wetlands and protect any future encroachment (V) implementation of subproject will improve the water quality and ecosystem health of five lakes of Sagwara. These all developments would be on ecosystem-based solution.

C. Implementation Schedule

30. Design and estimates are prepared for the subproject and bids are invited in December 2022 for the subproject to be implemented under the small works modality. After evaluation of Bids work may be awarded to successful bidder up to March/ April 2023. Project duration of construction is 18 months. After completion of construction, it will be handed over to Municipal Council, Sagwara for maintenance.

III. ANALYSIS OF ALTERNATIVES

31. **No Project Alternative**: The 'No project scenario' is analysed with respect to the development of Five Lakes of Sagwara Lakefront in Sagwara City as a requirement of restoration of wetlands and to improve their water quality, ecosystem health and protection from any encroachment in future. Creation of new venues of recreational opportunity for citizens of Sagwara and consequent well-being of its citizens is another objective of subproject. Implementation of project will enhance the aesthetics and increase the number of visitors to the place. If the subproject is not implemented, it is very likely that the lakes and their water quality and ecosystem health will further deteriorate in further. Also, the subproject aims to create new recreational areas and sports ground In Sagwara and in absence of the same there will be less opportunity for citizens for recreation and less opportunity for students and youth for sports activities. the absence of the proposed subproject, Sagwara Municipal Council (SMC) will also find it difficult to generate revenue. Therefore, 'project with alternatives' scenario, with its little or no adverse impacts is more acceptable than 'No project scenario' which would mean an aggravation of the existing problems. Potential benefits of the proposed project are substantial and far reaching both in terms of the geographical spread and time.

32. **With Project Alternative**: Alternatives in terms of location (alignment) option is not available as the project is about restoration and interlinking of existing lakes. With the project, the existing area will restore the lake and their ecosystem and will help in flood mitigation and provide sports opportunity to student and youth. It will become more interactive place for citizens and will improve the visitors to the place. Therefore, this is a timely required project to restore the lakes of Sagwara and protect them from any encroachment, help flood mitigation, develop green area and facilitate the socioeconomic development of the Sagwara city and ultimately for the development of the country.

IV. POLICY, LEGAL AND ADMINISTATIVE FRAMEWORK

A. ADB Safeguard Policy

33. ADB SPS Requires that during the design, construction, and operation of the project necessary compliance to all applicable laws and international conventions / treaties along with pollution prevention and control technologies and practices consistent with international good practice, are ensured.

34. ADB uses a classification system to reflect the significance of a project's potential environmental impacts. A project's category is determined by the category of its most environmentally sensitive component, including direct, indirect, cumulative, and induced impacts in the project's area of influence. Each proposed project is scrutinized as to its type, location, scale, and sensitivity and the magnitude of its potential environmental impacts. Projects are assigned to one of the following four categories:

(i) Category A. A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An Environmental Impact Assessment (EIA) is required.
(ii) Category B. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE) is required.
(iii) Category C. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.
(iv) (iv)Category FI. A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI.

35. The environmental impacts of redevelopment of Five Lakes of Sagwara subproject have been identified and assessed as part of the planning and design process. An environmental assessment using ADB's REA checklist for City Development (see **Appendix 1**) was conducted, and results of the assessment show that the subproject is unlikely to cause significant adverse impacts. Thus, this IEE has been prepared in accordance with ADB SPS's requirements for environment category B projects.

36. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

37. **Environmental Audit of Existing Facilities.** ADB SPS, 2009 requires an environmental audit, if a subproject involves facilities and/or business activities that already exist or are under construction, including an on-site assessment to identify past or present concerns related to impacts on the environment. The objective of this compliance audit is to determine whether actions were in accordance with ADB's safeguard principles and requirements for borrowers/clients, and to identify and plan appropriate measures to address outstanding compliance issues.

38. **Public Disclosure.** The IEE will be put in an accessible place (e.g., local government offices, libraries, community centres, etc.), and a summary translated into local language for the project affected people and other stakeholders. The following safeguard documents will be put up in ADB's website so that the affected people, other stakeholders, and the public can provide meaningful inputs into the project design and implementation:

(i) For environmental category A projects, a draft EIA report at least 120 days before Board consideration;
(ii) Final or updated EIA and/or IEE upon receipt; and
(iii) Environmental monitoring reports submitted by the PMU during project implementation upon receipt.

39. **Consultation and Participation.** ADB SPS, 2009 requires borrower to conduct meaningful consultation[1] with affected people and other concerned stakeholders, including civil society, and facilitate their informed participation. The consultation process and its results are to be documented and reflected in the environmental assessment report.

40. **Grievance Redress Mechanism.** ADB SPS, 2009 require borrowers to establish a mechanism to receive and facilitate resolution of affected people's concerns, complaints, and grievances about the subproject's performance. The grievance mechanism shall be scaled to the risks and adverse impacts of the subproject.

41. **Monitoring and Reporting.** Borrower shall monitor, measure and document the implementation progress of the EMP. If necessary, the borrower shall identify the necessary corrective actions, and reflect them in a corrective action plan. Borrower shall prepare and submit to ADB semi-annual environmental monitoring reports that describe progress with implementation of the EMP and compliance issues and corrective actions, if any. For subprojects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis until ADB issues a project completion report.

42. **Unanticipated Environmental Impacts.** Where unanticipated environmental impacts become apparent during subproject implementation, ADB SPS, 2009 requires the borrower to update the environmental assessment and EMP or prepare a new environmental assessment and EMP to assess the potential impacts, evaluate the alternatives, and outline mitigation measures and resources to address those impacts.

43. **Occupational Health and Safety.** ADB SPS, 2009 requires the borrower[2] to ensure that workers[3] are provided with a safe and healthy working environment, taking into account risks inherent to the sector and specific classes of hazards in the subproject work areas, including physical, chemical, biological, and radiological hazards. Borrower shall take steps to prevent

[1] Per ADB SPS, 2009, meaningful consultation means a process that (i) begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle 1; (ii) provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people; (iii) is undertaken in an atmosphere free of intimidation or coercion; (iv) is gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and (v) enables the incorporation of all relevant views of affected people and other stakeholders into decision making, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

[2] In case where responsibility is delegated to subproject contractors during construction phase, borrower shall ensure that the responsibilities on occupational health and safety are included in the contract documents.

[3] Including nonemployee workers engaged by the borrower/client through contractors or other intermediaries to work on project sites or perform work directly related to the project's core functions.

accidents, injury, and disease arising from, associated with, or occurring during the course of work, including: (i) identifying and minimizing, so far as reasonably practicable, the causes of potential hazards to workers; (ii) providing preventive and protective measures, including modification, substitution, or elimination of hazardous conditions or substances; (iii) providing appropriate equipment to minimize risks and requiring and enforcing its use; (iv) training workers and providing them with appropriate incentives to use and comply with health and safety procedures and protective equipment; (v) documenting and reporting occupational accidents, diseases, and incidents; and (vi) having emergency prevention, preparedness, and response arrangements in place.

44. **Community Health and Safety.** ADB SPS, 2009 requires the borrower to identify and assess risks to, and potential impacts on, the safety of affected communities during the design, construction, operation, and decommissioning of the subproject, and shall establish preventive measures and plans to address them in a manner commensurate with the identified risks and impacts.

45. **Physical Cultural Resources.** Borrower is responsible for siting and designing the subproject to avoid significant damage to physical cultural resources. ADB SPS, 2009 requires that such resources likely to be affected by the subproject are identified, and qualified and experienced experts assess the subproject's potential impacts on these resources using field-based surveys as an integral part of the environmental assessment process. When the proposed location of a subproject component is in areas where physical cultural resources are expected to be found as determined during the environmental assessment process, chance finds procedures shall be included in the EMP.

46. **ADB SPS International Best Practice Requirements**. ADB SPS, 2009 requires that, during the design, construction, and operation of the project, the executing agency shall apply pollution prevention and control technologies and practices that are consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety (EHS) Guidelines. (IFC's General EHS Guidelines[4] and Sector Specific [Water and Sanitation] Guidelines[5]). These standards contain performance levels and measures that are normally acceptable and applicable to projects. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Government of India regulations differ from these levels and measures, the PMU and PIUs will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the PMU and PIUs will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS, 2009.

B. National Laws

47. The implementation of the subprojects will be governed by Government of India and State of Rajasthan and other applicable environmental acts, rules, regulations, and standards. These regulations impose restrictions on the activities to minimize or mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether applicable international, national,

[4] https://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES

[5] https://www.ifc.org/wps/wcm/connect/e22c050048855ae0875cd76a6515bb18/Final%2B%2BWater%2Band%2BSanitation.pdf?MOD=AJPERES

state or municipal or local. Key standards include those related to drinking water quality, air quality, effluent discharge, and protected areas. Compliance is required in all stages of the subprojects including design, construction, and operation and maintenance.

48. **Environmental assessment.** The Government of India EIA Notification of 2006 (replacing the EIA Notification of 1994) sets out the requirement for environmental assessment in India. This states that environmental clearance is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorized as A or B depending on the scale of the project and the nature of its impacts.

49. **Category A** projects requires environmental clearance from the central Ministry of Environment, Forests and Climate Change (MOEFCC). The proponent is required to provide preliminary details of the project in the prescribed manner with all requisite details, after which an Expert Appraisal Committee (EAC) of the MOEFCC prepares comprehensive terms of reference (TOR) for the EIA study. On completion of the study and review of the report by the EAC, MOEFCC considers the recommendation of the EAC and provides the environmental clearance if appropriate.

50. **Category B** projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA). The State level EAC categorizes the project as either B1 (requiring EIA study) or B2 (no EIA study) and prepares TOR for B1 projects within 60 days. On completion of the study and review of the report by the EAC, the SEIAA issues the environmental clearance based on the EAC recommendation. The Notification also provides that any project or activity classified as category B will be treated as category A, if it is located in whole or in part within 10 km from the boundary of protected areas, notified areas or inter-state or international boundaries.

51. None of the components of this Five Lakes of Sagwara Lake Redevelopment subproject falls under the ambit of the EIA Notification 2006, and therefore EIA Study or environmental clearance is not required for the subproject.

52. Rajasthan Lake (Protection and Development) Authority: Lakes of Sagwara are not notified by Rajasthan Lake (Protection and Development) Authority.

C. Environmental Regulatory Compliance

53. Applicable environmental regulations. Besides EIA Notification 2006, there are various other acts, rules, policies and regulations currently in force in India that deal with environmental issues that could apply to infrastructure development. The specific regulatory compliance requirements of the subproject are shown in Table 4.

Table 4: Applicable Environmental Regulations

Law	Description	Requirement	Relevance to Project Phase
National Environment Policy (NEP), 2006.	NEP is a comprehensive guiding document in India for all environmental conservation programs and legislations by Central, State and Local Government. The dominant theme of this policy is to promote betterment of livelihoods without compromising or degrading the environmental resources. The policy also advocates collaboration method of different stakeholders to harness potential resources and strengthen environmental management.	RSTDSP should adhere to NEP principle of "enhancing and conservation of environmental resources and abatement of pollution".	All phases of project
Rajasthan State Environment Policy, 2010 And Rajasthan Environment Mission and Climate Change Agenda for Rajasthan (2010-14)	Follows the National Environment Policy, 2006 and core objectives and policies are: -Conserve and enhance environmental resources; assure environmental sustainability of key economic sectors; and, improve environmental governance and capacity building - it recommends specific strategies and actions to address the key environmental issues: water resources, desertification and land degradation, forest and biodiversity, air quality, climate change: adoption and mitigation, mining, industry, tourism, energy, urban development, etc. - Establishment of Environment Mission under the chairpersonship of the Chief Minister and a Steering Committee under the chairpersonship of Chief Secretary, Government of Rajasthan Tasks force set up for six key areas	Project implementation should adhere to the policy aims of: conservation and enhancement of environmental resources, integration of environmental concerns into projects/plans, and capacity building in environmental management. Relevant recommendations for the project include control of losses, integrated water resources management, control of raw water pollution[18], reuse and recycling. Avoid/minimize use of forest lands. With reference to climate change adoption and mitigation following should be considered in the project: (i) diminishing flows in surface water bodies, and groundwater depletion, and revival traditional water bodies as water sources (lakes/tanks); (ii) equal stress on demand side management in water; and (iii) minimize energy use - design energy efficiency systems.	All phases of project

Law	Description	Requirement	Relevance to Project Phase
EIA Notification,2006	Projects indicated in the schedule of this notification require EIA study and environmental clearance.	None of the components of this subproject falls under the ambit of the notification; no EIA study or environmental clearance required	Not applicable
Central Ground Water Authority Public Notice 2/100	Public Notice specifies districts and areas where there are restrictions on the construction and installation of any new structure for extraction of groundwater resources without specific approval from the CGWA	Subprojects belonging to the Notified Areas in the Public Notice and will require new structures on extracting groundwater should seek the permission from the Central Groundwater Authority	Not applicable
Public Health Engineering Department Office Order P5 (1) PHE-2010 dated July 14 2020	PHED Office Order states that the State Government is instructed that permits for any new tube wells, bore wells or any structures extracting ground water shall be secured from the District Collector	Subprojects with components shall secure permits from the District Collector for components that include any new tube wells, bore wells or structures extracting groundwater	Not applicable
Guidelines for compensatory tree plantation in RUIDP works – Circular 10 dated 13.04.2018	Official Guidelines for Compensatory tree plantation in RUIDP work	Subprojects involving tree cutting to follow guidelines setup in RUIDP's Circular – 10, for compensatory plantation, trees specification, post plantation care etc.	Construction and Operation
Water (Prevention and Control of Pollution) Act of 1974, Rules of 1975, and amendments (1987)	Act was enacted to provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water, by Central and State Pollution Control Boards and for conferring on and assigning to CPCB/SPCBs powers and functions relating to water pollution control. Control of water pollution is achieved through administering conditions imposed in consent issued under provision of the Water (Prevention and Control of Pollution) Act of 1974. These conditions regulate the quantity and quantity of effluent, the location of discharge and the frequency of monitoring of effluents. Any component of the subproject having the potential to generate	None of the components of this subproject falls under the ambit of the notification; no consent is required from RSPCB	Not applicable

Law	Description	Requirement	Relevance to Project Phase
	sewage or trade effluent will come under its purview. Such projects have to obtain Consent to establish (CTE) under Section 25 of the Act from Rajasthan State Pollution Control Board (RSPCB) before starting implementation and Consent to Operate (CTO) before commissioning.		
Air (Prevention and Control of Pollution) Act of 1981, Rules of 1982 and amendments.	This Act was enacted to achieve prevention, control and abatement of air pollution activities by assigning regulatory powers to Central and State boards for all such functions. The Act also establishes ambient air quality standards. The projects having potential to emit air pollutants into the atmosphere have to obtain CTE and CTO under Section 21 of the Act from RSPCB. The occupier of the project/facility has the responsibility to adopt necessary air pollution control measures for abating air pollution.	The following will require CTE and CTO from RSPCB: (i) Diesel generators (more than 15 KVA); (ii) Batching Plant hot mix plants; and (iii) stone crushers, if installed for construction. All relevant forms, prescribed fees and procedures to obtain the CTE and CTO can be found in the RSPCB website (http://environment.rajasthan.gov.in) If ready mix concrete and hot mix bitumen is procured from third party, contractor has to ensure that the plants, from where material is being purchased is having CTE/CTO and copy should be collected from third party and submitted in PIU	Construction
Biodiversity Act of 2002	This Act primarily addresses access to genetic resources and associated knowledge by foreign individuals, institutions or companies, to ensure equitable sharing of benefits arising out of the use of these resources and knowledge to the country and the people.	Not Applicable	Not applicable
Wildlife Protection Act, 1972 and amendment 1991	This overarching Act provides protection to wild animals, birds, plants and matters connected with habitat protection, processes to declare protected areas, regulation of wildlife trade, constitution of state and national board for wildlife, zoo authority, tiger conservation authority, penalty clauses and other important regulations.	None of the components of the subproject are located within the protected Area. Therefore, this act is not applicable.	Not Applicable

Law	Description	Requirement	Relevance to Project Phase
Forest (Conservation) Act, 1980	The Forest (Conservation) Act prohibits the use of forest land for non-forest purposes without the approval of Ministry of Environment Forests & Climate Change (MoEFCC), Government of India	Not applicable; none of the components of the subproject are located in forest.	Not Applicable
Environmental (Protection) Act, 1986 amended in 1991 and the following rules/notifications:	This is an "umbrella" legislation that empowers the Central Government to take all necessary measures to protect and improve the quality of the environment and prevent, control and abate environmental pollution. Empowers central government to enact various rules to regulate environmental pollution, including standards for quality of air, water, noise, soil; discharge standards or allowable concentration limits for environmental pollutants, handling of hazardous substances, locating/prohibiting industries, etc.,	There are rules / notifications that have been brought out under this Act, which are relevant to RSTDSP, and are listed below	Construction
Environmental Standards (ambient and discharge).	Emissions and discharges from the facilities to be created or refurbished or augmented shall comply with the notified standards	**Appendix C-2** provides ambient air quality standards; **Appendix C-5** provides emission limits for vehicle exhaust and **Appendix C-3** provides emission limits of DG sets and **Appendix C-4** provided emission stack height requirements for diesel generators	Construction
Noise Pollution (Regulation and Control) Rules, 2000 amended up to 2010.	Rule 3 of the Act specifies ambient air quality standards in respect of noise for different areas/zones.	**Appendix C-6** provides applicable noise standards	Construction
Solid Waste Management Rules 2016	Responsibility of Solid Waste Generator segregate and store the waste generated in three separate streams namely bio-degradable, non- biodegradable and domestic hazardous wastes in suitable bins and handover segregated wastes to authorized waste pickers or waste collectors as per the direction or notification by the local authorities from time to time; store separately construction and demolition waste, as and when generated, in his own premises and shall dispose off as per the Construction and Demolition Waste Management Rules, 2016; (iii) No waste generator shall throw, burn or burry the solid waste generated by him, on streets, open public spaces outside his premises or in the drain or water bodies.	Contractor to follow all the rules during construction works	Construction

Law	Description	Requirement	Relevance to Project Phase
Construction and Demolition Waste Management Rules 2016	I Every waste generator shall segregate construction and demolition waste and deposit at collection centre or handover it to the authorized processing facilities II Shall ensure that there is no littering or deposition so as to prevent obstruction to the traffic or the public or drains III Large generators (who generate more than 20 tons or more in one day or 300 tons per project in a month) shall submit waste management plan and get appropriate approvals from the local authority before starting construction or demolition or remodelling work, IV Large generators shall have environment management plan to address the likely environmental issues from construction, demolition, storage, transportation process and disposal / reuse of C & D Waste. V Large generators shall segregate the waste into four streams such as concrete, soil, steel, wood and plastics, bricks and mortar, VI Large generators shall pay relevant charges for collection, transportation, processing and disposal as notified by the concerned authorities;	Disposal site shall be identified and allotted by Municipal Council after mobilization of contractor (during SIP period) and can't be mentioned at this time. Contractor to follow all the rules during construction works. Sludge or any material if classified as hazardous waste / material is to be handled and disposed according to this Rules	Construction
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016,	Responsibilities of the occupier for management of hazardous and other wastes - (1) For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:- (a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery, utilization including co-processing; (f) safe disposal. (2) The occupier shall be responsible for safe and environmentally sound management of hazardous and other wastes. (3) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorized actual user or shall be disposed of in an authorized disposal facility. (4) The hazardous and other wastes shall be transported from an occupier's establishment to an authorized actual user or to an authorized disposal facility in accordance with the provisions of these rules. (5) The occupier who intends to get its hazardous and other wastes treated and disposed of by the operator of a treatment, storage and disposal facility shall give to the operator of that facility, such specific information as may be needed for safe storage and disposal. (6) The occupier shall take all the steps while managing hazardous and other wastes to- 6 (a) contain contaminants and	Contractor to comply all the requirements of this Act during construction works.	Construction

Law	Description	Requirement	Relevance to Project Phase
	prevent accidents and limit their consequences on human beings and the environment; and (b) provide persons working in the site with appropriate training, equipment and the information necessary to ensure their safety.		
Wetlands (Conservation and Management) Rules, 2017	The Rules specify activities which are harmful and prohibited in the wetlands such as industrialization, construction, dumping of untreated waste and effluents, and reclamation. The Central Government may permit any of the prohibited activities on the recommendation of Central Wetlands Regulatory Authority.	Not applicable as subprojects components are not located in or near to designated wetland area.	Not applicable
Ancient Monuments and Archaeological Sites and Remains Act, 1958 and Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010.	The Act designates areas within 100 meters (m) of the "protected monument/area" as "prohibited area" and beyond that up to 200 m as "regulated area" respectively. No "construction" is permitted in the "prohibited area" and any construction activity in the "regulated area" requires prior permission of the Archaeological Survey of India (ASI).	No ASI Monuments falls under impact area of any of the component of this project.	Not applicable
The Rajasthan Monuments, Archaeological Sites and Antiquities Act, 1961; the Rajasthan Monuments, Archaeological Sites and Antiquities (amendment) Act 2007	Any construction/excavation work in the 'protected area' (as declared by GoR under the Act) requires prior permission of Department of Archaeology & Museums -Application under the Rules shall be submitted to Director, State Archaeological Department, at least 3 months prior to the work. Department provides conditional permission, including time for completion, procedures to be followed during the work and for chance finds..	Not applicable - there are no state protected monuments in the town	Not applicable
The Building and Other	**Employer shall-** 1. Provide and maintain, at suitable point, sufficient quantity	Contractors are required to follow all the provisions of BOCW Act and	Construction

Law	Description	Requirement	Relevance to Project Phase
Construction Workers (BOCW) Act 1996 and Rajasthan Building and Construction Workers Rules 2009	of wholesome drinking water, such point shall be at least 6 meters away from any washing areas, urinals or toilets 2. Provide sufficient urinals and latrines at convenient place, easily accessible by workers 3. Provide free of charge, temporary living accommodations near to work sites with separate cooking place, bathing and lavatory facilities and restore the site as preconditions after completing the construction works 4. Provide crèche with proper accommodation, ventilation, lighting, cleanliness and sanitation if more than fifty female workers are engaged 5. Provide first aid facilities in all construction sites **For safety of workers employer shall provide-** 6. Safe access to site and workplace 7. Safety in demolition works 8. Safety in use of explosives 9. Safety in operation of transporting equipment and appoint competent person to drive or operate such vehicles and equipment 10. Safety in lifting appliance, hoist and lifting gears 11. Adequate and suitable lighting to every workplace and approach 12. Prevention of inhalation of dust, smoke, fumes, gases during construction works and provide adequate ventilation in workplace and confined space 13. Safety in material handling and stacking/un stacking 14. Safeguarding the machinery with fly-wheel of moving parts 15. Safe handling and use of plants operated by compressed air 16. Fire safety 17. Limit of weight to be lifted by workers individually 18. Safety in electric wires, apparatus, tools and equipment 19. Provide safety net, safety sheet, safety belts while working at height (more than 1.6 m as per OSHA) 20. Providing scaffolding, ladders and stairs, lifting appliances, chains and accessories where required 21. Safety in pile works, concrete works, hot asphalt, tar, insulation, demolition works, excavation, underground construction and handling materials	Rajasthan BOCW Rules. Salient features of Rajasthan BOCW Rules are- Chapter III, section 17- Registration of establishments Chapter VIII, section 61- Hours of works, intervals or rest and spread over, overtime Section 62- weekly rest Section 63- night shift Section 67- registers of workers Section 68- Muster roll, wages register Section 70- latrine and urinal facilities Chapter XI- Safety and Health Section 78- fire protection Section 79- emergency action plan Section 80- fencing of motors Section 81- lifting and carrying of weight Section 82- H&S policy Section 83- dangerous and harmful environment Section 84- Overhead protection Section 88- eye protection Section 89- PPEs Section 90- electrical hazards Section 97- use of safety helmets and shoes Chapter XIII-lifting appliances and gears Chapter XV- transport and earth moving equipment Chapter XVI- concrete works Chapter XVII- demolition works Chapter XVIII-Excavation and 39 tunnelling	

Law	Description	Requirement	Relevance to Project Phase
	22. Provide and maintain medical facilities for workers 23. Any other matters for the safety and health of workers	Chapter XX- ladders and step ladders Chapter XXII- structural frame and formworks Chapter XXIV- medical facilities and first aid box	
Contract Labor (Regulation and Abolition) Act, 1970; The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979	Provides for welfare measures to be provided by the Contractor to contract labor and in case the Contractor fails to provide, the same are required to be provided by the Principal Employer by Law. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishments or Contractor of principal employer if they employ 20 or more contract labor. The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.,	Applicable to all construction works in the project Principle employer (RUDSICO-EAP) to obtain Certificate of Registration from Department of I, as principle employer Contractor to obtain license from designated labor officer Contractor shall register with Labor Department, if Inter-state migrant workmen are engaged Adequate and appropriate amenities and facilities shall be provided to workers including housing, medical aid, traveling expenses from home and back, etc., **Appendix C-12** provides applicable labor laws including amendments issued from time to time applicable to establishments engaged in construction of civil works.	Construction
The Child Labour (Prohibition and Regulation) Act, 1986	Prohibits employment of children below 14 years of age in certain occupations and processes Employment of child labor is prohibited in building and construction Industry.	No child labour should be employed	Construction
Minimum Wages Act, 1948	Minimum wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads and runways are scheduled employment.	Applicable to all construction works in the project All construction workers should be paid not less than the prescribed	Construction

Law	Description	Requirement	Relevance to Project Phase
		minimum wage	
Workmen Compensation Act, 1923	Provides for compensation in case of injury by accident arising out of and during the course of employment.	Compensation for workers in case of injury by accident	Construction
Equal Remuneration Act, 1979	Provides for payment of equal wages for work of equal nature to male and female workers and not for making discrimination against female employees in the matters of transfers, training and promotions etc.	Equal wages for work of equal nature to male and female workers	Construction
Rajasthan Forest Act, 1953 and Rajasthan Forest Rules, 1962	This Act makes the basis for declaration of Reserved Forests, constitution of village forest committees, management of reserved forests and penalties and procedures.	Not applicable; none of the components / pipeline alignment are in reserved or community forest areas.	Construction
International conventions and treaties			
Ramsar Convention, 1971	The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources. India is one of the signatories to the treaty. The Ramsar convention made it mandatory for the signatory countries to include wetland conservation in their national land use plans.	There are no Ramsar sites in or near Sagwara.	Not applicable
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973	India is a signatory of this convention which aims to control international commercial trade in endangered species	Not applicable in this project as no endangered species of wild fauna and flora is found in project area.	Not Applicable
Montreal Protocol 1992	India is a signatory of this convention which aims to reduction in the consumption and production of ozone-depleting substances (ODS), while recognizing differences in a nation's responsibilities. Ozone depleting substances are divided in two groups Chlorofluorocarbons (CFCs) and Hydrochlorofluorocarbons (HCFCs)	Not applicable in this project as no ODS are involved in construction works	Not applicable
Basel Convention on Trans-boundary Movement of	India is a signatory of this convention which aims to reduce trans-boundary movement and creation of hazardous wastes	Contractor to follow the provisions of Hazardous Waste Rules 2016 for storage, handling, transport and	Not applicable

Law	Description	Requirement	Relevance to Project Phase
Hazardous Wastes, 1989		disposal of hazardous waste emerged during construction works Under this Convention, asbestos or asbestos waste in the form of dust and fibres is classified as hazardous waste.	
Convention on Migratory Species of Wild Animals (CMS), 1979 (Bonn convention)	CMS, also known as Bonn convention, was adopted in 1979 and entered into force on 1 November 1983, which recognizes that states must be the protectors of migratory species that live within or pass through their national jurisdictions, and aims to conserve terrestrial, marine and avian migratory species throughout their ranges. Migratory species threatened with extinction are listed on Appendix I of the Convention. CMS Parties strive towards strictly protecting these species, conserving or restoring the places where they live, mitigating obstacles to migration and controlling other factors that might endanger them. Migratory species that need or would significantly benefit from international cooperation are listed in Appendix II, and CMS encourages the Range States to conclude global or regional agreements.	Not applicable to this project as no migratory species of wild animals are reported in the project areas.	Not applicable

54. **Clearances / permissions to be obtained prior to start of construction**. **Table** 5 shows the list of clearances/permissions required for project construction. This list is indicative, and the contractor should ascertain the requirements prior to start of the construction, and obtain all necessary clearances/permission prior to start of construction.

Table 5: Clearances and permissions required for Construction activities

S. No	Construction Activity	Statute under which Clearance is Required	Implementation
1.	Land for project activity	Allotment and approval for specific land use	ULB
2.	Establishment of construction camps	Allotment and approval for specific land use	Contractor
3.	Tree Cutting	State forest department/Revenue (Tehsildar)	PIU
4.	Hot mix plants, Crushers, Batching plants and DG Set	Consent to establish and consent to operate under Air Act, 1981 from RSPCB	Contractor
5.	Storage, handling and transport of hazardous materials	Hazardous Wastes (Management and Handling) Rules. 2016 Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989 from RSPCB	Contractor
6.	Sand mining, quarries and borrow areas	Permission from District Collector/ State Department of Mines & Geology	Contractor
7.	New quarries and borrow areas	Environmental clearance under EIA Notification 2006	Contractor
8.	Use of vehicles and equipment	Pollution under control certificate (PUC) form RTO	Contractor
9.	Temporary traffic diversion measures	Temporary traffic diversion measure including use of alternate road from District traffic police	Contractor

55. PMU will be overall responsible for supervision in getting all clearances and provide details to ADB through semi-annual report. PMU will ensure all necessary regulatory clearances and approvals are obtained prior to commencement of works. Respective PIUs, with support of project consultants and contractors, are responsible for obtaining the clearances/permits and ensuring conditions/specifications/provisions are incorporated in the subproject design, costs, and implementation. The PIUs shall report to PMU the status of compliance to clearances/permits as part of the regular progress reporting.

V. DESCRIPTION OF ENVIRONMENT

A. Physical Resources

1. Location, Area & Connectivity

56. Sagwara is a city and a municipality in Dungarpur district in the Indian state of Rajasthan. Sagwara is located at 23.68°N 74.02°E. The elevation is 244 m above MSL. The geographical area of the city is about 7.68 Sq. Km. Sagwara is famous for sculpture, marble carving, temple architecture and gold jewellery. It is a major trading hub for nearby villages.

Figure 22: Location of Sagwara Town in Rajasthan State Map

2. Topography, Soils and Geology

57. Topography: the district is characterized by low-lying hills intervening with valleys and rocky plains and can be broadly divided in three distinct unit viz. Rocky uplands, Erosional valleys and pediplains. The area is drained by Mahi and its tributaries like Nori, Jakam, Gomti, Saren, Ghorel and Moran. The general topographic elevation in the district is between 200m to 250m above mean sea level in most of the blocks. Elevation ranges from a minimum of 112 m amsl in Simalwara block in the southwestern part of the district to a maximum of 545.6 m amsl In Bichhiwara in north-western part of the district. The Minimum Elevation of Sagwara is 113.2 (m asml) amd Maximum Elevation is 348.5 (m asml).

58. The rugged and wild aspect of the region is attributed to the off shoots of the Aravallis. The district is broken and hilly, but none of the hills attain a great height. The highest peak which is in the extreme northwest is about 572 m above mean sea level and the other highest point 2 km north of Sagwara is 497 m above mean sea level. The lowest point in the district is about 90 m above mean sea level near Solakari village in the bed of Mahi River.

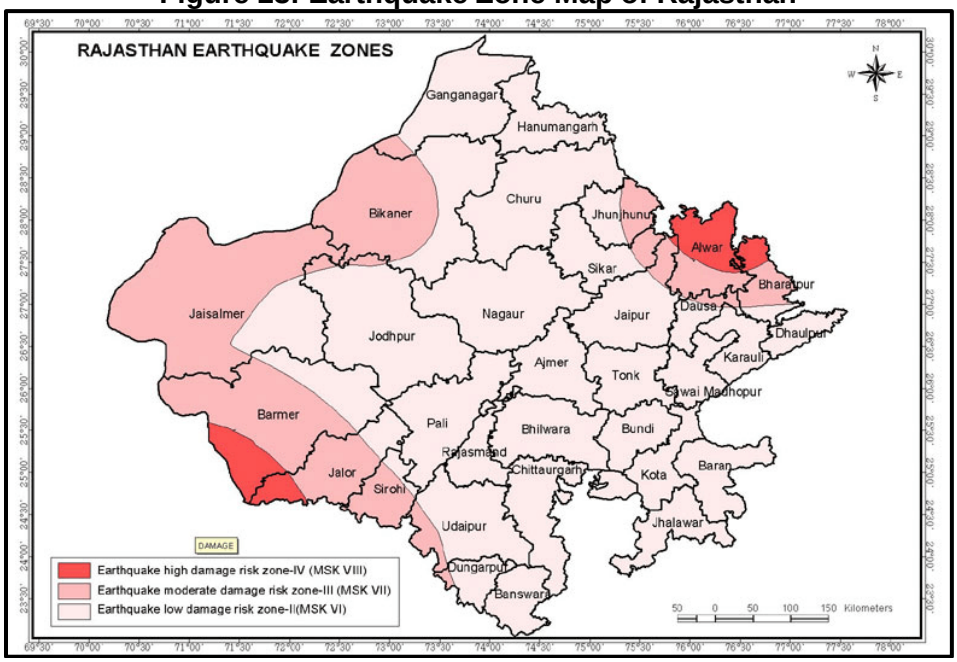
59. **Soil**: There are pre-dominantly two types of soils in the district. Red loam soils are found in the south-eastern parts of the district, adjoining Gujarat border. These are soils of hilly plains (flats) i.e. brought down from nearby hills and deposited in low lying areas. They are characteristically shallow to moderately deep, reddish in colour medium in texture, sandy loam to loam in nature, non-calcareous, granular, well drained, free of salts and may have slight calcareous carbonates in lower layers. Hilly soils are found along the hill ranges of Aravallis in the northern and western parts of the district. These soils are very shallow with gravelly material, very near to the surface. These are in general, light in texture and reddish brown to greyish brown in colour, non-calcareous and freely drained. These extend in small patches on uneven terrain.

60. **Geology:** The district is underlain by mainly hard rock formations belonging to Bhilwara Supergroup and Aravalli Supergroup intruded by granite. Along the major river courses, localized patches of shallow alluvium occur overlying the compact basement.

3. Seismology

61. According to the Vulnerability Atlas of India, most of Dungarpur District, including Sagwara Town, is in an area of low earthquake risk (Zone II). Although Rajasthan has not experienced a major earthquake in the recent past, there have been 37 events with a magnitude of 5-7 since 1720, with the most recent occurring in 2001. This measured 6.9 on the Richter Scale, but because the epicentre was in neighbouring Gujarat, there was only limited damage in Sagwara. Earthquake Zone Map of Rajasthan is shown in **Figure 23.**

Figure 23: Earthquake Zone Map of Rajasthan



4. Climatic Conditions

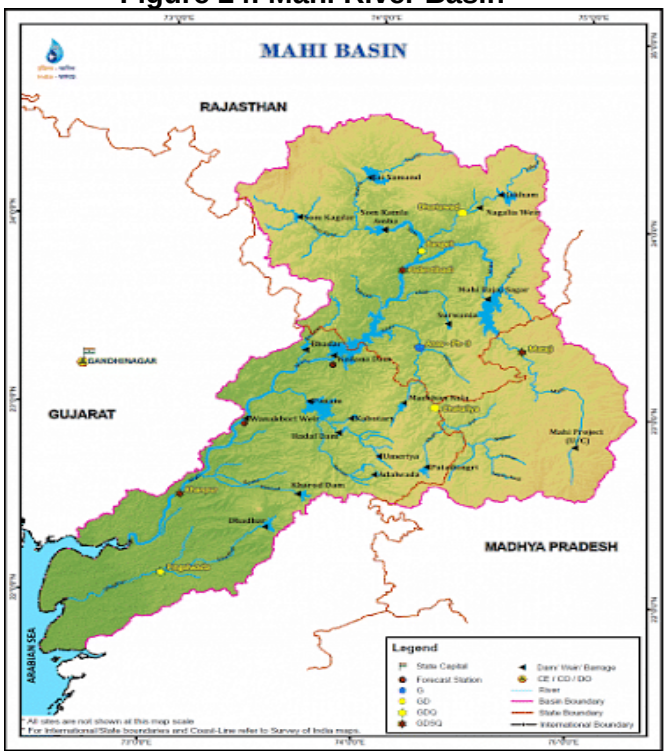
62. The Dungarpur district has a dry climate with a hot season from April to June; however, the climate is milder than in the desert regions of Rajasthan to the north and west. The Climate of Sagwara region is largely dry and maximum temperature rises to 45ºC and average temperature remains around 36 ºC. Monsoon season is spread over months of July to Mid-

September resulting into average annual rainfall of 645.4 mm with relatively lower average temperature of around 32 ºC..

5. Surface Water

63. The district is drained mainly by the rivers Som and Mahi. The Mahi is perineal river of Rajasthan forms the natural boundary between Dungarpur and Udaipur districts and separates Dungarpur district from Banswara district. The Mahi River originates from the Mahi Kanta hills in the western part of Madhya Pradesh and enters Banswara and Dungarpur districts before entering Gujarat near village Salakari. On an average, the riverbed is about 100m to 130 m in width and mostly rocky. Its banks are steep in many parts though not very high. Its length in Dungarpur district is about 110 km. The Som River flows southeast from hills near Bichhabhera in Udaipur district, till it meets the border of Dungarpur district. It then turns first to the east and then to the south forming the northern boundary. After meeting the Jhakham, it enters the Dungarpur district and after traversing for a few km down it meets river Mahi at Baneshwar. The river traverses through the district for a distance of about 84 km. Moran a seasonal river emerges in the central part of the district and flows in the south-eastern direction to find its way into the Mahi. There are various streams like Jhakham, Majhham, Vatrak, Bhader, Gangli, Sapan and Very Ganga. All these dry up during summer. The seasonal nallahas are Nagdari, Phallu, Padar, Mahaya and Kadva Bagaria.

Figure 24: Mahi River Basin



6. Hydrology of Sagwara Lakes

64. Establishing baseline hydrologic characteristics for lakes is critical to evaluate changes to lake hydrology. Lake water-level fluctuations influence nearshore habitat structure, within-lake biogeochemical processes, and community composition and thus have important implications for lake ecology and management. These fluctuations may be natural or the result of human activity.

Water withdrawal and diversion for human purposes can significantly lower water levels especially in man-made lakes. Changing climate conditions that affect precipitation inputs and evaporative water-loss can alter water balance in both natural and man-made lakes. However, the lakes of Sagwara are not being used for any purpose and thus have no direct water extraction pressure on the lakes.

65. Physiographically, the area is characterized by low-lying hills intervening with valleys and rocky plains and can be broadly divided in three distinct unit viz. Rocky uplands, Erosional valleys and pediplains. The area is drained by Mahi and its tributaries like Nori, Jakam, Gomti, Saren, Ghorel and Moran. Aquifers in this district are mostly formed in hard rock formations where weathering, fracturing and jointing leads to formation of secondary openings and thus aquifers. Sagwara receives moderate rainfall, and runoff from the catchment area accumulated in a series of lakes in and around the town, and the surplus finally reaches Mahi river through streams and tributaries.

66. The runoff emerging from surrounding hillocks in the northern proximity of Sagwara drains into Sagwara lakes. River. Some part of Sagwara is intercepted by Moran River while the eastern part of basin directly drains into Mahi River. The series of these lakes continues downstream the Sagwara town till Moran and Mahi confluence at Wanderved. The surface inflow forming natural drainage pattern depending of topography is retained in naturally formed lakes and excess water beyond their Full tank level is drained into downstream lakes through natural drainage, well established during the formation of hydrological regime of this part of Mahi basin. Sagwara Lakes receive water mainly from surface runoff, direct precipitation in lake surfaces.

67. The upper most lake in upstream is Lohariya Lake situated at an elevation of 175 m asl. The lake has a catchment area of about 94 ha. Downstream the Lohariya lake lies the Hariyala Lake at an elevation of 167 m asl. In the downstream of Hariyala lake is Gemariya -2 lake at an elevation of 162 m asl and downstream to Gemeriya -2 lies the Gamariya 1 at an elevation of 161 m asl. These four lakes make the lake system in Sagwara as they are connected by a link channel (Figure 25). Lohariya lake having the largest catchment receives water from the northern hillocks, followed by Masaniya (110 ha), Gameriya -1 (~90 ha), Hariyala lake (~46 ha) and Gamariya -2 (~28 ha). Excess water from upstream lakes is downstream lakes through the link channel, and surplus ultimately flows into Mahi River.

68. The lakes having surface area ranging from 0.318 ha (Hariyala Lake) to 11.613 ha (Lohariya Lake). The lake volume ranges from 0.00636 million M3 to 0.371 Million M3. The catchment area of the lakes ranges from 28 ha to 155 ha (Figures 27 to 36) with a high lake area to catchment area ratio. The lakes receive surface runoff as well as subsurface runoff form their catchments which is the major part of inflow to the lakes. The major losses from the lakes are evapotranspiration, subsurface outflow and surface outflow (through channels). The net inflow to the lakes is many times higher than the lake water holding capacity and most of the water collected during the monsoon, above the lake water holding capacity at FTL is drained to downstream. Major losses during the lean period is evapotranspiration loses as the lakes are not being used for any other purpose (either irrigation or water supply). Water balance of the lakes is provided in Table 7. It is evident from the water balance matrix of the lakes that the lakes receive much more water from their catchments than their water storage capacity and excess water is drained through the channels to Mahi River through rivulets and other natural drainage network.

Table 6: Water Holding capacity of Sagwara Lakes

Lake	*Surface area (m^2)#*	*Average depth (m)*	*Lake volume (M^3)*
Lohariya Lake	116130	*3.0*	348390
Hariyala Lake	3180	*2.0*	6360
Gamariya Lake-2	55070	*2.0*	110140
Gameriya Lake-1	6390	*2.5*	15975
Masaniya Lake	106120	*3.0*	318360

#Data Source, DPR for Sagwara Lakes and playground development

Table 7: Water balance of Sagwara Lakes

Lake	**Catchment area (Ha)# (A)**	**Average rainfall (m) (B)**	**Annual yield from Rainfall (M^3) C=(A XB)**	**Annual yield from surface runoff alone (M^3)[6] D=(30% of C)**	**Direct precipitation on lake surface (M^3) (E)**	**Annual losses from evaporation and subsurface outflow and other uses(M^3)[7] (F)**	**Net inflow (M^3) (G)= (D+E-F)**	**Annual Surface outflow to Mahi River Basin (M^3) (H)=Net inflow –Total annual loses from Lake)**
Lohariya Lake	1550000	0.6454	1000370	300111	74950.302	139356	235705.302	96349.302
Hariyala Lake	460000	0.6454	296884	89065.2	2052.372	2544	88573.572	86029.572
Gemariya Lake-1	900000	0.6454	580860	174258	35542.178	44056	165744.178	121688.178
Gemariya Lake-2	280000	0.6454	180712	54213.6	4124.106	2556	55781.706	53225.706
Masaniya Lake	1100000	0.6454	709940	212982	68489.848	127344	154127.848	26783.848

69. **Inlet and outlet of Lohariya lake:** Lake receives water from its saucer shaped catchment having natural drainage. Many natural channels lead to lake in its north and eastern part of catchment. Figure 34 below shows the inflow of water to Lohariya lake from its catchment through surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows). Inflow as

[6] Of the total precipitation in the free catchment of lakes, only 30% of the rainfall is considered to be converting into rainfall considering the catchment area primarily as agricultural (Green zone) and buildup area following R. Berndtsson, 2004.

[7] Total losses are considered as 30% evapotranspiration (DHI, 2015) Study of Benchmarking and Water Auditing of 20 nos. Major and Medium Irrigation Projects under Water Resources Zone, Udaipur Final Report R -Arwar Irrigation Project loses and 10% in subsurface outflow (Thomas Grischek et. al. 2015).

well as outflow of the lake is naturally managed and once lake is filled up to its Full Tank Level (FTL) it drains water to Hariyala Lake through a link channel between two lakes.

70. **Inlet and outlet of Hariyala lake:** Similar to Lohariya Lake, Hariyala lake receives water from its catchment through naturally developed drainage, direct precipitation on lake surface and surface inflow. In addition, the lake receives water from Lohariya Lake (overflow of Lohariya Lake) through a link channel (Cyan Color). The Lake also receives water from its urban catchment through surface runoff (Green Arrows) and Natural Drains (Blue arrow). Excess water from Hariyala Lake is discharged to Gemariya Lake -2 through a link channel.

71. **Inlet and outlet of Gemariya-2 lake:** Gemariya -02 lake receive water from its catchment through naturally developed drainage, direct precipitation on lake surface and surface inflow. The lake is connected with Hariyala Lake in a series of lakes in its upstream and downstream through this link channel and receives excess water from Hariyala Lake (Cyan Color). The Lake also receives water from its urban catchment through surface runoff (Green Arrows) and Natural Drains (Blue arrow). Excess water from the lake is discharged into Gemariya Lake-1. Detailed schematic presentation of inflow and outflow of water in the lake is depicted in Figure 36 below. Excess water from Gemariya Lake is discharged to Gemariya Lake -1 through a link channel.

72. **Inlet and outlet of Gemariya-1 lake:** Gemariya-01 lake receive water from its catchment through naturally developed drainage, direct precipitation on lake surface and surface inflow. The lake is connected with Hariyala Lake in a series of lakes in its upstream and downstream through this link channel and receives excess water from Hariyala Lake (Cyan Color). The Lake also receives water from its urban catchment through surface runoff (Green Arrows) and Natural Drains (Blue arrow). Excess water from the lake is discharged into Gemariya Lake-1. Detailed schematic presentation of inflow and outflow of water in the lake is depicted in Figure 37 below. The out flow of the Gemariya Lake-1 leads to Mahi River through a natural drainage system developed over the years wherein a series of natural lakes form the intermittent depository of water before its final discharge to Mahi River.

73. **Inlet and outlet of Masaniya Lake:** Masaniya lake is separated with other four lakes of Sagwara lake system by a ridge slightly raised ridge bisecting the Sagwara town and lies in its western side. The lake receive water from its catchment through naturally developed drainage, direct precipitation on lake surface and surface and subsurface inflow. The lake is connected with Hariyala Lake in a series of lakes in its upstream and downstream through this link channel and receives excess water from Hariyala Lake (Cyan Color). The Lake also receives water from its urban catchment through surface runoff (Green Arrows) and Natural Drains (Blue arrow). Excess water from the lake is discharged into Gemariya Lake-1. Detailed schematic presentation of inflow and outflow of water in the lake is depicted in Figure 38 below. The out flow of the Masaniya Lake leads to Mahi River through a natural drainage system developed over the years wherein a series of natural lakes form the intermittent depository of water before its final discharge to Moran River a tributary of Mahi River (**Figure 6**).

Figure 26: Topographic details of lakes (Masaniya Lohariya , Hariyala, Gamariya-1 and Gamariya -1) nestling downstream hillocks

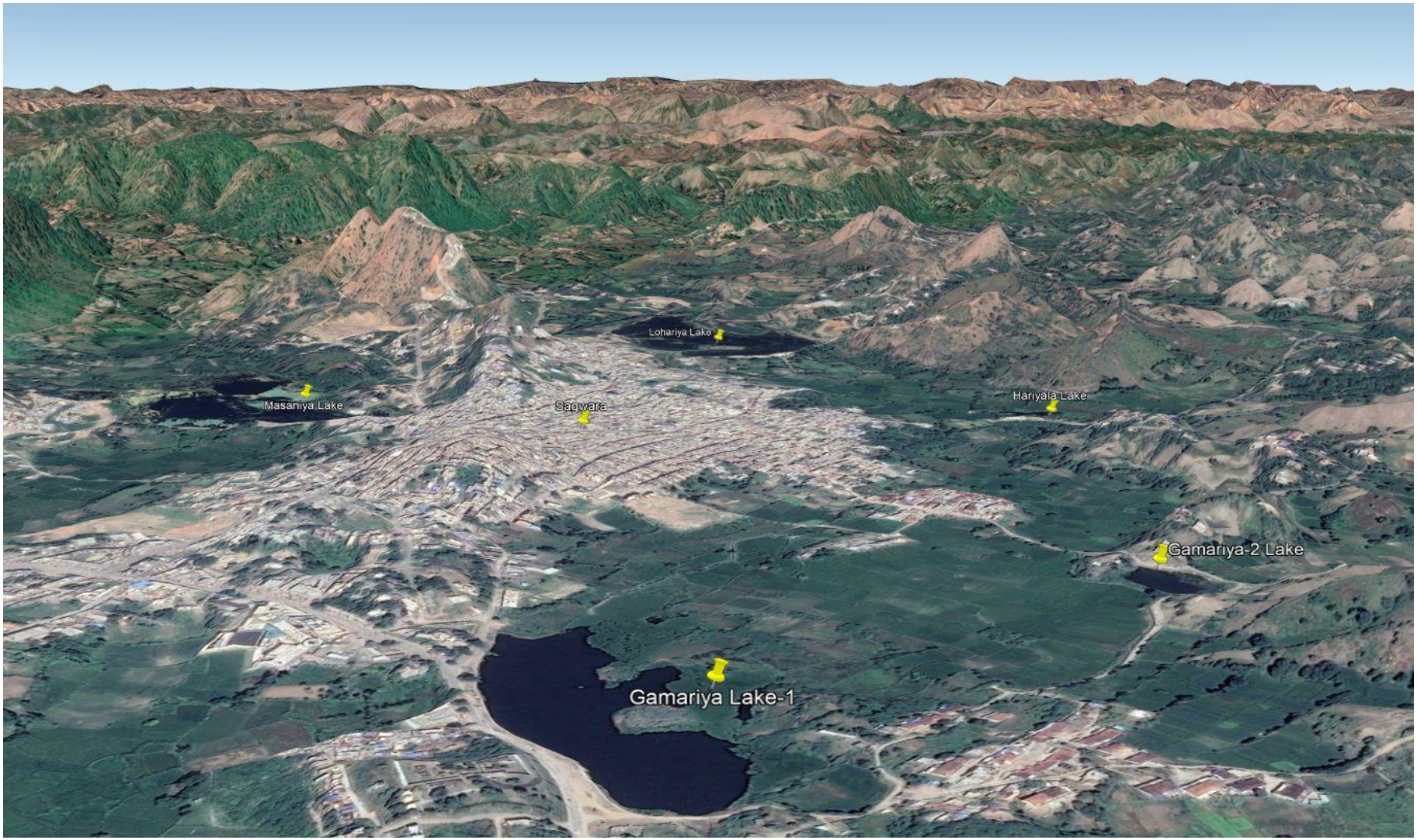


Figure 27: ***Sagwara lake system (Lohariya , Hariyala, Gamariya-1 and Gamariya -1) interconnected by Link channel (Blue line)***

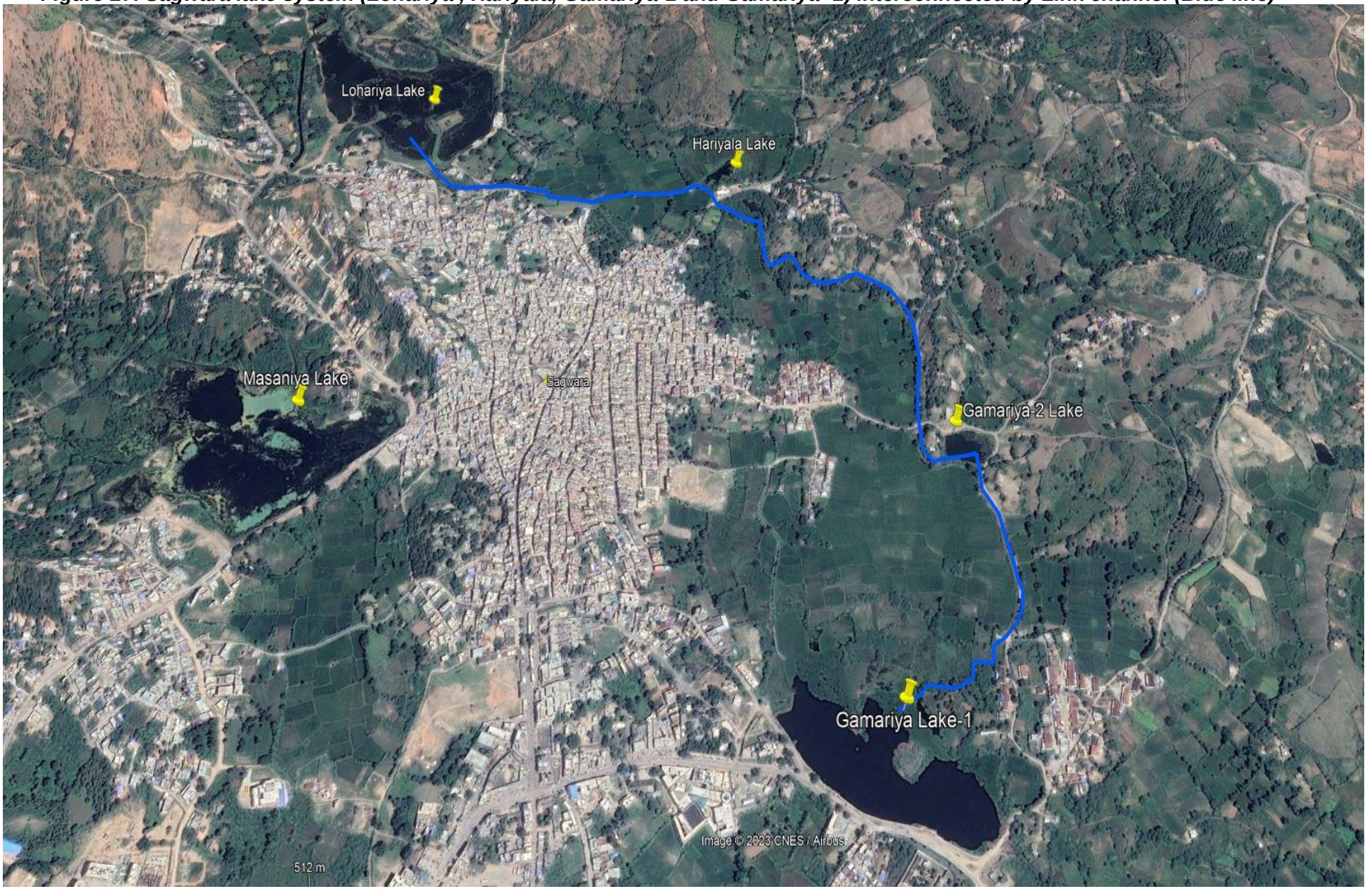


Figure 29: Catchment area of Gemariya Lake-1

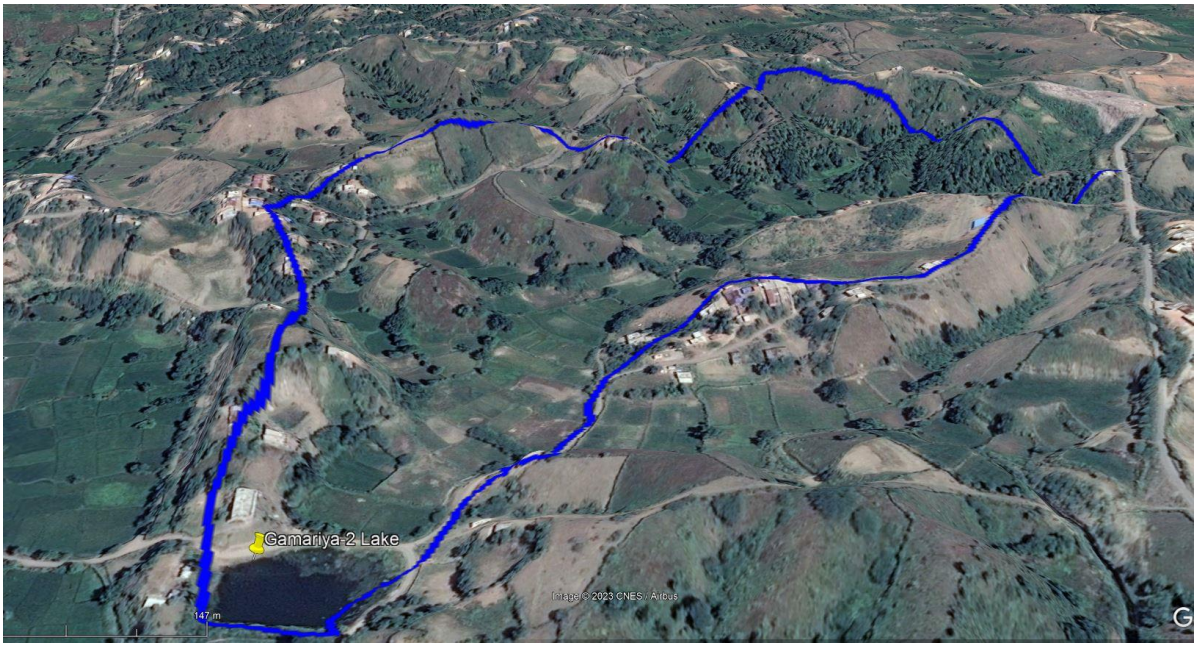


Figure 30 Catchment area of Gemariya Lake-2

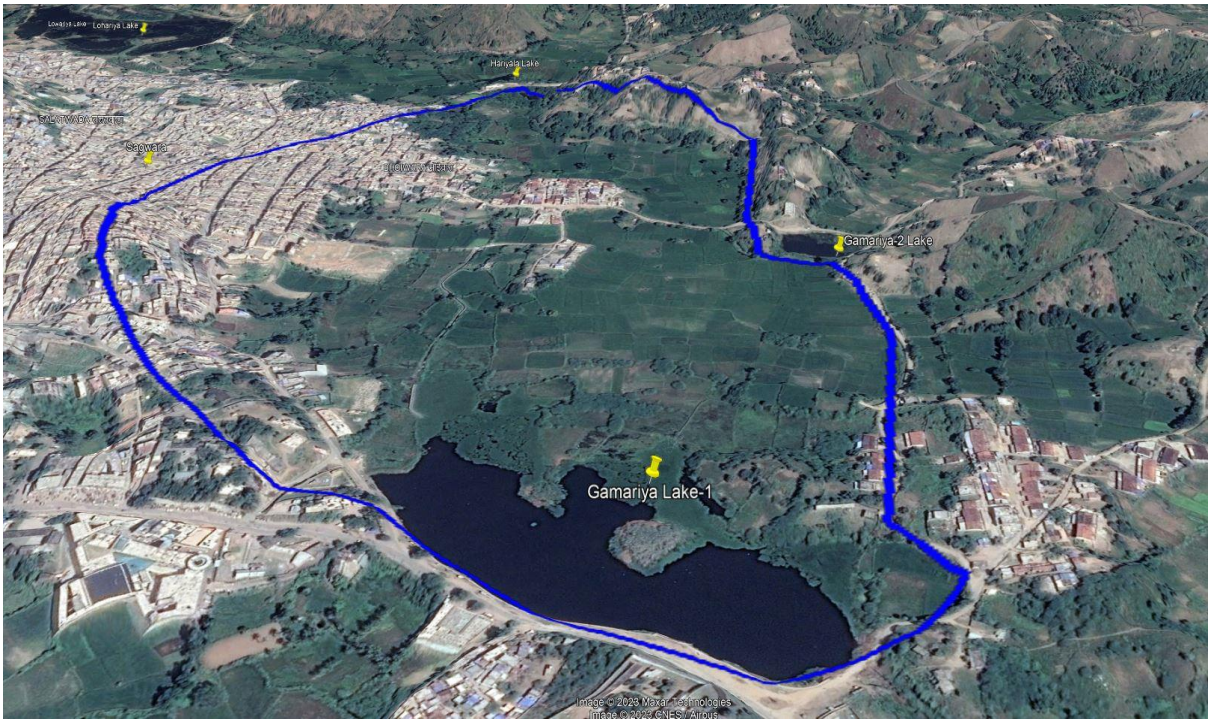


Figure 31: catchment area of Hariyala Lake

Figure 32: catchment area of Lohariya Lake

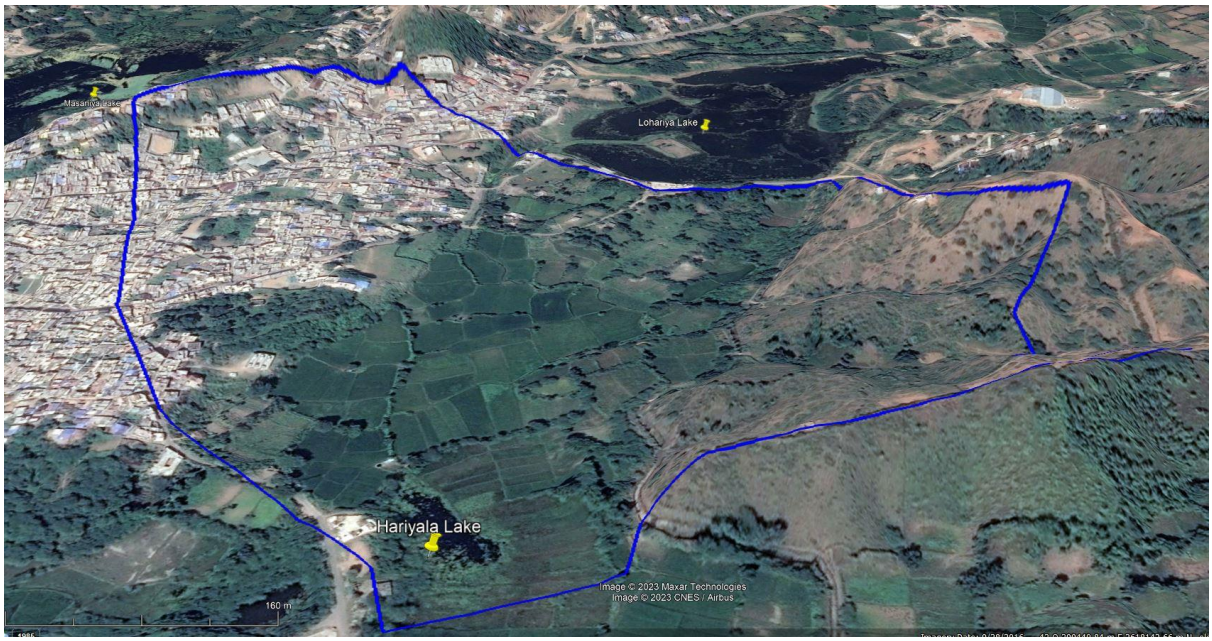


Figure 33: Catchment area of Masaniya Lake

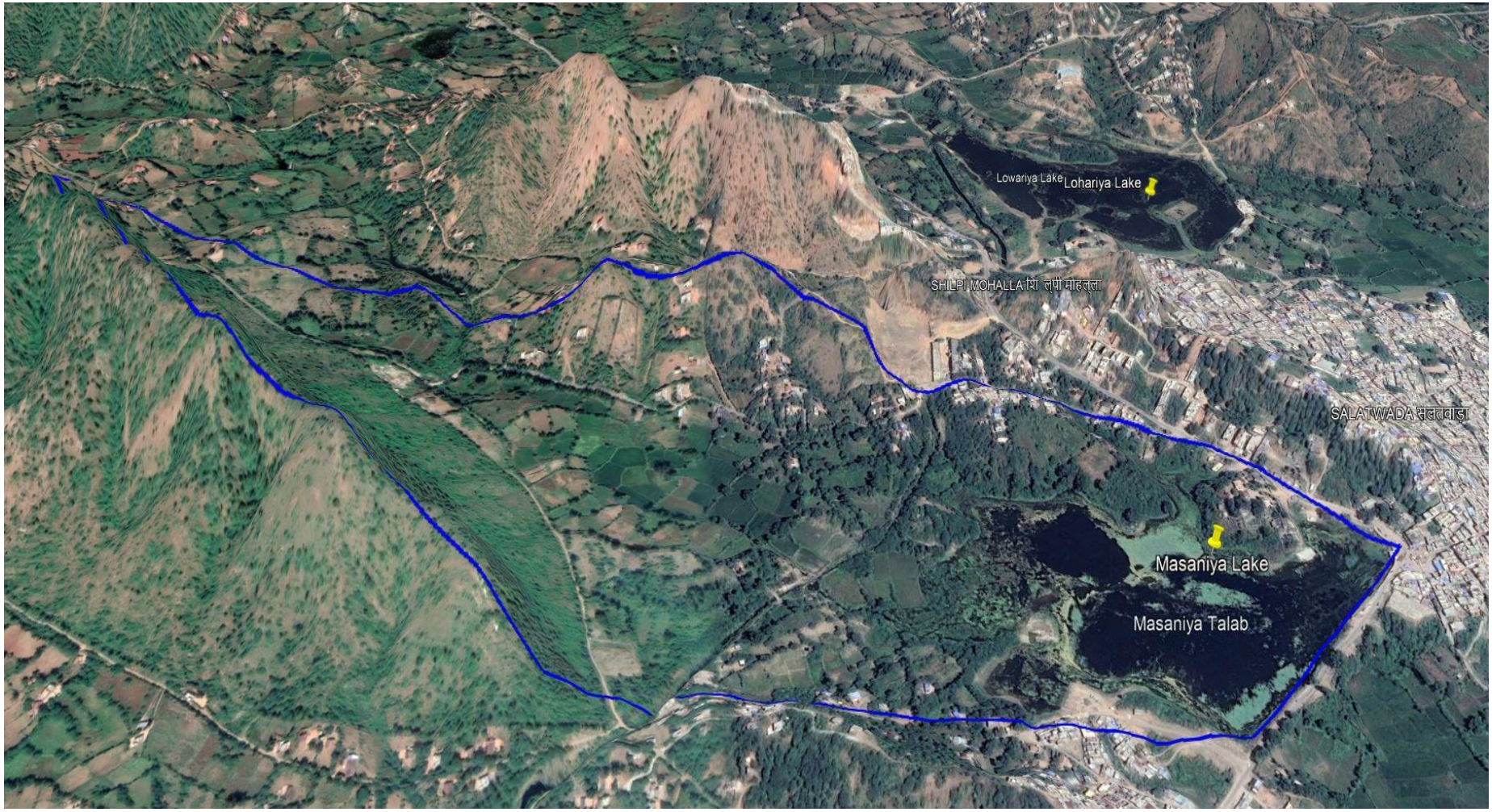


Figure 34: Inflow and outflow of Lohariya Lake Surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows)

Figure 35: Inflow and outflow of Loharia Lake. surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows)

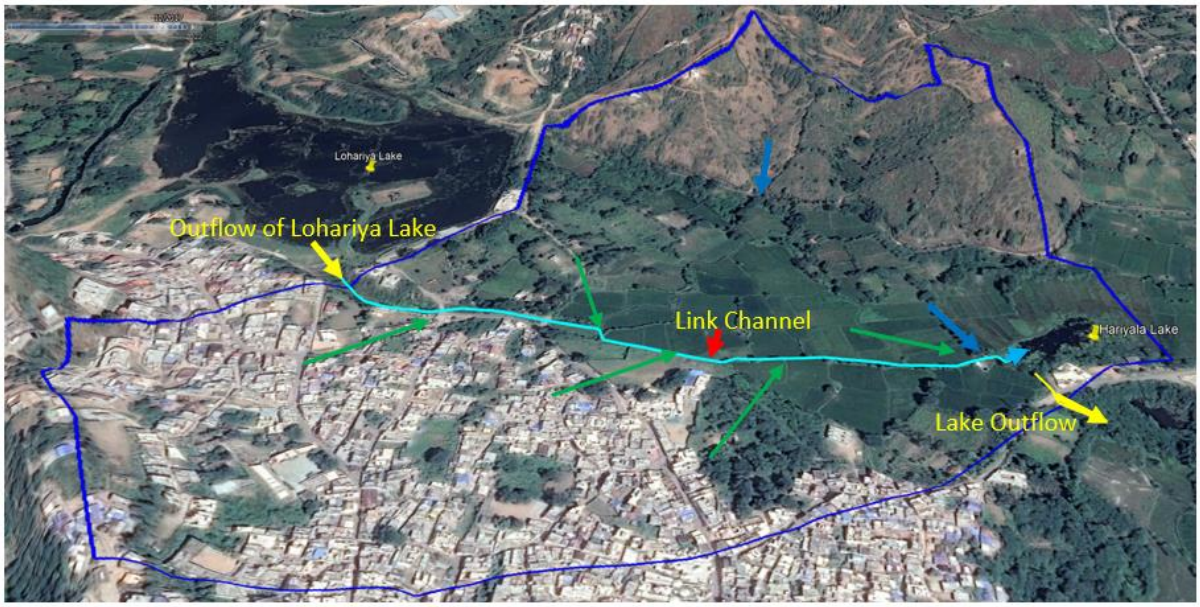


Figure 36: Inflow and outflow of Gameria -02 Lake. surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows) and inflow from Link Channel (in cyan color)

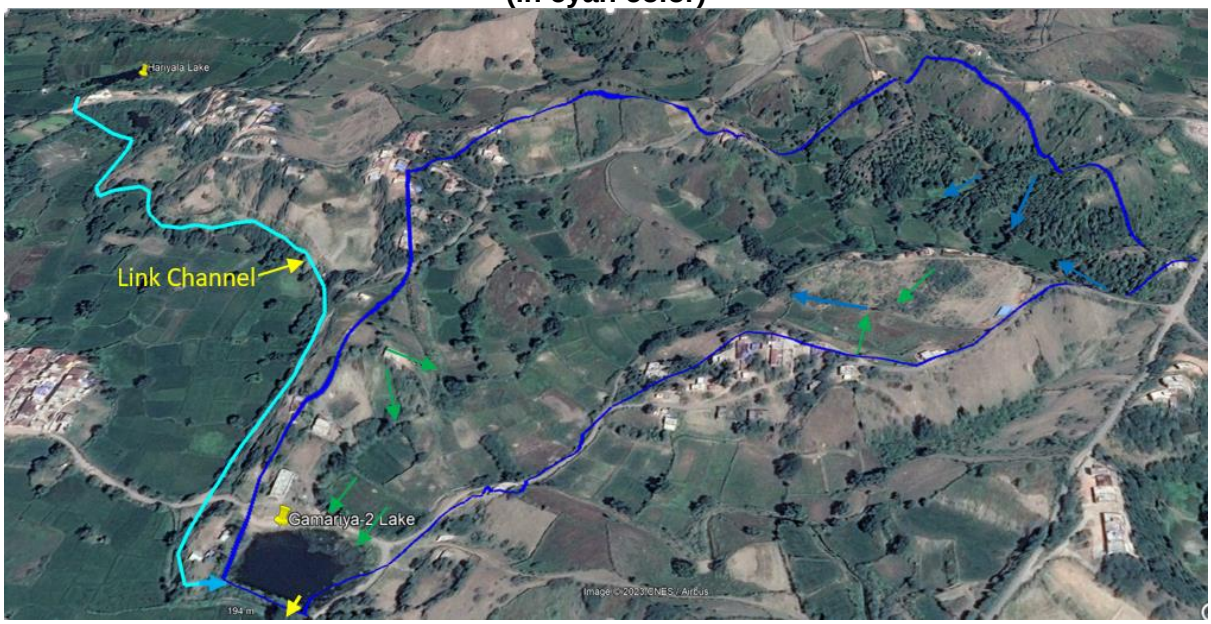


Figure 37: Inflow and outflow of Gameria Lake-1. Catchment area (Dark Blue), surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows) and inflow from Link Channel (in cyan color)

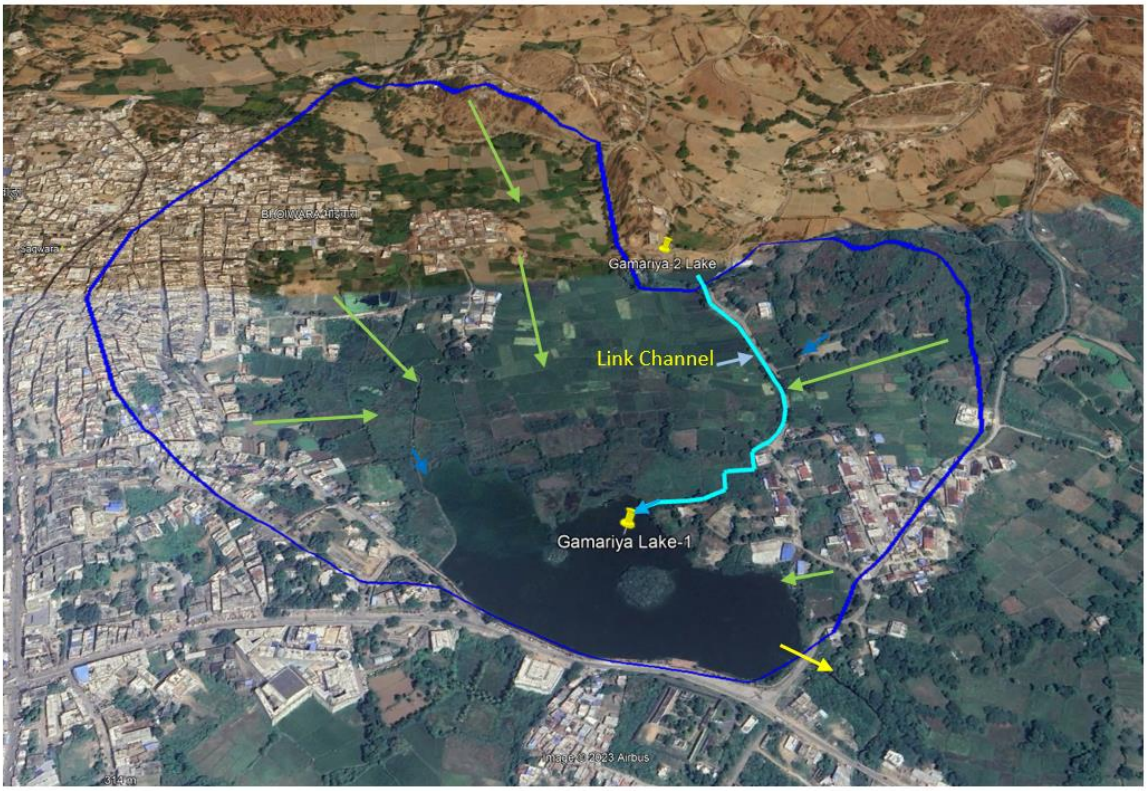


Figure 38: Inflow and outflow of Masaniya Lake. Catchment area (Dark Blue) surface runoff (Green arrows) natural drainage (Blue arrow) and outlet (Yellow arrows) and inflow from Link Channel (in cyan color)

Figure 39: Sagwara lakes along with a series of lakes and natural drainage are part of Mahi Basin and drain through a series of natural channels and tributaries into Mahi River

7. Groundwater

74. The principal source of ground water recharge is precipitation. Out of the total, rainfall received, a major part is lost as runoff and evapotranspiration through soil and vegetation. Only a small portion of rainfall infiltrates down to join the ground water body. Central Ground Water Board periodically monitors the National Hydrograph Network Stations (NHNS) in the Dungarpur district, four times a year i.e., in January, May (Pre - monsoon), August and November (Post - monsoon). Sagwara fall into 'Semi Critical' category as development has reached very close to the limit and any further development would lead to exhaustion of dynamic ground water resources in these areas. Depth to water level during pre-monsoon varies from 1.7 to 55.32 mbgl. During post monsoon period, the depth to water level varies from 0.46 mbgl. In general depth of water level varied from 5 to 20 mbgl. The overall stage of ground water development in the district is 77.56%.

75. **Groundwater quality.** Water samples from six wells in Sagwara town were collected on 02.05.2022 and tested by PHED laboratory Dugarpur and test report shows that water quality of treated water is well within the desirable limits of National drinking water standards except for TDS and hardness which was above the desirable limits but with the maximum limits allowed in the absence of alternate source.

Table 8: Water quality result at Ground water quality at Sagwara town, May 2022

National Standards for Drinking Water[a]			WHO Guidelines for Drinking-Water Quality, 4th Edition, 2011[b]	Tube well no 4, Gamathwara colony	Tube well no 2, Gamathwara colony	Tube well, C Block	Tube well no 4, Doordarshan Kendra	Mahajan well	Khatik well
Parameter	**Unit**	**Max. Concentration Limits[c]**							
Turbidity	NTU	1 (5)	-	0.20	0.2	0.1	0.2	0.3	0.3
pH		6.5 – 8.5	none	7.4	7.4	7.6	7.7	7.8	7.9
Color	Hazen units	5 (15)	none						
Taste and Odor		Agreeable	-						
TDS	mg/l	500 (2,000)	-	**720**	**740**	**610**	**660**	**550**	**530**
Iron	mg/l	0.3	-						
Manganese	mg/l	0.1 (0.3)	-						
Arsenic	mg/l	0.01 (0.05)	0.01						
Cadmium	mg/l	0.003	0.003						
Chromium	mg/l	0.05	0.05						
Cyanide	mg/l	0.05	none						
Fluoride	mg/l	1 (1.5)	1.5	0.53	0.54	0.52	0.52	0.48	0.54
Lead	mg/l	0.01	0.01						
Ammonia	mg/l	0.5	none established						
Chloride	mg/l	250 (1,000)	none established	140	150	120	140	100	100
Sulphate	mg/l	200 (400)	none						
Nitrate	mg/l	45	50	39	42	24	25	12	18
Copper	mg/l	0.05 (1.5)	2						
Total Hardness	mg/l	200 (600)	-	**320**	**340**	**280**	**300**	**250**	**250**
Calcium	mg/l	75 (200)	-						
Zinc	mg/l	5 (15)	none established						
Mercury	mg/l	0.001	0.006						
Aluminum	mg/l	0.1 (0.3)	none established						
Residual Chlorine	mg/l	0.2	5						
E-coli	MPN/100ml	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample						
Total Coliform	MPN/100ml								

[a] Bureau of India Standard 10500: 2012.

[b] Health-based guideline values.
[c] Figures in parenthesis are maximum limits allowed in the absence of alternate source.

8. Air & Noise Quality

76. No data on ambient air quality or noise levels available for Sagwara town, which is not subjected to monitoring by the Rajasthan State Pollution Control Board (RSPCB). The contractor is required to conduct ambient air quality and noise level monitoring in Sagwara in the pre-construction phase to establish the baseline at project sites and will continue periodic monitoring as per the environmental management plan.

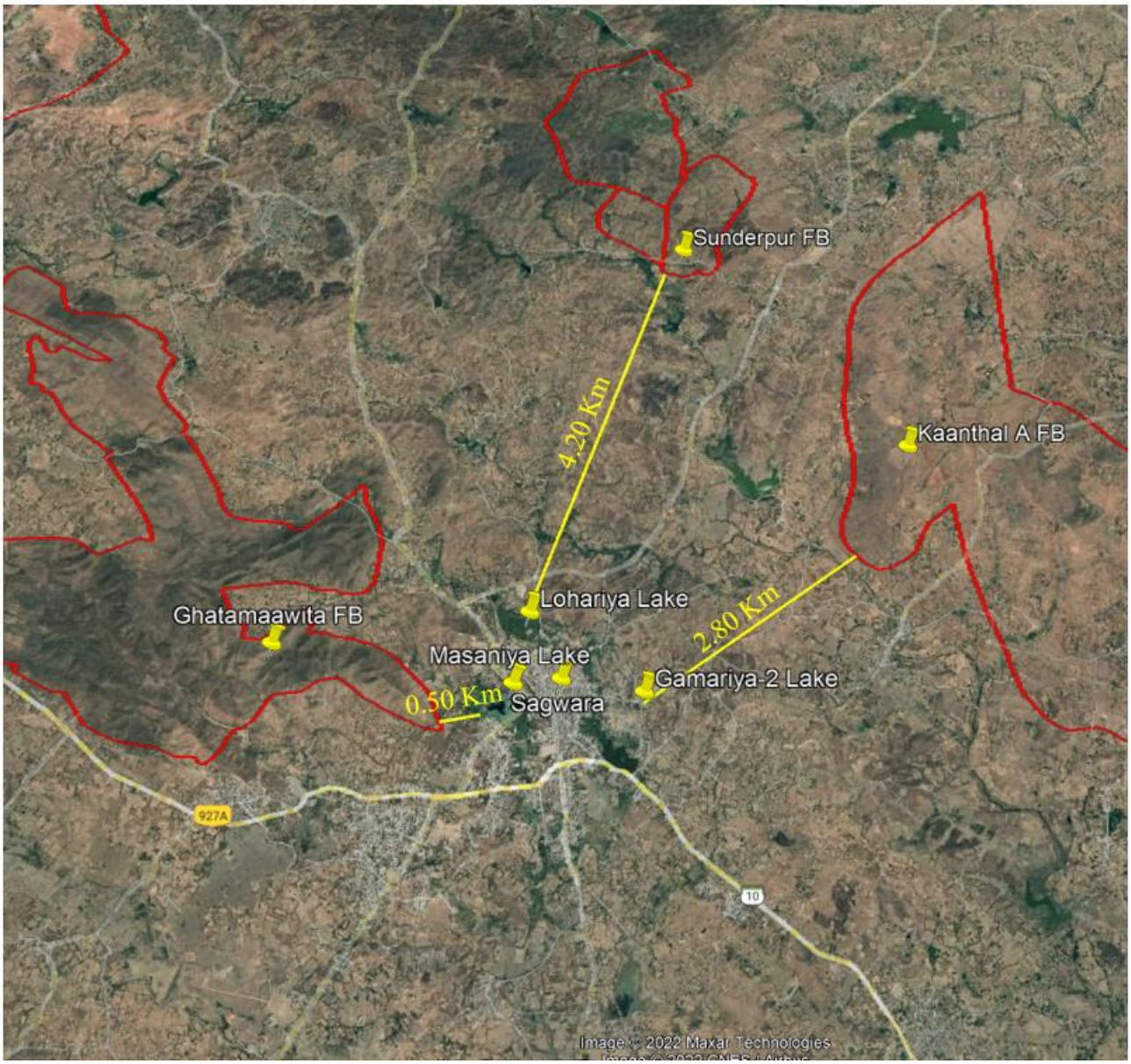
B. Biological Environment

77. The Rajasthan State experiences varied climatic condition, from extreme aridity in the north-western parts (Jaisalmer) to sub-humid conditions in the southern parts (Jhalawar, Banswara and Mount Abu). Rajasthan despite having a large area under the Thar desert, it also has some densely thick forests with a wide range of flora and fauna. With over 2000 plants, 87 mammals, 114 fish, 500 birds and 81 reptile species, the state is a home to rich biodiversity.

78. **Protected areas.** The nearest wildlife sanctuary is Sita Mata Sanctuary located 65 km from project town. In the forest blocks of Ghatamaawita protected forest, KAANTHAL A protected forest and Od Paadwa protected forest some wild animals like blue bull, samber, Jackal, jungle cat, deer, wild boar, monkey, wild dogs etc. have been observed. But there is no notified breeding or nesting bird site/ecological sensitive area/Ramsar convention site/Area notified under Wild Protection Act-1972 in these forest blocks as well as in town.

79. **Forest Flora and Fauna. In** the forest blocks especially in Ghatol and Pipalkhut forest block, some wild animals are observed which are blue bull, samber, Jackal, jungle cat, deer, wild boar, monkey, wild dogs etc. Our experts were told by locals that reptiles like common garden lizard (*Chameleon zeylanicaul*), common Indian monitor (*Varanus beagalansis*), Indian Cobra (*Naja naja*), and Krait (*Bungarus coerulens*) are rarely found in agriculture fields during rainy season. Common birds found in the region are Little egret (*Egretta garzetta*), Common Green Pigeon (*Treronphoeni coptera*), Blue Rock Pigeon (*Columba livia*), House swift (*Apus affinis*), etc. No rare birds are reported in the project areas.

Figure 40: Distance of Forest Blocks from Project area in Km (Source google base map).



1. Biodiversity Assessment of Sagwara lakes and Surrounding area

80. Primary data on flora and fauna (Birds, animals and butterflies) were collected during post monsoon site visit in August 2022 via the walkthrough survey / visual observation and photos. Further, baseline data on the status of the lake and survey of flora butterflies, and birds was collected during this IEE study by PMCBC's biodiversity specialist via walkthrough survey / visual observation, consultations and photos on 13 August 2022. Secondary source of information in identifying the species are obtained from the following documents/ literature. (i) Regional and National literatures, (ii) Integrated Biodiversity Assessment Tool (IBAT);(iii) The World Database of Key Biodiversity Areas website (WPDA);(iv) Important Bird Areas (Birdlife International); and (vi) IUCN Redlist;

81. Flora. Terrestrial vegetation in the project areas typically consists of small, isolated pockets of vegetation and farmland and small plantations adjacent to lakes. Terrestrial plants are restricted to the lake bund and surrounding areas with few tree species. Total of 61 species belonging to 29 families were recorded. A maximum of 11 species were of Arecaceae, followed by 5 of Amaranthaceae and Euphorbiaceae. Good density of aquatic plants were observed; species like Hydrilla verticillate, Nymphaea pubescens, Nelumbo nucifera, Azolla, and Nymphoides indica observed in Lohariya and Masaniya. Gemariya Lake-01 lake was full of Pontederia crassipes and no other aquatic species were observed. During the summer, when the water level dries up on the water spread areas, it supports temporary habitat for herbs and grasses.

82. Good numbers of trees like Azardiracta indica and Tamarindus indica and Thorny trees like Prosopis juliflora and Acacia sps were identified along the bund, roadside and nearby farm land these serve as nesting place for terrestrial birds. Gemariya Lake-01 has an island densely covered with Acacia sps plants supporting nesting of aquatic birds mainly Egrets, Grey herons, Asian openbills which was also observed during site visit. Around 11 Shrubs, 25 herbs species and 3 Climbers species are recorded near lake bunds and on agriculture fields near lakes.

Table 9: Flora species observed in and around lakes in Sagwara

S. No	Plant Name	Family	Type
1.	*Ficus religiosa*	*Moraceae*	Tree
2.	*Heloptelia integrifolia*	*Ulmaceae*	Tree
3.	*Prosopis juliflora*	*Mimosaceae*	Tree
4.	*Acacia*	*Fabaceae*	Tree
5.	*Phoenix silvestris*	*Arecaceae*	Tree
6.	*Areca Palm*	*Arecaceae*	Tree
7.	*Crateva religiosa*	*Capparaceae*	Tree
8.	*Monoon longifolium*	*Annonaceae*	Tree
9.	*Roystonea regia*	*Arecaceae*	Tree
10.	*Tamarindus indica*	*Caesalpiniaceae*	Tree
11.	*Azadirachta indica*	*Meliaceae*	Tree
12.	*Polyathia longifolia*	*Annonaceae*	Tree
13.	*Phyllanthus reticulatus*	*Phyllanthaceae*	Shrub
14.	*Lantana camara*	*Verbenaceae*	Shrub
15.	*Calotropis procera*	*Apocynaceae*	Shrub
16.	*Ricinus communis*	*Euphorbiaceae*	Shrub
17.	*Withania somnifera*	*Solanaceae*	Shrub
18.	*Ficus hispida*	*Moraceae*	Shrub
19.	*Ficus carica*	*Moraceae*	Shrub
20.	*Ipomoea carea*	*Convolvulaceae*	Shrub
21.	*Datura metel*	*Solanaceae*	Shrub
22.	*Ziziphus nummularia*	*Rhamnaceae*	Shrub
23.	*Adhatoda vesica*	*Acanthaceae*	Shrub
24.	*Persicaria glabra*	*Polygonaceae*	Herb
25.	*Croton bonplanduanum*	*Euphorbiaceae*	Herb

S. No	Plant Name	Family	Type
26.	*Argemone Mexicana*	*Papaveraceae*	Herb
27.	*Acanthospermum hispidum*	*Asteraceae*	Herb
28.	*Achyranthes aspera*	*Amaranthaceae*	Herb
29.	*Alteranthrera ficoidia*	*Amaranthaceae*	Herb
30.	*Amaranthus spinosus*	*Amaranthaceae*	Herb
31.	*Blumea lacera*	*Asteraceae*	Herb
32.	*Ageratum conyzoides*	*Asteraceae*	Herb
33.	*Chrozophora rottlerin*	*Euphorbiaceae*	Herb
34.	*Phyla nodiflora*	*Verbenaceae*	Herb
35.	*Sida Acuta*	*Malvaceae*	Herb
36.	*Sphaeranthus indicus*	*Acanthaceae*	Herb
37.	*Cynodon dactylon*	*Poaceae*	Herb
38.	*Launaea procumbens*	*Asteraceae*	Herb
39.	*Acalypha australis*	*Euphorbiaceae*	Herb
40.	*Tridax procumbens*	*Asteraceae*	Herb
41.	*Amaranthus viridis*	*Amaranthaceae*	Herb
42.	*Euphorbia hirta*	*Euphorbiaceae*	Herb
43.	*Vernonia cineria*	*Asteraceae*	Herb
44.	*Physalis minima*	*Solanaceae*	Herb
45.	*Eclipta alba*	*Asteraceae*	Herb
46.	*Lindenbergia indica*	*Orobanchaceae*	Herb
47.	*Aerva lanata*	*Amaranthaceae*	Herb
48.	*Rumex sp.*	*Polygonaceae*	Herb
49.	*Coculus hirsutus*	*Menispermaceae*	Climber
50.	*Coccinia grandis*	*Cucurbitaceae*	Climber
51.	*Ipomoea aquatica*	*Convolvulaceae*	Climber
52.	*Hydrilla verticillata*	*Hydrocharitaceae*	Aquatic
53.	*Nymphaea pubescens*	*Nymphaeaceae*	Aquatic
54.	*Nelumbo nucifera*	*Nelumbonaceae*	Aquatic
55.	*Azolla*		Aquatic
56.	*Pontederia crassipes*	*Pontederiaceae*	Aquatic
57.	*Nymphoides indica*	*Menyanthaceae*	Aquatic
58.	*Parthenium hysterophorus*	*Asteraceae*	Grass
59.	*Typha angustata*	*Typhaceae*	Grass
60.	*Cyperus iria*	*Cyperaceae*	Grass
61.	*Cyperus sp.*	*Cyperaceae*	Grass

Phoenix sp. Tree near Lohariya Lake in Sagwara

Nelumbo nucifera in Masaniya Lake in Sagwara

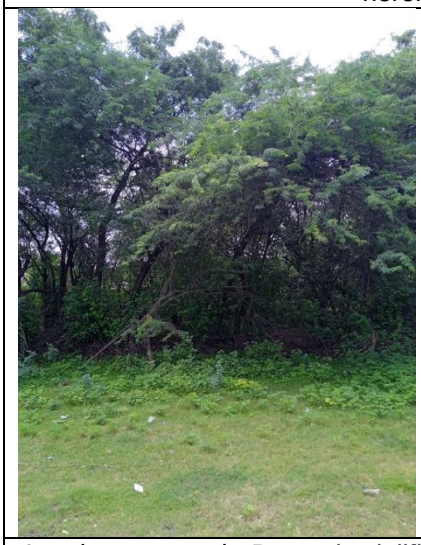
Hydrilla verticillata in Masaniya Lake

Nymphoides indica in Lohariya Lake

Parthanium sp. Near the lakes in Sagwara

Areca Palm and Ashok trees as avenue plantation neat Gameriya lake -02

Densly coverd island with Acacia sps plants supporting nesting of aquatic birds mainly Egrets, Grey herons, Asian openbills in Gemariya -01 lake



Acacia sps and *Prosopis juliflora* near Masaniya lake in Sagwara

Ailanthus excels tree Near Lohariya Lake

83. **Birds.** Totally, 24 species belonging to 16 families were recorded. According to the IUCN Red List of threatened species, all 24 species identified were observed as Least Concern (LC). Terrestrial habitat along the lake bund provides feeding habitat for terrestrial birds, flowers attract variety of insects (larva, bees and butterflies) which in turn attracts insectivorous birds, fruits attract frugivorous, bushy vegetation provides ideal habitat for reptiles (snakes and lizards) which in turn attracts omnivorous birds.

84. The areas along the project site includes some portion of fragmented scrubland with *Phoenix silvestris* (Khajoor) and other trees like *Azadirachta indica* (Neem). The area has indigenous floral species predominantly; and thus, it still supports a good variety of bird species. Aquatic birds species like Egrets, Grey heron, Asian openbill are seen nesting at island in Gameryia lake -01. Ruddy Shelduck, knob-billed duck and Indian Pond-heron were seen in Lohariya Lake. White-breasted Kingfisher, Intermediate Egret, and White-browed Wagtail were

seen on the banks of Gameryia lake -02. Cattle egret, Common Myna seen near Hariyala lake, Eurasian collared Dove and Rock Pigeon near Masaniya lake. Other Species of birds are observed in agriculture fields and roads side plantation near lake areas.

Table 10: Avifaunal species observed in Sagwara Lakes

S. No.	Scientific Name	Common Name	Family	IUCN Status
1.	*Tadorna ferruginea*	Ruddy Shelduck	*Anatidae*	LC
2.	*Vanellus indicus*	Red-wattled Lapwing	*Charadriidae*	LC
3.	*Ardea cinerea*	Grey Heron	*Ardeidae*	LC
4.	*Bubulcus ibis*	Cattle Egret	*Ardeidae*	LC
5.	*Ardeola grayii*	Indian Pond-heron	*Ardeidae*	LC
6.	*Ardea intermedia*	Intermediate Egret	*Ardeidae*	LC
7.	*Anastomus oscitans*	Asian Openbill	*Ciconiidae*	LC
8.	*Motacilla maderaspatensis*	White-browed Wagtail	*Motacillidae*	LC
9.	*Halcyon smyrnensis*	White-breasted Kingfisher	*Alcedinidae*	LC
10.	*Anas poecilorhyncha*	Indian Spot-billed Duck	*Anatidae*	LC
11.	*Sarkidiornis melanotos*	knob-billed duck	*Anatidae*	LC
12.	*Egretta garzetta*	Little Egret	*Ardeidae*	LC
13.	*Cinnyris asiaticus*	Purple Sunbird	*Nectariniidae*	LC
14.	*Merops orientalis*	Asian Green Bee-eater	*Meropidae*	LC
15.	*Anas poecilorhyncha*	Indian Spot-billed Duck	*Anatidae*	LC
16.	*Egretta garzetta*	Little Egret	*Ardeidae*	LC
17.	*Passer domesticus*	House Sparrow	*Passeridae*	LC
18.	*Pavo cristatus*	Indian Peafowl	*Phasianidae*	LC
19.	*Columba livia*	Rock Pigeon	*Columbidae*	LC
20.	*Streptopelia decaocto*	Eurasian collared Dove	*Columbidae*	LC
21.	*Corvus splendens*	House Crow	*Corvidae*	LC
22.	*Dicrurus macrocercus*	Black Drongo	*Dicruridae*	LC
23.	*Acridotheres tristis*	Common Myna	*Sturnidae*	LC
24.	*Argya caudata*	Common Babbler	*Leiothrichidae*	LC

LC – Least concern:

85. The variety of Shrubs, herbs species, Climbers and grass species provides good shelter and food to butterflies species from 2020 to 2022 around 74 butterflies species are recorded in Sagwara.

Table 11: Butterfly species recorded in Sagwara

S. No	Family	Common Name	Scientific Name	IUCN Status
1	Papilionidae	Common Rose	*Pachliopta aristolochias*	NA
2		Crimson Rose	*Pachliopta hector*	LC

S. No	Family	Common Name	Scientific Name	IUCN Status
3		Lime	*Papilio demoleus*	LC
4		Common Mormmon	*Papilio polytes*	NA
5		Tailed Jay	*Graphium agamemnon*	NA
6		Common Jay	*Graphium doson*	NA
7	Pieridae	Common Grass Yellow	*Eurema hecabe*	NA
8		Spotless Grass Yellow	*Eurema laeta*	NA
9		Small Grass Yellow	*Eurema brigitta*	LC
10		Common Emigrant	*Catopsilia crocale*	NA
11		Mottled Emigrant	*Catopsilia pyranthe*	NA
12		The Pioneer	*Anaphaeis aurota*	LC
13		Common Gull	*Cepora erissa*	NA
14		Small Orange Tip	*Colotis etrida*	NA
15		White Orange Tip	*Ixias marianne*	NA
16		Common Jezebel	*Delias eucharis*	NA
17		Striped Albatross	*Appias libythea*	*NA*
18		Large Salmon Arab	*Colotis fausta*	*LC*
19		Yellow Orange Tip	*Ixias pyrene*	*NA*
20		White Arab	*Colotis vestalis*	*NA*
21		Small Salmon Arab	*Colotis amata*	*LC*
22	**Lycaenidae**	Tiny Grass Blue	*Zizula hylax*	*LC*
23		Grass Jewel	*Freyeria trochylus*	*NA*
24		Pea Blue	*Lempides boeticus*	*LC*
25		Zebra Blue	*Syntarucus plinius*	*NA*
26		Gram Blue	*Euchrysops cnejus*	*NA*
27		Forget Me Not	*Cotachrysops strabo*	*NA*
28		Rounded Pierrot	*Tarucus nara*	*NA*
29		Black-spotted Pierrot	*Tarucus balkanicus nigra*	*LC*
30		Red Piorrot	*Talicada nyseus*	*NA*
31		Small Cupid	*Chilades parrhasius*	*NA*
32		Plains Cupid	*Chilades pandava*	*NA*
33		Lime Blue	*Chilades lajus*	*NA*
34		Pale Grass Blue	*Pseudozizeeria maha*	*NA*
35		Lesser Grass Blue	*Zizina otis*	*LC*
36		Dark Grass Blue	*Zizeeria karsandra*	*LC*
37		African Babul Blue	*Azanus jesous*	*LC*
38		Bright Babul Blue	*Azanus ubaldus*	*LC*
39		Tail Less Line Blue	*Prosotas dubiosa*	*NA*
40		Common Cerulean	***Jamides celeno***	*NA*
41		Indian Red Flash	*Rapala iarbus*	*NA*
42		Common Silverline	*Spindasis vulcanus*	*NA*
43		Common Shot Silverline	*Spindasis ictis*	*NA*

S. No	Family	Common Name	Scientific Name	IUCN Status
44		Common Guava Blue	*Virachola isocrates*	*NA*
45		Indian Sunbeam	*Curetis thetis*	*NA*
46	**Nymphalidae**	Danaid Eggfly	*Hypolimnas misippus*	*LC*
47		Great Eggfly	*Hypolimnas bolina*	*NA*
48		Blue Pansy	*Junonia orithya*	*LC*
49		Lemon Pansy	*Junonia lemonias*	*NA*
50		Peacock Pansy	*Junonia almana*	*LC*
51		Yellow Pansy	*Junonia hierta*	*NA*
52		Grey Pansy	*Junonia atlites*	*NA*
53		Painted Lady	*Vanessa cardui*	*LC*
54		Black Rajah	*Charaxes kahruba*	*NA*
55		Anomalous Nawab	*Charaxes agrarius*	*NA*
56		Common Evening Brown	*Melanitis leda*	*NA*
57		Common Three Ring	*Ypthima asterope*	*NA*
58		Common Four Ring	*Ypthima huebneri*	*NA*
59		Baronet	*Euthalia nais*	*NA*
60		Common Castor	*Ariadne merione*	*NA*
61		Tawny Coster	*Acraea terpsicore*	*NA*
62		Plain Tiger	*Danaus chrysippus*	*LC*
63		Common Indian Crow	*Euploea core*	*LC*
64		Striped Tiger	*Danaus genutia*	*NA*
65		Blue Tiger	*Tirumala limniace*	*NA*
66	**Hesperiidae**	Indian Palm Bob	*Suastus gremius*	*NA*
67		Rice Swift	*Barbo cinnara*	*NA*
68		Small Branded Swift	*Pelopidas mathias*	*NA*
69		Swift	*Parnara sp.*	-
70		Common Banded Awl	*Hasora chromus*	*NA*
71		Brown Awl	*Badamia exclamationis*	*NA*
72		Indian Skipper	*Spialia galba*	*NA*
73		Zebra Skipper	*Spialia zebra*	*NA*
74		Spotted Small Flat	*Sarangesa purendra*	*NA*

LC – Least concern: NA – Not Assessed
Source: Mr Mukesh Panwar, Government School teacher, Sagwara (2020-2022)

86. During Site visit except domestic animals no other mammalian species are recorded in town area. Similarly, no fishing activity or fish species are recorded during site visit. Following are the common Reptiles, Amphibians and Fish fauna of Dungarpur district, reported in Forest working plan of Dungarpur division for year 2012&13 to 2021& 22

Table 12A: Common Reptiles of Dungarpur area

S. No	Common Name	Scientific name	IUCN Status
1.	Indian sawback	*Kachnuga tecta*	VU

S. No	Common Name	Scientific name	IUCN Status
2.	Indian mud turtle	*Lissemys punctata*	VU
3.	Ganges softshell	*Aspideretes gengeticus*	CR
4.	Starred tortoise	*Geochelone elegans*	VU
5.	Northern house geeko	*Hemidactylus flaviviridis*	LC
6.	Fat-tailed gecko	*Eublepharis macularivus*	LC
7.	Common garden lizard	*Calotes versicolor*	LC
8.	Indian chameleon	*Chamaeleon zeylanicus*	LC
9.	Common skink	*Mabuya carinata*	LC
10.	Common Indian monitor	*Varanus beagalansis*	NT
11.	Johr's earth boa	*Eryx johnii*	NT
12.	Indian python	*Python molurus*	NT
13.	Common rat snake	*Ptyas mucosus*	NA
14.	Common wolf snake	*Lycodon aulicus*	LC
15.	Green keelbaack	*Macropisthodom plumbicolor*	NA
16.	Common Indian krait	*Bungarus caeruleus*	LC
17.	Indian cobra	*Naja naja*	LC
18.	Russell's viper	*Vipera russelii*	LC
19.	Saw scaled viper	*Echis carinata*	NA
20.	Indian Cat Snake	*Boiga trigonata*	LC
21.	Checkered Keelback	*Xenochrophis piscator*	LC
22.	Trianket Snake	*Coelognathus helena*	LC
23.	Blind Snake	*Ramphotyphlops braminas*	LC
24.	Russell's Earth Boa	*Eryx conicus*	NT

LC – Least concern: NA – Not Assessed; NT - Near threatened; VU - Vulnerable ; CR- Critically endangered
Source: Forest working plan of Dungarpur division for year 2012&13 to 2021& 22

Table 12B: Common Amphibians of Dungarpur area

S. No	Common Name	Scientific name	IUCN Status
1.	Common Indian Toad	*Bufo melanostictus*	LC
2.	Indian Bull Frog	*Hoplobatrachus tigerinus*	LC
3.	Indian Burrowing Frog	*Sphaerotheca breviceps*	LC
4.	Indian Cricket Frog	*limnocharis limnocharis*	NA

LC – Least concern: NA – Not Assessed;
Source: Forest working plan of Dungarpur division for year 2012&13 to 2021& 22

Table 12C:Common Fishes of Dungarpur District

S. No	Common Name	Scientific name	IUCN Status
INDIAN MAJOR CARPS			
1.	Catla	*Catla catla*	LC
2.	Narains	*Cirrhinus mrigala*	LC
3.	Rohu	*Labeo rohita*	LC
4.	Kalaunt	*Labeo calbasu*	LC
5.	Mammola	*Labeo fimbriatus*	LC

INDIAN MINOR CARPS			
6.	Pathar chat	*Garra gotyla gotyla*	NA
7.	Bata	*Labeo bata*	LC
8.	Raiya	*Labeo boggat*	NA
MINNOWS & WEED FISHES			
9.	Zebra	*Rasbora daniconius*	LC
10.	Puthi	*Labeo ticto*	NA
11.	Gurda	*Osteobrama cotia*	NA
12.	Bamna	*Botia lohaachata*	NA
13.	Gurda	*Osteobrama cotia*	NA
14.	Bamna	*Botia lohaachata*	NA
15.	Goby	*Glossogobuis giuris*	NA
16.	Khaarda	*Trichogaster fasciatus*	NA
17.	Sia	*Ambassis nama*	NA
18.	Suya	*Xenentodon cancilla*	NA
19.	Gorrah	*Rhinomugil corsula*	LC
20.	Bam	*Mastacembalus armatus*	NA
21.	Balu	*Lepidocephalichthys guntea*	LC
22.	Chilwa	*Esomus danricus*	LC
23.	Chaudla	*Danio devario*	NA
24.	Suiya	*Gadusia chapra*	
25.	Chal	*Chela bacaila*	
26.	Chal	*Chela clupeoides*	
MURRELS			
27.	Sanwal	*Channa marulius*	LC
28.	Girhi	*Channa punctatus*	LC
29.	Kabra	*Channa striatus*	LC
30.	Solly	*Channa gachua*	LC
CAT FISHES			
31.	Magur	*Clarias batrachus*	LC
32.	Pabda	*Ompak bimaculatus*	NA
33.	Lanchi	*Wallaga attu*	NA
34.	Katva	*Mystus cavasius*	LC
35.	Pitar	*Mystus aor*	LC
36.	Singhara	*Mystus seenghala*	LC
37.	Singhi	*Heteropneustes fossilis*	LC

LC – Least concern: NA – Not Assessed;
Source: Forest working plan of Dungarpur division for year 2012&13 to 2021& 22

87. The project areas of Sagwara have been also screened to determine critical habitats which includes presence of Key Biodiversity Areas (KBAs) and Protected areas (PAs) using the Integrated Biodiversity Assessment Tool (IBAT). As per the Proximity report generated by IBAT, there are no protected area nor any key biodiversity areas within the buffer of 10km or 50 km

radius of the subproject components. None of the project components are falling within protected or forest areas and no wildlife has been reported within the proposed area. Biodiversity Assessment Report (IBAT Analysis) Sagwara town has been attached with this report as **Appendix 4.**

C. Economic Development

1. Land use

88. Sagwara Master Plan provides land use details of the town. Out of total 1946 acre urban area, 38.53 % is developed urban area. Rest of the land is under water body and vacant and agricultural land. Details of the land use is provided in **Table 13** below-

Table 13: Existing Land Use of Sagwara

S. No.	Land Use	Area (in Acres)	Percentage of Developed area (%)	Percentage of Urban area (%)
1	Residential	1582	58.80	55.90
2	Business	144	5.40	4.80
3	Industrial	199	7.40	6.60
4	Govt. / Semi Govt.	14	0.50	0.50
5	Recreation	36	1.40	1.20
6	Public and Semi Public	195	7.30	6.50
7	Transport, roads and Recirculation	517	19.20	17.30
	Developed Area	**2687**	**100.00**	**89.80**
8	Agriculture	58	-	1.9
9	Open land	213	-	7.1
10	Water body	32	-	1.20
	Total Urban area	**2990**	**-**	**100.00**

*Source: Master Plan Sagwara 2011-2031

2. Commerce, Industry & Agriculture

89. Tiles and marble industry are the main industries of the town. Sagwara is not very much developed from industrial development point of view. Currently, 20 acre land is being used for the industrial development which is 2.68 % of the total developed area.

90. **Agriculture**. There are some agricultural lands within municipal limits. The major crops of the Kharif season are maize, rice, black gram, soybean and cotton, while wheat, gram and barley are major Rabi crops.

3. Other Infrastructure

91. **Storm Water Drainage:** Sagwara town is facing severe drainage problem resulting water logging on roads and low lined areas during the rainy season, even though the rain is moderate. The surface runoff from the town finally gets accumulated in every monsoon season in the outskirts of town in low lying areas.

92. **Power Supply:** Distribution of power in the town is the responsibility of the Rajasthan State Electricity Board. Power is generated and supplied from Mahi Hydel Project, Banswara. Main electricity line is 81 kms away from the town. The major sector for electric consumption is domestic which constitute 14.53% small scale industries consume 2.48% of power.

93. **Transport:** Transport in the city is mainly by personal vehicles (motorcycles and bicycles) and auto-rickshaw and private taxis. The Rajasthan State Road Transport Corporation (RSRTC) runs public buses to neighbouring villages and towns and to larger towns farther afield. Government and private buses are also available frequently for neighbour state of Gujrat.

D. Socio Cultural Resources

1. Demography

94. As of 2011 India census, Sagwara had a population of 29349. Males constitute 14704 of the population and females 14735. Sagwara has an average literacy rate of 69.22%, lower than the national average of 75.30%: male literacy is 54.55%, and female literacy is 45.45%. In Sagwara, 12.87% of the population is under 6 years of age. Total children (0-6) are 3788 as per figures of Census India report 2011.There are 2064 boys and 1724 girls. Sex Ratio of the city is 900 per 1000 males. Sex Ratio of child is 785 per 1000 boys.

2. History, Culture and Tourism

95. The district Dungarpur is named after 'the town of hillocks' and the capital of the former princely state of Dungarpur. Sagwara is a Tahsil in Dungarpur District. The material remains of the Ahar civilization discovered in Mewar region constitute remnants of the civilization which may date back to 4000 year ago. From Ahar this culture extended to other centres in the south-east of Rajasthan including parts of present Dungarpur and Banswara district.

96. Majority of the population belongs to Hindu religion and it also has a significant population of Jains and Dawoodi Bohras (A Shia Islamic Muslim community).

97. Important temple in the area is Baneshwar Mahadev temple which was constructed in 17th Century and is a well-known tourist place near Sagwara. Temple is dedicated to Hindu Lord Shiva, It is located about 30 km from Sagwara.

98. There is no historically, culturally and archeologically significant structure/monuments in Sagwara town. The nearest ASI protected monuments in Dungarpur district are Somnath Temple at Deo Somnath about 31 km and Jain Temple Inscription in Baroda village about 25 km from Sagwara.

Table 14: Environmental Features of Project sites

S. No	Subproject component	Environmental Features of the Site	Photographs
1	**Masaniya Lake**	The lake is situated in the north-western side of the town. Town is mostly located on the east of the lake, and there is also some residential areas in the south-east. A 132 kV electrical substation is located at the north side of lake. Electric lines from 132 kV substation are passing over the lake. The area of lake is 10.6 ha. Lake is protected by a bund on two sides – northeast and southeast. The main road connecting the town traverses on the bund, another bund connects substation. A *ghat* is developed on the lake front on the bund with steps up to low water level. This *ghat* is constructed using red stone. There are no bunds on the other sides, and water reaches up to natural contour level. All lands up to this water level are under the water body as per land records. Lake receives runoff mainly from hilly and agricultural areas in the northwest. No wastewater enters into the lake from the town areas. Lake is filled with aquatic weeds mainly *Hydrilla verticillate, Nymphaea pubescens, Nelumbo nucifera, Azolla, and Nymphoides* indica plants. Lake water is not used for any purpose such as drinking, irrigation etc., This lake mainly used by local people for religious activities of various communities (mohrram, idol immersion, religious rituals such as bathing etc.,). Outflow / discharge from Masaniya lake flows downstream and reach Mahi River. The source of water pollution is mainly from religious activities and agricultural runoff. Water quality is generally poor during low water levels. During post monsoon season, when the lake is full, water quality is generally good. Vegetation – lake is surrounded by shrubs mostly of *Angrezi Babul* (*Prosopis juliflora*), and there are also few trees such as neem, tamarind etc along the bunds. There are no trees within the area proposed for improvements, and therefore no trees will be removed. Some vegetation / shrubs may be cleared in some places. There are no notable presence of birds at this lake. Eurasian collared Dove and Rock Pigeon are sighted during the visits. There are no nests noticed on the trees. There is no fishing activity in the lake.	 Masaniya Lake  Ghat used for religious purposes on the bund  Degenerated ecosystem of Mansaniya Lake

S. No	Subproject component	Environmental Features of the Site	Photographs
2	**Lohariya Lake**	The Lake is situated in the northern outskirts of the town. Residential areas are on the south of the lake. The area of lake is 11.6 ha. Lake is protected by bunds on all sides. On Eastern side bund, there is a *ghat on the lake front*, and temple comp*lex* next to the ghat. Ghat is in poor condition. Bunds on the northeast side also acts as a road connecting the town. Lake receives runoff mainly from hilly and agricultural areas in the north. No wastewater enters into the lake from the town areas. Lake is filled with aquatic weeds mainly *Hydrilla verticillate, Nymphaea pubescens, Nelumbo nucifera, Azolla, and Nymphoides* indica plants. Lake water is not used for any purpose such as drinking, irrigation etc., This lake mainly used by local people for religious activities of various communities (idol immersion, religious rituals such as bathing etc.,). Outflow / discharge from Lohariya lake flows downstream into Hariyala lake. The source of water pollution is mainly from religious activities and agricultural runoff. Water quality is generally poor during low water levels. During post monsoon season, when the lake is full, water quality is generally good. Vegetation – lake is surrounded by shrubs mostly of *Angrezi Babul* (*Prosopis juliflora*), and there are also few trees such as neem, desi babul etc along the bunds. There are no trees within the area proposed for improvements, and therefore no trees will be removed. Some vegetation / shrubs may be cleared in some places. There are no notable presence of birds at this lake. Ruddy Shelduck, knob-billed duck, and Indian Pond-heron are sighted during the visits. There are no nests noticed on the trees. There is no fishing activity in the lake.	   

S. No	Subproject component	Environmental Features of the Site	Photographs
	Hariyala Lake	Hariayala lake is situated at the north-eastern side of town. Lake is mostly surrounded by agriculture areas. The area of lake is 0.32 ha, and is the smallest lake. There are no defined bunds. Small amount of water is noticed during the visit in the post monsoon season. There is one temple and a primary school in south of the lake. Lake connected with motorable kuccha road. Lake receives runoff mainly from agricultural areas and overflow/discharge from Loharia lake in the north. Lake water is not used for any purpose such as drinking, irrigation etc., No notable algae or aquatic weeds noticed in the lake. Outflow / discharge from Hariyala lake flows into Gemariya Lake-02. Vegetation – Vegetation – lake is surrounded by shrubs mostly of Angrezi Babul (*Prosopis juliflora*). There are no notable presence of birds at this lake. Cattle egret and Common Myna are sighted during the visits. There is no fishing activity in the lake.	 
	Gamariya Lake-02;	Gemariya lake– 02 (Boariya) is the small lake in Sagwara, situated at the eastern side of town. Lake is mostly surrounded by agriculture areas. The area of lake is 0.64 ha. Lake is protected by bunds on two sides – north and east. Bunds are also used as connecting roads. There are no bunds on the other sides, and water reaches up to natural contour level. All lands up to this water level are under the water body as per land records. Outflow/discharge from Gamariya lake-02 flows into Gamariya Lake-01. A *ghat* is developed on the lake front on the bund with steps up to low water level on the eastern bund. Lake receives runoff mainly from agricultural areas and overflow/discharge from Hariyala lake in the north. A drain carrying runoff during rains, and wastewater from town areas discharges into the lake from northern side. Lake water is not used for any purpose such as drinking, irrigation etc., Washing of cloths by local people observed. It is also not used for religious purposes. Algal growth has been observed in the lake with water in green colour, indicating sewage contamination.	 

S. No	Subproject component	Environmental Features of the Site	Photographs
		Vegetation – there is no notable vegetation or trees in the lake or bunds. There are no notable presence of birds at this lake. White-breasted Kingfisher, Intermediate Egret, *and* White-browed Wagtail *were seen on the banks of* Gameryia lake -02. There is no fishing activity in the lake.	
3	**Gemariya Lake-01**	The lake is situated in the south eastern side of town, and is mostly surrounded by residential areas (except north). In the north, there are agricultural fields. There is a small island within the lake thickly covered with babul (*acacia* species) trees. The area of lake is 5.5 ha. Lake is protected by bunds on all sides, except in the north from where it receives water from its catchment areas. This lake also receives water/discharge of Gemariya lake-02, which is located on the upstream side (north), about 600 m. This lake areas is used by local people for recreation purposes. There are sitting areas, walkways / footpaths, street lights, etc., on the southside bund. There are steps leading (like *ghat*) up to low water level. Bhairavji temple and Sai temple are situated near the lake. Lake receives runoff mainly from agricultural areas and overflow/discharge from Gemariya lake-02 in the north. It also receives wastewater from surrounding residential areas. Lake is filled with aquatic weeds mainly water hyacinth. Lake water is not used for any purpose such as drinking, irrigation etc., It is also not used for religious purposes. Vegetation – lake is surrounded by shrubs mostly of *Angrezi Babul* (*Prosopis juliflora*), and there are also few trees planted along the road (bund) on the southern side. These are mainly avenue trees, species include Ashoka and Areca palm. There are no trees within the area proposed for improvements, and therefore no trees will be removed. Some vegetation / shrubs may be cleared in some places. Large number of water birds, mainly Egrets, Grey heron, Asian openbill are observed in the island. local enquires indicate these birds mostly present in the island during post-monsoon and winter seasons (August-March). These visit island for nesting. These are common birds distributed over wider area, almost entire India, and are of least concern per IUCN Redbook classification.	   Island in the background; lake covered with water hyacinth

S. No	Subproject component	Environmental Features of the Site	Photographs
		No works or interventions proposed in the island. Works will involve removal of water weeds/hyacinth in the lake which is extended all-around the island. Works will be avoided during nesting period.	
	Development of school Playground	The proposed playground is located near Government Higher Secondary School at Sagwara on Banswara road The land proposed to be developed as playground is a government land attached with Government school. Total Playground area – 1.2 ha, and is connected with a black top road. The playground is currently used, fully vacant, there are no trees or vegetation (except grass due to rains) in the ground.	 

VI. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Introduction

99. Potential environmental impacts of the proposed infrastructure components are presented in this section. Mitigation measures to minimize/mitigate negative impacts, if any, are recommended along with the agency responsible for implementation. Monitoring actions to be conducted during the implementation phase is also recommended to reduce the impact.

100. Implementation of the subproject will restore the five lakes and their ecosystem health and beautification of their lake front will improve the ambiance of the surroundings. Interconnection of lakes will help in flood mitigation and development of green zone along the link channel will help in restoring the natural environment of the city. Development of a playground and will provide sport opportunity to students and youth for various sports. No project component is proposed in any protected area/ forest blocks and all the project activities are confined to urban premises of Sagwara and have no adverse impact on ecosystem and biodiversity. Plantation of trees as proposed in the subproject is the major component wherein plantation is proposed in tune with moisture conditions including submerged, emerged macrophysics and terrestrial plants. This component will help in providing additional nestling, perching opportunity to the birds and will help in improving overall environment of Sagwara. Project will have following benefits

(i) Proposed Sagwara lakes restoration works will improve the water storage, surface water quality, it improves/restores the ecology of the lake (including the flora and fauna); and also improves the environmental status of the areas around the lakes.
(ii) Restoration of lake would improve the ground water quality and increases the groundwater recharge capacity in the surrounding areas, which will be beneficial for the local community.
(iii) Providing walk way, jogging track and other amenities would benefit the local people and thereby misuse of lake area will considerably reduce.
(iv) Increase in storage of water, improvement in ground water recharge, and reduction in flooding of nearby areas are the major positive impacts envisaged.
(v) As an indirect positive impact, the land value surrounding the lake area will increase.
(vi) Preventing discharge of untreated Sewage / Industrial effluent in to lake through the provision of sewerage system (a separate subproject proposed in the town under RSTDSP-AF), will improve water quality
(vii) Restoration works will protect the lake areas from any encroachments.
(viii) The project would improve awareness of the people around the lake and develop positive attitude towards the environment.
(ix) Improved opportunities for local youth in sports

B. Design and Location Impacts

101. Subproject will improve, restore and beautify five lakes with public amenities in Sagwara. These lakes are: Masaniya lake, Lohariya lake, Hariyala lake, Gemariya lake– 01 and Gemariya lake– 02. These are urban lakes, located within the municipal area, and are not notified or protected either by Government of Rajasthan's. Lake (Protection and Development) Authority or under Government of India' Wetlands (Conservation and Management) Rules, 2017. The proposals are in line with National Lake conservation guidelines. [8]

[8] https://www.iitr.ac.in/wfw/web_ua_water_for_welfare/environment/NLCP_guidelines_2008.pdf

102. There is no tree cutting involved at proposed sites. However, if at all required, permission for tree cutting will be acquired prior to tree cutting, will plant and maintain 3 trees for each tree that is removed. Prior survey will be conducted to check for bird nests so that any damage / disruption is avoided. Proposed works will be mainly conducted on the bunds and surroundings, except removal of aquatic weeds in the water body. There are no notable flora and fauna in the project areas. Birds are limited to local species. The island in Gemariya lake-01 is home to various water birds (local species), which use it for nesting during post monsoon / winters (October – March). No works are proposed in the island. The removal of weeds around the island may create disturbance to birds. These are mainly due to works, and are discussed and mitigation measures provided in the construction impacts section.

103. **Removal of aquatic Weeds.** Gemariya lake-01 is highly infested with exotic weed 'water hyacinth' and is responsible for infilling of this lake (decaying and degenerating water hyacinth resulting in infilling of lake and losses of fish habitat). It is proposed to remove the water hyacinth. As water hyacinth absorbs most of the nutrients from water for self-growth, it has a high nutrient content and may be used to prepare good quality compost. Other lakes, except Hariyala lake, are also filled with algae, and aquatic weeds mainly Hydrilla verticillate, Nymphaea pubescens, Nelumbo nucifera, Azolla, and Nymphoides indica plants. Following measures shall be implemented:

(i) Contract to consult with biodiversity expert of PMBSC and PIU to schedule weed removal works; best suited methods and equipment; activity shall not conducted during post monsoon and winter in Lohariya lake where there is bird island
(ii) There is a risk of weeds or seeds re-entering the lakes if not removed or disposed properly; remove weeds properly and completely, disposed on land away from the lakes so that fragments or seeds do not enter the lakes
(iii) Floating material during removal/harvesting shall be corrected properly (large fish nets can be used)
(iv) Weeds shall be drained off by placing the removed piles on a platform that can drain water down, ensure that drained water do not enter lakes or water bodies;
(v) Compost the weeds such that they decompose rapidly; co-compost using material such as hay or straw or leave in layers to compost weed to avoid odour nuisance.
(vi) Identify site for temporary storage and composting of aquatic weeds prior to start of activity

104. **Tree plantation:** The proposed to develop green area along the link channel connecting the lake. Avenue plantation around the lakes is also proposed. A total of 60,000 plants are to be planted under the subproject. The tree species will be selected based on the recommendations of the local forest office, and local experts, if any, will also be consulted. This will improve the biodiversity of the area.

(i) Native plants are indigenous to a particular region and are adapted to the local microclimate and soil conditions, and therefore work well for restoration / landscaping and wildlife habitat creation. Once established, they rarely need watering, mulching and protection. It is advisable to introduce native plant species for resilience in the plantation areas
(ii) Include local fruit yielding species for birds and flowering plant for butterflies that provide food and shelter for birds, butterflies and animals.
(iii) Consult forest department, local persons with interest in biodiversity to identify species to be planted

C. Pre-construction Impacts

105. Consents, permits, clearances, no objection certificate (NOC), etc. Necessary consents/NOC as per section IV will be required during pre-construction phase and before any civil works commence. A copy of Consent/Permission/Clearance/ NoC should be included in the monitoring reports and submitted to the PIU by the Contractor. Failure in obtaining the same will result in delay of work and may lead to stoppage of works.

106. Mitigation measures. The following measures will be conducted during the detailed design and pre-construction phase prior to start of construction:

(i) ULB to obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.
(ii) Contractor to obtain necessary consents, permits, license etc., required for construction, and submit copies to PIU; PIU to acknowledge in writing
(iii) Contractor to update IEE and EMP prior to starting of works to reflect any changes in project design during design verification and detailed field survey, and submit to ADB for clearance and disclosure
(iv) Contractor to prepare SEMP based on the updated EMP, and approved by PIU prior to commencement of works
(v) Include in detailed design drawings and documents, all the conditions and provisions stipulated in permits, consents issued by regulatory agencies, if any.
(vi) the proposed construction activities should be implemented in a controlled manner minimizing the noise levels. The dB(A) levels for residential area (day time noise level 55 dB(A) and night time noise level 45 dB(A)) should be maintained. In work locations, close to the existing roads where noise levels are exceeding the threshold limit the project should not result in an increase of more than 3 dB(A) over existing ambient noise levels at the nearest receptor location off-site.
(vii) Contractor to conduct pre-construction (baseline) environmental monitoring as indicated in EMP budget tables. The monitoring results shall be referred as baseline quality for key environmental parameters of air, water and noise)
(viii) Continue consultation with the local communities during detailed design, and implementation and provide information in the language that is understandable to the local community regarding project activities and the anticipated impacts as part of the project information dissemination.
(ix) Due to the current COVID-19 pandemic situation, there is a risk of virus spread at the work sites and offices, endangering the health and lives of workers and staff, and surrounding community, Proper measures need to be put in place at the work sites, and offices as stipulated by the government regulations and advisories issued by international organizations such as World Health Organization (WHO), International Labour Organization (ILO) etc.,, and contractor should ensure that proper measures are put in place and ensure compliance. Contractor should also encourage vaccination of all workers and staff engaged in project work.

107. **Site selection of construction work camps, stockpile areas, storage areas, and disposal areas.** Priority is to locate these near the project location. However, if it is deemed necessary to locate elsewhere, sites to be considered will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems. Residential areas will not be considered for setting up construction camps to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust and noise and to prevent social conflicts, shortages of amenities and crime). Extreme care will be taken to prevent

disposals near forest areas, water bodies, swamps or in areas which will inconvenience the community. Construction sites, including disposal sites, will be selected by contractor in compliance with these conditions and the same will be reflected in Site Environmental Management Plan (SEMP) which is to be prepared by contractor prior to start of construction and approved by PIU.

108. **Site selection of sources of materials.** Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution. To mitigate the potential environmental impacts, locations of quarry site/s and borrow pit/s (for loose material other than stones) would be assessed by PIU. Priority would be sites already permitted by Mines and Geology Department. If new sites are necessary, these would be located away from population centres, drinking water intakes and streams, cultivable lands, and natural drainage systems; and in structurally stable areas. It will be the construction contractor's responsibility to verify the suitability of all material sources and to obtain the approval of Department of Mines & Geology and local revenue administration. If additional quarries will be required after construction is started, then the construction contractor shall use the mentioned criteria to select new quarry sites, with written approval of PIU. Contractor will identify sources of water for construction purposes and obtain necessary permissions as required, and approval of PIU before the use. Details of material sources and water sources will be provided in SEMP.

109. **Debris and Silt disposal.** Prior to the commencement of works, contractor shall identify a debris disposal site in consultation with the PIU and Consultant. Contractor will prioritize, if available, the use of solid/construction waste disposal sites operated under the consent from RSPCB. Contractor will follow all the prescribed rules[9] during construction and adhering to following criteria (including but not limited to)-

(i) Contractor shall prepare a construction and demolition waste management plan in pre-construction phase for safe disposal of construction and demolition wastes as per applicable rules and submit to PIU for approval
(ii) Dispose the construction waste and debris in construction and demolition waste management facility approved by RSPCB; if such facility is not available near the project town, the contractor shall identify disposal site confirming to the criteria, obtain permissions from local body and government agencies as required, and submit for the approval of PIU; disposal sites shall be used only after approval of the PIU
(iii) Sites shall not be located in forest areas, water bodies or drainage lines, swamps or in areas which will inconvenience the community
(iv) The site shall be selected preferably from barren, infertile lands.
(v) The local governing body and community shall be consulted while selecting the site.
(vi) Debris disposal site shall be at least 200 m away from surface water bodies.
(vii) No residential areas shall be located within 100 m downwind side of the site.
(viii) The site is minimum 250 m. away from sensitive locations like hospitals, religious places, ponds/lakes or other water bodies.

110. **Utilities:** Utilities like water supply pipelines (if any), telephone lines, electric poles, and wires within the proposed subproject locations may require to be shifted in few cases. To mitigate the adverse impacts due to relocation of the utilities, the following measures will be followed:

[9]Construction and Demolition Waste Management Rules 2016 (refer appendix 7 and Table 4)

Mitigation Measures:

(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase;
(ii) Conduct detailed site surveys with the construction drawings and discuss with the respective agencies during the construction phase, before ground clearance;
(iii) Require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. In case of disruption of water supply, alternative supply, through tankers, shall be provided.

111. **Socio-cultural resources**. There are no notable archaeological places and protected monuments in project area. Therefore, there is little or no risk of uncovering archaeological remains, however considering the long history of town, Construction contractors therefore should follow the below measures in conducting any excavation work. There are few temples located close to the lakes. No disturbance to these temples envisaged as works will not encroach into temples.

(i) Create awareness among the workers, supervisors and engineers about the chance finds during excavation work;
(ii) Stop work immediately to allow further investigation if any finds are suspected;
(iii) Inform local Archaeological Department / Museum office if a find is suspected and take any action, they require to ensure its removal or protection in situ
(iv) Temples should not be disturbed, and ensure that works are conducted without utmost care close to the temples; consult with temple authorities prior to start of works adjacent to temples

112. **Preparation of H&S Plan for Pandemic like COVID-19,** With the existing EHS guidelines contracture has to prepare a site specific EHS plan including COVID -19 guidelines based on following principles and it get approved from PMU before staring of construction, the Contractor shall abide by the most stringent procedure available.

(i) Consistently practice social distancing.
(ii) Cover coughs and sneezes.
(iii) Maintain hand hygiene.
(iv) Clean surfaces frequently.

D. Construction Impacts

113. **Demolition works**. It is accessed that there is no requirement of demolition of structures. If any demolition works are required, proper work plan and Mitigation measures will be required for demolition works. Structures to be demolished should be wetted through water sprinkling to reduce dust emission. All the safety measures should be adopted during demolition activities.

114. **Sources of Materials.** Significant amount of gravel, sand, coarse aggregate, and cement will be required for this project. The construction contractor will be required to:

(i) Use material sources permitted by government
(ii) Verify suitability of all material sources and obtain approval of PIU;

(iii) Ensure that the loading and unloading of the materials and the transportation of the materials from source to construction site does not cause impact on health and safety of the workers and the community; and
(iv) Submit to PIU on a monthly basis documentation of sources of materials. . If contractor is purchasing ready mix concrete, asphalt/macadam and aggregates from third party, contractor will assure that all the parties/ suppliers are having CTE/CTO from RSPCB and will collect the copy of these certificates and submit to PIU/consultants

115. **Air Quality.** During the construction phase, activities such as de-silting, and re-construction /repairing of bund and inlet/outlet structures, other activities including casting of CC Blocks and its transportation will generate dust Anticipated impacts include dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons. These however will be temporary limiting to construction activities only. To mitigate the impacts, construction contractors will be required to:

(i) Consult with PIU/on the designated areas for stockpiling of soils, gravel, and other construction materials;
(ii) Damp down exposed soil and any stockpiled material on site by water sprinkling;
(iii) Use tarpaulins to cover sand and other loose material when transported by trucks;
(iv) Clean wheels and undercarriage of haul trucks prior to leaving construction site
(v) Don't allow access in the work area except workers to limit soil disturbance and prevent access by barricading and security personnel
(vi) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly, DGs should have proper stake height as per norms;
(vii) Ensure all the equipment are having PUC certificates
(viii) Do regular water sprinkling in dusty areas to reduce dust emission during works
(ix) Damp down the structures before demolishing to reduce dust emission
(x) Damp down on regular basis all the access ways
(xi) Maintain all the equipment and vehicles to reduce emission of smoke and keep pollution under control and keep records of periodic maintenance
(xii) Conduct ambient air quality monitoring periodically as per Environmental Management Plan EMP

116. **Surface Water Quality.** Subproject do not include removal of silt or sediment from the lakes. It involves cleaning, mainly removal of aquatic weeds. This activity may negatively impact the water quality. Run-off from stockpiled materials and chemical contamination from fuels and lubricants during construction works can contaminate lake water and drainage channels. Water pollution may be caused due to spillage of grease and oil from the heavy machine being used for construction. These potential impacts are temporary and short-term duration only.

(i) Avoid any construction camps and labour camps near to any water body and do not allow to dispose any waste or sullage in to any water body
(ii) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets, and perimeter bunds to avoid silt runoff
(iii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with PIU on designated disposal areas;
(iv) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;

(v) Place storage areas for fuels and lubricants away from any drainage leading to water bodies and provide impermeable lining under the storage yard of fuels and lubricants
(vi) Keep oil tray or pans under the DG set or during maintenance of mechanical equipment to avoid oil spillage resulting soil and water pollution, and
(vii) Conduct surface water quality Monitoring according to the Environmental Management Plan (EMP)

117. **Noise and Vibration Levels**. Construction works will be conducted in and five lakes. Residential areas are located close to few lakes, but generally lakes are away from habitations. Construction noise may not significant affect the town population, however, heavy noise may affect the fauna, especially birds in the area. This impact is negative but short-term, and reversible by mitigation measures. The construction contractor will be required to:

(i) Use low noise producing methods and equipment
(ii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and use portable street barriers to minimize sound impact to surrounding sensitive receptor;
(iii) DGs being used at site should have sound reducing (acoustic) enclosures, preferably silent DGs should be used at site;
(iv) Conduct work only during day light hours; no works shall be conducted after sunset
(v) Provide all workers appropriate PPEs like ear plug/muff, working in high noise conditions;
(vi) Keep all vehicles and equipment in good conditions to avoid excessive noise generation;
(vii) Follow day time ambient noise levels as per Noise Pollution (Regulation and Control) Rules, and
(viii) Conduct noise monitoring according to the environmental management plan (EMP)

118. **Impacts on Flora and Fauna.** Scrub on the lake boundary, mainly consisting of *Prospis juliflora* and aquatic herbs near / on the bunds will be removed prior to bund strengthening. However, these would quickly grow back after construction. During construction it will be ensured that the existing trees near the bund are not disturbed. Weeds in the lake will be removed. As evident, it would be difficult to work during the rainy season, with high water level in the lake. Care would be taken to stage the construction during non-monsoon days/ summer season. This would prevent disturbance to water birds which are more during this time. The Gameriya -01 lake has a bird nesting island. Measures are required to safeguard these birds and nesting island. There are no works proposed in island in Gemariya -01, so no impacts envisaged due to works. The works for removal of weeds in the lake, may disturb the birds due to noise and movement of workers. Degradation of air and water quality would lead to degradation of vegetation and the overall quality of their habitats. Increased noise levels and disturbance levels would also result in their displacement from the area. Direct disturbance by presence of people, vehicle, their noise, vibrations, lights etc. can potentially displace the species. Therefore, it is recommended that ULB and contractor shall take utmost care during construction period to minimize disturbance levels due to vehicle movement, controlling noise levels, avoiding construction during night hours. Following measures are to be implemented to avoid/minimize the impacts:

(i) Scheduling the clearance works, especially in Gemariya lake -01, during the summers and non-monsoon season (March-October); normal bird

breeding/nesting season is between October-March; use less disturbing methods to remove aquatic weeds

(ii) The area around lakes shall not be disturbed or damaged during transportation of vehicle and materials, storage or parking, workers camps, trespassing etc. activities during construction and operational phases; vehicle movements shall be restricted to bare minimum to avoid any direct disturbance to the surrounding area

(iii) Conduct a rapid survey of the work area for presence of nest; and isolate the area without disturbing them until they hatch; conducting site clearance works in summer when most birds don't breed will avoid these impacts

(iv) Workers has to be trained and made aware if nest noticed during the restoration activity close to work site should report to the monitoring team and should isolate the place.

(v) Do not remove or harm existing vegetation except those required under proposed contract; strictly instruct workers not to cut trees for fuel wood.

(i) Conduct site induction and environmental awareness, and ensure that birds or any flora or fauna is not disturbed or harmed; poaching and hunting activities of birds, reptiles or mammals around the project site be strictly prohibited and monitored

(vi) Limit activities within the work area.

(vii) Replant trees in the area using minimum ratio of 3 trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department.

(viii) Strict control on dust pollution using various methods and technologies shall be carried out. During construction, operation, phases water sprinkling on haul roads, overburden and soil dumps shall be carried out regularly to control dust pollution.

(ix) Ensure zero discharge of solid waste from the project site into the lakes and its surrounding area.

(x) Batch plants shall be kept away from lakes.

119. **Impact on Biodiversity**. Intervention in Lakes involves removal of weeds and floating matter, bund strengthening, and construction works above HFL of lakes. The expected impacts of the project on the biodiversity can be in different stages from the initiation of construction work to completion. These activities will have their own impacts at different magnitude, such impacts are localized and temporary or short term as discussed above. In operation phase of the project, very less impact is predicted. The negative impacts anticipated from implementation of this project are minimal and the benefits will be considerable in long-term perspective. The Sagwara lakes dot have a rich biodiversity and almost all the species of both fauna and flora listed are either least concerned or not evaluated according to the International Union for Conservation of Nature (IUCN) Red List. Even this species was recorded in very less number and very few times in a year.

120. In long-term view after the completion of the project, in the evolutionary processes no structural changes in the region is expected, such as change in the topography, geology, soil, temperature, and vegetation, and combination of any of these components. This region is not a biological corridor for any species of both fresh water and terrestrial species which can restrict species migration and gene flow.

121. The lake development project is likely to change or influence the ecology and environment of the region. The weed removal and bund formation will naturally have impacts on the flora such as trees, herbs and shrubs, in the lakes, the vegetation in the bund is very sparse and mostly occupied by Prosopis thus the impact of vegetation during execution is very minimal.

122. Bird Islands, either natural or man-made, always constitute a very special environment for fauna. It's a land isolated and away from other lands and protected from land-dwelling predators that cannot or will not swim to the islands, including grazing livestock that damage the flora. Thus, bird islands naturally increase opportunities for propagation of more diverse fauna with diverse habitat in water, at the water edge, and on the island. The nesting birds enable nutrient transfer from one habitat to another. Fish and other aquatic prey are high on organic compounds and are consumed by aquatic birds. The birds then visit farmlands and fields were they either roost or feed. The excreta they produce is especially rich in nitrogen, phosphate and potassium and hence very good for agriculture. These places also provide various social, recreational, and educational benefits, and increase awareness among the communities and promote overall well-being and sustainable development.

123. Based on the assessment the following mitigation measures are to be implemented to minimize / mitigate the anticipated impacts.

(i) Short-term changes in water quality during and after project execution is anticipated, which will temporarily increase the turbidity of the water and will be back to normal based on the retention. Construction works will be conducted during dry season when the lake has no water or has very low water level

(ii) Physical impacts can be caused due to erosion and deposition within the lakes if the execution happens during monsoon, thus restoration activity (cleaning and bund formation) during monsoon seasons has to be restricted also precautionary measures (measures to prevent soil erosion) needs to be implemented during pre-monsoon season

(iii) Environment friendly nature signage along the bunds and viewing platforms will enhance community and visitor participation. Interpretative signage concerning the different facets of the natural environment of the Lakes and the surrounding area can be an attraction if the signage is created with natural material.

(iv) Environmental awareness / education programs designed for schools and local people should involve children, parents and teachers ensuring that different levels of the community take away the information. The programs can be designed in different ways to make sure that there is on-site learning and classes designed for in-house sessions in schools as a follow up to field sessions. Thus, helping us strike a balance between experiential learning and theoretical understanding of various topics. The following topics needs to be covered:
   a. Biodiversity
   b. Watershed and wetlands
   c. Land and water
   d. Energy
   e. Sewage and Solid waste management
   f. Ecosystem services
   g. Climate change

(v) Native plants are indigenous to a particular region and are adapted to the local micro climate and soil conditions, and therefore work well for restoration / landscaping and wildlife habitat creation. Once established, they rarely need watering, mulching and protection. It is advisable to introduce native plant species for resilience in the plantation areas

(vi) Include local fruit yielding species for birds and flowering plant for butterflies that provide food and shelter for birds, butterflies and animals.

(vii) Fish biodiversity of Sagwara lake is comparatively poor. Since the lake is connected to other lakes in the upstream and downstream, it is expected that new

fish species will come into the lake via connecting drains/stream during monsoon / rains. This will further enhance the biodiversity.

124. **Disruption of Access and traffic safety**. Since lakes are located away from habitation, no notable access impediment is envisaged. Some of the lake bunds are used as access roads, however, no works on active roads proposed. Presence of works, materials and equipment close to the road, may create safety risks to road users and workers. There are few temples located close to the lakes, access may be impeded during the works. Hauling of construction materials and operation of equipment on-site can cause traffic problems. No road closures are anticipated, however, short-term closures may be needed during movement of heavy vehicles or loading and unloading operations, especially where lake bunds are used as access roads. Potential impact is negative but short term and reversible by mitigation measures. The construction contractor will be required to:

(i) Ensure uninterrupted access to temples and public and private places near the lake. Provide walkways and metal sheets where required to maintain access across for people and vehicles;
(ii) provide proper signage to caution public and devotees from dangers of construction works.
(iii) Provide hard barricades and deploy security personnel to ensure safe movement of people and also to prevent unnecessary entry and to avoid accidents in the work sites
(iv) Consult with concerned religious authorities, nearby people and devotees in pre-construction phase and explain the work method and duration of proposed works, take their suggestions and comments and incorporate in construction schedule
(v) Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places,
(vi) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;
(vii) Schedule transport and hauling activities during non-peak hours;
(viii) Locate entry and exit points in areas where there is low potential for traffic congestion;
(ix) Keep the site free from all unnecessary obstructions;
(x) Drive vehicles in a considerate manner;
(xi) Coordinate with Traffic Department for temporary partial closure, diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and
(xii) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.
(xiii) Schedule transport and hauling activities during non-peak hours Locate entry and exit points in areas where there is low potential for traffic congestion;
(xiv) Drive vehicles in a considerate manner;
(xv) Coordinate with Traffic Police for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours; and
(xvi) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.
(xvii) Inform the affected local population 1-week in advance about the work schedule

125. **Socio-Economic-Employment.** Manpower will be required during the 18-months construction stage. This can result in generation of temporary employment and increase in local

revenue. Thus, potential impact is positive and long-term. The construction contractor will be required to:

(i) Employ local labour force to the maximum extent
(ii) Secure construction materials from local market to the extent possible

126. **Occupational Health and Safety.** Workers need to be mindful of the occupational hazards which can arise from the construction works. Work place presents specific risks such as drowning and poisonous snakes, etc., Potential impacts are negative and long-term but reversible by mitigation measures. Construction contractor will depute experienced EHS personnel and will be required to:

(i) Comply with all national, state and local labour laws (see Appendix C-12);
(ii) Develop and implement site-specific occupational health and safety (OH&S) Plan which will include measures such as: (a) excluding public from the site; (b)ensuring all workers are provided with and use personal protective equipment;(c) OH&S Training[10] for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
(iii) Ensure that qualified first-aid is provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;
(iv) Provide medical insurance coverage for workers;
(v) Secure all installations from unauthorized intrusion and accident risks;
(vi) The project area experiences extreme temperature during summer months of April and May, which may affect the health of workers engaged in construction work. Contractor should take necessary measures during summers including the following:
(vii) Work schedule should be adjusted to avoid peak temperature hours (12 -3 PM)
(viii) Provide appropriate shade near the work place; allow periodic resting and provide adequate water
(ix) Provide necessary medicine and facilities to take care of dehydration related health issues
(x) Provide supplies of potable drinking water;
(xi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances;
(xii) Provide H&S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
(xiii) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;
(xiv) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
(xv) Ensure moving equipment is outfitted with audible back-up alarms;

[10] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.

(xvi) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and

(xvii) Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.

(xviii) Follow all the protocols and guidelines (WHO interim guidelines and RSTDSP-EAP SOP and COVID-19 Management Plan) as given in Appendix C-24&C-25.

127. **Community Health and Safety**: Hazards posed to the public during the construction, specifically in areas close to residential areas or areas where there is people movement or traffic. All the five lakes are located on the outskirts, and there is no notable movement of people or activities. However, lake bunds are used as access roads, and in case of one lake, the main access road of Sagwara passes on the bund. However, no works are proposed on the road. There is no movement people or any activities near the lakes, except at the temples, where local people regularly visit, and large number of visitors are expected during festivals or other such special occasions. Playground where the sports facilities are to be developed is within the school compound and is presently used. The works may pose risk to school children if not properly protected, and entry not restricted and secured. Works may also disturb the school activities if high noise activities are conducted during the school hours, and since the work involve earthwork and levelling, it may also produce considerable dust. The construction contractor will be required to:

(i) Completely isolate the construction site from school access and activities by proper barricading, access restriction and posting security guards so that no students/children or any public enters the construction site

(ii) If part of the playground is allowed for school children; it should be properly isolated, and school authorise and children must be made aware of the dangers of entering construction area

(iii) Plan construction activities in consultation with school authorities; no construction vehicles should use the access during school opening, closing and recess times that coincide with the movement of students and staff on access road. Create awareness among drivers on specific and additional precautions to bet taken

(i) Ensure proper dust control;

(ii) Heavy noise works shall be conducted only with prior information to school authorities and shall be scheduled outside school hours as far as possible.

(iv) Code of conduct for workers includes restricting workers in designated areas no trespassing, no residence at construction sites,

(v) Schedule transportation activities by avoiding peak traffic periods;

(vi) Clean wheels and undercarriage of haul trucks prior to leaving construction site;

(vii) Educate drivers: limit speed not more than 30 km/h in settlements and avoid use of horn;

(viii) Earmark parking place for construction equipment and vehicles when idling; no parking shall be allowed on the roads, that may disturb the traffic movement;

(ix) Provide adequate space and lighting, temporary fences, reflectorized barriers and signages at the work site; and

(x) Put in place emergency measures and first aid; ensure contractor has staff trained on emergency response.

128. **Work Camps**. Operation of work camps can cause temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants. Potential impacts are negative but short-term and reversible by mitigation measures. The construction contractor will be required to:

(i) Consult PIU before locating project offices, sheds, and construction plants;
(ii) Minimize removal of vegetation and disallow cutting of trees;
(iii) Provide drinking water, water for other uses, and sanitation facilities for employees;
(iv) Provided temporary rest and eating area at all work sites;
(v) Ensure conditions of liveability at work camps are maintained at the highest standards possible at all times; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be used as accommodation for workers; accommodation shall meet the IFC standards for workers accommodation [11] which include: provision of safe housing, availability of electricity, plumbing, water and sanitation, adequate fire protection and dormitory/room facilities; accommodation shall be in the range from 10 to 12.5 cubic meter (m3) (volume) or 4 to 5.5 square meters (m2) (surface) per worker, a minimum ceiling height of 2.10 m; a reasonable number of workers are allowed to share the same room–(standards range from 2 to 8 workers); workers with accompanying families shall be provided with a proper and safe accommodation (Suggested guidelines based on IFC benchmark standards for workers accommodation is provided in **Appendix C-22);**
(vi) Prohibit employees from poaching wildlife and cutting of trees for firewood;
(vii) Train employees in the storage and handling of materials which can potentially cause soil contamination;
(viii) Recover used oil and lubricants and reuse or remove from the site;
(ix) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;
(x) Remove all wreckage, rubbish, or temporary structures which are no longer required; and
(xi) Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.

129. Biological hazards are among the environmental risks that may adversely impact the health and wellness of the workers and the community. Breakouts of diseases such as diarrhoea, flu or pandemics such as the COVID19 shall be avoided. Designs and implementation of treatment systems shall ensure that disease-causing pathogens or viruses are disinfected and will not cause any health issues.

130. **Site clean-up and restoration**. The contractor will be required to:

(i) Backfill any excavation, preferably with excess excavation material generated during the construction phase.
(ii) Use remove topsoil to reclaim disturbed areas.
(iii) Re-establish the original grade and drainage pattern to the extent practicable.
(iv) Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees.

[11] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_workersaccommodation

(v) Restore staging areas and temporary work areas.
(vi) Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish and dispose in designated disposal sites.
(vii) Request in writing from PIU that construction zones have been restored.

E. Operation and Maintenance Impact

131. Impacts on environmental conditions associated with the O&M of the project components pertain to impacts related to increased visitors, safety risk, increased vehicular movement along the roads, increased demands for services, and increased solid waste generation. The proposed sewerage project under RUIDP phase -IV will also cover entire Sagwara town including catchment of these lakes, this will reduce contamination of lake water with town wastewater which will further improve water quality and prevent eutrophication of lakes.These impacts can be mitigated by:

(i) As a measure to restrict the access of lakes to designated areas and to ensure the safety of people moving in the pathways and public zones, railings shall be provided at All Public Zones, Along walkways, Along lake view seating
(ii) Emergency procedures shall be put in place such as rescue divers, lifejackets shall
(iii) Increased vehicular movement along the roads - speed restrictions, vehicle entry restrictions, provision of appropriate road signage, pedestrians safety etc., shall minimize impacts on safety of the visitors
(iv) Lack of proper amenities like washrooms/ toilets for visitors will create filthy and unhealth conditions at the lake and surroundings; provide and maintain adequate number of washrooms, toilets, and create awareness and ensure that there is no open defecation (included in the project)
(v) Wastewater outlets from washrooms, toilets shall be connected to sewerage system (to be developed under separate subproject), if not feasible, shall be discharged to septic tanks (water sealed on all sides and bottom to avoid contamination of soil and groundwater). Semi treated wastewater from septic tanks should sent to sewage treatment plant (using mobile tankers with suction systems) for further treatment and disposal. Cleaning and desludging operation of septic tanks shall not be conducted manually.
(vi) Increase solid waste generation –local authority to put in place solid waste collection system
(vii) Water quality of the lakes to be monitored as per monitoring plan
(viii) Potential presence of venomous reptile species around the lake, also pose a risk to visitors and staff. Reptiles are mostly nocturnal and opportunistic, when there are no activities it tends to move out and as a precautionary measure antivenom/antivenin drug will be made available along with the First aid kit. Information on drug shall be displayed prominently, and awareness will be created not to harm the reptiles
(ix) The commercial surface water activities like, boating, etc. shall be confined and restrict to avoid any negative impacts on nesting birds
(x) No night-time activity shall be permitted in lake water.
(xi) Ensure that catchment area of all lakes are covered under ongoing sewerage scheme.

VII. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Overview

132. The active participation of stakeholders including local community, NGOs/CBOs, and the media in all stages of project preparation and implementation is essential for successful implementation as well as operation of the project. It will ensure that the subprojects are designed, constructed, and operated with utmost consideration to local needs, ensures community acceptance, and will bring maximum benefits to the people. Public consultation and information disclosure is a must as per the ADB policy.

133. A three-tier consultation process has been adopted for RSTDSP project: focus group discussions, primary household sample surveys and a City-level public consultation workshop. Most of the main stakeholders have already been identified and consulted during preparation of preliminary design and IEE, and any others that are identified during project implementation will be brought into the process in the future. Primary stakeholders of the subproject are residents, shopkeepers and businesspeople who live and work alongside the roads in which network improvements will be provided, and government and utility agencies responsible for provision of services, Sagwara Municipal Council. Secondary stakeholder are: NGOs and CBOs working in the area, community representatives, beneficiary community in general, government agencies, the executing and implementing agencies (LSGD and RUDSICO-EAP), Government of India and the ADB.

B. Public Consultation during Project Preparation

134. The public consultation and disclosure program is a continuous process throughout the project implementation, including project planning, design and construction. Informal and formal consultations at different locations were also conducted during social and environmental impact assessment in Sagwara in 29 March, 2022 and 11 April 2022.

135. A consultation meeting with elected ward councillors conducted 0n 16 May 2022, where in which proposed redevelopment works of lakes and playground was discussed in detail. A town level consultation meeting was also conducted at Sagwara on 13-08-2022, this meeting was attended by Municipal President Narendra Khodania, Vice President Raju Mama Sheikh, elected ward councillors of all 22 wards of Sagwara municipality, local public, NGOs and other officials of Sagwara municipality. The Junior Engineer Lokesh Patidar apprised the team about the proposed water supply sewerage plant for Sagwara and the proposed project of beautification of the ponds. In the meeting, Sagwara Municipal President Narendra Khodania told that as per the Chief Minister's budget announcement, Sagwara city was included in the fourth phase of RUIDP. Proposed projects in Sagwara (water supply, sewerage and lake development and city beautification) under the ADB funded project were discussed.

136. Institutional consultations were conducted with the Governmental Departments such as Local Self Government Department, Sagwara Municipal Council, etc. The project proposals are formulated in consultation with SMC and the proposals have been finalized only after certification of both; that the proposals suit the requirements of the ULB.

137. Focus-group discussions with residents and other stakeholders were conducted to learn their views and concerns. A social and environmental impact assessment has been conducted in the City, covering sample households and nearby vendors to understand the basic characteristics of City, health status, and the infrastructure service levels, and also the demand for infrastructure

services. Informal and formal consultation are conducted with local population of the area, about at 5 places along with proposed alignment with about 47 persons in July 2021 (Appendix 3).

138. Discussions were held about proposed project components, EMP measures, grievance redressal, ownership of land and general people perception for proposed project. It was noted that people are willing to extend their cooperation as the proposed activities are supposed to enhance the infrastructure service levels and the living standard of the public. The public expressed their concern regarding the nuisance and disturbance (dust, road closure and traffic management activities) during the construction stage which can have impact on their day-to-day activities. Public demanded for advance notice before construction and proper warning signs along the construction area to avoid accidents and inconvenience. Project team responded to the issues on nuisance and disturbance raised during the consultation that measures have been incorporated in the EMP. Details of public consultations are given in **Appendix 3.**

139. Mr Mukesh Panwar, a government School teacher and Butterfly expert of Sagwara was also consulted. During Consultations he informed that the forest department has celebrated Butterfly festival in Sagwara on 24-Feb -2018. Mr Panwar insisted to select more butterfly friendly plants in the area to support local biodiversity. He assured to provide list of local plants for promoting birds and butterfly breeding at the time of construction.

140. A City-level City Level Committee (CLC) has been formed in Dungarpur district by Government orders. City Level Committee meeting was organized to which representatives of primary and secondary stakeholders were invited. City Level Stakeholder committee meeting was organized for finalization of works of Five Lakes of Sagwara Lake Redevelopment subproject in Sagwara city in District Head Quarter, Dungarpur on dated. 29.07.2021 under the chairmanship of District Collector, Dungarpur, in presence of, DPR consultants, RUDSICO-EAP officials, PHED officials, Municipal Council officials, UIT officials, PWD and other invitee members. Proposed scope of works and designs were discussed in the meeting. Land availability for the proposed components was also confirmed by local authority. The feedback and concerns of the stakeholders were taken into consideration for finalization of design and scope of works. The project was agreed by the committee for further course of action by RUDSICO-EAP. Details of CLC meeting, minutes and photographs are attached in **Annexure 3.**

141. Consultation with Rajasthan Lake (Protection and Development) Authority was done, and it was noted that the lake is not notified by Rajasthan Lake (PD) Authority under the Authority Act.

142. As a part of the city development and beautification; on the basis of stakeholder consultations and field studies, it is proposed to rejuvenate five natural wetlands on ecosystem-based solutions. It will develop new recreational space for local public as well as for tourists. New development is proposed to develop green space around the lakes and improve link channel between the lakes for effective discharge of water from one lake to other in extreme rains. Subproject also aims to Develop a Playground to provide sports opportunities to students and youth. While designing the structures and landscape, ecosystem approach was considered so that the interventions improve the ecosystem health of lakes and improve its water quality and conserve its biodiversity.

143. The potential project components that emerged out of the discussions are:

(i) Restoration of five lakes of Sagwara and their interconnectivity to improve flood water discharge and flood mitigation.

(ii) Lake Front development including its beautification, lighting, development of green area, development of jetties, installation of decorative fountains, providing street furniture and to develop other amenities to convert the dilapidated lake front into a centre of recreation.
(iii) Development of a playground to provide sports opportunity to students and youth.

C. Consultation During Construction

144. Prior to start of construction, SMC and PIU with the assistance of Consultants will conduct information dissemination sessions at major intersections and solicit the help of the local community leaders/prominent citizens to encourage the participation of the people to discuss various social and environmental issues. At each ward/neighbourhood level, focus group meetings will be conducted to discuss and plan construction work with local communities to reduce disturbance and other impacts, and provide a mechanism through which stakeholders can participate in project monitoring and evaluation.

145. A constant communication will be established with the affected communities to redress the environmental issues likely to surface during construction and operational phases and also regarding the grievance redress mechanism. ULB and PIU with the help of Community Awareness and Participation Consultant (CAPC) will organize public meetings and will appraise the communities about the progress on the implementation of EMP. Meeting will also be organized at the potential hotspots/sensitive locations before and during the construction.

D. Information Disclosure

146. Executive summary of the IEE will be translated in the local language and made available at the offices of ULB and RUDSICO-EAP- PMU and PIU. Copies of summary will be provided to participants of city level workshop to be organized in Sagwara. Hard copies of the IEE will be accessible to citizens as a means to disclose the document and at the same time creating wider public awareness. Electronic version of the IEE in English and Executive Summary in Hindi will be placed in the official website of the SMC and RUDSICO-EAP after approval of the IEE by Government and ADB. Stakeholders will also be made aware of grievance register and redress mechanism.

147. Public information campaigns via newspaper/radio/TV, to explain the project details to a wider population will be conducted. Public disclosure meetings will be conducted at key project stages to inform the public about the progress and future plans. Prior to start of construction, the PIU will issue Notification on the start date of implementation in local newspapers A board showing the details of the project will be displayed at the construction site for the information of general public.

148. Local communities will be continuously consulted regarding location of construction camps, access and hauling routes and other likely disturbances during construction. The road closure together with the proposed detours will be communicated via advertising, pamphlets, radio broadcasts, road signage, etc.

VIII. GRIEVANCE REDRESS MECHANISM

A. Project Specific Grievance Redress Mechanism

149. A project-specific, three-tier grievance redress mechanism (GRM) covers both environment and social issues. The GRM will be established to receive, evaluate, and facilitate the resolution of affected persons' concerns, complaints, and grievances about the social and environmental performance at project level. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns related to the project. Assessment of the GRM designed and implemented for Rajasthan Urban Sector Development Program (RUSDP)[12] the system was effective in timely resolution of grievances in a transparent manner.[13] The multichannel, project-specific, three-tier GRM is functional at RUSDP, hence the design of GRM for RSTDSP takes into account the proposed institutional structure for RSTDSP and the positive features and learnings from the previous GRM.[14] RSTDSP-AF will utilize the same GRM and will be expanded to new project towns funded under the additional financing project.

150. **Common Grievance Redress Mechanism.** A common GRM will be in place for social, environmental, or any other grievances related to the project. Implementation of the resettlement plans/RIPPs/DDRs/IEEs will follow the GRM described below. The GRM will provide an accessible and trusted platform for receiving and facilitating resolution of affected persons' grievances related to the project.

151. Public awareness campaigns within entire ULB/Municipal area will ensure that awareness on grievance redress procedures is generated. The nodal officer- social/environment at field level through community awareness and public participation consultant (CAPPC) will conduct ULB/Municipal area-based awareness campaigns to ensure that poor and vulnerable households are made aware of grievance redress procedures and entitlements. Contractors will provide pamphlets to communities prior to start of works and billboards during construction. The pamphlets and billboards will include relevant environmental and social safeguards, GRM information, and contact details of key personnel from PIU and contractors.

B. Grievance Redress Process

152. Affected persons will have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaint/suggestion boxes that will be installed by project PIUs or by e-mail, by post, or by writing in a complaints register in ULB offices/complaints register

[12] The procedures followed for grievance redress during implementation of RUSDP Phase III included the project GRM and the pilot GRM software application (smart check) in Pali, the Sampark portal of Government of Rajasthan, and the Chief Minister's helpline. Complaints received through various channels were mostly minor and pertained to damage to existing water supply pipelines and disruption of water supply during construction, delays in road restoration, and pending new connections. Complaints related to damage to private property (compound walls/steps, etc.) were less in number. The grievances were mostly possible to resolve in coordination with the contractors. Complaints received were immediately referred by the CAPC/PMDSC supervision staff to the PIU Nodal officer (safeguards) and concerned engineer at PIU, who advised them on further action. Follow up with the contractor on complaint resolution was undertaken by PIU Nodal officer CAPC and PMDSC and final feedback sought from complainant upon resolution. Complaints requiring inter-departmental coordination were referred to the PMU for resolution, and feedback provided to complainant. The PMU kept regular track of grievances through WhatsApp and email alerts, ensuring registration and follow-up until resolution.

[13] Town-level grievance registration data indicates that a large number of grievances were registered, pointing to the effectiveness of the multi-channel GRM. No major grievance was received for RUSDP Phase III. The GRM helped smoothen the process of project implementation, hence the proposed architecture for the RSTDSP GRM remains similar, with some refinement, taking into account the changes in institutional setup proposed for project implementation.

[14] Continued logistics support at field level will be key to successful management of grievance redress under RSTDSP. The target date for establishment of the first level (PIU level) and second level (Zonal level) of GRM is before loan negotiation.

at contractor's work site[15] or by sending a WhatsApp message to the PIU[16] or by dialling the phone number of town level PIU/CAPPC or by dialling a toll-free number.[17] Any aggrieved person can also avail the facilities of online grievance monitoring system 'Rajasthan Sampark' portal to register their grievances which is a parallel mechanism of grievance registration, in addition to the project GRM.[18] Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken and feedback provided to the complainant on action/decision taken. The Safeguard and safety officer of town/city level PIU will have the overall responsibility for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, with the assistance of project consultants. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor, and officials of PIU with assistance from CMSC and CAPPC on-site will provide the most easily accessible or first level of contact for quick resolution of grievances. Contact numbers and names of the concerned PIU safeguard and safety officer, contractors, CAPPC and CMSC personal will be posted at all construction sites at visible locations.

(i) **1st level grievance**. The contractors, PIU executive engineer/assistant engineer designated as safeguard and safety officer (social and environment), CMSC (safeguard staff) and CAPPC can immediately resolve issues on-site, in consultation with each other and will be required to do so within 7 days of receipt of a complaint/grievance. If required, city level monitoring committee (CLMC)[19] will be involved in resolution of grievances at the 1st level;

(ii) **2nd level grievance**. All grievances that cannot be redressed within 7 days at field/PIU level will be brought to the notice of Zonal PIU headed by Additional Chief Engineer (ACE). The ACE at zonal PIU will resolve the grievance within 7 days of receipt of compliant/grievance in discussion with the ASO, field level PIU, CMSC, CAPPC and the contractor; and

(iii) **3rd level grievance**. All the grievances that are not addressed by Zonal PIU within 7 days of receipt will be brought to the notice of the PMU. Depending on the nature of grievance, the project officer (social/environment) at PMU will resolve the grievance within 15 days of receipt of grievance with necessary coordination of Zonal PIU and CMSC and guidance/instruction of additional project director (APD-PMU).

153. Grievances not redressed through this process within/at the project level within stipulated time period will be referred to the CLC/GRC, which has been set up.[20] In its role as a GRC, the

[15] RUSDP piloted an online application based live GRM counter for resolution of public grievances over and above the usual process of grievance registration and redressal. This app based GRM - "RUIDP Smart Check" is available at Google play store (free of cost) and is operational. The RUIDP Smart Check "app" was launched in Pali town in July 2017 and is proposed to be scaled up in RSTDSP project towns. For persons without access to the application, the traditional channels will continue to be available.

[16] It is suggested for each PIU to have a dedicated WhatsApp group for registration of grievances and receipt of quick feedback, to be followed by more formal communication.

[17] Project contractors in all project towns will have a toll-free number with specific working hours for registration of grievances related to RSTDSP.

[18] http://www.sampark.rajasthan.gov.in/RajSamWelcome.aspx

[19] The CLMC has been formed at the town/city level for planning and monitoring of work, resolve issues related to departmental coordination etc. It is headed by Commissioner/Executive Officer ULB (Chairman) and city engineer of public health engineering department (PHED), public works department (PWD) and head of PIU acting as Member Secretary.

[20] City Level Committee (CLC)/grievance redress committees (GRCs) has been constituted for each town/city under the Chairmanship of District Collector to provide overall subproject guidance and "to sort out issues and remove

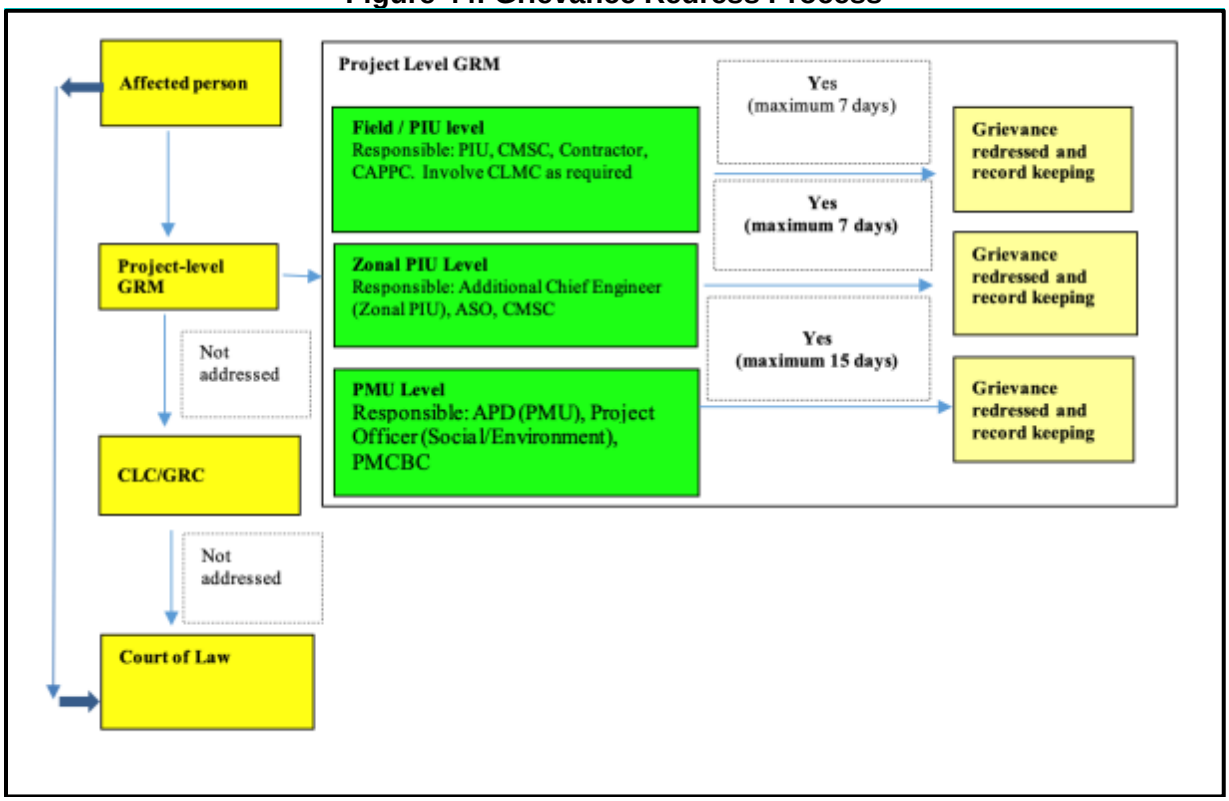
CLC will meet whenever there is an urgent, pending grievance. Other grievances can be discussed during its regular meetings. Zonal PIU will inform the CLC regarding any grievances required to be resolved urgently. The GRC will resolve the grievance within 15 days of receiving the complaint. In case of any indigenous peoples impacts in subprojects, the CLC/GRC must have representation of the affected indigenous people community, the chief of the tribe or a member of the tribal council as traditional arbitrator (to ensure that traditional grievance redress systems are integrated) and an NGO working with indigenous people groups. The multi-tier GRM for the project is outlined below (Figure 44), each tier having time-bound schedules and with responsible persons identified to address grievances and seek appropriate persons' advice at each stage, as required. The GRC will continue to function throughout the project duration.

154. The project GRM notwithstanding, an aggrieved person shall have access to the country's legal system at any stage and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM. In case of grievance related to land acquisition, resettlement and rehabilitation, the affected persons will have to approach a legal body/court specially proposed under the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (RFCTLARRA), 2013.[21]

hindrances, if any". CLC formed at city-level/district level with members composed of: District Collector as Chairperson, and following as members: ULB Commissioner/Mayor/Chairman; Deputy Mayor/Vice Chairman ULB; Chairman/Secretary Urban Improvement Trust (UIT); Head of Zonal/field level PIU as Member Secretary; one representative each from relevant government departments as appropriate (PWD/PHED/Town Planning Department etc.). All CLCs in their role as GRCs will have at least one-woman member/chairperson. In addition, for project-related grievances, representatives of affected persons, community-based organizations (CBOs), and eminent citizens will be invited as observers in GRC meetings. The concerned Member of Parliament (MP) and Member of Legislative Assembly are also part of the CLC.

[21]The Authority admits grievance only with reference to the Land Acquisition and R&R issues under the RFCTLARRA, 2013.

Figure 44: Grievance Redress Process



APD = Additional Project Director, ASO = Assistant Safeguards Officer, CAPPC = community awareness and public participation consultant, CMSC = construction management and supervision consultants, CLC = city level committee, CLMC = city level monitoring committee, GRC = grievance redress committee, PIU = project implementation unit, PMU = program management unit, PMCBC = project management and capacity building consultant.

155. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.[22]

156. Record-keeping. The PIU of each town/city will keep records of grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were affected and final outcome. The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PMU office, PIU offices, and on the web, as well as reported in monitoring reports submitted to ADB on a semi-annual basis. The sample grievance registration format is attached as **Appendix C-17**

157. Periodic review and documentation of lessons learned. The PMU Project Officers (Social and Environment) will periodically review the functioning of the GRM in each town and record information on the effectiveness of the mechanism, especially on the project's ability to prevent and address grievances.

[22] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp.

158. Costs. Contractors are required to allocated budget for pamphlets and billboards as part of the EMP. Costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) will be borne by the concerned PIU at town level while costs related to escalated grievances will be met by the PMU. Cost estimates for grievance redress are included in resettlement cost estimates.

159. Presently GRC in ongoing project towns are functional as per RSTDSP's Grievance Redress Mechanism (GRM). Therefore 2nd and 3rd level GRC are already functional at Zonal PIUs (at Jaipur and Jodhpur) and PMU levels. PIU level GRC shall be formed in upcoming project towns after PIUs in new towns are established through office order from PMU for the same

IX. ENVIRONMENTAL MANAGEMENT PLAN

A. Environmental Management Plan

160. The purpose of the environmental management plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i)providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project;(iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the project; and (iv) ensuring that safety recommendations are complied with.

161. A copy of the EMP must be kept at work sites at all times. This EMP will be included in the bid documents and will be further reviewed and updated during implementation. The EMP will be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

162. For civil works, the contractor will be required to (i) establish an operational system for managing environmental impacts (ii) carry out all of the monitoring and mitigation measures set forth in the EMP; and (iii) implement any corrective or preventative actions set out in safeguards monitoring reports that the employer will prepare from time to time to monitor implementation of this IEE and EMP. The contractor shall allocate budget for compliance with these EMP measures, requirements and actions. Tables for Environment Management Plan during Design, Pre-construction, Construction and Operation phases are given below.

Table 18: Environmental Management Plan of Anticipated Impacts during Pre-Construction

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
Compliance with environmental subproject selection criteria	Environmental impacts due to subproject	Compliance with environmental subproject selection criteria	PIU and ULB	PMU	No costs required
Assessment of environmental parameters rapid surveys of flora and fauna prior to start of works works planning to avoid birds breeding season Awareness creation among worders and staff	Change of baseline conditions Damage / disturbance to flora fauna, lake habitat	• Contractor to conduct lake bottom soil/sediment testing during the construction works to check the physical, chemical, heavy metal, and biological quality parameters • Conduct a rapid survey of the lake area for presence of nest; and isolate the area without disturbing them until they hatch • Create awareness among the workers and staff about the lake environment, and preventing any damage or harm to flora, fauna • Workers has to be trained and made aware if nest noticed during the restoration activity should report to the monitoring team and should isolate the place. • Do not remove or harm existing vegetation except those required under proposed contract.	Contractor	PIU / PMU	Project cost
Legal compliance	Environmental legal noncompliance may attract legal actions Failure to obtain necessary consents, permits, NOCs etc. can result to design revisions	(i) Obtain all consents, clearances (CTE/CTO from RSPCB), permits NOCs etc. before start of construction works Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction requirements	PIU/Consultants in coordination of ULB	PMU	Cost of obtaining all consents, permits, clearance, NOCs etc. prior to start of civil works responsibility of PIU.

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
	and/or stoppage of works				
Environmental monitoring of baseline conditions of air, noise, water and soil	To establish base line environmental conditions	Environmental monitoring through NABL approved laboratory	Construction contractor	CMSC/ PIU	Contractor
Tree plantation and land scaping at lakes	Planting exotic, invasive and/or species not suitable for local conditions may harm the environment	• Native plants are indigenous to a particular region and are adapted to the local microclimate and soil conditions, and therefore work well for restoration / landscaping and wildlife habitat creation. Once established, they rarely need watering, mulching and protection. It is advisable to introduce native plant species for resilience in the plantation areas • Include local fruit yielding species for birds and flowering plant for butterflies that provide food and shelter for birds, butterflies and animals. • Consult forest department, local persons with interest in biodiversity to identify species to be planted	CMSC, PIU and Construction contractor	PMU	Contractor
Cleaning and removal of aquatic weeds from the lakes	Re-entry of weeds improper disposal, odour nuisance	• Contract to consult with biodiversity expert of PMBSC and PIU to schedule weed removal works; best suited methods and equipment; activity shall not conducted during post monsoon and winter in Lohariya lake where there is bird island • There is a risk of weeds or seeds re-entering the lakes if not removed or disposed properly; remove weeds properly and completely, disposed on land away from the lakes so that	Construction contractor in consultation with PIU	CMSC/ PIU	Contractor

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
		fragments or seeds do not enter the lakes • Floating material during removal/harvesting shall be corrected properly (large fish nets can be used) • Weeds shall be drained off by placing the removed piles on a platform that can drain water down, ensure that drained water do not enter lakes or water bodies; • Compost the weeds such that they decompose rapidly; co-compost using material such as hay or straw or leave in layers to compost weed to avoid odour nuisance. • Identify site for temporary storage and composting of aquatic weeds prior to start of activity			
Utilities	Telephone lines, electric poles and wires, water lines and gas pipe lines within proposed project area	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and • Require construction contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services.	Contractor in collaboration with PIU and with approval of PMU	CMSC/ PIU	No cost required. Mitigation measures are part of TOR of PMU, PIU and Consultants
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	• Prioritize areas within or nearest possible vacant space in the project location; • If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems;	Contractor to finalize locations in consultation and approval of PIU	CMSC/ PIU	No cost required. Mitigation measures are part of TOR of PIU and Consultants and also part of contractual terms

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
		• Do not consider residential areas; For excess spoil disposal, Contractor will prioritize the use of solid/construction waste disposal sites operated under the consent from RSPCB. If unavailable or not feasible, contractor shall identify disposal site confirming to the following criteria, obtain permissions from local body and other government agencies as required, and submit for the approval of PIU; disposal sites shall be used only after approval of the PIU: (a) sites shall not be located in forest areas, water bodies or drainage lines, swamps or in areas which will inconvenience the community (b) site shall be selected preferably from barren, infertile lands. (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like hospitals, religious places, ponds/lakes or other water bodies			
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and	• Prioritize sites already permitted by the Department of Mines and Geology • If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of PMU and • If additional quarries will be required after construction is started, inform construction contractor to obtain a written approval from PIU.	Contractor to prepare list of approved quarry sites and sources of materials with the approval of PIU	CMSC/ PIU	No cost required. Mitigation measures are part of TOR of PIU and Consultants and also part of contractual terms

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
	water logging, and water pollution.				
Consents, permits, clearances, NOCs, etc.	Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	• Tree cutting- local authority • Sand mining, quarries, borrow areas- Department of mines and Geology • Traffic diversion, local authority, traffic police • Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. • Include in detailed design drawings and documents all conditions and provisions if necessary	PIU and Consultants	PMU	No cost required. Cost of obtaining all consents, permits, clearance, NOCs, etc. prior to start of civil works responsibility of PIU. Mitigation measures are part of TOR of PIU and Consultants
Social and Cultural Resources	Risk of archaeological chance finds	• Create awareness among the workers, supervisors and engineers about the chance finds during excavation work; • Stop work immediately to allow further investigation if any finds are suspected; • Inform local Archaeological Department / Museum office if a find is suspected and take any action, they require to ensure its removal or protection in situ • Temples should not be disturbed, and ensure that works are conducted without utmost care close to the temples; consult with temple	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Implementation	Monitoring of Mitigation	Cost and Source of Funds
		authorities prior to start of works adjacent to temples •			

Table 19: Environmental Management Plan of Anticipated Impacts during Construction

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
EMP Implementation Training	Irreversible impact to the environment, workers, and community	• Project manager and all key workers will be required to undergo EMP implementation including spoils management, Standard operating procedures (SOP) for construction works; occupational health and safety (OH&S), core labour laws, applicable environmental laws, etc. • Contractor has to depute a qualified EHS personnel in the start of the project to conduct training to all the personnel and effective monitoring of mitigation measures during construction	Construction Contractor	CMSC/ PIU	Cost of EMP Implementation Orientation Training to contractor is responsibility of PMU. Other costs responsibility of contractor.
Air Quality	Emissions from construction vehicles, equipment, and machinery used, resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons.	• Consult with PIU/on the designated areas for stockpiling of soils, gravel, and other construction materials; • Damp down exposed soil and any stockpiled material on site by water sprinkling; • Use tarpaulins to cover sand and other loose material when transported by trucks; • Clean wheels and undercarriage of haul trucks prior to leaving construction site • Don't allow access in the work area except workers to limit soil disturbance and prevent access by barricading and security personnel • Fit all heavy equipment and machinery with air pollution control devices which are operating correctly, DGs should have proper stake height as per norms; • Ensure all the equipment are having PUC certificates • Do regular water sprinkling in dusty areas to reduce dust emission during works	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Damp down the structures before demolishing to reduce dust emission • Damp down on regular basis all the access ways • Maintain all the equipment and vehicles to reduce emission of smoke and keep pollution under control and keep records of periodic maintenance • Conduct ambient air quality monitoring periodically as per Environmental Management Plan EMP			
Water quality	Mobilization of settled silt materials, and chemical contamination from fuels and lubricants can contaminate nearby surface water quality.	• Avoid any construction camps and labour camps near to any water body and do not allow to dispose any waste or sullage in to any water body • Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets, and perimeter bunds to avoid silt runoff • Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with PIU on designated disposal areas; • Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; • Place storage areas for fuels and lubricants away from any drainage leading to water bodies and provide impermeable lining under the storage yard of fuels and lubricants • Keep oil tray or pans under the DG set or during maintenance of mechanical equipment to avoid oil spillage resulting soil and water pollution, and	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Conduct surface water quality Monitoring according to the Environmental Management Plan (EMP)			
Material Management	i. Management of Excavated silt ii. Construction debris and excavated materials.	• The excavated silt should be used for the bund strengthening; the quantum of silt required for this purpose shall be stored at the site, and the excess silt shall be transported in covered trucks to disposal site and register should be maintained at the site. • Excess silt should be removed from the site as soon as possible, preferably daily, minimizing on-site storage	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.
Accessibility	Traffic problems and conflicts near project locations and haul road	• Ensure uninterrupted access to temples and public and private places near the lake. Provide walkways and metal sheets where required to maintain access across for people and vehicles; • provide proper signage to caution public and devotees from dangers of construction works. • Provide hard barricades and deploy security personnel to ensure safe movement of people and also to prevent unnecessary entry and to avoid accidents in the work sites • Consult with concerned religious authorities, nearby people and devotees in pre-construction phase and explain the work method and duration of proposed works, take their suggestions and comments and incorporate in construction schedule • Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		disturbance/hindrance/obstacles during such time to the religious places, • Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; • Schedule transport and hauling activities during non-peak hours; • Locate entry and exit points in areas where there is low potential for traffic congestion; • Keep the site free from all unnecessary obstructions; • Drive vehicles in a considerate manner; • Coordinate with Traffic Department for temporary partial closure, diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and • Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. • Schedule transport and hauling activities during non-peak hours Locate entry and exit points in areas where there is low potential for traffic congestion; • Drive vehicles in a considerate manner; • Coordinate with Traffic Police for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours; and • Notify affected sensitive receptors by providing sign boards informing nature			

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		and duration of construction works and contact numbers for concerns/complaints. • Inform the affected local population 1-week in advance about the work schedule			
	Operation of construction machinery	• All construction vehicles should comply with emission standards and be maintained properly Wind shields or Install barriers (GI sheets, geo-net) should be installed all along the site boundary to abate the dust carried over to the neighbouring areas. • Use of ready-mix concrete wherever possible shall be explored. In the case of use of concrete mixer, it should be mounted on shelter with top and sides closed. • Sprinkling of water on metal & sand should be carried out before handling	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.
Impact on water flow to Lakes	Contamination of lake water	• Contractor shall ensure that no construction materials like earth, stone, waste disposed off in a manner that block the flow of water to and from the lakes. • Contractor shall take all necessary measures to prevent any blockage to the water flow. • In addition to the design requirements, the Contractor shall take all required measures as directed by the Environmental Specialist of PIU to prevent temporary or permanent flooding of the site or any adjacent area.	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of	• Use low noise producing methods and equipment • Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers,	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
	equipment, materials, and people	and use portable street barriers to minimize sound impact to surrounding sensitive receptor; • DGs being used at site should have sound reducing (acoustic) enclosures, preferably silent DGs should be used at site; • Conduct work only during day light hours; no works shall be conducted after sunset • Provide all workers appropriate PPEs like ear plug/muff, working in high noise conditions; • Keep all vehicles and equipment in good conditions to avoid excessive noise generation; • Follow day time ambient noise levels as per Noise Pollution (Regulation and Control) Rules, and • Conduct noise monitoring according to the environmental management plan (EMP)			
Soil contamination, landscape and aesthetics	Impacts due to excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	• Store fuel, oils, lubricants etc on impervious and protected areas, ensure spill control kits, and proper containments bunds to ensure no spillage • Avoid stockpiling of excess excavated soils; • Coordinate with ULB/PIU for beneficial uses of excess excavated soils or immediately dispose to designated areas; • Recover used oil and lubricants and reuse or remove from the sites; • Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Remove all wreckage, rubbish, or temporary structures which are no longer required; and • Request PIU to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.			
Ecological Resources – Terrestrial	Disturbance to Flora and Fauna	• Scheduling the clearance works, especially in Gemariya lake -01, during the summers and non-monsoon season (March-October); normal bird breeding/nesting season is between October-March; use less disturbing methods to remove aquatic weeds • The area around lakes shall not be disturbed or damaged during transportation of vehicle and materials, storage or parking, workers camps, trespassing etc. activities during construction and operational phases; vehicle movements shall be restricted to bare minimum to avoid any direct disturbance to the surrounding area • Conduct a rapid survey of the work area for presence of nest; and isolate the area without disturbing them until they hatch; conducting site clearance and construction works around lake in summer when most birds don't breed will avoid these impacts • Workers has to be trained and made aware if nest noticed during the restoration activity close to work site should report to the monitoring team and should isolate the place. • Do not remove or harm existing vegetation except those required under	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		proposed contract; strictly instruct workers not to cut trees for fuel wood. • Conduct site induction and environmental awareness, and ensure that birds or any flora or fauna is not disturbed or harmed; poaching and hunting activities of birds, reptiles or mammals around the project site be strictly prohibited and monitored • Limit activities within the work area. • Replant trees in the area using minimum ratio of 3 trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department. • Strict control on dust pollution using various methods and technologies shall be carried out. During construction, operation, phases water sprinkling on haul roads, overburden and soil dumps shall be carried out regularly to control dust pollution. • Ensure zero discharge of solid waste from the project site into the lakes and its surrounding area. Batch plants shall be kept away from lakes.			
	Biodiversity	• Short-term changes in water quality during and after project execution is anticipated, which will temporarily increase the turbidity of the water and will be back to normal based on the retention. Construction works will be conducted during dry season when the lake has no water or has very low water level. • Physical impacts can be caused due to erosion and deposition within the lakes if the execution happens during monsoon, thus restoration activity (cleaning and bund formation) during monsoon	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		seasons has to be restricted also precautionary measures (measures to prevent soil erosion) needs to be implemented during pre-monsoon season • Environment friendly nature signage along the bunds and viewing platforms will enhance community and visitor participation. Interpretative signage concerning the different facets of the natural environment of the Lakes and the surrounding area can be an attraction if the signage is created with natural material. • Environmental awareness / education programs designed for schools and local people should involve children, parents and teachers ensuring that different levels of the community take away the information. The programs can be designed in different ways to make sure that there is on-site learning and classes designed for in-house sessions in schools as a follow up to field sessions. Thus, helping us strike a balance between experiential learning and theoretical understanding of various topics. The following topics needs to be covered: a. Biodiversity b. Watershed and wetlands c. Land and water d. Energy e. Sewage and Solid waste management f. Ecosystem services g. Climate change • Native plants are indigenous to a particular region and are adapted to the local microclimate and soil conditions, and therefore work well for restoration / landscaping and wildlife habitat creation.			

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		Once established, they rarely need watering, mulching and protection. It is advisable to introduce native plant species for resilience in the plantation areas • Include local fruit yielding species for birds and flowering plant for butterflies that provide food and shelter for birds, butterflies and animals. • Fish biodiversity of Sagwara lake is comparatively poor. Since the lake is connected to other lakes in the upstream and downstream, it is expected that new fish species will come into the lake via connecting drains/stream during monsoon / rains. This will further enhance the biodiversity.			
Land use	Environmental Issues due to land use change	The impact due to change in land use will be negligible due to this project.	Not applicable	ULB/ PIU	Not applicable
Socio-Economic - Employment	Generation of temporary employment and increase in local revenue	• Employ local labour force to the maximum extent • Secure construction materials from local market to the extent possible • Compliance to labour laws	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.
Occupational Health and Safety	Occupational hazards which can arise during work	• Comply with all national, state and local labour laws (see Appendix C-12); • Develop and implement site-specific occupational health and safety (OH&S) Plan which will include measures such as: (a) excluding public from the site; (b)ensuring all workers are provided with and use personal protective equipment;(c) OH&S Training[23] for all site personnel; (d)	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

[23] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; • Ensure that qualified first-aid is provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; • Provide medical insurance coverage for workers; • Secure all installations from unauthorized intrusion and accident risks; • The project area experiences extreme temperature during summer months of April and May, which may affect the health of workers engaged in construction work. Contractor should take necessary measures during summers including the following: • Work schedule should be adjusted to avoid peak temperature hours (12 -3 PM) • Provide appropriate shade near the work place; allow periodic resting and provide adequate water • Provide necessary medicine and facilities to take care of dehydration related health issues • Provide supplies of potable drinking water; • Provide clean eating areas where workers are not exposed to hazardous or noxious substances;			

equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Provide H&S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; • Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; • Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; • Ensure moving equipment is outfitted with audible back-up alarms; • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and • Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. • Follow all the protocols and guidelines (WHO interim guidelines and RSTDSP-EAP SOP and COVID-19 Management Plan) as given in Appendix 24			
Community health and safety	Safety risk, and disturbance to community, school activities etc.,	• Completely isolate the construction site from school access and activities by proper barricading, access restriction and posting security guards so that no	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		students/children or any public enters the construction site • If part of the playground is allowed for school children; it should be properly isolated, and school authorise and children must be made aware of the dangers of entering construction area • Plan construction activities in consultation with school authorities; no construction vehicles should use the access during school opening, closing and recess times that coincide with the movement of students and staff on access road. Create awareness among drivers on specific and additional precautions to bet taken • Ensure proper dust control; • Heavy noise works shall be conducted only with prior information to school authorities and shall be scheduled outside school hours as far as possible. • Code of conduct for workers includes restricting workers in designated areas no trespassing, no residence at construction sites, • Schedule transportation activities by avoiding peak traffic periods; • Clean wheels and undercarriage of haul trucks prior to leaving construction site; • Educate drivers: limit speed not more than 30 km/h in settlements and avoid use of horn; • Earmark parking place for construction equipment and vehicles when idling; no parking shall be allowed on the roads, that may disturb the traffic movement;			responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Provide adequate space and lighting, temporary fences, reflectorized barriers and signages at the work site; and • Put in place emergency measures and first aid; ensure contractor has staff trained on emergency response. •			
Work Camps and work sites	Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants Unsanitary and poor living conditions for workers	• Consult PIU before locating project offices, sheds, and construction plants; • Minimize removal of vegetation and disallow cutting of trees; • Provide drinking water, water for other uses, and sanitation facilities for employees; • Provided temporary rest and eating area at all work sites; • Ensure conditions of liveability at work camps are maintained at the highest standards possible at all times; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be used as accommodation for workers; accommodation shall meet the IFC standards for workers accommodation24 which include: provision of safe housing, availability of electricity, plumbing, water and sanitation, adequate fire protection and dormitory/room facilities; accommodation shall be in the range from 10 to 12.5 cubic meter (m3) (volume) or 4 to 5.5 square meters (m2) (surface) per worker, a minimum ceiling height of 2.10 m;	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

[24] https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_workersaccommodation

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		a reasonable number of workers are allowed to share the same room– (standards range from 2 to 8 workers); workers with accompanying families shall be provided with a proper and safe accommodation (Suggested guidelines based on IFC benchmark standards for workers accommodation is provided in Appendix C-21); • Prohibit employees from poaching wildlife and cutting of trees for firewood; • Train employees in the storage and handling of materials which can potentially cause soil contamination; • Recover used oil and lubricants and reuse or remove from the site; • Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; • Remove all wreckage, rubbish, or temporary structures which are no longer required; and • Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.			
Social and Cultural Resources	Risk of archaeological chance finds	• Consult with concerned religious authorities, nearby people and devotees in construction phase and explain the work method and duration of proposed works, take their suggestions and comments and incorporate in construction methodology • Adjacent to religious/social sites, undertake excavation and construction work in such a way that no structural damage is caused to the religious building.	Construction Contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
		• Observe the local rituals and important dates of festivals, weekly/monthly/annual religious occasions in the religious places and do not make any disturbance/hindrance/obstacles during such time to the religious places, • provide proper signage, barricades etc. to protect public and devotees from dangers of construction works.			
Submission of EMP implementation report	Unsatisfactory compliance to EMP	• Appointment of supervisor to ensure EMP implementation • Timely submission of monitoring reports including pictures	Construction contractor	CMSC/ PIU	Cost for implementation of mitigation measures responsibility of contractor.
COVID-19 prevention and control during construction works	Health risk to workers due to COVID-19 virus	• Provide face mask, hand gloves and sanitizers to workers during works • Keep social distancing • Educate workers about risks of COVID-19 • Health check-up of workers suffering with symptoms of COVID-19 and test for same • isolation of workers suspected/suffering with COVID-19 and due medical care follow guidelines of WHO/Central/State/Local government and RUDSICO-EAP regarding COVID- 19 (Appendix C-24)	Construction contractor	PIU/ CMSC	Contractor's cost

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation	Cost and Source of Funds
Post-construction clean-up	Damage due to debris, spoils, excess construction materials	• Backfill any excavation, preferably with excess excavation material generated during the construction phase. • Use remove topsoil to reclaim disturbed areas. • Re-establish the original grade and drainage pattern to the extent practicable. • Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees. • Restore staging areas and temporary work areas. • Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish and dispose in designated disposal sites. • Request in writing from PIU that construction zones have been restored.	Construction Contractor	CMSC/PIU	Cost for implementation of mitigation measures responsibility of contractor.

Table 20: Environmental Management Plan of Anticipated Impacts during Operations Phase

Field	Anticipated impact	Mitigation measure	Responsible for mitigation	Monitoring	Cost and source of funds
Influx of visitors due to increased recreational amenities	increased visitors, safety risk, increased vehicular movement along the roads, increased demands for services, and increased solid waste generation	• As a measure to restrict the access of lakes to designated areas and to ensure the safety of people moving in the pathways and public zones, railings shall be provided at All Public Zones, Along walkways, Along lake view seating • Emergency procedures shall be put in place such as rescue divers, lifejackets shall • Increased vehicular movement along the roads - speed restrictions, vehicle entry restrictions, provision of appropriate road signage, pedestrians safety etc., shall minimize impacts on safety of the visitors • Lack of proper amenities like washrooms/ toilets for visitors will	O&M Contractor / ULD	PIU/ ULB	O & M contract costs / ULB budget

Field	Anticipated impact	Mitigation measure	Responsible for mitigation	Monitoring	Cost and source of funds
		create filthy and unhealth conditions at the lake and surroundings; provide and maintain adequate number of washrooms, toilets, and create awareness and ensure that there is no open defecation (included in the project) • Wastewater outlets from washrooms, toilets shall be connected to sewerage system (to be developed under separate subproject), if not feasible, shall be discharged to septic tanks (water sealed on all sides and bottom to avoid contamination of soil and groundwater). Semi treated wastewater from septic tanks should sent to sewage treatment plant (using mobile tankers with suction systems) for further treatment and disposal. Cleaning and desludging operation of septic tanks shall not be conducted manually. • Increase solid waste generation –local authority to put in place solid waste collection system • Water quality of the lakes to be monitored as per monitoring plan • Potential presence of venomous reptile species around the lake, also pose a risk to visitors and staff. Reptiles are mostly nocturnal and opportunistic, when there are no activities it tends to move out and as a precautionary measure antivenom/antivenin drug will be made available along with the First aid kit. Information on drug shall be displayed prominently, and awareness will be created not to harm the reptiles • The commercial surface water activities like, boating, etc. shall be confined and restrict to avoid any negative impacts on nesting birds • No night-time activity shall be permitted in lake water. • Ensure that catchment area of all lakes are covered under ongoing sewerage scheme • Use efficient water use methods to main sport facilities			

Table 21: Environmental Monitoring Plan of ambient air, noise, water and soil quality and other during Construction

Monitoring field	Monitoring location	Monitoring parameters	Frequency	Responsibility	Cost & Source of Funds
Construction disturbances, nuisances, public & worker safety	All work sites	Implementation of dust control, noise control, traffic management, & safety measures. Site inspection checklist to review implementation is appended.	Weekly during construction	Supervising staff, EHS officer and safeguards specialists	No costs required
Tree cutting	All work sites	Tree cutting permit taken, Tree cutting done	Continuous	Supervising staff, EHS officer and safeguards specialists	Contractor
Construction, Labour Camp, storage yard Management	Construction, Labour Camp, storage yard Management	As per SEMP	Weekly	EHS officer, Environment Specialist of consultant	contractor
Solid waste management	Construction, Labour Camp, storage yard Management	As per SEMP	Weekly	EHS officer, Environment Specialist of consultant	contractor
Construction and demolition waste management	All construction site	As per SEMP and applicable rules and regulations	Weekly	EHS officer, Environment Specialist of consultant	contractor
Ambient air quality	6 locations (5 lakes and school ground) during construction	PM_{10}, $PM_{2.5}$, NO_2, SO_2, CO	Once prior to start of construction and quarterly during construction (except Monsoon period)	Contractor	Contractor
Ambient noise	6 locations during construction)	Day time and night time noise levels	Once prior to start of construction and quarterly during construction	Contractor	Contractor
Surface water	Five lakes	pH, DO, BOD, COD, color, oil & grease, turbidity, TDS, total hardness	Once prior to start of construction and quarterly during construction	Contractor	Contractor
Sediment / silt	Five lakes	pH, moisture, grain size, EC, sodium, phosphate, color,	Once prior to start of construction	Contractor	Contractor

Monitoring field	Monitoring location	Monitoring parameters	Frequency	Responsibility	Cost & Source of Funds
		nitrogen, iron, chromium, manganese, mercury	and once after the construction		

B. Institutional Arrangements

163. The Local Self Government Department (LGSD) is the executing agency which is responsible for the overall strategic guidance and ensure the compliance with ADB loan covenants. RUDSICO is the implementing agency responsible for the technical supervision and project implementation. The RUDSICO Board (under the chairmanship of the Honourable Minister), the LGSD and the City Level Monitoring Committees (CLMCs, under the chairmanship of their respective commissioner/executive officer) is proposed to monitor the project implementation. The PMU is already established at state-level (Jaipur) and headed by a dedicated Project Director. The PIUs have two zonal offices (1 in Jaipur and 1 in Jodhpur). Each zonal office is headed by an additional chief engineer. Urban Local Bodies (ULBs) will be the final custodian and user of the created infrastructure. As primary stakeholders, the ULBs will be involved and engaged in the day-to-day monitoring and implementation.

164. At the PMU level, the Project Director is being supported by Additional Project Director (Chief Engineer-level) and a Chief Engineer, who are being supported by Dy Project Directors (Technical and Administration) and a financial advisor. There is one project officer for Social and another project officer for Environmental aspects within PMU.

165. The PMU is being supported by the Project Management and Capacity Building Consultants (PMCBC). The PMCBC shall manage preparation/vetting design documents, tendering of contracts, implementation of resettlement, environmental management and gender action plans; setting and managing project performance monitoring systems, planning and managing implementation of training and capacity building as well as institutional strengthening activities besides preparing reports as per ADB requirements. PMCBC has engaged a social safeguard specialist and environmental safeguard specialist at the PMU level for managing all social and environmental safeguard related support services as envisaged in its scope of work. They will be assisted by concerned field level safeguard support staffs of CMSCs and PIU.

166. There are two zonal PIUs already established in Jaipur and Jodhpur. One PIU shall be established at every town before award of new projects. PIUs at the town-level shall be headed by a Superintending Engineer / Executive Engineer, who shall work as Project Manager and shall sign the contract documents, manage the contract and disburse payments as Drawing and Disbursing Officer.

167. Construction management and supervision consultants (CMSCs) - 2 nos. of CMSCs catering to Jaipur and Jodhpur units are already established. They shall directly support PIUs in day to day contract management, construction supervision including quality management of ongoing works etc. This shall include work measurement, quantities, verification of bills of contractors etc. In compliance with the EMP, the CMSC shall develop a strategy to overcome the difficulties of construction/traffic management in narrow streets and also prepare detailed plans for detour of traffic during excavation for pipe laying. The CMSCs will propose and implement mechanism for coordination among all stakeholders such as traffic police, roads department, user

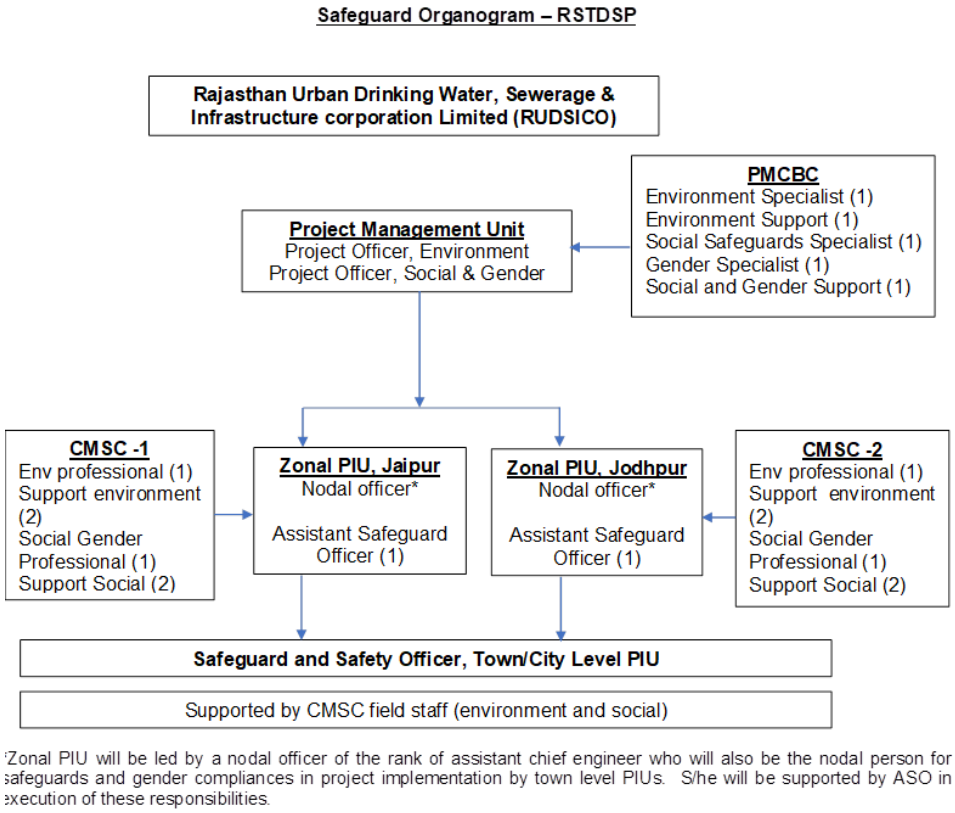
committees, etc., for smooth construction execution. Adequate measures shall be taken for working near physical cultural resources involving close coordination with the Department of Archaeology. The CMSC will lead design of surveys and investigations required for the protection of archaeological sites/heritage areas and prepare Archaeological Impact Assessments, or other agreed upon document to be approved by the Department of Archaeology for the archaeologically sensitive locations.

168. Community awareness and public participation consultants (CAPPC)- CAPC core unit is already established at PMU, Jaipur and at fields in ongoing 14 project towns. CAPC field team will be established in upcoming project towns after PIUs are formed in new towns. CAPC will closely work in the field (with PIUs) to facilitate creation of project awareness and ensuring public participation for all project works at the community level CAPPC shall also undertake various IEC activities to promote and pursue health and hygiene among the communities.

169. Figure 45 shows Environmental Safeguards Implementation Arrangements within RUDSICO-EAP and Table 22 and 23 summarize the institutional responsibility of environmental safeguards implementation at all stages of the project.

170. Project Management Unit. RUDSICO will establish a state-level PMU, headed by dedicated project director, and housed in EAP division of RUDSICO. For the purpose of project implementation, 2 Zonal project implementation units (Zonal PIUs), at Jaipur and Jodhpur, headed by additional chief engineers (ACE) will be established. At PMU, there will be two dedicated project officers (i) project officer (Environment) and (ii) project officer (Social and Gender), who will be responsible for compliance with the environmental, social safeguards and gender in program implementation. Key responsibilities of the project officer (Environment) are enumerated in Table 22.

Figure 45: Environmental Safeguards Implementation Arrangement



171. Zonal Project implementation units (Zonal PIUs). There are 2 zonal level PIUs at Jaipur and Jodhpur. Under each zonal PIU, there will be city/town level PIUs, for ease of day-to-day monitoring and management at local level. The additional chief engineer at each Zonal PIU will serve as the Nodal Officer, Safeguards and Gender. Each Zonal PIU will be staffed with an assistant safeguards officer (ASO Environmental and Social Safeguards) who will assist PMU project officer (environment/social) in implementation of the environmental/social safeguards and GESI action plan in PIUs under its jurisdiction. Zonal PIUs will undertake internal monitoring and supervision and record observations throughout the project period to ensure that the safeguards and mitigation measures are provided as intended.

172. The zonal level ASO will oversee safeguards implementation by the city/town level PIUs, coordinate public consultations, information disclosure, regulatory clearances and approvals, implementation of resettlement plans, EMP implementation, and grievance redressal. Key safeguard tasks and responsibilities of the zonal PIU ASO (Environment) are enumerated in Table 23.

173. Town/City Level Project Implementation Unit. The town-level PIUs shall be responsible for the quality of works executed under the project and will be guided by the zonal PIUs. The city/town PIUs will be responsible for implementation of the IEE. The town-level PIUs will be headed by a project manager (executive engineer or assistant engineer) and supported by CMSC field staff. Environment Safeguard Professional of CMSCs will assist PIUs in implementation of environmental safeguard. At each PIU, the Assistant Project Manager will be given additional responsibilities of safeguard tasks and will be designated as safeguard and safety officer (SSO). The SSO will be assisted by the social and gender specialist and environment specialist of CMSC

in reviewing updated/revised IEEs, etc. They will also be responsible for coordination of field level activities related to safeguards conducted by the Contractor and CMSC. Key responsibilities of the town-level environment specialist are enumerated in Table 23.

174. Contractors. The contractor will be required to update the IEE and will be responsible for providing final design (including pipe alignments) to the supervision consultant for finalization/updating of resettlement plan. The contractor shall appoint an environment, health and safety (EHS) engineer who will be responsible on a day-to-day basis for (i) ensuring implementation of EMP, (ii) coordinating with the town-level PIUs and environment specialists of project consultant teams; (iii) community liaison,[25] consultations with interested/affected people, (iv) field-level grievance redress; and (iv) reporting.

175. The Contractor has required to submitted to RUDSICO-EAP, for review and approval, a SEMP including (i) proposed sites or locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program per SEMP; (iv) budget for SEMP implementation. No works can commence prior to approval of SEMP.

176. A copy of the EMP or approved SEMP will be kept on-site during the construction period at all times. Non-compliance with, or any deviation from, the conditions set out in the EMP or SEMP constitutes a failure in compliance and will require corrective actions. The EARF and the IEEs specify responsibilities in EMP implementation during design, construction and O&M phases.

177. RUDSICO-EAP will ensure that bidding and contract documents include specific provision requiring Contractors to comply with: (i) all applicable labour laws and core labour standards on (a) prohibition of child labour as defined in national legislation for construction and maintenance activities; (b) equal pay for equal work of equal value regardless of gender, ethnicity, or caste and (c) elimination of forced labour; and (ii) the requirement to disseminate information on sexually transmitted diseases including HIV/AIDS, to employees and local communities surrounding the project sites.

Table 23: Institutional Roles and Responsibilities for Environmental Safeguards Implementation

Responsible Agency	Responsibility		
	Pre-Construction Stage	**Construction Stage**	**Post-Construction**
PMU (Project Officer; Environment),	(i) Review REA checklists and assign categorization based on ADB SPS 2009 (ii) Review and approve EIA/IEE (iii) Submit EIA/IEE to ADB for approval and disclosure in ADB website (iv) Ensure approved IEEs are disclosed in RSTDSP/PMU websites and summary posted in public areas accessible and	(i) Over-all environmental safeguards compliance of the project (iii) Monitor and ensure compliance of EMPs as well as any other environmental provisions and conditions. (i) Review monthly monitoring report (ii) Prepare and submit to ADB semi-annual monitoring reports	Compliance monitoring to review the environmental performance of project component, if required and as specified in EMP

[25] Reasonable size social outreach team (SOT) to be appointed by contractor to facilitate community liaison, consultations and R&R implementation (including resolution of grievances). Requirement of SOT will be included in bid document.

Responsible Agency	Responsibility		
	Pre-Construction Stage	**Construction Stage**	**Post-Construction**
	understandable by local people. (v) Ensure environmental management plans (EMPs) are included in the bid documents and contracts (vi) Organize an orientation workshop for PMU, PIU, ULB and all staff involved in the project implementation on (a) ADB SPS, (b) Government of India national, state, and local environmental laws and regulations, (c) core labour standards, (d) OH&S, (e) EMP implementation especially spoil management, working in congested areas, public relations and ongoing consultations, grievance redress, etc. (vii) Assist in addressing any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs (viii) Organize an induction course for the training of contractors preparing them on EMP implementation, environmental monitoring requirements related to mitigation measures; and taking immediate actions to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation. (ix) Ensure compliance with all government rules and regulations regarding site and environmental clearances as well as any other environmental requirements (x) Assist PMU, PIUs, and project NGOs to document and develop good practice construction guidelines to assist the contractors in implementing the provisions of IEE. (xi) Assist in the review of the contractors' implementation	(iv) If necessary, prepare Corrective Action Plan and ensure implementation of corrective actions to ensure no environmental impacts; (iii) Review and submit Corrective Action Plans to ADB (iv) Organize capacity building programs on environmental safeguards (iv) Coordinate with national and state level government agencies (vi) Assist in addressing any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs (ix) Coordinate PIUs, consultants and contractors on mitigation measures involving the community and affected persons and ensure that environmental concerns and suggestions are incorporated and implemented	

Responsible Agency	Responsibility		
	Pre-Construction Stage	**Construction Stage**	**Post-Construction**
	plans to ensure compliance with the IEE.		
PIU, Safeguard and Safety Officer (SSO)	(i) Ensure IEE is included in bid documents and contract agreements. Ensure cost of EMP implementation is provided. (iv) Disclose of approved EIAs/IEEs. (v) Obtain all necessary clearances, permits, consents, NOCs, etc. Ensure compliance to the provisions and conditions. (vi) EMP implementation regarding sites for disposal of wastes, camps, storage areas, quarry sites, etc. (vii) Organize an induction course for the training of contractors, preparing them on EMP implementation, environmental monitoring requirements related to mitigation measures, and on taking immediate action to remedy unexpected adverse impacts or ineffective mitigation measures found during the course of implementation.	(i) oversee day-to-day implementation of EMPs by contractors, including compliance with all government rules and regulations. (ii) take necessary action for obtaining rights of way; (iii) oversee implementation of EMPs, including environmental monitoring by contractors; (iv) take corrective actions when necessary to ensure no environmental impacts; (v) submit monthly environmental monitoring reports to PMU, (vi) conduct continuous public consultation and awareness; (vii) address any grievances brought about through the grievance redress mechanism in a timely manner as per the IEEs; and	(i) Conducting environmental monitoring, as specified in the EMP. (ii) Issuance of clearance for contractor's post-construction activities as specified in the EMP.
Consultant – 1.PMCBC-Environmental Safeguard Specialist – 1 no. Asbestos Expert – 1no. Heritage Expert – 1no. Biodiversity Expert – 1no.	(i) Review IEE/EMP submitted by CMSC and revise report to submit to PMU (ii) Assist PMU and PIU in obtaining all necessary clearances, permits, consents, NOCs, etc. Ensure provisions and conditions are incorporated in the IEE and detailed design documents. (iii) Assist in ensuring IEE is included in bid documents and contract agreements. (iv) Assist in determining adequacy of cost for EMP implementation. (v) Assist in addressing any concern related to IEE and EMP.	(i) Monitor EMP implementation (ii) Assist in addressing any grievances brought about through the Grievance Redress Mechanism in a timely manner as per the IEEs.	

Responsible Agency	Responsibility		
	Pre-Construction Stage	**Construction Stage**	**Post-Construction**
	(vi). Conduct specific assessment requirements		
Consultant- 2. CMSC- 2 nos. Environmental safeguards professional	(i) Update initial environmental assessment for proposed project using REA checklists and submit to PIU/PMCBC (ii) Assist in summarizing IEE and translating to language understood by local people.	Monitoring of Implementation of EMP at site by contractor Recommend corrective action measures for non-compliance by contractors Assist in the review of monitoring reports submitted by contractors (iv) Assist in the preparation of monthly monitoring reports conduct continuous public consultation and awareness;	(i) Assist in the inspection and verification of contractor's post-construction activities.
Contractors (EHS Engineer)	(i) Review the IEE and provide information about changes needed as per revised design and scope of works to ESS of PMCBC for final revision of IEE (ii)Prepare EHS plan and take approval from CMSC/PIU and Ensure EMP implementation cost is included in the methodology. (iii) Undergo EMP implementation orientation by ESS of supervision consultant prior to start of works (iv) Provide EMP implementation orientation to all workers prior to deployment to worksites (v) Seek approval for camp sites and sources of materials. (vi) Ensure copy of IEE is available at worksites. Summary of IEE is translated to language understood by workers and posted at visible places at all times.	(i) Implement EMP. (ii) Implement corrective actions if necessary. (iii) Prepare and submit monitoring reports including pictures to PIU (iv) Comply with all applicable legislation, is conversant with the requirements of the EMP; (v) Brief his staff, employees, and labourer about the requirements of the EMP and provide environmental awareness training to staff, employees, and laborers; (vi) Ensure any sub-contractors/ suppliers who are utilized within the context of the contract comply with all requirements of the EMP. The Contractor will be held responsible for non-compliance on their behalf; (vii) Bear the costs of any damages/compensation resulting from non-adherence to the EMP or written site instructions; (viii) Ensure that PIU and ACM/SO are timely informed of any foreseeable activities related to EMP implementation.	(i) Ensure EMP post-construction requirements are satisfactorily complied (ii) Request certification from PIU

C. Capacity Building and Development

178. Executing and implementing agencies need to have a sustained capacity to manage and monitor environmental safeguards. Although specialist consultants support will be available to PMU and PIUs, it is necessary to mainstream safeguards in day-to-day working. Therefore, PMU and PIUs require capacity building measures for (i) a better understanding of the project-related environmental issues; and (ii) to strengthen their role in preparation of IEE, implementation of mitigation measures, and subsequent monitoring. Trainings and awareness workshops are included in the project with the primary focus of enabling the PMU and PIU staff to understand impact assessments and carry out environmental monitoring and implement EMPs. After participating in such activities, the participants will be able to review environmental assessments, conduct monitoring of EMPs, understand government and ADB requirements for environmental assessment, management, and monitoring (short- and long-term), and incorporate environmental features into future project designs, specifications, and tender documents and carry out necessary checks and balances during project implementation.

179. PMCBC's ESS shall assess the capabilities of the target participants, customize the training modules accordingly and provide the detailed cost.

180. Typical modules would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in water supply and wastewater projects; (iii) review of IEEs and integration into the project detailed design; (iv) improved coordination within nodal departments; and (v) monitoring and reporting system. Specific modules customized for the available skill set will be devised after assessing the capabilities of the target participants and the requirements of the project. The contractors will be required to conduct environmental awareness and orientation of workers prior to deployment to work sites. The proposed training project, along with the frequency of sessions, is presented in Table 24.

Table 24: Capacity Building Program on EMP Implementation

Sl. No.	Description	Target Participants and Venue	Cost and Source of Funds
1	Introduction and Sensitization to Environmental Issues (1 day) - ADB Safeguards Policy Statement -EARF of RSTDSP -Government of India and Rajasthan applicable safeguard laws, regulations and policies including but not limited to core labour standards, OH&S, etc. -Incorporation of EMP into the project design and contracts -Monitoring, reporting and corrective action planning	All staff, ULBs and consultants involved in the project At PMU, Jaipur	PMU cost
2	Treated Effluent Reuse Concepts, Design and Management	All staff at PMU and ULBs	PMU cost
3	Sludge Reuse Concept, Design and Management	All staff at PMU and ULBs	PMU cost
4	EMP implementation (2 days) -Roles and responsibilities -OH&S planning and implementation -Wastes management (water, hazardous, solid, excess construction materials, spoils, etc.) -Working in congested areas, - Public relations - Consultations - Grievance redress -Monitoring and corrective action planning -Reporting and disclosure -Post-construction planning	All staff and consultants involved in the subproject All contractors before start of construction works At PIU	PMU cost

5	Plans and Protocols (1 day) -Construction site standard operating procedures (SOP) - Asbestos Management Plan -Heritage Impact Assessment -Biodiversity and Critical Habitat Assessment - Site-specific EMP -Traffic management plan -Spoils management plan -Waste management plan - Chance find - O&M plans - Post-construction plan	All staff and consultants involved in the project All contractors before start of construction works or during mobilization stage. At PIU	PMU cost Contractors cost as compliance to contract provisions on EMP implementation
6	Experiences and best practices sharing - Experiences on EMP implementation - Issues and challenges - Best practices followed	All staff and consultants involved in the project All contractors All NGOs; At PMU Jaipur	PMU Cost
7	Contractors Orientation to Workers on EMP implementation (OH&S, core labour laws, spoils management, etc.)	All workers (including manual laborers) of the contractor prior to dispatch to worksite	Contractors cost as compliance to contract provisions on EMP implementation

D. Monitoring and Reporting

181. Prior to commencement of the work, the contractor will submit a compliance report to PIU ensuring that all identified pre-construction environmental impact mitigation measures as detailed in the EMP will be undertaken. PIU with the assistance of the SO and ESS of PMCBC, consultant will review the report and thereafter PMU will allow commencement of works.

182. During construction, results from internal monitoring by the contractor will be reflected in their monthly EMP implementation reports to the PIU and ACM, CMSC. Project officer (Environment) and ACM will review and advise contractors for corrective actions if necessary. Monthly report summarizing compliance and corrective measures taken will be prepared by safeguard officer with the assistance of ACM and submitted to PMU.

183. Quarterly report shall be prepared by CMSC and PIU and submitted to PMU for review and further actions.

184. Based on monthly and quarterly reports and measurements, PMCBC will draft semi-annual report and submit PMU for their review and further submission to ADB (Appendix C-15). Once concurrence from the ADB is received the report will be disclosed in the Project website.

185. The PMU will submit semi-annual environmental and social safeguards monitoring reports to ADB, which will be reviewed and disclosed on ADB's website. The monitoring reports will be prepared by PMU with assistance from the PMCBC based on inputs from the PIU's safeguard officers, CMSC, contractors and NGOs, where relevant. The status of safeguard implementation, issues, and corrective actions including associated cost and schedule are to be clearly reported to ADB. The status of safeguards implementation will also be discussed at each ADB review mission and with necessary issues and agreed actions recorded in Aide Memoires. ADB will also carry out annual environmental and/or social (including gender) reviews of the Project. The outline of the semi-annual environmental monitoring report is in Appendix C-15. ADB's monitoring and supervision activities are carried out on an ongoing basis until a project completion report (PCR)

is issued. Thus, semi-annual report, which may cover O&M of completed packages, will be submitted to ADB until PCR is issued.

186. ADB will review project performance against the project commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system.

E. EMP Implementation Cost

187. Most of the mitigation measures require the contractors to adopt good site practice. Contractor being bound to adopt several mitigation measures through various legal obligations (e.g. BOCW Act, Labour acts etc.) such as use of PPEs, provide toilets and potable drinking water, labour camp management, safety at work sites, safety in equipment operations etc. which should be part of their normal procedures; are not included in EMP cost of this project. Mitigation that is the responsibility of PIU/ULB will be provided as part of their management of the project, so this also does not need to be duplicated here. Cost for the capacity building program is included as part of the project. Regardless of these, project specific costs of mitigation by the construction contractors are included in the EMP budget for the civil works are enumerated here (**Table 25**).

Table 25: Cost Estimates to Implement the EMP

S. N.	Particulars	Stages	Unit	Total Number	Rate (INR)	Cost (INR)	Costs Covered By
	Mitigation Measures						
A.	**Monitoring Measures**						
1	Air quality monitoring*****	Pre-construction and Construction (quarterly)	per sample	30	4920	147,600	Civil works cost
2	Noise levels monitoring*****	Pre-construction and Construction (quarterly)	Per sample	30	1980	59,400	Civil works cost
3	Surface water Quality	Pre-construction and Construction (quarterly)	per sample	25	6720	168,000	Civil works cost
4	Silt quality	Pre-construction and post Construction	Per sample (composite sample)	10	10,000	100,000	Civil works cost
	Subtotal (A)					**475,000**	
B	**Capacity Building**						
1.	Introduction and sensitization to environment issues	Pre-construction	lump sum			25,000	PMU
2.	EMP implementation	Construction	lump sum			25,000	PMU
3.	Plans and Protocols	Construction	lump sum			25,000	PMU
			lump sum			25,000	Civil works cost
4.	Experiences and best practices sharing	Construction/Post-Construction	lump sum			10,000	PMU
5.	Contractors Orientation to	Prior to dispatch to worksite	Lump sum			25,000	Civil works cost

S. N.	Particulars	Stages	Unit	Total Number	Rate (INR)	Cost (INR)	Costs Covered By
	Workers on EMP implementation						
	Subtotal (B)					**135,000**	
C	**Civil Works**						
1	Water Sprinkling for dust suppression	Construction	KL	250	111	27750	Civil works cost
	Sub Total (C)					**27,550**	
D	**Grievance Redressal Mechanism**				Lump sum	10,000	Civil works cost
	Sub Total (D)					**10,000**	
	Total (A+B+C+D+E)				**INR**	**647,550**	

X. CONCLUSION AND RECOMMENDATION

188. The process described in this document has assessed the environmental impacts of all elements of the redevelopment of Five Lakes of Sagwara Lake front subproject. All potential impacts were identified in relation to pre-construction, construction, and operation phases. Planning principles and design considerations have been reviewed and incorporated into the site planning and design process wherever possible; thus, environmental impacts as being due to the project design or location were not significant.

189. Implementation of the subproject will restore the five lakes and their ecosystem health and beautification of their lake front will improve the ambiance of the surroundings. Interconnection of lakes will help in flood mitigation and development of green zone along the link channel will help in restoring the natural environment of the city. Development of a playground and will provide sport opportunity to students and youth for various sports. No project component is proposed in any protected area/ forest blocks and all the project activities are confined to urban premises of Sagwara and have no adverse impact on ecosystem and biodiversity. Native trees are proposed, so no negative impacts envisaged. Providing walk way, jogging track and other amenities would benefit the local people and thereby misuse of lake area will considerably reduce. This will also Increase in storage of water, improvement in ground water recharge, and reduction in flooding of nearby areas are the major positive impacts envisaged. The project would improve awareness of the people around the lake and develop positive attitude towards the environment. Improved opportunities for local youth in sports. The five lakes to be improved are of different sizes (0.32 ha to 11.6 ha) located within the municipal area. Lakes are rain-fed, and usually have high water level during monsoon/post monsoon, and very minimal level (some gets mostly dry) during summers. Lakes are used for religious rituals, like for Moharram, idol immersion, bathing etc. by all communities. There is no notable biodiversity, flora or fauna, lakes are covered with aquatic weeds extensively, domestic wastewater entry is noticed.

190. Potential impacts are mainly during construction and are considered significant but temporary and are common impacts of construction, and there are well developed methods to mitigate the same. Measures will be taken to avoid pollution of lake water. No desilting of lakes proposed, therefore no notable soil will be generated, and any soil that may be generated will be utilized in bunds. Aquatic weeds will be composted on site and used as manure. All construction activities will be confined to the selected sites and the interference with the general public and

community around is minimal. In these works, the temporary negative impacts arise mainly from construction dust and noise, hauling of construction material, waste and equipment on approach roads/lake bunds (traffic, dust, safety etc.), mining of construction material, occupational health and safety (OHS) aspects. These are general impacts, and will be mitigated or minimized to acceptable levels with measures in EMP.

191. The public participation processes undertaken during project design ensured stakeholders are engaged during the preparation of the IEE. The planned information disclosure measures and process for carrying out consultation with affected people will facilitate their participation during implementation. The project's grievance redress mechanism will provide the citizens with a platform for redressing grievances, and describes the channels, timeframe, and mechanisms for resolving complaints about environmental performance.

192. The Environmental Management Plan proposed in the project includes mitigation measures for identified impacts, training and capacity building activities, a monitoring plan to ensure that the environmental standards are maintained throughout the project construction period and a reporting plan to ensure that the project is implemented as per environmentally sound engineering and construction practices. The budgetary provision for mitigating the anticipated impacts by proposed subproject component is made in the project for effective implementation of the EMP.

193. The EMP will assist the PMU, PIU, Consultants and contractors in mitigating the environmental impacts, and guide them in the environmentally sound execution of the proposed project. The EMP will also ensure efficient lines of communication between PIU/ULB, PMU, consultants and contractor. A copy of the EMP shall be kept on-site during the construction period at all times. The EMP shall be made binding on all contractors operating on the site, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document shall constitute a failure in compliance.

194. The project will benefit the general public by contributing to the long-term improvement of Lake front at Five Lakes of Sagwara lake in Sagwara. The potential adverse environmental impacts are mainly related to the construction period, which can be minimized by the mitigation measures and environmentally sound engineering and construction practices.

195. Therefore, as per ADB SPS, the project is classified as environmental category B and does not require further environmental impact assessment.

196. **Recommendations**. The following are recommendations applicable to the subproject to ensure no significant impacts:

(i) Identify tree species and landscaping plants in consultation with forest department and local experts in biodiversity; EMP recommendations needs to be followed in identifying the species
(ii) Obtain all statutory clearances at the earliest time possible and ensure conditions/provisions are incorporated in the detailed design;
(iii) Include this IEE in bid and contract documents;
(iv) Commitment from PMU, PIUs, project consultants, and contractors to protect the environment and the people from any impact during project implementation;
(v) Update/revise this IEE based prior to start of construction and/or if there are unanticipated impacts, change in scope, alignment, or location;
(vi) Conduct safeguards induction to the contractor upon award of contract;

(vii) Ensure contractor appointed qualified environment, health and safety (EHS) officers prior to start of works;
(viii) Timely disclosure of information and establishment of GRM;
(ix) Involvement of contractors, including subcontractors, in first level GRM;
(x) Strictly supervise EMP implementation;
(xi) PMU to ensure that the catchment area of lakes are covered with newly proposed sewerage system
(xii) Continuous consultations with stakeholders;
(xiii) Documentation and reporting on a regular basis as indicated in the IEE.
(xiv) Select plant species according to local biodiversity

Appendix 1: REA Checklist

Instructions:
The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB checklists and handbooks on (i) involuntary resettlement, (ii) indigenous peoples planning, (iii) poverty reduction, (iv) participation, and (v) gender and development.
Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: India/Rajasthan Secondary Towns Development Investment Program (RSTDP)/ Five Lakes of Sagwara Lake front development Subproject, Distt. Sagwara, Rajasthan
Sector Division: Urban Development

REA Checklist- City Development

Screening Questions	Yes	No	Remarks
A. Project Siting Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
Densely populated?		No	Project area do not have residential use in its immediate vicinity, this is recreational area and people from surrounding localities as well as tourist visit the place. Entire work is localized in a small area around the lakes and playground where there is less population. Minimal road disruption is expected and measures such as best activity scheduling, traffic management, etc. will be employed to minimize the impact to acceptable levels.
Heavy with developmentactivities?		No	The areas are free from any major activities. People visit these places for recreational activities which is not a permanent feature.
Adjacent to or within any Environmentally sensitiveareas?		No	Nearest wildlife sanctuary is Sita Mata Wildlife Sanctuary, located at an aerial distance of 65 km from the project area
Cultural heritage site		No	There are two ASI protected monuments, a Jain Temple at Baroda, which is located at about 25 km aerial distance from Sagwara. Another ASI protected monument is Somnath Temple at Dev Somnath which is located at an aerial distance of 30 km from Project town and no impact is envisaged
Protected Area		No	Nearest environmentally sensitive area is Sita Mata Wildlife Sanctuary, located at an aerial distance of 65 km from Project town and no impact is envisaged
Wetland	Yes		The project components incorporate periphery of Five Lakes of Sagwara lake, which is not a designated wetland. The proposed intervention will develop a wetland around the lakes and its connecting channels.
Mangrove		No	

Estuarine		No	
Buffer zone of protected area		No	
Special area for protecting biodiversity		No	
B. Potential Environmental Impacts Will the Project cause			
Impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.		No	The increased sewage and solid waste generated during operation phase will be treated in toilets with biodigesters and solid waste will be collected in bins and handed over to ULB collection vehicles.
Deterioration of surrounding environmental conditions due to rapid urban population growth, commercial andindustrial activity, and increased waste generationto the point that both manmade and natural systems are overloaded and the capacities to manage these systems areoverwhelmed?		No	No such condition is envisaged.
Degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watershedsand forests)?		No	The project will not cause degradation of land andecosystem.
Dislocation or involuntaryresettlement of people		No	
Degradation of culturalproperty, and loss of cultural heritage and tourism revenues?		No	Improvement in tourism revenue anticipated due to the development of the lake as an ecotourism destination
Occupation of low-lying lands, floodplains and steep hillsides by squatters andlow-income groups, and their exposure to increased health hazards and risks due to pollutive industries?		No	
Water resource problems (e.g. depletion/ degradation of available water supply, deterioration for surface and ground water quality, and pollution of receiving waters?		No	Sanitation problems may occur temporarily during construction phase due to generation of sewage and solid waste from the construction/ labour camp.
Air pollution due to urbanemissions?	Yes		Minor impacts during construction phase are anticipated due to construction, demolition, transport of materials and operation of equipment like dieselgenerators and concrete mixers. Mitigation measures are considered in EMP.
Social conflicts between construction workers from other areas and local workers?		No	
Road blocking and temporary flooding due to land excavation during rainy season?		No	Temporary diversion or partial closure of access road lakes may be required during construction phase.

			Sagwara receives scanty rains, hence no temporary flooding is expected.
Noise and dust from construction activities?	Yes		Minor noise and dust from construction activities is anticipated which shall be temporary in nature coinciding only with the duration of construction activities. Mitigation measures are considered in EMP.
Traffic disturbances due to construction material transport and wastes?		No	The transportation of construction material and wastes shall be site specific and restricted to daily requirements which is not expected to result into traffic disturbances.
Temporary silt runoff due to construction?		No	Temporary silt runoff may be there during rainy season.
Hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		No	The project will cause air, noise and water pollution during construction phase. Solid waste and sewage will be generated during the operation phase. These may cause hazard to public health.
Water depletion and/or degradation?		No	Degradation in water quality is envisaged due to construction activity. However, isolated construction using barriers will be adopted to ensure minimal damage to water quality. During the operation phase no water depletion and degradation is envisaged
Overpaying of ground water, leading to land subsidence, lowered ground water table, and salination?		No	Not anticipated as per the nature of the work
Contamination of surface and ground waters due to improper waste disposal?		No	The increased sewage and solid waste generated during operation phase will be treated in toilets with biodigesters and solid waste will be collected in bins and handed over to ULB collection vehicles.
Pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		No	Considering the nature of work and its confinement in a small stretch, there is no probability of pollution of freshwaters due to implementation of project. Safe disposal of construction waste and excavated soil will be done as per EMP.
Climate Change and Disaster Risk Questions			
The following questions are not for environmental categorization. They are included in this checklist tohelp identify potential climate and disaster risks.			
Screening Questions	**Yes**	**No**	**Remarks**
Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes		No	The area is not subject to floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and localized climate changes. the project area falls in moderate damage seismic Zone-II as per seismic zonation map of India.

Could changes in temperature, precipitation, orextreme events patterns over the Project lifespan affecttechnical or financial sustainability (e.g., changesin rainfall patterns disruptreliability of water supply; sealevel rise creates salinity intrusion into proposed watersupply source)?		No	
Are there any demographic orsocioeconomic aspects of the Project area that are already vulnerable (e.g., high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?		No	
Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., by using water from a vulnerablesource that is relied upon by many user groups, or encouraging settlement in earthquake zones)?		No	

Checklist for Preliminary Climate Risk Screening

Country/Project Title: India/Rajasthan Secondary Towns Development Investment Program (RSTDP), Restoration of Five Lakes of Sagwara subproject, District – Sagwara, Rajasthan
Sector : Urban Development
Division/Department: SARD/SAUW

Screening Questions		**Score**	**Remarks[26]**
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	No such issue may affect the project
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	No such issue may affect the project
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	No such issues may affect the project
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?	0	No such issue may affect the project
Performance of project	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power	0	No problem will envisaged in

[26] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

outputs	production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		future which likely affect the performance of project output

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): Low

Appendix 2: Compliance with Environmental Criteria for Subproject Selection

Components	Criteria	Compliance
All subprojects		
	Subproject will avoid potentially significant adverse impacts that are diverse, irreversible or unprecedented (ADB SPS Category A for environment).	Complied- Sub project is not having significant adverse impacts, anticipated impacts are temporary and reversible and can be mitigated through mitigation plans suggested in IEE
	Comply with all requirements of ADB SPS 2009 and follow procedures set in this EARF.	Complied- Sub project complies all the requirements of ADB SPS 2009
	Comply with relevant national, and local laws, rules and regulations regarding EIA, environmental protection, pollution prevention (water, air, noise, solid waste, etc.), wildlife protection, core labour standards, physical cultural resources, health and safety, and other laws in specific sectors as indicated below	Complied- Sub project complies all relevant national and local laws, rules and regulations applicable to this type of sub projects
	Reflect inputs from public consultations	Complied- Stakeholder's consultations are conducted in the project planning phase and suggestions are incorporated in project designs
Location	Avoid involuntary resettlement by prioritizing rehabilitation over new construction using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts	Complied- All components of sub project are planned on government land only. No land acquisition is done to avoid any involuntary resettlement.
	Avoid or minimize the cutting of trees	Complied- Tree cutting is avoided as far as possible and if tree cutting is unavoidable, it has been minimized to lowest level and compensatory plantation measures are adopted for tree cutting
Biodiversity	Avoid locating subprojects in critical habitats, such as, but not limited to, wildlife/bird sanctuaries, national parks, tiger reserves, elephant reserves, conservation reserves or core zone of biosphere reserves. Appendix 1 provides preliminary analysis using the International Biodiversity Assessment Tool (IBAT) key biodiversity areas, protected areas, IUCN red list species and likelihood of critical habitats per town. Should not directly affect environmentally protected areas, core zones of biosphere reserves and highly valued habitat	Complied- None of the components of the subproject are located near or within any environmentally protected areas, core zones of biosphere reserves and highly valued habitat.
	If work is proposed with the aim of improving the conservation or management of designated subproject sites (e.g. improved drainage), this must only be undertaken: (i) after a comprehensive study and development of management plans and criteria; and (ii) with the	Not applicable to this sub project

Components	Criteria	Compliance
	direct involvement and approval of national and local bodies responsible for the subproject site.	
Physical Cultural Resources	Should not result in the destruction/damage of or encroachment onto physical cultural resources (PCR) such as archaeological monuments; heritage sites and movable or immovable objects, sites, structures, group of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic or other cultural significance.	Complied- There is no State Protected or ASI protected Monuments in Sagwara.
Existing Facilities to be rehabilitated or expanded	Conduct environmental audit of existing facilities[27]per ADB SPS	Not applicable to this sub project
Associated Facilities[28]	Analyze environmental impacts and risks to be included in the IEE	Not applicable to this sub project
	When designing subproject infrastructure that involves excavation in urban areas the relevant authorities must be consulted to ascertain the location of any ACM prior to any subproject activity. Locations of new infrastructure must then be designed to avoid excavating or disturbing any ACM.	Not applicable to this sub project.
Right-of-way	Locate water supply pipelines within the right of way (ROW) of other linear structures (roads, irrigation canals) as far as possible, to reduce new land acquisition.	Not applicable to this sub project.
	Ensure that pipelines ROW do not require land acquisition from individual farmers that is a significant proportion of their total land holding (>10%).	Complied- no land acquisition is required for redevelopment of Lakes of Sagwara, project is planned in Government owned land.

[27] ADB SPS Appendix 4 para 12 on Existing Facilities

[28] ADB SPS Appendix 1 para 6 defines associated facilities as “not funded as part of the project (funding may be provided separately by the borrower/client or by third parties), and whose viability and existence depend exclusively on the project and whose goods or services are essential for successful operation of the project”

Appendix 3: Public Consultations Conducted During Project Preparation

1. Consultations during Social and Environmental Impact Assessment

Various consultations were done during social and environmental impact assessment of the project with residents of the town at various locations to understand their level of satisfaction about the present status of Sagwara Lakes and also to understand their awareness about the proposed works and their willingness/acceptance of the proposed works under RUSTDIP. Details of these consultations are given below-

Public Consultation

Date and Location	Participants			Topic Discussed	Outcome	Photographs
	Total	Male	Female			
29.03.2022 Near Lohariya, Sagwara	10	06	03	Present status of Lakes and its surroundings areas. Project components under RSTDSP and the benefits to the Community. Beautification of city and development of new areas of recreations. Interlinking of lakes and its pro and cones. Process of logging grievance and its mechanism under the project.	Conservation and management of Lakes are proposed which includes improvement of their ecosystem and beautification of town and it was informed by nearby habitation that proper infrastructure will be developed there as a part of lake restoration, city development and beautification. Participants are happy with proposed project as it will restore the lakes, provide renovated lakefronts with recreational opportunities and will attract tourist which will add in city economy also.	 
29.03.2022 Near Lohariya Lake, Sagwara	11	07	04	Present status of Lakes and its surroundings areas. Project components under RSTDSP and the benefits to the Community. Beautification of city and	Conservation and management of Lakes are proposed which includes improvement of their ecosystem and beautification of town and it was informed by nearby habitation that proper infrastructure will be developed there as a	

				development of new areas of recreations. Interlinking of lakes and its pro and cones. Process of logging grievance and its mechanism under the project.	part of lake restoration, city development and beautification. Participants are happy with proposed project as it will restore the lakes, provide renovated lakefronts with recreational opportunities and will attract tourist which will add in city economy also.	

Attendance sheet of Public consultation in Sagwara

Rajasthan Secondary Towns Development Sector Project (RSTDSP)
RUIDP Phase-IV

Consultation Sheet

Place: Near Lohariya Lake Town: Sagwara Date: 29/03/2022

Topic Discussed During Consultation:

1. Discussion on City Beautification and other related
2. issues of Sagwara town.

S. No.	Name	Gender		Address	Contact No.	Signature
		Male	Female			
1.	Ram Karan	✓		Near Lohariya Lake		
2.	Raju Prajpati	✓		— " —		
3.	Geeta devi		✓	— " —		
4.	Shanpar	✓		— " —		
5.	Santosh devi		✓	Near Lohariya Lake		
6.	Harpi Bai		✓	— " —		
7.	Sahind devi		✓	— " —		
8.	Ram Kishor	✓		— " —		
9.	Vimal Kumar	✓		— " —		
10.	Ganpath	✓		— " —		

Rajasthan Secondary Towns Development Sector Project (RSTDSP)
RUIDP Phase-IV

Consultation Sheet

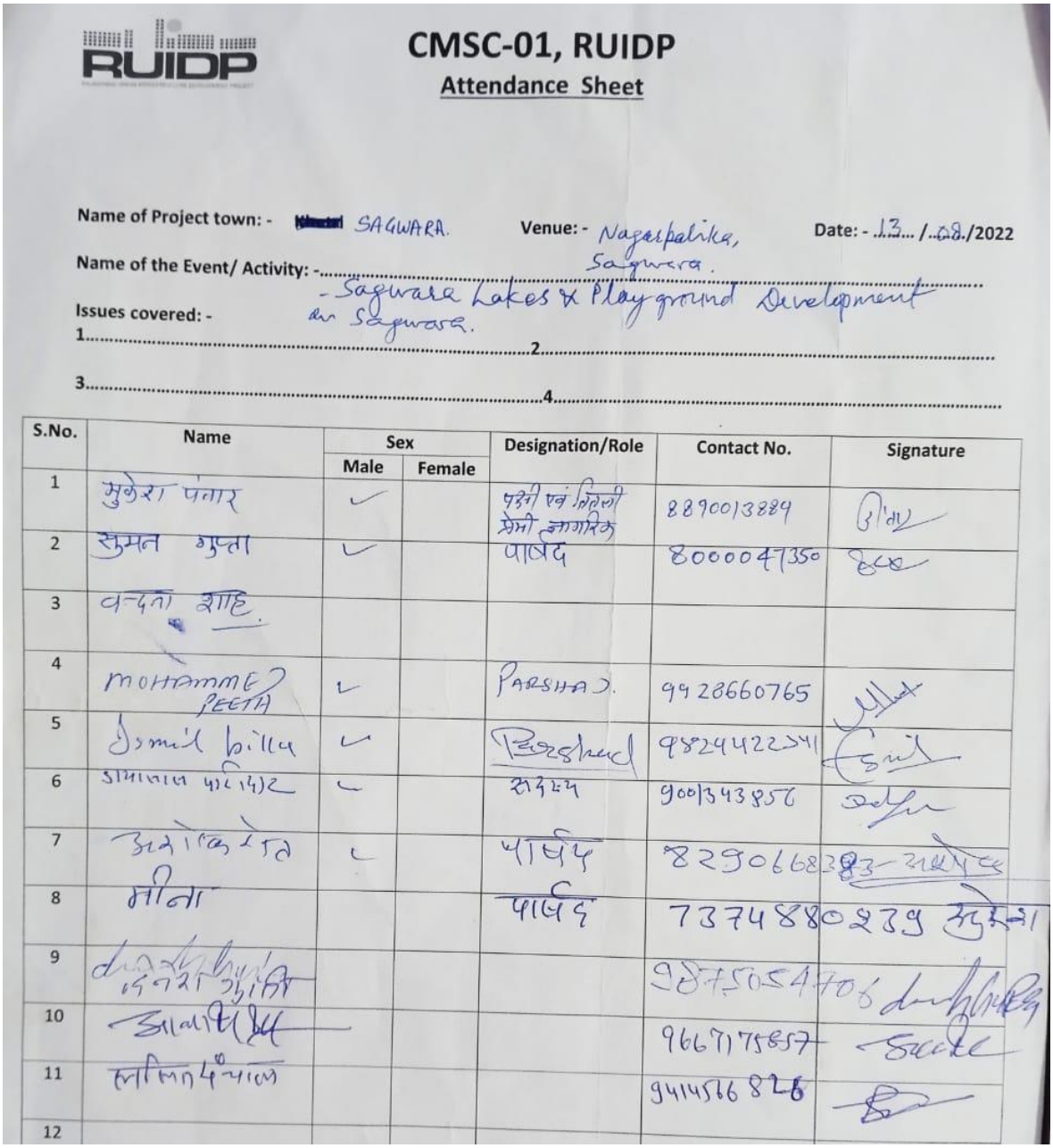
Place: Banswara Road Town: Segwara Date: 11/04/2017

Topic Discussed During Consultation:

1. Discussion on City Beautification and othe related
2. Issues and Present status of Proposed worksites.

S. No.	Name	Gender		Address	Contact No.	Signature
		Male	Female			
1	Narayan	✓		Near Bus Stand		नारायण
2	Lachmi Bai		✓	Banswar Road		
3	Mamta devi		✓	—"—		ममता
4	Sohan Lal	✓		—"—		सोहनलाल
5	Manohar	✓		—"—		मनोहर
6	Gamear Singh	✓		Near Banswara Road		
7	Pushpa devi		✓	—"—		पुष्पा
8	Marsi Ram	✓		—"—		
9	Kachru	✓		—"—		
10	Suresh Gameti	✓		—"—		Suresh
11	Gayatri		✓	—"—		

Town level consultation meeting. On 13 August 2022. a town level consultation was conducted in Sagwara Municipal office, Meeting was chaired by Municipal President Mr Narendra Khodania and attended by 22 ward representatives, ULB officials, local public and Consultants from RUIDP.



RUIDP

CMSC-01, RUIDP

Attendance Sheet

Name of Project town: - [redacted] SAGWARA. Venue: - Nagarpalika, Sagwara. Date: - 13 /08/2022

Name of the Event/ Activity: - Sagwara Lakes & Playground Development in Sagwara.

Issues covered: -

1. 2.

3. 4.

S.No.	Name	Sex		Designation/Role	Contact No.	Signature
		Male	Female			
1	सुरेश पंवार	✓		पार्षद एवं जिला प्रमुख नागरिक	8890013884	
2	सुमन गुप्ता	✓		पार्षद	8000047350	
3	वन्दना शाह					
4	MOHAMMED FEETA	✓		PARSHAD.	9428660765	
5	Ismil billa	✓		[illegible]	9824422541	
6	[illegible]	✓		[illegible]	9001343856	
7	[illegible]	✓		[illegible]	8290668383	
8	मीना			पार्षद	7374880239	
9	[illegible]				9875054706	
10	[illegible]				9667175857	
11	[illegible]				9414568826	
12						

RUIDP

CMSC-01, RUIDP

Attendance Sheet

Name of Project town:- [redacted] SAGWARA Venue:- Nagarpalika, Sagwara

Name of the Event/ Activity:- Sagwara Lakes & playground Development at Sagwara city

Issues covered:-

1 2

3 4

S.No.	Name	Sex		Designation/Role	Contact No.	Signature
		Male	Female			
1	Mr. Narendra Khodaniya CHAIRMAN, Sagwara Nagarpalika	M		Chairman N.P., Sagwara	9414566658	
2						
3	Mr. Raju Saikl (Vice-chairman)	M		Vice-chairman N.P. Sagwara.	9414566758	
4	[illegible]	M		[illegible]	9929404250	[illegible]
5	[illegible]	M		[illegible]	7232039474	
6	[illegible]	M.		[illegible]	9414567449	
7	[illegible]	M		[illegible]	6376212151	
8	[illegible]	M.		[illegible]	7568710893	
9	[illegible]	M		[illegible]	9329091960	
10	[illegible]	M		[illegible]	7424818298	
11						
12						

News Paper cutting and attendance sheet for city level consultation at municipal office, Sagwara on 13-08-2022

दैनिक भास्कर डूंगरपुर भास्कर 14-08-2022

आरयूआईडीपी और एशियन डेवलपमेंट बैंक के अधिकारी शामिल

तालाबों के सौंदर्यीकरण और कॉलोनी खेल मैदान के विकास के लिए बैठक

भास्कर न्यूज | सागवाड़ा

शहर के पांच तालाबों के सौंदर्यीकरण और पुनर्वास कालोनी के खेल मैदान का कार्य जल्द ही शुरू होने वाला है। इसे लेकर शनिवार को नगरपालिका में आरयूआईडीपी और एशियन डेवलपमेंट बैंक के अधिकारियों ने बैठक ली। एडीबी के पर्यावरण सलाहकार गोविंद सिंह राठौर, विरासत संरक्षण विशेषज्ञ सलाहकार एडीबी गुरमीत राय, जैव विविधता विशेषज्ञ पीएमसीबीसी आरयूआईडीपी, जयपुर सुरेंद्र सिंह नागदाली और विरासत विशेषज्ञ पीएमसीबीसी आरयूआईडीपी जयपुर मानस शर्मा ने शहरवासियों और नगरपालिका अध्यक्ष नरेंद्र खोडनिया समेत जन प्रतिनिधियों से चर्चा कर शहर के पांचों तालाबों के बारे में जानकारी ली। फिलहाल शहर के पांच तालाब दुर्दशा के शिकार हैं। तालाबों में जलकुंभी और गंदगी भरी पड़ी हैं। लोहारिया, मसानिया, गमरेश्वर, हरियाला और बोलियां तालाब की ओर किसी ने ध्यान नहीं दिया। पालिका अध्यक्ष नरेंद्र खोड़निया ने बताया कि तालाबों का सौंदर्यीकरण चुनाव का प्रमुख वादा था। इसलिए इस कार्य की मुख्यमंत्री से भेंट में घोषणा कराई गई है। मुख्यमंत्री बजट घोषणा के अनुरूप सागवाड़ा शहर को आरयूआईडीपी के प्लान में शामिल किया गया था। दोनों कार्यों का सर्वे और डीपीआर का काम पूरा कर लिया गया है। नगरपालिका सागवाड़ा के जेईएन लोकेश पाटीदार ने बताया कि इन कार्यों के लिये सोशल सर्वे का काम और टेंडर भी हो गया हैं। शहर में पेयजल और सीवरेज के लिये 100 करोड़ का टेंडर पहले ही लग गया है। इधर, शहर के पांच तालाबों के सौंदर्यीकरण पर 20 करोड़ रुपये खर्च होंगे। वहीं कॉलोनी की डेढ़ किमी सड़क के लिए 5 करोड़ की भी घोषणा की गई है। इसके अलावा पुनर्वास कॉलोनी के खेल मैदान का पूरा स्वरूप ही बदल कर इसमें क्रिकेट, फुटबॉल, लांग टेनिस और वालीबॉल का मैदान तैयार किया जाएगा।

सागवाड़ा. बैठक में अधिकारियों को जानकारी देते पालिका अध्यक्ष।

विहिप व बजरंग दल की तिरंगा यात्रा आज

साबला। विश्व हिंदू परिषद एवं बजरंग दल साबला की बैठक शनिवार को हुई। विश्व हिंदू परिषद प्रखंड अध्यक्ष प्रकाश उपाध्याय ने बताया कि रविवार शाम 4.30 बजे गरबा चौक से अम्बेडकर चौक साबला तक अखंड भारत तिरंगा यात्रा का आयोजन किया जा रहा है। इसमें साबला तहसील के लोग उपस्थित रहेंगे। हाथों मे तिरंगा लेकर आजादी के अमृत महोत्सव की पूर्व संध्या पर पर कार्यक्रम हो रहा है। प्रखंड अध्यक्ष प्रकाश उपाध्याय, उपाध्यक्ष सुभाष जोशी, बजरंग दल संयोजक जुगनू जानी, सह संयोजक सौरभ व्यास, जयेश शर्मा, कांतिलाल शर्मा, रामेश्वर मीणा, मुकेश जोशी, भावेश मेहता आदि मौजूद रहे।

zee rajasthan › Dungarpur

सागवाड़ा : जल्द शुरू होगा पांच तालाबों के सौंदर्यीकरण का काम, आरयूआईडीपी व एशियन डेवलपमेंट बैंक के अधिकारियों ने की बैठक

सागवाड़ा : डूंगरपुर जिले के सागवाड़ा कस्बे के पांच तालाबों के सौंदर्यीकरण का कार्य जल्द शुरू होने जा रहा है.

Written by ज़ी राजस्थान वेब टीम | Last Updated:October 29, 2022, 08:54 PM IST

सागवाड़ा : डूंगरपुर जिले के सागवाड़ा कस्बे के पांच तालाबों के सौंदर्यीकरण का कार्य जल्द शुरू होने जा रहा है. इसके साथ ही पुनर्वास कॉलोनी के खेल मैदान को भी विकसित किया जाएगा, इसके लिए आरयूआईडीपी व एशियन डेवलपमेंट बैंक के अधिकारी सागवाड़ा पहुंचकर नगर पालिका अध्यक्ष के साथ बैठक कर चुके हैं. आरयूआईडीपी व एशियन डेवलपमेंट बैंक के अधिकारी शनिवार को डूंगरपुर जिले के सागवाडा पहंचे।
इस दौरान नगर पालिका सागवाड़ा में नगर पालिका अध्यक्ष नरेंद्र खोडानिया, उपाध्यक्ष राजू मामा शेख व अधिकारियों के साथ अधिकारियों ने बैठक की. बैठक में उपस्थित अवर अभियंता लोकेश पाटीदार ने टीम को सागवाड़ा के लिए प्रस्तावित जलापूर्ति सीवरेज प्लांट एवं तालाब के सौन्दर्यीकरण की प्रस्तावित परियोजना से अवगत कराया. बैठक में सागवाड़ा नगर अध्यक्ष नरेंद्र खोडानिया ने बताया कि मुख्यमंत्री की बजट घोषणा के अनुसार सागवाड़ा शहर को आरयूआईडीपी के चौथे पन्ने में शामिल किया गया है.

दोनों कार्यों के लिए सर्वे और डीपीआर का काम पूरा हो चुका है। शहर में पेयजल व सीवरेज के लिए 100 करोड़ का टेंडर हो चुका है। शहर के पांच तालाबों के सौंदर्यीकरण पर 20 करोड़ रुपये खर्च किए जाएंगे। नगर अध्यक्ष नरेंद्र खोडानिया ने बताया कि तालाबों का सौंदर्यीकरण चुनाव का मुख्य वादा था. इसीलिए मुख्यमंत्री के साथ बैठक में इस काम की घोषणा की गई।

यह भी पढ़ें- चुनावी साल से पहले गहलोत सरकार का मास्टरस्ट्रोक, 1 लाख ग्रामीण परिवारों को मिलेगा 2000 करोड़ का कर्ज

इस कार्य को आरयूआईडीपी के चतुर्थ पृष्ठ में स्वीकृत किया गया है। तालाबों के किनारे वोकिंग टेक, गार्डन और फाउंटेन सिटी के इन पांच तालाबों के विकास की योजना तैयार है। सबसे पहले पानी की आवक से रुकावटों को दूर किया जाएगा और तालाबों को गहरा किया जाएगा। तालाब के पास वॉकिंग ट्रैक, बगीचा और फव्वारा लगाया जाएगा। लाइटिंग और पालों का सुदृढ़ीकरण होगा।

Translation

Sagwara: The work of beautification of five ponds of Sagwara town of Dungarpur district is going to start soon. Along with this, the sports ground of the rehabilitation colony will also be developed, for this the officials of RUIDP and Asian Development Bank have reached Sagwara and held a meeting with the Municipal President. Officials of RUIDP and Asian Development Bank reached Sagwara in Dungarpur district on Saturday.

The meeting was attended by Municipal President Narendra Khodania, Vice President Raju Mama Sheikh, local public, and other officials of Sagwara municipality. The Junior Engineer Lokesh Patidar apprised the team about the proposed water supply sewerage plant for Sagwara and the proposed project of beautification of the ponds. In the meeting, Sagwara Municipal President Narendra Khodania told that as per the Chief Minister's budget announcement, Sagwara city was included in the fourth phase of RUIDP

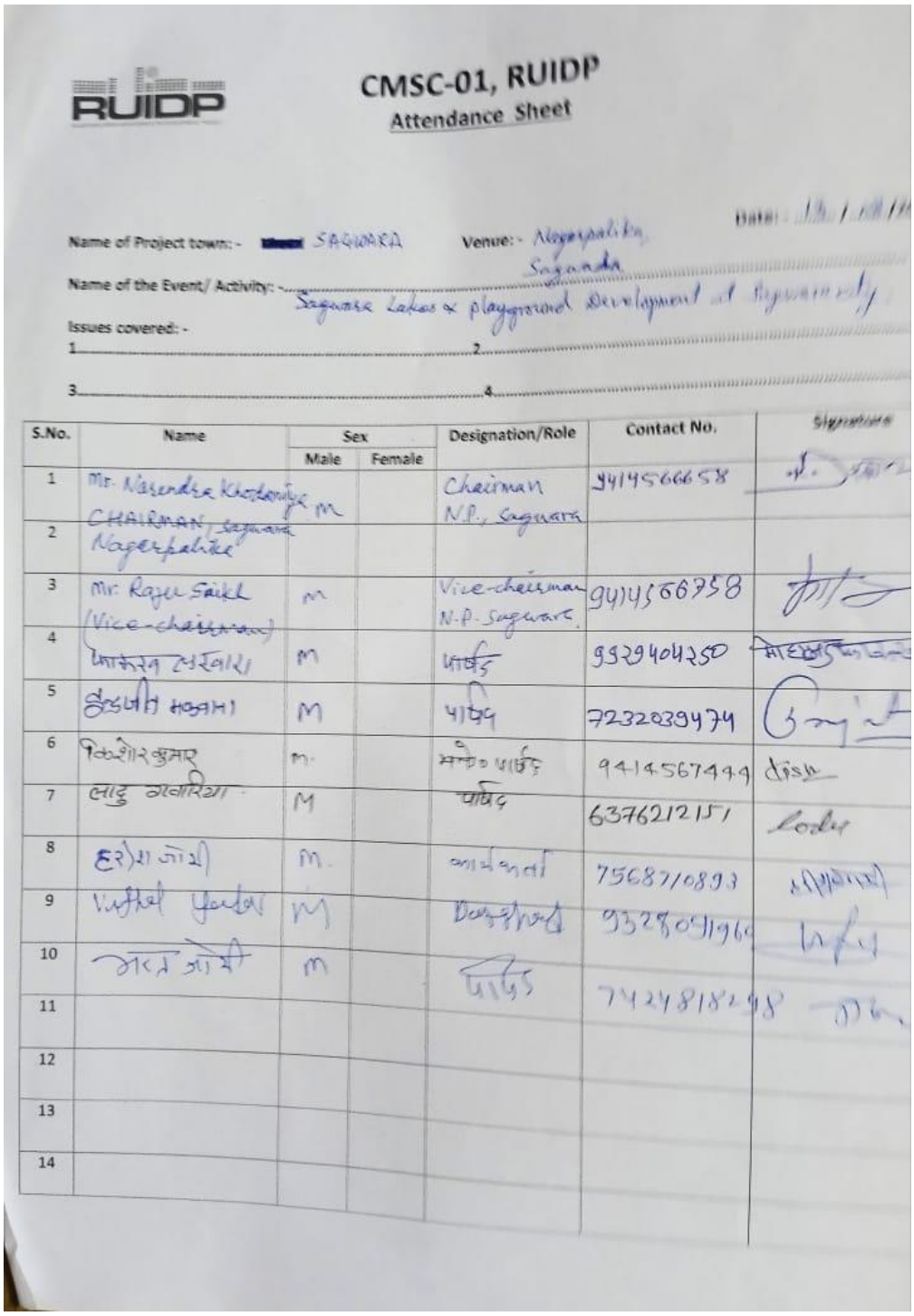
The survey and DPR work for both the works have been completed. 100 crore tender has already been floated for drinking water and sewerage in the city. Rs 20 crore will be spent on the beautification of five ponds of the city. Municipal President Narendra Khodania told that the beautification of the ponds was the main promise of the election and was announced in a meeting with the Chief Minister.

दैनिक भास्कर डूंगरपुर भास्कर 08-04-2022

आरयूआईडीपी में शहर में होने वाले कार्यों का सर्वे

भास्कर न्यूज | सागवाड़ा

नगरपालिका में 110 करोड़ के प्रोजेक्ट के कार्यों को मंजूरी मिलने के बाद इन कार्यों का सामाजिक सर्वेक्षण किया गया। इसे लेकर गुरुवार को जयपुर से आई आरयूआईडीपी की टीम ने योजना के तहत होने वाले कार्यों का मौका निरीक्षण किया। आरयूआईडीपी के राजीव शर्मा और डॉ महावीर सैनी ने पालिका उपाध्यक्ष राजुमामा शेख, ईओ मुकेश कुमार मोहिल और पार्षदों से शहर में होने वाले कार्यों के बारे में चर्चा की। पालिका के जेईएन लोकेश पाटीदार ने बताया कि आरयूआईडीपी के तहत शहर में सड़क से लेकर सीवरेज का काम होना है। पिछले दिनों जयपुर में आरयूआईडीपी और एशियन डवलपमेंट बैंक के अधिकारियों के साथ पालिका के अधिकारियों की बैठक में एशियन डवलपमेंट बैंक से 110 करोड़ रुपयों के कार्यों को मंजूरी मिली है। जिससे सीवरेज, वाटर सप्लाई, शहर के सभी तालाबों के सौंदर्यीकरण आदि के काम होने है। पालिका अध्यक्ष नरेंद्र खोडनिया ने बताया कि सागवाड़ा शहर सहित पुनर्वास कॉलोनी में भी वाटर सप्लाई, मैदान सुदृढ़ीकरण, सामुदायिक भवन के काम होने है। सर्वे का काम पूरा होने के बाद यह कार्य शुरू किये जा सकेंगे।



RUIDP

CMSC-01, RUIDP

Attendance Sheet

Name of Project town: - SAGWARA Venue: - Nagarpalika, Sagwara

Name of the Event/ Activity: - Sagwara Lakes & playground Development at Sagwara city

Issues covered: -

1 2

3 4

S.No.	Name	Sex		Designation/Role	Contact No.	Signature
		Male	Female			
1	Mr. Narendra Khandelwal CHAIRMAN, Sagwara Nagarpalika	M		Chairman N.P., Sagwara	9414566658	
2						
3	Mr. Rajesh Saikh (Vice-chairman)	M		Vice-chairman N.P. Sagwara	9414566758	
4	[illegible]	M		[illegible]	9929404250	[illegible]
5	[illegible]	M		[illegible]	7232039474	
6	[illegible]	M		[illegible]	9414567449	
7	[illegible]	M		[illegible]	6376212151	
8	[illegible]	M		[illegible]	7568710893	
9	[illegible]	M		[illegible]	9329091960	
10	[illegible]	M		[illegible]	7424818298	
11						
12						
13						
14						

RUIDP

CMSC-01, RUIDP

Attendance Sheet

Name of Project town: - [redacted] SAGWARA. Venue: - Nagarpalika, Sagwara. Date: - 13.../...8./2022

Name of the Event/ Activity: -

Issues covered: - - Sagwara Lakes & Playground Development in Sagwara.

1.....2.....

3.....4.....

S.No.	Name	Sex		Designation/Role	Contact No.	Signature
		Male	Female			
1	सुरेश पंवार	✓		पंडी एवं लिपली प्रेमी नागरिक	8890013884	
2	सुमन गुप्ता	✓		पार्षद	8000047350	
3	वन्दना शाह					
4	MOHAMMED PEETH	✓		PARSHAD.	9428660765	
5	Ismil bilal	✓		[illegible]	9824422341	
6	[illegible]	✓		[illegible]	9001343856	
7	[illegible]	✓		पार्षद	8290668383	
8	मीना			पार्षद	7374880239	
9	[illegible]				9875054706	
10	[illegible]				9667175857	
11	[illegible]				9414568826	
12						
13						
14						

Consultation meeting with elected ward councillors of Sagawara municipality.

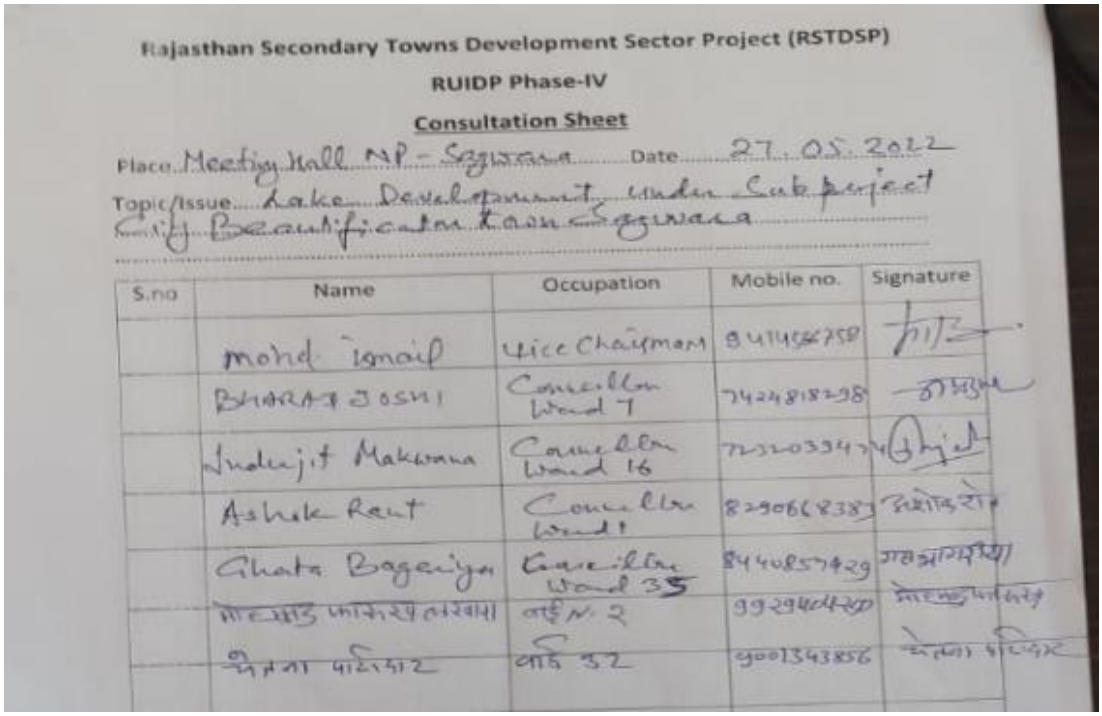
Meeting with ward parshad (councillorz) and Nagar Palika officials was also held on 16.05.2022 and proposed redevelopment works of lakes and playground was discussed in detail. The participants informed that the proposal was prepared a few years back, but due to unavailability of funds and some other constraints, works were not executed. They showed their willingness to provide full support to RUIDP (RUDSICO) for implementation of this subproject.

Discussion with school authorities was also held and they briefed them about the need for development of playground. They confirmed that no-objection has already been provided.

Consultation with School Authorities and Nagar Palika Officials

Consultation,School staff

Consultation,Nagar Palika officials



Rajasthan Secondary Towns Development Sector Project (RSTDSP)

RUIDP Phase-IV

Consultation Sheet

Place Meeting Hall NP - Sagwara Date 27.05.2022

Topic/Issue Lake Development under Sub project

Beautification town Sagwara

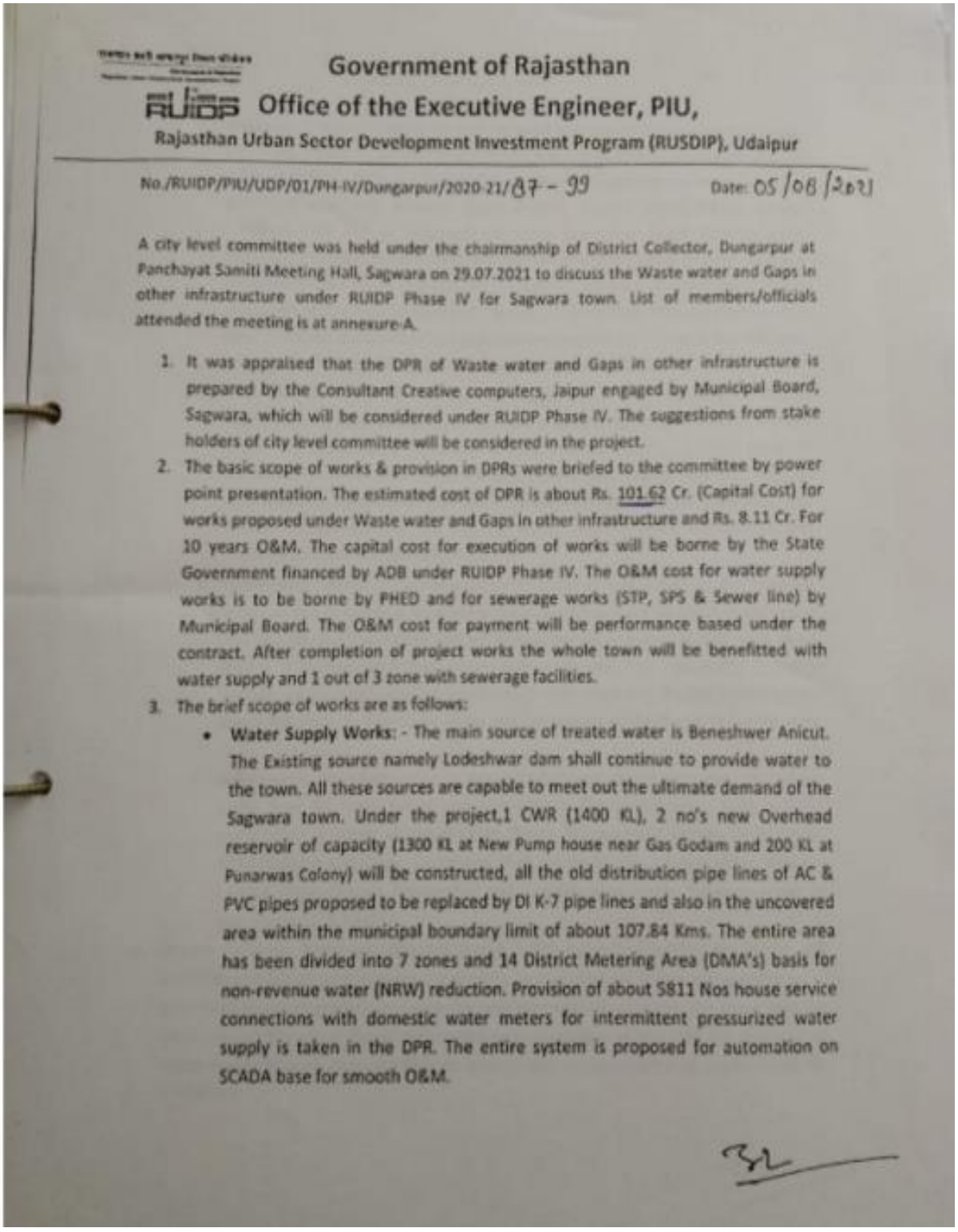
S.no	Name	Occupation	Mobile no.	Signature
	Mohd Ismail	Vice Chairman	9414562758	
	BHARAT JOSHI	Councillor Ward 7	7424818298	
	Jitendra Makwana	Councillor Ward 16	7737033477	
	Ashok Raut	Councillor Ward 1	8290618383	
	Ghata Bagariya	Councillor Ward 35	8440857429	
	[illegible]	वार्ड नं. 2	9929404420	
	[illegible]	वार्ड 32	9001343856	

2. **Stakeholders Consultations in CLC:**

City level Stakeholder Committee (CLC) Meeting (dtd. 29.07.2021)- A town-level City Level Committee (CLC) has been formed in Sagwara district by Government orders. City Level Committee meeting was organized during the detailed design stage to which representatives of primary and secondary stakeholders were invited. City Level Stakeholder committee meeting was organized for Sagwara on dtd. 29.07.2021 to discuss the matter of proposed subproject components including restoration and beautification of lakes in Sagwara under the chairmanship of District Collector, Dungarpur, in presence of Chairman SMC, Vice-chairman, SMC, DPR consultants, RUDSICO-EAP officials, PHED officials, Municipal Council officials, and other invitee members. Proposed scope of works and technology was discussed in the meeting. The feedback and concerns of the stakeholders were taken into consideration for finalization of design and scope of works. The project was agreed by the committee for further course of action by RUDSICO-EAP. Minutes of CLC meeting, attendance sheet and photographs are given below-

Photographs of CLC Meeting

Minutes of CLC meeting with Outcomes



Government of Rajasthan

Office of the Executive Engineer, PIU,

Rajasthan Urban Sector Development Investment Program (RUSDIP), Udaipur

No./RUIDP/PIU/UDP/01/PH-IV/Dungarpur/2020-21/87 - 99 Date: 05/08/2021

A city level committee was held under the chairmanship of District Collector, Dungarpur at Panchayat Samiti Meeting Hall, Sagwara on 29.07.2021 to discuss the Waste water and Gaps in other infrastructure under RUIDP Phase IV for Sagwara town. List of members/officials attended the meeting is at annexure-A.

1. It was appraised that the DPR of Waste water and Gaps in other infrastructure is prepared by the Consultant Creative computers, Jaipur engaged by Municipal Board, Sagwara, which will be considered under RUIDP Phase IV. The suggestions from stake holders of city level committee will be considered in the project.
2. The basic scope of works & provision in DPRs were briefed to the committee by power point presentation. The estimated cost of DPR is about Rs. 101.62 Cr. (Capital Cost) for works proposed under Waste water and Gaps in other infrastructure and Rs. 8.11 Cr. For 10 years O&M. The capital cost for execution of works will be borne by the State Government financed by ADB under RUIDP Phase IV. The O&M cost for water supply works is to be borne by PHED and for sewerage works (STP, SPS & Sewer line) by Municipal Board. The O&M cost for payment will be performance based under the contract. After completion of project works the whole town will be benefitted with water supply and 1 out of 3 zone with sewerage facilities.
3. The brief scope of works are as follows:
    - **Water Supply Works**: - The main source of treated water is Beneshwer Anicut. The Existing source namely Lodeshwar dam shall continue to provide water to the town. All these sources are capable to meet out the ultimate demand of the Sagwara town. Under the project,1 CWR (1400 KL), 2 no's new Overhead reservoir of capacity (1300 KL at New Pump house near Gas Godam and 200 KL at Punarwas Colony) will be constructed, all the old distribution pipe lines of AC & PVC pipes proposed to be replaced by DI K-7 pipe lines and also in the uncovered area within the municipal boundary limit of about 107.84 Kms. The entire area has been divided into 7 zones and 14 District Metering Area (DMA's) basis for non-revenue water (NRW) reduction. Provision of about 5811 Nos house service connections with domestic water meters for intermittent pressurized water supply is taken in the DPR. The entire system is proposed for automation on SCADA base for smooth O&M.

- **Sewerage Works:** - There is no existing sewerage system in the town. The scope under the project to provide sewer network of about 20 km length, one Sewage Treatment Plant (STP) of 3.0 MLD. STP 3.0 MLD is proposed to be constructed on identified land near Banswara Highway (Govt. Primary School No.10). It was informed that STP is proposed on latest Sequential Batch Reactor (SBR) technology to meet out the latest effluent parameters. To reduce inconvenience to public deeper depth (3.5 mtr above) & circles where traffic is more, 0.59 Km trenchless technology for laying of the sewer is proposed. Area of town which is on the outskirt and having less habitation and population density is low has been proposed with Faecal Sludge & Septage Management (FSSM).
- **Beautification of Ponds:-** For beautification of ponds different components like Stone pitching around wall to fix the lake area and desilting of lake to remove impurities, Landscaping for culture activity, Ghat for religious activity, Aeration for water to keep odor free, Manage activity like cycling, walking, jogging, Amphitheater for cultural activity, Programmable fountain for entertainment And all related services like drinking water, lavatory block and lighting and drainage of Total cost about Rs. 18.92 Cr.
- **Community Center:** - 2 Community centers (one at Govt. School No. 8 at Banswara Road and one at Galiyakot Road Senior Secondary School) will be constructed under this project. Both will cater 600 peoples gathering at indoor facility with allied facility of kitchen, wash area, rooms with washroom. The main hall is in waffle slab design to meet acoustic specification with stage and double height ample space for open air functional space and for parking of Total cost about Rs. 4.00 Cr.
- **Solid waste Management:** - In present Municipal board has been allotted 25 bigha land for solid waste management by district collector. MRF and Pit composting is under construction at Waste management center. Road Work, ADM Building and Store, Compound Wall, Weigh Bridge, Bio Gas Plant, Sanitary Landfill, Remediation, Mechanical and Electrification Works taken in count of cost about Rs. 3.25 Cr.

4. District Collector Dungarpur directed that it is the important project for RUIDP and RUIDP should follow all norms for the work to be executed for Waste water and Gaps in other infrastructure project. It is also directed consultant to visit the site along with the local representatives of Nagar Pallika and take provisions in the DPR for redressal of water supply related problems in their area so that inconvenience to public should be minimized.

5. STP, Udaipur gave feedback that construction should be done above HFL area, Inlet point should be Shown on the map so that no encroachement will be done on the inlet point of the pond.
6. It was also deliberated that for public complaint redressal provision to toll-free number along with provision for customer service centers will be taken under the contract. The O&M payment will be performance based under the contract.
7. The representative of the Municipal council suggested to take up the excavation of trenches for sewer work in such a way, that the trench excavated for laying sewer lines should not be laying longer without restoration.
8. It was assured that suggestions and directions of the city level committee will be incorporated in the proposed detailed project report.

After deliberation, the project was agreed by the committee for further course of action at RUIDP level. Meeting ended with vote of thanks to chair.

Executive Engineer
RUIDP (PIU) Banswara
(Member Secretary, CLC Sagwara)

No./RUIDP/PIU/UDP/01/PH-IV/ Sagwara /2020-21/ 87 - 99 Date: 05/08/2021

Copy to the following for information and necessary action please.

1. PA to Hon'ble MP, Sagwara
2. PA to Hon'ble MLA, Sagwara
3. PA to The Project Director, RUIDP, PMU, Jaipur
4. The District Collector, Dungarpur
5. The Chairman, Nagar Palika, Sagwara
6. The Executive Officer, Nagar Palika, Sagwara
7. The Superintending Engineer, PWD/PHED/AVVNL/WRD, Sagwara
8. The Superintending Engineer, RUIDP Phase IV/WW/WS, Jaipur
9. The Sr. Town Planner, Udaipur
10. Guard File

Executive Engineer
RUIDP (PIU) Banswara

Attendance Sheet of CLC Meeting

CLC Meeting on Dated 29.07.2021

Venue - Panchyat Samiti Sabhagar, Sagwara

Attendance Sheet

Sr. No.	Name	Designation	Signature	Mobile No.
1	Suresh ola	Collector	[illegible]	9636672052
2	NAREENDRA KHORWAL	Chairman Nagar Palika [illegible]	[illegible]	9414566658
3	Mohammad Ismail	Vice Chairman	[illegible]	9414356758
4	Rajeev Dwivedi	SDO/EO Sagwara	[illegible]	9462334670
5	Manish Arora	SE, RUIDP	[illegible]	8003377650
6	Ashok Jangid	XEN RUIDP	[illegible]	9602135607
7	Vikas Lodha	AEn Dungarpur	[illegible]	9782460634
8	Jayanti Lal	AEn PHED Sagwara	[illegible]	9001085158
9	Shilpa patidar	AEN PWD Sagwara	[illegible]	9660016234
10	Lokesh Patidar	JEn Nagar Palika	[illegible]	9461857379
11	Jaideep Dixit	DPR Consultant	[illegible]	9414042624
12	DR. Raja Ram	PMO Sag.	[illegible]	8696440044
13	Sanjay kumar khatri	EE WRD Sagwara	[illegible]	9460374918
14	LOKESH BHATEVARA	AEN(O&M) AVVNL-Sag	[illegible]	9413391882
15	KEYUR SHAH	ARCHITECT	[illegible]	9727773771
16	Mayur Sharma	TDR. Sagwara	[illegible]	9982001515
17	Vinay Purohit	Patwari Sagwara	[illegible]	7742304413
18	Manmohan Verghese	RI ATP Nagarpalika	[illegible]	9414724635
19	A.S. Kanawat	STP, UDAIPUR Zone	[illegible]	9929990020
20				

Photographs of CLC Meeting

Appendix 4: IBAT Assessment Checklist

Integrated Biodiversity Assessment Tool

PROXIMITY REPORT
SAGWARA_PROPOSED STP (3.6 MLD)

Country: India

Location: [23.7, 74]

Date of analysis: 27 April 2022 (GMT)

Buffers applied: 1 km | 10 km | 50 km

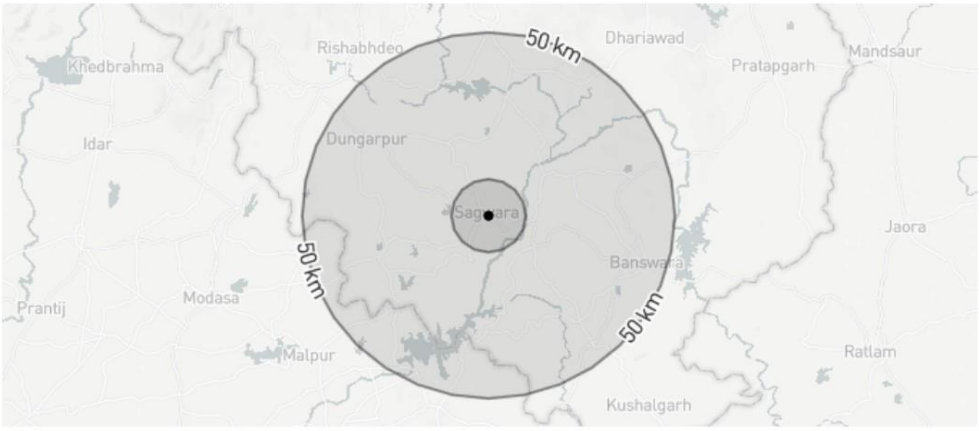
IUCN Red List Biomes: Freshwater, Terrestrial

Generated by: Noime Walican

Organisation: ADB

Overlaps with:

Protected Areas	0
Key Biodiversity Areas	0
IUCN Red List	35



Displaying project location and buffers: 1 km, 10 km, 50 km

About this report

This report presents the results of [6274-29965] proximity analysis to identify the biodiversity features and species which are located within the following buffers: 1 km, 10 km, 50 km.

This report is one part of a package generated by IBAT on 27 April 2022 (GMT) that includes full list of all species, protected areas, Key Biodiversity Areas in CSV format, maps showing the area of interest in relation to these features, and a 'How to read IBAT reports' document.

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

Please note, sensitive species data are currently not included in IBAT reports in line with the Sensitive Data Access Restrictions Policy for the IUCN Red List. This relates to sensitive Threatened species and KBAs triggered by sensitive species.

Data used to generate this report

- UNEP-WCMC and IUCN, 2022. Protected Planet: The World Database on Protected Areas (WDPA)[On-line], Cambridge, UK: UNEP-WCMC and IUCN. Available at: www.protectedplanet.net - April 2022.
- BirdLife International (on behalf of the KBA Partnership), 2022. Key Biodiversity Areas - April 2022.
- IUCN, 2021. IUCN Red List of Threatened Species - December 2021.
- IUCN. The IUCN Red List of Threatened Species. Version 2019-3. (2019). https://www.iucnredlist.org
- IUCN. Threats Classification Scheme (Version 3.2). (2019)
- Strassburg, B.B.N., Iribarrem, A., Beyer, H.L. et al. Global priority areas for ecosystem restoration. Nature 586, 724–729 (2020). https://doi.org/10.1038/s41586-020-2784-9

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Protected Areas

The following protected areas are found within 1 km, 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No protected areas within buffer distance

Key Biodiversity Areas

The following key biodiversity areas are found within 1 km, 10 km, 50 km of the area of interest.
For further details please refer to the associated csv file in the report folder.

No KBAs within buffer distance

IUCN Red List of Threatened Species

The following threatened species are potentially found within 50km of the area of interest.

For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Sypheotides indicus	Lesser Florican	AVES	CR	Decreasing	Terrestrial
Vanellus gregarius	Sociable Lapwing	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Sarcogyps calvus	Red-headed Vulture	AVES	CR	Decreasing	Terrestrial
Gyps indicus	Indian Vulture	AVES	CR	Decreasing	Terrestrial
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Rynchops albicollis	Indian Skimmer	AVES	EN	Decreasing	Terrestrial, Freshwater
Sterna acuticauda	Black-bellied Tern	AVES	EN	Decreasing	Terrestrial, Freshwater
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Neophron percnopterus	Egyptian Vulture	AVES	EN	Decreasing	Terrestrial, Freshwater
Falco cherrug	Saker Falcon	AVES	EN	Decreasing	Terrestrial, Marine, Freshwater
Leptoptilos dubius	Greater Adjutant	AVES	EN	Decreasing	Terrestrial, Freshwater
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater
Manis crassicaudata	Indian Pangolin	MAMMALIA	EN	Decreasing	Terrestrial
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial
Crocodylus palustris	Mugger	REPTILIA	VU	Stable	Terrestrial, Freshwater
Lutrogale perspicillata	Smooth-coated Otter	MAMMALIA	VU	Decreasing	Terrestrial, Marine, Freshwater
Pangshura tecta	Indian Roofed Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Wallago attu		ACTINOPTERYGII	VU	Decreasing	Freshwater
Bagarius yarrelli		ACTINOPTERYGII	VU	Decreasing	Freshwater

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Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Aythya ferina	Common Pochard	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Columba eversmanni	Yellow-eyed Pigeon	AVES	VU	Decreasing	Terrestrial, Freshwater
Grus antigone	Sarus Crane	AVES	VU	Decreasing	Terrestrial, Freshwater
Sterna aurantia	River Tern	AVES	VU	Decreasing	Terrestrial, Marine, Freshwater
Clanga clanga	Greater Spotted Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Aquila rapax	Tawny Eagle	AVES	VU	Decreasing	Terrestrial, Freshwater
Lissemys punctata	Indian Flapshell Turtle	REPTILIA	VU	Decreasing	Terrestrial, Freshwater
Melursus ursinus	Sloth Bear	MAMMALIA	VU	Decreasing	Terrestrial
Panthera pardus	Leopard	MAMMALIA	VU	Decreasing	Terrestrial
Tetracerus quadricornis	Four-horned Antelope	MAMMALIA	VU	Decreasing	Terrestrial
Geochelone elegans	Indian Star Tortoise	REPTILIA	VU	Decreasing	Terrestrial
Rusa unicolor	Sambar	MAMMALIA	VU	Decreasing	Terrestrial
Amandava formosa	Green Avadavat	AVES	VU	Decreasing	Terrestrial

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Clanga hastata	Indian Spotted Eagle	AVES	VU	Decreasing	Terrestrial
Oryza malampuzhaensis		LILIOPSIDA	VU	Decreasing	Terrestrial

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Recommended citation

IBAT Proximity Report. Generated under licence 6274-29965 from the Integrated Biodiversity Assessment Tool on 27 April 2022 (GMT). www.ibat-alliance.org

How to use this report

This report provides an indication of the potential biodiversity-related features - protected areas, key biodiversity areas and species - close to the specified location. It provides an early indication of potential biodiversity concerns, and can provide valuable guidance in making decisions. For example, this information can be helpful when assessing the potential environmental risk and impact of a site, categorising investments/projects, preparing the terms of reference for an impact assessment, focusing attention on key species of conservation concern and sites of known conservation value, and reviewing the results of an impact assessment.

The report does not provide details of potential indirect, downstream or cumulative impacts. Furthermore, the report should be regarded as a "first-step", providing a set of conservation values sourced from global data sets, and is not a substitute for further investigation and due diligence, especially concerning national and/or local conservation priorities.

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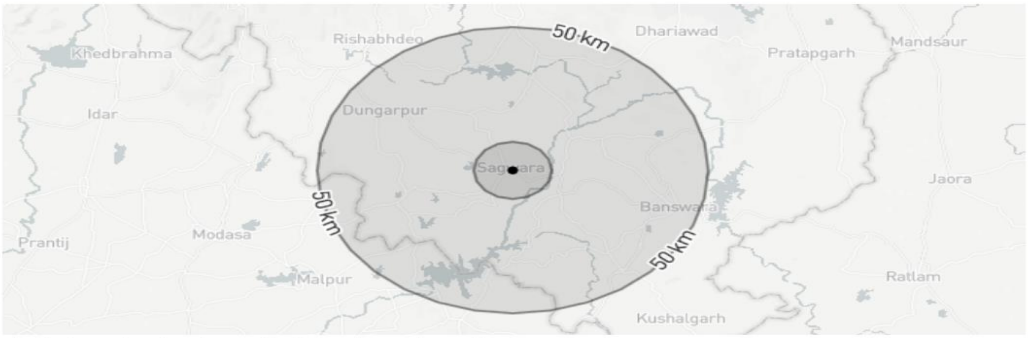
Integrated Biodiversity Assessment Tool
World Bank Group Biodiversity Risk Screen

SAGWARA_PROPOSED STP (3.6 MLD)

- **Country:** India
- **Location:** [23.7, 74]
- **IUCN Red List Biomes:** Freshwater, Terrestrial
- **Created by:** Noime Walican

Overlaps with:

Protected Areas	1 km: **0**	10 km: **0**	50 km: **0**	**0**
World Heritage (WH)	1 km: **0**	10 km: **0**	50 km: **0**	**0**
Key Biodiversity Areas	1 km: **0**	10 km: **0**	50 km: **0**	**0**
Alliance for Zero Extinction (AZE)	1 km: **0**	10 km: **0**	50 km: **0**	**0**
IUCN Red List				15
Critical Habitat				Unclassified



Displaying project location and buffers: 1 km, 10 km, 50 km

WORLD BANK GROUP

This report is based on IFC Performance Standard 6 (PS6) but applies to World Bank Environmental and Social Standard 6 (ESS6)

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About this report

The recommendations stated alongside any Protected Areas and Key Biodiversity Areas identified in this report are determined by the following:

Protected Areas:

- 'Highest risk. Seek expert help' is stated if the report identifies a designation that includes either 'natural' or 'mixed world heritage site'.
- 'Assess for Critical Habitat' is stated if the report identifies a Strict Nature Reserve, Wilderness Area or National Park as coded by IUCN protected area categories Ia, Ib and II.
- 'Assess for biodiversity risk' is stated if the report identifies any other type of protected area.

Key Biodiversity Areas:

- 'Highest risk. Seek expert help' is stated if the report identifies an Alliance for Zero Extinction site.
- 'Assess for Critical Habitat' is stated if the report identifies Critically Endangered or Endangered species OR species with restricted ranges OR congregatory species as coded in the IUCN Red List of Threatened Species.
- 'Assess for biodiversity risk' is stated if the report identifies any other type of Key Biodiversity Area.

IBAT provides initial screening for Critical Habitat values. Performance Standard 6 (PS6) defines these values for Critical Habitat (PS6: para. 16) and legally protected and internationally recognized areas (PS6: para. 20). PS6 will be triggered when IFC client activities are located in modified habitats containing "significant biodiversity value," natural habitats, Critical Habitats, legally protected areas, or areas that are internationally recognized for biodiversity. References to PS6 and Guidance Note 6 (GN6) are provided to guide further assessment and detailed definitions where necessary. Please see https://www.ifc.org/ps6 for full details on PS6 and GN6.

The report screens for known risks within a standard 50km buffer of the coordinates used for analysis. This buffer is not intended to indicate the area of impact. The report can be used to:

- Scope risks to include within an assessment of risks and impacts
- Identify gaps within an existing assessment of risks and impacts
- Prioritize between sites in a portfolio for further assessment of risks and impacts
- Inform a preliminary determination of Critical Habitat
- Assess the need for engaging a biodiversity specialist
- Identify additional conservation experts or organizations to inform further assessment or planning

WARNING: IBAT aims to provide the most up-to-date and accurate information available at the time of analysis. There is however a possibility of incomplete, incorrect or out-of-date information. All findings in this report must be supported by further desktop review, consultation with experts and/or on-the-ground field assessment as described in PS6 and GN6. Please consult IBAT for any additional disclaimers or recommendations applicable to the information used to generate this report.

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Priority Species

Habitat of significant importance to priority species will trigger Critical Habitat status (See PS6: para 16). IBAT provides a preliminary list of priority species that could occur within the 50km buffer. This list is drawn from the IUCN Red List of Threatened Species (IUCN RL). This list should be used to guide any further assessment, with the aim of confirming knownor likely occurrence of these species within the project area. It is also possible that further assessment may confirm occurrence of additional priority species not listed here. It is strongly encouraged that any new species information collected by the project be shared with species experts and/or IUCN wherever possible in order to improve IUCN datasets.

IUCN Red List of Threatened Species - CR & EN

The following species are potentially found within 50km of the area of interest.
For the full IUCN Red List please refer to the associated csv in the report folder.

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Nilssonia gangetica	Indian Softshell Turtle	REPTILIA	EN	Decreasing	Terrestrial, Freshwater
Rynchops albicollis	Indian Skimmer	AVES	EN	Decreasing	Terrestrial, Freshwater
Sterna acuticauda	Black-bellied Tern	AVES	EN	Decreasing	Terrestrial, Freshwater
Haliaeetus leucoryphus	Pallas's Fish-eagle	AVES	EN	Decreasing	Terrestrial, Freshwater
Neophron percnopterus	Egyptian Vulture	AVES	EN	Decreasing	Terrestrial, Freshwater
Falco cherrug	Saker Falcon	AVES	EN	Decreasing	Terrestrial, Marine, Freshwater
Leptoptilos dubius	Greater Adjutant	AVES	EN	Decreasing	Terrestrial, Freshwater
Tor putitora		ACTINOPTERYGII	EN	Decreasing	Freshwater

IBAT

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Sypheotides indicus	Lesser Florican	AVES	CR	Decreasing	Terrestrial
Vanellus gregarius	Sociable Lapwing	AVES	CR	Decreasing	Terrestrial
Gyps bengalensis	White-rumped Vulture	AVES	CR	Decreasing	Terrestrial
Sarcogyps calvus	Red-headed Vulture	AVES	CR	Decreasing	Terrestrial
Gyps indicus	Indian Vulture	AVES	CR	Decreasing	Terrestrial
Manis crassicaudata	Indian Pangolin	MAMMALIA	EN	Decreasing	Terrestrial
Aquila nipalensis	Steppe Eagle	AVES	EN	Decreasing	Terrestrial

Restricted Range Species

Species Name	Common Name	Taxonomic Group	IUCN Category	Population Trend	Biome
Salvinia natans	Floating Fern	POLYPODIOPSIDA	LC OR LR/LC	Decreasing	Freshwater
Oreichthys cosuatis		ACTINOPTERYGII	LC OR LR/LC	Unknown	Freshwater
Oryzias carnaticus	Spotted Ricefish	ACTINOPTERYGII	LC OR LR/LC	Unknown	Marine, Freshwater
Macrobrachium rosenbergii	Giant River Prawn	MALACOSTRACA	LC OR LR/LC	Unknown	Freshwater

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Biodiversity features which are likely to trigger Critical Habitat

Protected Areas

There are no protected areas to show for this report.

Key Biodiversity Areas

There are no key biodiversity areas to show for this report.

Species with potential to occur

Area Taxonomic group	Total assessed species	Total (CR, EN & VU)	CR	EN	VU	NT	LC	DD
REPTILIA	55	5	0	1	4	4	45	1
AVES	324	20	5	7	8	15	289	0
ACTINOPTERYGII	44	3	0	1	2	2	37	2
MAMMALIA	64	6	0	1	5	3	55	0
AMPHIBIA	8	0	0	0	0	0	8	0
INSECTA	48	0	0	0	0	0	47	1
GASTROPODA	24	0	0	0	0	0	24	0
POLYPODIOPSIDA	3	0	0	0	0	0	3	0
MAGNOLIOPSIDA	39	0	0	0	0	0	38	1
LILIOPSIDA	48	1	0	0	1	0	45	2
BIVALVIA	10	0	0	0	0	0	10	0
MALACOSTRACA	5	0	0	0	0	0	5	0

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Area Taxonomic group	Total assessed species	Total (CR, EN & VU)	CR	EN	VU	NT	LC	DD
ARACHNIDA	1	0	0	0	0	0	1	0

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Recommended citation

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Recommended Experts and Organizations

For projects located in Critical Habitat, clients must ensure that external experts with regional expertise are involved in further assessment (GN6: GN22). Clients are encouraged to develop partnerships with recognized and credible conservation organizations and/or academic institutes, especially with respect to potential developments in natural or Critical Habitat (GN6: GN23). Where Critical Habitats are triggered by priority species, species specialists must be involved. IBAT provides data originally collected by a large network of national partners, while species information is sourced via the IUCN Red List and affiliated Species Specialist Groups. These experts and organizations are listed below. **Please note that this is not intended as a comprehensive list of organizations and experts. These organizations and experts are under no obligation to support any further assessment and do so entirely at their discretion and under their terms. Any views expressed or recommendations made by these stakeholders should not be attributed to the IFC or IBAT for IFC partners.**

Birdlife Partners

URL: https://www.birdlife.org/worldwide/partnership/birdlife-partners

Directory for Species Survival Commission (SSC) Specialist Groups and Red List Authorities

URL: https://www.iucn.org/commissions/ssc-groups

Common Appendices C1 – C24 attached separately

Appendix C-1: Drinking Water Standards
Appendix C-2: Ambient Air Quality Standards
Appendix C - 3: Emission limits for New DG sets up to 800 KW
Appendix C- 4: Stack Height Requirement of DG set
Appendix C-5: Vehicle Exhaust Emission Norms
Appendix C-6: Ambient Noise Quality Standards
Appendix C-7: Noise Limits for DG Set
Appendix C-8: Effluent Discharge Standards for Sewage Treatment Plant
Appendix C-9: Pages from Rajasthan State Sewerage and Waste Water Policy for reuse of treated effluent and sludge
Appendix C-10: Guidelines for Reuse of Treated Effluent and Sludge from STP for Beneficial Purposes
Appendix C-11: Guidelines for compensatory tree plantation in RUIDP works
Appendix C-12: Salient Features of Laws applicable to Construction Works including Labor Laws
Appendix C-13: Sample Outline Spoil Management Plan
Appendix C-14: Sample Outline Traffic Management Plan
Appendix C- 15: Sample Six Monthly Reporting Format
Appendix C-16: Sample Environmental Site Inspection Report
Appendix C-17: Sample Grievance Registration Form
Appendix C-18: Management Plan for Night works at Project Sites
Appendix C-19: Guidelines for Safety during Monsoon/Heavy rainfall
Appendix C-20: Sample ACM Management Plan
Appendix C-21: Guidelines for Workers Camps
Appendix C-22: Guidelines for Safety in Chlorine Usage
Appendix C-23: Guidelines for Prevention and Control of COVID-19
Appendix C-24: RUDSICO-EAP Guidelines for implementation of Prevention and Control Measures for COVID-19
Appendix C-25 Management of Work Plan during festivals and fairs (melas)