

Land Acquisition and Resettlement Due Diligence Report

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India: Integrated Urban Flood Management for the Chennai-Kosasthalaiyar Basin Project – Additional Financing

Restoration of Ecosystem Services of Kadapakkam Lake in the Chennai-Kosasthalaiyar Basin Project

CURRENCY EQUIVALENTS

(as of 04 March 2022)

Currency unit	–	Indian rupee (₹)
₹1.00	=	\$0.013
\$1.00	=	₹75.84

ABBREVIATIONS

ADB	-	Asian Development Bank
BPL	-	Below Poverty Line
CMA	-	Chennai Metropolitan Area
DMS	-	Detailed Measurement Survey
FMB	-	Field Measurement Book
GEF	-	Global Environment Facility
GOTN	-	Government of Tamil Nadu
GCC	-	Greater Chennai Corporation
GRC	-	Grievance Redressal Committee
GRM	-	Grievance Redress Mechanism
NOC	-	No Objection Certificate
PWD	-	Public Works Department
PMU	-	Project Management Unit
SWD	-	Storm Water Drains
SPS	-	Safeguard Policy Statement
UGSS	-	Underground Sewage System
WRD	-	Water Resource Department

WEIGHTS AND MEASURES

°C	-	degree Celsius
km	-	kilometer
LPCD	-	liters per capita per day
m	-	meter
MLD	-	million liters per day
mm	-	millimeter
dia	-	diameter
km ²	-	square kilometer

NOTE

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

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I. INTRODUCTION

A. Background

1. Water bodies across India are facing a myriad of ecological challenges due to rapid industrialization and urbanization. Issues like loss of watershed, increasing pollution levels, deteriorating water balance, encroachment and illegal constructions have led to a reduction in the number of urban water bodies and a dire lack of groundwater recharge has impacted the health of existing water bodies over time. Such issues coincide with an influx of population in Indian cities leading to an increase in demand of water resources for personal consumption and for industry. To cater to this rising demand for water across India, augmenting the number of water bodies and improving their health is crucial from a public health and ecological perspective. Water bodies like ponds and lakes provide various ecosystem services that are required to manage microclimate, biodiversity and nutrient cycling. In the Indian context, millions rely on these ecological services provided by water bodies and historically rainwater harvesting has been used as an easy, low-cost and locally adoptable technique to maintain water storage.

2. Chennai Metropolitan Area (CMA) has many water bodies in the form of Tanks/Kanmoi/Kulam/Lakes/Eri which contribute for sustainable water resources and for groundwater recharge. However, the nature of almost all these water bodies has changed and became seasonal due to fast growing urban settlements and unsustainable human interventions. The erratic rainfall pattern, unplanned and unregulated land use change in the catchment area and unsustainable exploitation of resources, unauthorized extraction of groundwater within the catchment, illegal construction and encroachments are the main negative externalities causing the degeneration of most of the Lakes/ Water Bodies.

3. Government of Tamil Nadu (GOTN) recently announced the policy of sustainable water security mission, under this policy many lake projects being improved across the state and various funding programs adopted to improve the surface water quality and quantity of storage is initiated. GCC is implementing various water body improvement and rejuvenation projects to improve the water bodies to counter erratic climate and to improve the underground water quality in Chennai region

4. Greater Chennai Corporation (GCC) has identified the Kadapakkam lake in North Chennai which is one among the major water bodies located near to Manali in Greater Chennai Corporation and within the Kosathalaiyar Basin area with the association of Asian Development Bank (ADB) under program of Global Environment Facility (GEF). This lake has been identified by the GCC for restoration and protection works by studying the interventions in the basin and catchment area for water recharging and retaining the lake area from future encroachments as per ADB Green initiative principles which is to be funded by GEF program.

5. Kadapakkam being pristine land, comparatively, in the GCC region which is bound to be urbanized as the development is fast paced with Industrial demand, protecting the unpolluted lake is the model for any future urban developments and this protected place will provide the necessary urban lung space for the future rising population. GEF Program which has the objective to combat climate change and combat urban challenges had selected the Chennai, Kosathalaiyar basin as one of the showcasing areas to develop a sustainable model project in the line of GEF guidelines.

B. About the Project

6. The proposed Kadapakkam lake rejuvenation project is envisaged to be one of the first of its kind, significantly using Nature-based solutions for restorations at this scale. The identified area is in the northern part of the city that has low urban density compared to other parts of Chennai. The lake which measures about 134.8 acres, is relatively undisturbed and its inflow comes from Vichoor lake in the upstream and flows to Ariyalur lake in the downstream and it falls within Kosathalaiyar river basin.

7. With the assistance from ADB, GCC envisaged this project to be combination of urban centric lake development without diluting the essence of the lake which is still partly being used for irrigation purpose. North Chennai is predominantly being developed as industrial area, therefore, development of Kadapakkam lake will prevent the lake from being polluted and provide pulmonary relief to the growing urban population.

8. The proposed project is aimed for definite objectives, as defined below:

- (i) To develop the Lake to ensure water is retained throughout the year by deepening and desilting and improving the water holding capacity and to increase the depth of the lake;
- (ii) To provide a space for North Chennai residents to hang out, natures getaways and to provide a space for pollution-free breathing in the fast-growing industrial area;
- (iii) To protect the lake from any future potential encroachments from either fast paced urban squatter settlement or from industrial pollution; and
- (iv) Development of waterfront in the lake and explore the ways of usage of available space and its potential by introducing variety of attractions like walkways, cycling tracks, Miyawaki forest plantation, parks, etc.

9. Municipal Administration and Water Supply (MAWS) Department, GOTN will be the executing agency for this project. A state level steering committee chaired by Chief Secretary will provide overall policy and strategic guidance to the project. There will be an Executive Committee in MAWS with Additional Chief Secretary, MAWS as Chairman and Commissioner, Deputy Commissioner (Works) and Chief Engineer from GCC as members with full powers of Government in project related matters. GCC will establish a project management unit (PMU) for the project which will be headed by Commissioner, GCC as Project Director and a project implementation unit (PIU) in the Storm Water Drain (SWD) Department of GCC headed by Chief Engineer (SWD).

10. The project is assessed as technically viable. Inflow to Kadapakkam Lake will pass through a shallow forebay to improve water quality before entering the main lake. The forebay will be periodically cleaned during low-flow periods, which will reduce the necessary frequency and cost of desilting the main lake. Locally available and environmentally friendly materials will be used for developing the lake bund, furnishings, and bird island. A lake management committee comprising various stakeholders including representatives from civil society organization(s) will be constituted to review maintenance, oversee water and environmental quality monitoring, and initiate coordinated works to resolve any operational issues. Community awareness will be raised to deter solid waste dumping and protect water bodies.

11. Kadapakkam lake can be approached from three directions; one is the Vichoor main road in the north eastern direction or Kadapakkam Road in the eastern direction or Sendrapakkam-Vichoor road in the south-west direction. The existing approach roads are adequate and will not

cause any temporary impacts during construction. No land acquisition, physical, and economic displacement is envisaged in the components supported by the additional financing. The lake site or land belongs to government (Water Resources Department, Government of Tamilnadu). Lake rejuvenation will support farmers' livelihood by improving access to the surplus flow from renewed sluice gates and replenished groundwater through their bore wells. The components financed through additional financing under GEF are Category C for involuntary resettlement as well as indigenous peoples impacts.

C. Scope of this Report

12. This due diligence report (DDR) is prepared for the proposed 'Restoration of Biodiversity and Ecosystem Services in Kadapakkam Lake in Chennai' under GCC. The report is prepared based on the available preliminary design and the draft detailed project report (DPR) prepared for this project by GCC.

13. A due diligence process was conducted to examine the land acquisition and resettlement issues in detail based on the preliminary design and information, aligned with Asian Development Bank's Safeguard Policy Statement (ADB SPS), 2009 and no land acquisition or involuntary resettlement impacts have been identified as the entire lake area including lake bund is owned by Water Resource Department (WRD), Public Works Department (PWD), Government of Tamil Nadu. The entire area is free from any encumbrances. Any adverse impact in terms of permanent or temporary such as land acquisition, physical displacement, economic displacement, adverse impact on livelihood, community properties or any other impact is not anticipated due to the proposed project. The due diligence has verified that there are no informal encroachments; this is also certified by Greater Chennai Corporation. This report describes the findings and provides copies of relevant documents, community consultations and photographs.

14. The DDR will be updated and reconfirmed for final impacts following detailed design and based on detailed measurement survey (DMS). The draft DDR will be reviewed and disclosed on GCC and ADB websites.

15. The final social safeguards document will be reviewed and disclosed on Implementation Agency and ADB websites. No civil works contract package should be awarded, and construction started before the completion of final safeguard document. The project Implementing Agency is responsible to hand over the project land/site/s to the contractor free of encumbrance.

II. PROJECT DESCRIPTION

A. About the Project Area

16. The Kadapakkam village is located on the outskirts of Chennai city within the Greater Chennai Corporation area. Improvement of infrastructural facilities in the area by the GCC and proximity to Ennore Kamarajar Port has led to change in land use around the Kadapakkam village. Agricultural lands are converted into container storage yards and industrial units. The proposed activities under the project focus to protect the lake from encroachments, improve storage capacity and lake environment.

17. Kadapakkam Lake is located in GCC Zone-II (Manali), ward number 16, a developing residential area in North Chennai, a metropolitan city in Tamil Nadu, India, with Edayanchavadi in the East, Vichoor in the West, Vellivoyal in the North, and Mathur to the South. Kadapakkam

Panchayat and other nearby villages such as Ariyalur, Sembiummanali and Vichoor has become fast developing neighbourhood with number of new Industries in the town. The lake is approached by following the Vichoor main road from Tiruvottiyur-Ponneri High Road and also by following Kanniyammanpettai Kadapakkam road from Andarkuppam-Red hills Road.

18. Storm water and sewerage networks data were collected from secondary data and primary survey. There are no existing storm water drains (SWD) and underground sewage system (UGSS) around the lake. The following table provides the availability of SWD facility around the study lake.

Table 1: Connectivity status of Kadapakkam Lake

Name of Lake	SWD Network	UGSS	Name of ULB
Kadapakkam lake	Available in the downstream of lake	Not Available	GCC

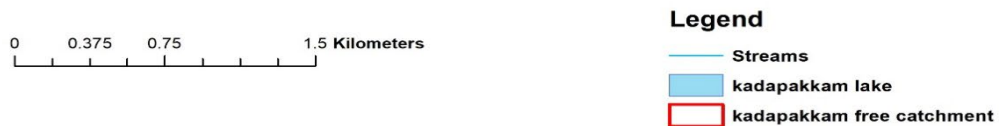
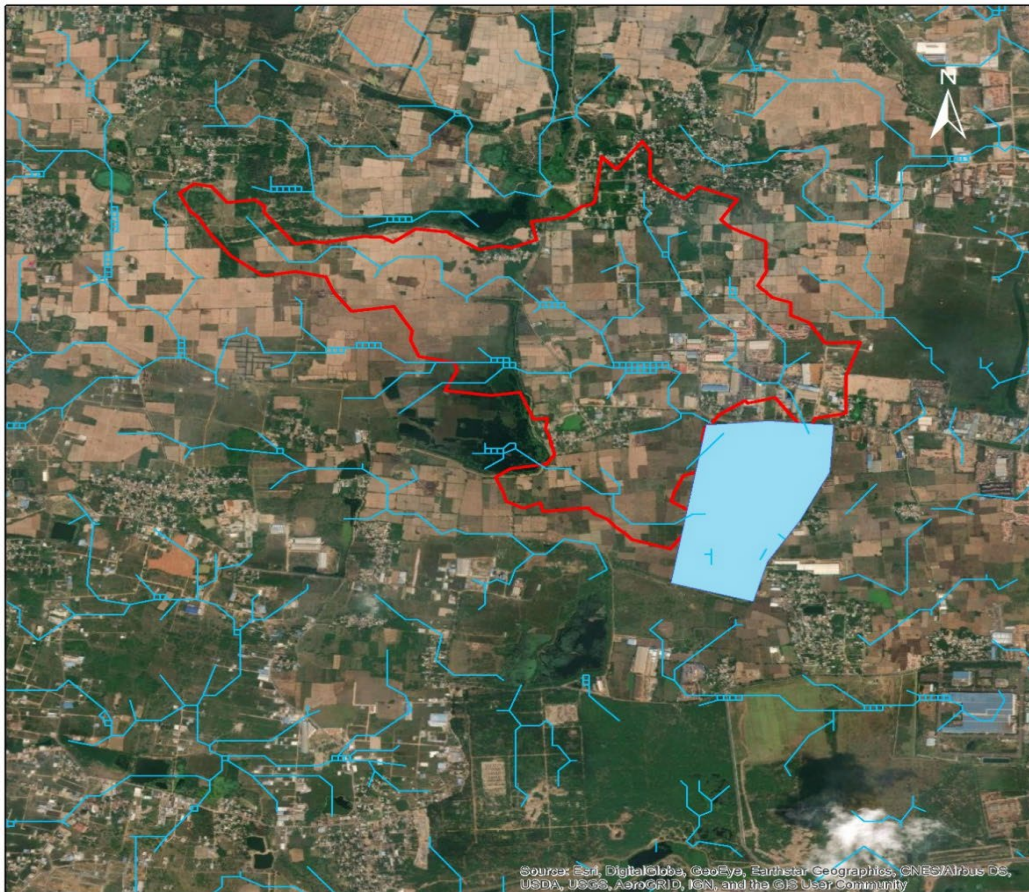
Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Table 2: Capacity of Kadapakkam Lake

Name	Lake Area (km ²)	Catchment Area (km ²)		Water spread area (km ²)	Capacity (M ft ³)	Capacity (M m ³)
		Free	Combined			
Kadapakkam lake	0.5	3.2	13.4	0.5	35.3	1.75

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Figure 1: Catchment Map for Kadapakkam Lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

19. All existing water inlets and outlet drain of the lake were surveyed and cross sections details were measured to estimate the quantity to be de-silted. Number of Inlets and outlets of the Lakes and its existing condition were identified. List of inlets and outlet of the lake is provided in the Table 3.

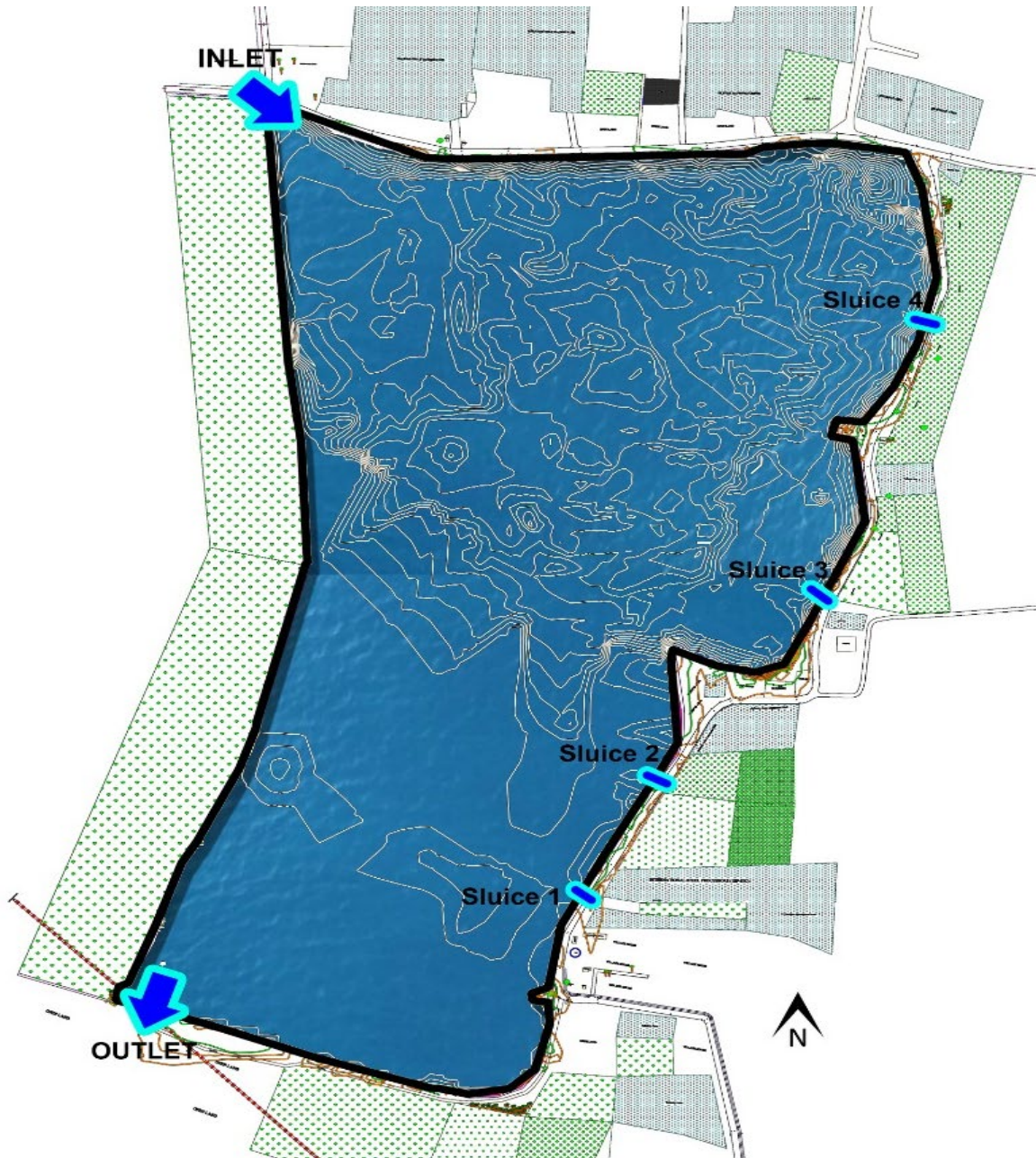
Table 3: Number of Inlet and Outlet locations of the Kadapakkam Lake

Name of the Lake	No. of Inlets	Tank Sluices	Surplus Weir
Kadapakkam lake	1	4	2

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

20. There is one major inlets to the lake. Inlet 1 is from Ariyaloor Lake which enters the Lake from southern end. There are three outlets located on the bund at various locations. Status of outlets and tank sluice is shown in Figure 2.

Figure 2: Survey Map Showing Inlets and Outlet in Kadapakkam lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

B. Project Components

21. The following table describes the proposed components for rejuvenation of Kadapakkam Lake.

Table 4: Description of Work for Kadapakkam Lake

S. No	Description of work
1	Desilting and Deepening of Lake 1,42,570 cu.m
2	Strengthening of Bund and Bund Formation 3. Km (Clearing of Prosopisjuli flora jungle and strengthening of Bund & Bund formation using Clay core, Boulders and Excavated Good earth from the site and using Geo textile to control soil erosion and turfing with plant materials. and bund formation for bird island).
3	Providing Foot Path arrangements (using Precast fly ash Kerb and fly ash Pavers)
4	Construction of Peripheral Drain around the Bund
5	Children's Park and Play Field (Using Precast fly ash Pathway, Outdoor play equipment's, Open Lawn, Sculpture using Recycled materials, Construction of OAT, Skating Ground.
6	Lighting system (LEDs for streetlights, Bollards, High mast lights, post tops, laser lights etc)
7	Construction of Toilet Blocks (Using fly ash bricks, Terracotta jali, Art works on outer wall)
8	Precast structures Shaded Seaters (Seating and canopies, Mushroom structure act as a rainwater collector)
9	Construction of Entrance Arch/Plaza (With Water feature, Pathway, Pergola and Planting materials- using fly ash pavers, cobble stone and Precast structure).
10	Construction of Admin Block with Library (using fly ash bricks)
11	Rejuvenation of Inlet and Outlet Channels
12	Construction of Play area
13	Construction of Bio fencing along the lake bund
12	Construction of Pump Room
13	Construction of Control Room
14	Construction of Collection Tank for Sewage
15	Rejuvenation of Surplus Weirs - 2Nos
16	Rejuvenation of Tank Sluices - 3 Nos
17	Supply and Fixing of Dust Bins (3 models) Tilting type
18	Supply and fixing of Signage Boards
19	Provision for Boating arrangements with Safety Equipment's (Floating boat jetty, arrangement using HDPE pontoon)
21	Urban Forest using Native species (Miyawaki method), Bio fencing, Installation of Irrigation for Soft Landscapes
22	Bore well and R.O

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

22. Considering the complex problem of the catchment area and ecosystem of Kadapakkam lake, the following set of works were identified as essential for sustainable restoration of Lake in an integrated manner:

Table 5: Interventions and proposed activities

Interventions	Proposed Activities
Hydrologic Interventions	<ul style="list-style-type: none"> • Hydraulic Improvement of Feeders (Cleaning, deepening, widening and Embankment stabilization including 4m wide road),* • Periodical Maintenance of all the Hydraulic Structures • Deepening of Lake • Forebay Pond provision • Sluice Gate improvements

Interventions	Proposed Activities
Environmental cum Ecological Intervention	<ul style="list-style-type: none"> • Creating Awareness on solid waste dumping in the lake ecosystem • Stakeholder Involvement in the maintenance of lakes. • Bund Strengthening and improvements • Urban Forest using Native species (Miyawaki method), Bio fencing, Installation of Irrigation for Soft Landscapes • Supply and fixing of Signage Boards • Supply and Fixing of Dust Bins • Provision of Bird Island
Engineering Interventions	<ul style="list-style-type: none"> • Renovating the Existing inlet and outlet structures of the lake for their contribution in storing the water in the lake and taking corrective measures • GCC through Revenue Department to carry out a detailed survey of inlet and outlet channel and Perambuk lands to prevent unauthorized encroachments • Adequate fencing and security of lake periphery to stop unauthorized entry • Regularization of excavation of soil from lake bed.
Recreational and Architectural Interventions	<ul style="list-style-type: none"> • Provision for Boating arrangements with Safety Equipment (Floating boat jetty, arrangement using HDPE pontoon) • Children's Park and Play Field (using Precast fly ash Pathway, Outdoor play equipment, Open Lawn, Sculpture using Recycled materials, Construction of OAT, Skating Ground). • Pre-cast structures (Seating and canopies, Mushroom structure act as a rain water collector) • Construction of Entrance Plaza (With Water feature, Pathway, Pergola and Planting materials- using fly ash pavers, cobble stone and Precast structure). • Construction of Admin Block with Library (using fly ash bricks)

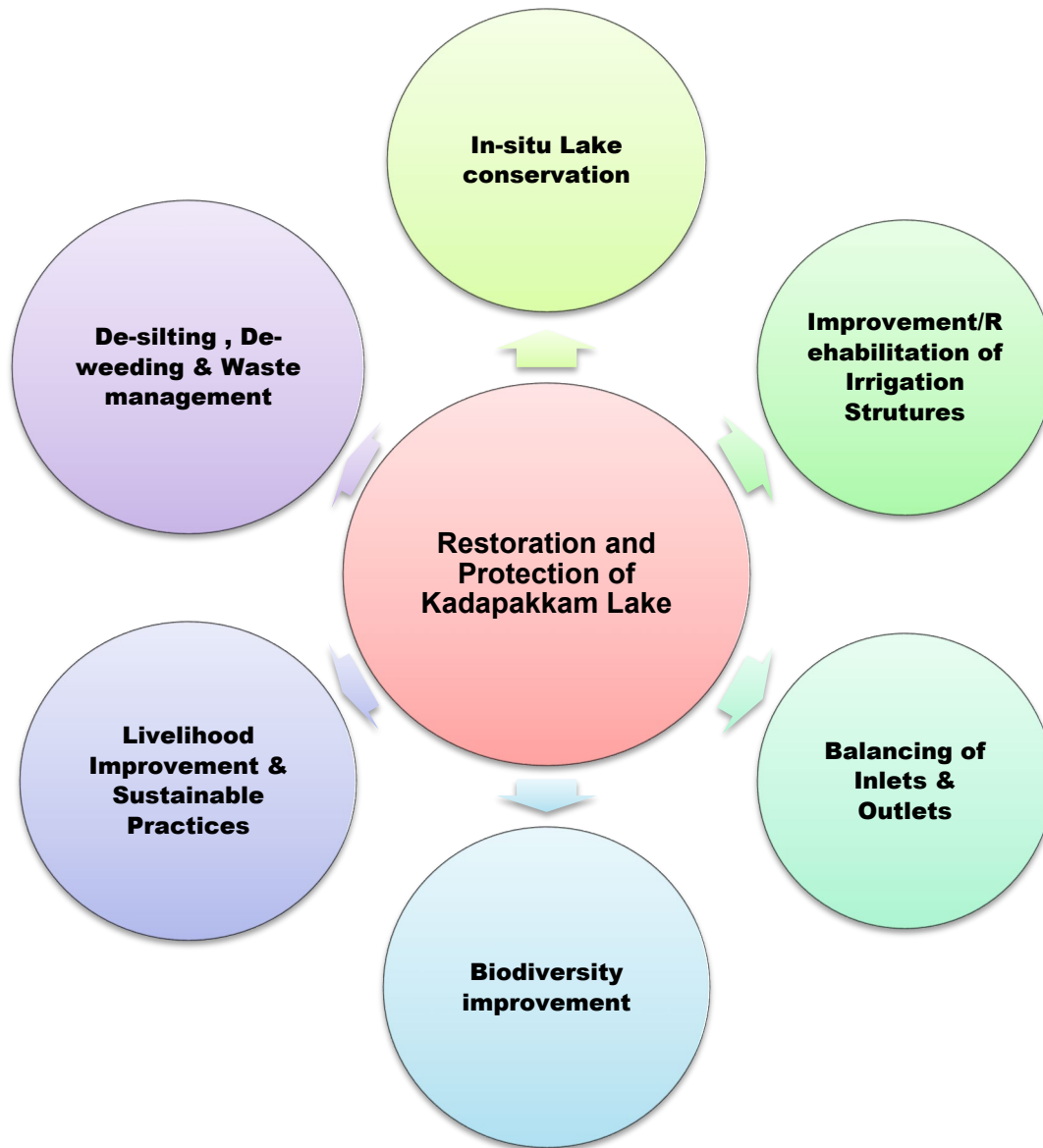
Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

* Note: Dredging activities are not anticipated to cause any involuntary resettlement impacts as all activities during construction will be undertaken within the project area or lake area. The dredged materials are proposed to be used for project construction work. Any leftover materials will be disposed in GCC's Kodingaiyur landfill site in a controlled manner, as discussed in the IEE for the project (paras 94, 97, 98).

23. The master plan¹ for deciding the interventions towards restoration of Kadapakkam lake was developed based on the analysis and conclusions derived from the engineering, hydrological, environmental, ecological and social intervention aspects of the Lake and its catchment. The suggestions provided by the stakeholders and line departments during the various consultations and focus group discussions have been fully considered. The Master Plan was developed in such a manner to ensure the sustainable restoration and protection of Lake, following is the indicative theme of project development.

¹ Second Master Plan for Chennai Metropolitan Area, 2026, approved by Government of Tamil Nadu in G.O.Ms. No. 190 H&UD dated 2.9.2008. Notification was made in the Tamil Nadu Government Gazettee Extraordinary No.266, Part II-Section 2 dated September 2, 2008.

Figure 3: Interventions proposed for Restoration and Protection of Kadapakkam Lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Figure 4: Intervention Strategies for Kadapakkam Lake



24. The primary restoration measures for Kadapakkam lake:

- (i) De-silting for a depth of 2 m average;
- (ii) Strengthening and widening of bund around the lake;
- (iii) Development of walking track, cycling track, hedge rows and tree plantation on the bund;
- (iv) Construction of shallow ponds at inlets and formation of bird island with Miyawaki Forest;
- (v) Restriction to cart and vehicle washing and bathing activities;
- (vi) Removal of water plants and weeds from the water spread areas and Lake foreshore bund; and
- (vii) Restrict open defecation.

25. Apart from the above suggested primary measures, three options which focus the thrust on preservation, restoration, conservation and combination of preservation and conservation (merging urban design).

- (i) Formation of foot path on the bund with paver block, enclosed by kerb wall on both sides.
- (ii) Repair and Reconstruction of 4 Number of existing tank sluices.
- (iii) Strengthening of existing bund and stone pitching
- (iv) Formation of foreshore bund with an inlet provision for every 100 m.
- (v) De-silting of lake bed up to 2 m depth.
- (vi) Providing Revetment in the front side slope of the tank.
- (vii) Restoration of inlet and outlet channels with RCC lining.
- (viii) Turfing along the main bund and also at the sides of foot path.
- (ix) RCC lining of supply main channel from Sembium Manali Lake
- (x) Clearance of thorny trees from the southern side of the lake.

26. The Project is proposed to restore water quality and improve ecological status by preventing the pollutants reaching the water body

- (i) De-silting and deepening of Lake
- (ii) Strengthening of the existing bund
- (iii) Development of existing inlet and outlet channels
- (iv) Providing Maintenance Road
- (v) Supply and Erection solar Light Post on the maintenance road.
- (vi) Supply and erection of solid waste bins.
- (vii) Information Education and communications (IEC) activities.
- (viii) Post project seasonal water quality monitoring for 4 years.

27. Project proposes 20m wider bund with two levels feature at 6m and one with top of 5m along with facilities like Cycle Track, exclusive walking path at the lower level in the bund. Bund to be developed with natural method of using boulders in one layer and excavated clay in one layers which is to be formed as ideal earthen dam and will prove to best solution for any seepage loss.

28. By deepening the Lake, the capacity of the water body will increase and the excavated earth will be used for the creation of bund over the existing bund. Which will be further stabilized with layers of clay core and boulders in the centre of the bund and the slope will be retained using

Geotextile fabric. Bund will be created with two levels, which will provide access and movement for different users. 4m wide maintenance road is proposed along the lake boundary

29. Bird Island proposed with 5 acres of land along with Miyawaki forest and facility to be provided with Open Air theatre, children's play area, library along with facility of Hobby fishing, camping and Boat jetty like leisure facilities which are ideal for Chennai residents to use this as ideal getaway place for family picnic. One of the bird islands will be restricted for public interventions to support biodiversity.

30. Project is predominantly designed to use green materials for any construction and all the elements are based in sustainable development methods, inflow is filtered with forebay pond with shallow depth to ensure better quality treated water is entering into main lake and shallow pond will become dry in the summer which will provide opportunity for easy maintenance and all the polluted materials can be removed every year.

31. Sluice Gate with the control structure to release water up to 3m for irrigation use in the existing location is proposed, which can be operated by community cooperation.

32. LED Light is proposed along the Walking and cycling track for illuminating them during them.

33. To prevent people from dumping the municipal solid waste into the lake, it is proposed to provide solid waste bin, 1.50 m³ capacity at selected locations.

C. Operation and Maintenance plan

34. The overall objective is to determine the most cost effective and efficient manner of providing high quality management and maintenance of the proposed facility.

(i) Maintenance of Pathways

- (a) Maintenance of pathways along with the maintenance of edges.
- (b) Stabilizing damaged areas.
- (c) Filling the cracks with mixed earth between the interlocked tiles.
- (d) Regular collection and disposal of solid waste.

(ii) Bund Protection

- (a) Checking and preventing erosion.
- (b) Stabilizing the damaged areas

(iii) Water Quality Analysis

35. The water, sludge and extent of eutrophication in the lake should be monitored from various locations and has to be scientifically executed. Following physio-chemical and biological parameters would be monitored on a continuous basis as per the pre-planned schedule.

- (a) Physiochemical analysis of the water samples.
- (b) Chemical analysis of sludge and bottom sediments.
- (c) Biological analysis
- (d) Bacteriological analysis of the lake water

- (e) For each category a total of 5 samples shall be collected and analysed from various location around the lake for the parameters enlisted by Lake Management Committee / GCC.
- (iv) **Operation & Maintenance of collection Tank**
 - (a) Manpower
 - (b) Equipment / machinery maintenance
 - (c) Operation maintenance
- (v) **Minor Repair works for Civil Structures**
 - (a) Toilet sanitary wares and Plumbing
 - (b) Solar lighting
 - (c) Hydrology structures (Sluices, Weirs, Inlet and Outlet structures)
 - (d) Service road
- (vi) **Plantation (Hedges, Trees and Miyawaki Forest)**
 - (a) Application of Bio-manures (Compost and Vermi-compost)
 - (b) Watering and Protection works
 - (c) Replacement of causalities
 - (d) Regular pruning of Hedge rows
- (vii) **Boat Jetty and Boats**
 - (a) Replacement of damaged portion of Jetty
 - (b) Maintenance of Boats including Painting
 - (c) Periodic replacement of life jackets

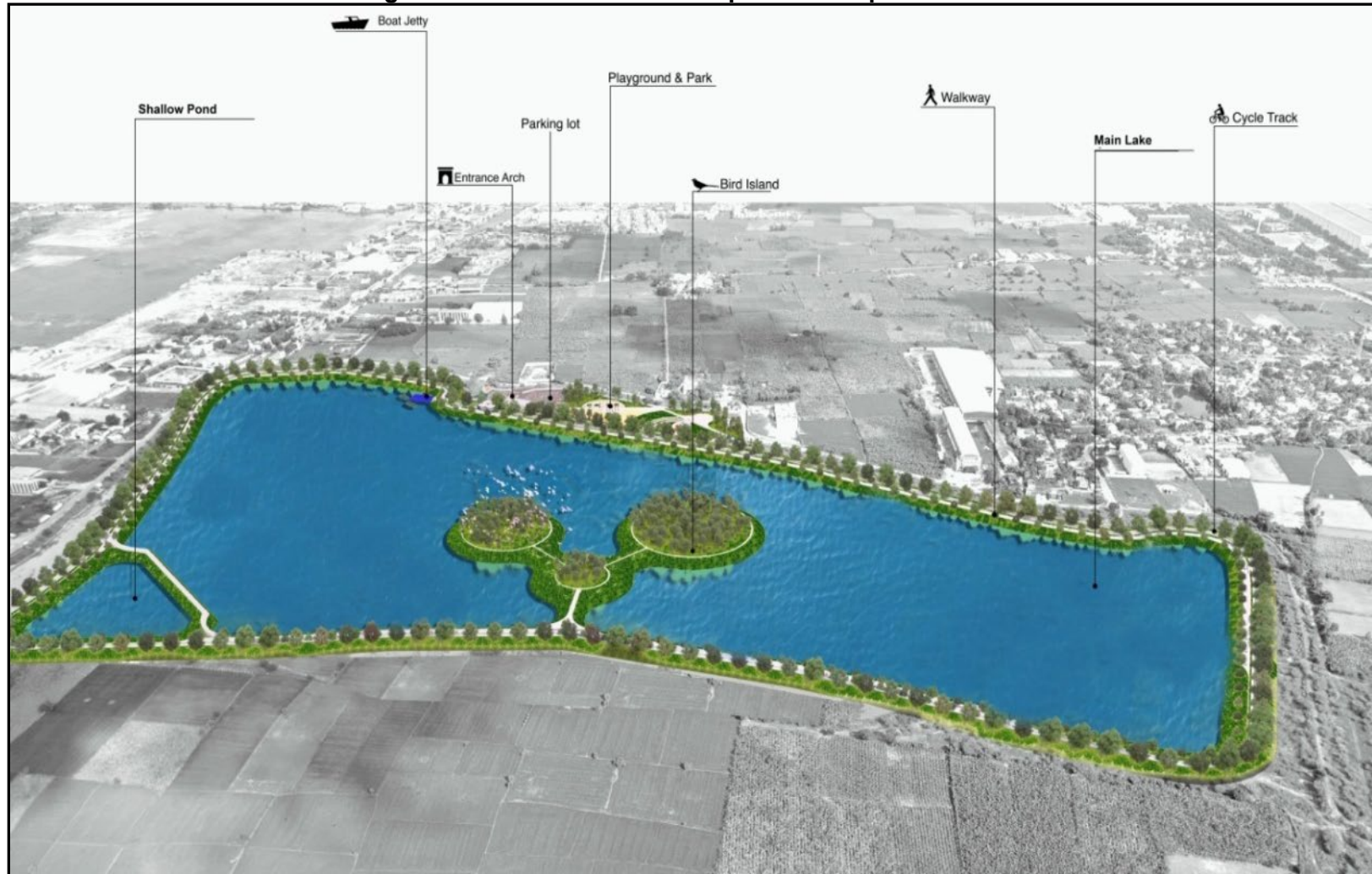
36. Implementation of the proposed project does not involve any Land Acquisition or major construction activities. The entire work is proposed within the lake area including existing lake bund with is free from any types of encumbrances.

37. There is no adverse impact related to land acquisition and involuntary resettlement such as land acquisition, physical displacement, economic displacement, adverse impact on livelihood, community properties or any other impacts is assessed due to proposed project activity. No additional land is required for carrying out the proposed project activity. No economic displacement due to the project activity is anticipated, both during construction and operation.

Figure 5: Proposed Design of Kadapakkam Lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Figure 6: Aerial View of the Proposed Kadapakkam Lake

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

III. SCOPE OF LAND AVAILABILITY AND RESETTLEMENT IMPACTS

A. Land Acquisition and Involuntary Resettlement

38. The scope of land acquisition and involuntary resettlement is assessed during the field visits. The project will not result in any permanent or temporary land acquisition, and no involuntary resettlement impact is envisaged as the proposed site and development activities are within the lake area. Due diligence based on GCC's certification and field visits helped confirm that there is no encroachment by any private entities on the land. There are no squatters residing or kiosks conducting any commercial activities within the site area.

39. The lake area falls under Zone-II of GCC (Manali) in Ward 16. The entire Lake is owned by WRD, PWD, GOTN. The Lake falls under Kosasthalayar Basin Division, WRD, PWD as shown in the following table; however, development rights have been transferred to GCC from PWD. A scanned copy of declaration in this regard has been issued by SWDD, GCC is provided in Appendix 3. The details related to ownership of the lake have been provided in Table 6.

Table 6: Ownership / maintenance authority for Kadapakkam Lake

Ownership	WRD, PWD GOTN
Immediate Authority	Executive Engineer, Kosasthalayar Basin Division
Development Rights	GCC
ULB Jurisdiction	Zone II – Manali, Ward 16, Greater Chennai Corporation
Taluk Office	Thiruvottriyur

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

40. Total area of the Lake as per the field measurement book (FMB) is 60.375 hectare which is 149 acres. As per the survey (undertaken during DPR preparation), the present lake area is 134.8 acres, a reduction by 9.53% (14.2 acres) compared to FMB records. Inaccurate method of measuring the lake area, construction of bund by PWD with boundary stone are the reasons for reduced lake size; cross checking with digital mapping revealed that the actual area of the lake is only 134.8 acres and no encroachment is seen around the lake. Hence, the actual area available now is 134.8 acres. Comparison is provided in the below table.

Table 7: Area extent comparison of Kadapakkam Lake

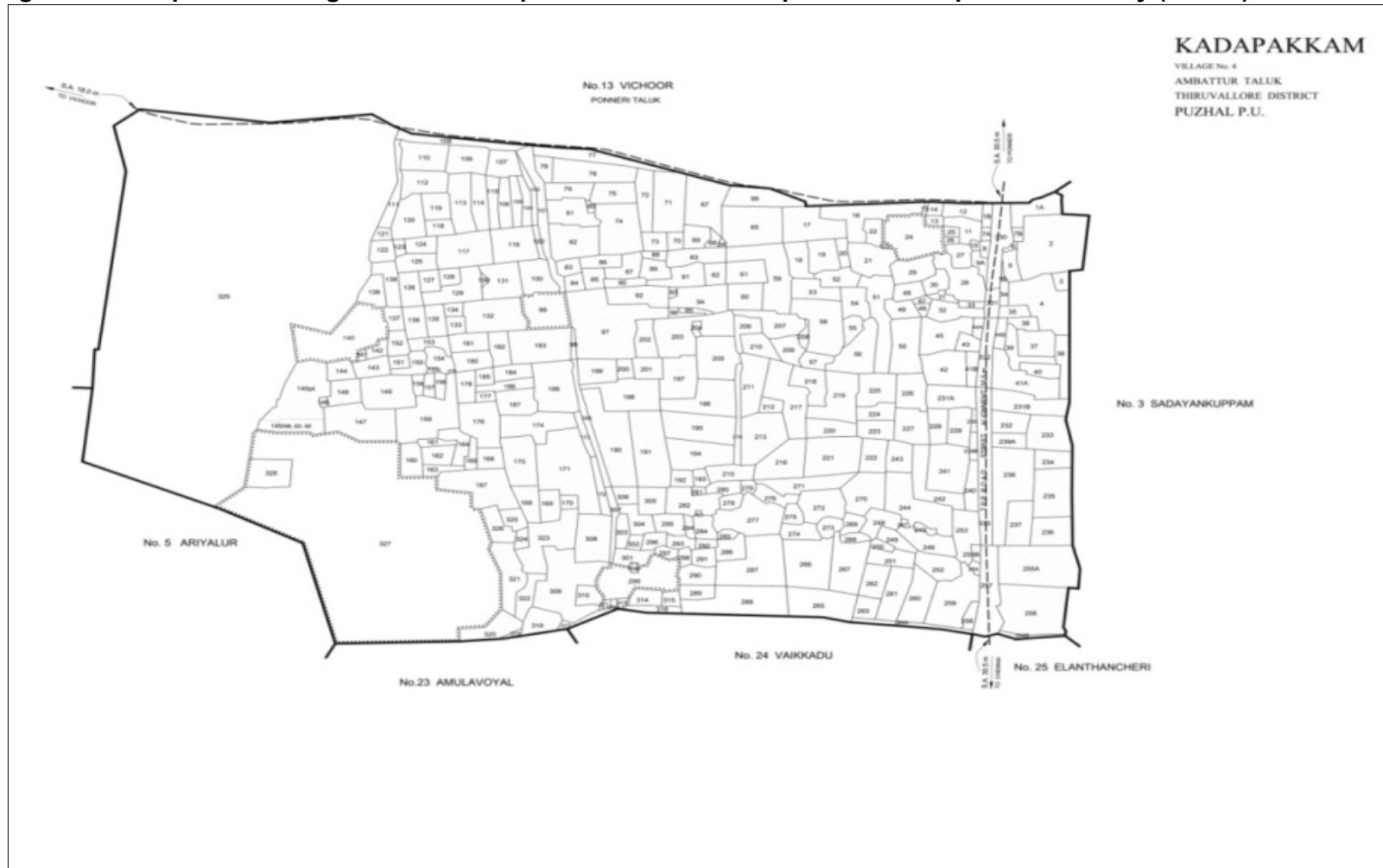
Name	Present Lake Area as per Survey (Acre)	Original Area as per FMB / Adangal (Acre)	% Reduction in Area
Kadapakkam Lake	134.8	149	9.53 (14.2 acres)

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

41. The reduction in the lake area is due to the increase in the Berm Area caused during the laying of the pathway. However, this area will also be restored as part of the project.

42. The project's civil works including all the common amenities, information centers etc. will be done within the existing lake area, which includes the banks. There are three small temples in the area which will not be disturbed as per the proposed design and hence no adverse impacts to the temples are anticipated due to project activity. Access to these temples will continue from the abutting road on the eastern side, even during the construction phase. The temple and the lake will be separated by a wall. No impact to the temples/CPRs is therefore assessed.

Figure 7: Kadapakkam Village Cadastral Map from Chennai Metropolitan Development Authority (CMDA) Master Plan



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

the lake bund and will have no impact during construction period. The entire construction work has been proposed within the lake area including Lake Bund. The catchment area of the land is mainly used for agricultural purposes and command area is being used for both agriculture and industrial purposes also.

Figure 9: Southwest view of the lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Figure 10: Southwest view of the lake



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

Figure 11: Southwest view of the lake

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

44. As per the CMDA Master plan 2026,² the proposed land use types for development around Kadapakkam are presented below in Table 8.

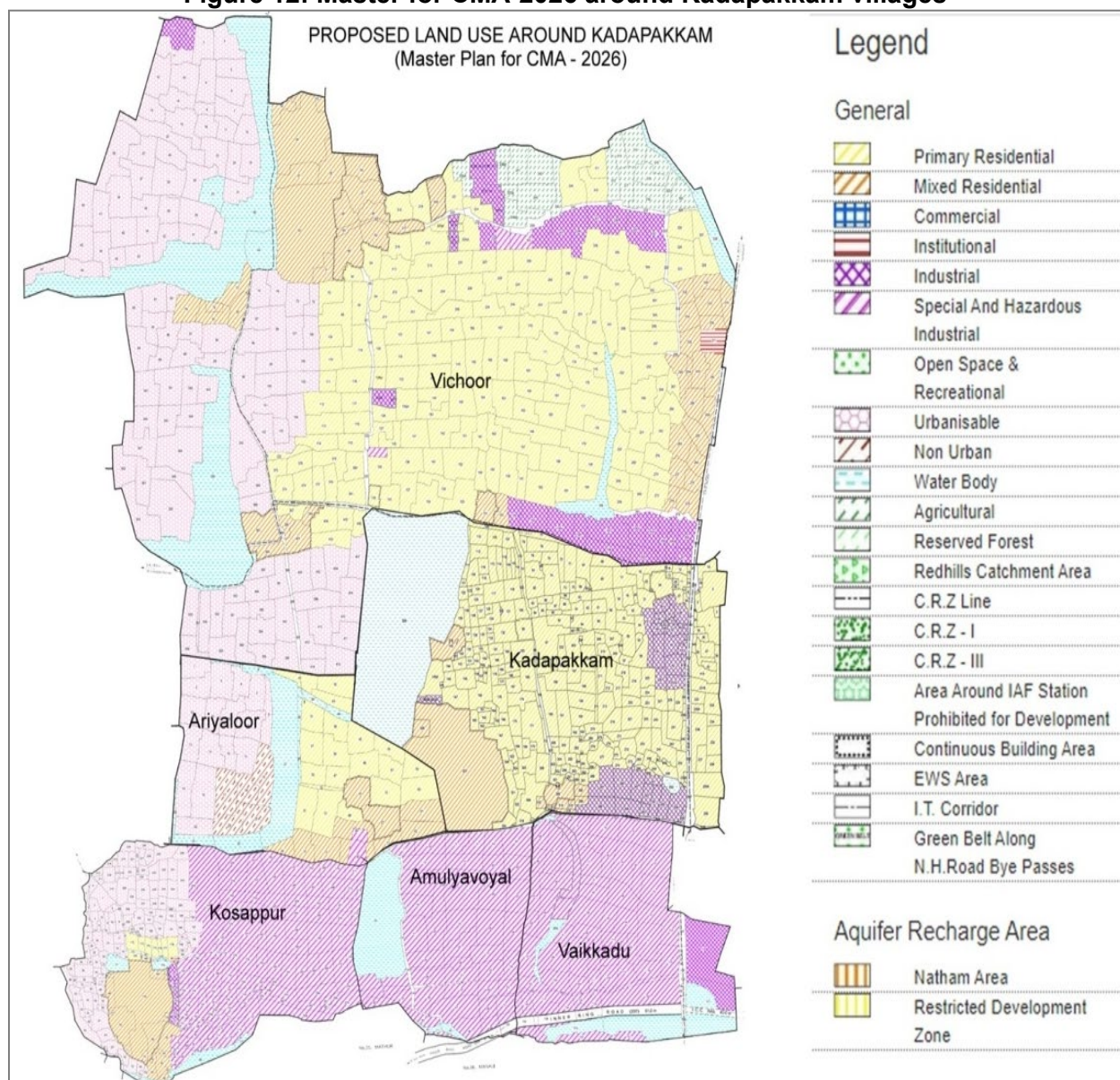
Table 8: Land use details

Village	Proposed CMDA 2026 land use type for development
Kadapakkam (Lake command area)	Primarily residential, mixed residential and Industries.
Sadayankuppam (Lake downstream)	Primarily residential, mixed residential and Industries, Non-Urban, Agriculture and CRZ I areas
Vichoor (Lake Catchment area)	Primarily residential, mixed residential and Industries and Special and Hazardous Industrial areas
Ariyaloor (Part of Lake Catchment)	Primary residential
Ammulyavoyal (Adjacent village on Southern side)	Special and Hazardous Industrial areas
Vaikkadu (Adjacent village on Southern side)	Special and Hazardous Industrial areas and Industrial

Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

² Second Master Plan for Chennai Metropolitan Area, 2026.

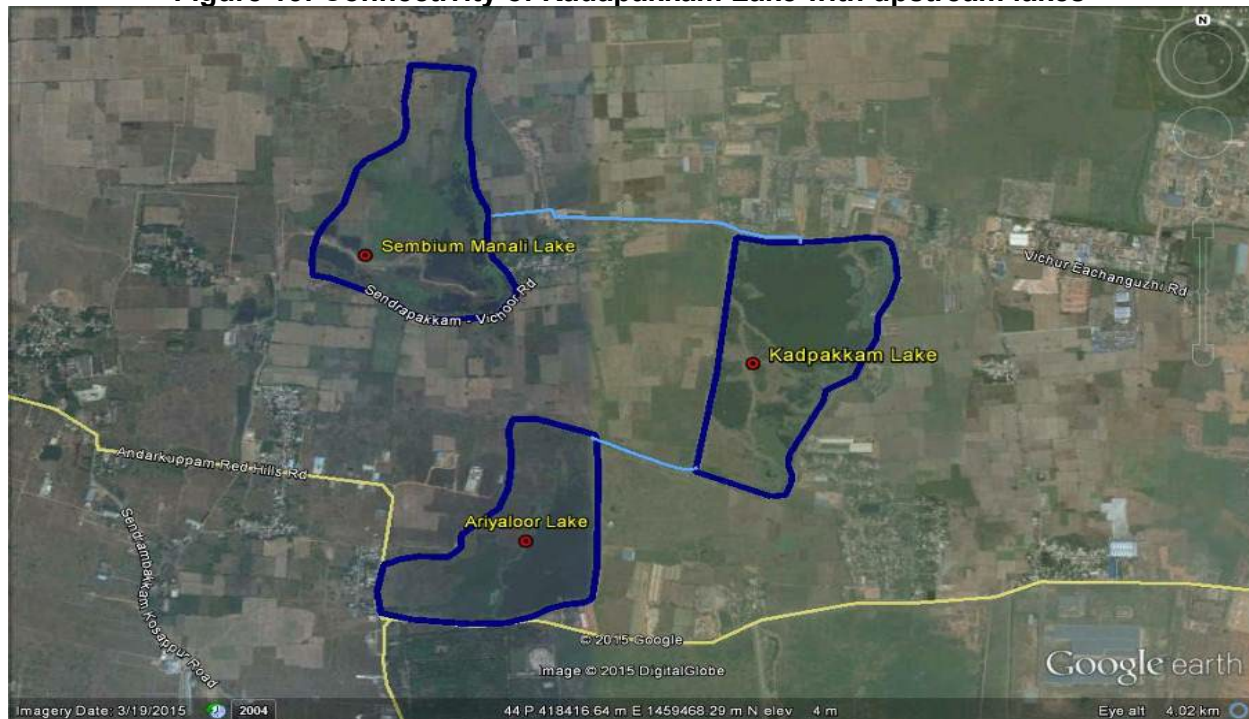
Figure 12: Master for CMA-2026 around Kadapakkam villages



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

45. The Lake is connected in the upstream with immediate water bodies Sembium Manali Lake in the north and Ariyaloor Lake in the south via interconnection channels located at northern and southern end of the lakes respectively as shown in the Figure 13. The excess water overflows through the outlet sluices located on the bund to command area then reaches the Kosathaliyar River by surface flow.

Figure 13: Connectivity of Kadapakkam Lake with upstream lakes



Source: Detailed Project Report, Volume 1, Kadapakkam Lake. PMU

46. The agricultural activities in the catchment area of Kadapakkam Lake partially depend on the water resource of the lake (especially during the monsoon season). During field visits, consultation and sample survey it has been noted that the overflow water from the lake is being released through existing sluice gates throughout the year except in summer seasons for 3-4 months. The overflow water of Kadapakkam Lake is the primary source of cultivation of the area other than summer seasons. In summer seasons, the water demand for agriculture is being met through available ground water of the region. Use of bore wells, shallow pumps, deep tube wells etc. are predominant in the area which are being used for extracting ground water during summer seasons (Appendix 2) for cultivation purpose.

47. Keeping in view the prevailing practice of the area and considering the water demand for agricultural purpose; it is proposed that the existing sluice gates will be renewed through the project and the construction work will be carried out during summer seasons (March – June) prior to commencement of rainy seasons. By doing so adverse impact will be avoided as the dependency on lake water during summer season is nil among the local cultivators. In this regard it is needed to be mentioned that, in Chennai; rainy seasons normally starts from July and last till September. The augmentation of the sluice gates will ensure more water supplies in the following seasons. Current patterns of usage will not be affected by the lake development. The farmers will continue to have access to the water from the surplus flow channel as earlier, which will also help replenish the ground water. Other than agriculture, the lake is used for hobby fishing and not for any other livelihood generating activity. The lake is currently not used for any other purpose. Thus, the proposed activity under 'Kadapakkam lake rejuvenation project' will not trigger ADB SPS for involuntary resettlement as there will no impact due to loss of livelihood.

48. One-to-one consultations were conducted with 17 households in the month of February 2021, indicating that no loss of livelihood is anticipated. During the operations phase, as

mentioned in point 35, the farmers will continue to have access to the water from the surplus flow channel as earlier, which will also help replenish the ground water.

49. The GCC confirmed that the proposed project will have no adverse impact on existing water users (farmers). Presently, at downstream areas of the lake, farmers grow seasonal crops using the water available through the discharge sluices. When the storage goes below the sluice level there are instances of farmers resorting to pumping. The project interventions shall not alter the overflow weir level or the sluice levels and therefore shall not affect the present water availability of the farmers. Moreover, strengthening of bunds and desilting would enhance storage capacity of the lake leading to longer water availability period and thus help farmers to further improve the crop types and cropping pattern and negate the need for pumping, which was concluded based on the technical design and field visits by GCC.

IV. FIELD WORK AND PUBLIC CONSULTATION

A. Outline of Field Work

50. Field visit and transect walk was carried out in the project component locations. Field visit team comprised DPR consultants, safeguard consultants and representatives from GCC. No person or community is being adversely affected by this project implementation. The entire population of Kadapakkam lake area will benefit due to improved water supply facility. No land acquisition is required for this project. Thus, no physical or economical displacement (temporary or permanent) is assessed. No common property resources will be affected. Also, vulnerable groups such as the poor, women and their children, persons with disability, the elderly, scheduled tribes, other ethnic groups and non-titleholder will not be adversely impacted. One to one consultation meetings were conducted with local community, key informants by project team members to collect information and conduct a due diligence of the project. GCC will conduct continuous consultation and information sharing on technical aspects of GEF components with all user farmers, and detailed documentation of such consultations will be done. GCC will share all technical details that will guarantee availability of water for cultivation to the existing user farmers, in consultation meetings.

B. Public Consultations

51. One-to-one interaction was conducted (due to COVID-19 safety protocols) with the key stakeholders (farmers, women, shopkeepers, laborers) in line with the ADB's requirements pertaining to environmental, economic and social considerations (Appendix 1). Community level consultation could not be held due to pandemic restrictions. Consultations with locals, helped in identifying the felt needs and apprehensions related to the project and their priorities.

52. During interaction with individuals, it has been clearly mentioned that the construction work will be undertaken in such a way that there will be no harm caused to any person due to project execution activity. Project outcomes and benefits were explained to the stakeholders. During the consultation, community people were explained in detail regarding the proposed developments of the Lake under the grant linked to the ADB project. All the participants confirmed their extended support for the success of the project. In total 17 people have been consulted among which 7 people (41%) were farmers who owns the land adjacent to the lake.

53. The proposed restoration work shall bring lot of visitors to the Lake; this will help development of infrastructures around the lake and provide options to the local people for alternate livelihood by establishing eateries and shops to meet the needs of visitors. This will

boost the local economy. The proposed project activity will not affect the social life and livelihood of the people; continued consultation with the community will be beneficial to help them to understand the project contour, its immediate and long-term benefits.

54. Public information campaigns to explain the project details to a wider population will be conducted throughout project lifecycle. Public disclosure meetings will be conducted at key project stages to appraise community members. Prior to start of construction, the PIU will issue notification on the start date of implementation in local newspapers. A notice board showing the details of the project will be displayed at the construction sites for the information of public.

55. Public participation will be generated through use of various methods, such as, stakeholder consultation meetings, FGDs with different groups (including women), key informant interviews etc. This is also expected to offer platform to people in different areas within the city to (i) know about the Program, and (ii) express their opinion regarding priorities and concerns related to the project.

V. GRIEVANCE REDRESS MECHANISM

A. Common Grievance Redress Mechanism

56. A grievance redress mechanism (GRM) will be established at three levels and will cover both environment and social issues of project components, interdepartmental concerns related to utility shifting and/or damages to utilities, and improvements proposed to Kadapakkam Lake under the GEF grant. The GRM will be established to evaluate, and facilitate the resolution of affected persons concerns, complaints, and grievances related to social and environmental issues related to the project in a time-bound manner. GRM will be accessible, inclusive, gender-sensitive and culturally appropriate for receiving and facilitating the resolution of affected persons' grievances related to the project. GCC has a well-established public grievance and redressal system to address concerns, complaints and grievances related to the various functions and services of GCC.³ The project GRM to be well integrated with the existing public grievance redress system of GCC.

57. The GRM will be disclosed to the affected communities and households prior to the mobilization of contractors for the project. The PIU safeguard officers will be responsible for registration of grievances, disclosure and communication and timely resolution of grievances. A complaint register will be maintained contractor's site office(s), PIU and PMU levels with details of complaint lodged, date of personal hearing, action taken, and date of communication sent to complainant. Registration of grievances will be facilitated by the contractor's social expert. Contact details and the process of grievance redressal will be disclosed to the communities through leaflets. Sample grievance registration form is given in the Appendix 5.

58. Affected persons will have the flexibility of conveying grievances/suggestions by submitting the grievance/suggestion in writing, through telephone call to Executive Engineer, PIU safeguards officer, or by writing in the complaints register at the Division Office or by submitting grievance/suggestion by email to GCC. Further, affected persons and/or persons can convey their grievances/suggestions through the public grievance and redressal system of GCC either through internet or by calling the telephone number '1913' or by writing to the Commissioner.

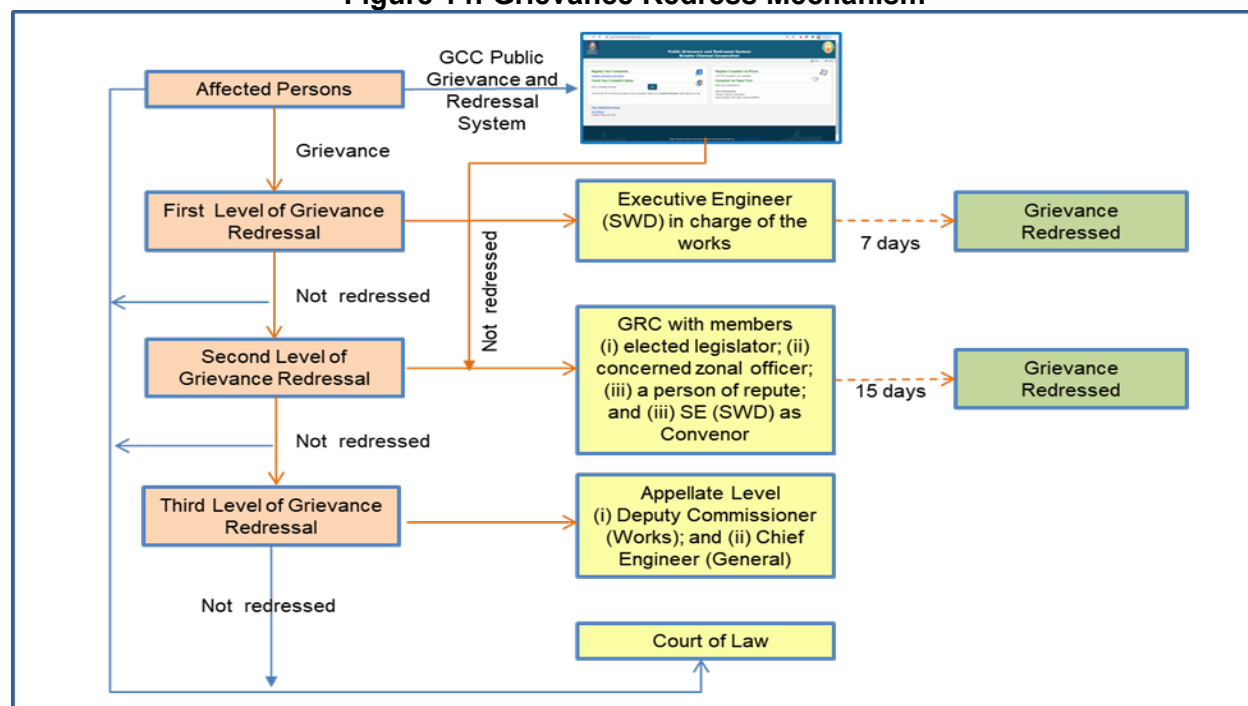
³ <https://erp.chennaicorporation.gov.in/pg/>

B. Grievance Redressal Process

59. In case of grievances that are immediate and urgent in the perception of the complainant, the Executive Engineer on-site will provide the most easily accessible or first level of contact for quick resolution of grievances. Contact phone numbers and names of the concerned Executive Engineer, PIU safeguard officers, contractors and that of the public grievance redressal system will be displayed at all construction sites at visible locations. The second level will be a four-member committee with the Superintending Engineer (SWD), GCC acting as its convenor. Third level will be the appellate level with the Chief Engineer (General) and Deputy Commissioner (Works).

- (i) **1st Level Grievance.** The phone number of the site in charge Executive Engineer and of the public grievance redressal system should be made available at the construction site signboards. The contractors and field unit staff can immediately resolve grievances onsite and seek the advice of the Executive Engineer as required and resolve grievances within seven days of receipt of a complaint/grievance.
- (ii) **2nd Level Grievance.** All grievances that cannot be redressed within seven days at field level will be reviewed by the GRC at PMU level comprising of 4-members, with preferably one member being a woman. The committee will have any one elected member of the legislature, concerned zonal officer, a person of repute and standing in locality, nominated by the Commissioner, GCC and the Superintending Engineer (SWD) acting as its convenor.
- (iii) **3rd Level Grievance.** All grievances that cannot be redressed within 15 days at PMU level, will be placed before the Chief Engineer (General), who will consult the Deputy Commissioner (Works) in grievance resolution.

Figure 14: Grievance Redress Mechanism



GRC = grievance redress committee, SE = Superintending Engineer, SWD = Storm Water Drain

Source: Project Administration Manual; Integrated Urban Flood Management for the Chennai-Kosasthalaiyar Basin Project.

60. **Court of Law:** Despite the project GRM, 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.

61. **ADB Accountability Mechanism:** In the event that the established GRM is not in a position to resolve the issue, the affected person also can use the ADB Accountability Mechanism through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB India Resident Mission (INRM). The complaint can be submitted in any of the official languages of ADB's developing member countries.

VI. CONCLUSIONS

A. Summary and Conclusion

62. The proposed 'Restoration of Biodiversity and Ecosystem Services in Kadapakkam Lake in Chennai' will provide much necessary lung space for all the localities. Under this restoration project, the selected Kadapakkam lake will be de-silted, deepened, inlet and outlet will be cleaned from obstruction and the bunds will be strengthened. Also, the project is integrated with various components like cycle track, walking path, bird island, shallow pond and children play area. The entire Lake area including lake bund is owned by WRD, PWD, GOTN. The Lake area falls under Kosasthalayar Basin Division, WRD, PWD. No additional land is required. The proposed site is free from any encumbrances and is not anticipated to cause any involuntary resettlement impact due to proposed construction work or operation.

63. No adverse impact on existing water users (farmers). The project interventions shall not alter the overflow weir level or the sluice levels and therefore shall not affect the present water availability of the farmers. Moreover, strengthening of bunds and desilting would enhance storage capacity of the lake leading to longer water availability period and thus help farmers to further improve the crop types and cropping pattern and negate the need for pumping, which was concluded based on the technical design and field visits by GCC.

64. The impacts of project will be re-assessed (prior to start of civil work) upon finalization of detailed design. The DDR will be updated and reconfirmed for final impacts following detailed design and based on detailed measurement survey (DMS). The draft DDR will be reviewed and disclosed on GCC and ADB websites.

65. During civil work, a participatory approach will be pursued, and information dissemination requirements of the project will be adhered to. A grievance redress mechanism will also be established in the project. The Executing Agency will ensure compliance to all applicable laws and the ADB SPS.

B. Next Steps

66. The DDR will be updated during detailed design. Any change in site or alignments during detailed design will require to be assessed afresh for land acquisition, involuntary resettlement impacts. The following information needs to be included in the updated DDR:

- (i) Photographs, signature sheets and minutes of the meetings of public consultations held, particularly with user farmers, communities surrounding the lake and civil society organizations;
- (ii) All property owners adjacent to the Lake Kadapakkam and all existing water users will be identified. All such persons will be consulted to ensure they are well informed of the impacts and benefits, clear about encroachment concerns, informed of availability of GRM and also that their inputs to the proposed project are considered. This will be done during detailed measurement survey/finalization of detailed engineering design. Consultations with farmers recommended in the CAPP (Appendix 21 of PAM) will be implemented;
- (iii) Future consultations will follow the one-on-one approach if the pandemic situation persists. Such consultations will identify landowners and water users and include the summary of gender-disaggregated participants, photographs of consultations, and minutes or summary of key points discussed. Such consultations will be presented in the Updated DDR.

Appendix 1: Photographs of consultations in surrounding areas of Kadapakkam Lake

 <p>Mr. Kumaresan</p>	 <p>Ms. Saraswathy</p>	 <p>Mr Selvaraj</p>
 <p>Ms. Mahalakshmi</p>	 <p>Mr. Muthukrishnanan</p>	 <p>Mr. K.N.Muthu</p>
 <p>Ms. Poornima</p>	 <p>Mrs. Indumathi</p>	 <p>Mr. Kirubakaran</p>
 <p>Mr. Meganathan</p>	 <p>Ms. Mala</p>	 <p>Mr. Arumugam</p>
 <p>Mr. Pachaippan</p>	 <p>Mr. Perumal</p>	 <p>Mrs. Nagamma</p>
 <p>Mr. Murugan</p>	 <p>Ms. Kundhavai</p>	

Summary of Consultations

In order to understand the present dependency of the lake, one-to-one consultations were conducted to identify the perception, concerns and apprehensions of the local residents, if any, towards the execution of the project. One-to-one interactions with local people were planned and utmost precautions were taken during the meeting due to COVID -19 restrictions. All participants were provided with face mask, hand sanitizers and maintained social distance throughout the process.

As per Asian Development Bank (ADB) direction, the farmers who own land adjacent to the lake were met during face-to-face interaction and their valuable opinions were documented. Non-agricultural sector persons were also consulted to understand their views, concerns and opinions. A questionnaire, which was translated to regional language (Tamil) for ease understanding of local people, was administered. The questionnaire primarily focuses on person's occupation, income status for the entire year, lake water usage, in case of farmers - land details, crops and seasonal variations in cropping/water use and water irrigation source and whether they are likely to be affected due to this project. Due care was taken to cover the entire year's crop selection pattern and water source details. The consultation was conducted on 23 February 2021. During consultation, it was noted that the local farmers do not directly depend on lake water. The design of the project has been so modified to allow farmers to have access to the water from the surplus flow of the kadapakkam lake both during construction and in the operations phase. Since, post the implementation the holding capacity of the lake with almost double, the farmers can benefit with increased ground water recharge. None of the consulted person falls under BPL Category. Due to rapid transition of semi-urban to urban, many locals have access to employment. All the people have responded about their secondary occupation to support their needs. It was specifically highlighted during interaction that there will be no adverse impact on the local people due to the proposed project rather with successful implementation of the project it is expected that tourism will flourish which in turn can prove beneficial for the local residents.

Key points discussed:

- (i) The Kadapakkam residents are interested in the lake restoration project.
- (ii) The farmers are dependent on borewell water for the irrigation of their fields across all seasons including the summer seasons. During the interactions, it was noted that surplus water from the lake is allowed to flow via surplus discharge channel and this recharges the ground water. This input was noted and the design is such that the farmers will have access to the lake water surplus during construction in addition to the operation period, ensuring that there is no impact of the project on the farmers.
- (iii) In the last decade, seven children were drowned to death after which locals stopped using the lake water for drinking and household activities.
- (iv) Farmers requested the provision to use the surplus water for agricultural uses. This input has been noted and incorporated in the design to allow undisturbed access to the surplus water as currently prevalent, including during the construction and operations phase.
- (v) Women insisted on fencing the restored lake to stop/avoid unauthorized activities like open defecation on the lake bund.
- (vi) Local residents requested a drinking water treatment facility and supply along with the lake restoration project as they get Municipal water supply once in three days.

- (vii) Among the non-user group of lake water; owners of tea shop, grocery shop, bakery etc. were consulted to register their opinion and expectations out of this project. They expressed their aspiration towards the tourism and infrastructure development outcomes of the proposed project.
- (viii) Fishing activity in the lake is for self-consumption and as a hobby, hence livelihood impact due to loss of income from fishing is not anticipated.

Appendix 2: Photographs of alternative source of water for the farmers during summer seasons



Bore well and Sump Supply

**WATER RESOURCES DEPARTMENT
(Public Works Department)**

FROM Er. K.Asokan. B.E, M.Tech., Chief Engineer, WRD., Chennai Region, Chepauk, Chennai-5.	TO The Chief Engineer, SWDD, BRR & Special Projects, Greater Chennai Corporation, Ripon Building, Chennai- 3,
--	--

Ir. No. T1 / AE1 / F- GCC-7 TANKS / 2018 Dated. 20.09.2019.

Sir,

Sub: Greater Chennai Corporation – Storm water Drain Department – Sustainable water security mission – Restoration and Rejuvenation of 7 water bodies – No Objection Certificate -Requested – Approval accorded - Regarding.

Ref: 1. Chief Engineer, SWDD, BRR & Special Projects, Greater Chennai Corporation, Ripon Building, Chennai- 3, S.W.D.C.No. B3/264/2018
Dt: 02.08.2019.

In reference cited, the Greater Chennai Corporation had requested No Objection Certificate for Restoration and Rejuvenation of following 7 water bodies under the control of Public Works Department (WRD).

S.No	Zone Number	Name of the Water bodies
1	II	Kadapakkam Lake
2	XIV	Nesavalar Lake
3	III	Sadayankuppam Tank
4	XI	Alapakkam Lake
5	XIV	Anai Eri (Near Ambal Nagar)
6	XIV	Anna Nedunsalai
7	XIV	Periya Eri (near Bhavani Amman Koil)

In this regard, the Superintending Engineer, WRD, Palar Basin Circle, 5 has submitted his recommendation for NOC to Alapakkam (Maduravoyal) Tank in Maduravoyal Taluk and Jalladaiyanpet Eri (Zone XIV) Dn 191, Pallikaranai Anai Eri (Zone

XIV) Dn 190 and Pallikaranai Periya Eri (Zone XIV) Dn 190 in Sholinganallur Taluk of Chennai District which are under the control of this department.

The Superintending Engineer, WRD, Palar Basin Circle, Chennai-05 has stated that the permission sought by Greater Chennai Corporation for Restoration and Rejuvenation of water bodies in the jurisdiction of Lower Palar Basin Circle Area is identified that, Jalladaiyanpet Eri (Zone XIV) Dn 191, Pallikaranai Anai Eri (Zone XIV) Dn 190 and Pallikaranai Periya Eri (Zone XIV) Dn 190 in Sholinganallur Taluk of Chennai District and this has to be confirmed with Public Works Department officials along with relevant records of the tank.

The No Objection Certificate is hereby given for carrying out of Restoration and Rejuvenation of 1) Alapakkam (Maduravoyal) tank in Chennai District 2)Jalladaiyanpet Eri (Zone XIV) Dn 191, 3)Pallikaranai Anai Eri (Zone XIV) Dn 190 and 4)Pallikaranai Periya Eri (Zone XIV) Dn 190 in Sholinganallur Taluk of Chennai District by the Greater Chennai Corporation which are under the control of Water Resources Department with the following conditions :-

- 1) The encroachments in water spread area of this tank should be completely evicted and should be restored to original extent as per FMB before commencement of the restoration and rejuvenation.
- 2) Any encroachments found in the channel poromboke, Eri ulvoy, Thandukkarai poromboke should be evicted completely before commencement of project.
- 3) Necessary provisions has to be made in the DPR for Relocation & Rehabilitation of existing encroached tenements.
- 4) Provisions may be made in the DPR the cost of eviction of encroachments.
- 5) The PWD officials should be allowed to inspect the site at any time during execution.

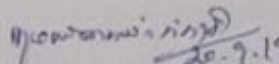
- 6) The hydraulic parameters and hydraulics of the tanks, tank appurtenances and tank infrastructures should not be changed at any cost. The tank bund has to be super standardized with free board of minimum 1.80m and the same should be reported to concerned Executive Engineers, W.R.D., and Superintending Engineer, P.W.D., W.R.D., Palar Basin circle, Chepauk, Chennai – 5.
- 7) After commencement of works any flood mitigation works, emergency flood control works in respect of this tank should be done only by Greater Chennai Corporation.
- 8) These tanks were severely affected by floods due to breaching of bund during historical flood 2015 (North East rainfall) and due technical care should be taken to close these breached portions permanently to avert breach in future.
- 9) The Local Bodies have laid many roads, provided infrastructures with in the tank boundary for the encroached layouts. This roads / infrastructures should be evicted immediately before disconnecting the electricity for complete eviction of the encroachments.
- 10) The Greater Chennai Corporation is the fully responsible for maintenance during the project execution, flood management and overall safety of the structure, tank proper and larger public interest. As per the Department codes, any alteration / changes in the hydraulic standards should be approved by the Superintending Engineer, P.W.D., W.R.D., Palar Basin circle, Chepauk, Chennai - 5 / Chief Engineer P.W.D., W.R.D., Chennai Region, Chepauk, Chennai – 5 in concurrence with the District Collector, Kancheepuram.
- 11) The site i.e., tanks should be handed over officially to the Executing Agency (i.e.,) to the Greater Chennai Corporation in turn to its Contractor for execution of work until all the work are completed and same is confirmed by the Competent Authority of the Department.
- 12) Erecting information board and advertisement board are not encouraged.
- 13) The water spread area should not be reduced.

14) The Earth (Savudu) should not be removed from the Tank and not conveyed outside the tank.

15) Failing to comply with any of the above conditions, PWD, WRD reserves the right to withdraw the NOC for restoration and rejuvenation of the above said tanks in future.

16) In addition to the above, the parameters to be adopted without any alteration for Alapakkam Tank is as follows:-

The top of bund should be kept at the level of (+) 15.620m from MSL, top width minimum 3.00m, side slopes at rear side 2:1 and front side 1.50:1. The new weir should be constructed newly at left flank for drain out the excess water and crest level of the proposed weir should be maintained as (+) 13.950m MSL and design should be got approved from PWD. The surplus course should be excavated from weir to Cooum river for drain out the excess water. The Cut & Cover channel also should be provided wherever required.


20.9.19
for CHIEF ENGINEER, WRD.,
CHENNAI REGION, CHENNAI-5

V. J
20.9.19

Appendix 3: Self Declaration issued by the Officials of Greater Chennai Corporation

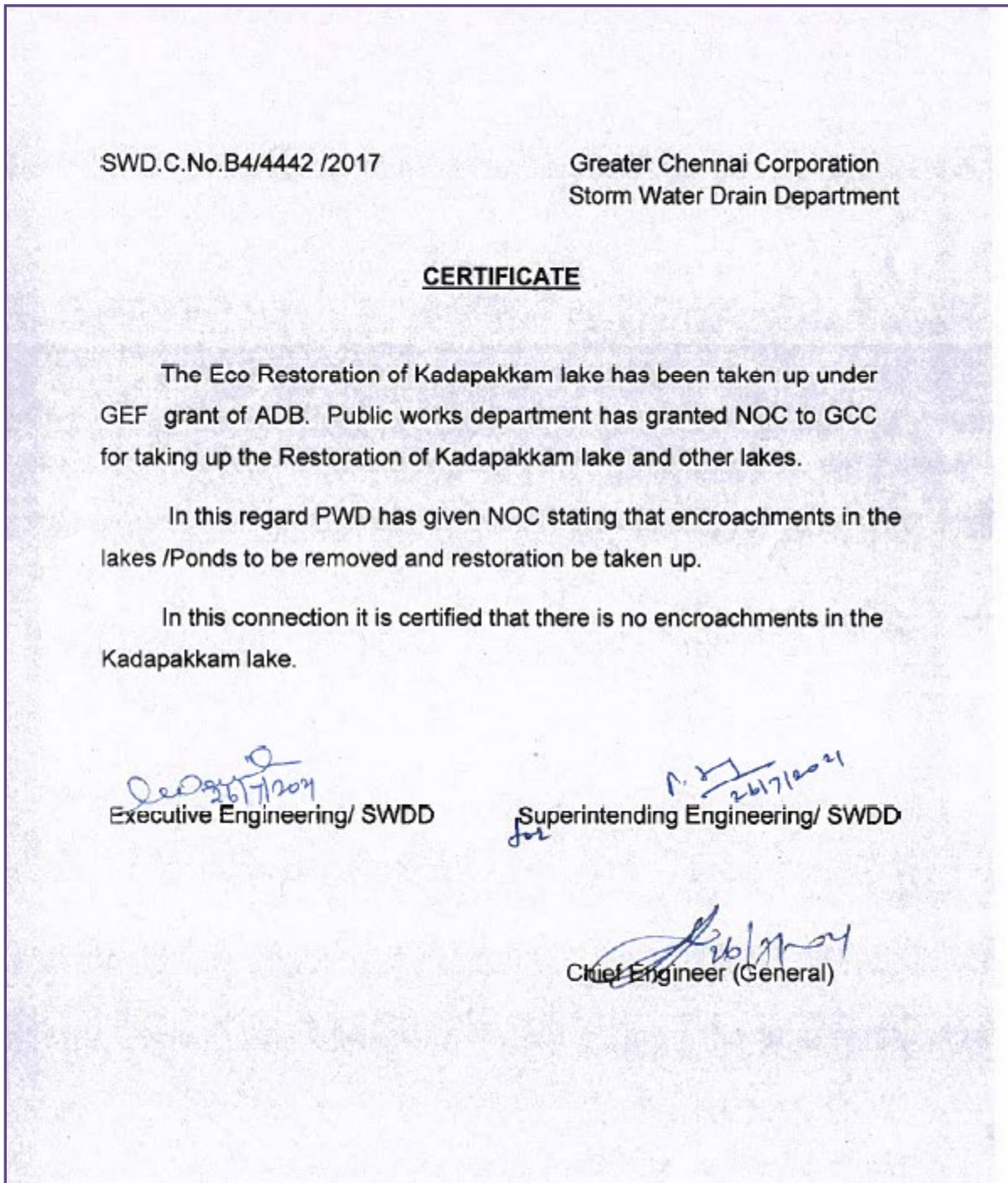


Figure 1

The field inspection by the project consultants, GCC engineers found no encroachments in the lake area. (Signed undertaking by GCC attached – Figure 1)



Figure 3: Pathway



Figure 4: Pathway



Figure 5: Entrance Plaza



Figure 6: Entrance Plaza

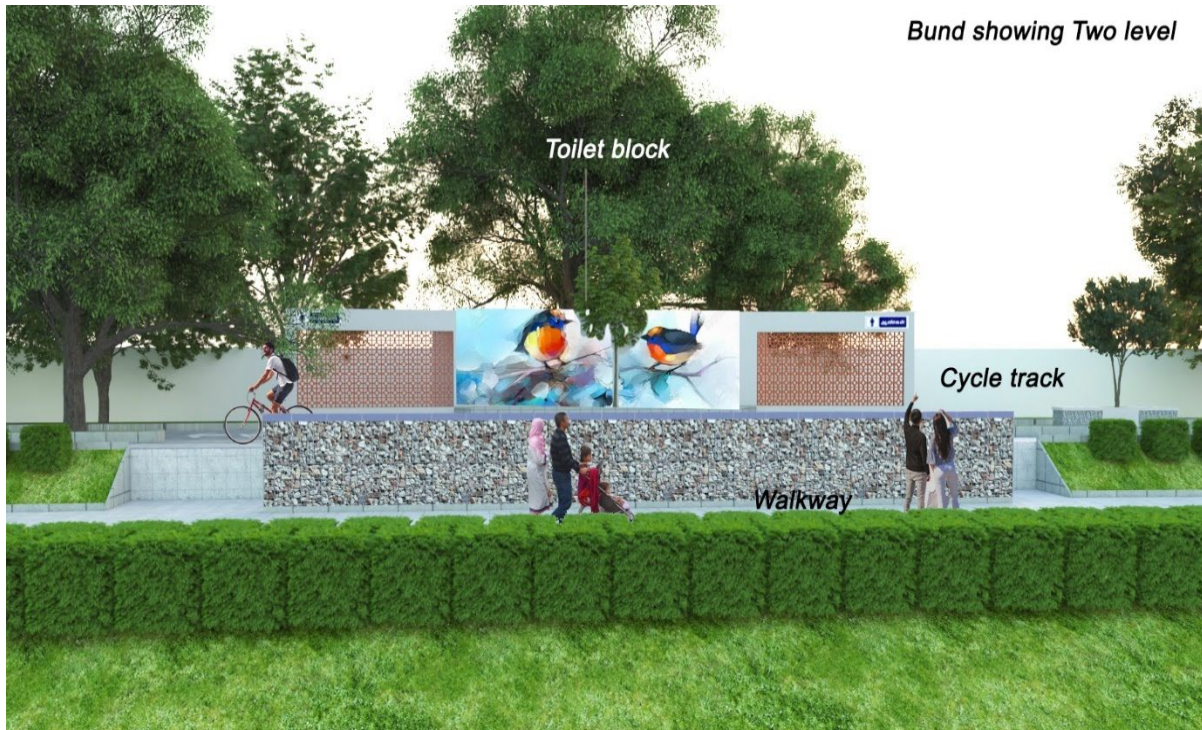


Figure 7: Pathway



Figure 8: Play area



Figure 9: Play area



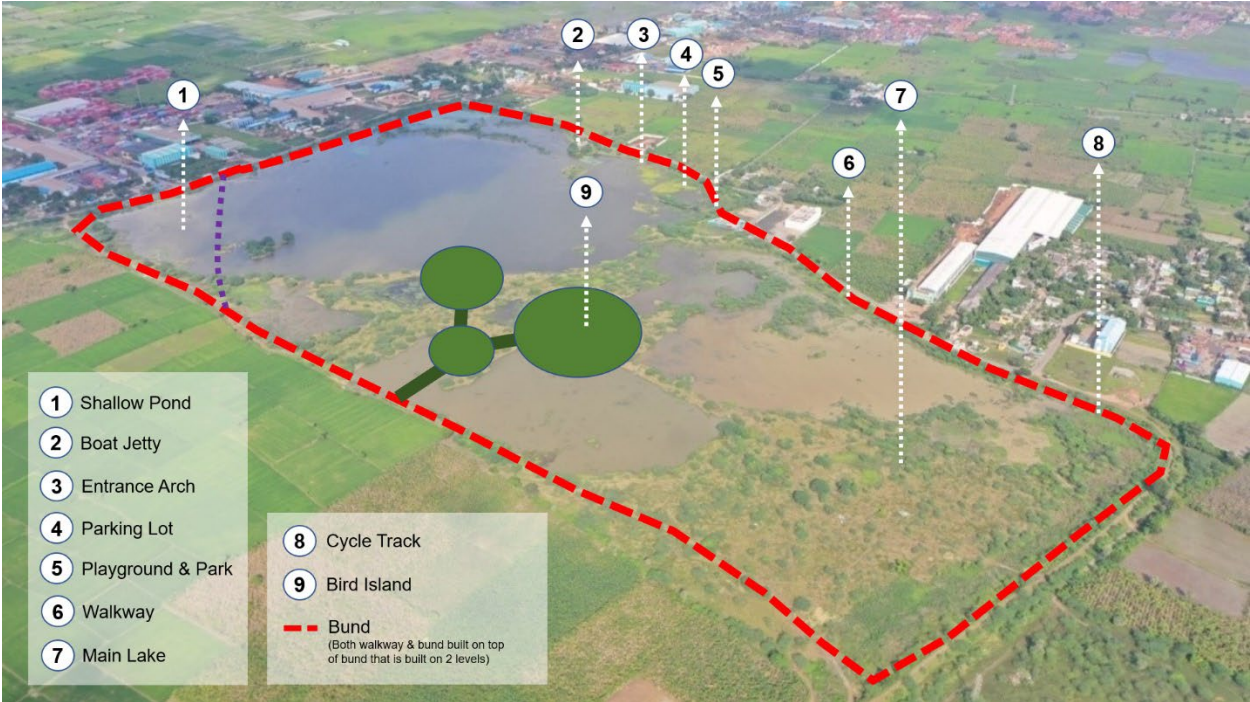
Figure 10: Parking



Figure 11: Bird Island



Aerial View of Proposed Design



Proposed design elements superimposed on current photo

Appendix 5: Sample Grievance Registration Format

The _____ Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		Place of registration			
Contact Information/Personal Details					
Name		Gender	* Male * Female	Age	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below:					
If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	
Grievance Related to Project Component / Modalities of Financing:	

Appendix 6: Social Safeguards QPR checklist⁴

Activity	Yes / No	Remarks (If Answer Is No)
A. For subproject packages under bidding		
1. RPs/DDR/IPP cleared by ADB?		
2. RPs/DDR/IPP included in the bidding documents?		
3. RP includes cut-off-date?		
4. Are there changes in the scope of work of the cleared RPs/DDR/IPP?		
5. ID cards prepared for APs and distributed?		
6. Are specific actions identified in RP/IPP, if any, that are required of the contractor for impact avoidance or mitigation, incorporated in bid documents?		
7. BOQ line item includes any requirements specified in RP/DDR/IPP?		
8. RP/IPP disclosed in form and language understood by stakeholders and affected persons (APs)?		
9. Consultations with stakeholders and affected persons/IP held?		
10. Is the GRM in place and GRC constituted?		
For subproject packages with contracts awarded (no works yet)		
1. AllNOCs/land transfers obtained?		
2. Agreement of sale/transfer and third-party certificate obtained for negotiated settlement/voluntary donation?		
3. All compensation paid in full?		
4. Detailed measurement survey conducted jointly by contractor, project consultant and PMU/PIU?		
5. All community concerns and grievances related to specific sites mitigated through consultations or agreed actions?		
6. All common property resources (CPR, including small shrines, trees of worship etc.) identified and plan for continued access prepared?		
7. Each contractor designated social safeguards and grievance registration officer?		
8. For DBO packages, detailed design completed and updated RP/DDR/IPP submitted to ADB?		
9. For DBO packages, serial no. 1-7 accomplished?		
For subproject packages with contracts awarded and works on-going		
1. Contractors have appointed social safeguards and grievance registration officer per subproject package?		
2. Site-specific signages with date of start and end of construction and contact number for		

⁴ This checklist should provide the Project's general compliance to environment safeguards during the reporting period. The indicators are aligned with project loan agreement, PAM, RPs and ADB's Sustainable Development Safeguards Division Safeguards project performance rating. The detailed social safeguards compliance status should be provided in the semi-annual social monitoring report.

Activity	Yes / No	Remarks (If Answer Is No)
grievances and safety instructions for general public posted onsite?		
3. Grievance registration register available at each work site?		
4. Site fencing/protection works etc. undertaken before start of physical construction work?		
5. Contractors provided PMU/PIU with a notification/incident report of any grievance or unanticipated impact within 24 hours?		
6. Reports of complaints/grievances reported monthly to PMU?		
7. Records of information disclosure/consultations submitted by PIUs to PMU monthly?		
8. Records of site inspection by PIU and DSC submitted to PMU monthly?		
9. Records of site inspection by PMC submitted to PMU monthly?		