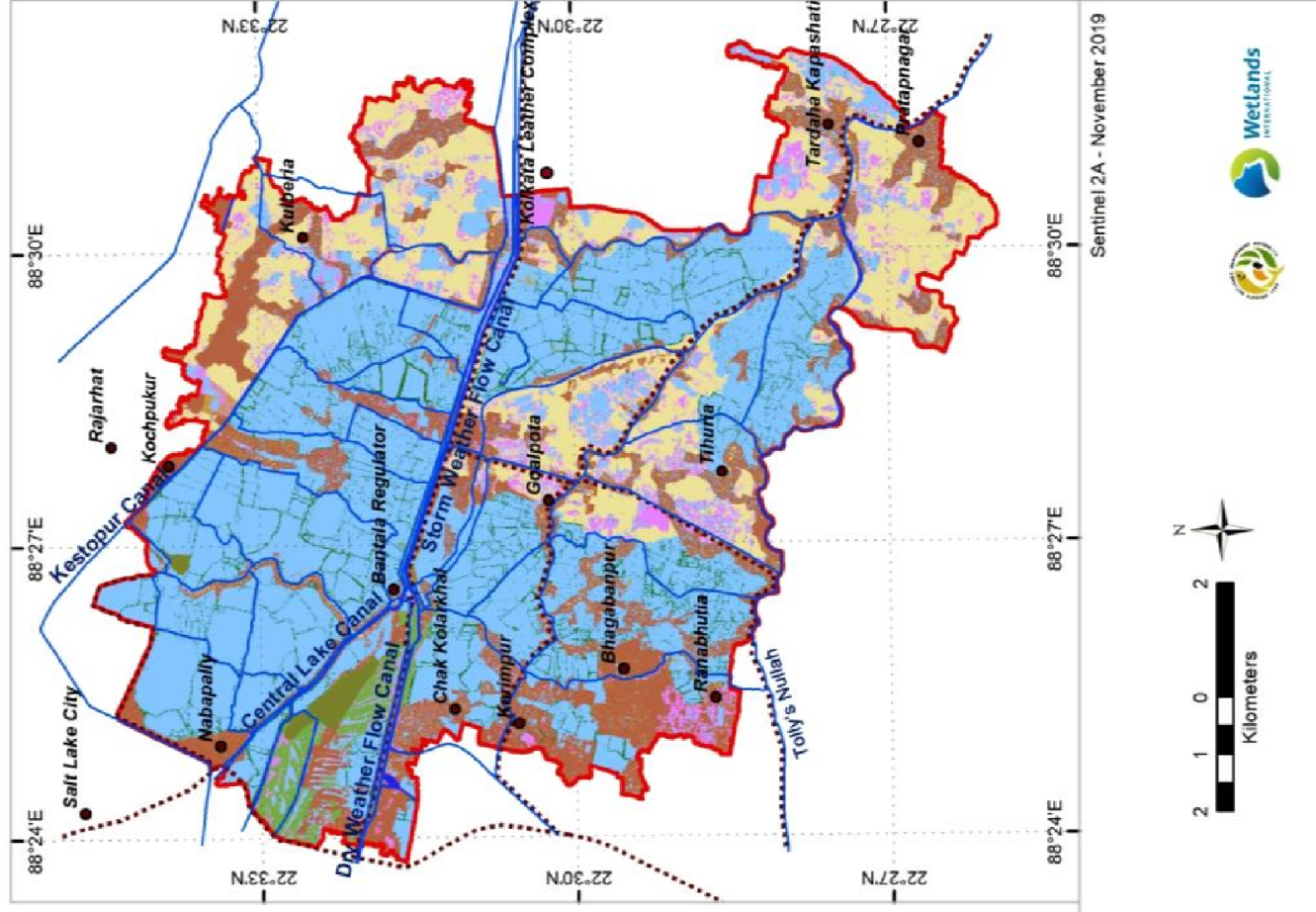
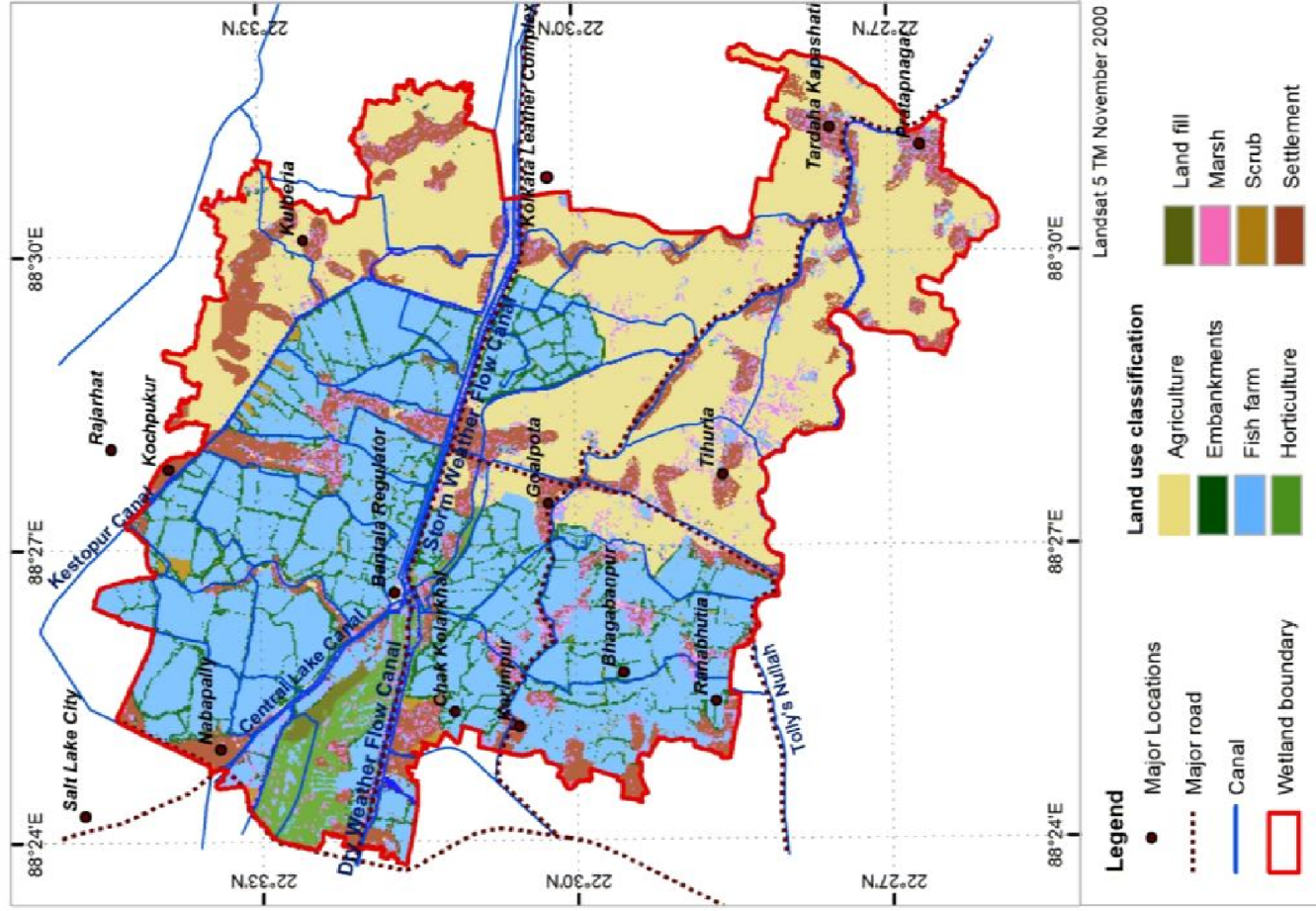


EAST KOLKATA WETLANDS MANAGEMENT AUTHORITY

**Annual Report
2020-2021**

**Department of Environment
Government of West Bengal**





Land use and land cover of the East Kolkata Wetlands (November 2000 and November 2019)



EAST KOLKATA WETLANDS MANAGEMENT AUTHORITY

Annual Report 2020-21

Department of Environment Government of West Bengal



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Front Cover: Wetland features of East Kolkata Wetlands

Inside Front Cover: Land use and land cover of the East Kolkata Wetlands (November 2000 and November 2019)

Inside Back Cover: Pictures drawn by children on the occasion of World Wetlands Day in Rasik Beel

Back Cover: Celebration of World Wetlands Day

East Kolkata Wetlands

East Kolkata Wetlands (EKW), situated between 22°25'N to 22°35' N and 88°20'E to 88°35' E, is a unique peri-urban ecosystem. This is a mosaic of waterbodies, agricultural land and settlement areas spread over an area of 12,500 ha. These wetlands are remnants of a series of brackish wetlands which were connected to the freshwater as well as marine environments of the Gangetic Delta and the Bay of Bengal in a continuum with the Sundarbans.

The wetland is a critical natural infrastructure for the Kolkata city. There are several ecological and socio-economic benefits in preservation of this unique wetland ecosystem. EKW is the world's largest sewage-fed pisciculture system, which naturally recycles nearly 910 MLD of sewage water generated by the Kolkata city, besides providing more than 20,000 tons of annual fish produce and 150 tons of vegetables daily.

This extensive natural waste water purification system not only saves the river Ganga from being polluted with the city's sewage but also obviates the need for setting up of Sewage Treatment Plants (STPs) saving the exchequer from capital expenditure of close to five billion INR and subsequent recurring expenses in maintaining the infrastructure. For this natural filtration process, the East Kolkata Wetlands is often called 'Kolkata's kidney'.

In addition, the EKW is also part of Kolkata's lungs system, since 60 percent of carbon found in the wastewater is sequestered by the plant and animal life of the wetlands, thus acting as a carbon sink and helping the city find respite from the growing carbon load.

Further, Kolkata is saved from flooding and inundation during heavy rains and storms as these wetlands provide a basin where the city's excess rain water drains naturally, thus saving a huge financial cost, apart from the human misery of urban submergence, which is being increasingly noticed in some of India's metropolitan cities. On top of these advantages, this wetland system also makes for an excellent ground water recharge system assuring the burgeoning metropolis of a steady and sustainable source of drinking water.



The EKW supports a diverse range of flora and fauna essential to maintain biological diversity in addition to serving as a staging ground for migratory birds. A total of 1925 species- including 637 species of flora and 1288 species of fauna have been recorded in East Kolkata Wetlands.

The traditional waste recovery practice provides subsistence opportunities for a large, economically underprivileged population of 0.15 million living in the 37 revenue villages (locally called mouza) within its boundaries. EKW is also one of the few natural habitats providing recreational avenues for the urban and peri-urban population.

The EKW provides strong arguments for the adoption of traditional knowledge of local communities for wise-use of wetlands. The wetlands have been declared as a Wetland of International Importance under Criteria I of the Ramsar Convention in 2002 as an example of wetland wise-use within the Gangetic Delta bio-geographic zone.

East Kolkata Wetlands Management Authority (EKWMA) is the nodal government agency mandated to ensure wise use of the wetland within the regulatory framework defined by the East Kolkata Wetlands (Conservation and Management) Act, 2006 and Wetlands (Conservation and Management) Rules, 2017 [notified under the Environment (Protection) Act, 1986].

2

East Kolkata Wetlands Management Authority

East Kolkata Wetlands Management Authority (EKWMA), a regulatory body, was constituted under the East Kolkata Wetlands (Conservation and Management) Act, 2006 as amended from time to time.

2.1 Composition of the EKWMA

The EKWMA is a thirteen-member body headed by the Hon'ble Minister-in-Charge, Department of Environment, Government of West Bengal with four expert members from the areas of wetland ecology, hydrology, fisheries, and socio-economics. Commissioner, Kolkata Municipal Corporation, District Magistrate South 24 Parganas, and District Magistrate North 24 Parganas are permanent Invitee Members of EKWMA.

2.2 Chairperson, Member Secretary and Chief Technical Officer during 2020-21

Chairperson, EKWMA

Minister-in-Charge, Department of Environment, Govt. of West Bengal.	• Prof. (Dr.) Saumen Kumar Mahapatra
--	--------------------------------------

Member Secretary, EKWMA

Additional Chief Secretary/Principal Secretary, Department of Environment, Govt. of West Bengal.	<ul style="list-style-type: none"> • Shri Prabhat Kumar Mishra, IAS (01.04.2020-13.05.2020) • Shri Vivek Kumar, IAS (13.05.2020 - 31.03.2021-Continued)
--	---

Chief Technical Officer, EKWMA	• Shri Niraj Singhal, IFS
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2.3 Staff strength of EKWMA

Division	Number of officers	Function
Legal	1 Senior Law Officer*(@) 1 Technical Officer (Law) 1 Technical Assistant	Address all legal matters resulting from enforcement of EKW(C&M) Act
Monitoring and Research	1 Technical Officer* (@) 1 Scientific Officer 2 Field Supervisors 5 Technical Assistants	GIS and Remote Sensing Environmental monitoring Scientific and technical documentation
Accounts	2 Technical Assistants	Maintenance of accounts and preparation of financial statement of the Authority
Office Support	3 peons	Office assistance

(* =head of the division, @= permanent employee of Government of West Bengal)



3

State Wetlands Authority (SWA)

West Bengal State Wetlands Authority was constituted under Rule 5(1) of the Wetlands (Conservation and Management) Rules, 2017 notified by the Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India.

3.1 Composition of the SWA

The SWA is headed by the Hon'ble Minister-in-Charge, Department of Environment, Government of West Bengal with Chief Secretary to the State as Vice-Chairman and twenty other members including four experts in the area of wetland ecology, hydrology, fisheries, and socio-economics.

3.2 Chairperson, Vice-Chairperson and Member Secretary during 2020-21

Chairperson, SWA	
Minister-in-Charge, Department of Environment, Government of West Bengal.	<ul style="list-style-type: none"> Prof. (Dr.) Saumen Kumar Mahapatra
Vice-Chairperson, SWA	
Chief Secretary to the Government of West Bengal.	<ul style="list-style-type: none"> Shri Rajiva Sinha, IAS (01.04.2020 - 30.09.2020) Shri Alapan Bandyopadhyay (30.09.2020 - 31.03.2021)
Member Secretary, SWA	
Additional Chief Secretary/Principal Secretary, Department of Environment, Government of West Bengal	<ul style="list-style-type: none"> Shri Prabhat Kumar Mishra, IAS (01.04.2020-13.05.2020) Shri Vivek Kumar, IAS (13.05.2020 - 31.03.2021-continuing)

Major Achievements during 2020-21

4.1 Preparation of East Kolkata Wetlands Management Action Plan 2021-2026

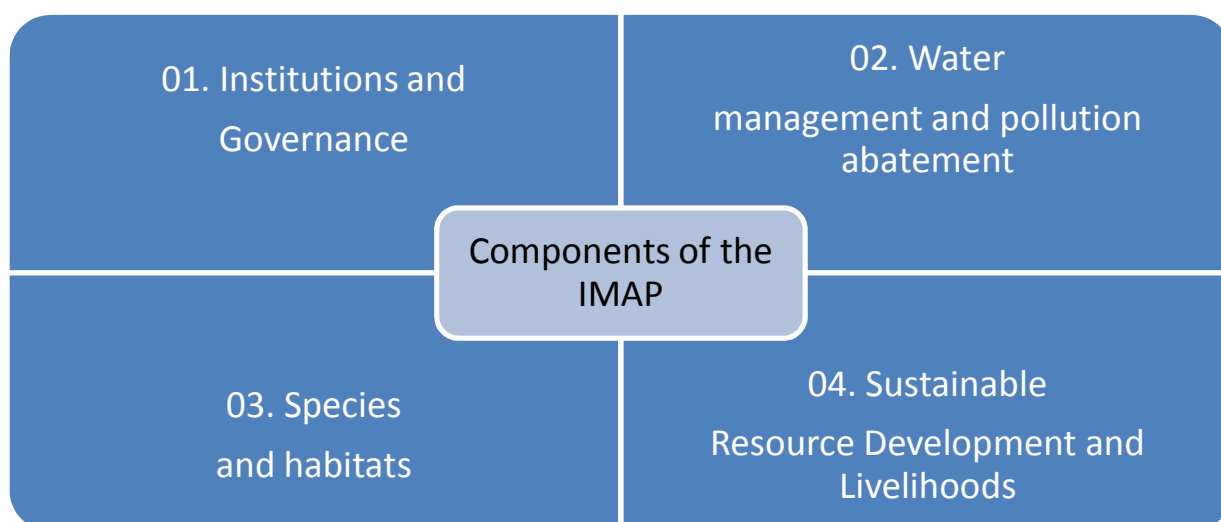
In alignment with the objectives of the National Plan for Conservation of Aquatic Ecosystems, the East Kolkata Wetlands Management Authority approved the East Kolkata Wetlands Management Action Plan 2021-2026, prepared with technical inputs from the Wetland International South Asia (WISA).

Salient features of the Management Action Plan are given below:

Goal: To maintain East Kolkata Wetlands in a healthy condition to enable delivery of its full range of ecosystem services and sustain biological diversity values.

Purpose: Enable natural infrastructure services to the Kolkata city in the form of wastewater treatment, flood buffering and climate regulation including reduction in the urban heat island effect; providing livelihood opportunities for wetlands communities in food production; and sustain diversity of biota in the landscape.

Components:





- Institutional development and implementation of proper governance system includes reorganization and strengthening of East Kolkata Wetlands Management Authority. One of the key tasks in this component is to achieve proper demarcation of the wetland area, dividing into different activity-based management zones. On the institutional side, the plan outlines establishment of a wetland monitoring and research centre for the purpose of creating wetlands inventory, assessment and monitoring system, conducting research, and capacity development of the inhabitants through a series of information-education-communication measures and training exercises.
- Water management and pollution abatement in the East Kolkata Wetlands area includes proper planning for dredging of channels, restoration/excavation of waterbodies, proper planning of solid waste management including waste segregation at EKW inlets, enhancement for capacity for treating Dhapa leachate, bio-mining of Dhapa dumpsites and notifying East Kolkata Wetlands area as zero-plastic zone.
- Conservation of Species and Habitats includes conducting census of waterbirds, monitoring of avifauna health, culture of indigenous fish species and rehabilitation of aquatic vegetation.
- Sustainable Resource Development of the area includes sustainable development of fisheries, agriculture and horticulture including development of community infrastructure.

The resolution is given at **Annexure I** and executive summary of the East Kolkata Wetlands Management Action Plan 2021-2026 is given at **Annexure II**.



4.2 Publication: Biodiversity profile of East Kolkata Wetlands

Zoological Survey of India and East Kolkata Wetlands Management Authority have jointly published a comprehensive documentation of biodiversity in East Kolkata Wetlands, namely 'Biodiversity Profile of East Kolkata Wetlands'. The book is the first of its kind in India for any Ramsar site.

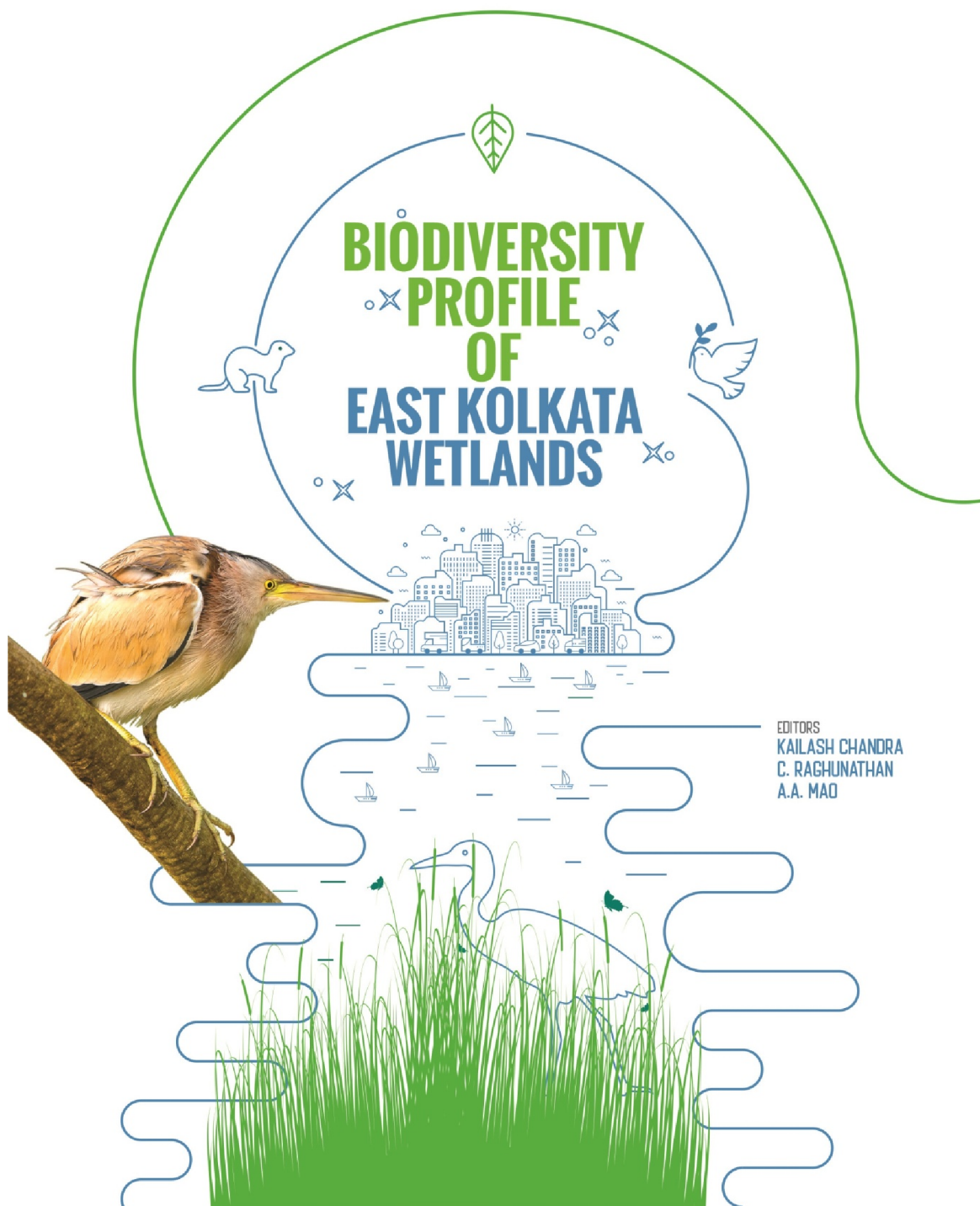
According to the study, a total of 1925 species- including 637 species of flora and 1288 species of fauna have been recorded in the East Kolkata Wetland area.

- Among the floral communities, 381 species are documented under major flora (including 371 species of angiosperms, 1 gymnosperm and 9 species of pteridophytes), followed by 130 species of freshwater algae, 60 species of agricultural plants, 50 species of macro fungi and only 16 species of bryophytes.
- Among the faunal communities, moths are predominant with 205 species while the minimum of diversity was recorded for Ostracoda with only 3 species.
- Among the vertebrates, 10 species of amphibians, 29 species of reptiles, 123 species of birds, 79 species of fish, and 13 species of mammal have been recorded from these wetlands.

Table 1 shows the floral and faunal diversity of East Kolkata Wetlands.

This publication will not only act as a reference material for future generations but also encourage researchers to undertake further studies and help in generating awareness about the importance of EKW.

Soft copy of this publication is available on our websites www.environmentwb.gov.in and www.ekwma.in.



EDITORS
KAILASH CHANDRA
C. RAGHUNATHAN
A.A. MAO



Sl. No.	Group	Number of species
<i>Faunal Groups</i>		
1.	Protozoa: Free-living Ciliates	22
2.	Protozoa: Free-living Testate Amoebae	42
3.	Rotifera	37
4.	Nematode	36
5.	Acari: Mites	51
6.	Arachnida: Spiders	32
7.	Crustacea: Cladocera	24
8.	Crustacea: Ostracoda	3
9.	Crustacea: Copepoda	9
10.	Crustacea: Crabs and Shrimps	24
11.	Apterygota	55
12.	Odonata: Dragonflies and Damselflies	27
13.	Orthoptera: Grasshoppers and Crickets	92
14.	Isoptera: Termites	7
15.	Hemiptera: Terrestrial	45
16.	Hemiptera: Aquatic and semi aquatic bugs	32
17.	Hymenoptera: Formicidae: Ants	50
18.	Hymenoptera: Vespidae	11
19.	Hymenoptera: Chalcididae	11
20.	Hymenoptera: Encyrtidae	17
21.	Coleoptera: Beetles	77
22.	Lepidoptera: Butterflies	75
23.	Lepidoptera: Moths	205
24.	Diptera: True flies	64
25.	Molluscs: Gastropods and Bivalves	22
26.	Pisces: Fishes	79
27.	Herpetofauna	39
28.	Aves: Birds	87
29.	Mammalia: Mammals	13
Subtotal		1288
<i>Floral groups</i>		
1.	Macro-fungi	50
2.	Freshwater Algae	130
3.	Bryophytes	16
4.	Agro-flora	60
5.	Flora	381
Subtotal		637
TOTAL		1925

Table 1: Floral and faunal diversity of East Kolkata Wetlands



4.3 Enforcement of the Act/Rules pertaining to the EKW's

In order to detect any unauthorized use of or act on the EKW's, field inspections were conducted from time to time. Based on field inspection reports, one show cause notice was issued and one FIR was lodged.

4.4 Right to Information

Right to Information Act, 2005 (RTI) mandates timely response to citizen requests for government information. Basic object of the RTI Act is to empower the citizens, promote transparency and accountability in the working of the Government, contain corruption, and make the democracy work for the people in real sense. Being a 'Public Authority', the EKWMA is committed towards maintaining accountability and transparency, and making the Right to Information Act, 2005 effectively operational. During this financial year, 37 applications under RTI Act, 2005 were received and subsequently replied.

4.5 Court cases.

The list of cases pending before the Hon'ble High Court at Calcutta and the National Green Tribunal relating to East Kolkata Wetlands is given in **Annexure III**.

Awareness Generation Activities

5.1 World Wetlands Day

World Wetlands Day (WWD) is celebrated internationally each year on 2nd February to raise global awareness about the vital role of wetlands for people and our planet. The day marks the anniversary of the signing of the International Convention on Wetlands of International Importance at Ramsar.

The theme for WWD-2021 was **Wetlands and Freshwater**. This theme shines a spotlight on wetlands as a source of freshwater and encourages action to restore them and stop their loss. Growing freshwater crisis threatens people and our planet. We use more freshwater than nature can replenish, and we are destroying the ecosystem that water and all life depend on most – Wetlands.

West Bengal has got two Ramsar sites - **East Kolkata Wetlands** and **Sundarban**. To raise public awareness about the ecological importance, values and benefits of wetlands, the Department of Environment, Government of West Bengal celebrated the WWD-2021 in the following manner:

1. Release of book 'Biodiversity Profile of East Kolkata Wetlands'
2. Release of 'East Kolkata Wetlands Management Action Plan 2021-2026'
3. Plantation Programme in East Kolkata Wetlands: Seedlings of different fruit species were planted along the bank of the Charcharia Bheri
4. Programme in Sundarban: Following activities were taken up by Sundarban Tiger Reserve (STR):
 - 2 floating tableaux were used for creating awareness generation

**World
Wetlands Day**
2 February 2021



Wetlands and water



- Anti-plastic drive involving students in villages
- Monitoring of the wetland and wetland habitats by monitoring teams
- Launching of social media network of the STR for education and awareness generation

5. Programme in Rasik Beel, Cooch Behar

Rasik Beel is the largest inland rainwater-fed wetland complex in West Bengal and designated as Wetlands of National Importance. Following activities were taken up there:

- Organized a webinar on multiple benefits of wetlands and role of wetlands on water bird diversity
- Water bird count in Rasik Beel
- Discussions on livelihood issues with the local fishermen communities
- Bird painting exhibition

Winter water bird count from 10.00 A.M. to 2.54 P.M on the day in Rasik Beel by the Indian Conservation Organisation, Coochbehar found 13172 birds of 49 different species. Checklist of birds with numbers found in Rasik Beel are given in Table 2. Pictures drawn by the children are at **Inside Back Cover** of the report.

Some photographs of celebration of World Wetlands Day are at **Back Cover** of the report.

Sl. No	Name of birds	No. of Birds found
1	PIED MYNA	
2	RUFOUS TREEPIE	
3	JUNGLE BABBLER	
4	SPOTTED OWLET	
5	BLACK NAPED MONARCH	
6	FERRUGINOUS POCHARD	350
7	BLACK HOODED ORIOLE	
8	WHITE BRESTED KINGFISHER	125
9	ALEXANDRINE PARAKEET	
10	ROSE RINGED PARAKEET	
11	BLACK DONGO	
12	POND HERON	550
13	LESSER ADJUTANT STORK	8
14	LITTLE CORMORANT	225
15	GREY BACKED SHRIKE	
16	COMMON CHIFFCHAFF	
17	COMMON MOORHEN	120
18	RED WATLED LAPWING	70



Sl. No	Name of birds	No. of Birds found
19	BRONZE WINGED JACANA	1200
20	INTERMEDIATE EGRET	80
21	ASIAN OPEN BILL STORK	6
22	TAIGA FLYCATCHER	
23	GADWALL	1200
24	MALARD	8
25	FALCATED DUCK	8
26	RED CRESTED POCHARD	28
27	NORTHAN PINTAIL	4
28	EURASIAN WIGEON	4
29	PHEASANT TAILED JACANA	180
30	STORK BILLED KINGFISHER	6
31	COMMON KINGFISHER	10
32	COTTON PIGMY GOOSE	450
33	GREATER FLAME BACK	
34	LITTLE RINGED PLOVER	8
35	COMMON TEAL	2200
36	GREY HEADED LAPWING	2500
37	ASHY WOODSWALLOW	
38	GREY HERON	1
39	CITRINE WAGTAIL	12
40	GREAT CORMORENT	1
41	COMMON BUZZARD	
42	LESSER WHISTLING TEAL	2500
43	MARSH SANDPIPER	2
44	SPOTTED DOVE	
45	LARGE EGRET	4
46	YELLOW WAGTAIL	4
47	GREY HEADED CANARY FLYCATCHER	
48	INDIAN TAILOR BIRD	
49	WHITE THROTED FAINTAIL	
50	ASHY FLYCATCHER	
51	FULVOUS BRESTED WOODPACKER	
52	LINEATED BARBET	
53	SHIKRA	
54	SIBERIAN STONE CHAT	
55	INDIAN PEA FOWL	
56	BROWN SHRIKE	
57	WHITE WAGTAIL	2
58	KENTISH PLOVER	2
59	CATTLE EGRET	150
60	LARGE BILLED CROW	
61	RED VENTED BULBUL	



Sl. No	Name of birds	No. of Birds found
62	OSPREY	1
63	INDIAAN ROLLER	
64	GREAT TIT	
65	LITTLE EGRET	4
66	COMMON SNIPE	1
67	LONGTAILED SHRIKE	
68	BLACK KITE	
69	WHITE BREASTED WATERHEN	3
70	CHESNUT TAILED STARLING	
71	BLUE THROATED BARBET	
72	BANK MYNA	
73	LONGTAILED NIGHTJAR	
74	SCARLET MINIVET	
75	YELLOW WATLED LAPWING	4
76	SMALL GREEN BEE EATER	
77	PADDY FIELD PIPIT	
78	JUNGLE MYNA	
79	ORIENTAL MAGPIE ROBIN	
80	HILL MYNA	
81	GREY HEADED FISH EAGLE	1
82	GREATER SPOTTED EAGLE	
83	COMMON MYNA	
84	RIVER LAPWING	5
85	SPANGLED DRONGO	
86	LITTLE GREABE	20
87	NORTHEN LAPWING	1100
88	BOOTED EAGLE	
89	PURPLE HERON	1
90	DARTER	1
91	COMMON SANDPIPER	4
92	GREENSHANK	4
93	COMMON RINGED PLOVER	1
94	WOOD SANDPIPER	3
95	BRAHMIN KITE	1
96	COMMON IORA	
97	BRONZE DRONGO	
98	RUFIOUS BILLIED NILTAVA	
99	STRIATED GRASSBIRD	
100	RING DOVE	
101	COMMON HAWK CUCKOO	
Total		13172

Table 2: Checklist wise water birds found in Rasik Beel on 02.02.2021

6

Finances

Abstracts of receipts and expenditure, and Budget Estimate of EKWMA for the period of 2020-2021 are given at Table 3 and Table 4 respectively.

Table 3: Abstract of receipts and expenditure of the EKWMA for 2020-21

Financial Year	Name of Head	Opening Balance (Rs.)	Receipts (Rs.)	Expenditure (Rs.)	Closing Balance (Rs.)
2020 – 2021	3435-03-102-002-36-00	80,539.00	44,90,000.00	45,39,238.00	31,301.00
	3435-03-102-002-31-02	0.00	52,44,955.00	31,36,366.00	21,08,589.00
	3435-03-102-001-31-02	1,40,000.00	0.00	1,40,000.00	0.00
	3435-04-103-004-31-02	11,800.00	0.00	0.00	11,800.00
	3435-03-003-002-31-02	6,41,075.00	0.00	6,41,075.00	0.00
	3435-03-003-003-31-02	5,58,615.00	0.00	5,58,615.00	0.00

Table 4: Budget for the year 2020-21

Financial Year	Name of Head	Budget Estimate (Rs.)
2020 – 2021	3435-03-102-002-36-00	54,04,000.00
	3435-03-102-002-31-02	1,00,00,000.00

ANNEXURE



East Kolkata Wetlands Management Authority

Resolution by Circulation

AGENDA ITEM

Approval of the **East Kolkata Wetlands Management Action Plan 2021-2026** by East Kolkata Wetlands Management Authority

AGENDA NOTE

1. The first Management Plan for East Kolkata Wetlands (EKW) 2008-18 was prepared by Wetland International South Asia (WISA) and placed before the East Kolkata Wetlands Management Authority (EKWMA) in its 8th meeting held on 21.10.2008 for its approval. Subsequently, the Management Plan for East Kolkata Wetlands was approved.
2. In the 29th meeting of the EKWMA held on 20.12.2019 chaired by the Hon'ble Minister-in-Charge, Environment Department and in presence of Chief Secretary, it was decided that the Management Plan for East Kolkata Wetlands prepared by WISA in 2008 needs to be updated and the Technical Committee, State Wetlands Authority, West Bengal headed by Dr. Kalyan Rudra, Chairman, West Bengal Pollution Control Board would give suggestions, recommendations and supervise the updation of EKW Management Plan (Annexure A).
3. WISA was entrusted to prepare a new draft management plan for East Kolkata Wetlands for a five year period under the supervision of the Technical Committee. Total estimated cost was Rs. 15 lakh, out of which Rs. 8 lakhs will be borne by Department of Environment and the balance amount by WISA.
4. After submission of first draft of EKW Management Plan 2021-26, the Technical Committee held a meeting where the draft Plan was presented by Dr. Ritesh Kumar, Director, WISA. The meeting was chaired by Shri Vivek Kumar, Principal Secretary, Environment Department. All the Expert Members appreciated the draft Plan and made some valuable comments/suggestions for incorporation in the Plan (Annexure B).
5. After incorporating the suggestions of the members of the Technical Committee, the final draft of "East Kolkata Wetlands Management Action Plan 2021-2026" was prepared and re-circulated to all the Expert Members of the Technical Committee, which was accepted by them (Annexure C).

6. Salient Features of East Kolkata Wetlands Management Action Plan (2021-2026)

Goal : To maintain East Kolkata Wetlands in a healthy condition to enable delivery of its full range of ecosystem services and sustain biological diversity values



Objectives: The Management Action Plan for 2021-2026 has eight objectives as given below:

Objective 1: Land use and land cover of the wetland to be maintained as per the regulatory requirements under Wetlands (Conservation and Management) Rules, 2017 and East Kolkata Wetlands (Conservation and Management) Act, 2006.

Objective 2: Sewage quantity and quality received within the wetland to be efficiently treated applying traditional waste recovery practices.

Objective 3: Bio-Diversity within East Kolkata Wetlands to be preserved and maintained.

Objective 4: Species invasion threats to fisheries to be reduced.

Objective 5: Livelihood vulnerability of wetland-dependent communities to be reduced.

Objective 6: Individual and collective capacity and opportunities for stakeholders to participate in wetland management and contribution to its wise use to be enhanced.

Objective 7: Systematic wetlands inventory, assessment and monitoring system is used to take informed management decisions and to assess their effectiveness.

Objective 8: Integration of multiple values of wetlands in sectoral planning is enhanced.

Major Challenges Identified:

- Unauthorised land conversion and building construction
- Siltation of water bodies and distribution canals
- Solid waste disposal/dumping, pollution and discharge of leachate
- Bioaccumulation of heavy metals in fishes and vegetables
- Spread of invasive species

Interventions proposed:

- Development of surveillance system, wetland demarcation, regulatory actions under Wetlands (Conservation and Management) Rules, 2017 and East Kolkata Wetlands (Conservation and Management) Act, 2006.
- Desiltation/re-excavation of canals and desiltation of bheries.
- Solid waste management, installation of leachate treatment plant, development of resource recovery system such as composting, biomethanation, material recovery facility
- Study on the pathway of bioaccumulation of heavy metals in fishes and vegetables.
- Management of invasive species

To achieve the objectives, actions have been proposed under four major management components:

- a) Institutions and Governance
- b) Water Management and Pollution Abatement



- c) Species and habitats, and
- d) Sustainable Resource Development and Livelihoods.

Proposed Budgetary Allocation :

7. Total Budgetary Allocation of Rs. 119.81 crore has been proposed over a period of 5 years as given below:

Management Plan Components	Amount (Rs Crore)	%	Year 1	Year 2	Year 3	Year 4	Year 5
Component 1: Institutions and Governance	36.78	30.7	10.1	22.2	2.59	0.81	1.07
Component 2: Water Management and Pollution Abatement	32.81	27.4	0.16	11.72	13.71	7.12	0.12
Component 3: Conservation of Species and Habitat	21.59	18	0.17	10.77	10.49	0.13	0.04
Component 4: Sustainable resource development	28.63	23.9	5.42	16.28	5.9	0.5	0.51
Grand Total	119.81	100	15.85	60.97	32.69	8.56	1.74

8. Part funding may be sought from National Mission of Clean Ganga (Ministry of the Jal Shakti, Govt. of India) and the National Plan for Conservation of Aquatic Ecosystems (MoEF&CC, Govt. of India) as many of their objectives are aligned with the objectives of this Action Plan, along with allocations from Environment Department under the State budget.

PROPOSAL FOR APPROVAL

9. EKWMA is requested to approve by circulation the **East Kolkata Wetlands Management Action Plan 2021-2026** as section 4(1)(f) of the East Kolkata Wetlands (Conservation and Management) Act, 2006 gives power to the EKWMA to prepare Management Plan for EKW.



RESOLUTION ADOPTED

After examining the **East Kolkata Wetlands Management Action Plan 2021-2026**, the EKWMA agreed to grant its approval.

Sl No	Name	Designation And Department/ Organization	Signature
1.	Prof. (Dr.) Saumen Kumar Mahapatra	Minister-in-Charge, Department of Environment, Government of West Bengal and Chairman, EKWMA	
2.	Shri Alapan Bandyopadhyay, IAS	Chief Secretary, Government of West Bengal and Member, EKWMA	
3.	Shri Vivek Kumar, IAS	Principal Secretary, Department of Environment and Member Secretary, EKWMA	
4.	Shri Naveen Prakash, IAS	Addl Chief Secretary, Department of Irrigation and Waterways and Member, EKWMA	
5.	Shri M V Rao, IAS	Addl Chief Secretary, Department of P&RD and Member, EKWMA	
6.	Dr. Manoj Pant, IAS	Principal Secretary, Department of Land and Land Reforms and Member, EKWMA.	
7.	Shri Prabhat Kumar Mishra, IAS	Principal Secretary, Department of Fisheries and Member, EKWMA	
8.	Shri Vivek Kumar, IAS	Principal Secretary, Department of Forest and Member, EKWMA	
9.	Smt. Nandini Chakraborty, IAS	Principal Secretary, Department of Tourism and Member, EKWMA	
10.	Prof. Arunabha Majumder	Expert Member (Wetland Ecology), EKWMA	
11.	Dr. Kalyan Rudra	Expert Member (Hydrology), EKWMA	
12.	Smt. Esha Sengupta	Director of Fisheries, Fisheries Department and Expert Member (Fisheries), EKWMA	
13.	Prof. Debasis Das	Expert Member (Socio-economics), EKWMA	



Executive Summary

Located to the eastern fringes of Kolkata City and spanning 12,500 ha, East Kolkata Wetlands (EKW) is a mosaic of landforms including predominantly water dominated areas (used as fish farms) to land centric usages for agriculture, horticulture and settlements. The existing wetland regime is a remnant of series of brackish wetlands connected to the freshwater as well as marine environments of the Gangetic Delta and the Bay of Bengal, in an ecological continuum with the Sundarbans. Over 260 shallow fish ponds in the EKW receive over 900 MLD pre-settled sewage from the Kolkata Metropolitan region through a network of locally excavated secondary and tertiary canals, which is used to produce annually 20,000 MT of fish, 50,000 MT of vegetables and irrigate 4700 ha of paddy lands. As the nutrient-rich effluent moves through the system, it is progressively cleaned, and nutrients are redirected to the growth of algae or agricultural products grown along the pond edges and agricultural lands. Algae and other aquatic plants are used to feed up to 17 species of fish cultured in these ponds, which in turn create nitrogen and phosphorus-rich water to irrigate the adjacent rice fields. The traditionally evolved natural water purification waste recovery practice saves the Kolkata City nearly Rs. 4,680 million annually in terms of the treatment cost of up to 65% of the City's sewage. These wetlands also lock in over 60% of carbon from wastewater, thus reducing harmful Green House Gas emissions from the region.

The wetland is inhabited by diverse species. Atleast 380 taxa under major flora including 93 plant families, 10 amphibians, 29 reptiles, 123 birds, 79 fish, 24 crustaceans, and 13 mammal species have been recorded from these wetlands. Marsh mongoose *Herpestes auropunctatus* is endemic to the region and also included in the schedule II of Indian Wildlife Protection Act, 1972. The traditional waste recovery practice provides subsistence opportunities for a large, economically underprivileged population of 0.15 million living in over 37 mouzas within its boundaries. EKW is also one of the few natural habitats providing recreational avenues for the urban and peri-urban population.

East Kolkata Wetlands Management Authority is the nodal government agency mandated to ensure wise use of the wetland within the regulatory framework defined by the Wetlands (Conservation and Management) Rules, 2017 (notified under the Environment (Protection) Act, 1986) and the East Kolkata Wetlands (Conservation and Management) Act, 2006 and rules.

The ability of EKW to provide ecosystem services and sustain biological diversity is enabled by:

- a) Ingenious use of pre-settled sewage received from Kolkata City for resource recovery through aquaculture, horticulture and irrigation.
- b) Hydrological gradient which enables distribution of sewage to different parts of the wetland.
- c) Water-hyacinth mediated phytoremediation enabling wastewater treatment.
- d) Indigenous knowledge of the fish-farmers on management of fish ponds for cultivation of diverse species of fish.
- e) Diverse habitats which enables a range of plant and animal species to survive.
- f) Land use control as set under the provisions of East Kolkata Wetlands (Conservation and Management) Act, 2006 and Wetlands (Conservation and Management) Rules, 2017.



India, as a signatory of the Ramsar Convention, is committed to achieving wise use of all wetlands in her territory. Wise use of wetlands is defined in the text of Ramsar Convention as 'the maintenance of their ecological character, achieved through the implementation of ecosystem approaches, within the context of sustainable development'. The evaluation of various wetland features has indicated following trends:

Adverse land use change: During 2000 – 2019, the area under fish farms, settlements and landfill has been observed to increase, while the area under horticulture and agriculture declined. The increase in area under fish farm area is largely on account of transformation from agriculture (more prominent after 2015). There is a conspicuous pressure on the conversion of fish farms in areas adjoining EM bypass.

Waste treatment function of the wetland being compromised: An increase in the presence of heavy metals along with the organic nutrients in the supply sewerage has been observed predominantly due to mixing of Kolkata city's industrial effluents. Wetland function of treating raw sewage can get affected by settling of heavy metals in the fish farm beds and also lead to bioaccumulation of heavy metals in fish and plant species. Presence of heavy metal contaminants in wetlands pose health risk to the producers and consumers dependent on resource harvest from wetlands.

Disturbed habitats: There is a reduction reported in the number of waterbird species being sighted in recent times. Increased urbanization in the periphery of wetland and shifting climate patterns has led to the reduction of key wetland species sighted in the area.

Invasive fish species: The rapid spread and population increase of suckermouth armoured catfishes in EKW in recent times is of concern, because of the notable possibility that these non-native catfishes may be adversely affecting fish germplasm and commercial fishery of this unique ecosystem.

Increasing population pressure: A rapid rise in population has been recorded in 2001-2011 which has grown as much as 4 times in some mouzas with population density, ranging from 100 to 4500 persons per square kilometre. This increased numbers have led to a greater demand for the wetland resources, particularly fish and food crops. The number of people dependent on fisheries has grown from 12000 to 20000 in the last two decades.

Increasing climate risks: The intensity of rainfall has increased while the duration has decreased meaning variations in freshwater flows. Wetland communities are highly vulnerable to impacts of climate change, including the risk of high floods and increase in temperature due to varying climate. The area around Salt Lake and Bantala is reported to have high rates of subsidence which can alter the topography and natural hydraulics of the wetland.

Solid waste challenge: The garbage dumping site at Mollar bheri within EKW has been stopped completely and fencing has been done along the water body to prevent spillage of legacy waste material into the water. Bio-mining of legacy waste has also been initiated at the site. Sustained efforts will be needed in this regard to protect EKW.

EKW needs to be managed for conservation of its natural remediation and resource recovery ability, biological diversity as well as securing sustained provision of its full range of ecosystem services which support livelihoods of dependent communities. The effectiveness of management will be reflected in the ability to sustain multiple use of the wetland, based on the traditional knowledge of resource recovery developed over time, without undermining the key ecological and social processes that underpin the functioning of EKW social-ecological system.



Management also needs to be dynamic and adaptive so as to accommodate uncertainties and challenges that emerge from multiple drivers and pressures, and allow for suitable modification based on continuous site monitoring and amalgamation of new information.

Management Framework

The goal of management planning is to *'maintain East Kolkata Wetlands in a healthy condition to enable delivery of its full range of ecosystem services and sustain biological diversity values'*.

The purpose of management is to *'enable natural infrastructure services to the Kolkata city in the form of wastewater treatment, flood buffering and climate regulation; providing livelihood opportunities for wetlands communities in food production; and sustain diversity of biota in the landscape'*.

Management of EKW in 2021-2026 is structured around following eight objectives:

Objectives	Desired outcome
Objective 1. Land use and land cover of the wetland to be maintained in line with regulatory requirements under Wetlands (Conservation and Management) Rules, 2017 and East Kolkata Wetlands (Conservation and Management) Act, 2006.	No illegal transformation of land use
Objective 2. Sewage quantity and quality received within the wetland to be efficiently treated applying traditional waste recovery practices.	Tertiary channels to deliver sewage without use of pumps Equitable distribution of sewage Heavy metals concentration in sewage to be brought to safe levels
Objective 3. Diversity of biota within East Kolkata Wetlands to be maintained.	No species extirpation Counts to be maintained in the range of 20% deviation from average of last five years Sighting to be maintained in the range of 20% deviation from average of last five years
Objective 4. Species invasion threats to fisheries to be reduced.	To be reduced to a manageable level
Objective 5. Livelihood vulnerability of wetland-dependent communities to be reduced.	Non-declining harvest of fish and vegetables Wetland communities having income in the lower quintiles to gain additional sources of income



<p>Objective 6. Individual and collective capacity and opportunities for stakeholders and wetland communities to participate in wetland management and contribute to wetland wise use to be enhanced.</p>	<p>Integration of community, rights and capacities in management plan implementation and monitoring</p> <p>An Integrated Wetlands Inventory, Assessment and Monitoring System to be put in place and used.</p> <p>Local action for addressing solid waste or preventing encroachment</p> <p>Community norms for preventing land use change or overharvesting of resources</p>
<p>Objective 7. Systematic wetlands inventory, assessment and monitoring system is used to inform management decisions and assess effectiveness.</p>	<p>Data to be available on all priority wetland features and threats to them</p> <p>Data to be systematically analyzed and presented in EKWMA meeting</p>
<p>Objective 8. Integration of multiple values of wetlands in sectoral developmental planning is enhanced.</p>	<p>EKWMA to meet regularly and consider implications of sectoral plans</p> <p>EKWMA to enable integration of role of EKW in programmes and actions plans on climate change, urban development, and disaster risk reduction</p>

Following actions are proposed under four management components, namely: a) Institutions and Governance, b) Water Management and Pollution Abatement, c) Species and habitats, and d) Sustainable Resource Development and Livelihoods.

Component I. Institutions and Governance

- Reorganizing and strengthening EKWMA with an efficient and results-oriented institutional structure, and gradual shift from an enforcement to a strategic role in wetland management. Reorganized set-up to have the following units: a) planning and design, b) enforcement, c) monitoring, and d) community engagement and communications.
- Demarcation of wetlands boundary by placing geo-tagged pillars, etc.
- Zoning of EKW



- Setting up an integrated wetland inventory, assessment and monitoring system to address the overall information needs of wetland management and to provide robust decision support system.
- Annual Ecosystem Health Report Card publication and communication of wetland monitoring information to decision-makers and stakeholders.
- Research on carbon and GHG flux, nutrient budgets, bioaccumulation and multiple values, etc.
- Communication, Education, Participation and Public Awareness through signage at major points, webpage, establishment of community advisory group, resource material and workshop and public events, etc.
- Mid-term and end-term review of management plan implementation to assess the extent to which stipulated objectives have been achieved with a high degree of resource efficiency and in participation with stakeholders.

Component 2. Water Management and Pollution Abatement

- Dredging 14 highly silted canals measuring 43.8 km, to enable flow of sewage by natural gradient
- Construction of a solid waste segregator near Bantala lockgate to regulate flow of solid waste.
- Development of constructed wetland system at Kulti outfall to augment waste water treatment beyond EKW region
- Consider the feasibility of establishment of a plastic waste recycling unit in Dhapa region.
- Declaration of EKW region as a no-plastic zone.

Component 3. Species and habitats

- Regular monitoring of waterbird population following standard protocols of the Asian Waterbird Census at all the major congregation sites within and around EKW
- Culture of indigenous fish species in Goltala bhery
- Mapping invasion pathways of Suckermouth Catfish, and undertake screening at various points along the DWF to prevent further spread.
- Revegetating peripheral areas of Nalban, Goltala Captain Bheri and some identified locations with Phragmites, Typha, Shola and other native species to improvise habitat of marsh mongoose, amphibian and reptilian species
- Construction of a wetland interpretation centre at Bantala sedimentation tank area with facilities such as: exhibits, viewing gallery, watchtowers, waste recycling models, children play area, auditorium and souvenir shop

Component 4. Sustainable Resource Development and Livelihoods

- Desilting bhery under cooperative ownership to increase productivity
- Construction of 4 hatcheries at Dhapa Manpur, Tardha Kapasati, Kharki and Kantipota for production of seeds of Indian major carps and air breathing catfishes
- On a demonstration basis, promoting crop diversification in agriculture and horticulture farms
- Strengthening community health infrastructure and comprehensive access to safe drinking water and sanitation facilities.



Budget and Financing

Over 2021-2026, implementation of management plan entails a budget of Rs. 119.8 crore. Of this, the component on institutions and governance is allocated 30.7%. This is followed by allocation of 27.4% for implementing actions under component for water management and pollution abatement. The components on sustainable resource development and conservation of species and habitats have been allocated 23.9% and 18% of the budget, respectively. Being aligned with the objectives of National Mission of Clean Ganga (of the Jal Shakti Mantralaya) and the National Plan for Conservation of Aquatic Ecosystems (of the Ministry of Environment, Forest and Climate Change), the East Kolkata Wetlands Management Authority may consider seeking funding from these sources, along with allocations from the state budget.



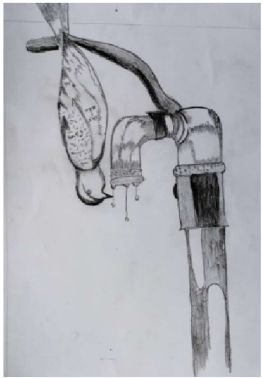
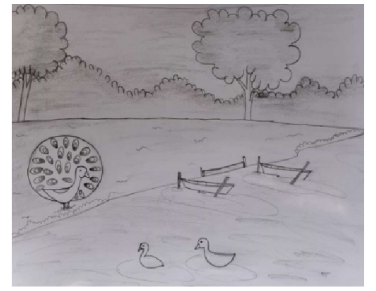
Annexure III

List of Cases pending before the Hon'ble High Court at Calcutta & Hon'ble National Green, Tribunal relating to EKW

SL No	Case No and Year	Cause Title	Brief Particulars
Hon'ble High Court at Calcutta			
1	CPAN No 428 of 2014. WP No 17841(W) of 2013.AST No 142 of 2013 with ASTA 84 of 2013.	Bikash Kumar Ray & Another-Vs-State of WB & Others	CPAN No 428: The EKWMA filed contempt petition for erection of a boundary wall of around 9 feet height without securing permission from EKWMA and also built permanent structure of two rooms inside the boundary wall.
2	WP 22198(W)/ 15	Vishal Water World Pvt. Ltd. Vs. EKWMA & Others	To revoke the reasoned order no. CTO/EN/104/385/2014-15 dt. 22/04/15 passed by the EKWMA by rejecting the application of the petitioner for change of character or mode of use of land.
3	WP No. 14850(W) of 2017	M.K. Balakrishnan &Ors. Vs. Union of India &Ors	To refrain from converting wetlands and take measures to protect the wetlands.
4	WP 541 of 2017	PUBLIC Vs. Union of India &Ors.	Against construction of fly-over over the EKW.
5	WP 9223(W) of 2018	Leisure Country Club and Resorts Pvt Ltd Vs Union of India	Challenged EKW(C&M) Act of 2006 and action taken thereunder.
6	CAN 12196 of 2019 in WP 23341(W) of 2018	Vaidic Dharma Sansthan & Anr. Vs. The State of WB &Ors.	Challenged EKW(C&M) Act of 2006 and action taken thereunder.
7	WP 25913(W)/ 2018	Sri Bibhuti Bhushan Mondal &Ors. Vs. The National Wetlands Committee &Ors.	To declare the land of the petitioner at Mouza Mukundapur as not a wetland.
8	WP 25791(W)/ 2018	Bhola Paik Vs. Union of India &Ors	Challenged EKW(C&M) Act, 2006 and action taken by EKWMA against petitioner thereunder.
9	WP 25803(W)/ 2018		
10	WP 25804(W)/ 2018		
11	WP 25809(W)/ 2018		
12	WP 25811(W)/ 2018		
13	WP 25813(W)/ 2018		
14	WP 25815(W)/ 2018		
15	WP 25817(W)/ 2018		
16	WP 25819(W)/ 2018		
17	WP 25820(W)/ 2018		
18	WP 25823(W)/ 2018		
19	WP 2127(W)/ 2019		
20	WP 5074(W) of 2019	Ranjit Kumar Safui Vs. State of WB &Ors.	Direct the Authorities to stop private respondents from filling up a water body called HederBheri
21	WP 8462(W) of 2019	Salt Lake Fishworkers' Welfare Organisation & Anr Vs. CWRA &Ors	Unauthorized land conversions, solid waste management, discharge of effluents by leather tanneries.



SL No	Case No and Year	Cause Title	Brief Particulars
Hon'ble High Court at Calcutta			
22	WP 16751(W) of 2019	Sukumar Mandal Vs. State of WB &Ors	Unauthorized construction by filling up water body.
23	WP 20251(W) of 2019	Insta Concretex Pvt Ltd &Anr Vs. The Union of India &Ors	Challenged EKW(C&M) Act of 2006 and action taken thereunder.
24	WP 16383(W) of 2019	Outdoor Advertising Association &Ors Vs. EKWMA &Ors	Restraining the EKWMA from giving any effect to the order no. 318/CTO/EN/018/2006-07 dt 13.11.2019.
25	WP 24268(W) of 2019	Sant Shri Asaramji Ashram Trust, Kolkata Branch Vs The State of WB &Ors	Refrian from demolishing the buildings raised by Asaram Ashram.
26	WP 5958(W) of 2020	Jyote Motors (Bengal) Pvt Ltd & Anr Vs State of WB & Ors	To cancel the order no. 152/CTO/EN/108(1)/2012-13 dt 04.06.20 passed by the EKWMA and to permit the petitioner to continue with their automobile workshop cum service centre.
27	WP 4940(W) of 2020	Wander Land Regency Pvt Ltd Vs The State of WB &Ors	Revoking of a Notice issued by the EKWMA and to consider the case U/s 10 of the EKW (C&M) Act, 2006.
28	WPA 5693 of 2021	Motilal Mondal Vs The State of WB	Unauthorised filling up of a water body.
Hon'ble National Green Tribunal			
1	O.A. 78/2016	Dhruba Das Gupta & Others Vs. MoEF&CC& Others	For protection of the EKW and for maintaining optimum level of wastewater flow into the EKW.
2	O.A. 146/2017	Leasure Country Club & Resorts Pvt Ltd &Anr Vs. The Union of India &Ors.	Against the Notice issued by the EKWMA for restoration of the subject land to its original character and to restore the water bodies.
3	O.A. 32/2019	Subhas Datta Vs. State of WB & Others	Detriment of the ecology of East Kolkata Wetlands.



Pictures drawn by children on the occasion of World Wetlands Day in Rask Beel

Plantation Programme in East Kolkata Wetlands



Webinar on Multiple Benefits of Wetlands



Water Birds count in Rasik Beel



Celebration of World Wetlands Day