



GOVERNMENT OF J&K **I&FC Kashmir**



सत्यमेव जयते

Planning, Design, and Construction of Hokersar Gates and Rejuvenation of Hokersar Wetland

Workshop Series

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30th August 2024

Introduction to Hokersar Wetland



- **Hokersar** is a notified **RAMSAR** wetland near Srinagar, J&K.
- **Significant habitat** for thousands of **migratory birds** from Siberia and other regions in winter.
- **Area:** 13.20 sqkm
- **Importance:** Vital for wintering, staging, and breeding birds



The Role of Flood Spill Channel (FSC)

- FSC Origin:** Takes off from River Jehlum near Padshahibagh, Srinagar.

- Route:** Enters Hokersar near Zainakote Srinagar and exits upstream of Narbal bridge.

- Control:** Hokersar Wetland is under Wildlife Department; FSC under Irrigation & F.C. Department.

- FSC** is a crucial water source for replenishing Hokersar.



- Area: 13.20 sqkm**

Impact of the 2014 Floods and PMDP

- **September 2014 Floods:** Led to approval of Flood Management Projects under PMDP.
- **PMDP Phase-I (₹399 Crores):** Focused on reviving FSC by enhancing carrying capacity by way of making channels from Shariefabad up to Hokersar and at Naid Khai, removing blockades, and widening narrow sections.
- **Objective:** Improve drainage by constructing a drainage channel across Hokersar along the old FSC alignment.
- **Goal:** Lower raised bed levels to allow quick drainage, prevent flow obstruction due to siltation, and weed growth.
- **Cunnette Construction:** 30m width along the old alignment in Hokersar from RD 11950 to 16713 mts for flood mitigation and ensuring proper drainage through Hokersar.



Legal and Environmental Permissions

- **Supreme Court Decision (05-10-2015):** Green bench allowed channel construction through Hokersar.
- **Govt Order No. 230-FST of 2016 (01-09-2016):** Formal permission for drainage channel construction by Forest, Ecology and Environment Department.
- **User Agency's Responsibility (I&FC Department):** Required to construct entry and exit gates for ensuring water column in Hokersar.



Importance of Hydraulic Gates & Compliance with Forest Department Conditions

- **Requirement:** To comply with the conditions set by the Forest, Ecology and Environment Department, two hydraulic gates were proposed at inlet and exit of Hokersar.
- **Purpose:** The gates are crucial to prevent the wetland from drying out due to the drawdown of water from the newly constructed widened/deepened channel (cunnette).
- **Function:** They help maintain an optimum water level in the wetland, besides enhancing the lean surface inundate area from 2 sqkm to 7.5 sqkm.





LENGTH OF MAIN CHANNEL IN HOKERSAR– 4749m ■

LENGTH OF FEEDING NALLAHS - 10766 m ■

LENGTH OF DIVERSION CHANNEL DURING LEAN PERIOD– 2677 m ■

SIZE OF RETENTION POND - (700X200)m ■

Cost Details of Gates

COST DETAILS OF ENTRY AND EXIT GATE FOR HOKERSAR WETLAND					
Amount in Crores					
S.No	Gate	Component			Total Cost
		Civil	Mechanical	Electrical	
1	Entry Gate	8.68	3.09	0.52	12.29
2	Exit Gate	12.58	3.18	0.40	16.16
	Total Amount	21.26	6.27	0.92	28.45

•Contract Award to:

•M/S Gh. Nabi Margay (Prop. Mohd. Altaf Magray)

•Allotted Amount: ₹28.45 Cr

•Advertised Amount: ₹29.30 Cr

Salient Features of Hokersar Gates

S.No	Description	Entry Gate	Exit Gate
01.	Location (RD)	11950 m	16713 m
02.	Proposed Bed Level at Entry Gate	1579.79 m	1579.37 m
03.	Total Width of Gates	80 mts	80 mts plus 37 mts Spillways
04.	Number of bays & gates	16 No's	16 No's
05.	C/C Distance of Piers	5 mts	5 mts
06.	Regulating Gate Size	4.2m x3.0 m	4.2m x3.0 m
07.	Mechanism of Lifting	Manual / Rope & Drum arrangement	Manual / Rope & Drum arrangement
08.	Foundation Type	Pile Foundation of 600mm dia, 20 mts Bored Cast in-situ RCC Piles	Pile Foundation of 600mm dia, 20 mts Bored Cast in-situ RCC Piles
09.	Pile Capacity adopted in design	45 MT	45 MT
10.	Design Discharge	22166 Cusecs	22166 Cusecs
11.	Total Allotted Cost	12.29 Crores	16.16 Crores

Pile Work Execution

- The pile foundation involved drilling and installing 300 No piles of length 21mtr with a diameter of 600mm to support the structure.
- Comprehensive load tests confirmed the piles capacity to bear required loads, ensuring structural integrity.



Piling



Construction of Pile Caps

- After pile installation, pile caps were constructed, involving chipping of RCC pile heads, placing reinforcement bars, and performing mass concreting.

- Pile Cap Configuration:**

- Each pier pile cap is supported by a group of 6 piles.
- Building pile caps include 2 piles.
- This provided a robust foundation for the piers and gates.



Construction of Piers

- 34 piers (17 at each gate) were built to support the hydraulic gates, involving formwork, concrete pouring, and curing.

- The piers were carefully aligned and strengthened to ensure they met design specifications.



Apron Glacis & Block Apron



Gabion Apron



Time: 07-08-2024 09:05
Note: Hokersar Entry Gate

Powered by NoteCam

Gate Fabrication and Installation

- Hydraulic gates and related components were fabricated and installed with precision.
- Installation included setting up the gates, aligning them properly, and ensuring operational functionality.



Erection of Gates and other accessories



Erection of Gates and other accessories



Building Construction

- The construction of buildings at both the entry and exit gates was carried out simultaneously with other activities.
- These buildings serve as control rooms for operating the gates and house the necessary generators and equipment.
- The building pile caps were constructed using 2 piles each, providing a solid foundation for the structures.



Final Testing and Commissioning

- Ongoing Testing:** Periodic tests were conducted to evaluate system performance and functionality at various stages.

- Partial Commissioning:** Interim checks confirmed that the systems met the required specifications and performance standards.

- Final Commissioning:** To be completed; however, ongoing tests have demonstrated that the systems are progressing towards full operational readiness.



Final Testing and Commissioning



Latitude: 34.110795
Longitude: 74.684455
Elevation: 1606.16±42 m
Accuracy: 5.7 m
Azimuth: 183° (S)
Pitch: -1.3° (-2.0°)
Time: 31-07-2024 21:50
Note: Hydraulic Gates Exit

Joint R&D by Flood Control Department, Naqura

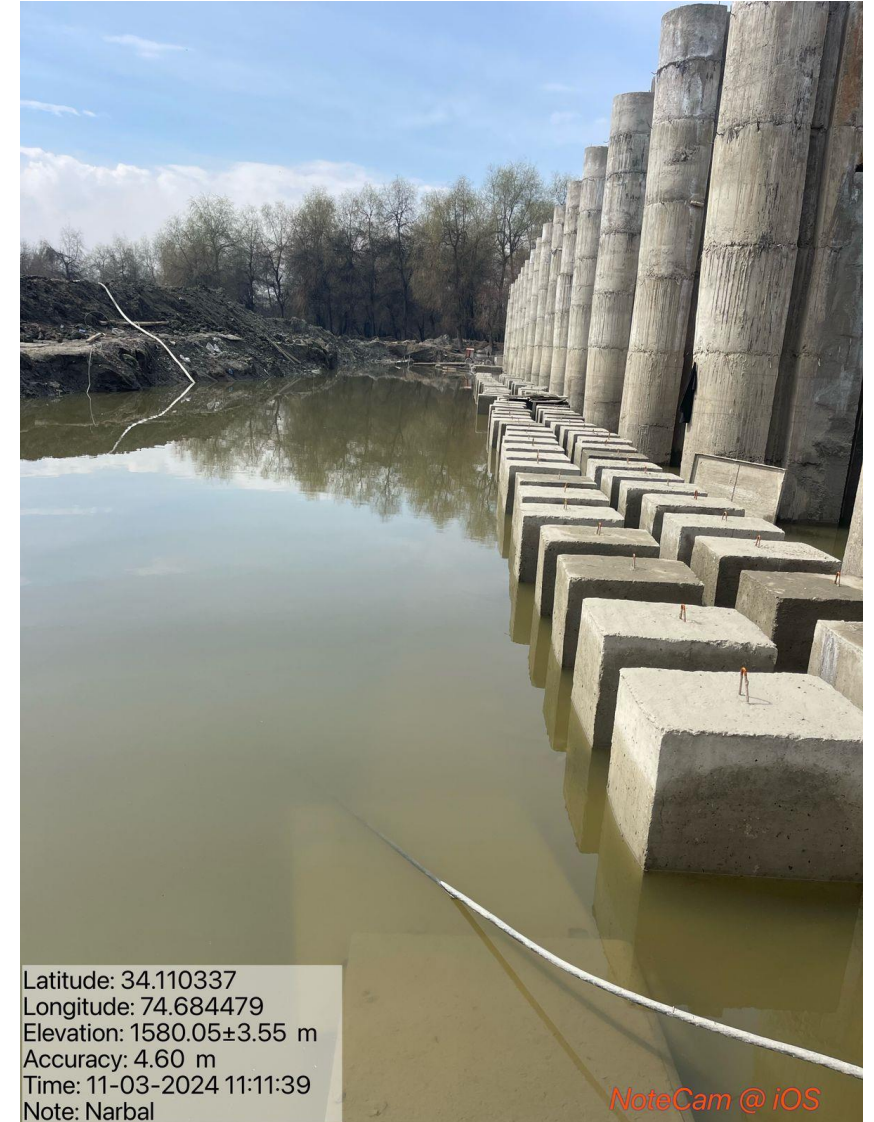
Powered by AngleCam

Challenges Faced During Construction

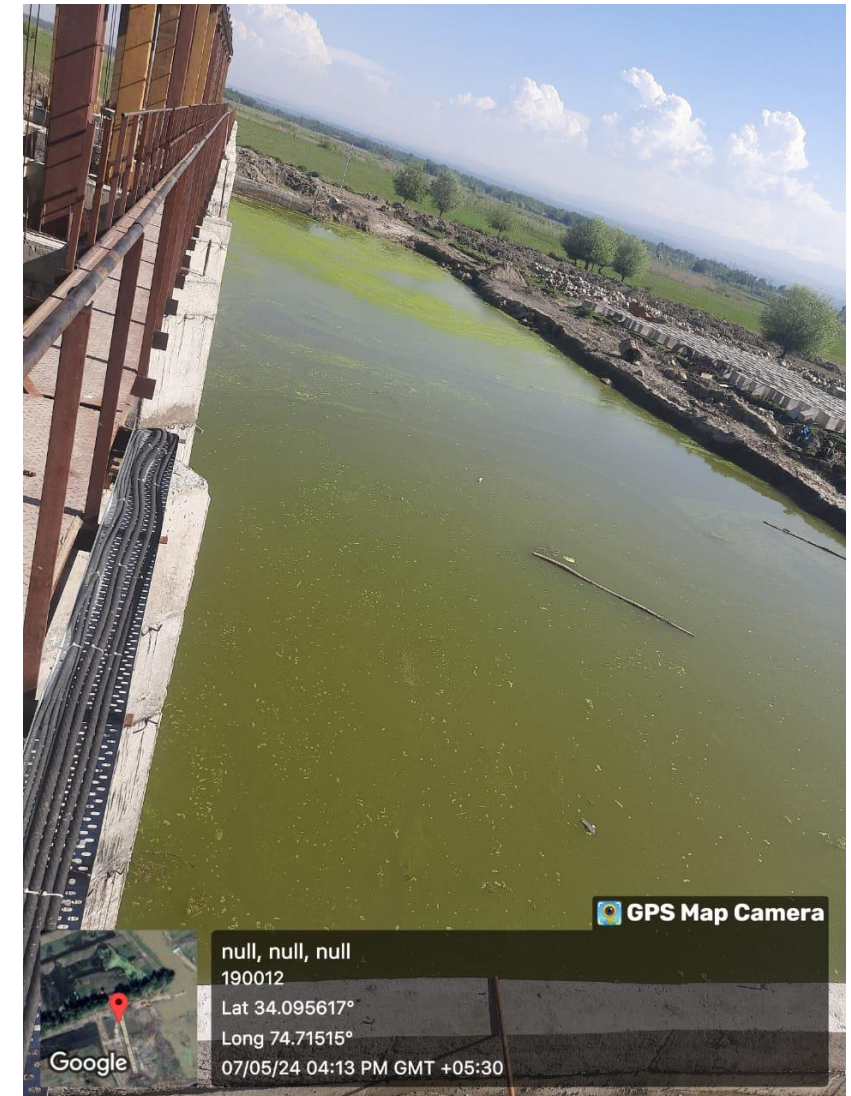
- **Frequent Rainfall and Site Inundation:**
- The construction of the Hokersar Gates was frequently hampered by unpredictable and heavy rains. Each time the rains occurred, the gate sites would become inundated, halting all construction activities.
- Restoring the site to a workable condition after each episode of inundation was a time-consuming process. This delay significantly impacted the project timeline.



Inundation of Gate Sites Due to Rainfall



Inundation of Gate Sites Due to Rainfall



Inundation of Gate Sites Due to Rainfall



Inundation of Gate Sites Due to Rainfall



Hokersar Gate



Thanks.....