

## Lecture Notes

### Case Studies on Drainage in Assam and West Bengal, and Visits to Dams & Irrigation Canals

#### 1. Introduction

Drainage systems and irrigation infrastructure are pivotal for agricultural productivity, flood control, and water resource management. Assam and West Bengal, with their unique geographical and climatic conditions, have implemented various projects to address these challenges.

#### 2. Case Studies on Drainage in Assam

##### 2.1 Flood Management and Drainage Challenges

Assam's topography, dominated by the Brahmaputra and Barak river basins, makes it susceptible to frequent flooding and drainage congestion. Traditional embankments and drainage channels have been employed, but their effectiveness has diminished over time due to siltation and lack of maintenance. Recent efforts focus on integrated basin management, incorporating real-time data monitoring and community participation.

##### 2.2 Birinchiguri Flow Irrigation Project

Objective: Enhance water use efficiency through canal lining.

Findings: Canal lining significantly reduced seepage losses, improved water delivery, and increased agricultural output in the region.

Reference: Increasing Water Use Efficiency by Canal Lining: A Case Study on the Birinchiguri Flow Irrigation Project, Assam, India (ResearchGate, 2024).

#### 3. Case Studies on Drainage in West Bengal

##### 3.1 Mayurakshi Reservoir Project

Location: Bolpur Division, West Bengal.

Components: Includes a reservoir, dam, and an extensive canal network.

Impact: Improved irrigation facilities in Birbhum, Murshidabad, and Burdwan districts, enhancing agricultural productivity.

Reference: Mayurakshi Reservoir Development (Scribd, 2023).

3.2 Kumari River Basin Development

Interventions: Construction of reservoirs and irrigation canals.  
Outcomes: Altered land use patterns, increased agricultural activities, and improved groundwater conditions.  
Reference: Kumari River Basin Studies (JETIR, 2022).

4. Visits to Dams & Irrigation Canals

4.1 Mukutmanipur Dam

Location: Bankura District, West Bengal.  
Features: Second-longest earthen dam in India, spanning 11.27 km.  
Purpose: Provides irrigation to Bankura, Purulia, and Paschim Medinipur districts.  
Reference: Mukutmanipur Dam Overview (Wikipedia, 2024).

4.2 Durgapur Barrage

Location: Burdwan District, West Bengal.  
Components: Barrage with left and right bank canals.  
Function: Supplies irrigation water and supports industrial activities.  
Reference: Durgapur Barrage (Wikipedia, 2024).

4.3 Farakka Barrage

Location: Murshidabad District, West Bengal.  
Objective: Diverts water from the Ganges to the Hooghly River to prevent siltation at Kolkata Port.  
Reference: Farakka Barrage (Wikipedia, 2024).

5. Comparative Analysis

Aspect	Assam	West Bengal
Primary Rivers	Brahmaputra, Barak	Ganges, Damodar, Kangsabati
Flood Challenges	Frequent and severe	Moderate, localized

Key Projects	Birinchiguri Flow Irrigation, Embankments	Mayurakshi Reservoir, Mukutmanipur Dam, Farakka Barrage
Drainage Issues	Siltation, embankment breaches	Urban drainage congestion, erosion

## 6. Conclusion

The case studies from Assam and West Bengal highlight the complexities of managing drainage and irrigation in diverse geographical settings. While significant progress has been made through various projects, challenges persist, necessitating continuous evaluation, maintenance, and community involvement.

## 7. References

1. Increasing Water Use Efficiency by Canal Lining: A Case Study on the Birinchiguri Flow Irrigation Project, Assam, India. ResearchGate, 2024.
2. Mayurakshi Reservoir Development. Scribd, 2023.
3. Kumari River Basin Studies. JETIR, 2022.
4. Mukutmanipur Dam Overview. Wikipedia, 2024.
5. Durgapur Barrage. Wikipedia, 2024.
6. Farakka Barrage. Wikipedia, 2024.