Tidal River Management (TRM) in the Coastal Area of Bangladesh

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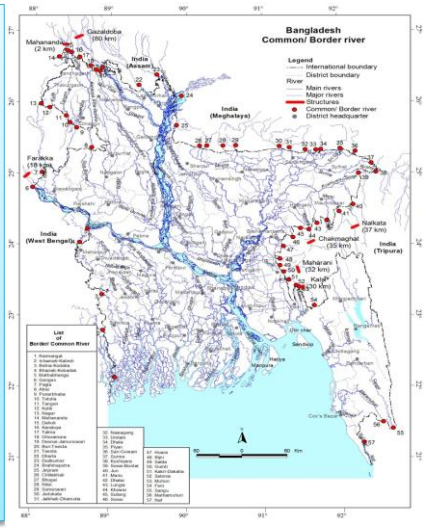
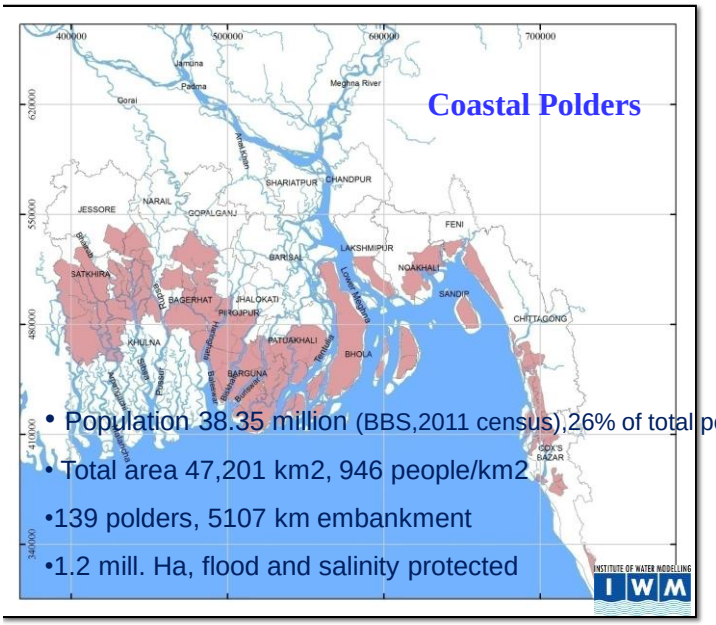
Bangladesh: River System

- Largest delta in the world, 310 rivers of which 57 Trans-boundary
- 93% catchment lies outside Bangladesh
- Abundance of water in wet season & scarcity of water in dry season
- Annual Sediment load 1.0 to 1.4 billion tons
- 710 km coastline

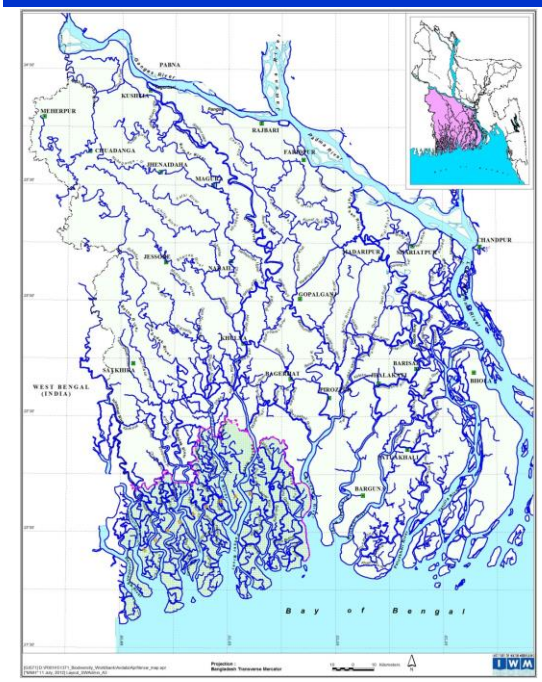


Map of Coastal Zone of Bangladesh



- Population 38.35 million (BBS,2011 census),26% of total population
- Total area 47,201 km2, 946 people/km2
- 139 polders, 5107 km embankment
- 1.2 mill. Ha, flood and salinity protected

Pre-Polder conditions in the Southwest area before 1960



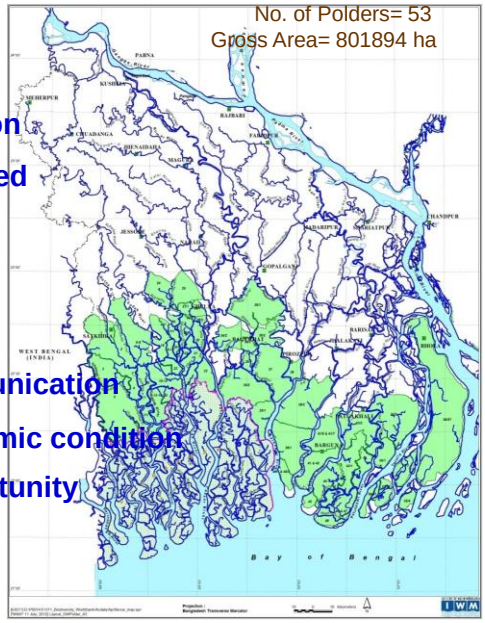
Problems

- **Salinity Intrusion**
- **Tidal and Monsoon Flooding**
- **Less Agricultural Production: single crop**
- **Less Culture Fisheries**
- **No planned water managment system**

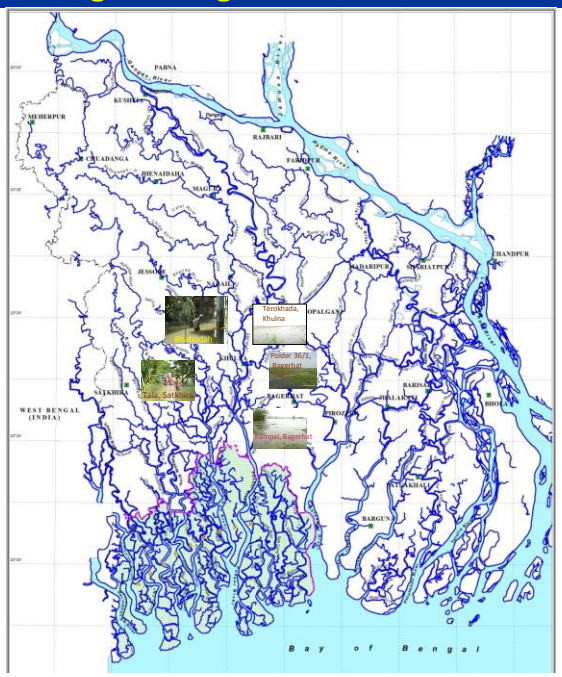
Southwest Area after Implementation of Coastal Embankment Project (CEP) in early 60's and 70's

Benefits of Coastal Polders:

- ❑ Prevention of Salinity Intrusion
- ❑ Agriculture Production doubled
- ❑ Increased Culture Fisheries
- ❑ Afforestation Developed
- ❑ Safety for life and livelihood
- ❑ Improvement of Road Communication
- ❑ Improvement of Socio-economic condition
- ❑ Increased employment opportunity



Drainage Congestion in the South West Region



Causes:

- ❖ Polderization
- ❖ No fresh water flow from upstream during dry season
- ❖ Encroachment
- ❖ Construction of unplanned bridge

Sedimentation in the rivers

Sedimentation in the Hari River in the Bhabodah area, Jessore 2006

Sedimentation in the Bhairab River at Rupsa Upazilla, Khulna, 2012

Sedimentation in the Kobadak River at Tala, Satkhira, 2010

Sedimentation in the rivers

Sedimentation in the Chitra River in the Terokhada, Khulna 2011

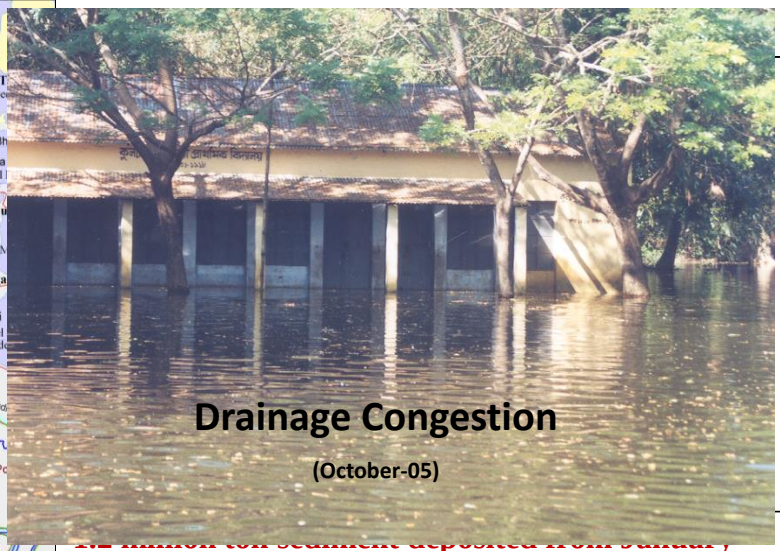
Sedimentation in the Atharobanki River in the Terokhada, Khulna 2011

Sedimentation in the Old Pussur in the Bothiaghata, Khulna 2010

Sedimentation in the Daudkhali river in the Rampal, Bagerhat 2010

Water Logging Problem in Khulna Jessore and Satkhira Area

Hari River Sedimentation



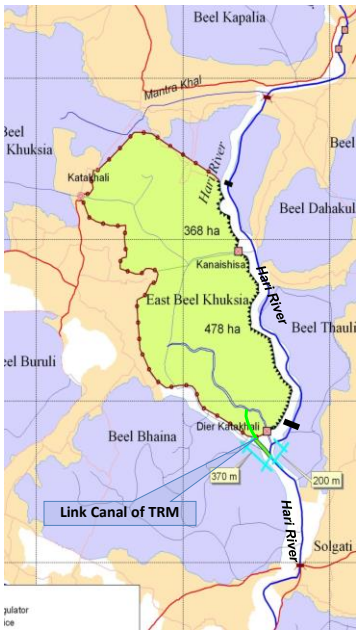
Drainage Congestion

(October-05)

2005-April 2005

51400 ton sediment deposits in every tidal cycle

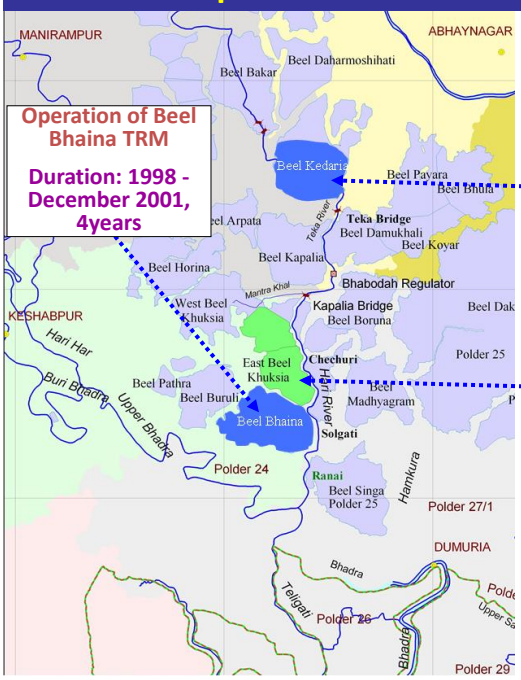
Tidal River Management



Brought under operation on 30th Nov-06

Total Basin Area : 847 ha

TRM Operation in the Bhabodah Area (Jessore)



Operation of Beel Bhaina TRM

Duration: 1998 - December 2001, 4years

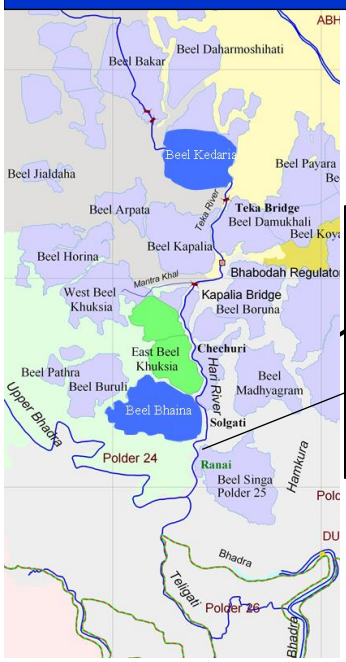
Operation of Beel Kedaria TTRM

Duration: 2002 - December 2004, 3years

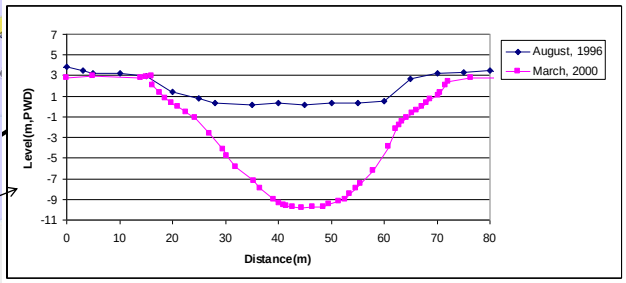
Operation of East Beel Khuksia Tidal Basin

Duration: 30 Nov, 2006 to till date

Performance of Beel Bhaina TRM

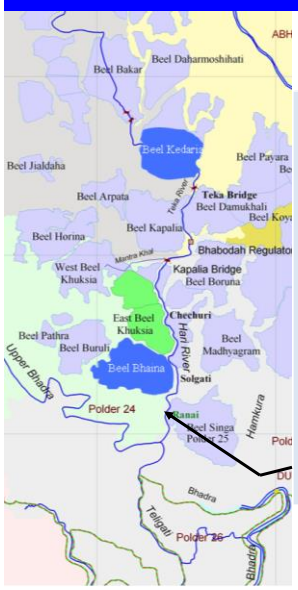


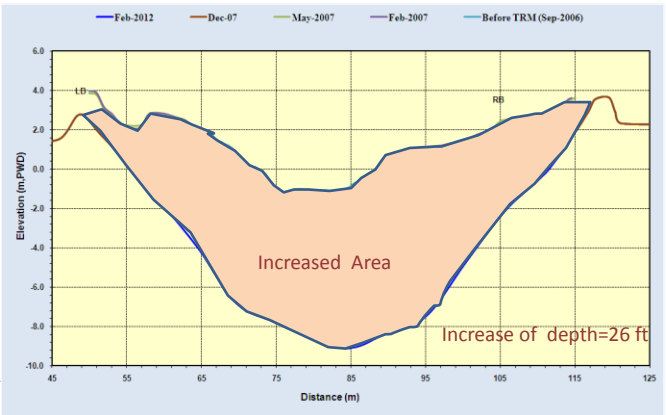
Improvement of Navigability of the river



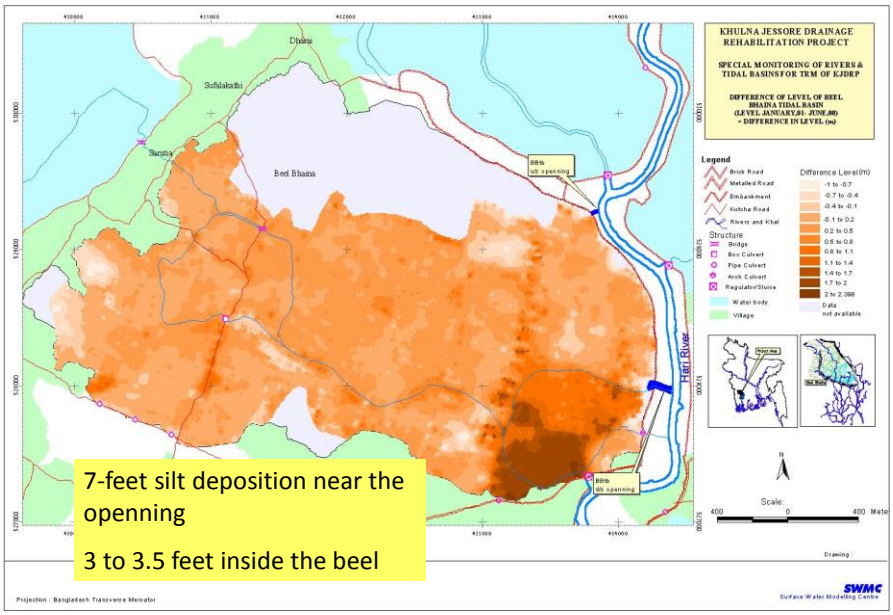
Increased Drainage Capacity

Increase of Drainage Capacity of Hari River due to operation of East Beel Khuksia TRM Basin





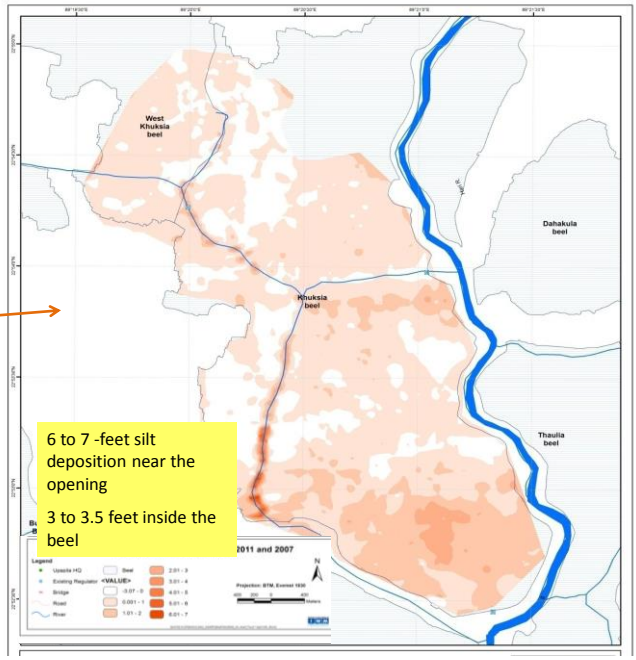
Sediment Deposition in Beel Bhaina



7-feet silt deposition near the openning

3 to 3.5 feet inside the beel

Sedimentation in East Beel Khuksia



6 to 7 -feet silt deposition near the opening

3 to 3.5 feet inside the beel

Focus Group Discussion

Bhabodah
Keshabpur, Jessore:
13/04/2009

Nehalpur, Jessore:
08/04/2009

Bhutiar Beel
Terokhada, Khulna:
09/06/2012

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Interaction meeting & motivational programme of IWM May 2005

Dissemination of monitoring results to local people about the consequences of non-functioning of TRM

Stakeholder Consultation

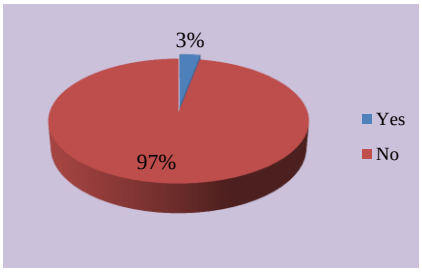
Workshop at DC office, Satkhira

People's opinion about different aspects of the project

Indicator	Monirampur						Avoynagar				Keshobpur				Total	
	TRM		Regulator		Flood Embankment		TRM		Flood Embankment		TRM		Flood Embankment		No	%
	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Drainage congestion	210	99	3	60	210	99	63	98	69	98	10	100	10	100	575	99
Navigability	211	100	3	60	209	98	62	97	67	96	10	100	10	100	572	98
Agriculture	211	100	4	80	212	99	63	98	69	98	10	100	10	100	579	99
Fisheries	211	100	5	100	211	99	64	100	70	100	10	100	10	100	581	99
Communication	211	100	3	60	210	99	63	98	68	97	10	100	10	100	575	99
Income	211	100	5	100	209	98	64	100	70	100	10	100	10	100	579	99
Health, education & water supply	211	100	4	80	211	99	63	98	70	100	10	100	10	100	579	99
Others	106	50	1	20	105	49	5	8	8	11					225	39
Total	211				213		64		70		10		10		583	

People's opinion about Pump House

Upazila	Number			
	Yes	%	No	%
Manirampur	5	2	210	98
Abhaynagar	4	5	69	95
Keshabpur	1	10	9	90
Total	**10**	**3**	**288**	**97**



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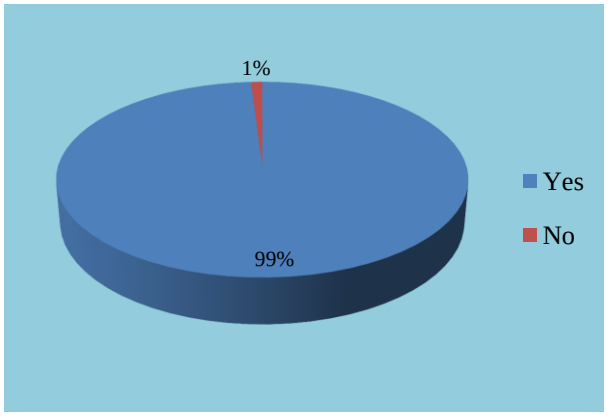
People's opinion about TRM



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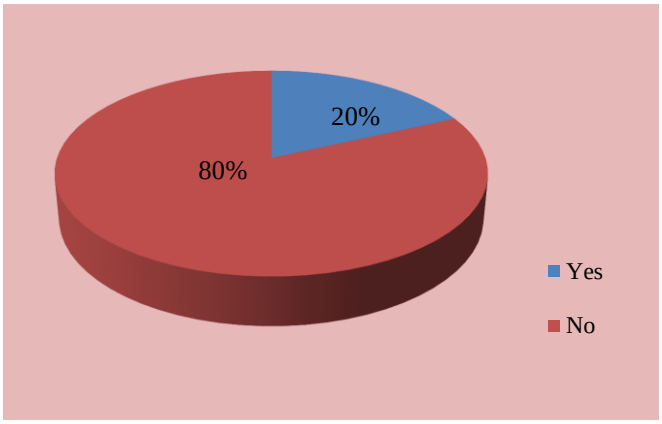
Peoples opinion about construction of regulator on Upper Bhadra River



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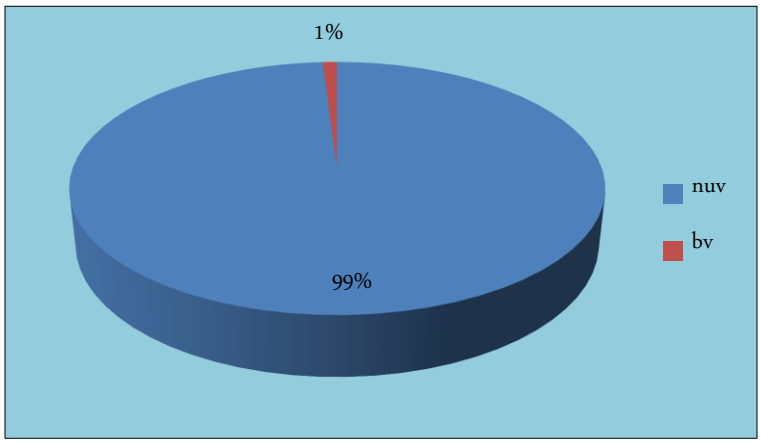

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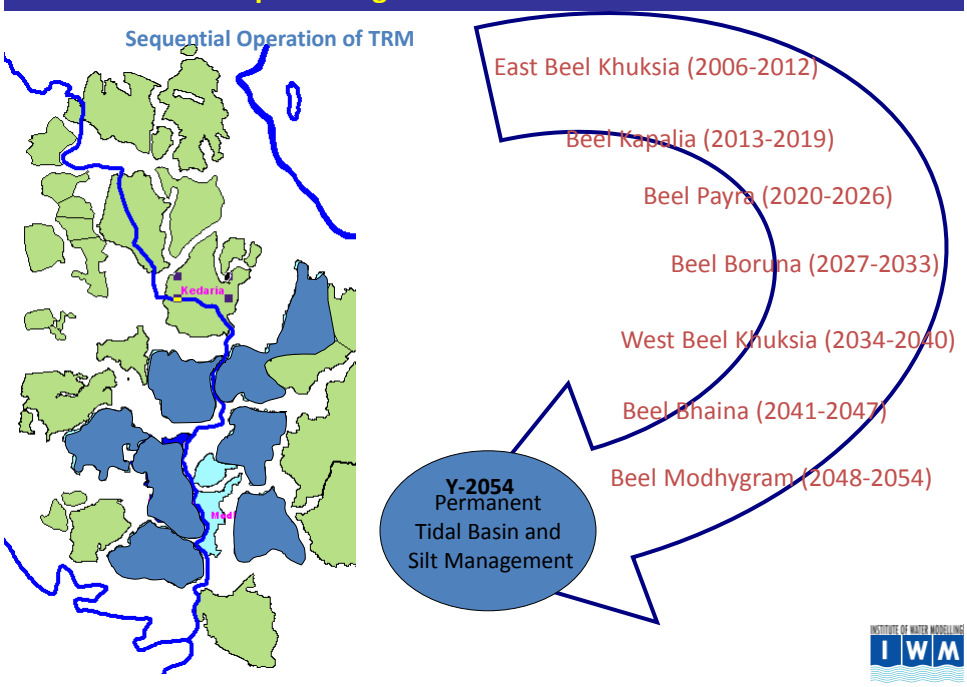
Benefit Achieved by Implementation of TRM (March– 2010)

Upazilla	Inundated Area (ha)	Total Reclaimed Area (ha)	Reclaimed Cultivable Area (ha)	Recession of Water Level
Abhaynagar	6,120	6,120 (100%)	4150	8.1 ft
Monirampur	8,980	8,980 (100%)	7997	7.1 ft
Keshabpur	3,000	3,000 (100%)	1995	6.2 ft
Total	18,100	18,100 (100%)	14142 (100%)	

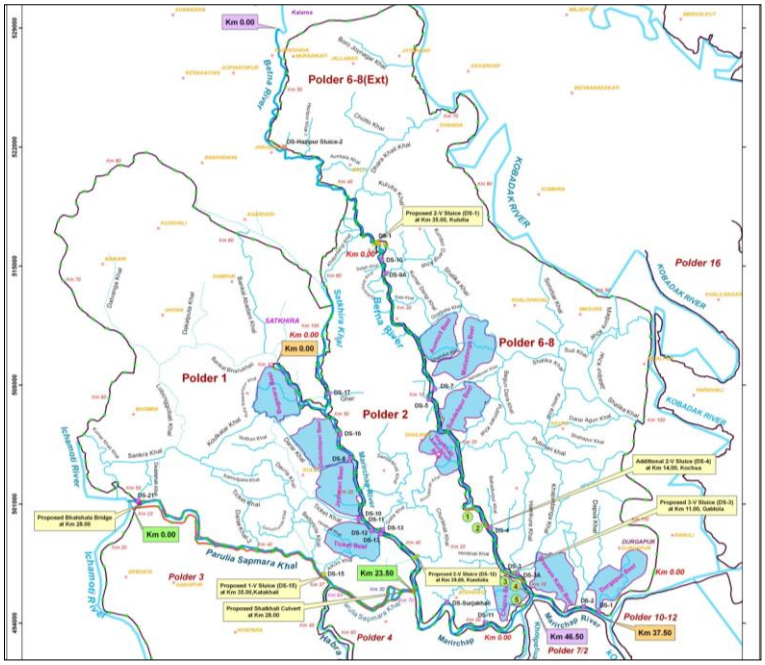
Affected area and people :Municipality:02, 21 union,Village: 193, People 3 ,13,000

Total Crop production in 2008-09 (in three upzillas, two crop seasons) =1,61,667 Mton

Road Map for Long Term Solution for Jessore District



Long-term TRM Plan in Satkhira District



Lessons Learned

- **Drainage Improvement and sediment management can be sustained through TRM for livelihood security**
- **Land Level of Low-lying Beel area can be raised that can counteract the subsidence**
- **Land owners are unwilling to provide their land for operation of TRM because of delay in paying Crop compensation**
- **Revisiting of Existing Policy and Institutional setup is crucial for Easy Payment to land owners for crop and fish compensation, which is instrumental for successful operation TRM operation**
- **Coordinated participation of BWDB,DOF,DOE,LGI are needed**
- **A long-term and holistic plan for TRM in the whole Southwest Coastal Delta is needed**

THANK YOU

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