

July 07, 2018; CSS Ava Centre, Khulna

DISSEMINATION ACTIVITY REPORT

**Project: Strategic Delta Planning and Tidal River
Management in Bangladesh: Findings of the NWO
UDW Strategic Delta Planning Project**

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July, 2018

<i>Project Name</i>	Reconstructing Innovation Trajectories for Sustainable Management of Coastal Zone, Bangladesh
<i>On behalf of</i>	Khulna University, Environmental Science
<i>Partners</i>	Khulna University, IHE-Delft, CEGIS, BUET
<i>Activity</i>	Find application of TRM in general and in and around Khulna specifically organizing and presenting in Khulna focus group and dissemination meeting, professional report
<i>Start</i>	October, 2017
<i>End</i>	April, 2018

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EXECUTIVE SUMMARY

The Strategic Delta Planning project (<http://strategic-delta-planning.un-ihe.org>) aims to specifically understand the dynamics of delta planning in Bangladesh, Vietnam and the Netherlands. In Bangladesh 'Strategic Delta Planning' have looked into tidal river management (TRM) as a strategic innovation to address problems of congested rivers and water logging in the southwest coastal area. Main research question for this project was: How does TRM as a strategic innovation processes from influencing thinking on polder management (soft implementation) to practice in Bangladesh deltas (hard implementation). Five different TRM polders were selected as they had varieties in size, sedimentation influx and outcomes. These are; beel *Meilmara* (TRM not occupied yet), beel *Pakhimara* (TRM running), beel *Khuksia* (TRM partially successful), beel *Kapalia* (TRM proposed but not executed), beel *Bhaina* (TRM apparently successful). In *Meilmara* people perceive that BWDB constructed embankment unnecessarily and LGED's dredging efforts will go in vein because of high sediment load of the canals. People agrees on TRM a be good practice in land reclamation but afraid of taking risk during the process that was not experienced earlier. In *Pakhimara*, compensation is the biggest issue community has come across in TRM process. Though it is running at the present but many villagers think that, Location of link canal is not proper because of knowledge gap in implementing authority and lack of transparency. Beel *Khuksia* was a partial success because proposed TRM by BWDB created conflicts in land use interest amongst different actors. All parties were hoping knowledge and suggestions of the villagers should be recognized in TRM operations. As well the compensation distribution was also complex here. At beel *Kapalia*, villagers understand There is no alternative to TRM for minimizing water logging and salinity in the area but complex-compensation mechanism at TRM running villages and non-possession on lands in a lengthy TRM process was utmost risks *Kapalia* villagers were afraid to take. Though beel *Bhaina* TRM was the first ever initiative taken by local people to solve severe drainage congestion during 1980s, but in many points it was unorganized. At immediate time situation went under control but even-sedimentation, compensation, rehabilitations like issues remained unsolved.

Several interviews, focus group discussions and expert consultation at field and at this dissemination meeting found breakthroughs that can stand both hard and soft implementation strategies at those TRM sites. Such as, TRM should be implied in sequential and rotational ways, thus selecting beels one by one and repeat the cycle over centuries. Before TRM river hydro-dynamic must be predicted well through water and flood modelling. Strong Peripheral embankments with respect to its built-in material and also its feasibility to combat high water front is a basic necessity. The beel floor must be inspected well, if sedimentation are evenly distribute or need more time before closing a TRM. Stakeholder Participation at pre, during and post TRM is obvious. The beel land owners, share croppers and beel dependent all are included in a fair compensation mechanism that might be operated by simple mobile banking system. An 'one-stop service center' is highly demanded, headed by an independent body who will facilitate diverse composition for selection of *beel* for TRM, select location of link canal, disburse compensation, resolving conflict, deal with rehabilitation (if needed), recreate alternative employment opportunities. A composition for this board might be trustable people representative, corruption free political leader, retired teacher, social worker, lawyer and journalists, stakeholders from agriculture department, fisheries and livestock department, health department, LGED, education department, land developing and management institutions, water management committee and local government. Board can varies from 15 to 50 resource person but there should be included knowledgeable. At post-TRM stage, embankments must be repaired well so that it might not damage results achieved by TRM. Rehabilitating the villagers and distributing income opportunities amongst them is another important task at post-TRM.

INTRODUCTION TO THE PROJECT

The Strategic Delta Planning project (<http://strategic-delta-planning.un-ihe.org>) aims to specifically understand the dynamics of delta planning in Bangladesh, Vietnam and the Netherlands. More specifically project focus on the role of strategic delta planning processes like the Bangladesh Delta Plan, in enabling consent among key stakeholders over strategic priorities and innovative solutions, and explores if consent is sufficiently stable to allow for implementation. A basic premise of the project is that changes and innovates in water and land use are required to make deltas fit for current and future challenges related to water safety, water and food security and sustainable development. In Bangladesh ‘Strategic Delta Planning’ have looked into tidal river management (TRM) as a strategic innovation to address problems of congested rivers and water logging in the southwest. TRM has been initiated and advocated for over twenty years, yet each application of TRM has been surrounded with disagreement and conflict. Thus project suggests, there is a need to discuss issues that enable and constrains consent for tidal river management in Bangladesh delta planning and implementation.

METHODOLOGY: RESEARCH OBJECTIVES, ACTIONS INCLUDED, DISSEMINATION GOALS

Research Objectives

Main research question for this project was: How does TRM as a strategic innovation processes from influencing thinking on polder management (soft implementation) to practice in Bangladesh deltas (hard implementation)

RQ 1# Soft Implementation: how is concept of tidal river management influencing people’s minds on polder management and flood control?

RQ 2# Hard Implementation: how is TRM practices in the field?

RQ 3# What is enabling/ constraining a shift from soft to hard implementation?

Actions Included

- Review TRM in Bangladesh, how it has evolved from 70s to today using ‘on the shelve’ research of recent research projects
- Interview on soft and hard implementation of TRM, both at local and national level with TRM experts/ professionals/ practitioners
- Select a variety of TRM polders that represent a variety in TRM sites (e.g., size, sediment influx, salinity, socio-economics)
- Conduct field visits to obtain answers on hard implementation questions
- Analyze field visits, interviews, literatures answering research questions and address how TRM was initiated, to what extent the TRM concept changed over time, how TRM has spread across people, regions
- Share and discuss findings in dissemination meeting

Dissemination Goals

- Share key findings
- Engage discussions
- Identify key lessons learned
- Formulate action plans
- Inform decision-making

TARGET AUDIENCES

1. Participants living at TRM beels and villages
2. Persons related to water utilities, stakeholders
3. Water professionals and experts from civil societies
4. Water industries, suppliers and managing officials
5. Scientific community
6. Wide audiences and policymakers

DISSEMINATION SESSION I

Welcome Note

Gouranga Nandy (11:00 am)

Dr. Dilip Kumar Datta (11:05 am)

Moderator

This is a humble gathering to discuss on the very old topic ‘water issues of south-western Bangladesh’, which has been the discussed over years. The stakeholders of water victims are invitee of this gathering to share their thoughts and ideas.



Presentations on the Study

Presentation by *Chris Seiger* (11:10 am- 11:30 am)

TRM has always been an interesting framework for adding values to waterlogged environment of southwest delta of Bangladesh. We are looking for strategic delta management because, we are looking for a support system what can benefit in 20-30 years and more from now. Special focus is

on “Rethinking”, as it is the exact point where the emphasize should be along all other existing options and thinking. These thinking and valuations must hold long-term strategies.

Over regions and times TRM (Tidal River Management) holds same core concepts. Water enters during high tides carrying sediments in a prior-waterlogged beel basin which is more than 600 ha. And then during silt is deposited while water leaves in low-tide.

Several expert researchers had engaged in the facts and benefits of TRM such as CEGIS, IWM, FAO, UNDP and other educators to contribute in national policy and planning. Before polders were established at coastal belts, many floods and food crisis occurred at coastal villages. Post period of polders showed some identical prosperity in crop culture, safe infrastructures, educational wellbeing etc. But the misery of water-logged had increased by years not lessen by any point, also all crop production decreased. At present around 1-10 million people are affected in southwest coastal area.

So far it is high time to decide for the south-west delta ‘do we want to improve existing strategies’ or ‘do we need to adapt new strategies’. Strategies delta planning is a long-term process, where missions and actions are taken to be implemented in shaping delta as a ‘business model’. That is, we are meant to increase values to this strategic model that can change its use and non-use values both dramatically.

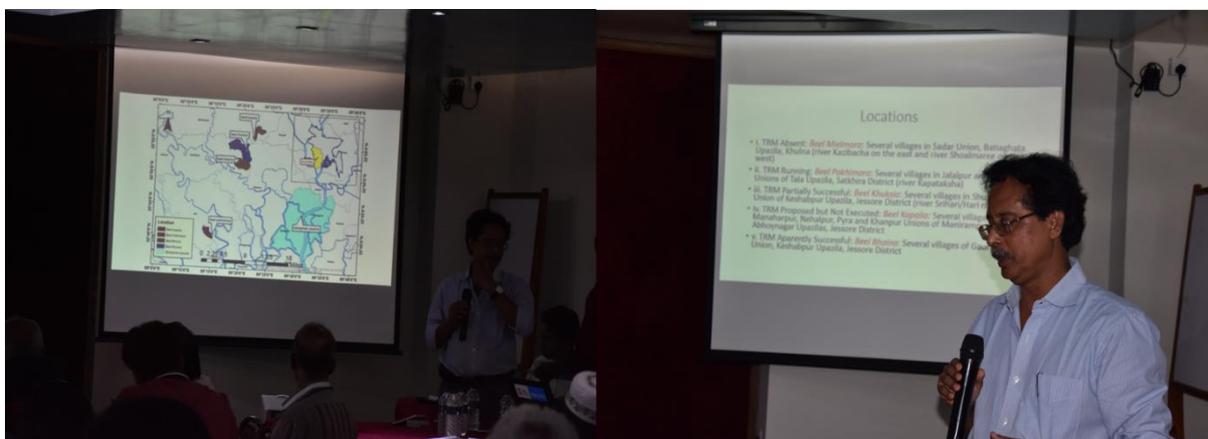


To re-conceptualize strategies for delta management, small scale sites were considered as primary data source. Information were collected from 17 key informant interviews both at national and local level and one focus group discussion (21 participants). Major findings are, fundamental reconceptualization is needed to re-think TRM as a process that can regenerate livelihoods, adjacent lands and rivers, not only raise lands. In these regard support for TRM in country might be broad but had not been strong enough. We should go for long-term sediment management and

business policy. For example, reusing it in brick industries. Rotational TRM might be a permanent solution, this also grant a life-long flow for TRM-operation. Thus focusing on multiple values we can bring sea line more inward, e.g., utilizing tidal energy and saline waters.

Presentation by Dr. Dilip Kumar Datta (11:30 am- 11:50 am)

The mission of this very study is to present TRM at national parliament and make it to be included in government of Bangladesh's planning ministry. If we want our south-west coastal region to be alive in near to far future, we must go with delta development plan. Talking about delta management, tidal management or *Joaradbar* we most likely think of simply raising our submerged lands by sediments, but in real TRM is more than that. It is all about diversified crops, livelihood support systems and other coastal networks those need to be considered. To understand and penetrate knowledge about TRM more practically this research considered diversified water lands at coastal polder area. Such as: *Beel Mielmara* (TRM not recognized): several villages in sadar union, Batiaghata Upazila, Khulna. This area has river Kazibacha on the east and river Shoalmaree on the west. *Beel Pakhimara* (TRM running): several villages in Jalalpur and Kheshra Unions of Tala upazila, Satkhira District at Kapataksha river basin. *Beel Khuksia* (TRM partially successful): several villages in Shufalakati union of Keshabpur upazila, Jessore District beside Srihari/Hari river. *Beel Kapalia* (TRM Proposed but Not Executed): several villages of Manaharpur, Nehalpur, Pyra and Khanpur unions of Manirampur and Abhoynagar upazilas, Jessore district. *Beel Bhaina* (TRM Aparently Successful): several villages of Gaurighona union, Keshabpur upazila, Jessore district. Study was performed during October 2017 to March 2018 through several field visits, Key Informant Interview (KII), Focus Group Discussion (FGD), Community Visioning, Transect Walking etc.



Specific findings from each of these locations are;

In *Beel Mielmara*;

- Construction of *Polders* provided short-term benefit; however resulted in incremental rise in salinity and water-log conditions with time due to clogging of link canals; the last one is aggravating because of fish farming.
- People perceive that BWDB constructed embankment unnecessarily and LGED's dredging efforts will go in vein because of high sediment load of the canals.
- Landless people, sharecropper, small holders and shrimp *gbeer* owners would not take risk due to uncertainties while TRM is in operation and they disagree even if there is any compensation during TRM operation. A common pursuit for land-use practice is lacking
- Local observation is that land elevation within *polders* is much lower than that of outside and continuation of such process would render the villages within enclosures into water logged condition by next few years.
- TRM will be good practice in land reclamation but afraid of taking risk during the process that was not experienced earlier. *Share-cropper's right* and *occupational replacement cost* needs to be considered.
- Width of sluice gates to be much wider (and appropriate), when the link canals will be automatically active and would help in rising the land elevation.
- Recommendations: Existing sluiceways to be widened and more gates to be constructed; Local Government authority to demark *kbash* land and canals. The *kbash* lands are appropriate place for sediment disposition; village protection embankment to be constructed; sluice gates connecting link canals to river to be appropriate enough for flow management.

In *Beel Pakhimara*;

- The *polders* provide short term benefit; but with time water log condition and irreversible salinity persists. To get rid of such conditions villagers breached embankment to connect the river with the *beel*. Later BWDB engaged themselves with the process.
- *The Pani* Committee and the *Beel* committee (backed by *Uttaran*) acting as negotiator among the actors such as BWDB and LGED, the Landless people, share-cropper, land owners and shrimp *gbeer* owners including villagers on the impact zone of TRM.

- Land and water based resources primarily support share-cropper, landless-, small- and medium landholders. In many cases the actual landholders are deprived of water based resources.
- Collection of land ownership documents pose a difficulty in receiving compensation.
- Location of link canal is not proper because of knowledge gap and lack of transparency.
- An one-stop service center headed by an independent body with able and diverse composition for selection of *beel* for TRM, location of link canal, disbursing compensation, resolving conflict, dealing with rehabilitation (if needed), creation of alternative employment opportunities;
- Prior knowledge on the impact of TRM on livelihood support system during its implementation and necessary precautionary measures to be taken well in advance.

In *Beel Khuksia*;

- Polders helped in protecting this low land from encroaching salinity and provided higher rice yield but after 10/15 years water logged condition and salinity became permanent. Having experienced from Beel Bhaina, the BWDB tried implementing TRM in Beel Khuksia between April 2006 and February 2013.
- The TRM does not worked here as has been proposed by BWDB – different actors are having conflicting land use interest
- People’s participation to the TRM process was lacking because in most cases the local people disagreed with BWDB propositions.
- The compensation distribution was complex
- The stakeholders proposes many techniques for TRM operation but the BWDB not listening to them. Knowledge and suggestions of the villagers should be recognized in TRM operations.

In *Beel Kapalia*;

- The villagers want a planned TRM. They do not have confidence on BWDB and the current Water Management Committee; they rely on knowledge and wisdom of different

local representative and their participation in all steps of TRM operations needs to be confirmed.

- Compensation and duration for TRM operations are the two most important issues.
- There is no alternative to TRM for minimizing water logging and salinity in the area
- Conflicts in TRM operations to be solved first

In *Beel Bhaina*;

- Drainage congestion during late 1980s was severe; and to get rid of such waterlogged condition villagers themselves made breaches in the embankment.
- The villagers has decided the closure of the breaches when they realized that sufficient sediment has been deposited for the purpose.

Key Challenges that raised from this study are,

- ✓ Formation of a '**Negotiation Platform**' and its explicit terms of rules
- ✓ Before any TRM operation,
 - communication, site selection, encouragement and building ownership etc.
 - Foreseeing the operational hazards and ways for minimizing the sufferings
 - Foreseeing the benefit of TRM
- ✓ During TRM
 - Monitoring the TRM operation
 - Evaluate and measure the operational hazards
- ✓ After TRM
 - Monitoring and evaluation of TRM operational results
 - Providing and practicing knowledge on anticipated benefits

DISSEMINATION SESSION II

Open Discussion: Particular Community (12:15 pm- 2:00 pm)

Beel Bhaina: TRM Apparently Successful Site

Mafizur Rahman, local participant

TRM not well-planned

- Before TRM was operated, this site and community had not been well surveyed
- If planned well, this TRM would be successful from scientific, socio-environmental and community perspective

SM Shawkat Ali, local participant

Uneven Sedimentation

- Hydro-dynamics of river flow and sedimentation were not assumed well before cut was made at this site
- Though Beel radius got elevated by around 4-5 feet but inside was submerged as earlier
- Out of 6000 acre land, only 2000-2500 land was elevated, but people were already thinking of closing it
- Now if this area is again considered under 'rotational TRM', stakeholders expecting of a fruitful recovery



ABM Shafiqul Islam, President, Pani committee

High beel dependency

- People of Hari river basin and Kapataksha river basin are highly beel dependent. When beels around these rivers, such as beel Hamkura, beel Bhaina, beel Kedaria were submerged, people had no other livelihood choices.
- People cannot even think of doing anything else other than depending on beels

Wide acceptance

- When beel Bhaina TRM was formulated by people's initiative, several international governing organizations, national water management authorities and local leaders agreed on the 'open TRM' as the only source to save rivers in south-west delta

Mismanagement in maintenance

- The beginning of TRM through a cut in WAPDA embankment in beel Bhaina was much appreciated by civil societies, NGOs and scholars. But the system was not well maintained by any authority

False accusation

- As beel Bhaina raised so as different conflicts in land management amongst local land owners. Social and political power groups born who took important negative decisions about TRM
- Government filed case against the stakeholders who were working for TRM to solve water issues of south-west Bangladesh

Mahiur Uddin Biswas

Natural system loss

- So far in south-west delta, these was only degradation from a well reputed condition
- Lands, river channels, wetlands, vegetation everything have been deteriorated by decisions taken in various time by different parties with different interests

Fair political comments

- For stability in human wellbeing, all parties have to have common thoughts that can save nature and environment

- At the same time govt. has several projects running which are destroying wetlands and streams in south-west delta, where any water-issue solving plan will not work
- There should be major legislative corrections too that can support stable delta forming process in Bangladesh

Mofizur Rahman

Clear understanding of water-issues

- Most often the organizations or people working to solve water-logging are not well experienced with the operation and consequences, that brings more ambiguity
- Implementers, donors, organizers, stakeholders and auditors all must have practical knowledge on how TRM needs to be work and managed

Jillur Rahman

Government's plans were enforcements

- Lately the decisions about link canal, dredging channels, regulating vents, cut-points were all made by govt. officials who doesn't have much location specific knowledge.
- If these pre-decided plans were anyhow objected by villagers, they were enforced upon to fulfill, these destroyed natural course of sedimentation and land-formation.

Silt is blessing

- Locals and land owners perceive silt as a blessing, not a curse. But they barely know its multi-dynamic use
- Dredged silts are often illegally taken by powerful local leaders. Also because of their inside beel illegal shrimp-farm business sediments cannot be deposited evenly over beel-floor.

Beel Khuksia: TRM Partially Successful Site

ABM Shafiqul Islam, President, Pani committee

Spot the failures in past

- Beel Khuksia TRM was initiated after it was failed to operate in beel Kedaria, we had to learn the points why it did not work previously and made some corrections

Kalipod Mondal

Faulty peripheral embankment

- If TRM is to be applied, there is a must for peripheral embankment, that will secure beel adjacent village from getting washed away. But unfortunately that embankment was faulty and fragile in many points

Poor maintenance

- The vents of embankments are need to remain very navigable to let in high tides and sediments into beel basin as well let out water during low tide. But most these vents got clogged or disabled after one or two years



Abdul Motalleb Sarder

Zero participation

- In the constitution of BWDB it offers 100% people participation in any community based projects. But that process was avoided totally while formulating beel Khuksia TRM

Imbalanced embankment

- The embankments those were made to defend village during flood and high-tide, are poorly not high enough than the water front

Charge for voluntarism

- Civil society people, educators, leaders who came across to talk on behalf of these community people's right, were charged heavily according to money, punishments and humiliation.

Monoranjan Mondal

A prospectus is necessary

- A prospectus holding the principles needs to be followed and maintained at pre, during and post TRM stage is necessary
- This guideline is to be built in a round table meeting of all local, government and policy level stakeholders
- Any fluctuations from this guideline might not be allowed at all

TRM in text-book

- Our young generations must have to know about water issues of south-west Bangladesh, the distress those are suffered by people. The best way to do it, is to include the subject in text book

Sanjit Biswas

Vague compensation mechanism

- The compensation procedures are as mentioned earlier, very much inappropriate regards to the poor, illiterate villagers
- Compensation procedure requires piles of documents, that are tough for any general people to manage. Ultimate result is, compensation money remain deposited in DC office treasure
- if anybody show courage to earn compensation money by any chance, the have to spend approximately BDT 20,000 as bribe to get BDT 12,000 compensation.
- The land owners and stakeholders loose interest in getting their land or money by any chance

Common view shared

- A common platform, where knowledge from both local community and government policymakers and implementers should be granted, is very much necessary at this stage
- Common view needs to be achieved at this platform, that governs nature and environment soundly

Beel Pakhimara: TRM ongoing

SK. Imdadul Haque, local participants

Livelihood crisis:

- Severe water logging
- Only one season crop during summer
- Lack of alternative income opportunities
- People migrated to other place to earn income from garments, day laboring etc.

TRM feasibilities:

- Land formation
- More crop production (Multiple crop production instead of mono cropping along with aquatic cultivation).
- improve drainage system through making the existing river network more deep and wide
- Increase natural flow

Actual facts of TRM:

- TRM started in 2011 but provided compensation from 2015.
- Compensation process is very difficult because it is not possible to collect all land record and follow the existing procedure especially for the general people.
- Almost 50% people did not get their compensation and compensation does not provided timely.



Md. Tofazuddin Morol, local participants

Benefits of TRM:

- Turning the livelihood and economic wheel
- Increase natural fish availability
- Bring back river navigability

Negligible issues of TRM:

- Public involvement was no considered during the beginning of the project either by the government or BWDB
- Imposed on the people but not in a planned way
- Took decision without scientific study (for ex.: the authority budgeted 70ft link canal but now it has been turned into 400ft. So the question is: Who will provide compensation who have lost their land and house due to the TRM link cannal?)

Md ZillurRahman, Member, Pani Committee:

Improper management and implementation

Approximately 262 crore taka was budgeted for river excavation but there was no compensation for the people where the authority dump sediment. If only 42 crore taka was provided to the affected people no one stood against it. Most significant projects are not people friendly because they do not consider people suffering. We urgently need to focus on following aspects:

- Reformation of the existing law
- Rehabilitation program for the affected people
- Clear post management strategies of any project
- Whole south-western coastal region should be included in 100 year delta plan

Mahir Uddin Biswas, TRM resource persons

Implementation gap:

Water can't drain out properly because the inlet and outlet were not built according to land elevation and exact suitable position. Even the peripheral embankment was not built according to proper design.

Beel Kapalia: TRM opposed by the People

Sanjit Bishwas, Local participant

Reasons to oppose TRM:

- The authority did not consider the people demand
- Compensation difficulties
- Considered less area instead of proposed area by the people
- Internal dispute among the community people
- Lack of coordination among the hierarchical authorities
- Political dispute
- Lack of compensation for the landless people
- The people stood against TRM who tenured the khash land

Conditions to implement TRM

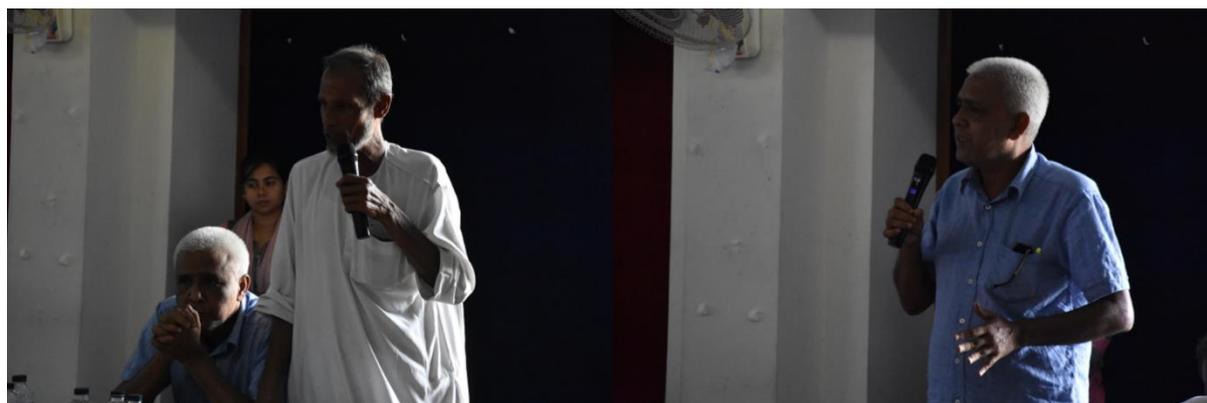
All the people of beel Kapalia want TRM at present but on the following conditions:

- Covering the area proposed by the people
- All level people should bring under compensation
- Proper water and sediment management approaches through floating dredging scheme inside the beel and creating small canal inside the TRM basin
- Strong peripheral embankment during TRM period
- Post management strategies of TRM such as excavating previous existing canal and leveling the peripheral embankment

Md. Shadat Gazi (local participant) and Dilip Sana (Program Manager, Uttaran, Tala)

Corruption and social aspects of TRM

In south western coastal delta, mostly three catchments area named Shree Hari Tidal Basin, Kopotakho Tidal Basin and beel Dakatia Tidal Basin) were considered for TRM but BWDB avoided the proper water management guideline that was responsible for people suffering. Social conflicts predominantly raised from land acquisition and land requisition law and also the behavioral pattern of the responsible authority. The project was started in 2011 but they provided compensation from 2015-2016 fiscal year. In first fiscal year 2015-2016, 70% people have got their compensation but only 30% people have got their compensation during 2016-2017. Sometimes the project took longer time period than the proposed time period but BWDB do not revise the project. As a result we need separate institutional framework which is controlled by the trustable people from the community level and different organization.



Beel Mailmara, Batiaghata, Khulna

Shushen Kumar Mondol, member of Water Management Association

Alarming issues: thinking about TRM

Although we did not face water logging in our area but we heard about the impacts of water logging from the people come from other area. At present we are alarmed by the following issues.

- Decreasing river navigability through quick siltation on river bed
- Drainage congestions of the surrounding canals, sluice gate etc.
- Decreasing crop production over the years



Bikash Mahaldar, member of Water Management Association

Our first fault was the *polderization* of the coastal area during 1965 which was completely against coastal land formation and dynamicity. Now the river networks are on the verge of environmental breakdown by continuous drainage congestions and river bed siltation. As a result it is not possible to save the coastal environment through TRM in 3 or 5 beels. Total tidal basin should bring under TRM to revive the river navigation and maintain natural water flow velocity.

Open discussion: Civil Society and Community Voice (2:00 pm- 3:00 pm)

Dr. Md. Nazmul Ahsan, Professor, Fisheries and Marine Resources Technology Discipline, Khulna University, Khulna

Focus on whole coastal delta: less scientific background

Bengal delta is the largest delta all over the world and it is different from the other part due to its unique geographical location and climate. It is crisscrossed by a network of river and canals. So it will not bring successful result if we consider 3 or 4 beel's area only. The project should be formulated for 100 years or more than that by considering the whole catchment according to land elevation and GIS mapping. Lessons have to learn from the area where TRM successfully completed and where completely failed. These experiences should incorporate with the upcoming planning at the policy level as no project can be successful without political commitment. For these we need strong scientific background as it is still a conceptual management scheme. All kind of positive and negative externalities should be considered to reform the mono culture into poly culture based production system.

Md. Maynul Islam, chairman of Tala Upazilla Pani Committee

TRM is a non-academic concept

We did not read any written document in the text book about “Tidal River Management (TRM)” or tidal high tide or tidal low tide. Only the coastal people are familiar about it. So to establish this concept we need more scientific research and publication. There are two kind of TRM over the regions. Firstly, the region where the people are suffering from severe water logging who want TRM to raise their land and mitigate water logging (ex. Beel Bahina). Secondly, the region where the people are not affected but want TRM to save the nature, existing river, natural water flow and the people who are suffering water logging problem (ex. Beel Pakhimara). Mainly two



kind of community people are always against TRM such as the people who are doing share cropping and shrimp farming by leasing land or maintain their livelihood by day laboring. Another group of people do not want TRM who are powerful and large land holder as they have not any benefits in TRM. Another crucial issue is compensation and its distribution. TRM is continuing for almost seven year but less than 50% people have got their compensation for only one year. The compensation process is very complex and it should be incorporated with the ongoing hurry system by considering both land owner and land less people but resource dependent. Rehabilitation program and alternative income opportunities for the TRM affected people must

be formulated. Finally, we want to see TRM as a subjective issue to make it more clear to the general people.

Shamim Arfeen, executive director, AOSED

Who govern water, river and environment?

To find out the actual scenario all the research should be unbiased. Civil society is an integral part of Negotiation platform of TRM without which it is impossible to develop business model and improve existing or alternative strategies. We should be careful regarding that are we not reining our river or water or environment in the name of management! So we have to think that are we govern our nature or try to adapt with the nature!

Manish Mondal, department of fisheries

Technical aspects of TRM

- Climate change related issues such as sea level rise, salinity intrusion, biodiversity degradation must have to take into account for long term delta planning
- Proper land use mapping for sequential TRM step by step

Maksudur Rahman, chief executive, BEDS

Future scheme of TRM

- As TRM is a people local innovation so it should be termed as Traditional Tidal River Management (TTRM)
- Trans boundary river and upstream flow can be considered
- Social and technical problem can be minimized by proper modelling

Profullya Chandrya Sarker, Deputy Director, Quality control, Department of fisheries

TRM is a socio-ecological process: less rely on small scale TRM

As we are thinking about of 100 year plan so we have to decide if we do TRM for small scale or all the tidal basin around whole polderized coastal zone? Otherwise the river and canals alive today will be dead in near future. We also think about the upper region and upstream fresh water flow for sustain the riverine Bengal delta. Now the whole delta has been turning into saucerpan where river beds gradually becoming higher compare to surrounding land. But it is not possible to break

down the whole embankment as our land scape and occupational pattern has already changed. In these circumstances TRM may be the best alternative to cope up with the coastal dynamicity. TRM is not only an engineering solution but also a socio-ecological process. So all level of stakeholders related to TRM and higher authority should be included with the decision making and management processes to form a sustainable negotiation plat form.

Mr. Javed Khalid Pasha Joy, Director, RIB

Multi stake holder forum of TRM

The tragic fact is that we do not consider the opinion of the affected people who are the integral part of any problem solving project. At first, we need strategic plan for finding the best way to include these affected people through participatory research in the decision making process. There are several project are continuing by World Bank, ADB, BWDB etc. and we have to coordinate and inter link them up to the community level. In present condition, we need multi stakeholder forum from bottom to top level through the incorporation of all relevant organization and community people.

Hasan Mehedi, Chief Executive, CLEAN

TRM as an Ad hoc concept: need to incorporate at policy level

I think TRM is not river management it is one kind of sediment management. There is no any proper guideline of TRM regarding who will get what amount including both landless and resource dependent people. There are about 27 policy for the coastal zone including 5 year plan, vision 2021, vision 2041 but TRM has no existence over there. So TRM is at ad hoc level still today. So firstly we need to bring it within a policy level framework by sectorial combination.

Mahedi Hasan, PhD Researcher

TRM can be good solution: cost effectiveness of TRM

We have to come out from the traditional definition of TRM which people conceived at first. We have to rethink and reconceptualize it for improving the existing strategies. In my PhD research I found that at least two TRM can be formulated by the cost of damage per year only in agricultural sector due to low agro production caused by water logging over the regions.

Md. Rafiqul Haque, Deputy Director, Shushilan

Integration of local and scientific knowledge

For successful completion of any project we need to ensure all level stakeholder participation. Only local or scientific knowledge can't bring fruitful result separately which we have seen in 1960 when the authority polderized whole coastal region without considering local people's opinion. To sustain the management strategies of TRM integration of local and scientific knowledge is badly needed.

Mr. Mahfuzur Rahman Mukul, Coordinator, BELA

TRM is the best way but need sectorial coordination of TRM

We have to learn from the history when the people governed their livelihood by adapting with natural sedimentation by making "ostomashi or soshthomashi embankment". So we need to incorporate the traditional experiences with the water and sediment management. To uphold TRM as the best strategic innovation for the south-western coastal delta we need integration among the existing and upcoming ICZMP projects and relevant laws.

DISSEMINATION SESSION III

Ending Discussion: Educators,, Experts, Civil Society and Community Voice (3:30 pm-4:00 pm)

Professor Awanarul Kadir, Executive Director, Sundarban Academy

Summarization the whole discussion of TRM

We have discussed all the positive and negative externalities of TRM in the morning session from the participants under five beel area. We also find out the hidden facts and suitable ways to incorporate TRM at the policy level through the open discussion held in the afternoon session. The opinion sharing held over the dissemination program clarifies that TRM is a time based necessity and TRM is the reality. All these opinions that should be incorporated at the policy level are given following:

- TRM is a dynamic process for water and sediment management
- TRM can Termed as Open TRM and Close TRM
- Drainage congestion is the main cause of water logging
- Compensation process is very complex which is not affordable for the general people
- Public harassment and corruption of the authority are two bad aspects of TRM
- TRM is not possible without political commitment
- Significant portion of money grabbed by the authority instead of affected people
- Peripheral embankment and floating dredging can save the people and ensure proper sediment distribution
- Sequential TRM can be formulated according to land elevation and available tidal water flow velocity
- Need to continuous follow up the whole process through the coordination of water, sediment, livelihood etc.
- Intensive research and publication can bring TRM in academic level
- For long term planning need to consider dynamic land scape and climate change issues
- Whole delta should be incorporated at policy level to recognize TRM as the best way for coastal zone management still at now

Dilip Kumar Datta, Professor, Environmental Science Discipline, Khulna University, Khulna

Thanks for your patient for all day long. From the discussion is clear that there is no alternative sustainable management for the tidal delta except TRM but it is not exist in our policy level. Although it is discussing at the higher research level but it is very tough to establish it at academic level. So TRM must be incorporated not only at the policy level but also in our knowledge world to make the TRM more sustainable. Again thanks to all of you to participate this dissemination program and share your valuable knowledge and opinions.



IMPACT OF DISSEMINATION

Conceptualization of a negotiation platform for TRM where there would be,

- Formation of TRM implementation committee considering whole catchment area.
- Implementation of TRM through sequential beel selection step by step.
- Strong participation of all stakeholders pre-TRM, during TRM and Post TRM period.
- The number of members of TRM advisory board can varies from 15 to 50 but there should be included knowledgeable. TRM resource persons such as trustable people representative, corruption free political leader, retired teacher, social worker, lawyer and journalists.
- Representation of CBO, GOs, NGOs, Researchers, Academicians, social workers and political parties.
- Involvement of all level stakeholders such as agriculture department, fisheries and livestock department, health department, LGED, education department, land developing and management institutions, water management committee and local government and at last local people at union, upazilla and district level.
- Emphasis on local people opinion.
- Accomplish separate law to make the TRM platform more powerful.
- Establish the concept of TRM at government policy level.
- To follow the updated Water Management Guideline.
- Traditional river and tidal sediment management to sustain the river network.
- Consider the land owner and sharecroppers and their perceptions in the compensation and TRM formulation processes.
- Representation of the female participants along with male participants in the decision making processes.
- Consider the landless and resource dependent people.
- Integration among different responsible authorities at all stages of TRM formulation, implementation, monitoring and post management strategies.

DISSEMINATION CHANNELS

APPENDIX

Dissemination Meeting On

Reconstructing Innovative Trajectories for Sustainable Management of Coastal Zone, Bangladesh

Venue: CSS Ava Centre, Khulna

Date: 7th July, 2018

List of participants

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