How to create a transdisciplinary research project? Strategic delta planning

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project set up

Transdisciplinary research (TR) = a team that works on (i),(ii),(iii) → (iv)

Poster's objective is to share our experiences of conducting TR research (upper part) and recommendations to keep it running (lower part of poster).
Transdisciplinary research according to Pohl (2005) takes into account (a) the complexity of an issue, (b) science's and society's diverse perspectives on that issue, (c) involves non-scientists and members of different sicentific disciplines, and (d) aims for practically relevant knowledge that (e) can contribute to an improvement of the status quo.
Our project is part of the Urbanising Deltas of the World Program, funded by the Dutch Organisation for Scientific Research (NWO). Project runs from 2014 to 2019, has a budget of ~0.9 million EU.
Our project team consists of people working in acdemia (IHE Delft, Wageningen University, Delft University of Technology, Bangladesh University of Engineering Technology, Khulna University), applied research and environmental consultancy (WACC, CEGIS, Deltares, PBL, Bosch+Slabbers), and advocacy (IUCN Vietnam). ..

(i) On a real-world problem

Urbanising delta's face many threats to water safety, water and food security and sustainable development. There is an increasing interest in **strategic delta plans** to address these threats through strategic choices and innovative solutions. Do these novel planning approaches live up to their expectations? What is their role in enabling change and innovation, and improving local livelihoods? Our research project aims to better understand the dynamics of strategic delta planning. We study this in **Bangladesh, Vietnam and the Netherlands.**

(ii) With an overarching framework

The Hourglass framework (Seijger et al., 2016) integrates the main **analytical perspectives employed by PhD and Postdoc researchers**. It distinguishes different decision-making phases of agenda setting, plan formulation, implementation, to study **consent** for a plan's agenda and strategies through the role and changes of:
1) **Actor coalitions**
2) **Innovations**
3) **Participatory planning tools**

The framework integrates theories from strategic spatial planning, policy sciences, sociology of technology, participatory tools.

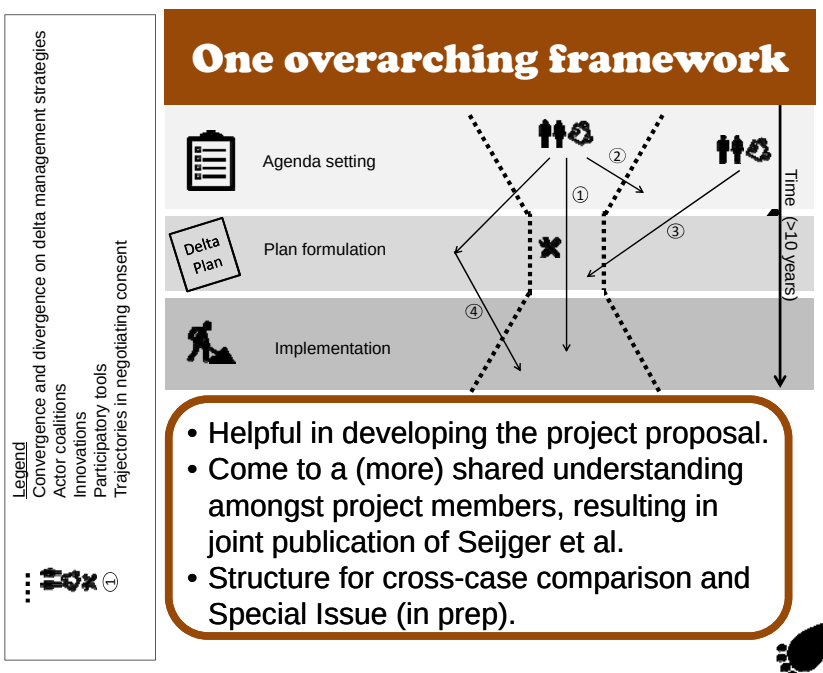
(iii) In shared case studies

Project members collaborate in joint case studies. In relation to strategic delta planning initiatives such as **Dutch Delta Plan, Bangladesh Delta Plan 2100, Mekong Delta Plan**, the following cases are studied:
-Re-opening of coastal barrier in the Dutch delta
- Tidal river management as strategic choice in Bangladesh
-Innovations in the Mekong Delta (floating rice, room for the river, brackish economy)
- Scenarios in delta planning, and how this tool/approach travels from NL to VNM and BD.

(iv) Resulting in transdisciplinary output

-Research: non-researchers bring **'real-world experiences and insights'** to our research, they co-author papers, and assist in data collection (contact interviewees, field trips).
-Professional work: project partners use and refine concepts and tools in their professional work, which is linked to new and on-going strategic delta planning processes in Bangladesh and Vietnam.
-Practical relevance: collect, disseminate and **discuss with practitioners** lessons learned on strategic delta planning and implementation.

One overarching framework



- Helpful in developing the project proposal.
- Come to a (more) shared understanding amongst project members, resulting in joint publication of Seijger et al.
- Structure for cross-case comparison and Special Issue (in prep).

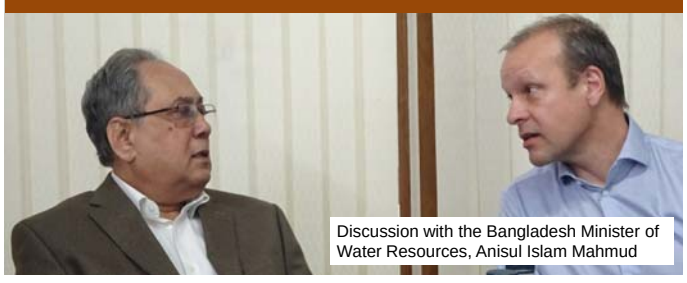
Which 'vehicles' keep the **TR-soul** alive?

Training workshops


Participant from Myanmar receives certificate upon successful completion of training workshop, Tra Vinh Vietnam.

- Integrate delta planning tools of project partners (scenario development, design charrettes, delta envisioning) with project's concepts on strategic delta planning and implementation (Seijger et al., Phi et al.).
- South-South exchange.
- Input for curriculum development.
- Stimulus to reflect on delta planning and tools.

Engage and discuss with planning practitioners


Discussion with the Bangladesh Minister of Water Resources, Anisul Islam Mahmud

- **Project leaflet** with initial lessons learned from research, tool workshops, joint visits.
- Dialogue with people actively involved in delta planning processes (scientists, policy makers, delta planners).
- Project members apply new understanding actively in delta planning (e.g. CEGIS, IUCN. WACC, Deltares, PBL, BS).

Joint field visits


Interviewing a shrimp farmer in Tra Vinh Vietnam

Waiting for the ferry to cross the Padma (Ganges) river, Bangladesh

- Visit potential case studies together in NL, VNM, BD jointly. Have interviews in the field.
- Discussion among consortium members.
- Inspiration and motivation for new projects and research ideas.
- Fun!

Further reading:
-Phi et al. (2015): A framework to assess plan implementation maturity with an application to flood management in Vietnam, *Water International* 40:7.
-Pohl (2005): Transdisciplinary collaboration in environmental research, *Futures* 37.
-Seijger et al. (2016): An analytical framework for strategic delta planning: negotiating consent for long-term sustainable delta development, *Environmental Planning and Management* 60:8.
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Political agenda setting for strategic delta planning in the Mekong Delta – Converging or diverging agendas of policy actors?

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Background

- The Vietnamese Mekong Delta (VMD) is currently experiencing negative impacts from climate change, from upstream developments and the economic activities inside the delta. These challenges need to be addressed in a strategic and holistic way. The Mekong delta plan sets out a strategic agenda of policy choices for the development of the VMD that is economic attractive, climate adaptive and environmental sustainable. This agenda at times consciously departs from historic trends and current practices and explicitly explores the options and opportunities available within the delta to confront the challenges imposed by climate change and economic uncertainty. This article tries to explore if the agendas set by MDP (as a new political actor) have been shared, convergent or divergent with other agendas set by other actors and what the degree are.

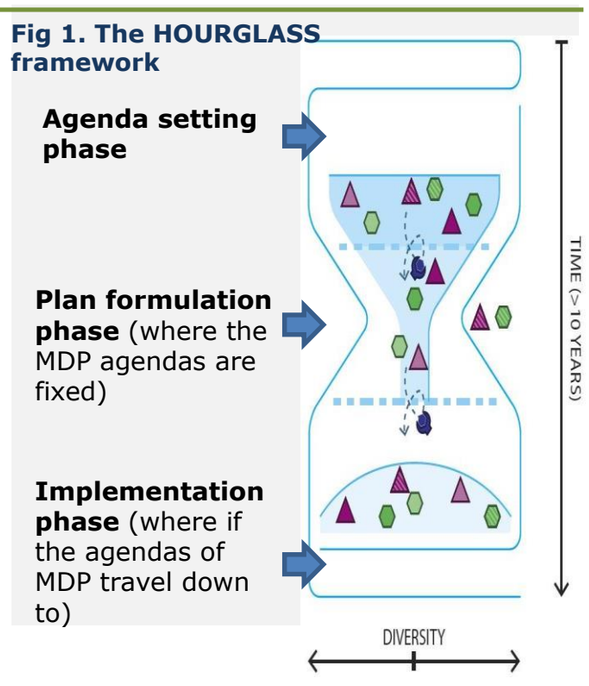
Objectives

- The aim of this paper is to explore, via the lens of 'agenda setting', the degree of convergence/divergence occurring in the development agendas for the Mekong Delta as prevalent among key stakeholder groups and as embedded within the recent developed Mekong Delta Plan (MDP).

Conceptual framework

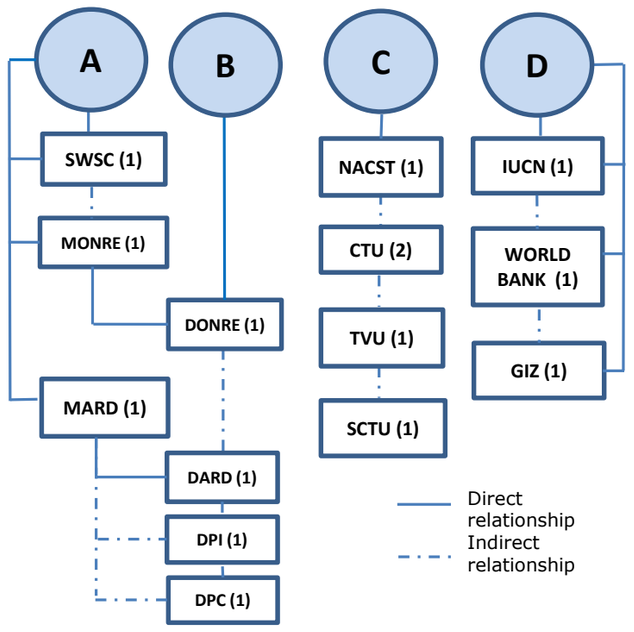
- *Agenda setting*, as perceived by Kingdon 1984 is a list of problems to which political actors are paying attention.
- *Variety of actors* compete with interest groups and experts to try to get their preferred topic on the agenda, and some actors even hold "*multiple agendas*" that are almost irrelevant from each other
- Agenda setting as an "*input*" *side* of a policy-making process

Fig 1. The HOURGLASS framework



Methods

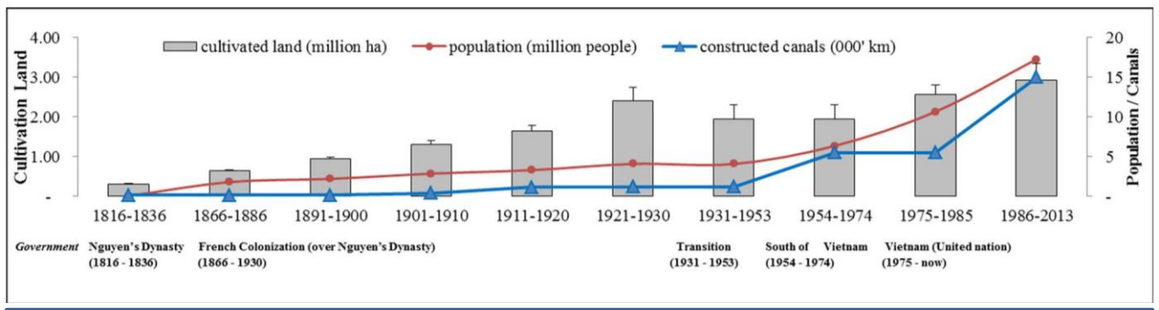
- *Literature review*: relied mainly on David Biggs' series of works, Klaus Vormoor and some others to trace the historical agendas set in the past.
- *In-depth interview*: with a diverse pool of actors who involve in the MD planning process (fig. 2). Interviews are recorded and transcribed and afterwards are analysed by "*Content analysis*" via coding method applied in Atlas-ti software



Group A: Policy-makers; **Group B:** Local governors; **Group C:** National Experts; **Group D:** Development partners

Fig 2. Institutions presenting interviewees

Discussion and conclusion



Key agendas	*Exploiting the delta*		*Food security (Dutch dike strategy)*		*Aquacultural diversification & facilitating agro-hydrological condition*
Sub-agendas	*- Demarcation and intensive settlement* *- Exploration of suitable land for rice and residential clusters* *- Partly new canal digging* *- Partly water infrastructure development*	*- Opening up/ the delta* *- Canal excavation and land reclamation* *- Intensive water infrastructure development* *- Rural settlement process* *- Colonization of southern wasteland by North Vietnamese people* *- Reclaiming acid sulphite soils*	*- Promoting agricultural engineering to increase farmer's income* *- Building monoculture rice*	*- Modernization and introduction of new technologies* *- Integrated with the global economy and the international donor community* *- Extension of the irrigation and drainage system*	*- Closing off the delta* *- Land re-allocation* - The MDP (2013) brings in new agendas on "*economically attractive development*", "*environmental sustainable*" and "*adaptive capacity to climate change*".
Main policies	*Great South March*	*- French colony of economic interests* *- Conquest of the MD*	*(War time and the fall of France)*	*- Intensification of agriculture* *- Green Revolution* *- Rural Pacification*	*- Centralized planned economy* *- Doi Moi Renovation*	*Extension of multi-cropping (by WB)*

Fig 3. Historical agendas set from the past for the Mekong delta development

- The MDP (as one of political actor in this study) sets out a new agenda more concerning economic development and the adaptability of the MD as the three dominant key agendas: "*economically attractive development*", "*environmental sustainable*" and "*adaptive capacity to climate change*".
- The MDP arrived in the Vietnam political context as a big paradigm shift that brought the big difference to the MD. It is very much different from the agendas from the past, of which "*food security and intensive rice production*" was lasting for a long period, and a lot of sub-agendas came out (*building high dikes, sluice gates, irrigation infrastructure and canal network projects*).
- The interviewees perceived past agendas as ineffective thus they need "new" agendas, that explains why there are more overlaps between the agendas set by the MDP and the agendas set by involved stakeholders to the MDP process, rather than the differences.
- Whereas a clear convergence of goals and agendas between stakeholders' agendas and the MDP are discerned, divergence is also clearly prevalent. The latter can be traced to institutional political affiliation, differences in age and self-interest and more importantly, the geographical position (situated in or outside the delta)
- The agendas of MDP eventually are appreciated and formally approved by Prime Mister via the Resolution 120

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Assessing implementation feasibility Strategic Delta Plans: The application of the MOTA framework in Vietnam

NWO UDW project 'Strengthening Strategic Delta Planning Processes in Bangladesh, The Netherlands, and Vietnam'

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Objective

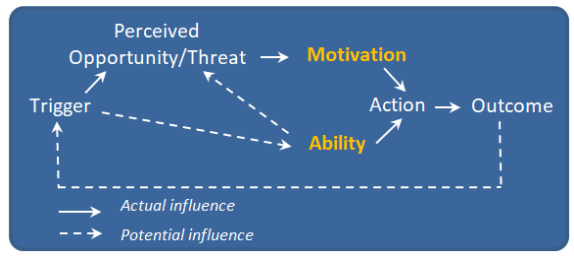
Strategic Delta Planning focus on strategic, long-term choices at a national level to alter practices, stimulate sustainable projects and adapt the planning system. A well-known problem of plans and policies is the implementation gap; plans are not implemented the way they were intended, or have not been implemented at all.

In this research project we aim to develop, apply and improve a diagnostic tool to assess plan implementation feasibility.

MOTA framework

The MOTA framework is bottom-up approach to inform planning practices based on a behavioural perspective, centralizing the motivations and abilities of actors to act.

In this study the MOTA framework was applied for 3 typical issues in Vietnam i.e. flood management, famer adoptibility for aricuture transformation and delta plan implementation

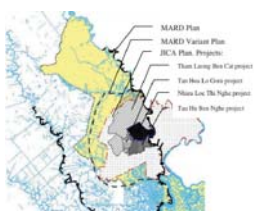


I: A framework to assess plan implementation maturity with an application to flood management in Vietnam

Aim: explain the evolution of flood management concepts and to develop some predictive claims about the most likely next developments in the flood management process

Study: case study of the the planning process for an integrated flood management strategy for Ho Chi Minh City inVietnam.

The case of the HCMC flood management planning options shows that MOTA scores and concepts help explain the observed course of events and dynamics in plan implementation and in the subsequent plan developments. It suggests that the language and logic of the MOTA framework fit with observed planning and implementation phenomena.



Ho Chi Minh City flood control plans and projects

Further reading (1)

II: Farmer Adoptability Mekong Delta Plan in Ben Tre Province

Aim: understand the motivations and abilities of local famers in adopting alternative livelihood models
Study: MOTA analysis based on 100 structured interviews in Ben Tre province

The analysis showed that the local setting is a very pluralistic one; the abilities to change differed greatly among the communes included in the analysis. The analysis discovered the underlying factors behind farmers' self-perceived motivation and abilities. Furthermore, each of the communes has its own preferred livelihood models. These differences can partly be explained both by the physical (hydrological) conditions, such as the availability of fresh water and by socio factors, such as the (un)ability of farmers to cooperate in farmer cooperatives or the difference in motivation to change.

Ba Tri, Thanh Phu District, Ben Tre province

Successful rice – shrimp livelihood model

Farmer explained coconut – shrimp livelihood model

Further reading (2)

III: Implementation of Strategic Delta Plans – in the nexus of strategic national plans and household-level transformations

Aim: analyse the capability of the actors in the planning system to convert the strategic plan into implementation activities at the local level.
Study: MOTA analysis based on semi-structured interviews with 28 representatives of provincial and district level government agencies in Ben Tre province.

The analysis of the governance setting shows that salinity intrusion is primarily perceived as a threat. There is a high motivation to change, but this is a change towards 'controlling salinity' rather than 'adapting to salinity'. The ability assessment shows a low ability to change for all actors. The actors state to a lack of finances, techniques, and institutional abilities to improve current situation.

Vice-chairman of Thanh Phu People Committee

Vice-director of Ben Tre Nat. Res. & Env. Dept.

Further reading (3)

Conclusions

- The MOTA bottom – up approach, the social adoptability i.e. whether or not farmers adopt plans (normally top – down direction), should be appropriately supported by governments and other organizations given their limited abilities.
- Discussions with stakeholders at various levels shows the concept is appealing as it helps to better understand motivation and ability for change. It gives an perspective that is often not considered in delta planning
- We developed and applied the tool from project/farmer scale to a more strategic scale. This allows for assessing strategic plan implementation feasibility at provincial and district levels and what is needed to implement at the local level.
- Applications of the tool in training workshops helped to test and improve the tool, to discuss the role of the tool in strategic planning, and strengthen capacity to apply the tool.

A reflection on MOTA by IUCN Vietnam:

The large-scale and radical transformations that are being considered in the Mekong Delta require careful consideration and action at multiple scales. IUCN was involved from an early stage to assess community willingness and capacity to make such a transformation. At that time, we needed assessment tools that went beyond a typical vulnerability assessment and socio-economic survey. MOTA provided the tool that we and our government partner, the Vietnam Academy for Water Resources, needed to assess communities motivations and technical and financial capacities to adopt the new flood-based agricultural livelihoods that were being proposed for funding. The tool allowed an accurate projection of the types of support that communities needed to supplement their knowledge, skills and financial capacities, as well as interventions to reduce the risks of the new livelihoods.

Future work:

- MOTA workshop for planning officers in Ho Chi Minh City – 2018.
- Participatory Tools workshop in Dhaka/Khulna - 2018
- National research project. Ministry of Science and Technology Vietnam. Agricultural transformations for climate change adaptation in Mekong Delta, a case study in Ben Tre Province. Project lead: Nguyen Hong Quan, WACC

Further reading:
(1) Ho, L. P., L. M. Hermans, W. J. A. M. Douven, G. E. Van Halsema, and M. F. Khan. 2015. A framework to assess plan implementation maturity with an application to flood management in Vietnam. Water International 40:984-1003.
(2) Nguyen Hong Quan et al. Farmer adoptability for (sustainable) livelihood transformations in the Mekong Delta: A case in Ben Tre Province. In review
(3) Korbee, D. et al., Implementation of Strategic Delta Plans – in the nexus of strategic national plans and household-level transformations. In Review

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It is the silt, you silly! Tidal river management as a strategic innovation for the management of water, silt and land in south-west Bangladesh

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4 CEGIS, Bangladesh, **5** Wageningen University, Water Resources Management Group, the Netherlands

My poster in 1 minute

● Problem: Conventional delta planning can often not resolve development challenges of urbanizing deltas.
●Strategic innovations may offer prospects for the kind of change to make, away from mainstream strategies.
●Objective: We analyse Tidal River Management (TRM) as a strategic innovation for management of silt, water and land in Bangladesh.
●Findings: TRM is regarded a viable but complex alternative for hard infrastructure. Support for TRM is rather weak as decision-makers prefer hard infrastructure.
●Conclusion: TRM is a feasible strategic alternative for the southwest of Bangladesh, yet the strategic choice to opt for long-term sediment has not been made yet.

1. Strategic innovations and change in delta management

This poster presents our findings on Tidal River Management (TRM, Fig. 1) as a strategic innovation for the delta of Bangladesh. Change is often needed as **conventional delta planning** ('business as usual') cannot resolve the development challenges many urbanizing, engineered deltas face [1].

In the southwest (SW) of Bangladesh, limits of prevailing strategies are increasingly experienced as rivers are dying and water logging problems become more severe (see Fig. 3). A large-scale system of flood embankments and sluice gates has provided fertile and flood-free areas, yet local communities increasingly criticise dredging and sluice gates.

Strategic innovations may offer prospects for the kind of change to make. A s**trategic innovation** entails a fundamental reconceptualization of mainstream strategies, and a substantive improvement for local livelihoods [2].

3. Research design

In a **case study** we explored who supports TRM, and to what extent it is included in policies and field-level pactices.

5 sources of data collection:
● Field visit shown in Fig. 3.
● Focus group discussion Pakimara Beel, 21 villagers impacted by on-going TRM project (Fig. 3 #4)
● Semi-structured interviews with governmental and non-governmental agencies at local (7) and national level (10),
● grey literature, a scan of research/consultancy reports (12), Governmental Plans (3), IFI policy documents (2)
● media, a screening of how Bangladesh newspapers covered TRM (9 English daily papers).

Qualitative data analysis: template coding of FGD and interviews, triangulation with other data sources.

5b. What do interviewees say on upscaling TRM in the SW delta?

Enable: since 1997 local people are demanding TRM. Despite all constraints (see below), benefits for own and next generations are recognized. Supporters see TRM as the only solution to overcome water logging.

Constrain: Local support is not automatically present. People have to be motivated to provide their land for TRM for several years, and without proper compensation mechanism people will not do it. Stronger support is needed at local policy level (who now prefer dredging or side with shrimp farmers against TRM), and at higher policy levels (who are inclined to dredging and hard infrastructure).

2.a What is TRM?

TRM (Fig. 1) is about natural flows of sediment and water to elevate low-lying water-logged areas ('beels'). It involves a temporal cut of polder embankments for 3-5 years, resulting in elevation gains of 1-3 meters [3] and scouring of rivers. Water management in the south west is mainly undertaken through sluice gates, dredging, and reinforcement of polder embankments. **Silt is largely neglected** herein, whereas ~10% of Bangladesh silt is deposited in the southwest (see Fig. 2). Fig. 3 shows impacts of that neglect.

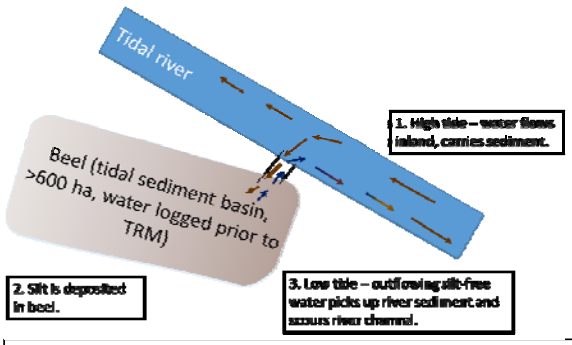


Fig.1. Conceptual figure of Tidal River Management, after Shampa et al. (2012).

2b. And why is silt relevant for south-west Bangladesh?

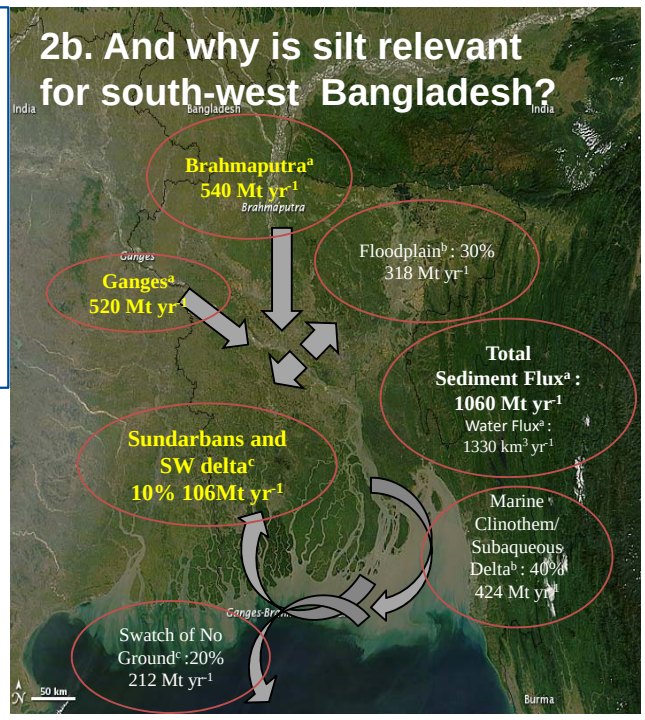
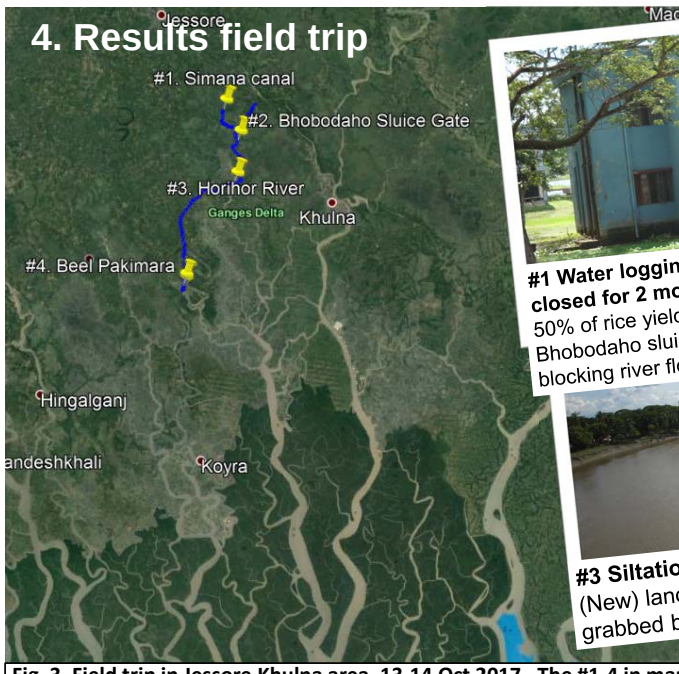


Fig. 2. ~10% of Ganges and Brahmaputra sediment is transported into the south-west delta. Sources: (a) Milliman et al. (1995), (b) Goodbred et al. (1999), (c) Rogers et al (2013).

4. Results field trip



#1 Water logging: Primary school closed for 2 months. Villagers lose 50% of rice yield, advocacy to remove Bhobodaho sluice gate which is blocking river flow and sediment.

#2 Dredging at Bhobodaho sluice gate. House of sluice gate operator fully covered in mud. Locals about the dredging "half the money disappears, and due to siltation dredging is undone within one month".

#3 Siltation of Horihor River. (New) land on silted river bank is grabbed by local elites.

#4 FGD Pakimara Beel Main issues in TRM project: power play by local elites and administration, compensation mechanism overly complex and corrupt, local knowledge neglected.

Fig. 3. Field trip in Jessore Khulna area, 13-14 Oct 2017. The #1-4 in map link with photos on the right. Scale: ~40 km from #1 to # 4. Source: Google Earth

5a. Key findings

2 very different strategies to overcome water logging.
TRM is conceived as a natural, local people's solution. One which requires participation, compensation of landowners, transparency. It is often associated with conflicts and implementation difficulties.
Hard infrastructure (dredging, embankments, sluice gates) is easy to implement, enables centralised management, provides quick results and has opportunities for corruption. However, it is often criticised as it increases siltation (Fig 3 #1-3).

Support for TRM long-lasting but weak.
Outspoken supporters are found at especially the local level –since 1997- as it benefits local livelihoods (local communities, NGOs, researchers from the SW delta). However, key individuals in the Ministry, Planning Commission, and Water Development Board prefer hard infrastructure. As a result, TRM is applied in one-off projects with unfair compensation schemes, and TRM is limitedly included in investment packages.

Strategic thinking on TRM and silt is emergent, not in policy and planning. Understanding emerges that along each river stretch an active TRM project is needed, to avoid that the river silts up again. Sequencing should be from downstream to upstream. Researchers start to ask questions about the long term applicability of TRM, sediment management, and fair compensation schemes. Such strategic thinking is very limitedly reflected in policy and planning.

6. Conclusions on the role of TRM in re-thinking Bangladesh delta management

- **Tidal river management is a feasible strategic alternative**. Previous TRM projects have shown that the technological means are there (though with scope for improvement), it is based on local people's knowledge, is an improvement for local livelihoods, and is radically different from mainstream strategies. TRM thus represents a strategic alternative [2] to cope with land and water resources in the southwest delta of Bangladesh.
- The **strategic choice to opt for long-term sediment management – and thus TRM - has not been made yet**. Although a proposal for a TRM Master Plan has been made, vested interests, knowledges and planning cultures constrain to date a more strategic and wider application of TRM (see also Box 5b for constraints to up-scaling).

Further reading [1] Seijger et al. (2016): An analytical framework for strategic delta planning:negotiating consent for long-term sustainable delta development, Journal of *Environmental Planning and Management* 60:8. [2] Schlegelmich et al. (2003): Strategic innovation: the construct, its drivers and its strategic outcomes. *Journal of Strategic Marketting,* 11:2. [3] Gain et al. (2017): Tidal river management in the south west Ganges-Brahmaputra delta in Bangladesh: Moving towards a transdisciplinary approach? *Environmental Science and Policy 75.*

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