



DELTA IN TIMES OF CLIMATE CHANGE II

INTERNATIONAL CONFERENCE

OPPORTUNITIES FOR PEOPLE, SCIENCE, CITIES AND BUSINESS
 ROTTERDAM THE NETHERLANDS, 24-26 SEPTEMBER 2014

<p>Deltas in Practice, policy-practice sessions</p> <p>Deltas in Practice Theme 6. Awareness, capacity building and community resilience</p> <p>DP 6.3 Science-to-Action: Aligning science with stakeholder and community needs in the Mekong and other delta systems</p>	
Chair	Prof. Robert J. Nicholls, University of Southampton, USA
Organised by	Dr. Zachary D. Tessler, CUNY Environmental Crossroads Initiative, USA
Presentations	<ul style="list-style-type: none"> • Dr. Marcel Marchand, Deltares, the Netherlands • Dr. Irina Overeem, University of Colorado, USA • Dr. Zita Sebesvari, United Nations University, Germany
Session topic	<ul style="list-style-type: none"> • - Trends in the delta's physical and biological environment, community health, local and regional economies, and other factors of importance - On what information do stakeholders base their assessments? - What is the knowledge base upon which actionable decision-support modeling tools and sustainable development strategies could be formulated?
Objective of the session	<ul style="list-style-type: none"> • The session aims to define the areas of greatest research needs and to make recommendations for future work
<p>Main conclusions and lessons learnt from the presentations</p> <p>Marcel Marchand, case study: Mekong Delta (70 million people, 1.9 ha flooding average / year, farmland, economically low end). In the 20th century, the area transformed from swampy low land in a drained area which was sophisticated and prosperous. However, the mangrove habitat declined and sulphated soils cause problem with agricultural production, but the local people managed very well to cope with this. So nowadays there is a strong believe in human mastery. But sadly this goes together with an underestimation of the complexity and integrated nature of ecology and livelihoods. The government thinks that with a full flood control and upstream measurement they can manage the climate adaptation problems. Deltares tries to change these believes and assumptions and started to develop a resistance strategy on different scales by using the multi layered framework. They analysed the delta system and all urban and farmers' needs in the area. Main communal problem is that all people, especially those who live in the cities, need fresh water.</p> <p>Irina Overeem As scientist, they build a modelling tool to analyse the interrelations between physical processes and socio-economical processes. Derived associated relationships and the correlation of variables are tested in delta systems throughout the world. The name of the modelling tool is: CSDMS Web Modelling Tool. It is web-based and to make the modelling process publicly accessible, all models are made public and ultimately useable for scientists and policy-makers worldwide. Relevant models are:</p> <ul style="list-style-type: none"> - River basin water and sediment - River / marine sediment plumes - Coastline evolution - Sediment failures <p>To run the tool you choose one model as main model. And all the other models give their information within the framework of the chosen main model. You can also choose a subject and ask for data around this subject out of the opened models. You can run 'WHAT IF scenario's', e.g. 'what if when it is going to rain more'. The modelling tool provides movies of data which show what can happen.</p>	





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Zachary Tessler: 'Irina's talk stressed the power of simple models that can be coupled to represent more complex processes. Their tool is aimed at allowing people a very straightforward way of accessing these models. This should be very useful for both education and research, and hopefully scenario building in the future'.

Zita Sebesvari

This is also about a scientific model for deltas. It is developed for the sub-delta level. The model is based on indicators from the ecosystem and social system. It is also based on publicly available data. The Mekong Delta is used as a pilot area. The area was divided in three zones so that data were more readily available. Regional data are not available or not available in open source. The scientists put a lot of effort to making a unified framework and select quantifiable indicators and indicators for all of the elements that are important for delta regions.

Lessons learnt:

- The bigger the area, the more complex it is to collect data
- Scientists work on a low scale but stakeholders want information on a high scale
- Stakeholders do not really want data, they just want good advice
- There is a timing difference between science and decision making: collecting data costs a lot of time. Climate decision making cannot wait too long
- A longer time scale asks for involvement of governmental organisations

Main conclusions of the discussion

1. What positive or negative trends do stakeholders observe with respect to their delta?
 - Main problem Mekong Delta: sand and grabber mining of sand and gravel upstream (10-20 M ton/year) causes deepening and therefore more intrusion of water, more salt problems, bank erosions. So not only the rising of the sealevel is at stake.
2. What critical knowledge or data gaps do we, as stakeholders and scientists, jointly identify as hindering progress?
 - Data are difficult to collect because of the huge area of the delta
 - The existing models are underachieving regarding ecological data
 - The models/frameworks which are available are not good enough to function as a standard for all deltas. It can be expected that this will be possible in the future: a general data-model framework together with more specific models for each delta is expected to be necessary
 - For scientist, it is not clear which information stakeholders find useful for their decisions on climate adaptation in delta areas
 - Scientists mainly work on a project level
 - Sometimes you have all the data but you cannot find the right solution
3. What information do stakeholders base their decisions/actions/involvement on?
 - Stakeholders want data on a regional level to make their decisions
 - Stakeholders ask for full scale analysis and directly interpretable solutions for projects. Scientists cannot deliver these right away. It will take a long time to get there.
 - Decision makers feel locked up in historically based decisions
 - The Dutch experience in the Rhine Delta cannot directly be 'exported' to Asian or African deltas because the Rhine is a much smaller-scale river with no ecosystem. Also, the Rhine





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Delta has a wealthy population that can bear relatively high costs for engineering methods to protect land and inhabitants.
Main result or conclusion of the session
<p>1. Data</p> <ul style="list-style-type: none"> - Scale and scope of data do not have the right focus yet - It is necessary to look from a more ecological and integrated perspective to the deltas in Asia and Africa - There is a need for a multiple approach - There is a need to quantify ecosystem functioning - Protect the data you already have - A comparative study of the main delta areas can provide good insight for building a standard framework - There is a good university system in Vietnam and India, that is not the reason for non-availability of data - When something is a huge economic or political issue, it is more easy to collect data (like dependence on off stream river water from the Ganges from India to Bangladesh) - Start working on a small scale. We have enough data to start projects. So start and do not wait until the best framework on a bigger scale is developed. <p>2. Stakeholders</p> <ul style="list-style-type: none"> - Stakeholders do not need the data itself, they need clear advice from scientists based on the data - A lot of mitigation measures and no regret measurements are possible right now - Projects in the West are insufficiently ecologically based - The government has to stimulate and showcase an economically interesting line up of products/spring offs gained from climate adaptive management - Social data show that the private sector at a local level has important stakeholders for decision making and maintenance of climate adaptation <p>3. General</p> <ul style="list-style-type: none"> - Think in different options with different end results to deal with uncertainties - Sometimes there are many different technical solutions but social-economically they do not fit (for instance in Bangladesh there are little alternatives for jobs) - Organise community discussions to formulate the right questions, broaden and deepen problem analysing and find out solutions with low costs - Gain more respect for an exploring approach instead of an engineering approach
Most exciting insights or outcomes
<ul style="list-style-type: none"> • For scientist it is not clear which information stakeholders find useful for their decisions on climate adaptation in delta areas
<ul style="list-style-type: none"> • Scale and scope of data do not have the right focus yet
<ul style="list-style-type: none"> • A comparative study of the main delta areas can provide good insight for building a standard framework
<ul style="list-style-type: none"> • Organise community discussions to formulate the right questions, broaden and deepen problem analysing and find out solutions with low costs
<ul style="list-style-type: none"> • Projects in the West are insufficiently ecologically based

