



DELTA IN TIMES OF CLIMATE CHANGE II INTERNATIONAL CONFERENCE

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

Deltas in Depth scientific sessions	
Deltas in Depth Theme 2. Flood risk management	
DD 2.2 Making room for water	
Chair	Dr. Luciana S. Esteves, Bournemouth University, United Kingdom
Presentations	<ul style="list-style-type: none">● Dr. Jean-Marie Stam, Rijkswaterstaat Room for the River, the Netherlands● Dr. Luciana S. Esteves, Bournemouth University, United Kingdom● Hans-Peter Weikard, Wageningen University, the Netherlands● Dr. Anna Wesselink, University of Twente, the Netherlands

Session DD 2.2 addressed the issue of making room for water within the theme of Flood Risk Management (FRM) and was chaired by Dr. Luciana S. Esteves. This session addresses the change from hard engineering flood risk management to making space for water in the light of a changing climate, the need for adaptation and sustainability. Seeking for alternatives that could bring more benefits for society in comparison to traditional FRM strategies.

The first speaker, Dr. Jean-Marie Stam shows how farming, forestry and flood management could be combined. She tells about her experiences within the ALFA project (Adaptive Land use for Flood Alleviation, <http://alfa-project.eu/en/>) aiming to create storage and discharge capacity along the rivers taking an integrated catchment approach. The project partners represent different locations in a catchment. She shows that the position in a river basin determines the type of FRM (hold, retain, discharge), e.g. in upstream regions water will often be hold as long as possible, in the middle regions water will be retained as long as possible, while downstream the water will be discharged as soon as possible. Those different approaches provide a variety of opportunities for rural areas. This clarifies also upstream-downstream interdependencies and the need for solidarity. Other lessons learned from those cases are the fact that every actor should have gains (e.g. multi-benefit, via compensation or improved spatial quality), that projects should be designed in collaboration with end-users and that the local needs should be taken into consideration. Although improving biodiversity via FRM projects often requires some extra input, it will bring multiple and long-term benefits.

Dr. Luciana S. Esteves shows us in her speech that the paradigm shift in FRM from the hard engineering era to approaches where multiple uses and the creation of space for water leads to multiple benefits across sectors of society could be addressed by the concept of management realignment (MR). So far, different, confusing terminologies of this concept are applied, yet Luciana defines MR as a soft engineering approach aiming to promote sustainability of coastal erosion and FRM by creating opportunities of the wider benefits provided by natural adaptive capacity that are allowed to respond more dynamically to environmental changes. Examples of challenges for MR across different countries are: availability, public perception, providing evidence of benefits acquired and creating long term plans. She states that to increase public uptake and acceptance, it is necessary to provide evidence of the benefit gained from existing MR projects. Lastly, Luciana focuses on the need for behavioural changes via education, the need for political willingness for long-term planning and a paradigm shift towards building with nature.





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The third speaker, Hans-Peter Weikard discussed a compensation mechanism for flood protection services on the farm land and showed us the need and possibilities for land owner's engagement with FRM and water retention from an economic perspective. Key questions of his research were how farmland as retention area could be used and operated and how farmers in those regions could be compensated. He tells about a Hungarian case where damage compensation leads to expensive assessments, inefficient crop choice and potentially inefficient use of the reservoir. Hans-Peter and colleagues have developed a contract design model as compensation for flood protection services based on a hydrological aspect (river authorities must balance the avoided downstream damage against damage in the reservoir or compensation claims) and an aspect related to the value of crops. He concludes that criteria for their simple and easily implementable compensation scheme are the voluntary participation of farmers (they should be happy to use their land as a water reservoir), an efficient crop choice (choosing a low value crop to reduce losses), efficient risk allocation when farmers are risk averse (they should be fully insured) and efficient use of the reservoir (floodgates should open when the avoided damage is higher than the variable compensation payment). Next step is to assess the scheme's working in practice.

Lastly, Anna Wesselink showed that today's general assumption is that the focus on hard engineering measures in FRM is costly and unsustainable under changing climate conditions and that softer approaches are expected to fit better. Yet, her studies show that it is important to consider a regions' history to understand the current situation and that each region needs other FRM strategies. Technologies applied, histories, attitudes and paradigms to FRM are different, so why do we try to learn from other regions and countries? She shows that even two cases in the Netherlands are not comparable and that technology applied should fit local conditions and cannot be directly copied. It is important to be inspired by other regions and to reflect on your own practices. She mentions the striking example of hurricane Katrina, being a wake-up call for the Netherlands leading to reflections concerning the Dutch trust in engineers and technology.

Points for discussion are the importance of the application of a river basin management approach, which is stimulated by river basin commissions and EU legislation, yet this could be improved. Also the importance of farmers engagement in FRM projects in river basins was discussed. Based on the new types of FRM, a division of responsibilities is a point for discussions as well. Besides, the audience agreed upon that Dutch knowledge cannot be applicable to other countries without consideration of local situations. Public awareness about climate change and FRM and the different levels societies' preparedness to extreme weather and flooding was discussed. It became clear that awareness and preparedness is also related to the frequency in which the public is affected by flood events. Challenging issues are the trans boundary aspect, the historical traditions of FRM and its socio-economic and cultural aspects.

