



Short Proceedings of the Delta Alliance Dutch Wing - Kick off workshop

Location: Vertrekhal Oranjelijn, Rotterdam

Date: 22 April 2010, Time: 1.30 pm – 5.00 pm

1. Welcome and introduction of chairman Dirk Sijmons by Cees van de Guchte – Coordinator of Delta Alliance Dutch Wing

Dirk Sijmons, Professor Urbanism and Environmental Design at TU Delft, was the chairman and moderator of this workshop. Dirk Sijmons wrote an article in a national newspaper about delta alliances, proposing that Mrs. Cramer - minister of housing, Spatial Planning and the Environment - should focus her international activities on a few deltas.

2. Introduction participants

Everybody shortly introduced him- or herself by name and organization. *See List of Participants (Appendix 1).*

3. Introduction of Delta Alliance by Kees Slingerland – Delta Alliance Acting Chairman

Kees Slingerland presented an overview of the Delta Alliance and Wings, the objectives and focus of Dutch Wing and the objectives and outline of the workshop. *All presentations can be found separately.*

4. NWP and Delta Alliance by Lennart Silvis – Operational Director of Netherlands Water Partnership

Lennart Silvis presented an sketchy overview of the water sector in the Netherlands related to the innovation cycle, which connects the ‘societal demands’ at the left side (Maatschappelijke vraag) with the ‘market supply at the right side (Markt aanbod). The different steps within the innovation cycle are mentioned as follows: F – Fundamental research, T – Applied (Toegepast) research, P - Pilots, M – Market applications. He illustrated the positioning of current national and international initiatives such as Dutch Delta design, Connecting Delta Cities, Delta technology network etc. and he stressed the fact that we should focus on working together complementary and by interaction for

better results. How to do this exactly is a ‘learning-by-doing’ process and the current Delta Alliance workshop is a good start to discuss this and to build upon.

5. Aquade and Delta Alliance by Dirk Sijmons – Professor Urbanism and Environmental Design at TU Delft

The aquade event 2012-2020 will be organized in close cooperation with Dutch Delta Design and other ‘Dutch Delta branding’ activities. It will be a multi-purpose series of events, exposing to the world our expertise and capabilities on water and climate issues especially from our cultural perspective

6. Summary of the outcome of the Electronic Board Room session

During the EBR session participants were invited to use a notebook to submit their contributions in an electronic brainstorm meeting. All notebooks were connected to a network and special software made all contributions visible and structured it. In this way it was possible for the participants to generate a lot of ideas, to interact and to collect and document the results simultaneously as input for the Dutch Wing activities and organization.

Participants were asked to (step 1) **identify and** (step 2) **prioritize critical problems and themes** (in the Netherlands, but linked to international cooperation). For prioritization each participants gave a score between 1 (less important) till 5 (very important) to each item within all theme categories. Participants also (step 3) listed project opportunities (for further clarification after the kick-off) for each theme.

The full outcome of the session is documented in Appendix 2 ; a short overview of the themes that were identified and ranked highest, is listed here:

Theme: Safety against flooding

1. Use of natural systems to protect from flooding (end score 4.21)
2. Training and capacity building (4.14)
3. Adapting land use (4.00)

Theme: Water supply and sanitation

1. Conflicts in (natural) water availability and water demand (4.17)
2. Drought (4.08)
3. Integrated ground water management (4.08)

Theme: Urban areas

1. Climate robust building and spatial planning (4.44)
2. Coordination spatial planning (4.44)
3. Combine urban functions with water management (4.00)

Theme: Modeling and tools

1. Vulnerability assessments tools (4.29)
2. Training and capacity building (4.07)
3. Decision support tools (3.93)

Theme: Environmental quality and biodiversity

1. Building with nature (4.43)
2. Training and capacity building (4.14)
3. Interaction between nature, agriculture and aquaculture (4.0)

Theme: Governance of adaptation

1. Training and capacity building (4.0)
1. Participatory approaches (4.0)
1. Long term financial arrangements (4.0)

Theme: Water for food

1. Water efficiency (4.21)
2. Adaptation strategies for agriculture (4.14)
3. Balancing competing claims on water (4.14)

Theme: Spatial planning

1. Need for further integrated approach, in relation to policy (4.08)
2. Lack of long term vision and integrated planning (3.92)
3. Integrated approach including sustainable natural resource management (3.92)

Theme: Other

1. Public private partnerships (4.14)
2. Comparative analysis and assessments of delta's (3.93)
3. Private sector commitments, innovative collaborations (3.86)

7. Project opportunities

Through the EBR session the participants brought up also many project opportunities for Delta Alliance, see the table below. Other noteworthy outcome (not mentioned above) were remarks about projects for harmonization and/or integration of available data and information, including recommendations that Delta Alliance should not only focus on developing countries, but also on the EU and USA.

Safety against flooding	
	Use natural processes and resources when possible
	Integrated physical system assessment (land, water, climate) on flooding risks (Dam)
	Dike quality monitoring by RS
	Create a joint project for application of natural flood defense systems in poor areas
	Provide a reliable database on critical characteristics of levees and dams
	Comparative vulnerability assessments for different deltas
	Multi level safety approach
	Innovative (engineering) and multifunctional (land use) solutions/designs of water barriers;
	Remote monitoring technologies
	Floating cities
	Flood control - data necessity, technologies, accessibility
	Development of disaster risk reduction strategies
	Net centric operations flood control room

	Living with water: adaptive building
	Real-time monitoring methods on behalf of water authorities for adequate response
	Water supply and sanitation
	Groundwater management (Retain, recharge, re-use)
	Water and energy optimization across drinking water production and users e.g. water utility collaboration with food or beverage producer and realize 30% water and energy reduction
	Decreasing water demand/increasing efficiency
	Focus on all -in water supply (also the private users, families, etc, urban poor), not just the large institutional companies to come to a 100 % coverage of water supply
	Visualize strategies for regional self-sufficiency (Landuse, water technology, water management). Translating KvK 2e tranche research to other deltas (and sharing)
	Urban areas
	Design of subsurface constructions
	Water cities; an integrated position of water systems in delta cities (dam)
	Flood resilient cities concepts, processes and design
	Climate adaptation plans / strategies delta cities
	Floating cities
	Eco City
	Smart delta cities: optimize use of available information and data to improve decision making
	Make the urban area and coastal zone more integrated and/or accessible
	Combination climate-proof & climate-neutral design
	Modeling and tools
	Harmonization of data and methods
	Integrate modeling tools
	Uncertainty management run-off/etc.
	Development integrated toolbox regional climate-resilient development
	Development of climate atlases for the Delta Alliance delta's (Comparable to the KvK climate atlases for the Dutch provinces)
	Urban growth modeling
	Delta vulnerability assessment tool (for different hazards)
	4D models for analysis of system changes over time
	Societal CBA targeting for deltas
	Environmental quality and biodiversity
	Long term sediment balance
	Projecten Coalitie "Natuurlijke Klimaatbuffers"
	Project "Open armen voor de Delta"
	Building with nature
	Combine coastal defense systems with ecological networks for enhanced biodiversity
	Functions and restoration of mangroves
	Governance of adaptation
	Assist countries to develop national policy plans for water related to other sectors
	Development climate proofing framework
	Share experiences on water governance
	Operations and maintenance of infrastructure-dykes etc
	Enhance and apply the concept of integrated coastal zone management internationally

	Make more efficient the exchange of data and information to adapt to change
Infrastructure	
	Data dashboard/decision support system: information and collaboration platform connecting sensor networks, climate and water models, applications and data streams and making that information available to a much larger set of stakeholders than just the experts, enable what if scenarios.
	Development subsurface infrastructure/constructions
	Port areas in Indonesia to be more integrated with the direct (urban) hinterland, like for example here in Rotterdam.
	At the same time elevate the efficiency of network of ports in Indonesia as alternative and environmental friendly node of transport
	Define critical infrastructure and evacuation / escape zones
	Adaptable and flexible infrastructure/real option analysis
	Smart infrastructure
Water for food	
	Drought early warning
	Fresh On demand: joint effort by food producers, distributors, retail, the whole value chain, and reduce energy / water / carbon footprint by 20-30%
	Comparative study between delta's on interlinked adaptation strategies for agriculture, aquaculture, nature and other functions in the delta to the impacts of climate change (changing dynamics in the delta's: hydrology and salinity)
	Adaptation strategies for agriculture
	Development of saltresistent crops
	Irrigation efficiency
	Remote investigation on drinking water supplies
	Tidal economies in delta areas
Spatial planning	
	3D-4D spatial planning (dam)
	Generic multiple landuse approach (based on 3 layer model)
	Project Room for Rivers
	Urban growth modeling
	Motion mapping on behalf of spatial development
	Development of integrated terrestrial, coastal and maritime spatial planning systems incl. flood defense
	Integrated water plan / urban design with water
	Building with nature
	The appropriate tool for redevelopment vulnerable Delta areas; a framework for necessarily measures, combining (innovatory) functions where possible and a vehicle for political decision making. So we need Aquade for development of projects (BA ausstellung)
Other	
	Comparative analysis adaptation plans
	Joint degrees with delta universities
	Breakpoint Analysis and visualize adaptation paths (portfolio of strategies) for participating deltas
	Comparing national knowledge agendas (Delta Program, knowledge for climate) with participating deltas as a stimulus for research
	Design & built the ideal delta city
	Think of negative growth scenarios for delta cities (away from the coast, back to the

	countryside!)
	Back casting studies on future safety standards
	Not only d'ping countries, also EU, US
	Take on the challenge: dealing with climate uncertainties in data/information poor regions, create low-cost effective adaptation strategies.

8. Additional remarks and suggestion by participants

Remarks on content

Delta technology -> water technology > Delta Alliance

Make the difference -Learning Delta's need innovative approaches that are actually implemented, jointly with private sector

International design competition, connect the reward to Delta Alliance

Use the determining natural processes in deltas for delta development

Create here (as a start) our first floating city

Geoinformation- surface/subsurface

Be aware of lack of focus; all stakeholders, all issues, both urban and non-urban areas..

Stimulate better use of available knowledge

Focus + demand driven

Focus Delta Alliance around knowledge

This is not a Delta (anymore)

Remarks on organization

Use network organisation structure + knowledge of the European Coastal and Marine Union - EUCC (2700 members + member organisations in 40 countries)

Give priority to collaboration between deltas in the field of education

Connect with already well developed networks, Dutch companies are active all-over the world

Be accessible, especially for interested youth

International Delta University

Listen to each other and don't try to promote the Netherlands abroad

Stay open to learn from others

Connect more with EU-SICA projects (world-wide) regarding delta issues

Appendix 1. List of participants

1	I. van der Linden	AgentschapNL
2	Rob Swart	Alterra
3	Wim van Driel	Alterra
4	Arnoud Molenaar	Connecting Delta Cities - Gem Rotterdam
5	Chantal Oudkerk-Pool	Connecting Delta Cities - Gem Rotterdam
6	Debora de Block	DA Secretariat - WUR
7	Rens van den Bergh	Deltares – EBR expert
8	Tom Bucx	DA Dutch Wing - Deltares
9	Cees van de Guchte	DA Dutch Wing - Deltares
10	Maaïke Maarse	DA Dutch Wing - Deltares
11	Judith ter Maat	DA Dutch Wing - Deltares
12	Rien Dam	Deltares
13	Ad Jeuken	Deltares
14	Chris Zevenbergen	DVG
15	Aaman Sulchan	Emic research
16	Mike Mannaart	EUCC
17	Peter van der Kolk	Fugro
18	Djeevan Schiferli	IBM
19	Kees Slingerland	KvK
20	Mathieu Pinkers	LNV
21	Lennart Silvis	NWP
22	Jos Timmermans	TU Delft
23	Dirk Sijmons	TUD
24	Frank van der Meulen	UNESCO_IHE
25	Robert Hack	UT/ITC
26	Rob Schoonman	VROM
27	Joost Buntsma	Water Mondiaal
28	Xander de Bruine	WNF/WEA

Appendix 2. EBR session - Identified and prioritized critical issues

Identified and prioritized critical issues		Score
Safety against flooding		
1.	Use of natural systems to protect from flooding	4,21
2.	Training and capacity building	4,14
3.	Adapting landuse	4,00
4.	Risk Analysis	3,93
5.	Long-term analysis of threats	3,92
6.	Awareness	3,86
7.	Lack of data on the water systems characteristics	3,86
8.	Risks assessment	3,79
9.	Sinking deltas; physical system vulnerability, surface AND subsurface	3,79
10.	Upstream measures / activities that have an impact on downstream cities / urban areas, no coordination	3,79
11.	Spatial planning with risk zones	3,79
12.	Early warning system	3,71
13.	Climate change risks	3,71
14.	Coping with risks	3,64
15.	Insight cost benefits analysis (Protected area)	3,64
16.	(national) Policy development and management	3,64
17.	In time monitoring of critical parameters	3,57
18.	Prevention measures	3,50
19.	Lack of transboundary cooperation	3,43
20.	Not enough warning time for evacuation	3,31
21.	Perception	3,29
22.	It's not sea level rise stupid, its Subsidence of the land !	3,29
23.	Dike strength and evacuation	3,21
24.	Sediment balance	3,00
25.	Waste management	2,86
26.	Standards IRT multilayer security	2,86
27.	NL is the delta with most detailed insight in physical systems, use this strength	2,43
Water supply and sanitation		
1.	Conflicts in (natural) water availability and water demand -> water scarcity and droughts	4,17
2.	Drought	4,08
3.	Integrated groundwater management	4,08
4.	Training and capacity building	4,00
5.	Integrated water resources assessment	3,92
6.	Salt water intrusion	3,92
7.	(national) Policy development and management	3,83
8.	Drought early warning	3,75
9.	Subsidence of the land	3,67
10.	Water system assessment	3,42
11.	Health	3,33
12.	Hygiene education	2,83
13.	Lack of money	2,83
Urban areas		
1.	Climate robust building and spatial planning	4,44
2.	Coordination spatial planning	4,44
3.	Combine urban functions with watermanagement purpose	4,00

4.	Infrastructural network development	4,00
5.	Designing with water	3,89
6.	Watersupply for the city (drinking water)	3,89
7.	View urban area including subsurface and water systems	3,89
8.	(national) Policy development and management	3,75
9.	Lack of retention AREAS	3,67
10.	Relation between urban area and hinterland	3,50
11.	Training and capacity building	3,44
12.	Developing old harbour areas	3,44
13.	Capacity/design sewerage/drainage systems	3,33
14.	Using urban dynamics	3,33
15.	Use of remote technologies for urban planning	3,25
16.	Underground building in soft soils	3,22
17.	Not a complete overview of city water systems / knowledge infrastructure, there is so much information and physical infrastructures like sewers but no knowledge where it is located	3,22
18.	urban heat island effect	3,11
19.	subsurface construction	3,11
20.	The urban water cycle is not understood very well	3,00
21.	All environmental problems have become urban problems nowadays because of massive urbanization in Deltas	3,00
22.	Learning from others; living with water	2,67

Modeling tools

1.	Vulnerability assessment tools	4,29
2.	Training and capacity building	4,07
3.	Decision support tools	3,93
4.	Managing uncertainties	3,79
5.	RS data availability and interpretation	3,79
6.	Make climate atlases for the Delta Alliance delta's	3,64
7.	Harmonization data/methods	3,64
8.	Conflicting predictions from different models, almost no integration possible, black boxes	3,64
9.	Comprehensive suites of modeling tools, for physical systems, (water, Subsurface), societal systems	3,57
10.	Think of modeling tools and output and how these are viewed by society (errors, uncertainty) !	3,29
11.	We need urban configuration studies and models to stimulate them very bad, although top down planning is obsolete. To know if configurations are possible were urbanization, food production and biodiversity and water can fit harmoniously.	3,29

Environmental quality and biodiversity

1.	Building with nature	4,43
2.	Training and capacity building	4,14
3.	Interaction between nature, agriculture and aquaculture	4,00
4.	Eco-engineering	4,00
5.	Climate buffers	4,00
6.	Habitats	3,93
7.	Combination of nature conservation and urban development	3,71
8.	River pollution	3,71
9.	Sustainable natural resources management	3,71
10.	Ecosystem services	3,64
11.	Ecological footprint	3,57
12.	(national) Policy development and management	3,57
13.	Awareness raising of importance's	3,50
14.	Sediment balance	3,14
15.	Environmental flows	3,00
16.	Delta areas are also hotspots for recreation, biodiversity (wetlands)	2,93
17.	Environmental flows	2,77

Governance of adaptation

1.	Training and capacity building	4,00
2.	Participatory approaches	4,00
3.	Long term financial arrangements	4,00
4.	Cooperation (horizontal and vertical) between government and other parties	3,71
5.	Integrating local (cultural) knowledge and experience	3,64
6.	(national) Policy development and management	3,64
7.	Role of legislation and local requirements	3,57
8.	Enabling environment (bridging institutional divide)	3,36
9.	Lack of sense of urgency	3,36
10.	Cost benefit analysis	3,29
	An excellent tool (probably the only) for solving complex (interdependent) problems in a integrated way.	
11.		3,07
12.	Beyond societal support	2,93
13.	Complete fragmentation of ecosystem and stakeholders and decision-making	2,93
14.	Abating corruption	2,71
15.	When do we leave a delta?	2,07

Infrastructure

1.	Living with water	3,86
2.	Green adaptation measures (building with nature)	3,86
3.	Adaptation of critical infrastructure	3,71
4.	Vulnerability Public facilities	3,64
5.	Ecological engineering / ecosystems approach related to dams/dikes	3,64
6.	Training and capacity building	3,62
7.	Identifying vital infrastructure	3,50
8.	Evacuation	3,36
9.	(national) Policy development and management	3,36
10.	Sub-surface infrastructure	3,14
11.	Natural solutions as commodity - Infrastructure only when needed	3,07
12.	Surface infrastructure, but also subsurface, and water infrastructure	3,00
	Multitude of point solutions and proprietary IT systems preventing information sharing between city departments, businesses and sciences	
13.		3,00
14.	Sub-surface infrastructure and soil-subsidence	3,00
15.	Accessibility	2,93
16.	Soft soil engineering	2,86
17.	Congested highways and transport systems	2,71

Water for food

1.	Water efficiency	4,21
2.	Adaptation strategies for agriculture	4,14
3.	Balancing competing claims on land and water	4,14
4.	Salt resistant agriculture	3,93
5.	Soil salinity	3,86
6.	Urban agriculture	3,86
7.	Introduction new crop varieties (salt and drought resistant)	3,79
8.	Training and capacity building	3,71
9.	Salt intrusion	3,71
10.	(national) Policy development and management	3,64
	Interlinked adaptation strategies for agriculture, aquaculture and nature to changing dynamics (hydrology and salinity) in delta's	
11.		3,57
12.	Drought early warning	3,57
13.	Irrigation efficiency	3,50
14.	Satellite data on subsoil water resources	3,50
15.	Water productivity research	3,43

Spatial planning

1.	Need for further integrated approach, in relation to policy	4,08
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2.	Lack of long term vision and integrated planning	3,92
3.	Integrated approach includes as well sustainable natural resources management	3,92
4.	Flood plain management	3,85
5.	Multi-use approach	3,85
6.	Living with water	3,77
7.	Socio-economic scenarios and their consequences for change in land use/cover Integration as term should include at least: spatial differentiation (land, coast and sea), social aspects (poverty) and mentality, economics, natural resources, physical environmental management (waste, sanitation, energy etc), infrastructure, housing, framework: policy making, law enforcement, cross-border cooperation, all governmental layers, all stakeholders	3,69
8.	Training and capacity building	3,54
9.	The (only) instrument for solving complex (and interdependent) problems in a integrated way!	3,54
10.	Lack of collaboration between disciplines (e.g. spatial planning and water management and so on)	3,46
11.	Increase green structure in combination with water adaptive measures	3,46
12.	(national) Policy development and management	3,38
13.	Spatial planning in 3d domains, in the near (off)shore areas (activities in the offshore area increasing)	3,23
14.	Use of 4D models on spatial development (both urban and rural environments)	3,23
15.	Include interaction between terrestrial, coastal and marine interface	3,15
16.	Law enforcement	3,00
 Other		
1.	Public-private partnerships	4,14
2.	Comparative analysis and assessments of deltas	3,93
3.	Private sector commitments, innovative collaborations	3,86
4.	Scenarios development for climate change and socio-economic developments	3,86
5.	Training and capacity building	3,69
6.	Bachelor and MSc education related to delta phenomena, issues and solutions	3,64
7.	Extreme events: floods AND droughts Salt water intrusion due to sea level or low flow rivers - from underground (long term process) or directly from rivers (short process)	3,57
8.	Policy analysis approach (Dutch approach, Veerman), breakpoints, adaptation paths. thinking a hundred years ahead. Take the first step now (see Thames Estuary).	3,57
9.	Use the combination of social science and natural (economic) resource as solution to adaptation issues	3,50
10.	What about Ports and logistical infrastructure	3,50
11.	Behavior and awareness, cleaning of water in one area and a little bit further people are dumping waste in a river	3,21