



Workshop A5

Building Inclusive Multi-stakeholder and Bankable Flood Resilience in Cities

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Panama Dutch Water Dialogues

Wetlands International

We are the global not-for-profit organisation dedicated to the conservation and restoration of wetlands; for people and nature.

- 20 offices throughout the world
- Work on policy – practice - knowledge



Blue-Green Infrastructure...

Blue – Green – Grey : same same, but different?

Blue-Green Infrastructure

planned **interconnected networks of natural and semi-natural areas, including water bodies** and green and open spaces, that **provide different ecosystem services**

(own definition, drawing on EU Commission 2013, Voskamp and Van de Ven 2015 and Ghofrani et. al 2016)



Green Infrastructure

planned **networks of natural and semi-natural areas** with other environmental features designed and managed **to deliver different ecosystem services**

(EU Commission 2013)



Grey Infrastructure

traditional human-engineered measures that **perform infrastructure functions** such as water and wastewater treatment plants or protective infrastructure such as dykes and seawalls.



Examples: grey infrastructure



Examples: green infrastructure



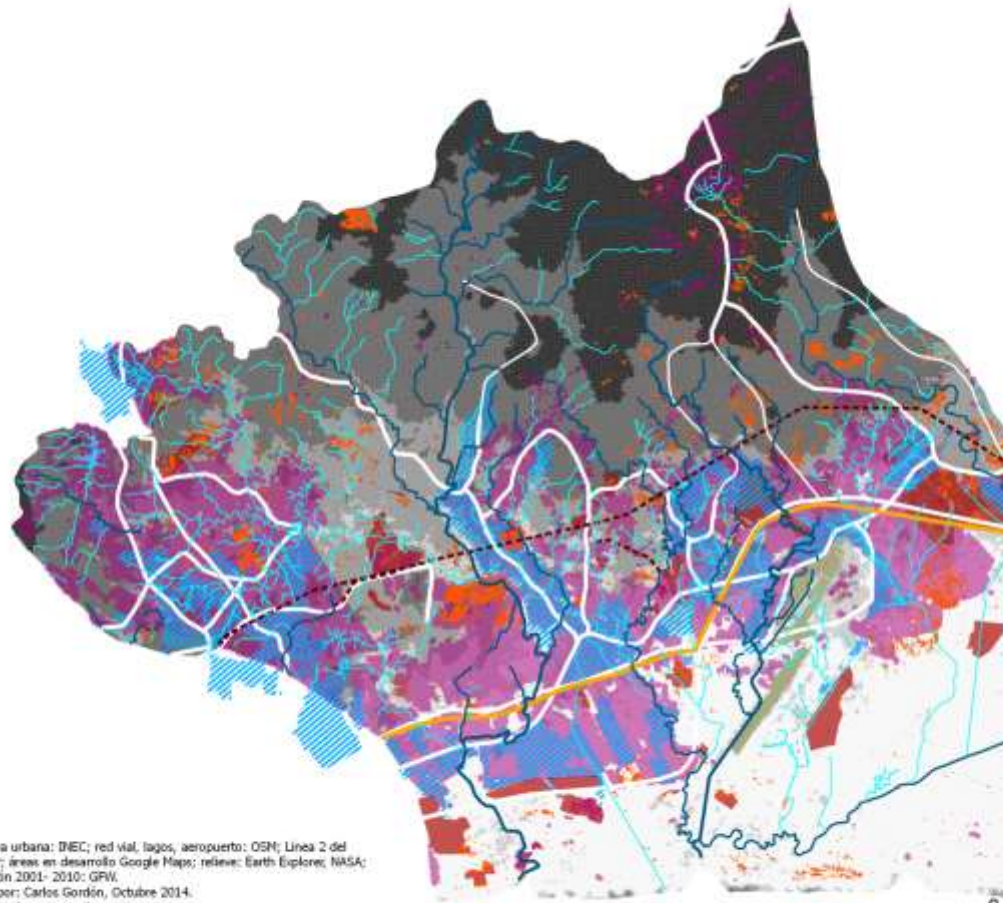
Examples: blue-green infrastructure



Panama City



Look at the landscape / river basin level



Barrios inundados Deforestación 26- 50 301- 825
 Área urbanizada Altura (msnm) 51- 100 Línea 2 del Metro
 Área en desarrollo 1- 25 101- 300 Línea de transmisión eléctrica



Participatory – inclusive approaches

Problem

- Recurrent urban flooding in Juan Diaz
- Increased frequency and intensity after landfilling floodplains and swamps
- Sectors blaming each other: govt., communities, private sector, NGOs



Catalyzing the process

Official request to the Government of the Netherlands for a DRR Team Scoping Mission to come to Panama City



Catalyzing the process

Report of the DRR Team Scoping Mission – recommendations:

- Maintenance of the Drainage System (MOP, MUPA, Community Council)
- Inventory of all the permits and developments expected to be reevaluated
- Inspections and Interinstitutional Sanctions
- Risk Assessment and its application in the planning process, consider Climate Change
- Permitting Evaluation Committee and Interinstitutional Coordination
- Norms: Prioritize Risk Management and the Protection of Water Resources and Wetlands
- Not channeling rivers, maintaining natural riverbeds, restore material layer, create reservoirs
- Interinstitutional training and exchange programs
- Update procedures and norms for Ministry of Public Works (MOP)
- Municipal Land Use Plan
- **Panama-Netherlands Water Dialogues**





ALCALDÍA DE PANAMÁ



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DIÁLOGOS DEL AGUA

CONSTRUYENDO JUNTOS SOLUCIONES SOSTENIBLES



DIÁLOGOS DEL AGUA

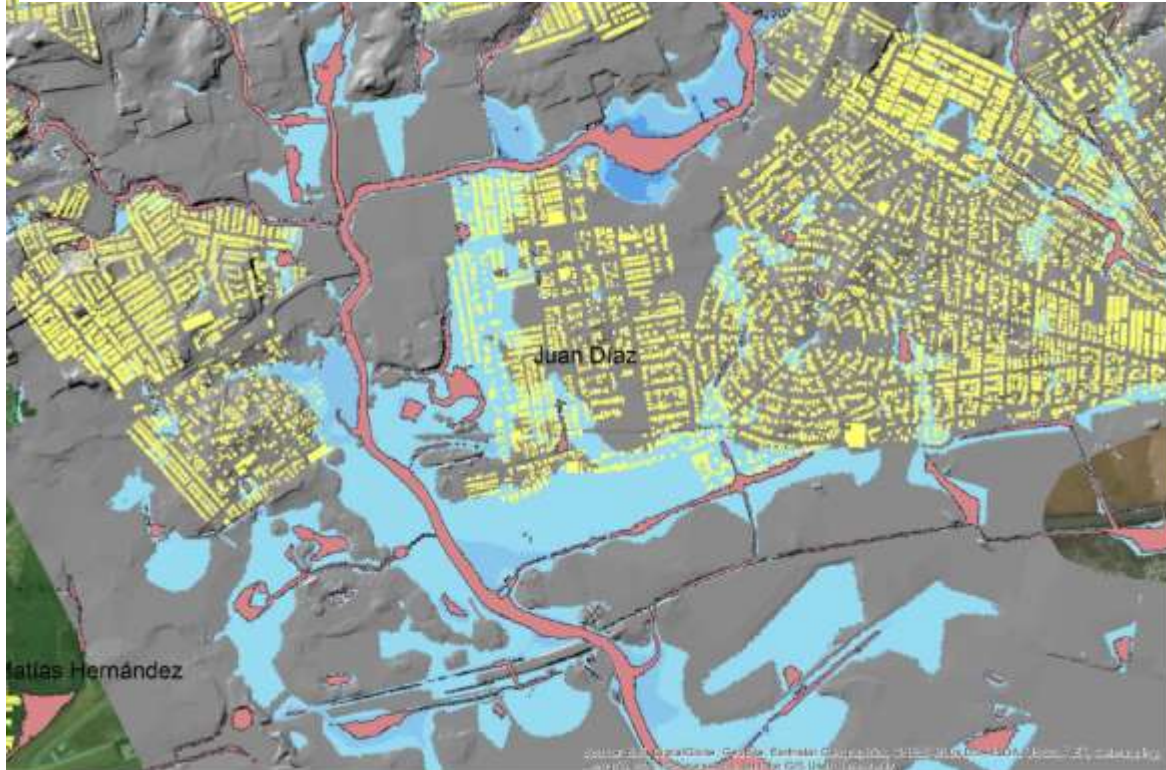
CONSTRUYENDO JUNTOS SOLUCIONES SOSTENIBLES

- Additional missions with top water experts from the Dutch Risk Reduction (DRR) Team
- Start multi-stakeholder dialogues focusing on solutions
- Participatory design sessions
- Policy and regulatory analysis – yes, we need lawyers!
- Community clean-ups of drainage system



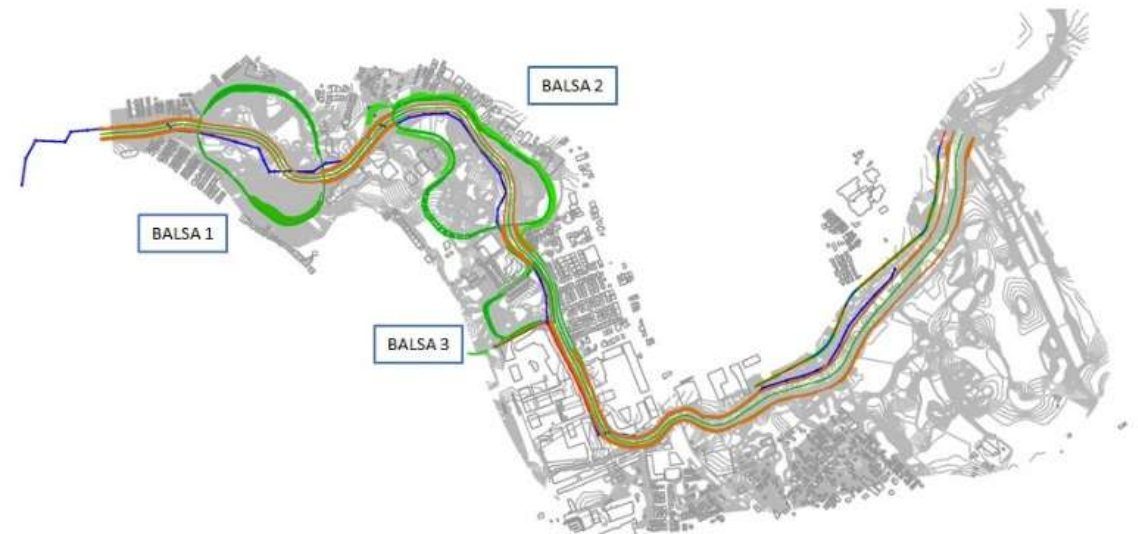
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- Acquire a hydrological and hydraulic modelling for the required flood risk reduction infrastructure

	SUPERFICIE (Ha)	CAPACIDAD T=100 AÑOS (m3)	VOLUMEN EXCAVACIÓN (m3)
BALSA 1	21.02	1,260,961.56	1,208,098.93
BALSA 2	20.21	1,374,169.02	710,264.74
BALSA 3	4.97	342,789.52	207,455.20



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Results

- Action Plan
- Change of discourse: from blame-game to solutions oriented discussion
- Adjustment of existing and new regulations to prevent new risk – Wetlands International
- Hydraulic measures identified
- Urban design elaborated for Sta. Inés pilot site
- Inter-American Development Bank loan for USD\$100mln approved, for implementation by the Municipality



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Thank you!

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