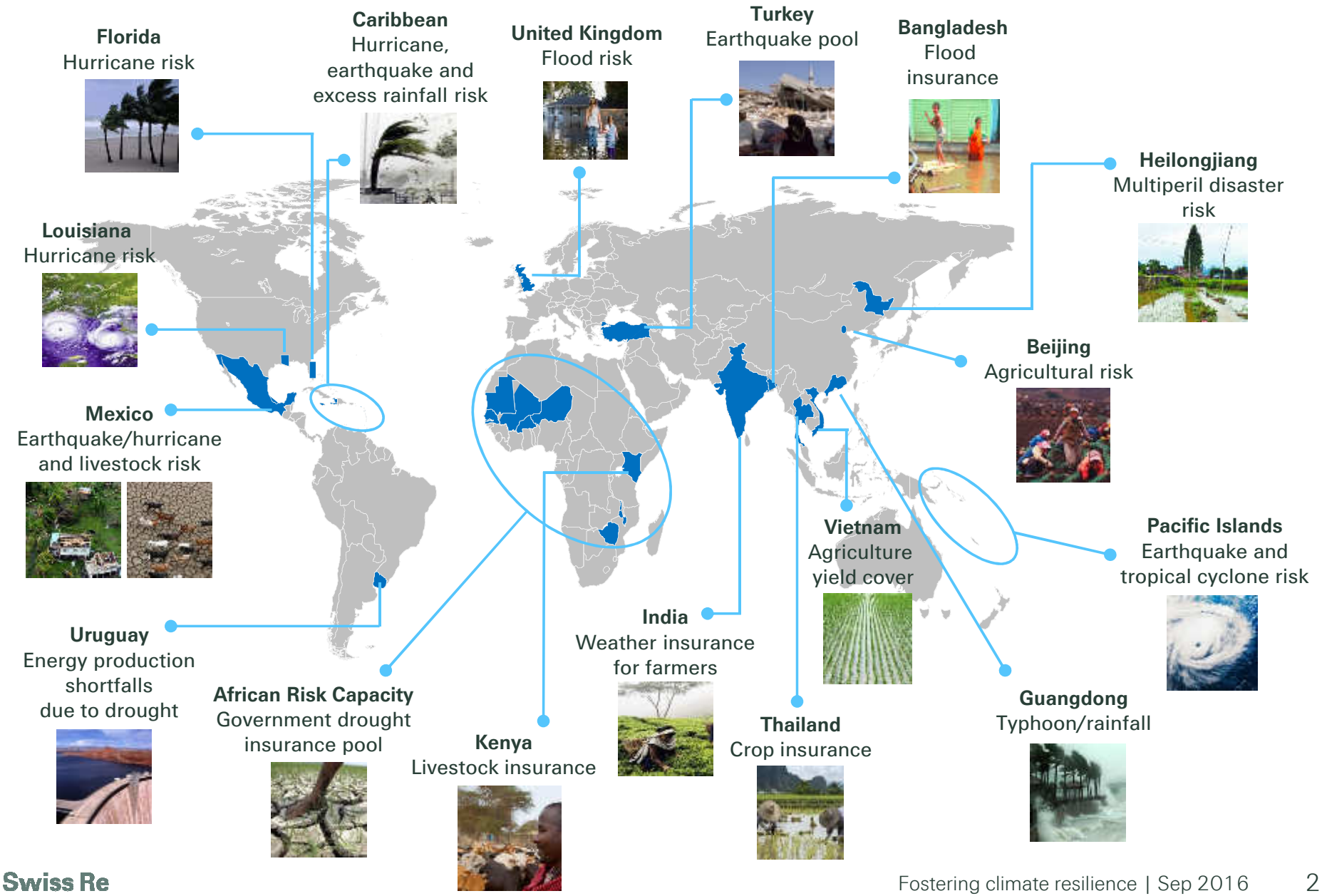
Swiss Re

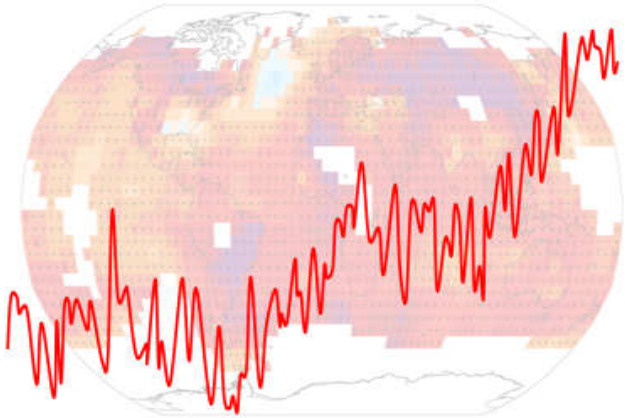
Fostering climate change resilience in Barisal, Bangladesh

Lukas Sundermann, Natural Catastrophe Specialist at Global Partnerships, Swiss Re

Examples of innovative risk transfer solutions for the public sector



Key messages



- Swiss Re, as an ultimate risk taker, is particularly exposed to the impact of climate change.
- Insurance has an active role in understanding and managing risks, and offering risk transfer.
- With adaptation to climate change risk we can reduce up to 65% of economic losses.

Climate adaptation is an urgent priority
Assess and address

Decision makers of national and local economies ask:

- What is the potential climate-related loss to the economies and societies over the coming decades?
- How much of that loss can we avert, with what measures?
- What investments will be required to fund those measures and will the benefits of that investment outweigh the costs?

US Gulf Coast: *Hurricane risk to the energy system*

New York: *Cyclones and surge risk to a metropolis*

Hull, UK: *Flood and storm risk to urban property*

China: *Drought risk to agriculture*

Bangladesh: *Flood risk to a fast-developing city*

Florida: *Hurricane risk to public and private assets*

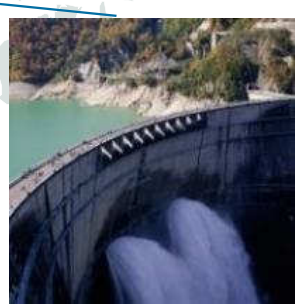
India: *Drought risk to agriculture*

Caribbean: *Hurricane risk to small islands*

El Salvador: *Flood and landslide risk to vulnerable people*

Guyana: *Flash flood risk to a developing urban area*

Mali: *Risk of climate zone shift to agriculture*



Tanzania: *Drought risk to health and power generation*

Samoa: *Risk of sea level rise to a small island state*

Economics of Climate Adaptation (ECA) Working Group, a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission, and Standard Chartered Bank.

http://media.swissre.com/documents/rethinking_shaping_climate_resilent_development_en.pdf

Swiss Re

ECA results for Barisal, Bangladesh

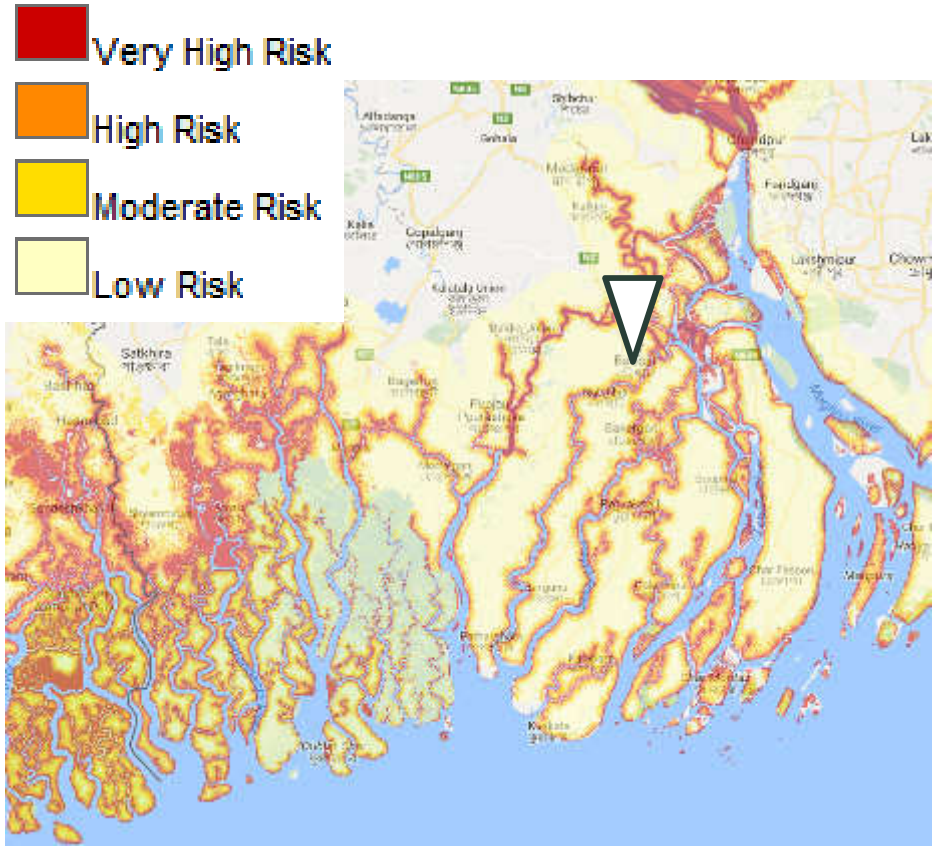
Vulnerability Analysis and Feasibility Study (VAFS), KfW Pilot Study

In Barisal, the most vulnerable people live at Kirthankhola river

Swiss Re

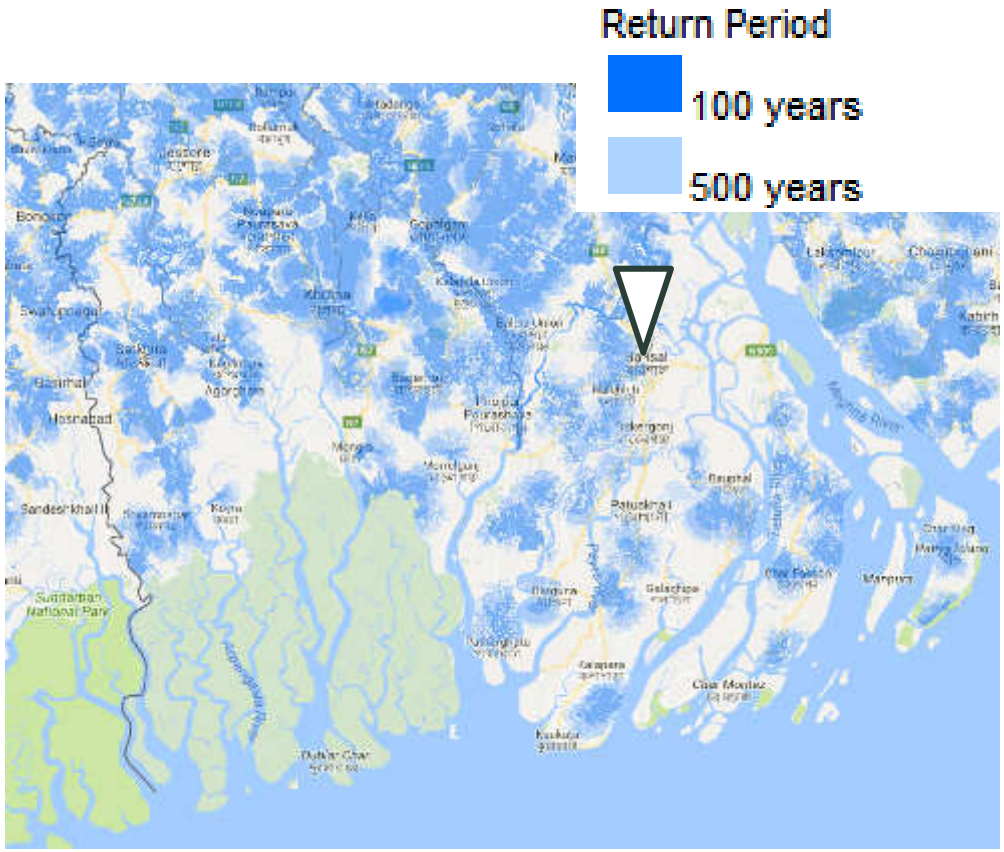
City of Barisal, coastal flooding and river flooding

Coastal Flooding



Source: Swiss Re CatNet®, Google Maps

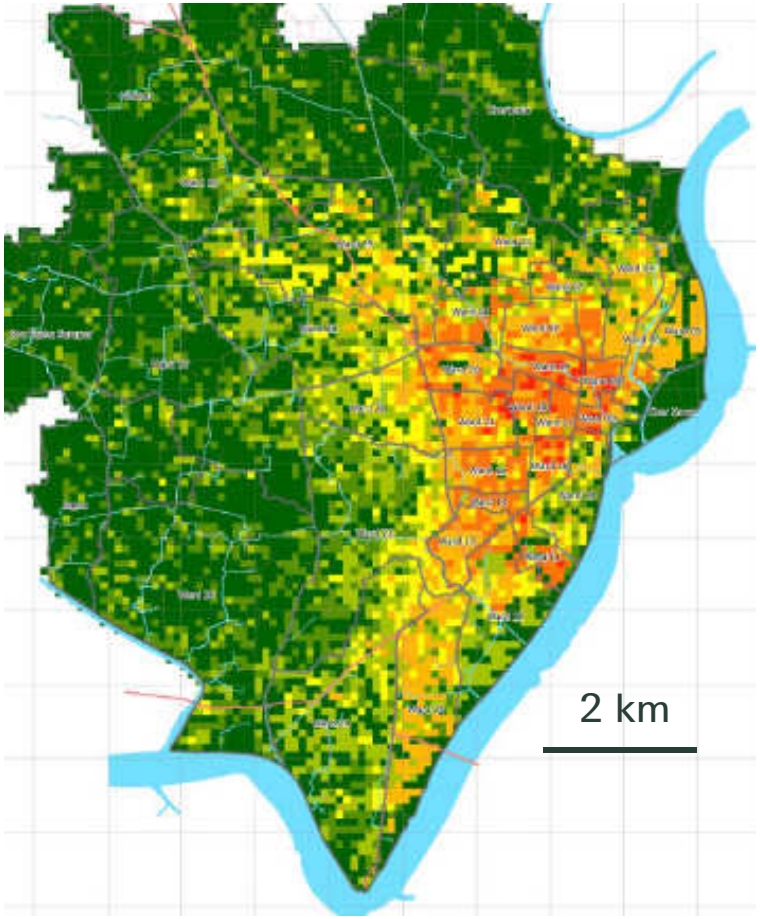
River Flooding



Source: Swiss Re CatNet®, Google Maps

Total climate risk in Barisal, Bangladesh

Direct exposure values in Barisal, 2030 Socio-economic scenario



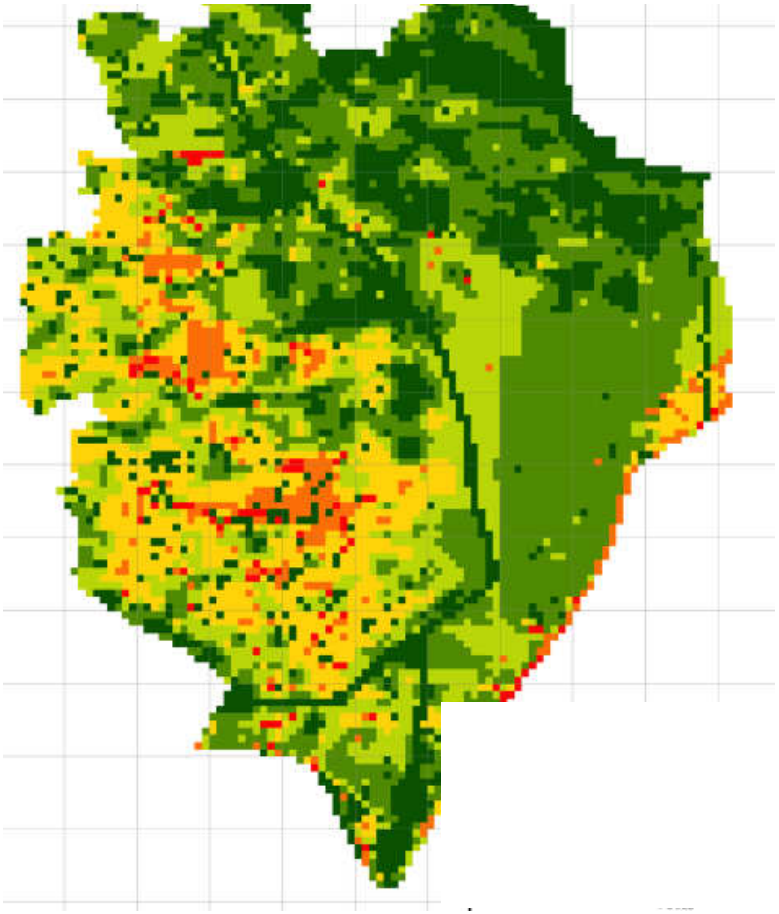
Value (BDT million)

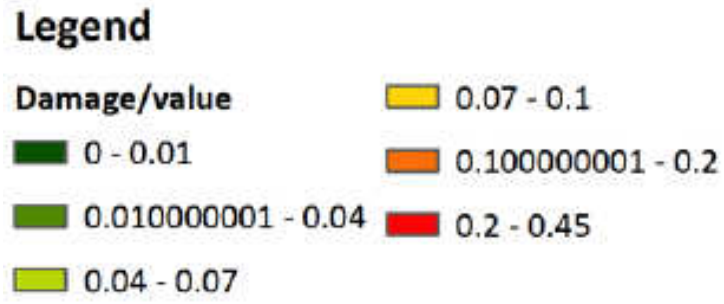
- 0 - 5
- 5 - 10
- 10 - 20
- 20 - 35
- 35 - 80
- 80 - 150
- 150 - 500

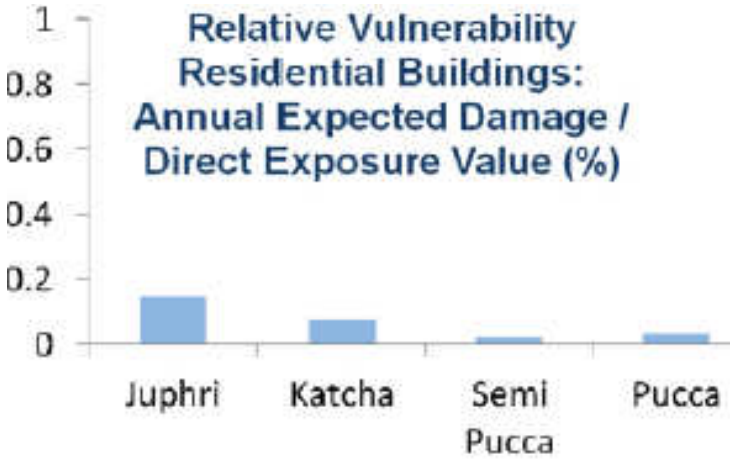
Source: VAFS Barisal, team analysis

The poor in the western part of the City suffer most of the damages

Relative vulnerability (damage per asset value) of residential buildings

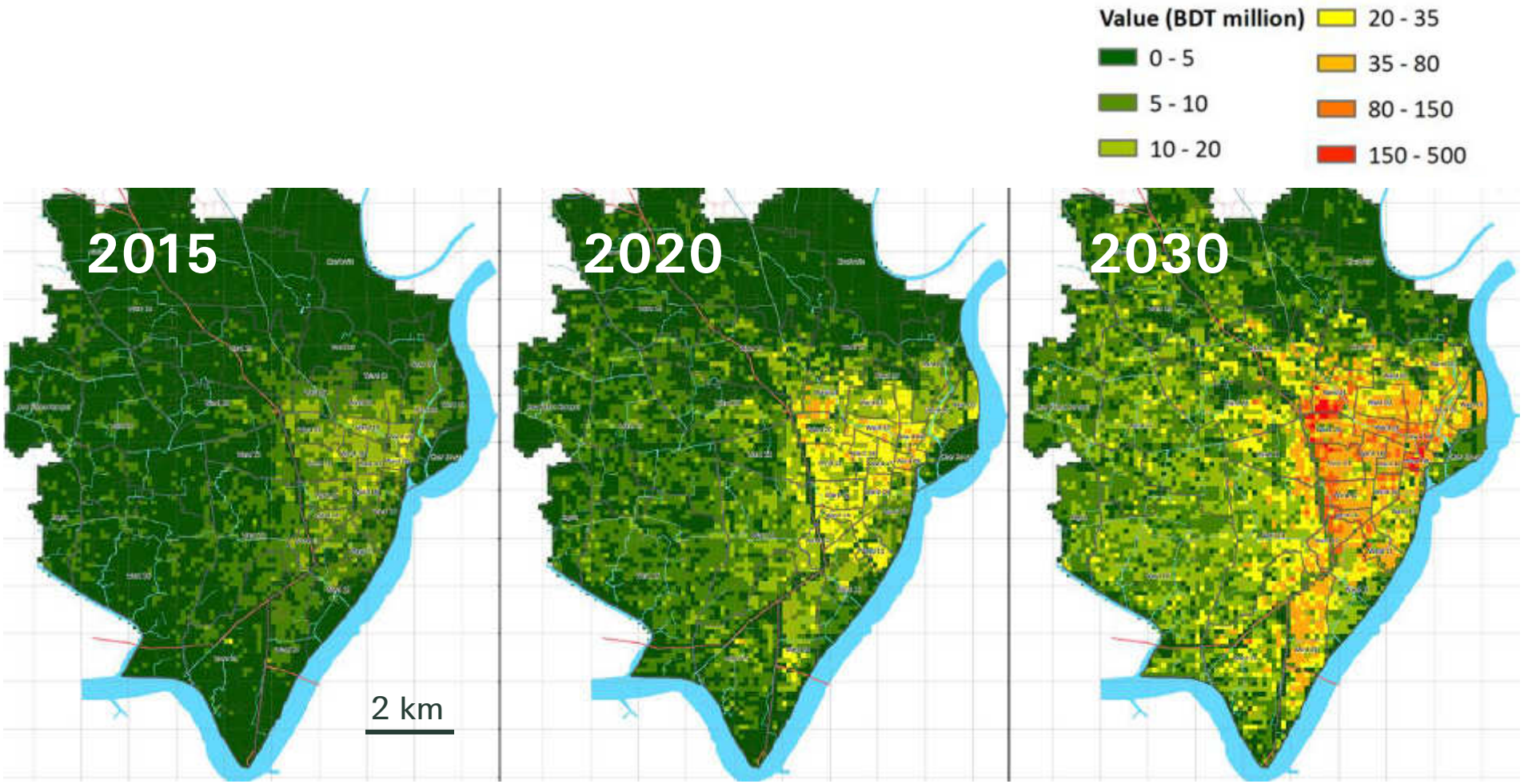






Source: VAFS Barisal, team analysis

Annual expected damage in 2015, 2020 and 2030 due to cyclones and floods in Barisal



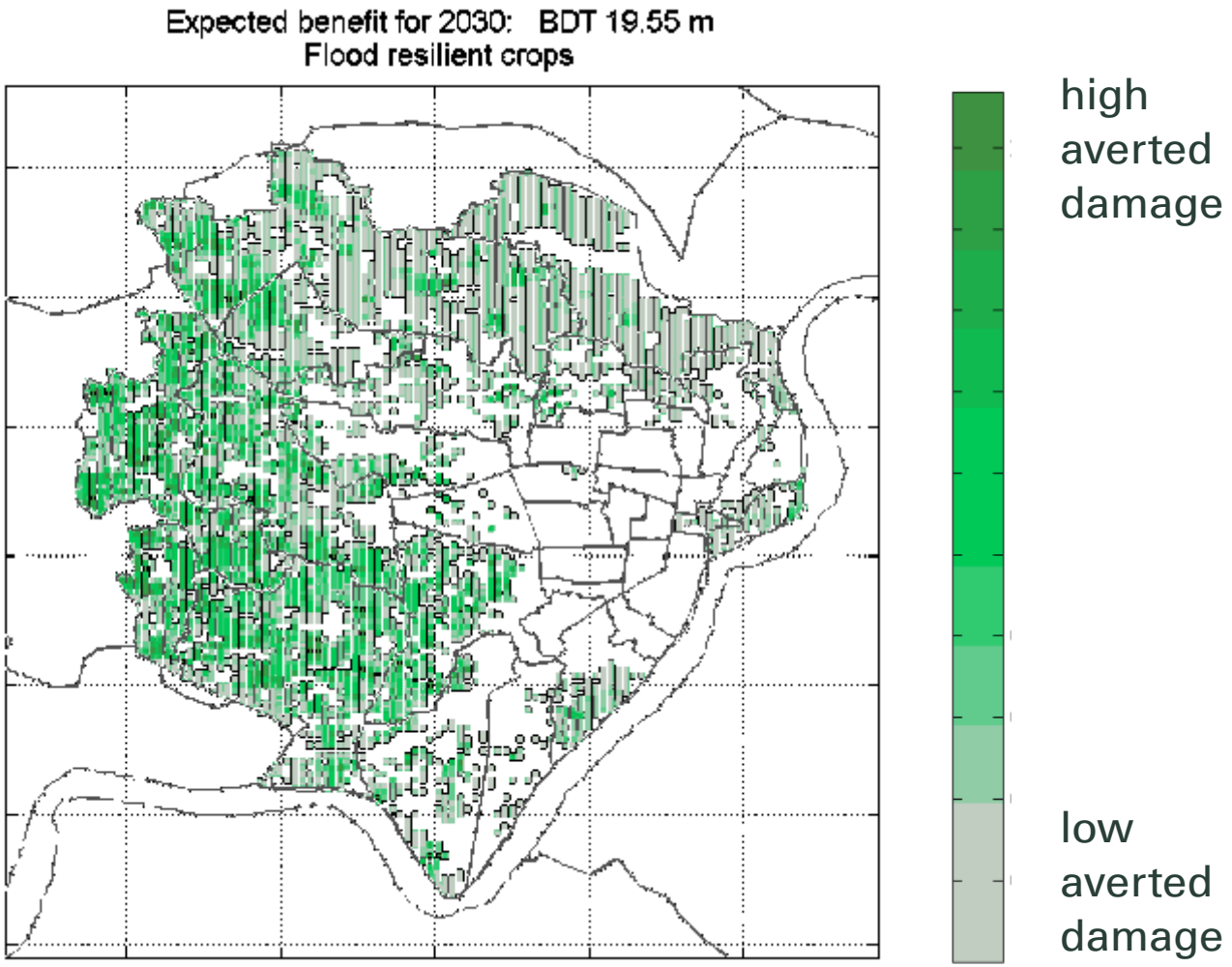
Source: VAFS Barisal, team analysis

Adaptation measures

Adaptation measures in Barisal

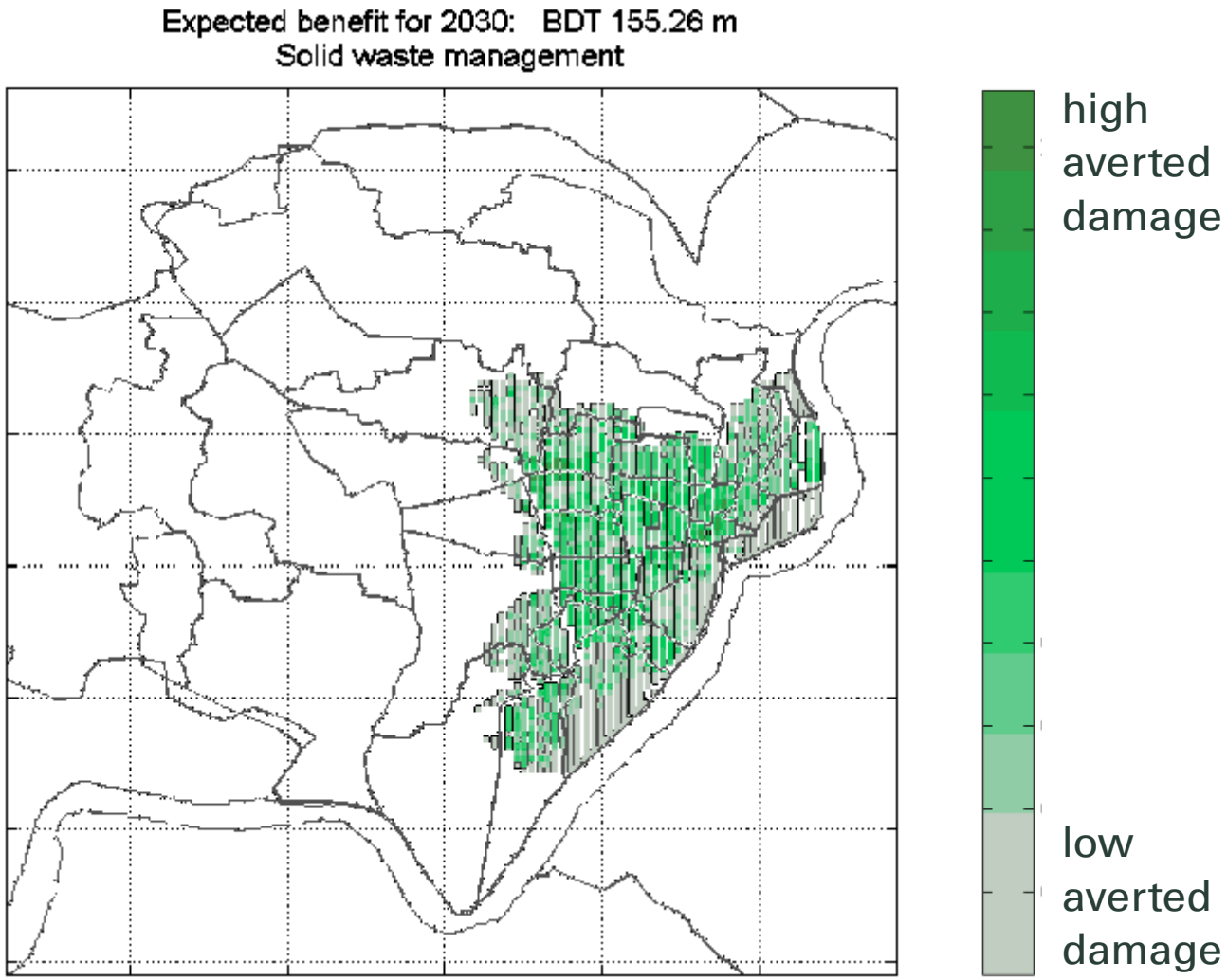
- Spatial planning and zoning
- Flood and cyclone shelters, early warning system
- Improve solid waste management and sanitation
- Raise land in slum areas
- Embankments
- Flood resilient buildings
- Flood resilient crops
- Widening and deepening the canals
- Improve drainage system
- Improve rainwater infiltration with ponds and permeable pavement
- Hazard proof the power grid and the transport system

Flood resilient crops reduce agricultural losses by 40%, mostly in the western part of Barisal



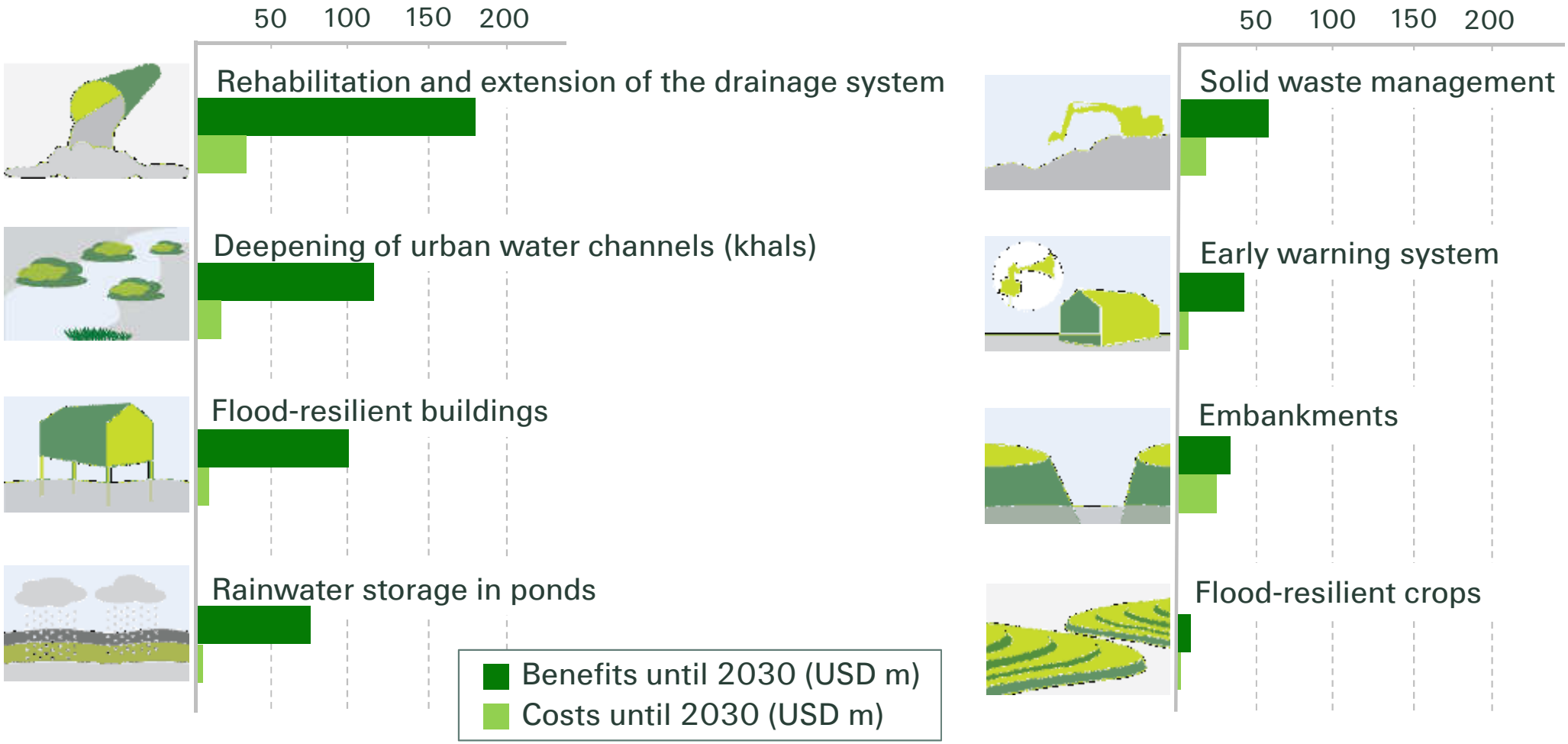
Source: VAFS Barisal, team analysis

Solid waste management reduce 10% of flood losses in the core city of Barisal



Source: VAFS Barisal, team analysis

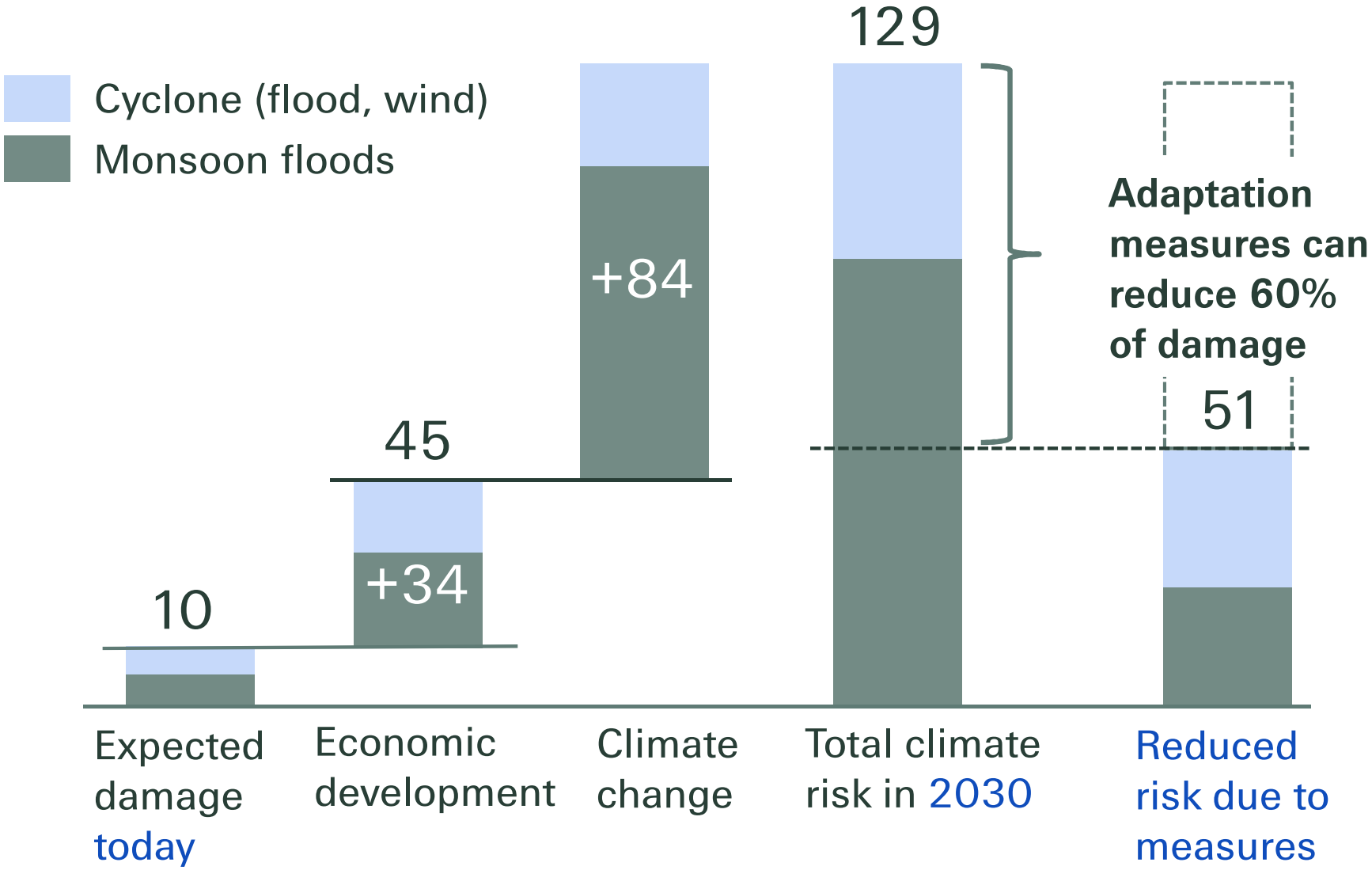
Drainage improvements, rainwater storage and flood-resilient buildings are very efficient measures against flood risk



Source: KfW Pilot Study Barisal, team analysis
All figures converted from Bangladeshi Taka, 100 BDT = 1.27 USD, May 2016

Key finding: Total climate risk due to cyclones and floods in Barisal, Bangladesh

(annual expected loss in USDm)



Source: KfW Pilot Study Barisal, team analysis
All figures converted from Bangladeshi Taka, 100 BDT = 1.27 USD, May 2016

Thank you.

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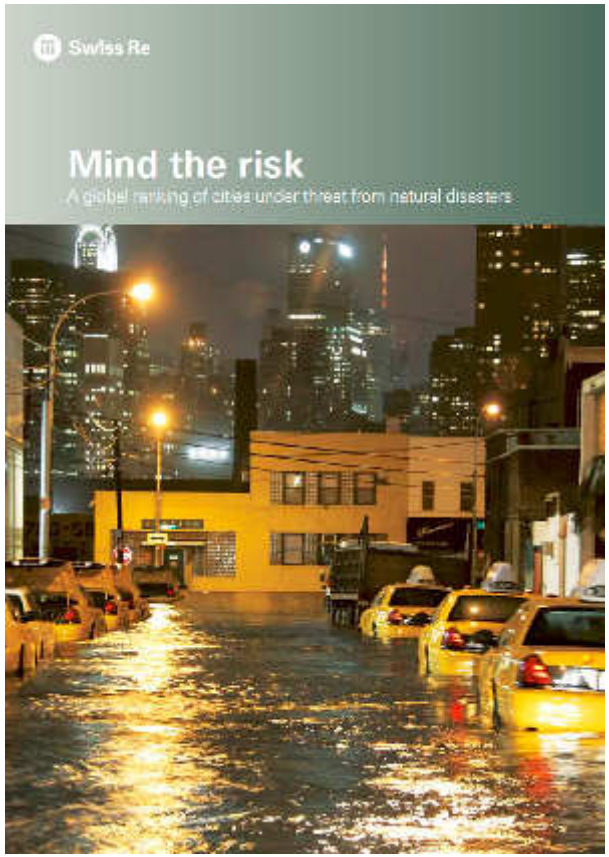
Appendix

Lukas Sundermann, Natural Catastrophe Specialist at Swiss Re's Global Partnerships unit

- MSc Geology / Neotectonics, LMU Munich
- *Mind the Risk: A global ranking of cities under threat from natural disasters*
- Natural hazards specialist for the public sector (sovereigns, sub-sovereigns municipalities)



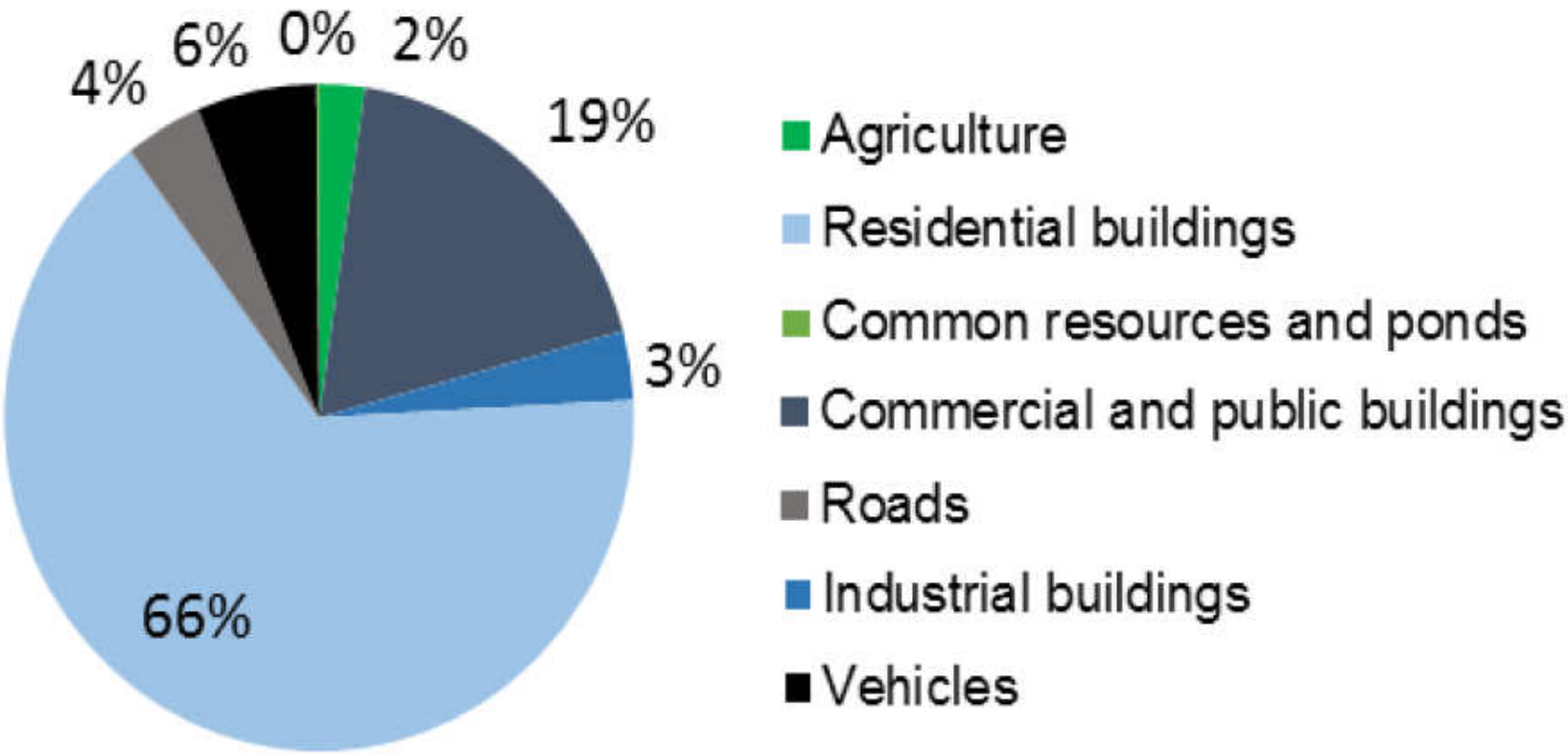
Swiss Re's commitment
2014 UN Climate Summit in NYC

"By the year 2020, Swiss Re commits to have advised 50 sovereigns and sub-sovereigns on climate risk resilience and to have offered them protection of USD 10bn against this risk."

Swiss Re CEO
Michel Liès
23 September 2014

Residential buildings are threatened most

Annual expected damage per asset category (2015)



Source: VAFS Barisal, team analysis