



Welcome to the webinar within the discussion series of the
international EbA Community of Practice

Ecosystem-based Adaptation and Insurance: Success, Challenges and Opportunities



Thursday, 14 November 2019

On behalf of



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany



InsuResilience
GlobalPartnership



Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Agenda

**Introducing the findings of the study on Ecosystem-based Adaptation and Insurance:
Success, Challenges and Opportunities**

Panelists:


- ✓ **Michael Beck** (University of California Santa Cruz)
- ✓ **Kerstin Pfliegner** (The Nature Conservancy)
- ✓ **Oliver Quast** (Social Impact Partners)
- ✓ **Daniel Stadtmüller** (InsuResilience Secretariat, GIZ)

Questions & Answers

Facilitation: Andrea Bender (GIZ)

This webinar is being recorded and will be published on:





Insurance and Ecosystem-based Adaptation: Successes, Challenges and Opportunities

14th November 2019

Mike Beck, Oliver Quast, Kerstin Pfliegner

The authors

A mix of a variety of backgrounds



Mike Beck
Academia



Oliver Quast
Risk Management



Kerstin Pfliegner
NGO



Definitions

What is CRFI and EBA?



Climate Risk Financing and Insurance (CRFI)

The ability of the insurance industry to support people to adapt to the adverse effects of climate change through

- knowledge or
- risk transfer or
- direct investment



Ecosystem Based Adaptation (EbA)

The use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change



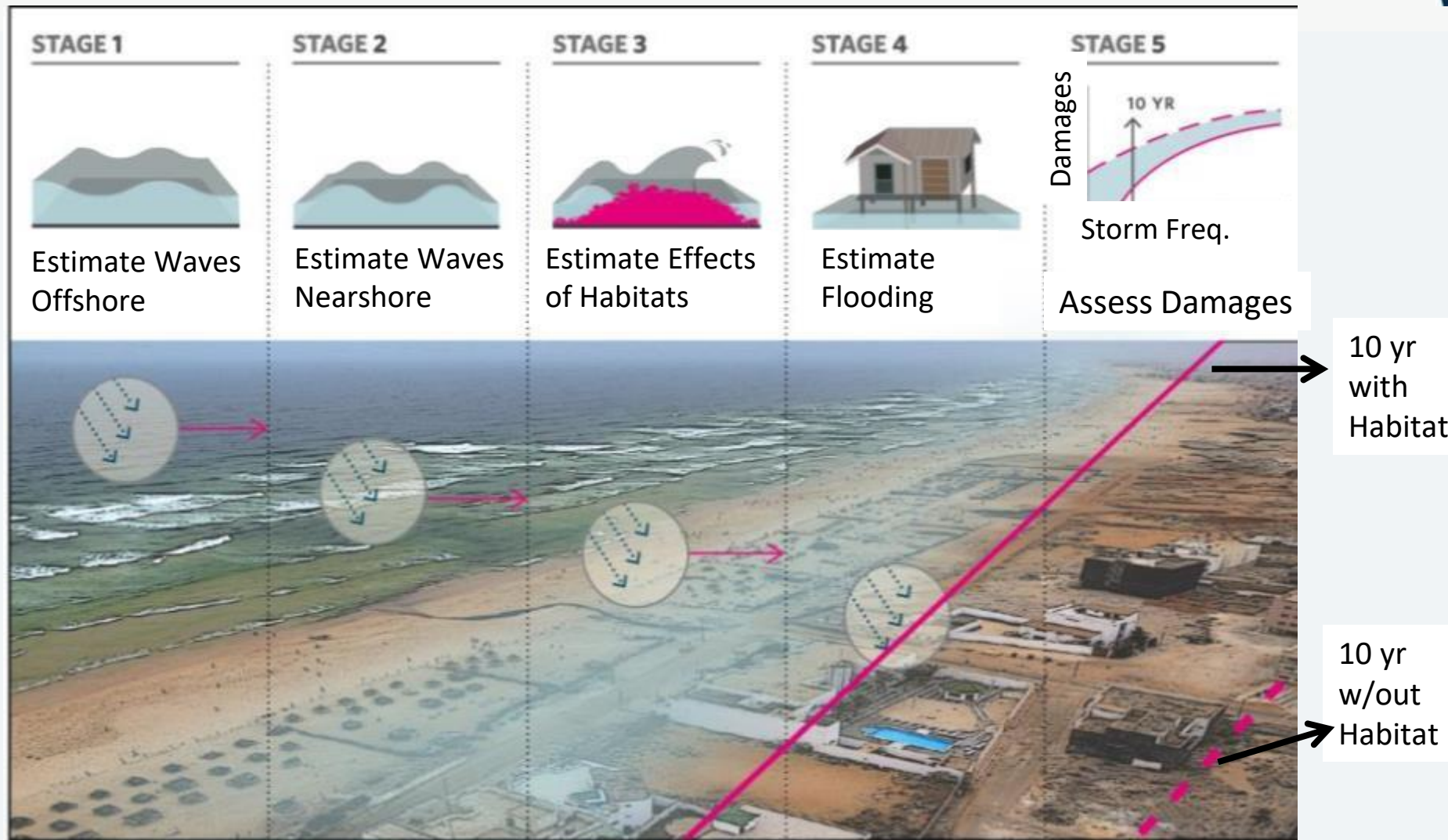
Scientific background

Scientific Background

Recommended approach: Expected damage function

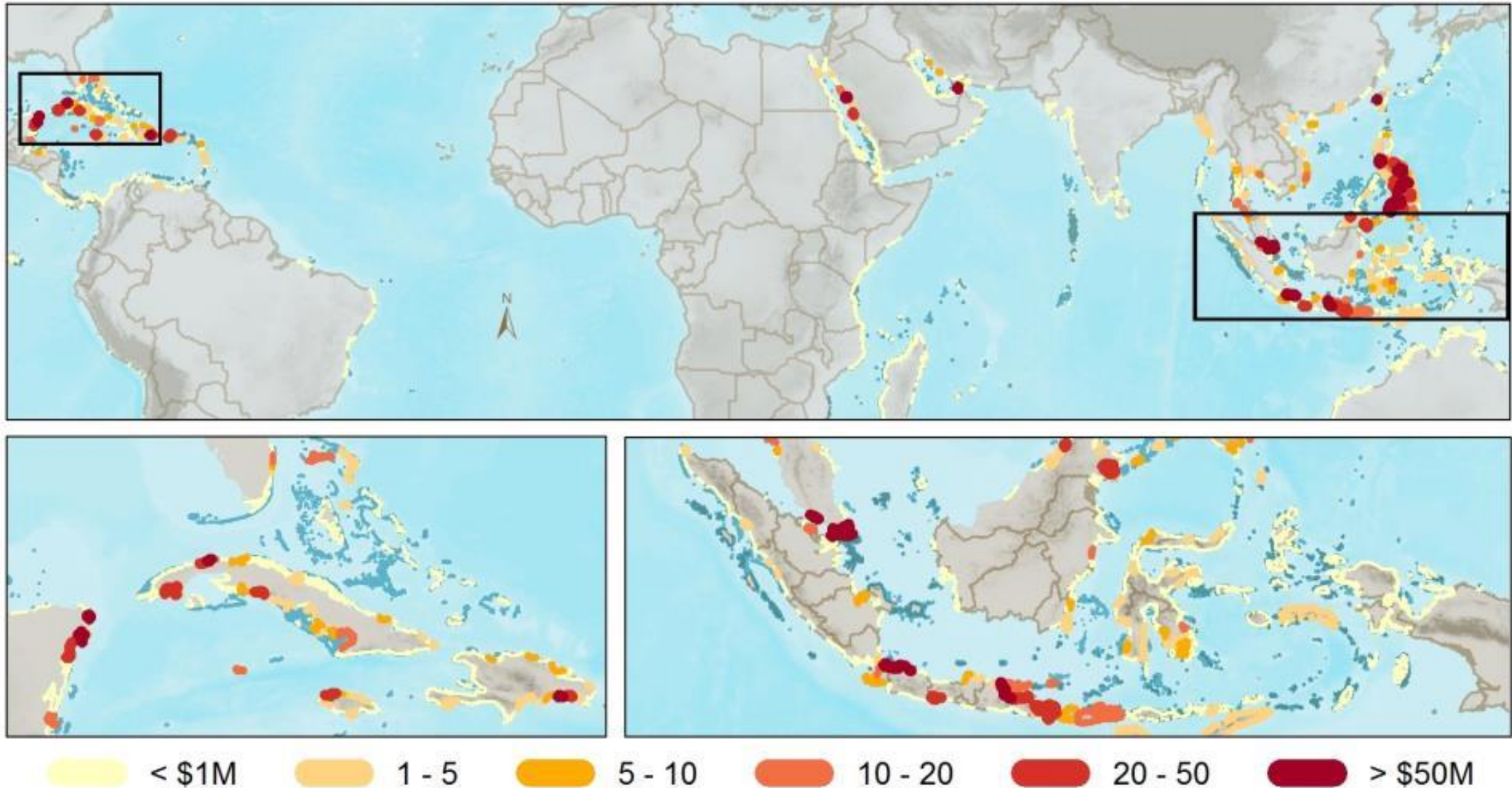


WORLD BANK GROUP



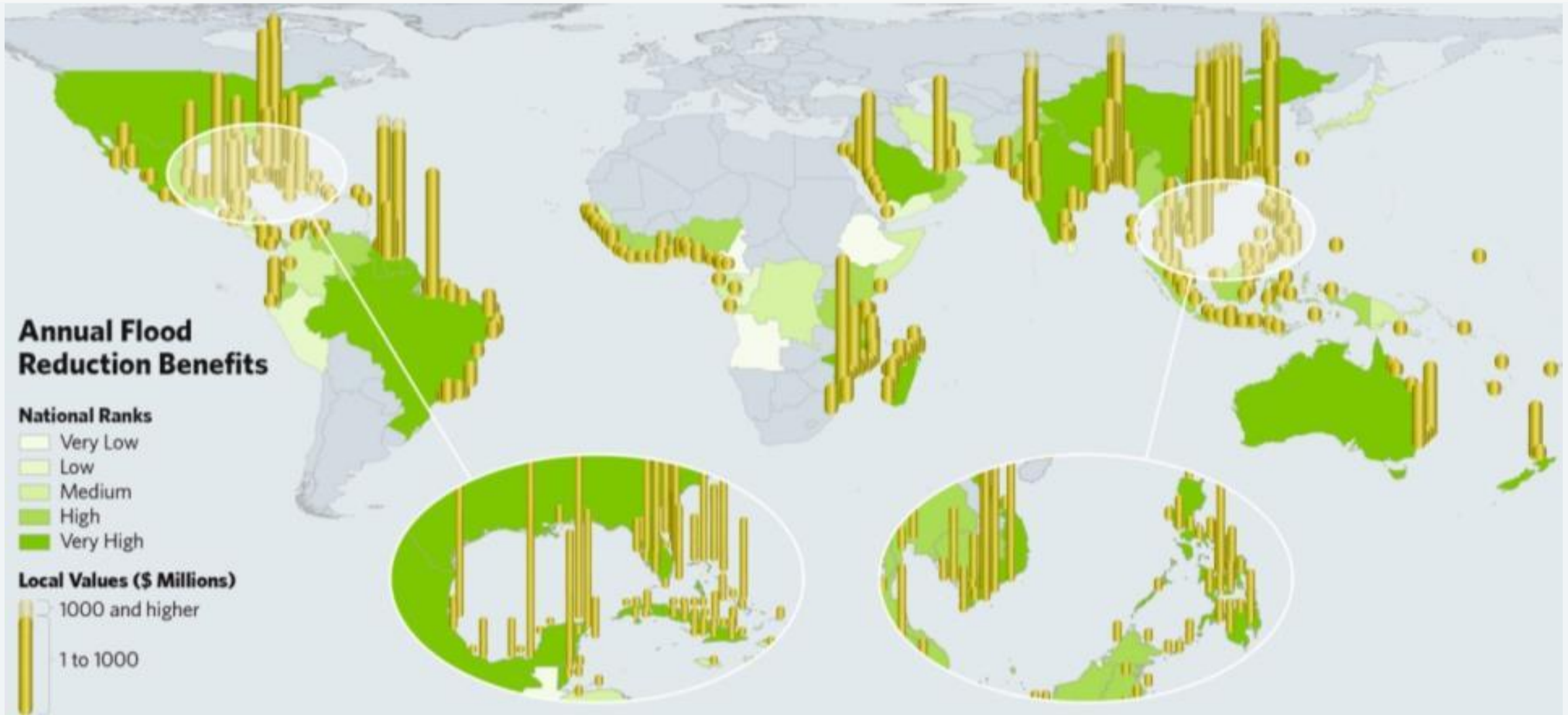
Scientific Background

Annual expected benefit from reefs: avoided flood damage in USD M / 20km



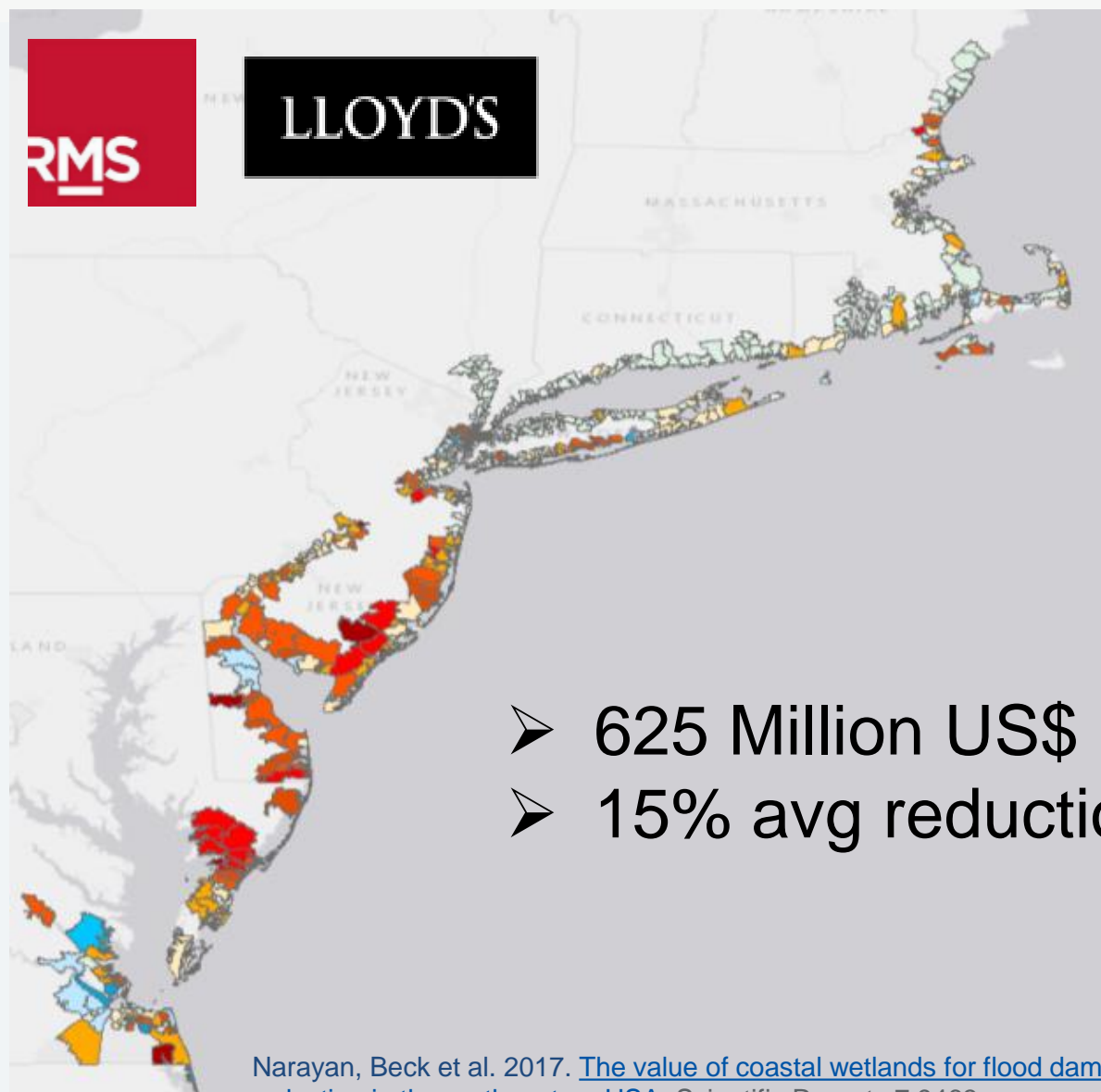
Scientific Background

Annual flood reduction benefits from mangroves



Scientific Background

Value of marshes for property damage reduction during hurricane Sandy



Difference in Losses (%)



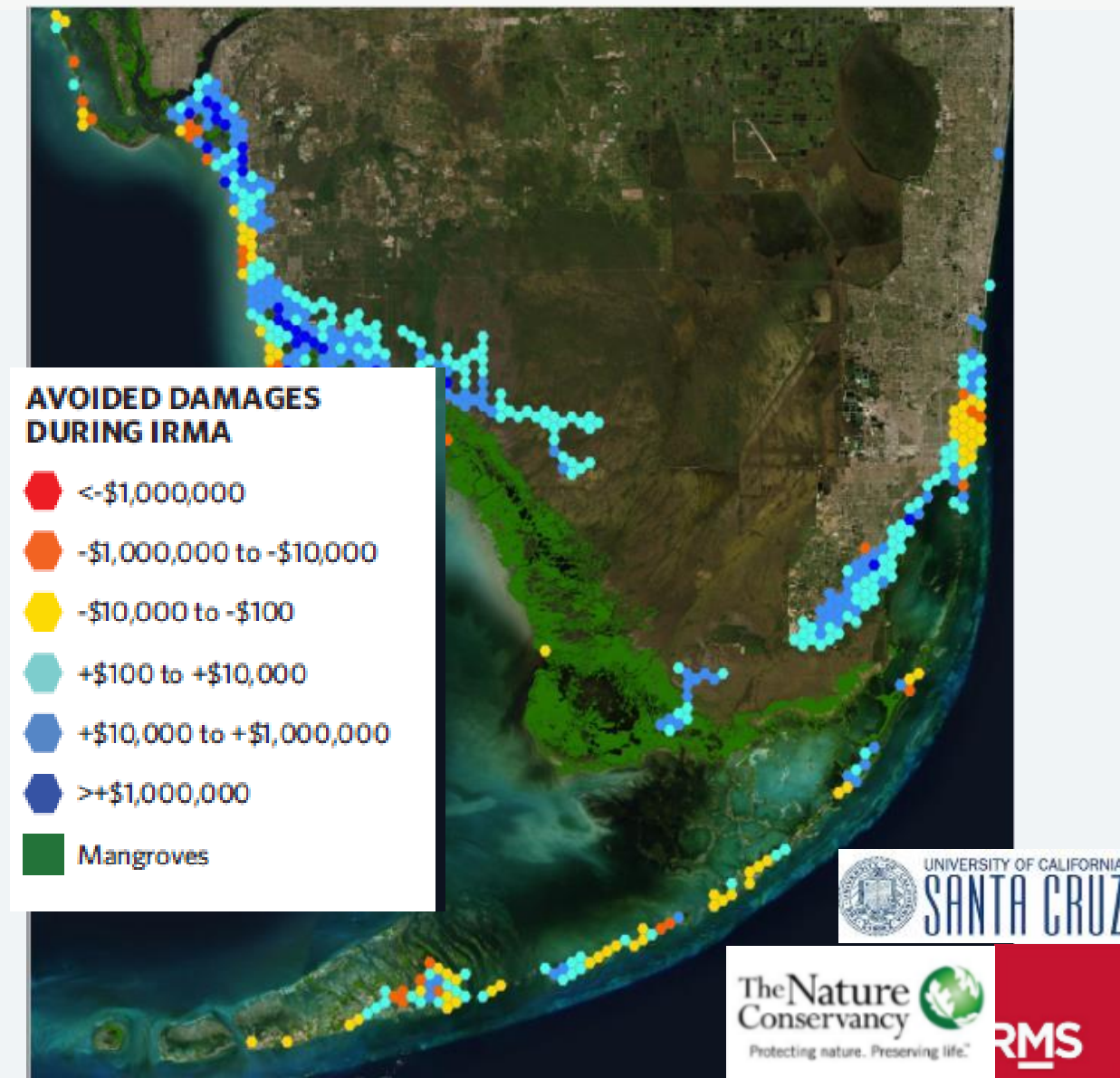
Narayan, Beck et al. 2017. [The value of coastal wetlands for flood damage reduction in the northeastern USA](#). Scientific Reports 7:9463.

Scientific Background

Value of mangroves for property damage reduction during hurricane Irma

\$1.5 Billion in Avoided
Property damages
during Irma

25% Annual Reductions



Scientific Background

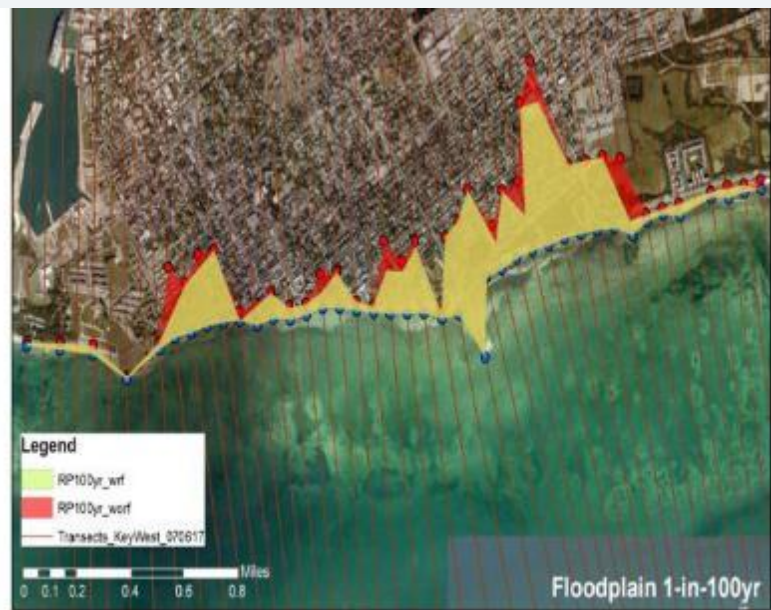
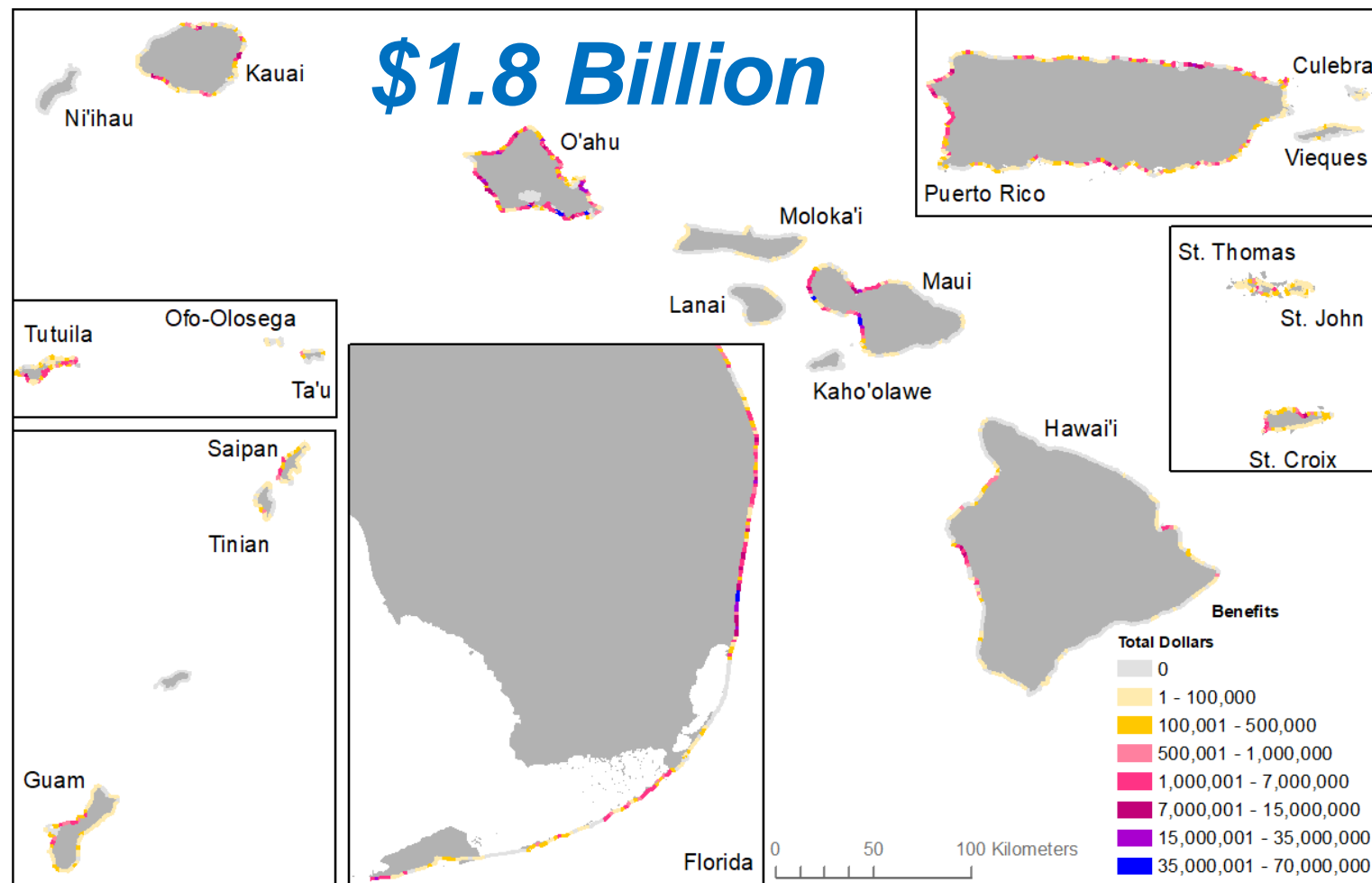
High resolution valuation for US reef benefits




Annual Expected Benefits



\$1.8 Billion



A group of people, including a woman in a green shirt and a man in a green shirt, are planting mangrove saplings in a coastal area. The ground is sandy and covered with many small, newly planted saplings. In the background, there are larger mangrove trees and other people working. A semi-transparent dark blue box with white text is overlaid on the bottom left of the image.

Case Studies –methods of analysis and examples

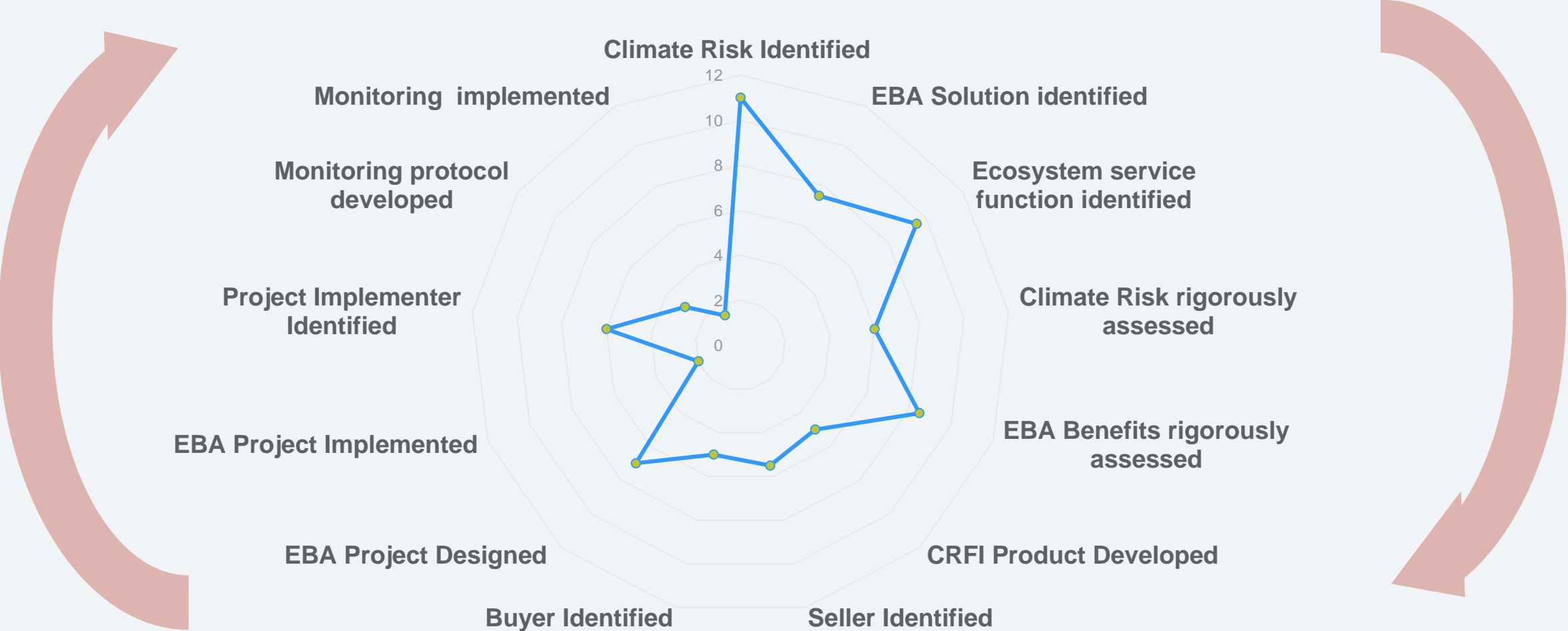
Case Studies - Methods

Qualitative assessment of successes, challenges and gaps for 11 cases

#	Case Study	Successes	Challenges	Gaps
1	COAST – Fisheries Risk Insurance	<ul style="list-style-type: none"> › Incentivised the updating of National Register of Fishers in several countries. This register is critical to improving fishery management in general. › Buyers (Gov'ts) are not difficult to identify as the needs of and benefits to fishers are clear to governments. › World Bank co-financing is important for buyers and sellers. 	<ul style="list-style-type: none"> › Largely relies on traditional disaster risk insurance; it is a parametric insurance that covers fisher's infrastructure from storms. › Data on both fishers (registry) and fisheries (e. g., stock status) is rare. › Little science that connects fish stock status and fisher's risk/ adaptive capacity. 	<ul style="list-style-type: none"> › A key aim is to create incentives to make fishers and fisheries more resilient and increase their adaptive capacity. That will take significant time. › Will be very difficult to fill fisheries data gap and ultimately create incentives to improve fish stock status and adaptive capacity.
2	Forest Resilience Bond	<ul style="list-style-type: none"> › Climate risk identified (fire). › EbA project identified; specific forest restoration approaches. › Funders/ Buyers identified including public agencies, private foundations and insurance. 	<ul style="list-style-type: none"> › Potential EbA benefits only broadly identified, but there is a team set up to subsequently measure benefits. › Directly combining EbA and insurance is difficult because assets and overall risk are relatively low in forested areas. 	<ul style="list-style-type: none"> › Insurance is an investor only (there is not an insurance product). › Measured benefits likely will not include risk reduction, but it could in the future. › This is not a Pay for Success product (i. e., outcome based) in this round, but it could be in the future. In this round the utility preferred a cost share.

Case Studies - Methods

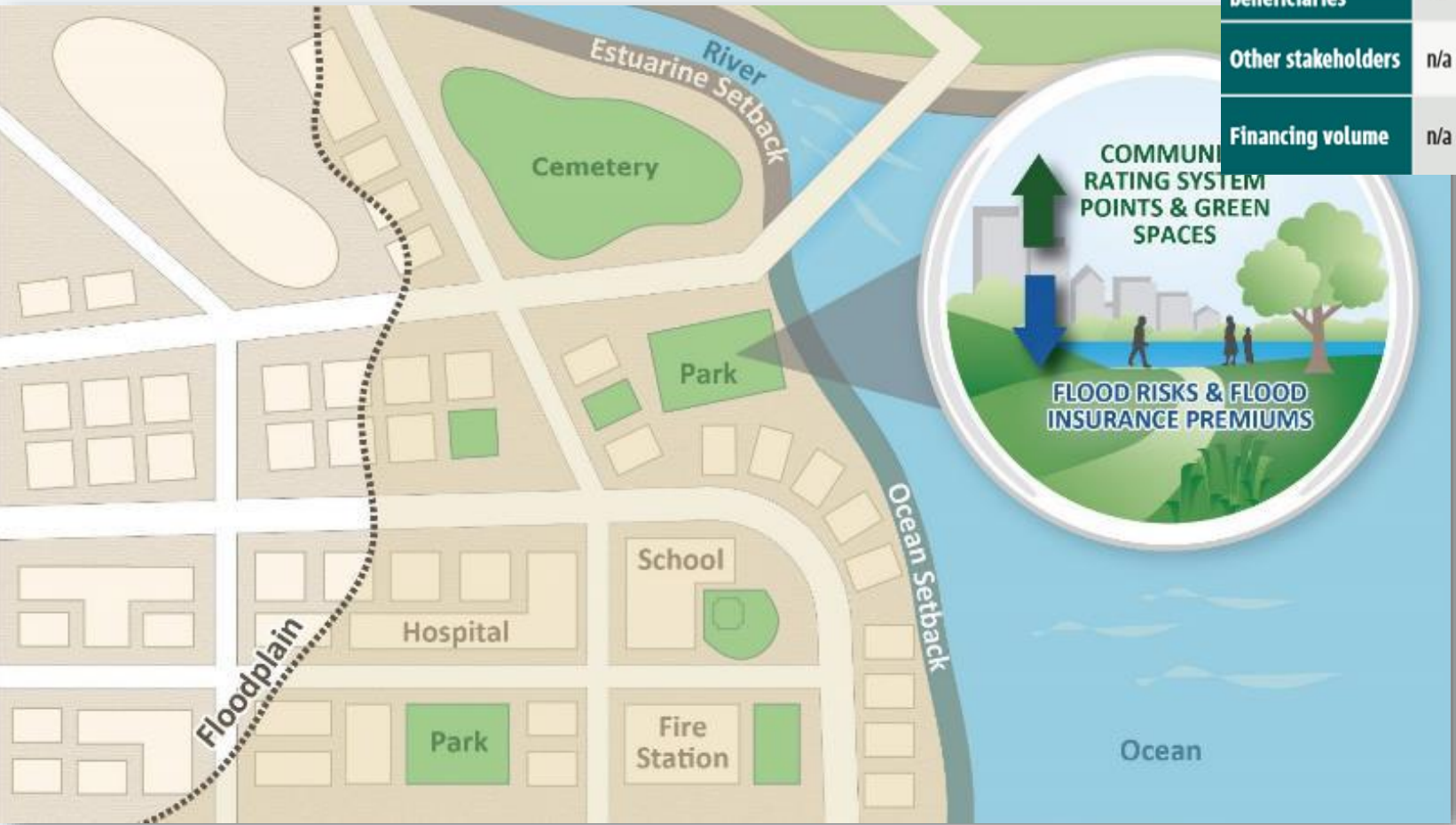
Criteria-based analysis



Case Studies

US FEMA: Community Rating System (CRS) and cost benefit analysis (CBA)

FEMA (2019): National Flood Insurance Program, available online at: <https://www.fema.gov/national-flood-insurance-program>.



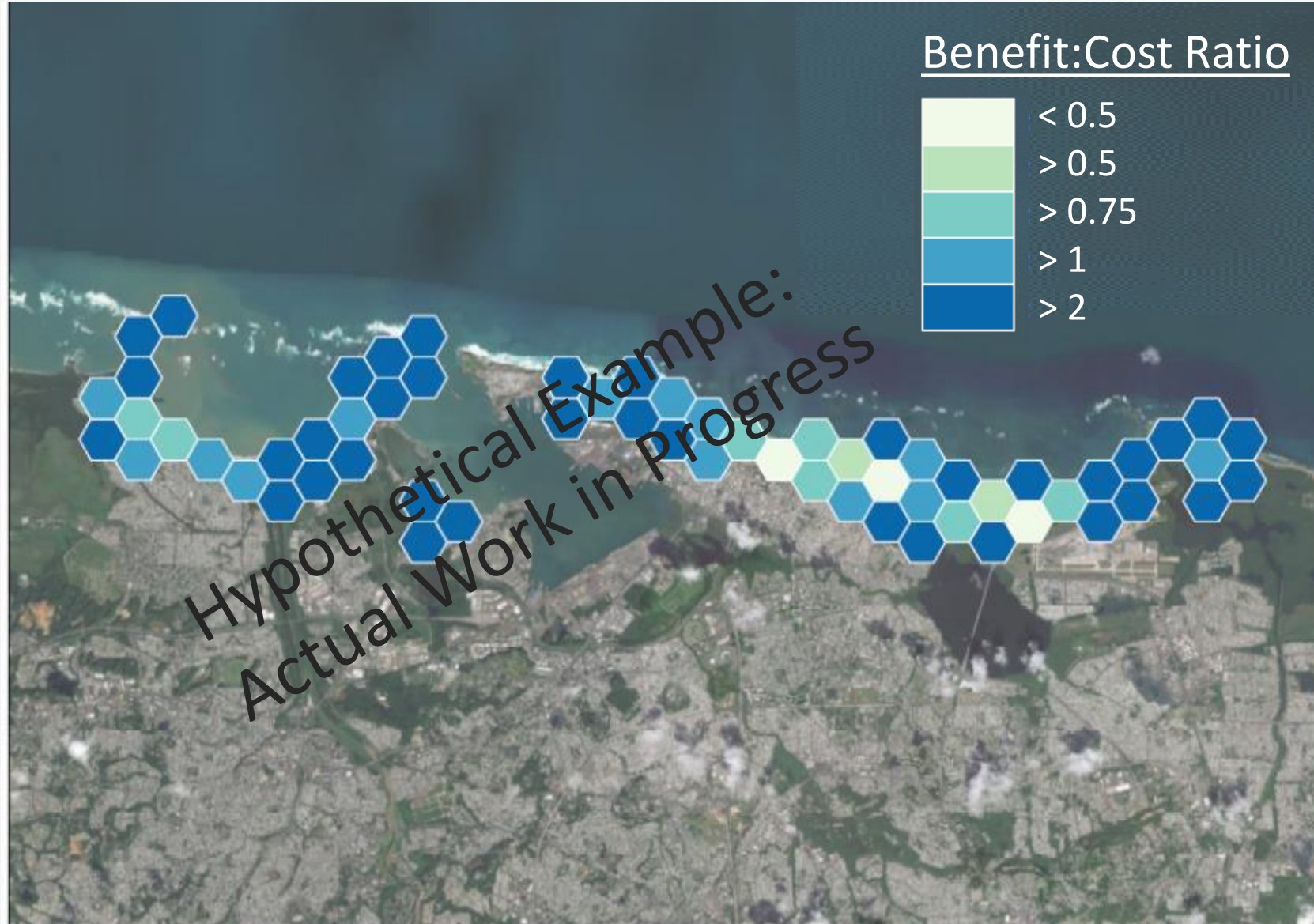
Location & status	1,000+ communities across the USA (for CRS)	Overall goal	To reduce the impact of flooding on private and public structures
EbA measure	Open space preservation	Climate hazard addressed	Flood
Sector beneficiaries	Communities/Municipalities	Stakeholder lead	US Federal Emergency Management Agency FEMA
Other stakeholders	n/a	Financing instrument	Insurance
Financing volume	n/a	EbA insurance instrument	Premium Incentives for open space preservation

CRS Class	Discount	No. in US
9	5%	225
8	10%	472
7	15%	339
6	20%	219
5	25%	102
4	30%	4
3	35%	3
2	40%	3
1	45%	1
	TOTAL (as of Oct 2015)	1,386

≈ 6% of 22,000 NFIP Communities

Case Studies

FEMA recovery efforts: Benefits / Costs

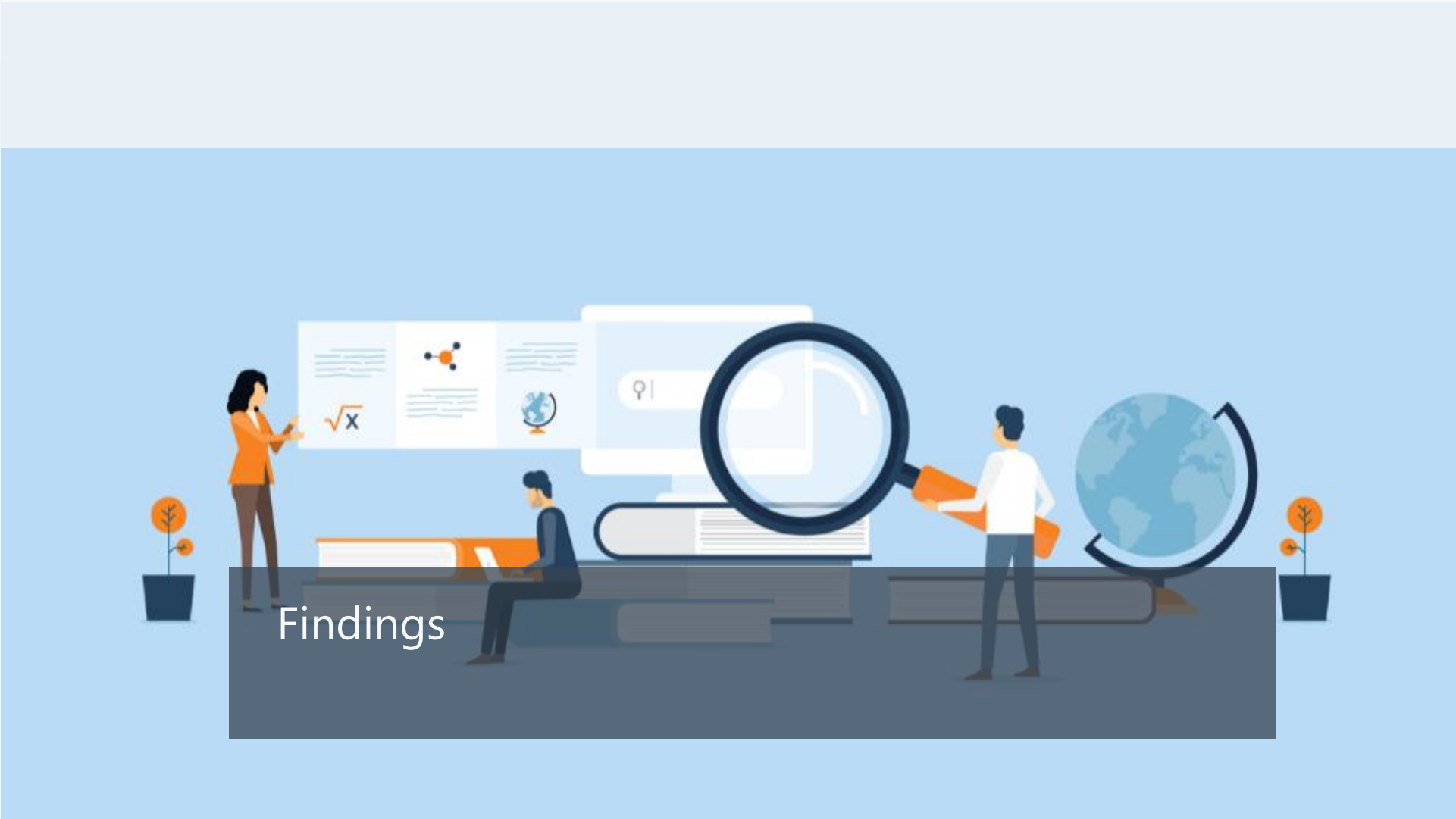


Case Studies: Example

Mesoamerican Reef Insurance



Location & status	Coastline of Quintana Roo, Mexico	Overall goal	Increase resilience and storm protection through reef-based ecosystem service
EbA measure	Repair of coral reef crest to restore resilience after storm damage; beach nourishment	Climate hazard addressed	Tropical storm
Sector beneficiaries	Tourism sector	Stakeholder lead	Local government of Quintana Roo
Other stakeholders	Local authorities, local communities	Financing instrument	Trust fund and tourism levy
Financing volume	Insurance cover \$ 3.8 million (50/50 beach and reef)	EbA insurance instrument	Parametric cover to protect coral reef and beach



Findings

Findings

Selection of observations



Lack of understanding

EbA solutions are not well understood by the risk industry



Funding is available

High level interest and key funding are available for solutions that meet multiple objectives



General quantification is missing

Risk reduction benefits available for only a few ecosystems and are not yet broadly evaluated, wetlands have been considered in industry risk models



Involvement of many parties necessary

Multi-stakeholder interests make EbA implementation difficult



No pilot projects

No fully implemented CFRI and EbA demonstration projects as yet (pre-disaster financing and post-disaster financing)

Recommendations

Recommendations

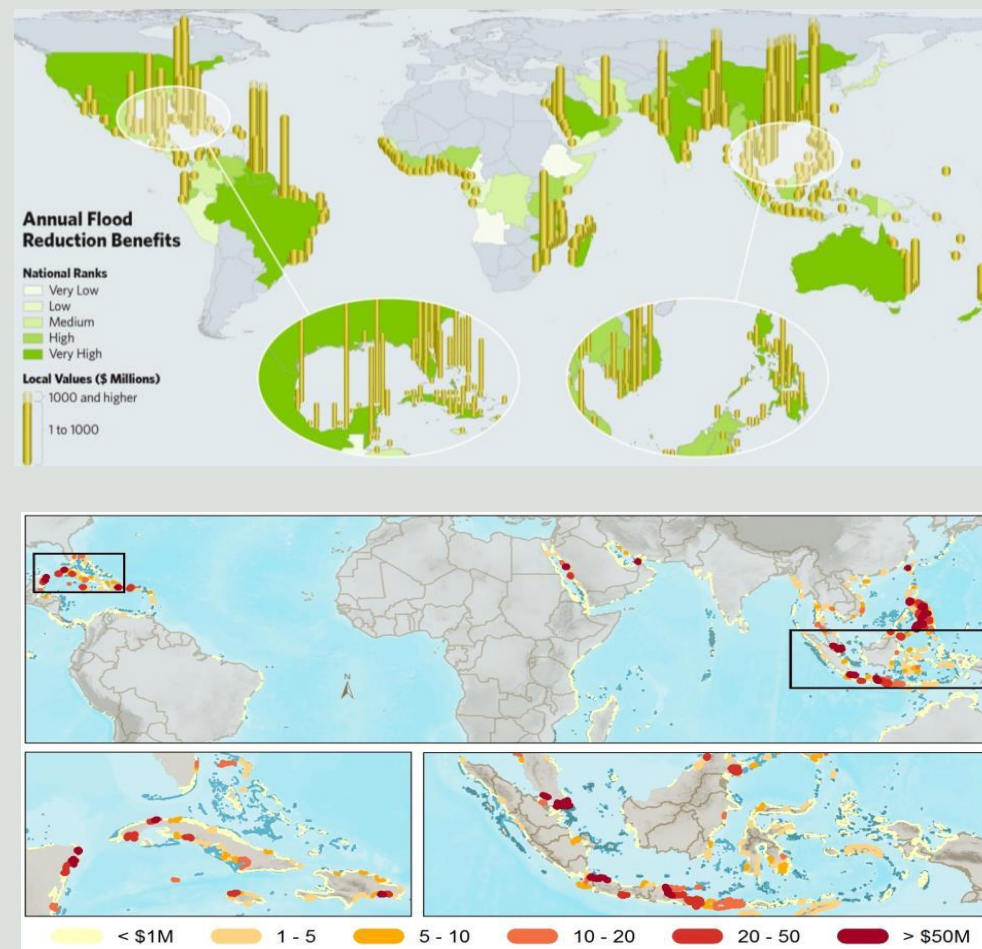
Educate stakeholders about facts

Perception



VS.

Reality



Recommendations

Look at EbA from a holistic perspective

Perception



Grey infrastructure

>



Green / blue EbA
measures

VS.

Reality



Financial benefits

- Less costs
- Additional revenue



Biodiversity

Benefits for the Environment



Social Aspects

Generation of employment

Recommendations

Key recommendations



Quantification is needed

EbA benefits need to be better quantified and with tools and approaches of industry (e.g. surveys)



Modelling tools need to reflect EBA measures

The key data (e.g. bathymetry) are in many models however EbA is not fully reflected



Build from easier solutions to integrate insurance and EbA

Social impact bonds offer great opportunities



Focus: Start where financial benefits are greatest

To combine private insurance and EbA will require focusing where (private) assets are greatest



Cover frequency events through EbA measures

Effects are more visible and stakeholders easier to convince

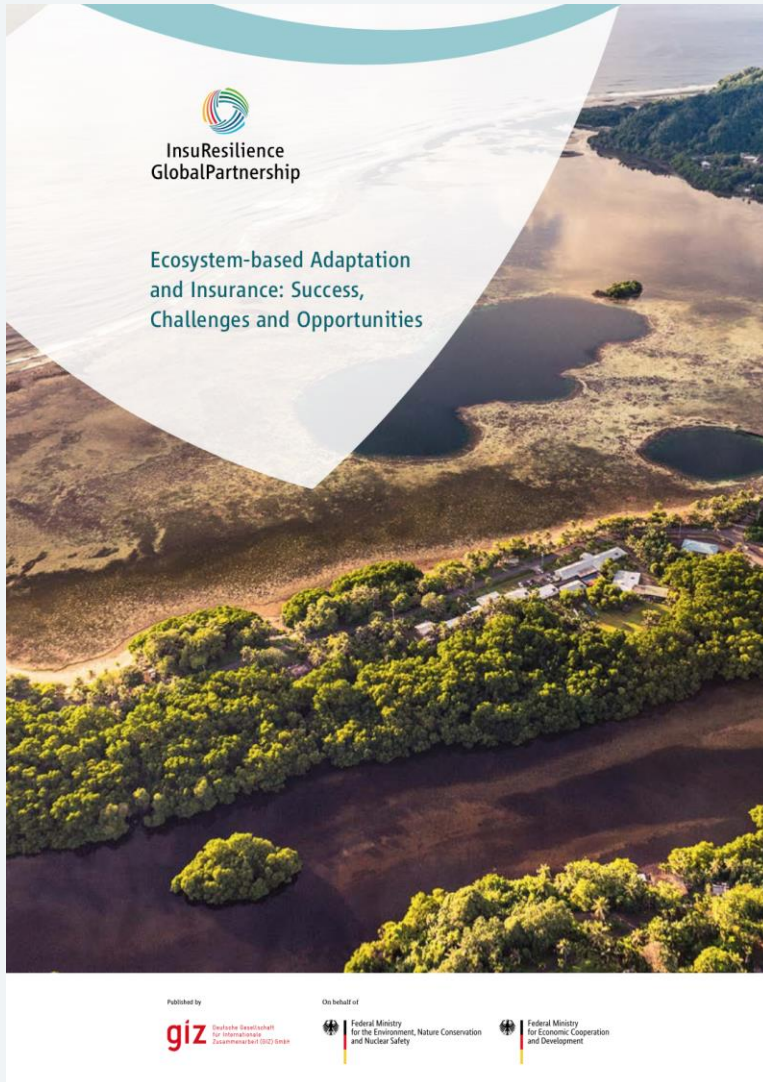


Innovative insurers

Innovative insurers will invest time and recognize the bis overlaps between concepts

Thank you

More in the report, online available here: https://www.adaptationcommunity.net/wp-content/uploads/2019/11/EbA_insurance_publication_2019_web.pdf



Mike Beck

mwbeck@ucsc.edu



Oliver Quast

o.quast@socialimpactpartners.eu



Kerstin Pfliegner

Kerstin.pfliegner@tnc.org



Questions or comments?



Please use the chat box



Thank you for your participation!

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