

Long-term planning in Small Islands Developing States under a changing climate

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World Bank





Small Island Developing States (SIDS) (28 States)





TRANSPORT FOR DEVELOPMENT



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In the Pacific, climate change means trying to expect the unexpected



SUBMITTED BY **CHRIS BENNETT** ON THU, 08/24/2017



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Fiji: an island nation with ambitious development goals





Climate Vulnerability Assessment

MAKING FIJI CLIMATE RESILIENT



WORLD BANK GROUP
Climate Change



Making Fiji Climate Resilient

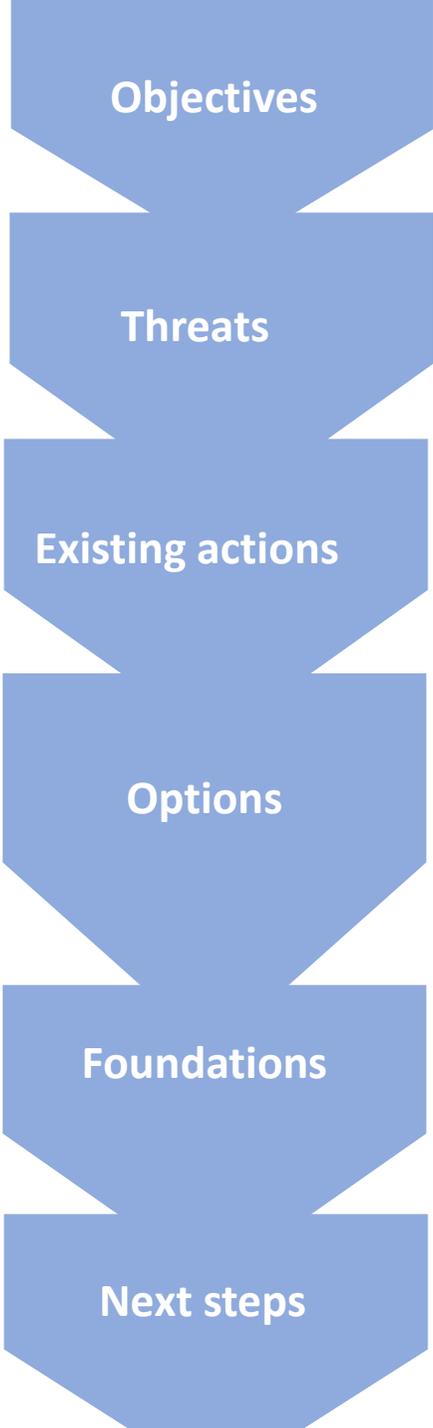
An innovative, collaborative
and replicable methodology



GFDRR
Global Facility for Disaster Reduction and Recovery

ACP-EU Natural Disaster Risk Reduction Program

An initiative of the African, Caribbean and Pacific Group, funded by the European Union and managed by GFDRR



Start from the objectives in existing development plans

Identify threats to objectives:

- Hazards and stresses
- Exposure and vulnerability of sectors

Review existing policies and actions:

- Government spending
- Response to past disasters (TC Winston, Evan)

Identify priority actions in various sectors:

- Opportunities by sector
- Assess costs and benefits

Explore financing and implementation constraints:

- Domestic resources, private sector, climate finance

First step in a long process:

- Further prioritization and sector-level studies
- Implementation



**20-Year and 5-Year
National Development Plan**

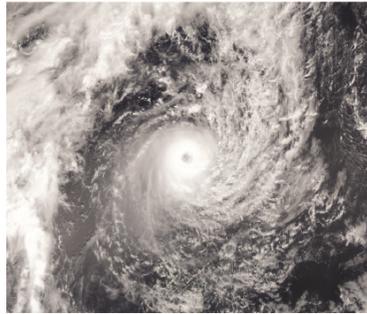
“Transforming Fiji”

Ministry of Economy

Republic of Fiji

August 2017

Investigating hazards and stresses, but also exposure, vulnerability and resilience



Hazard



Exposure



Vulnerability

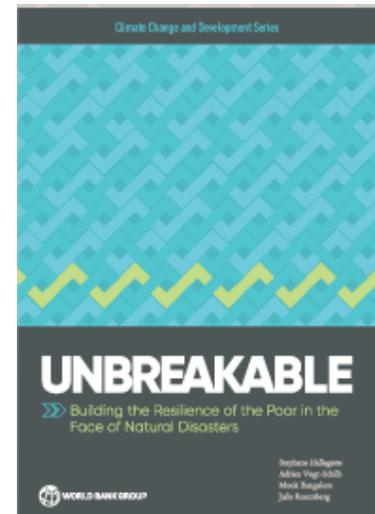


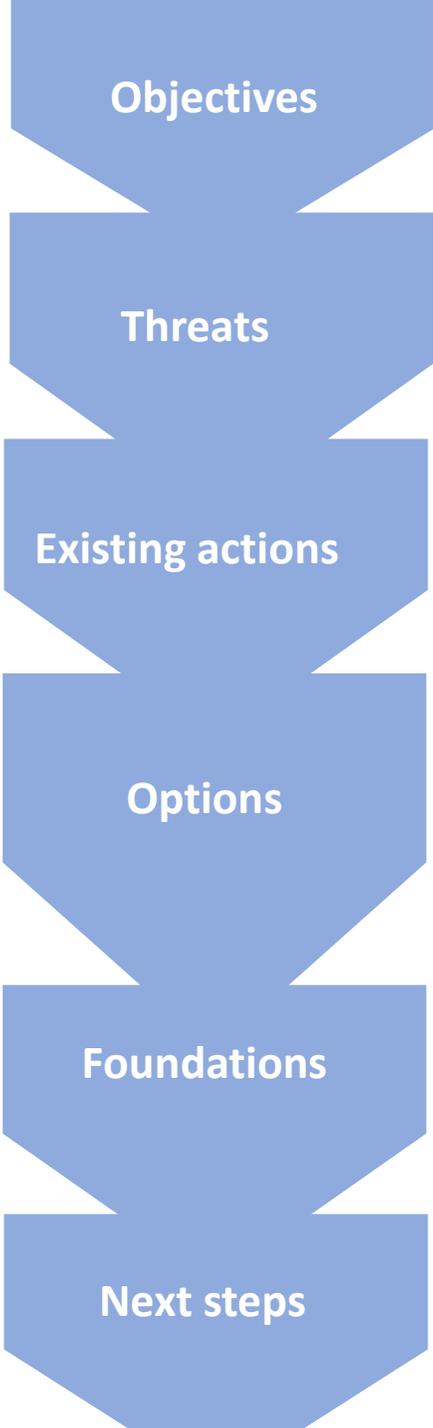
Socioeconomic resilience

Floods
Tropical cyclones
Droughts
Higher temperature
Sea level rise
....

Human settlements and cities
Transport network
Energy systems
Water network
Schools and hospitals
Tourism sector
Agriculture and fisheries
Population health

Coping mechanisms
Inequality and poverty
Social protection system
Financial inclusion
Institutional capacity
Government's contingent liabilities and financial capacity





Four main messages

Message #1: Fiji is already exposed to large natural risks, and climate change is likely to amplify these risks, threatening the objectives of the Development Plan.

Beyond natural hazards, climate change stressors will be obstacles to development



Hydropower

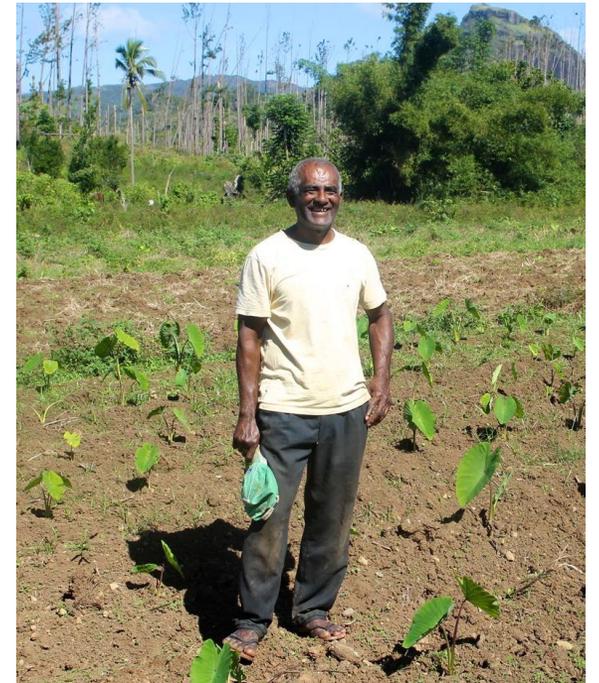


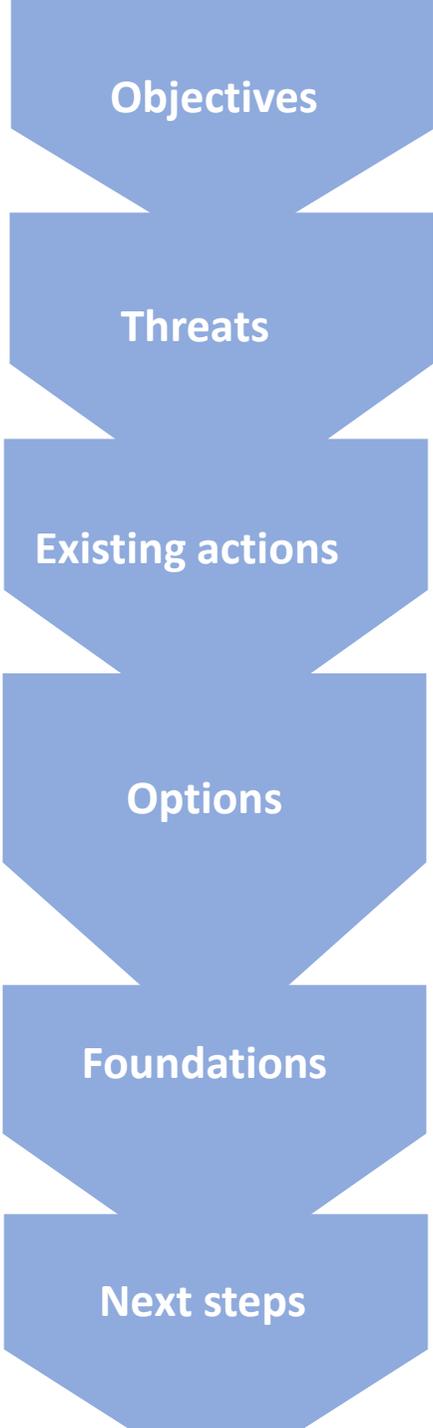
Health

Tourism



Agriculture and food security



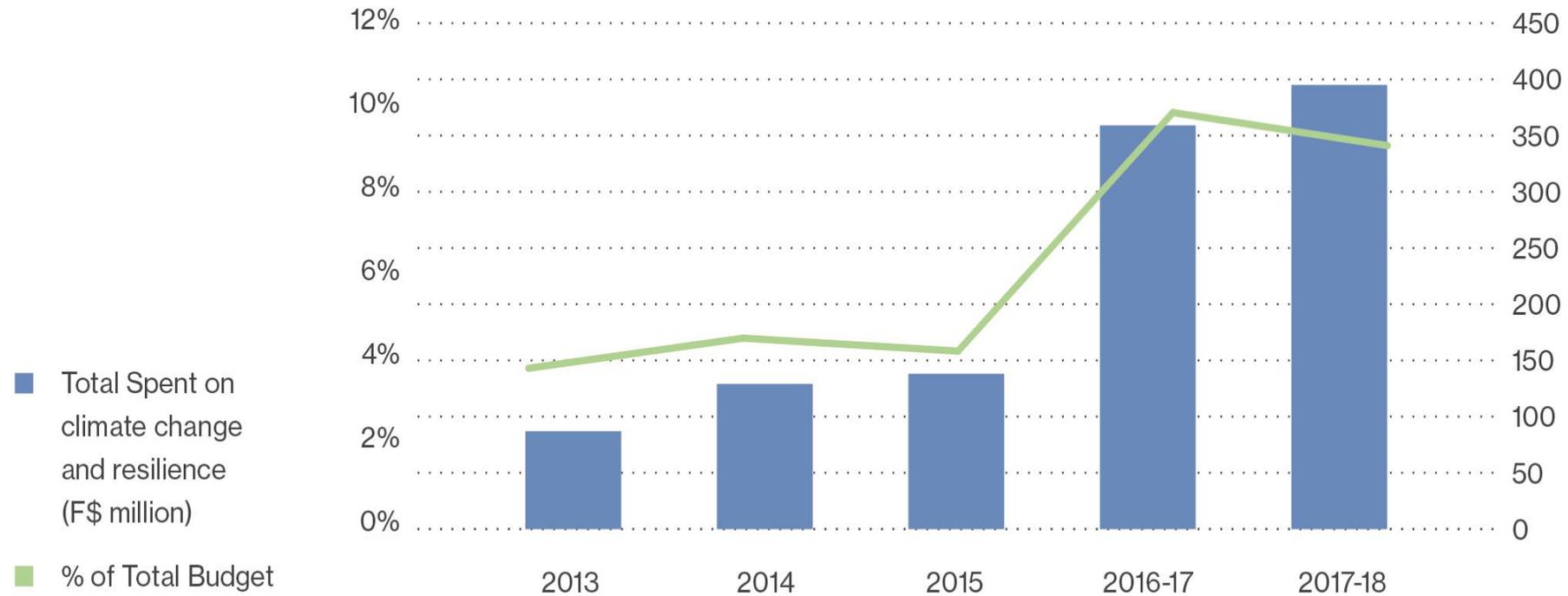


Four main messages

Message #1: Fiji is already exposed to large natural risks, and climate change is likely to amplify these risks, threatening the objectives of the Development Plan.

Message #2: The government has made significant efforts to reduce climate and disaster risks, better prepare for natural disasters, and respond to major shocks.

The government has increased its investment in building resilience



Objectives

Threats

Existing actions

Options

Foundations

Next steps

Four main messages

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Message #2: The government has made significant efforts to reduce climate and disaster risks, better prepare for natural disasters, and respond to major shocks.

Message #3: 125 interventions in five main areas can further reduce the country's vulnerability. But they have significant financial implications, with investment needs estimated at F\$9.3 billion over 10 years, plus additional maintenance, operation costs and social expenditures.

An adaptation plan with 125 interventions in 5 priority areas

1. Inclusive and resilient cities
2. Improving infrastructure services
3. Climate smart agriculture and fisheries
4. Conserving ecosystems and the local environment
5. Building socioeconomic resilience



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Message #4: Implementing these interventions will be a challenge. However it may be facilitated by improved decision making, well-managed public finances, and support from the international community.

Mobilizing resources to meeting infrastructure investment needs



2016 NATIONAL BUDGET ANNOUNCEMENT
By the Attorney-General & Minister Finance Hon. Aiyaz Sayed-Khaiyum
06 NOVEMBER 2015 AT 10.00AM
PARLIAMENT OF FIJI
Watch it live on FBC TV & Fiji TV

Options include:

- **Increased tax resources** – e.g., the Environmental and Climate Adaptation Levy (ECAL) will raise about F\$94 million
- **Budget reallocation and increased efficiency in spending** – e.g., thanks to asset management systems
- **Increased investment from private sector** – e.g., thanks to improvement in the legal and regulatory framework
- **Access to climate finance** – Fiji already works with development partners to access climate funds, which are combined with development funds and its own resources. Between 2011-14, Fiji has accessed US\$41 million in concessional finance for climate resilience and disaster risk management

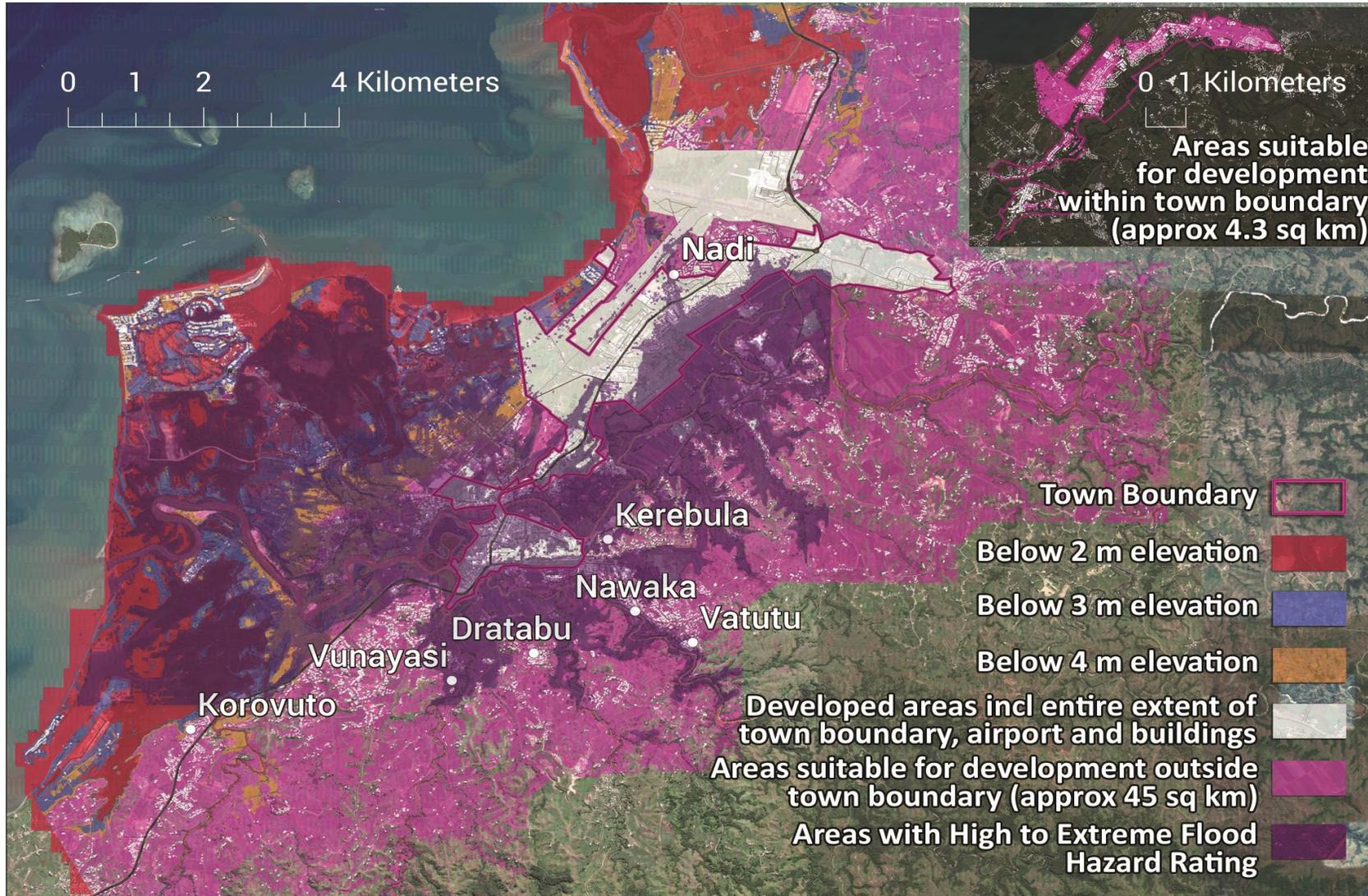
Mobilizing innovative approaches for sectoral assessments

Three examples

**A positive framing for
resilient urban
development**



“Safe areas” for future development in Nadi



Beyond aggregate estimates – investigating poverty implications

UNBREAKABLE

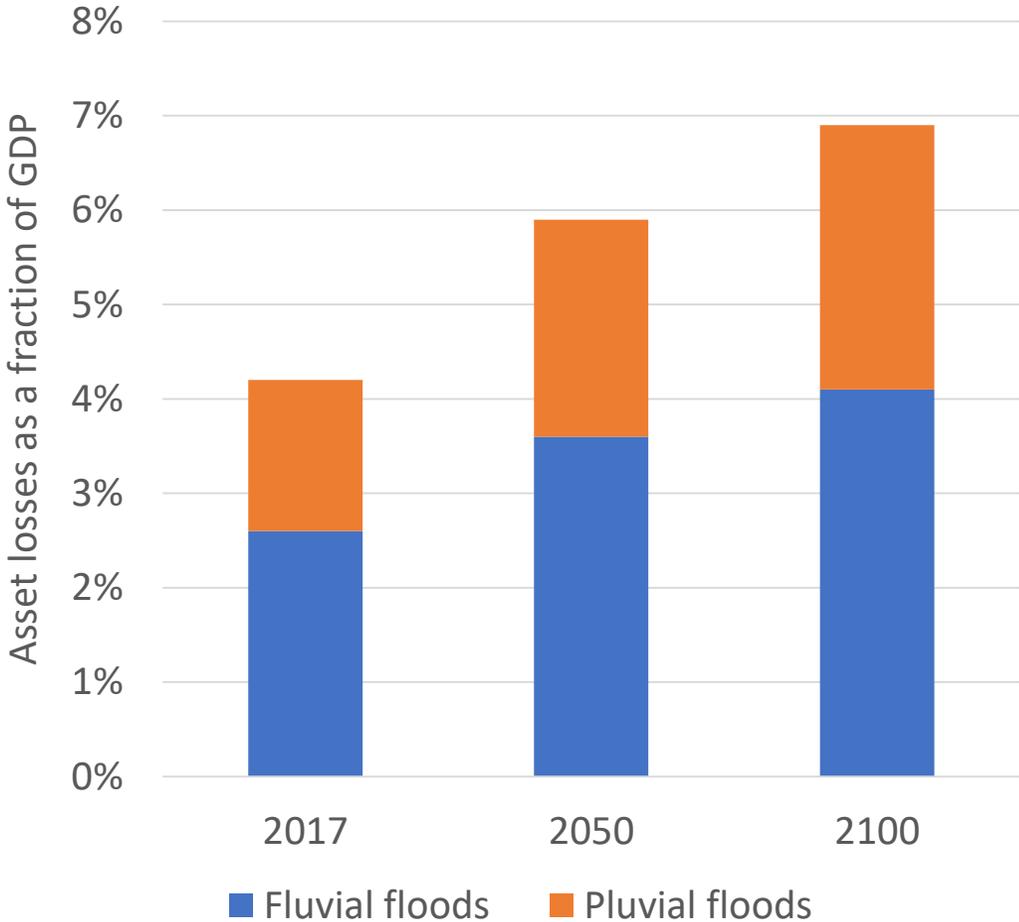
Building the Resilience of the Poor in the
Face of Natural Disasters

Stephanie Hillegren
Adrian Vago-Schib
Mark Sangdon
Julia Rosenberg

From hazards and asset losses...

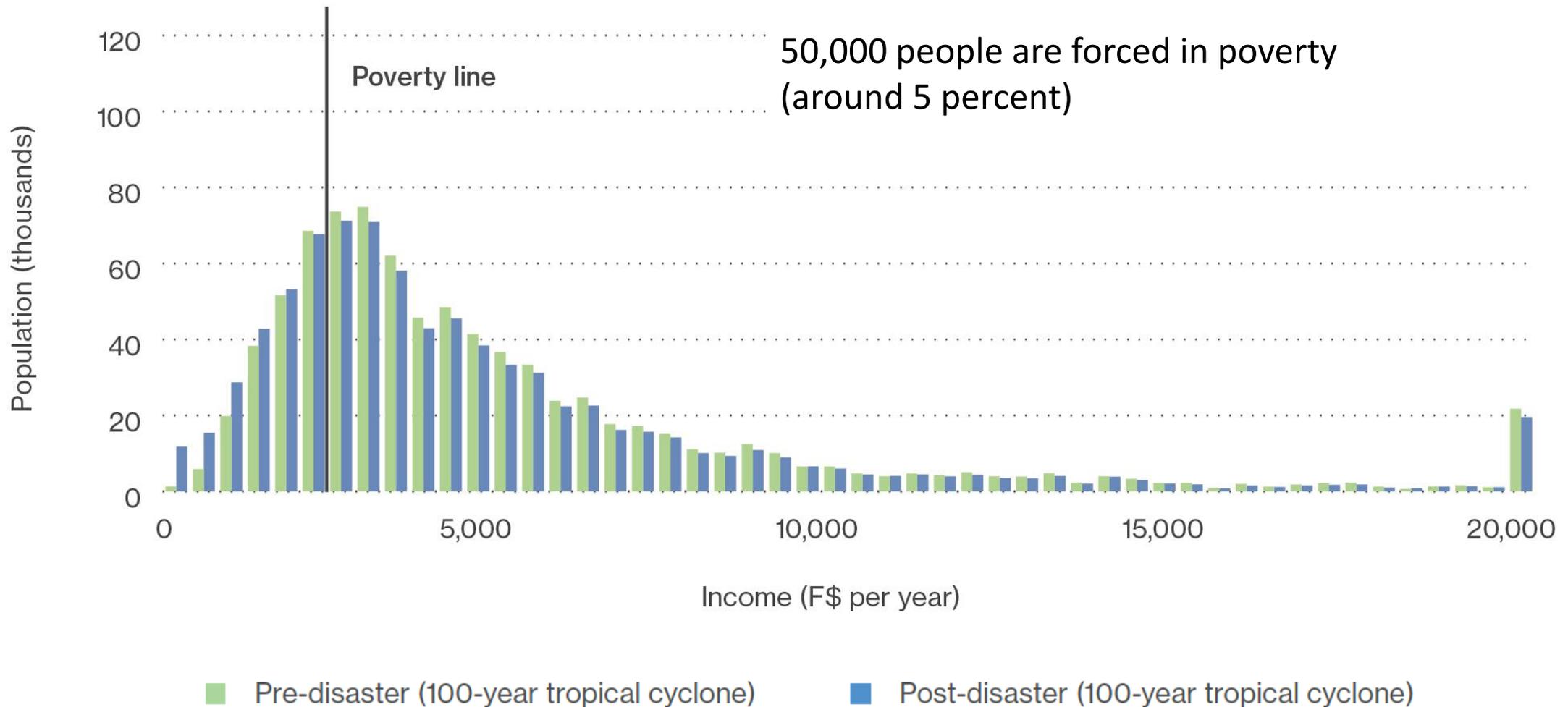


Source: flood modeling from SSBN, commissioned for this report, combined with exposure data based on PCRAFI.

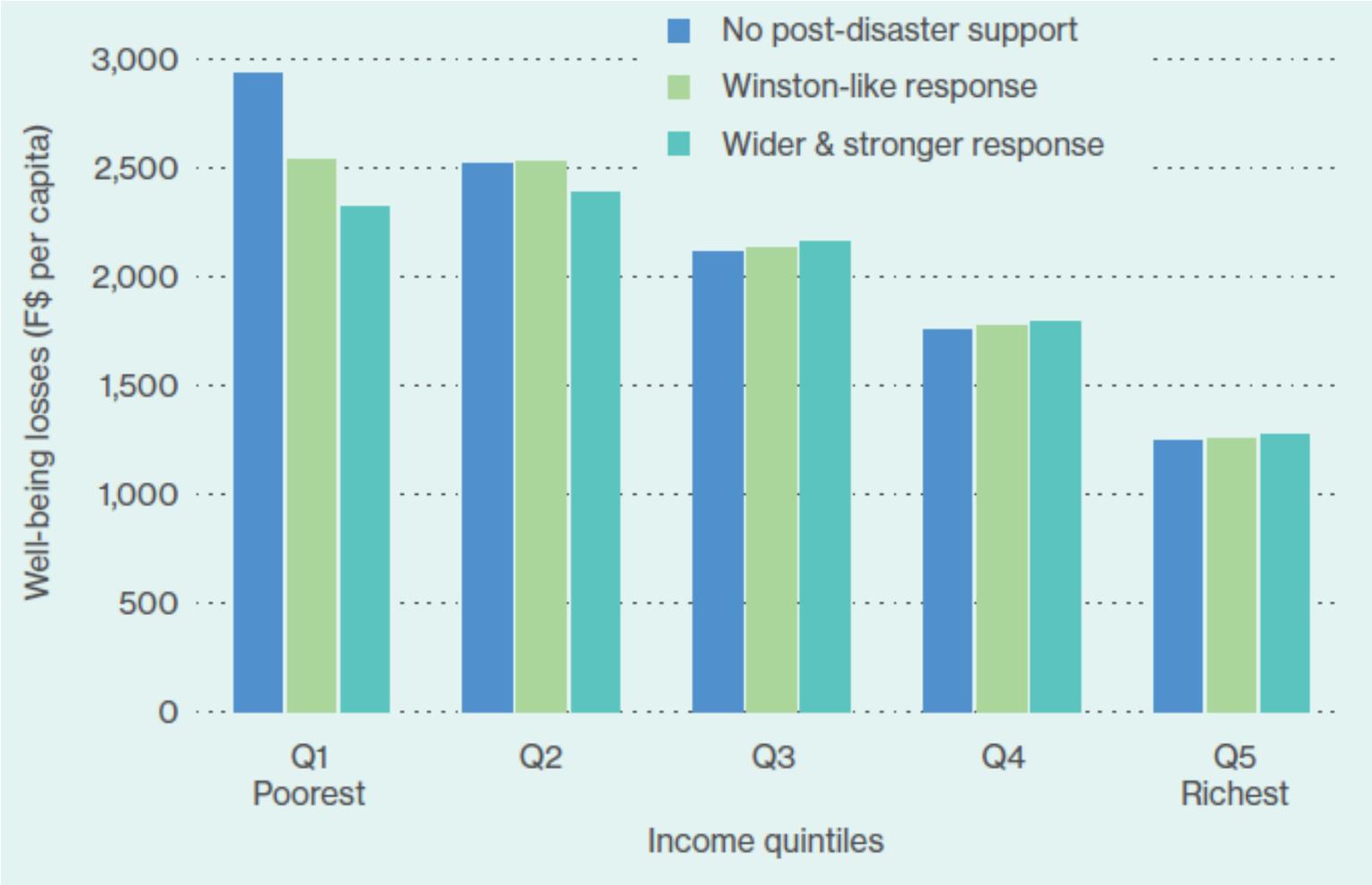


... to impact assessment at the household level.

Consequence on the 100-year tropical cyclone on income distribution in Fiji



Household-level impact assessments help evaluate the benefits of social protection...



... and its budgetary costs to target effective financing solutions



Average cost is only **F\$4 million** a year, but expenses can reach almost \$F40 million.

The **benefit cost ratio is larger than 4**, and total benefits would reach F\$16 million.

Options to better manage contingent liabilities include:

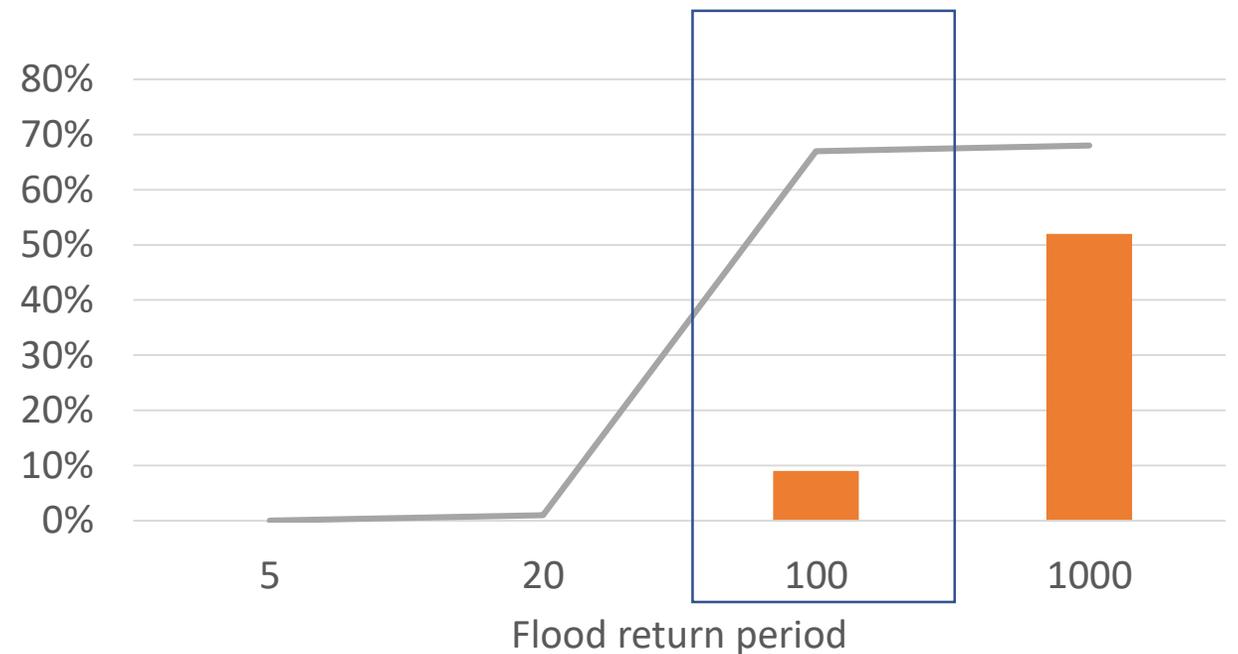
- Enlarging existing reserve fund
- Arranging contingent credit lines
- Buying insurance/reinsurance

Resilient infrastructure – the case of transport



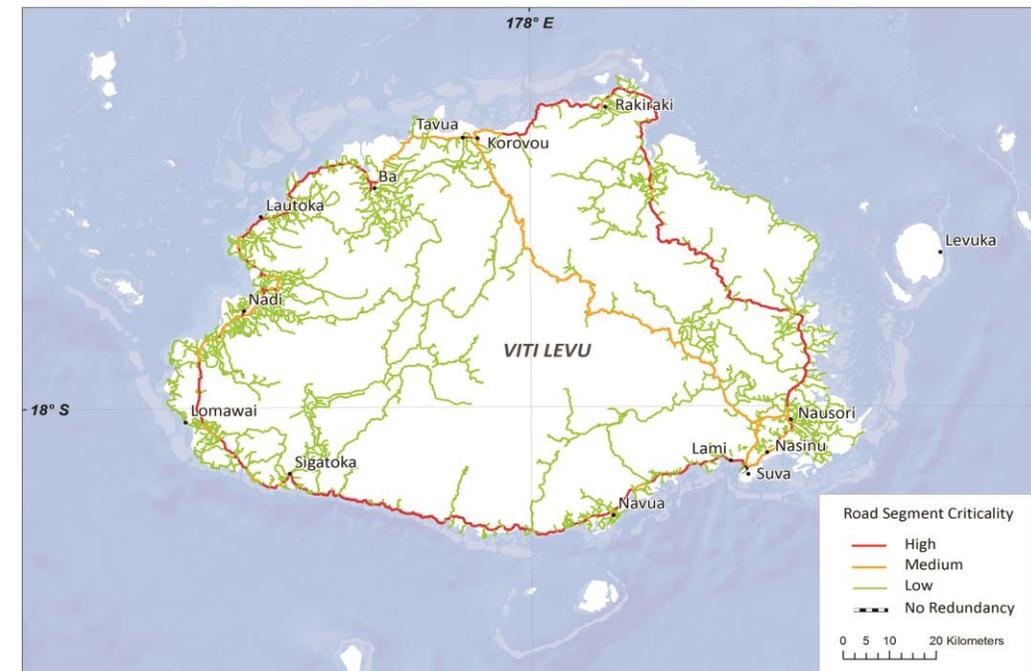
Exploring the exposure and vulnerability of all sectors

The criticality analysis highlights large vulnerabilities in the transport network

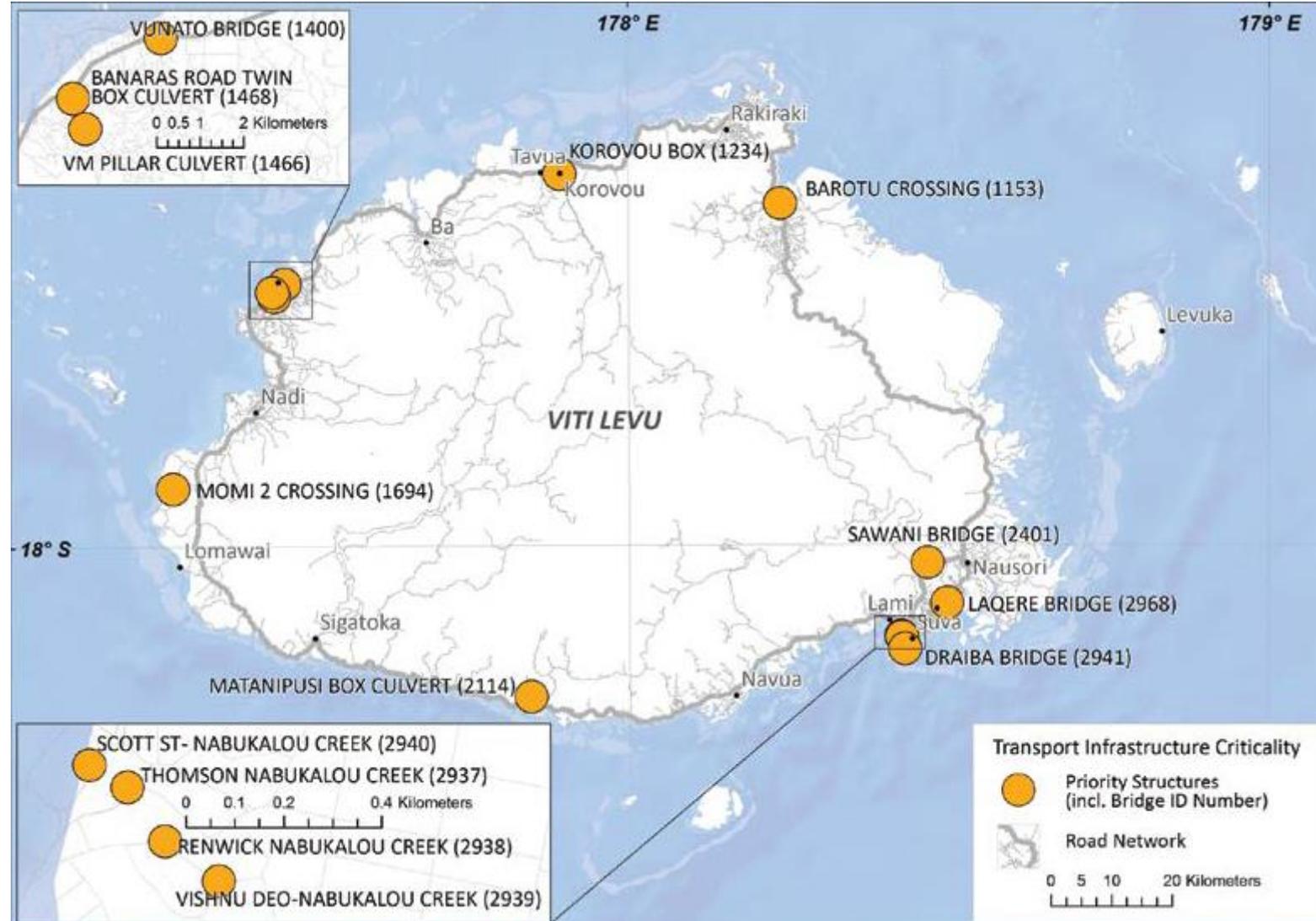


Asset damage (repair cost as % of total assets value)

Transport service loss during the year of the event

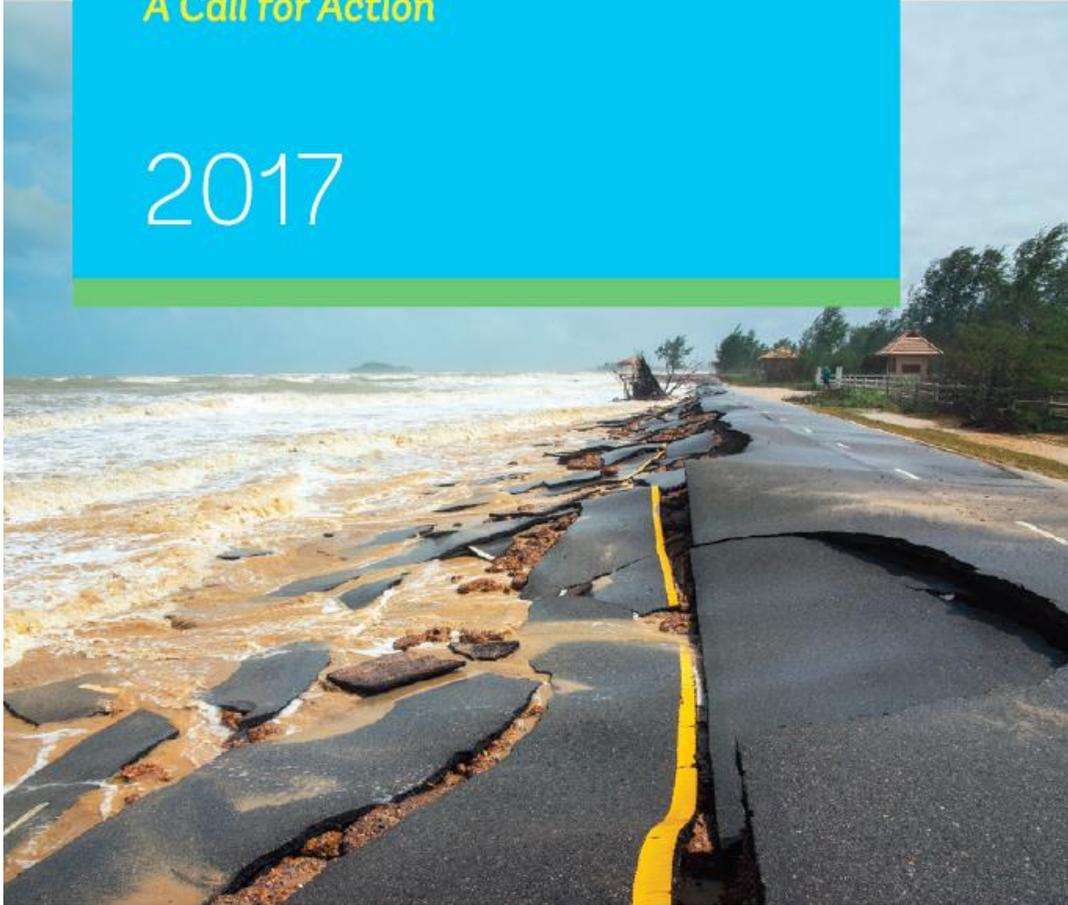


From criticality to investment priorities

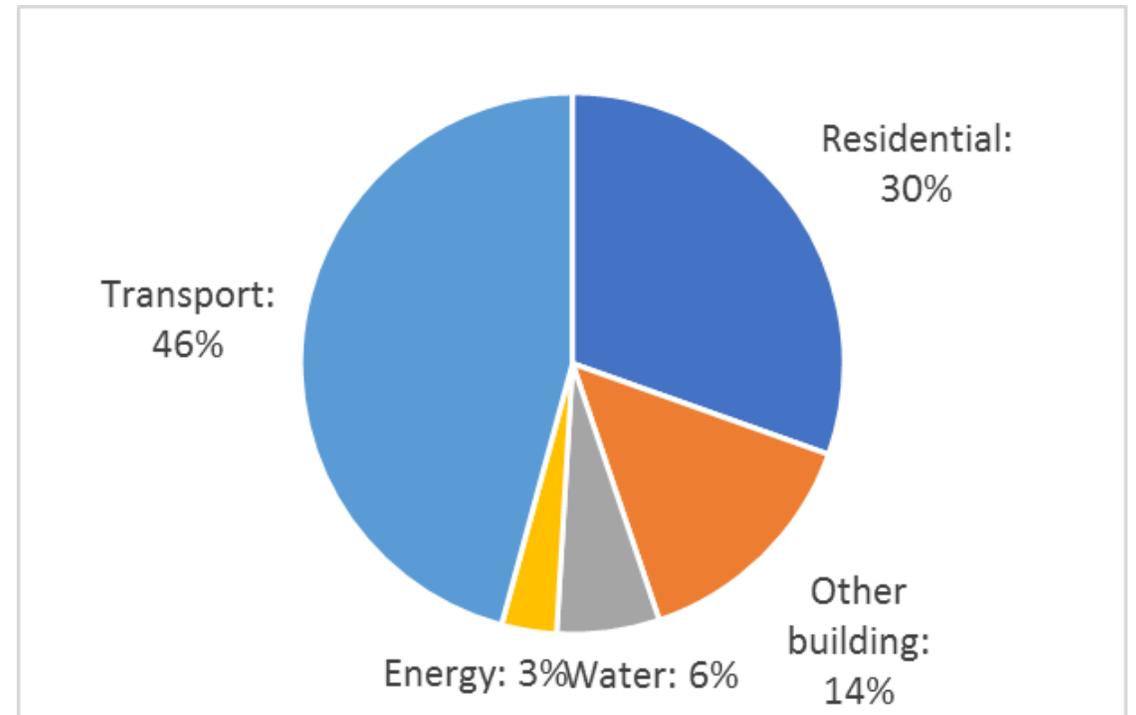


Climate and Disaster
Resilient Transport in Small
Island Developing States:
A Call for Action

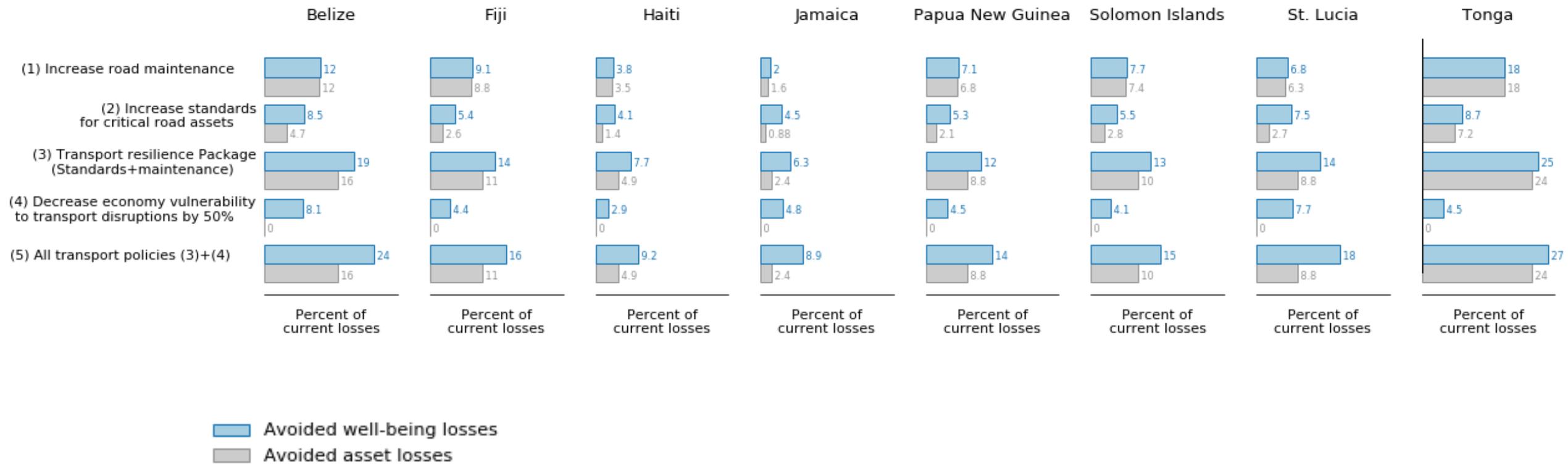
2017



Distribution of nonagricultural asset losses due to tropical cyclones and floods in Fiji



Resilient transport has significant well-being benefits in SIDS



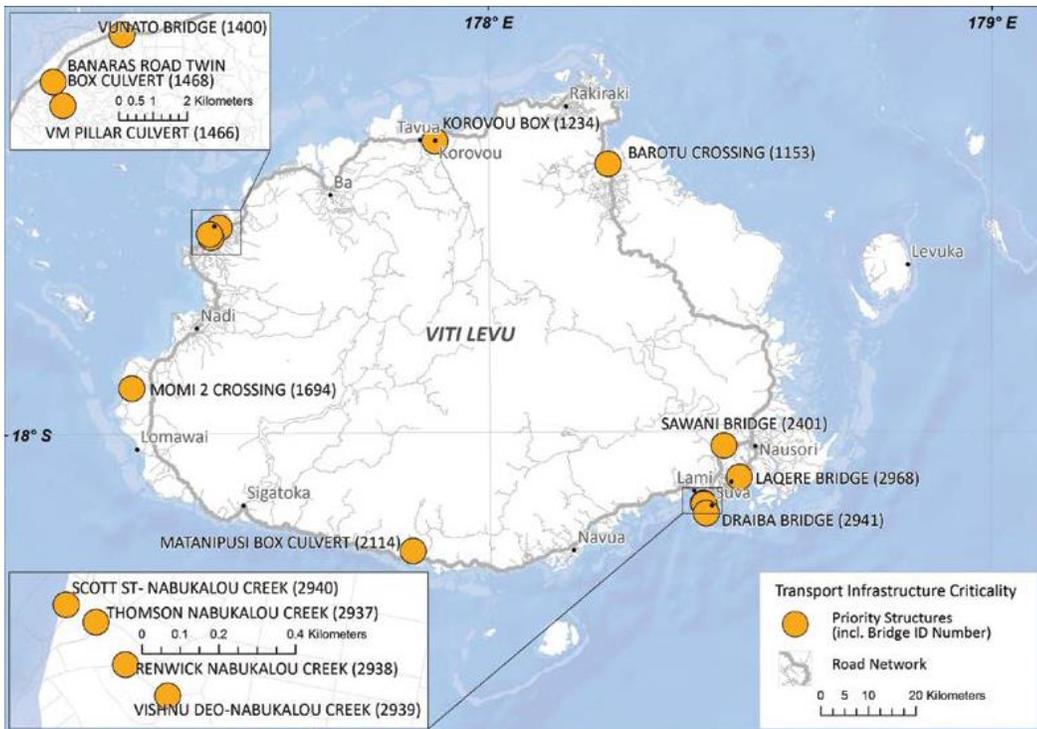


Photo Credit: World Bank



A. Geocell Formwork for Low-Volume Roads in Tuvalu and Kiribati



B. Geosynthetic Container Revetment for Coral Atolls in the Pacific Islands

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2017

