



Advancing Climate Risk Insurance plus (ACRI+) is breaking new ground and working on:

- Innovative insurance solutions which are integrated into the individual phases of climate risk management
- Comprehensive risk analysis of extreme weather events
- Long-term solutions for urban development, industrial zones, renewable energy
- Making concepts and implementation experiences available to the international climate dialogue for replication and scaling-up purposes

On behalf of



Federal Ministry
for the Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

Project Overview



Integrated Climate Risk Management



Sector 1:
Agriculture
in Ghana



Sector 2:
Urban
Resilience
in China



Sector 3:
Enterprises
(SMEs)
in Morocco

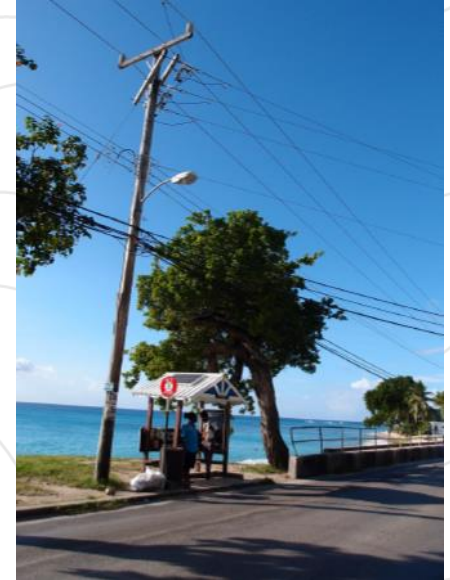


Sector 4:
Renewable
Energy
in Barbados



Project Aim

Support **investments** and deployment in RE and ensure that **existing and future energy generation, transmission and distribution** is resilient against extreme-weather events, using an integrated climate risk management approach.

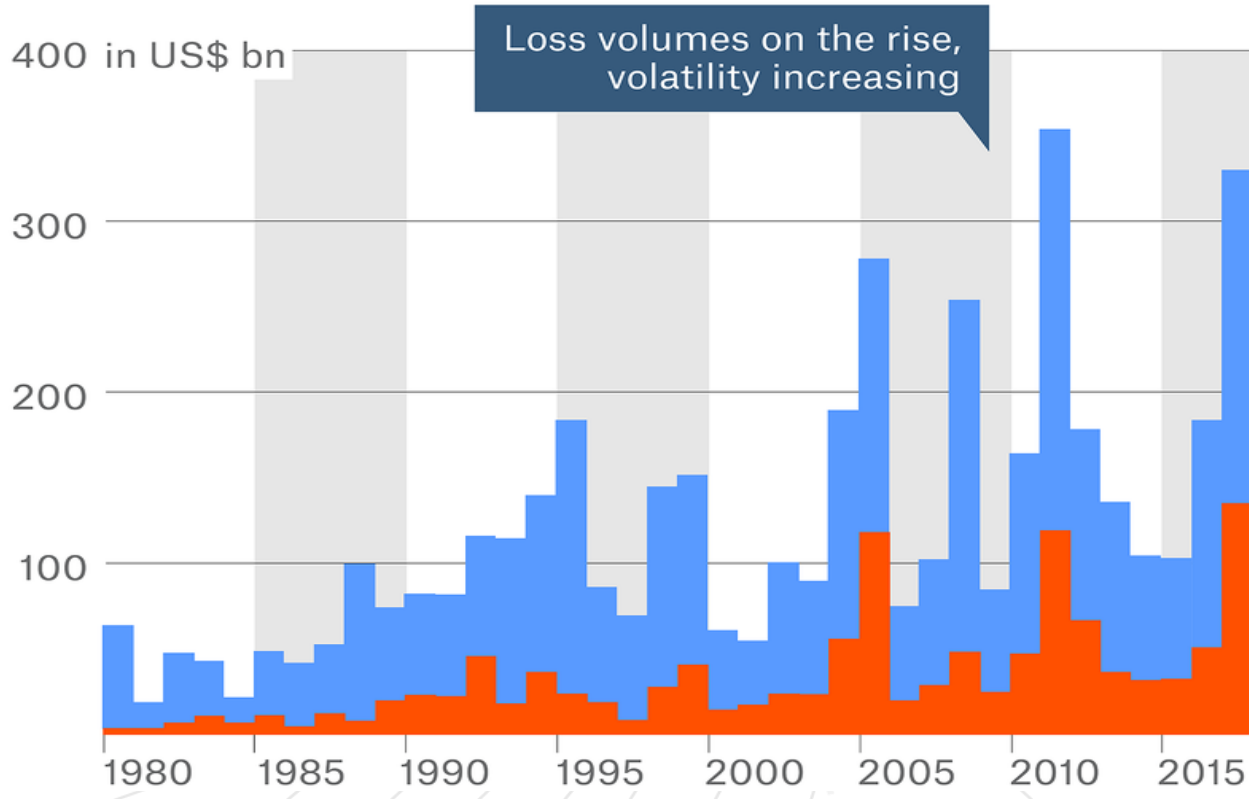




The Concept

**Integrated Climate Risk Management
(ICRM)**

- Overall losses (in 2016 values)
- Of which insured losses



Integrated Climate Risk Management (ICRM) Cycle – 5 Phases

Prevention



This phase comprises all the measures that help prevent or minimize possible damage from an event.

Recovery



After a natural extreme event hits, infrastructure and other parts of society must be rebuilt, so that people can resume their livelihoods as quickly as possible.

Response



This phase comprises all emergency measures aimed at saving human lives in the event of a natural disaster.



Retention & Transfer



In the Retention & Transfer Phase, it is important to conduct a cost-benefit analysis to determine if a type of pre-disaster financing or insurance would be appropriate.

Preparedness



Preparedness contains a complex set of activities such as setting up early warning systems, developing contingency plans, organising various activities such as stockpiling of equipment, and coordination and training as cross-cutting issues.


Applying ICRM on Renewable Energy in Barbados

The Roadmap



Barbados' National Renewable Energy Targets

Year	Penetration Targets
2007	10% Renewable Energy Generation by 2010
2010	29% Renewable Energy Generation and a 22% Energy Efficiency reduction by 2029
2017	75% Renewable Energy Generation by 2037
2018	100% Renewable Energy Generation target by 2030



Robinson & Rogers (2018)

Hurricane damage in the Caribbean in 2016/2017

- **St. Martin:** 60% of houses uninhabitable and total power blackout for more than a week following **Irma**. However, 90% of a 900 kW PV rooftop installation withstood the 280+ km/h winds!
- **Puerto Rico;** **Maria** destroyed 85% of transmission and distribution infrastructure. Full power could take months to restore.
- **Haiti:** more than a million homes lost power after **Matthew**. E.g. Les Anglais, a community running on almost 100% solar power, lost 40% of its panels.



Westin Dawn St. Martin (Source: PVEurope, 2017)



Les Anglais Haiti (Source: Earth Spark International, 2017)

Sources: (NPR, September 2017; Reuters, 2017; NY Times, 2017; Miami Herald, 2017; Reliefweb; 2017; PVEurope, 2017; BBC, 2016; Earth Spark International, 2017)

Key Events in Barbados

- Barbados is affected by impacts and damages from severe and **extreme weather** events



- Climate modelling projections indicate an **increase in the intensity of hurricanes**
- CCRIF pay-outs for the 2017 Atlantic hurricane season: **US\$ 50.7 Mio**
- Last major impact on Barbados was **Janet** on the 22nd of September 1955

The Roadmap

....towards 2030

Purpose

- The Roadmap for RE (Solar PV) is intended to work towards the 2030 target for RE
- Provide guidance and specific implementation actions to policymakers and stakeholders involved in the deployment & scale-up of Barbados' renewable energy sector
- Focus on Solar PV
- Analysis of gaps and recommended actions in relation to the elements of the ICRM Cycle ([Finance & Risk Transfer](#), [Prevention](#), [Recovery](#), [Response](#), [Preparedness](#))
- Ensure resilience of current and future systems, and promote further investments and deployment

The Roadmap

....towards 2030

Chapter Overview

- **Chapter 1:** Introduction (purpose, relevance, approach)
- **Chapter 2:** Climate Risks and the Energy Sector in Barbados (context)
- **Chapter 3:** Piloting an ICRM approach (analysis of actions and gaps)
- **Chapter 4:** Situating risk transfer within a DR financing framework
- **Chapter 6:** Implementation plan

The Roadmap

....towards 2030

Results of Studies (based on Interviews) - Gaps

- Enforcement of formal certification systems (home, grid-linked systems)
- Standards for siting, construction and maintenance of Solar PV
- Good quality risk data for available losses and damages (risk assessments)
- Establish Independent Power Producers' Association
- Establish a fixed term Feed-In-Tariff framework
- Technical training packages are tailored to the needs of local insurers

Breakout-Session



Breakout-Session

Setting:

- 4 Tables, each with one facilitator
 1. Meshia Clarke
 2. Tara James
 3. Dirk Kohler
 4. Eike Behre
- Each table has representatives from (1) Government, (2) Insurance (3) Industry Stakeholders, (4) BSO

Breakout-Session: Tasks

1. SWOT Analysis (Strengths, Weaknesses, Opportunities, Threats (Risks)) = “Blue Cards”

SWOT analysis towards the achievement of the 2030 goal.

2. Gaps/Obstacles = “Red Cards”

Each sector at the table formulates gaps/obstacles which will be faced in order scale-up Solar PV infrastructures (homeowner & utility scale). Orientate along the ICRM Phases (Finance, Risk Transfer, Prevention, Recovery, Response, Preparedness)

3. Actions = “Yellow Cards”

Participants will come up with actions to address the gaps. Here the following aspects are important:

- be specific
- name responsible actors
- prioritise
- think in time horizons (short-, medium-, long-term)

4. Areas of future cooperation and support = “White Cards”

Participants will think about new areas of future cooperation and support based on their identified action points. For example, capacity development measures for institutional strengthening.

Thank you

Eike Christoph Behre

Integrated Climate Risk Management /
Advancing Climate Risk Insurance Plus (ACRIplus)

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