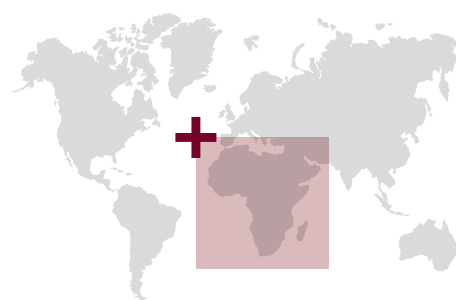


# Developing Disaster Risk Management Approaches for Climate Risks



## AT A GLANCE

### Name

Developing Disaster Risk Management Approaches for Climate Risks

### Duration

01.01.2018 – 31.12.2020

### Focus area

Greater Accra Metropolitan Area (GAMA), Ghana

### Target group

Public Assets belonging to municipalities in GAMA

### Funds available

The project activities are jointly funded by the Public-Private Partnership program (develoPPP.de) of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for International Cooperation and Development (BMZ) and Allianz Climate Solutions GmbH (ACS).

### The project is jointly implemented by ...

GIZ and ACS are jointly implementing the project activities with the help of several local partners.

### The overall aim of the project is ...

to prepare the ground for implementing risk transfer solutions within an integrated flood risk management approach for municipalities in GAMA, Ghana.



## BACKGROUND

The Greater Accra Metropolitan Area (GAMA) suffers from rain-related floods almost every year. This development is likely the result of several factors, including a rapid expansion of sealed-off surface, unplanned urbanization, weak infrastructure, inefficient waste collection and disposal system, as well as a changing climate with more intense rainfall events compared with earlier decades. GAMA is the economic hub of Ghana and is made of 16 metropolitan, municipal and district assemblies with an estimated 5.1 million inhabitants – making it the seventh largest metropolitan area in Africa<sup>1</sup>.

The severe flood event of 2015 served as a wake-up call to many stakeholders. It was reported as among the ten deadliest disasters worldwide in 2015, affected 52,622 people with 150 deaths recorded. Damage to infrastructure totaled US\$55 million, and rebuilding costs are estimated at US\$105 million<sup>2</sup>. The disaster has already led to a variety of activities that should lead to better

flood risk management. So far, these activities have focused on data collection and analysis, infrastructure improvements and capacity building. Risk transfer, as a component of an integrated Disaster Risk Management (iDRM) approach has not yet been looked at, even though it is obvious to do. Since extremely weather events cannot be totally avoided, some residual risks will remain whatever preventive measures you apply.

Municipalities in GAMA face significant challenges to finance reconstruction work after floods. Chronic cash constraints mean that reconstruction of non-critical infrastructure is often delayed or not undertaken at all, which negatively affects the living conditions and the economy of the affected areas. Therefore, a risk transfer solution as part of an iDRM could help speed up reconstruction through the swift disbursement of claim pay-outs after an event.

<sup>1</sup> City Population: <http://www.citypopulation.de/world/Agglomerations.html>; accessed 15 March 2018

<sup>2</sup> World Bank (2017). Enhancing Urban Resilience in the Greater Accra Metropolitan Area: <https://openknowledge.worldbank.org/handle/10986/27516>



## APPROACH

An integrated Disaster Risk Management (iDRM)<sup>3</sup> can improve the resilience of societies and also promote sustainable development. iDRM improves resilience through a cycle of risk analysis, prevention and mitigation, preparedness, and risk transfer solutions. In practice, these steps can overlap and merge. For example, risk transfer solutions such as insurance can be used to connect these steps. Insurance can improve post-disaster damage and loss situations by providing timely financial resources, directly to the affected. It can provide a buffering capacity and prevent knock-on effects after an event to stop further losses. Furthermore, insurance can incentivize risk reduction, provide leverage and produce synergy effects. At the same time, risk transfer solutions are not a stand-alone remedy to manage climate risks – it needs to form part of a holistic iDRM.

While DRM as well as stand alone risk transfer solutions have been significantly advanced on the macro and micro levels, the meso-level has so far been neglected. Also, sector specific applications such as of Urban Resilience have not drawn a significant attention, although cities tend to be the backbone of many developing economies. Cities such as Accra are becoming more vulnerable to the impact of climate change due to their high population density, associated extensive infrastructure development and complex inter-dependent systems. Much of the existing infrastructure is not well if at all adapted to current climate risks and are poorly placed to deal with future climate risks. Since cities play a paramount role in a country's resilience against extreme weather events, an improved iDRM and the closure of their "protection gaps" are much needed. Therefore the project is bringing those shortcomings together, develops and aligns risk transfer solutions on different levels with DRM for a pilot city: thus creating a iDRM for Urban Resilience.

**The iDRM under this project is structured into six components:**

### 1. Evaluate historical loss data and asset registry

Assess the municipalities' historic flood loss damages (especially damages to public infrastructure) and clarify ownership and responsibility for maintaining and financing the reconstruction of public infrastructure.

### 2. Enhance technical capacities of data providers

Strengthen the technical capacities of data providers such as Ghana Meteorological Agency and the Hydrological Services Department to provide high quality hazard data such as rainfall amounts and runoff volumes in a constant manner.

### 3. Analyze risk

Evaluate available data on hazard, exposure and vulnerability. Create or update existing flood maps and vulnerability curves for the participating municipalities.

### 4. Review existing iDRM measures

Review plans and tools, including prevention, preparedness and response and identify key prevention measures through a cost-benefit analysis.

### 5. Define iDRM action plan

Elaborate an improved iDRM concept with the municipalities and other stakeholders (e.g. NADMO). Agree prevention plan and update the municipal development plans. Identify funding sources for the planned measures.

### 6. Design risk transfer solutions

Design three different options of a risk transfer solution, based on the existing data and preferences of the municipality, and present to the municipalities and other stakeholders.

### Challenges

- **Lack of historic losses and hazard data** as well as a **registry of assets**. The available hazard data and sources are not disaggregated and do not allow for granular modelling and reliable monitoring of rainfall and flood events.
- **Lack of systematic risk mitigation:** There have never been an holistic iDRM approach for cities implemented. Based on the conceptual work on an integrated climate risk management approach for urban resilience of the project ACRIplus<sup>4</sup>, the project will develop solutions.
- **Lack of risk awareness:** no robust understanding of climate change and their options for adaptation and (financial) risk management strategies.

## OPPORTUNITIES

- Keen **interest and commitment of key stakeholders**, with an increasing awareness that a fresh approach to flood risk management is needed.
- The Ghanaian Government is preparing to buy **sovereign risk transfer solutions against drought from the ARC**, exposing various government entities to the concept of risk transfer.
- Support from **Allianz Ghana** as well as **top management at the headquarters**.
- Builds on the preliminary works of the **Advancing Climate Risk Insurance Plus project** by GIZ and Munich Climate Insurance Initiative (MCII).

<sup>3-4</sup> GIZ / MCII ICRM Model, <http://www.climate-insurance.org/projects/advancing-climate-risk-insurance-acri/>



## EXPECTED OUTCOMES

- **Understand and quantify the flood risks** in the participating municipalities. Meteorological, geographical and financial data will be analysed and improved.
- **Reduce the risk and improve the risk management** of all stakeholders involved by encouraging cost-effective investments risk reduction measures.
- **To transfer the residual risk** to the insurance sector, thereby providing financial stability to the stakeholders and a greater freedom of action when a catastrophe strikes.
- Further proof of the potential of **leverage and synergy effects of insurance products** as part as an iDRM
- An effective iDRM concept for cities

### WHY IS CLIMATE RISK INSURANCE RELEVANT FOR CITIES?

Extreme weather events can erode decades of economic progress in developing and emerging economies within a short time of occurrence. Currently, weather-related disasters force an estimated 26 million people into poverty each year worldwide. The impacts of disasters on well-being is equivalent to a global annual loss of about \$520 billion.

Climate change is exacerbating this situation. Extreme weather events are becoming increasingly common and their impact is intensifying due to urbanization and other socio-economic developments. Moreover, developing countries suffer disproportionately from disaster losses, because of weak infrastructure and insufficient resources to assess and manage these risks. Furthermore, local authorities typically take an ex-post approach to disaster management, i.e. concentrated on emergency relief efforts and reconstruction of critical infrastructure after an extreme weather event. Chronic cash constraints means that reconstruction of non-critical infrastructure is often delayed or not undertaken at all.

Increasingly, cities are becoming vulnerable to the impacts of extreme weather events due to their high population density, associated extensive infrastructure development and complex interdependent systems. For example, despite the Greater Accra Metropolitan Area (GAMA) occupying less than 1.4% of Ghana's total land area, it is inhabited by more than 16% of Ghana's population and contributes 25% of the national Gross Domestic Product (GDP). Despite its economic importance, GAMA's infrastructure is not well adapted to current climate risks and poorly placed to deal with expected future climate risks. Drainage management in GAMA, for instance, is spread across several agencies, leading to weak coordination. Also, GAMA's reactive approach to shocks means many municipalities do not have contingency plans or budgets, resulting in delays in reconstructing damaged infrastructure. Insurance solutions can help the municipalities to build their financial resilience to shocks by making their emergency funding and reconstruction resources more reliable.

## CONTACT

### Matthias Range

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

E matthias.range@giz.de

T + 49 (0)89 5447968611

M + 49 (0)151 52619538

### Benjamin Antwi-Boasiako

Allianz Climate Solutions

E benjamin.antwi-boasiako@allianz.com

T + 49 (0) 89 3800 64542

M + 49 (0)16 0482 7345

### Foto credits

GIZ (single credits to be checked with acri@giz.de)

March 2018

### DISCLAIMER

This publication has been prepared by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Munich Climate Insurance Initiative (MCI) in the frame of the project "Promoting Integrated Mechanisms for Climate Risk Management and Transfer" funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The information in this publication is solely based on the project documentation provided by the project implementer(s).