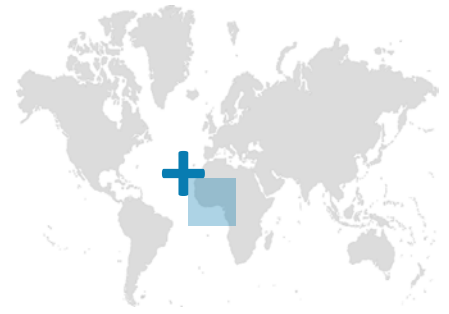


INFOCUS

Enabling Policy Environment: Cost-Benefit Analysis for Ecofriendly Adaptation Measures



SUBJECT

The ferocious impact of flooding on livelihoods and property demands efficient and ecofriendly adaptation measures. The Greater Accra Metropolitan Area (GAMA), Ghana loses a huge amount of resources to flooding every year. Although various interventions and measures have been put in place to ensure that flood risk in GAMA is properly managed, some Metropolitan, Municipal, and District Assemblies (MMDAs) 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. To this end, the Public-Private Partnership between Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Allianz Reinsurance implemented the project “Developing Risk Management Approaches for Climate Risk”. Within an integrated flood risk management approach, the project sought to prepare the grounds for risk transfer solutions for public assets of some MMDAs in GAMA.

This made it critical to conduct an exposure modelling and analysis to help identify vulnerable public assets within these assemblies. The analysis revealed the importance of also conducting a cost-benefit analysis for ecofriendly adaptation measures. Such an analysis enables the city authorities to assess the cost of implementing a measure and compare it with the reduction in future expected damage that the proposed measure is likely to result in.

This is important to decide which ecofriendly adaptation measure should be implemented due to low costs and high benefits as well as, if also thinking about purchasing risk transfer solutions, to compare the cost and benefit of ecofriendly adaptation measures to insurance premiums. Thus, cost-benefit analysis provides a basis for decision-making. The analysis was focused on some selected highly exposed/vulnerable public assets in GAMA identified through the exposure modelling/analysis conducted by HKV consultants.

On behalf of



CHALLENGES

Limited knowledge on assessing the impact of adaptation measures on flood risk reduction before implementing them.

City authorities have little knowledge on how to conduct a cost-benefit analysis that helps to estimate both the costs and benefits of a particular flood risk reducing adaptation measure. This affects decision-making in prioritizing appropriate measures to be implemented. City authorities may adopt certain measures with high cost which could yield low benefit or even no benefit at all.

Over-reliance on grey adaptation measures.

Cities implement a lot of grey adaptation measures. However, green measures may be more effective to reduce runoff and in the long term do not have a climate negative impact. Consideration of green measures could help reduce the volume of runoff, thus reducing the impact of flooding on vulnerable livelihoods and properties, as well as in the long-term support climate mitigation.

SOLUTIONS

1. Conducting a cost-benefit analysis for ecofriendly adaptation measures.

In close cooperation with city officials, a cost-benefit analysis was conducted to agree on adaptation measures to be implemented for public assets at risk. This was done by identifying all possible adaptation measures, especially on the micro-level, considering both green and grey measures. The cost of each adaptation measure was estimated and its impact on flood risk reduction (= benefit) for several assets was assessed. The cost per item was obtained through market surveys and site visits by service providers.

All measures with a cost-benefit factor of greater than one are economically wise to be implemented because the benefits exceed the costs. Moreover, the cost and benefits were also estimated for the combination of several different adaptation measures. Within this cost-benefit analysis, several ecofriendly adaptation measures (i.e., waste collection and recycling, desilting, water harvesting and reusing, grass planting to help the rainfall-runoff water percolate into the ground) were assessed.

2. Educating cities on how to conduct cost-benefit analysis.

City officials were educated on how to conduct cost-benefit analysis to enable them to make better decisions and thus implement those adaptation measures that are most efficient and effective as well as have few climate negative impacts in the long run.

LESSONS LEARNED

1. Green adaptation measures proved to be less expensive and more impactful in reducing flood risk.

The cost of implementation of green measures appeared to be lower compared to that of grey measures. However, the degree of risk reduction was much higher for green measures. As these are also ecofriendly, and therefore even increase the benefit, implementing green measures should often be preferred.

2. The benefit of adaptation measures implemented for expensive assets was very high.

Given two assets, an adaptation measure implemented for the more expensive asset leads to a higher benefit in terms of risk reduction level than when implemented for the less expensive asset.





Activity name

Enabling Policy Environment: Cost-Benefit Analysis for Ecofriendly Adaptation Measures

Focus area

Greater Accra Metropolitan Area (GAMA), Ghana

Local partners

- Administration of GA East, GA West and AMA
- GMet - the Ghana Meteorological Agency

Target group

Public assets under the control of assemblies in GAMA

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For more information, please refer to the factsheet “Developing Risk Management Approaches for Climate Risks in Ghana”.

DISCLAIMER

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