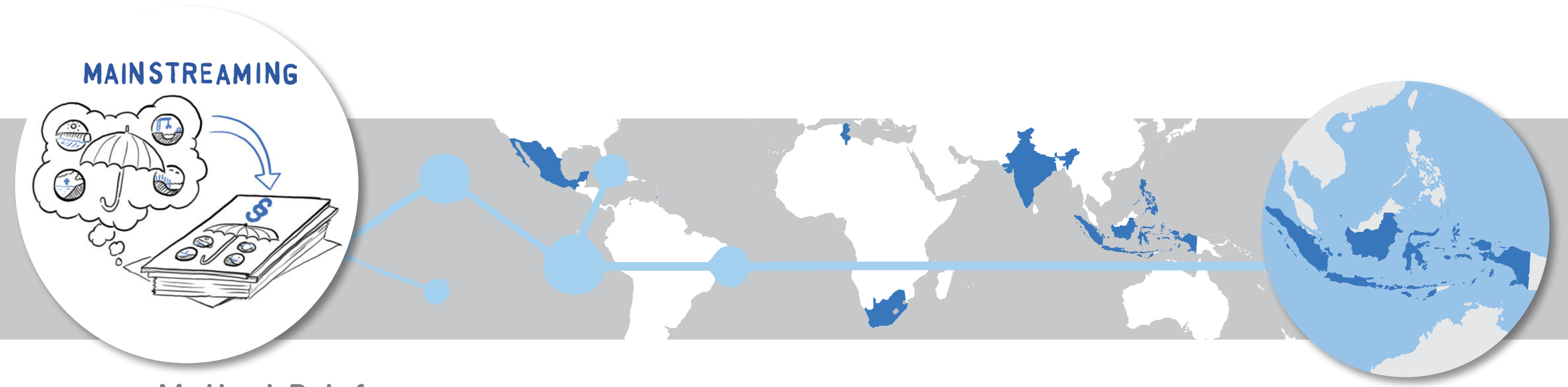

Method Brief

Indonesia: Mainstreaming CCA & CCM in watersheds

The Approach

The Centre for Climate Risk and Opportunity Management (CCROM) introduced a comprehensive approach for mainstreaming Climate Change Adaptation (CCA) and Climate Change Mitigation (CCM) within the framework of Water Resources Management at catchment level. It was piloted for the Citarum River watershed in West Java, Indonesia.

Scope and entry points

The core of the whole process is to integrate CCA and CCM options into catchment management and local development planning. In doing so, the approach supports a resilient and less carbon intensive development strategy in the catchment area. It was conducted as part of the Integrated Citarum Water Resources Management Investment Programme (supported by the Asian Development Bank, ADB) that began in 2010 and is projected for 15 years.

How it works

The approach can be divided into three parts (Figure). Part 1 covers the identification of adaptation options based on vulnerability and risk analyses. Part 2 focuses on the integration of adaptation and mitigation options into regional water resources management development plans, followed by the process of Part 3 for monitoring and evaluating implementation. Part 1 starts with projections/scenarios for future development of climate parameters, water resources availability and land-use patterns. The latter influence future water availability. Risk analysis considers the probability and impacts of harmful events such as floods, drought/water scarcity and hydro-power scarcity. The impacts of these events are represented by vulnerability indices, determined using a vulnerability assessment that is conducted at the village and household levels. The combination of vulnerability and risk analyses allows for the identification of areas to be prioritised for adaptation actions. Part 1 results in a strategic framework of CCA and CCM options.

Part 2 connects adaptation options as defined in Part 1 with inputs from local stakeholders within a multi-party process. It includes exploration of actions already pursued by local communities and might result in the re-orientation and prioritisation of actions. Final results will be synergised with and integrated into local development policies and the local medium-term development plan (RPJMP).

Part 3 organises the implementation and assesses whether the actions reduce vulnerability and carbon intensity of the societal system in the catchment area, as intended. Evaluation of vulnerability changes (vulnerability index) might require new vulnerability assessments.

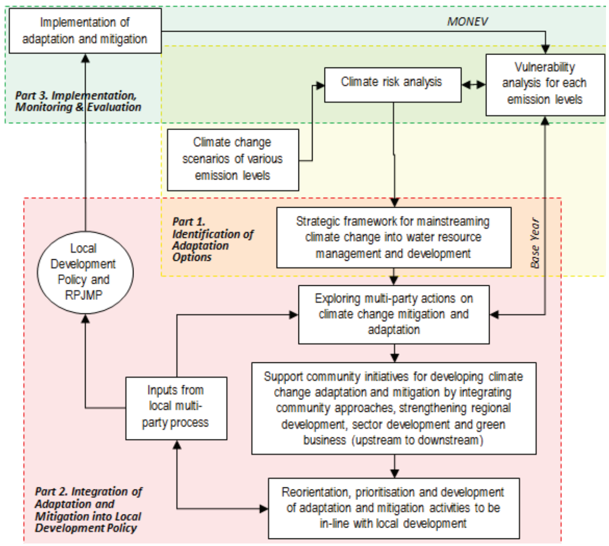

Figure. CCROM-IPB methodology
(modified from: Boer et al. 2012)

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On behalf of

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

Specifics of application

Stakeholders and institutional set-up

The main stakeholders of this approach are provincial government and local water resources boards/offices. The multi-stakeholder processes are organised by the Ministry of Environment with support from provincial government.

Input

The approach requires a team including experts such as a climatologist or meteorologist, hydro-climatologist or water resource management expert, and social scientists focusing on institutional development and vulnerability assessment. The team also requires 3–4 junior scientists to support data collection and assessment. Required data includes climate data for climate analysis, socio-economic data for vulnerability assessment, and standard topography maps for spatial risk analysis. Land-use maps and satellite photos are useful for land-use analysis and projections. Observed climate data can be obtained from local meteorological offices or local climate stations and the National Agency for Meteorology, Climatology and Geophysics BMKG. Global Climate Model (GCM) data are available at the IPCC Data Distribution Centre, while socio-economic data are available at government offices or the Bureau of Statistics. In addition, a regional climate model for GCM down-scaling and a Geographical Information System (GIS) are necessary.

The implementation of this approach may require 10–12 months to complete the conceptual framework and reporting. This includes climate change projections that take around 3–6 months, as well as risk analysis and vulnerability assessments that take 3 months.

Output

The main output is a contribution framework to the local development plan.

Capacity required and ease of use

The approach requires a large amount of data, which may not always be available or accessible. It is necessary to have support from institutions that possess data. Experts and resources for projections and analyses may be a bottleneck when replicating the approach beyond a well-supported pilot.

Conclusions for future application

Outcome and added value

The approach has been successful in supporting adaptation-related decisions in the pilot area, and in determining pilot sites for prioritised CCA and CCM actions.

Cost-benefit ratio

The cost-benefit ratio seems to be acceptable only in cases of exceptional benefit, for example in the case of watersheds of high importance for water supply, biodiversity or flood protection.

Potential for replication

The approach is relevant and transferable to river basins of similar importance as the Citarum River with its relevance to Jakarta's water supply. Funds may be made available from the central government and other institutions for such priority catchments, expertise from university and other institutions of excellence.

References

Boer R, Rahman A, Faqih A, Pulhin J, Islam S (2012): Penilaian risiko iklim di DAS Citarum. Part of TA ADB 7189 – Package E, presented during a Seminar on the Citarum River Basin Vulnerability Assessment Results, Savoy Homann Hotel, Bandung 6 August 2012. (ppt file)

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For more information please see the website of the programme "Institutional Strengthening for Integrated Water Resources Management":
www.icwrm-climatechange.com/home.php

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