

Method Brief

Madagascar: Vulnerability Assessment in Boeny

Approach

A **vulnerability assessment** was conducted in the Boeny region of northwestern Madagascar that brought together a desk study and local knowledge on the impacts of climate change. The purpose was to identify vulnerabilities of the major regional ecosystems (dry forests, mangroves, and lacustrine ecosystems) and the natural resource-dependent population to climate change and other risk factors, and to define possible adaptation measures that are to be integrated into local land use and forest management plans.

Scope and entry points

Madagascar's unique biodiversity makes it one of the world's "hotspots" being increasingly exposed to the risk of climate change along with most of the island's population, which is greatly dependent on natural resources. In this context, the German-Malagasy Environment Programme seeks to integrate adaptation measures derived from the vulnerability assessment into forest and protected area management plans as well as land use planning. The key function of this regional vulnerability assessment was to identify adaptation needs related to socio-economic and ecological vulnerabilities with the objective of improving the resilience of the local communities.

How it works

The assessment brought together **local knowledge** (field study) and **scientific knowledge** (desk study) regarding exposure, sensitivity and adaptive capacity. In Madagascar, available data on climate change and adaptation mainly refer to the national level, as existing meteorological stations do not allow for monitoring of local temperatures or rainfall patterns. In order to draw an exhaustive picture of the degree of social and ecological vulnerability it was therefore necessary to integrate local perceptions into the analysis.

While the desk study concentrated on existing documents and data on historical, current and projected climate change, the field study enabled integration of local perceptions on climate change gathered in 12 local communities in the Boeny region. Three different instruments were used over the course of the consultation process for the field study. Firstly, three **focus group discussions** were conducted in each community, involving representatives from the local population, local authorities (the mayor, councillors and elders, etc.) and the main local income-generating activities (agriculture, fishery and stock breeding, etc.). Tools used to facilitate the focus group discussions included participatory mapping, seasonal calendars and compilation of historical profiles and vulnerability matrices.

Secondly, 15 individual interviews were conducted in each community to obtain quantitative data on local livelihoods and the impacts of climate change. Finally, one narrative interview was conducted in each community with a representative of the elder population to obtain information on historical events and past variations in climate conditions.

On behalf of

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

of the Federal Republic of Germany

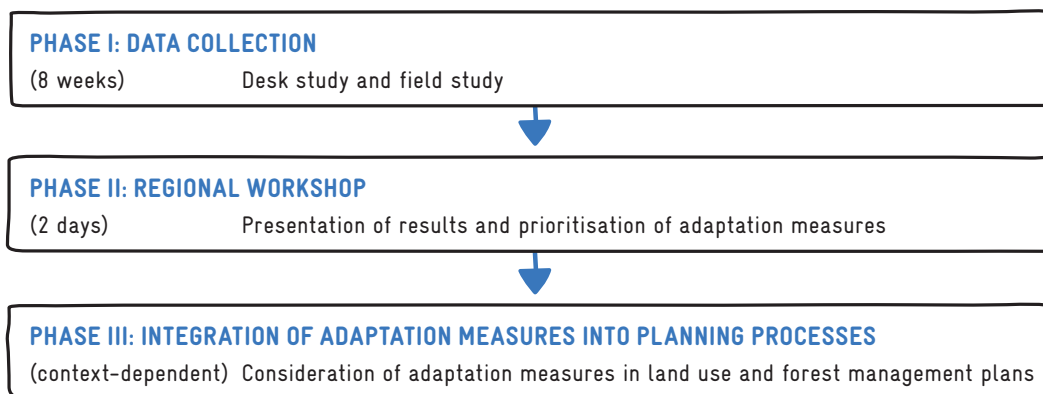


Figure: Stages of the vulnerability assessment

The results yielded by the field study and the desk study were presented at a regional workshop in which all relevant stakeholders (local communities, administration and civil society) participated. The main objective of the workshop was to identify adaptation measures, so working

groups were organised around the three main sectors identified in the field study: forestry, fishery and agriculture. Each group discussed the following aspects over the two-day workshop:

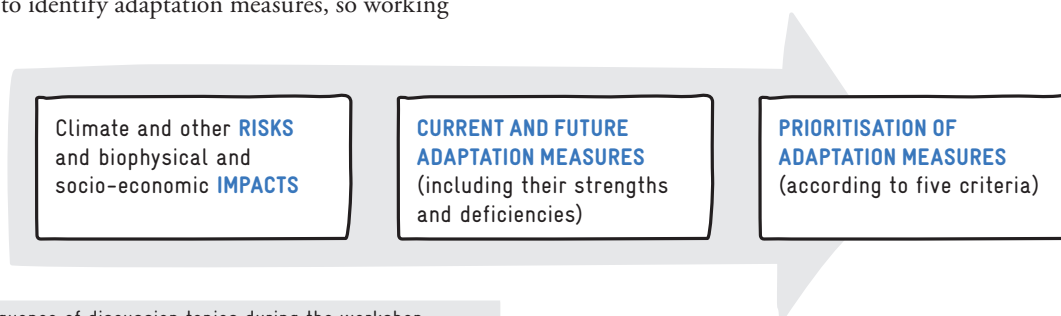


Figure: Sequence of discussion topics during the workshop

The results are to be integrated into forest management plans, protected area management plans and land use planning.

Specifics of application

Stakeholders and institutional set-up

Commissioned by the German-Malagasy Environment Programme in collaboration with the regional direction of the Ministry of Environment and Forests (MEF), the vulnerability assessment was conducted by two expert teams. While an association of consultants was in charge of the consultation processes in the 12 local communities, two university researchers conducted the desk study.

Input

Time: Starting with elaboration of the methodology for the field study in May 2013, the whole process took about four and a half months. The final report was submitted in September 2013.

Personnel: The vulnerability assessment required the collaboration of two university researchers for the desk study

and preparation of the final document, two consultants in charge of designing and managing the field study, as well as nine field interviewers for the consultation process (focus groups and interviews) in 12 local communities.

Data: National and regional climate data and projections were obtained from the Directorate-General of Meteorology. Socio-economic data specific to the Boeny region that had been collected by the National Institute of Statistics (INSTAT) were also used for the assessment.

Funds: The vulnerability assessment entailed personnel costs for the consultants and researchers in charge of the field and desk studies as well as costs for organising the regional workshop (about 50 participants). Including occasional transfers of one staff member to the Boeny region to supervise and mentor the local team, study costs amounted to about EUR 17,000.

Output

The final report of the vulnerability assessment includes:

- A synthesis of past climatic changes and future projections for Madagascar and the Boeny region
- An evaluation of the impacts of climate change and the adaptive capacity of ecosystems and the local population in Boeny
- A presentation of existing adaptation measures and the role of ecosystem services
- A list of appropriate adaptation measures per sector (forestry, agriculture, and fishery) aimed at reducing the vulnerability of the target groups.

Capacity required and ease of use

While the field study mostly requires skills in the field of participatory rural appraisals (focus group discussions and interviews), more specific expertise with regard to climate change and ecosystem services is needed for the desk study. However, resource persons in charge of the field study should have at least a basic knowledge of climate trends and ecosystems as well as analytical skills to ensure appropriate treatment of the collected data.

Conclusions for future application

Outcome and added value

The results of the vulnerability assessment are to be used to integrate the issue of climate change and appropriate adaptation measures into forest and protected area management plans as well as land use planning. While the German-Malagasy Environment Programme seeks to finance some of the adaptation measures, local stakeholders will be able to utilise their land use and management plans to attract further public or private funding for the implementation of climate adaptation activities.

Cost-benefit ratio

About 75% of the costs for the regional vulnerability assessment went to funding the staff in charge of the field and desk studies, including their transfers to and within the Boeny region as well as costs for accommodations and per diem payments. In view of the size of the region and the number of local communities involved in the assessment, the costs for the field study were reasonable. However, it is questionable whether two university researchers were necessary for the desk study.

The regional workshop accounted for about 26% of total costs of the vulnerability assessment. The mobilised funds did not exceed those used for other regional workshops, for example in the context of elaborating the National Adaptation Plan (NAP).

Potential for replication

The methodologies used for the desk study and the field study both offer high potential for replication. Apart from German development cooperation, a number of organisations (for example WWF, CARE, and Tearfund) have described the various consultation tools used in this vulnerability study in guidebooks available online. These can be easily studied and replicated by field study teams.

With regard to the desk study, the depth of analysis depends mostly on the availability of documents and data at the national and regional level.

References

CEDRA: Évaluation des risques et de l'adaptation au changement climatique et à la dégradation de l'environnement, Tearfund, 2009.

Integrating adaptation measures into forest management, GIZ, 2012.

Local vulnerability and adaptation assessment in rural communities. Guidelines for assessing local knowledge about adaptation to climate change in the process of municipality development planning (PCD) in the Far North of Cameroon, GIZ, 2013.

Manuel d'analyse de la vulnérabilité et de la capacité d'adaptation au Changement Climatique, CARE, 2009.

Outil communautaire: Témoin du climat – Climate Witness, WWF-Programme du Pacifique Sud et adapté par WWF MWIOPO, 2009.

Contact for further information

Paula Becker, Technical Advisor, Programme Germano-Malgache pour l'Environnement (PGM-E), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, E-mail: paula.becker@giz.de.

