How to monitor ecosystems-based adaptation

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Trees are resilient. Photo: ICRAF/Lalisa Duguma

Ecosystems-based adaptation is increasingly seen as an effective means of addressing the climate crisis as well as poverty but are projects being properly monitored? Scientists have designed a framework to ensure they are.

Ecosystem-based adaptation encompasses a broad set of approaches based on strengthening ecosystem resilience. The Convention on Biological Diversity defines ecosystems-based adaptation as 'the use of biodiversity and ecosystem services as part of a strategy to help people adapt to the adverse effects of climate change'.

But how do we know if we are moving in the right direction? The monitoring of programmes designed to mitigate and adapt to climate change has been a major challenge over the last few decades. To this end, a research team the Center for International Forestry Research and World Agroforestry (CIFOR-ICRAF) designed a framework for monitoring how we can adapt through ecosystems-based approaches.

Past approaches have various weaknesses, according to the new article, *A framework for monitoring ecosystems-based adaptation to climate change: experience from The Gambia*, published in the scientific journal, *Sustainability*.

‘Current efforts to track ecosystems-based adaptation to climate change are challenged by the complexity of adaptation monitoring,’ said Peter Gilruth, lead author of the research article and senior policy adviser at ICRAF, ‘not only because ecosystems-based adaptation touches multiple sectors, which makes the selection of indicators difficult, but also because monitoring frameworks are often built to satisfy donor or national reporting needs, with universally applicable frameworks, and therefore may not fully capture the impacts at community levels.’

The team designed the framework, founded on input from scientific and community participation, to monitor programme implementation. The framework is based on a case study of a project in The Gambia where ICRAF staff provided technical support.

‘The framework includes the operational platform that houses and computes adaptation indicators; the participating institutions; and initial, community-level applications to guide water management, replenishment of vegetation cover, and business development,’ said Gilruth. ‘Using an adaptable, five-step process for developing and testing adaptation indicators with community participation, the robust framework includes the indicators, data and information for monitoring programme impact.’

According to the research team, a framework to monitor ecosystems-based adaptation should be able to support day-to-day project management by collecting and aggregating feedback from communities on their social and economic development, which in turn serves as a basis for improved management by targeting interventions that support communities’ priorities. The research team demonstrated the need to build project data and high-level key performance indicators required for donor reporting while assessing the effectiveness of adaptive management.

The team also provided a geo-spatial platform for capturing, processing, storing and visualizing project data as well as establishing a time series of vegetation-cover changes based on satellite imagery.

'The framework’s geo-spatial platform is a practical toolset that is both easy to administer under field conditions in The Gambia but handy for project activity planning, implementation and reporting,' said Malanding S. Jaiteh, project manager of the ecosystem-based adaptation project with the Ministry of Environment, Climate Change and Natural Resources. 'The timely deployment of the platform can provide the much needed data for overall project monitoring and evaluation.'

The team also built national and local capacity in communication and awareness of the potential of ecosystems-based adaptation through management training.

‘If adaptation monitoring frameworks are to be useful,’ said Lalisa Duguma, the ICRAF scientist implementing the project in The Gambia, ‘they should be understandable by those who use them firsthand in the field and should be easy to implement. Anything less perpetuates the narrative that “Adaptation is too complex to monitor”’.

Duguma argues that the proposed framework is a step forward in tackling the complexities associated with measuring and reporting adaptation.

The ecosystems-based adaptation project in The Gambia, supported by the Green Climate Fund, was used to present the lessons acquired in building a context-specific, monitoring framework in a country where poverty and environmental degradation threaten rural lives and livelihoods. The climate crisis has exacerbated these threats: droughts and floods are increasingly severe, resulting in reduced agricultural production and increasingly unsustainable extraction of resources from forest ecosystems by rural households. The Gambia had already developed its 2007 National Adaptation Programme of Action on Climate Change, presenting the five most important adaptation categories: health, forestry, water, food security and energy.

The ecosystems-based adaptation project with the monitoring framework is an important step forward in The Gambia's efforts to adapt by strengthening ecosystems' resilience.

Read the journal article

Gilruth P, Duguma LA, Minang PA, Bah A, Jaiteh MS, Mwangi S, Ahmad M. A framework for monitoring ecosystems-based adaptation to climate change: experience from The Gambia. *Sustainability* 2021 13(19):10959.

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