Opportunities for triple-wins development in coastal Belize

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Key messages

Belize's coastal ecosystems are threatened by climate change, limiting their ability to provide essential ecosystems services.

A major challenge is finding policies that enable countries to move forward with economic development, whilst also addressing climate concerns.

The triple wins matrix methodology presented here can be used to identify policies that deliver on adaptation, mitigation and development goals.

Protection and conservation of mangroves can lead to triple wins in Belize.

The serious adverse effects of climate change, particularly on coral reefs and forests, and the increasing intensity and frequency of severe weather events affecting human lives, are obvious around us. These impacts pose major impediments to Belize's efforts to promote sustainable economic and social development and reduction of poverty, which are the country's primary and overriding priorities. Belize needs to focus more strongly on building a society and economy that is resilient to the impacts of climate change.

In this context choices have to be made about which strategies to prioritize and pursue. Growth under climate change requires that both mitigation (reduction of emissions) and adaptation (reducing vulnerability to climate impacts) strategies are considered alongside development goals. Addressing all these issues is challenging and a first step is identifying linkages between adaptation, mitigation and development.

What are triple wins?

Triple win policies provide benefits under development, adaptation and mitigation, i.e., they reduce emissions, enable people to adapt to climate change, and enhance local livelihoods and support biodiversity conservation (Fig. 1).

A CDKN-funded project "Achieving triple wins: identifying climate smart investment strategies for the coastal zone" has developed a methodology to assess the potential for climate change 'triple wins', and tested it in four countries: Belize, Kenya, Ghana, and Vietnam. Stakeholders in planned or ongoing projects evaluate the project against a series of adaptation, mitigation and development goals (Fig. 2). In this way it is possible to see where there are benefits across the board, and also where trade-offs exist, for example, where adaptation benefits may result in development costs. By presenting the potential co-benefits (and possible damages) of adaptation and mitigation activities we aim to support selection of appropriate adaptation and mitigation priorities for the coastal zone.

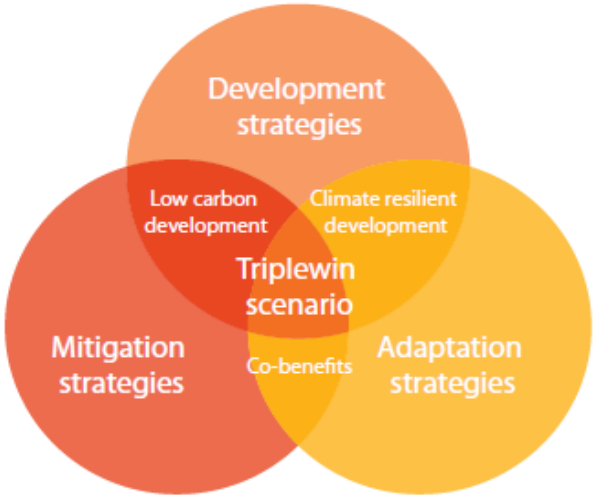

Figure 1. Triple win scenarios. Source: Adapted from Mitchell and Maxwell 2010 'Defining climate compatible development'.

Triple win policies provide benefits under development, adaptation and mitigation

Mangrove conservation and restoration along the Placencia Lagoon, Belize

In Belize, we tested the methodology in Placencia, a growing coastal community dependent on fishing and tourism. Healthy mangroves and coral reefs are the basis for both these industries and provide additional benefits in the form of water quality control and shoreline protection from storm surge. The Placencia peninsula and lagoon area is very low lying and exposed to climate change threats such as hurricanes and sea-level rise. The area has also seen a rapid increase in infrastructure development (both tourism and residential), and a significant loss of local mangrove ecosystems and degradation of the surrounding natural environment. Given the increasing fragmentation of the natural ecosystems and ecosystem services they provide to the area, climate change is likely to have a negative impact on the lives and livelihoods of communities in the Placencia area.

Key actions underway to promote mangrove conservation and restoration along the Placencia Peninsula and Lagoon area include:

1: Restoration and preservation of mangroves adjacent to sedimentation ponds on shrimp aquaculture farms to aid proper treatment of effluent prior to final discharge to the Placencia Lagoon.

2: Restoration and preservation of mangroves on private and public properties on the Placencia Peninsula to help stabilize shorelines and waterways, and to capitalize on eco-tourism ventures.

3: Preservation of the Placencia Lagoon and surrounding mangrove systems.

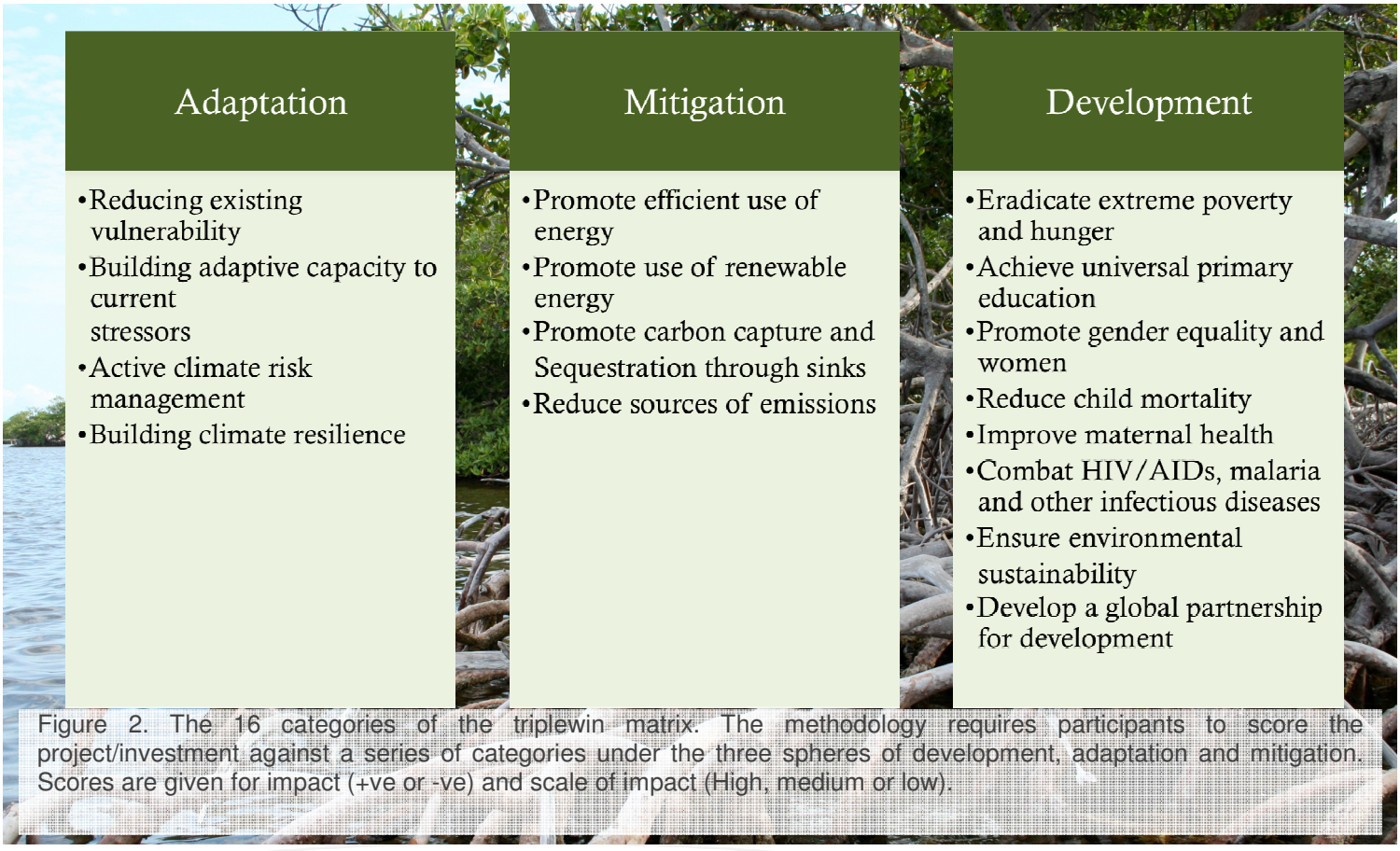

Figure 2. The 16 categories of the triplewin matrix. The methodology requires participants to score the project/investment against a series of categories under the three spheres of development, adaptation and mitigation. Scores are given for impact (+ve or -ve) and scale of impact (High, medium or low).

Project stakeholders in Placencia assessed the following projects and found a number of positive and negative impacts. Overall the projects were considered to provide triple wins.

Project	Adaptation	Mitigation	Development
Designation of Placencia Lagoon and mangrove system as a protected area	+Improved coastal buffers and shoreline protection +Better storm surge protection for both communities and nearby terrestrial environments +Improved flood control +Improved filtration and avoided loss of biodiversity	+Emissions reductions through avoided deforestation	+ Help improve water quality preserving systems offshore that communities and stakeholders are dependent upon + Mangroves as coastal buffers rather than hard engineering can provide a more economical means to protect shorelines + Nursery habitat that could fuel the commercial and artisanal fisheries in the area + Model for international development that retains local ecosystem function and creates economic value + Education through involvement in project + Environmental stability improved
			– Restriction on further tourism and residential developments in the area
Promotion of green development in mangrove landscape to safeguard mangroves	+Coastal protection +Biodiversity protection	+Emissions reductions through avoided deforestation	+Environmental stability improved
			– Restriction on percentage of private property that could be cleared for development

Recommendations

The project stakeholders felt that adaptation and development were almost equally important aspects to be considered to reduce their vulnerability and safeguard their lives and livelihoods. Some key suggestions that should be considered for future efforts are:

- Mangrove biomass protection to provide better storm surge protection for both communities and nearby terrestrial environments and to help improve water quality
- The use of mangroves as coastal buffers rather than hard engineering could provide a more economical means to protect shorelines and improve the function of local ecosystems.
- Protection of mangrove nursery areas or mangrove-associated species to fuel the commercial and artisanal fisheries.
- Inclusion of an educational component in existing and planned project initiatives and scientific monitoring skills improvement to evaluate ecosystem health and function at a local level.
- Drawing local representatives of international groups into the reserve process. A Placencia reserve system can provide a model for international development that retains local ecosystem function and creates economic value.
- Creating lessons on project impact to share with the international community to garner further support.
- Exploring tax exemption to help promote exploration in green landscape and renewable energy

Conclusions

- The triplewin matrix is a useful screening tool for future investments. It can also be used to refine existing policies and plans.
- Planning investments that meet multiple objectives will help to optimize the potential for co-benefits and reduce trade-offs. Using a compartmentalized approach to development may result in more trade-offs than benefits.
- In the coastal zone, projects to protect and conserve mangroves can provide triple wins.

About the project

This paper forms one of the outputs of a CDKN-funded research project 'Achieving triple wins: identifying climate smart investment strategies for the coastal zone'. Empirical research is being undertaken in Belize, Ghana, Kenya and Vietnam. The project runs from September 2011 to February 2013. Other outputs from this project include: policy maps of the linkages between adaptation and mitigation in the coastal zone; policy briefs and academic working papers. For more information about this project or any of the planned outputs please contact one of the project coinvestigators: Dr Emma Tompkins, University of Southampton e.l.tompkins@soton.ac.uk; Professor Chris Gordon, University of Ghana cgordon@ug.edu.gh; Dr Marianne Fish – WWF Latin America and the Caribbean MFish@WWFCanada.org; Ms Lesley King – LTS International Lesley-King@ltsi.co.uk; or Dr Tran Kim Long – Government of Vietnam longtk.htqt@mard.gov.vn.

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