

GGBP Case Study Series

Scenario Analysis to Support Low-Carbon Development in Kenya

Related Chapter: [Prioritization of green growth options and pathways](#)

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Country: [Kenya](#)

Sector(s): [Cross-cutting](#)

Key words: [Scenarios](#), [baselines](#), [modeling](#), [LEDS](#), [T21](#), [analysis](#)

Several different approaches to scenario assessment were used to provide the evidence base for prioritizing low-carbon actions as part of Kenya's National Climate Change Action Plan and its emerging green economy strategy.

Context

In Kenya, where about 75 percent of the population depend directly on land and natural resources for their livelihoods, the impact of climate change and related disasters on land and natural resources has the potential to severely affect many people, and the economic growth of the country. Kenya has recognized the importance of green growth for achieving its Vision 2030 goals and also as an element of the implementation of the 2010 Constitution of Kenya which, under the Bill of Rights, guarantees every citizen a clean and healthy environment.

Vision 2030, Kenya's long-term development blueprint, aims to transform the country into a "newly industrializing, middle-income country providing a high quality of life to its citizens in a clean and secure environment" (Government of Kenya, 2007). Vision 2030 refers to climate change as a national concern, especially in the arid and semi-arid lands and other high-risk disaster zones, and proposes that climate change be integrated into national planning. In 2010 the government developed the National Climate Change Response Strategy to propose a cross-governmental strategy to respond to climate change challenges (Government of Kenya, 2010), and in 2013 launched the

National Climate Change Action Plan (NCCAP) (Government of Kenya, 2013a).

Approach

Two parallel approaches to the analysis of opportunities and risks from climate change were launched. First, there was a 20-month multi-stakeholder participatory process to develop the NCCAP, supported by the Governments of the United Kingdom, Denmark, Japan, and Norway through the Africa Adaptation Programme, and the Climate and Development Knowledge Network. Second, there was green economy assessment carried out by the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) and led by the Inter-Ministerial Committee on Green Economy, set up to champion the green economy agenda in the country. Both processes were developed under the leadership of the Ministry of Environment and Mineral Resources (MEMR) (now the Ministry of Environment, Water and Natural Resources).

National Climate Change Action Plan

Two approaches were used to analyze opportunities and risks from climate change to support the development of the NCCAP:

- A low-carbon scenario analysis combining a bottom-up identification of carbon emission mitigation opportunities with top-down general equilibrium modeling of the macroeconomic impacts of the different scenarios;
- A technical review of adaptation priorities.

The low-carbon scenario analysis was developed by the International Institute for Sustainable Development (IISD) and the Energy Research

Centre of the Netherlands (ECN). It combined a bottom-up analysis of opportunities for low-carbon development (in effect carbon emission abatement) in six sectors: energy, transport, industry, agriculture, forestry, and waste with macroeconomic modeling. The first round of assessment looked at technical opportunities to reduce greenhouse gas (GHG) emissions compared with a projected rising baseline, using a simple spreadsheet tool, marginal abatement cost curves, and a wedge analysis demonstrating how low-carbon options could reduce emissions over time (Government of Kenya, 2013b).

These options were also assessed qualitatively in relation to development impacts, climate resilience benefits, and the feasibility of policy action. A variation of the development impacts assessment visualization tool prepared by the Low Emission Development Strategies Global Partnership (LEDS GP, 2014) was used here. All assumptions and findings were validated through a comprehensive stakeholder process that included local experts from government.

The approach to the bottom-up low-carbon scenario assessment was chosen by the consultant team consisting of the National Renewable Energy Laboratory, ECN, IISD, and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), together with the government and other stakeholders to provide a helpful analysis, including a preliminary GHG emission inventory and a review of low-carbon technology options. The analysis was also intended to be transparent and replicable, allowing updating of the analysis on a regular basis. To this end, the bottom-up analysis tool was developed using basic desktop spreadsheet software.

The low-carbon scenario assessment was complemented by the top-down General Equilibrium and Emissions Model – Kenya developed by IISD. This computable general

equilibrium model considered energy, economic, and emissions information to compute the macroeconomic effects of low-carbon development up to 2030. Combining bottom-up analysis with top-down national modeling allowed for comparison and calibration, and resulted in more robust and comprehensive information for decision makers.

The technical adaptation review was carried out by LTS International and Acclimatise using a qualitative assessment based on wide stakeholder consultation.

The priorities identified through these assessments were applied across the eight government planning sectors identified by stakeholders as the most vulnerable to climate change, or the most likely to implement low-carbon action. Options and pathways were presented to the Kenyan government and stakeholders to serve as a basis for decision-making. The stakeholder engagement was a critical component of the process to ensure that the analysis reflected local realities and that the identified priority actions were feasible in the Kenyan context. Stakeholder engagement was crucial for the acceptance of the NCCAP by government officials, civil society and the private sector.

Green economy assessment

The green economy assessment was undertaken by the Kenya Institute for Public Policy Research and Analysis on behalf of the Kenyan government and with the support of the Millennium Institute, UNEP, and UNDP, with funding from the European Union and the Netherlands. The purpose was to assess the economy-wide impact of green investments under different scenarios. It was undertaken using the Kenya Threshold 21 (T21) model, which integrates analysis of the risks and impacts of climate change across the major

sectors in the economy, society, and the environment, in order to inform coherent national development policies within the context of Vision 2030 (Parry et al., 2012). It seeks to quantitatively identify and assess potential benefits such as job creation, a cleaner environment, and productivity gains, from a green economy approach (UNEP and UNDP, 2013).

Multi-stakeholder consultations were held as part of the preparation of the T21 model and the scoping study to create awareness, solicit stakeholder views, and strengthen local ownership. The findings suggested positive returns with faster economic growth in the long term with an average annual real gross domestic product growth rate of 5 percent, as compared with 3.7 percent under ‘business as usual’ between 2010 and 2030 (UNEP and UNDP, 2013).

The use of the T21 model in the green economy assessment was influenced by its use in other countries and its initial use by the Ministry of Planning, National Development and Vision 2030 (now Ministry of Devolution and Planning) to assess the adaptation impacts of planning decisions, and by support provided by UNEP (Africa Adaptation Programme, 2012).

Outcomes

Kenya’s NCCAP was launched in March 2013, identifying priority low-carbon and adaptation actions and costs aligned with the five-year period of Kenya’s Second Medium Term Plan (2013-2017) (Government of Kenya, 2013c). Long-term actions up to 2030 were also identified. While the NCCAP was developed under the leadership of MEMR, the Ministry of Planning bought into the process and spearheaded the mainstreaming of climate

change actions into the Second Medium Term Plan, including the overall national and sector plans (Government of Kenya, 2013c). In addition, the Ministry of Finance (now National Treasury) was engaged in the NCCAP process, and is currently working to encourage climate investments and establish a national climate fund to help progress on identified actions.

The results of the climate change analyses were inputs into the Second Medium Term Plan, which mentions climate change as an emerging issue and recognizes the impacts that a changing climate can have on development goals. The plan proposed actions to address climate change across the different planning sectors in accordance with the NCCAP.

The 2013–2014 budget allocated funding to projects that support green growth, such as the conservation of water towers, construction of a two-track standard gauge railway line, and renewable energy. Different sectors have moved at different paces to act on the recommendations of the NCCAP.

Efforts are ongoing to upgrade the green economy assessment report into a national green economy strategy and implementation plan. The two processes outlined above – the low-carbon scenario assessments of the NCCAP and the T2I modeling – were originally proceeding as separate processes led by different ministries, using specific consultants with their own preferred tools. The two analyses have now been brought together to inform the green economy strategy. This is as a result of the continuous support offered by a dedicated Climate Change Secretariat within government, and the appointment of a multi-stakeholder inter-ministerial task force that oversaw the development of the NCCAP.

Lessons

Success factors

- Prioritization is not easy and is a political process – an initial exercise to identify priority mitigation actions and develop these actions into Nationally Appropriate Mitigation Action (NAMA) concept notes was rejected. The consultants indicated that they were able to provide a technical analysis that required stakeholder and/or government decisions on 10 priority NAMAs. Stakeholders were reluctant to do this, recognizing that such prioritization requires higher-level input and agreement. It was determined that a broader low-carbon development plan that identified priority mitigation areas by sector was needed to guide decision-making and to provide the underlying rationale for the selection of priority actions. Stakeholders and high-level officials needed more time and information to identify priorities, with their choices underpinned by a strong evidence base.
- Stakeholder consultation is an essential and critical component of the prioritization process – stakeholder engagement was crucial for the acceptance of the NCCAP by government officials, civil society and the private sector; and ensured that decisions were ground-truthed, accounted for local realities, and that priority actions were feasible in the Kenyan environment.
- High-level buy-in and involvement is crucial – high-level chairing of the task force helped to raise the national profile of the NCCAP, and the engagement of powerful ministries, such as the Ministries of Finance and Planning, helped to generate interest. The Principal Secretaries of the Ministries of Energy and Planning became personally interested in

climate change, which was instrumental in taking decisions to develop a geothermal NAMA in the energy sector and mainstream climate change into the Second Medium Term Plan.

- Use of tools and methods that can be replicated and used by in-country experts – the approach to the bottom-up low-carbon scenario assessment was chosen by the IISD and ECN team, and in consultation with the government and stakeholders. The team opted for a method that was transparent and replicable, allowing updating of the analysis on a regular basis. To this end, the bottom-up analysis tool was developed in Microsoft Excel, which is widely used by government officials and stakeholders, and all data and spreadsheets were provided to the government. This transfer of tools and data is important to build in-country expertise and to ensure updating of the analysis.
- Encouragement of coordination between various tools and methods – the analyses undertaken have been funded through various bilateral and multilateral organizations, which has affected the choice of tools and methods used. The green economy and climate change processes ran on parallel tracks early in the process, meaning that information gathering and analysis were undertaken separately, and specific consultants used their own preferred tools. Coordination and information sharing was improved through the use of a multi-stakeholder task force to oversee the development of the NCCAP that involved representatives from various ministries leading different prioritization processes.
- Work is needed to take prioritization to county governments – the recent devolution process means that many green growth

actions require implementation at the county level, which could prove challenging. A lack of understanding of climate change and the NCCAP process in the county governments could limit ambition for implementation. Additional awareness-raising, which could be supported through green growth prioritization processes at the county level, is needed to raise ambition.

- Limited financial resources – the government has demonstrated commitment to green growth actions through budget allocations, but substantial international support will be required for the implementation of many green growth actions.

Further Information

Kenya National Climate Change Action Plan:
<http://www.kccap.info/>

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