

EXECUTIVE SUMMARY

The *Fifth Assessment Report* (AR5) of the Intergovernmental Panel on Climate Change (IPCC) indicates that global mean surface temperature will continue to rise during the 21st century. This was the main highlight of the IPCC outreach event held on 31 July and 1 August 2014 at the Safari Park Hotel, Kenya, by the Ministry of Environment, Water and Natural Resources, in collaboration with Climate and Development Knowledge Network (CDKN) and the Kenya Climate Innovation Center (CIC). The objective of the outreach activity was to disseminate the findings of the AR5, focusing on what it means for Kenya's development. The main thematic areas were climate change trends, impacts and vulnerability, adaptation and climate resilience, Kenya's low carbon climate resilient development opportunities, how to pay for climate actions, and the place of policy and practice.

The main findings of AR5 indicated that Equatorial Africa (including East Africa) is projected to warm less than either southern Africa or northern Africa, with the tropics generally getting wetter and the subtropics drier. Rainfall is likely to increase during the short rains season, but there is low confidence in projections for the long rains. ENSO will remain the dominant mode of natural climate variability in the 21st century, though changes in intensity are uncertain. The Indian Ocean Dipole (IOD) is very likely to remain active throughout the 21st century, coupled with enhanced warming in the western Indian Ocean, and will affect climate extremes in East Africa in particular, with increased precipitation during the short rains season.

During the discussion, the following questions were raised:

- (i) What are the opportunities for Kenyan stakeholders with respect to the IPCC's findings?
- (ii) What are the best practices by different stakeholders (agencies, communities, organisations) in Kenya?
- (iii) What should be done better and what further support is required, if any?

Among the concerns raised were how to:

- i. pay for climate action given that the AR5 does not address it;
- ii. unlock domestic resources towards the climate change cause;
- iii. generate domestic funds for climate action;
- iv. develop policies and incentives that could help address climate change;
- v. provide incentives to attract the banking industry in the climate change campaigns;
- vi. create risk-taking entrepreneurs;
- vii. remove complications in the system;
- viii. review the regulation that limits the countries that qualify for European Union carbon credits to Least Developed Countries (LDCs), as it locks out other deserving countries (like Kenya);
- ix. develop a greenhouse gas inventory;
- x. establish institutions that can help enhance resilience;
- xi. address uncertainty by the various players.

Rainfall is the most important climate parameter as socio-economic activities are closely linked to its highly variable space-time distribution. Temperature is another important climate parameter in Kenya. It affects evapo-transpiration, soil moisture and water availability, among other effects. Temperature is less variable compared to rainfall. Projections indicate a decrease in rainfall and a rise in temperature in Kenya.

The AR5 recommends that causes of climate change be addressed to create a richer, more vibrant and secure future. It is also worth noting that the report focuses a lot on the direct impacts of climate change on people. The report also addresses uneven development processes, inequalities within societies, direct and indirect impacts of climate change on poor, marginalised and vulnerable people. The report further warns that human security will be progressively threatened as the climate changes.

It was observed that people living in violence and conflict-prone areas are more vulnerable to climate change. When large-scale violent conflicts occur, untold harm to assets such as infrastructure, institutions, natural resources, social capital and livelihood opportunities is inevitable.

Research gaps identified include data management, climate and hydro-climate monitoring systems to address climate change impacts in the different sectors. Other research gaps discussed are improved methodologies to assess and quantify the impact of climate change in different sectors and systems, and strong inter-linkages between adaptation and development pathways with special focus on building resilience to the impacts of climate. The key strategies to address the gaps include improving social protection, social services and safety nets; implementation of better water and land governance and tenure of security over land and vital assets; enhancing water storage, water harvesting and post-harvest services; and enhancing inclusivity in the planning process while paying more attention to urban areas that are heavily affected by migration of poor people.

Based on very high confidence, the AR5 indicates that a range of biophysical, institutional, financial, social, and cultural factors constrain the planning and implementation of adaptation options and effectiveness. It was noted that climate change interacts with economic development, demographic change, ecosystem alteration, and technological innovation. Implementation of mitigation and adaptation measures requires knowledge and capital. Limits to adaptation, defined as “inability to avoid an intolerable risk to an actor’s objectives and/or to the sustainability of a natural system” have been found to emerge as a result of the interactions between climate change and biophysical and socio-economic constraints. Even though there is little empirical evidence to quantify magnitudes of climate change that would constitute adaptation limits, economic development, technology, cultural norms and values can change over time. Investing in this area would therefore be one way of changing capacity in order to avoid limits.

It was observed that the selection and implementation of specific adaptation options would have ethical implications. Decision-making involves reconciliation of legitimate differences about how adaptation resources are distributed, and the values that adaptation seeks to protect. Existing inequities generate ethical questions regarding who is advantaged or disadvantaged by adaptation actions.

The conceptual framework for low carbon development opportunities has four key components: cleaner production; climate change strategy and action plan; identified sectors and their Green House Gases (GHG) abatement potentials; and the Green Economy strategy and action plan. The Africa Green Economy Programme (AGEP) is one of the key priority Regional Flagship Programmes (RFPs) for the implementation of the Rio+20 outcomes in Africa. It was adopted at the 5th Special Session of African Ministerial Conference on the Environment (AMCEN) held in Botswana (October 2013) and the AU Summit in Ethiopia (January 2014). RFPs are expected to facilitate synergy and cooperation between national and regional actors and organisations that provide support to African countries.

Kenya has established a number of awards that have helped enhance compliance with environmental regulations. The Kenya Green Awards include the National Environment Trust Fund; Energy Efficiency Awards: Kenya Association of Manufacturers and Ministry of Energy and Petroleum; National Environment Management Authority Green Industries Awards; National Cleaner Production Centre—which in turn recognises (1) Textiles, Sugarcane, Tea processing industries (2) Women Entrepreneurs enterprises (Women and climate change project by Soroptimist International and DANIDA support) and (3) Green Schools.

The participants were informed that mitigation requires major technological and institutional changes, which include the upscaling of low- and zero-carbon energy. It also requires changes throughout the economy, and this in turn calls for robust institutions, policies, investment and international cooperation. Since efforts in one sector may determine mitigation efforts in others, significant changes in investment patterns are required for GHGs reductions to be realised. The AR5 also cautions that delaying mitigation may increase the difficulty and narrow the options for limiting warming to 2°C.

Several mitigation opportunities have been identified in the energy supply sector. Decarbonisation of electricity generation is proposed as a key strategy towards achieving low stabilisation levels. A large assortment of electrical technologies available today provides us with heating, illumination, refrigeration and information. Some of the technologies at our disposal use fuel more efficiently, while others need no fuel, proving that there is potential for the generation of electricity with low or no carbon.

On renewable energy technologies, the IPCC's findings highlight the ability for Africa to scale up energy services, given its endowment with huge renewable energy resources. It is puzzling, however, that the costs of renewable energy are still higher than the existing energy prices. It is recommended that pricing be part of the mechanism deployed in the management and regulation of renewable energy technologies.

This is a critical moment for Kenya in deciding the future of its energy and in particular, how to make it 'climate compatible.' The Kenya Government's long-term Vision 2030 development blueprint aims to transform Kenya into "a newly industrialising, middle-income country providing a high quality of life to all its citizens in a clean and secure environment." The National Climate Change Action Plan (NCCAP) is geared towards helping meet Vision 2030 by reducing vulnerability to climate change and to improve the country's ability to take advantage of the opportunities arising from climate finance.

Any meaningful reductions in emissions require substantial changes in investment patterns. The general trend of emissions associated with Agriculture, Forestry and Other Land Uses (AFOLU) for the last four decades (1970-2010) indicates that Asia has been in the lead owing to the use of nitrogen fertilizer compounds on its huge agricultural sector. Some of these emissions have been transferred to Africa. The factors that pose challenges in AFOLU include financing, poverty, institutional, ecological, and technological development. Lack of proper systems for feedbacks to adaptation and conservation has constantly hampered the potential for GHG mitigation, especially in Africa. Competition between different land-uses, often without much consideration about the suitability of the land to some of the uses, has also contributed to the strain. Land-related mitigation strategies (agriculture, forestry, bio-energy) were projected to contribute 20 to 60% of total cumulative abatement by 2030, and 15 to 45% by 2100. Delaying mitigation efforts beyond those in place today through 2030 is estimated to substantially increase the difficulty of the transition to low longer term emission levels. Such delays also pose the risk of narrowing the range of options available for maintaining temperature change below 2°C. Additional risks include potential implications for biodiversity, food security and other services.

Food security is one of the areas that is likely to be highly impacted upon by continued GHG emissions. The IPCC report points out that part of Africa's vulnerability lies in the fact that recent development gains have been in climate-sensitive sectors. Growing populations will increase the demand for water and food but prolonged droughts are likely to put additional pressure on already scarce water resources, thereby reducing crop yields.

Technology will not be sufficient for the necessary transitions to low GHG. The AR5 also indicates the damage done is such that even if the global society was to instantly cut down on greenhouse emissions, it would not make a big difference in terms of climate change in the next few decades. Emissions are expected to persist, driven by growth in global population and economic development.