

Environmental and Climate Change Policy Brief

Kenya

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Executive Summary

Environmental problems in Kenya are constraining factors for sustainable development and improvement of people's livelihoods. Key environmental problems include climate change, forest depletion and degradation, and land and water degradation and loss of ecosystem services. Agricultural production is severely affected by land degradation; both land degradation and deforestation cause losses of biodiversity and ecosystem services. Continued climate change is expected to increase climate variability and the incidence of extreme weather events (e.g. droughts, floods). This will further degrade the country's ecosystems and reduce Kenya's social, economic and ecological resilience. Overall, some improvements are seen in the area of environmental health but there is a downward trend in the status of Kenya's ecosystem services. Furthermore, according to the trend in environmental performance Kenya is declining in the area of climate change, state of the forests, agriculture and water in terms of ecosystem effects.

Poverty-environment linkages are apparent. Over 36 per cent of Kenya's rural poor live on marginal lands or areas that are particularly vulnerable to environmental degradation, such as floodplains, coastal areas, erodible soils and degraded hillsides. Environmental hazards and extreme events, such as droughts, floods, forest fires, and landslides, are more damaging in these marginal and degraded ecosystems. Poor people living in these areas are least able to cope with their impacts. These events are expected to become more common with climate change. The Arid and Semi-Arid Lands (ASALs) will continue to require special attention if Kenya is to maintain local resilience and achieve sustainable social and economic development. In the ASAL areas, drought is the single most important natural hazard causing food-insecurity, deaths and nutrition-related diseases, events which are expected to increase as the impacts of climate change deepen. The recurrent droughts have large impacts on people's livelihoods, in particular among the vulnerable and poorest groups in these areas. Many of the people living in the ASALs are chronically dependant on food aid. Each year World Food Programme (WFP) and other actors provide food or cash for 2-4 million people.¹

The main drivers behind Kenya's environmental degradation include the high population growth and associated pressures on scarce natural resources, high urbanisation rates as well as a rapid economic growth that is largely driven by agricultural production, infrastructure expansion and increasing energy demand. The Kenyan government has set the ambitious goal to maintain a sustained economic growth of 10% per year over the next 25 years. To achieve this target the government aims to develop and modernise infrastructure, strengthen priority sectors e.g. agriculture and manufacturing, grow wider access to African and global markets, improve access to quality education and health care, increase food security, increase job opportunities especially for young unemployed, and provide better housing and improved water and sanitation facilities to Kenyan households. In all of these efforts the Kenyan government recognizes that full attention is needed to secure the Kenya's environment and build resilience to climate change and other hazards. Poverty is also a driving factor behind environmental degradation, where poor people typically cannot afford or lack knowledge on more sustainable methods of agriculture, energy, livestock management, forestry, fisheries, small-scale mining etc. In addition, political, market and institutional failures also contribute to Kenya's environmental situation; polluters seldom pay the full social cost of their pollution, lack of full legal enforcement of environmental policies is widespread, and environmental governance is generally insufficient.

¹ Sida, 2013

Achieving rapid *environmentally sustainable* economic growth will be a huge challenge for Kenya. Unattended there is high risk that economic growth may be attained at the expense of Kenya's environmental capital, which will have serious repercussions on the country's economic, social and ecological resilience and its ability to cope with future internal and international shocks or pressures. There is thus a need to considerably strengthen government capacity and cross-sectoral integration of key environmental issues, in particular good environmental management and adaptation to, and mitigation of, climate change. Many sectoral policies and laws are not harmonized with respect to the key environmental issues. These include policies and laws on agriculture, land, water, forests, trade and industry, which have significant links with, and implications for, the environment.

The government's sectoral rather than integrated and ecosystem-based approach to management of natural resources has proved insufficient in addressing environmental challenges. In addition, weak enforcement of laws and weak implementation of policies remain major issues of concern. Regarding transparency and public participation in environmental governance, the development of climate adaptation and environmental sector policies and strategies is highly dominated by state actors. Civil society organisations and local communities have limited capacity, ability and involvement in key environmental governance issues. They have thus so far played a limited role in formulating or influencing the national climate change adaptation policies and strategies. Moreover, current environmental policy frameworks in Kenya lack (responses to) gender-mediated impacts and dimensions of climate change.

Kenya's future economic growth and social development depend on the design and implementation of policies pertaining to natural resources management which are the base of the economy (agriculture, livestock, water, energy, tourism, forestry, oil, gas, minerals and fisheries). A transition towards an inclusive and resilient green economy may constitute a new opportunity to enter the path of sustainable development. Careful design and *implementation* of green economy policies will be crucial for the country's environmental as well as economic and social outlook as it would stimulate a green, inclusive and equitable growth, reduce poverty and create green jobs. Other development paths are of course also conceivable, and – in addition to international impulses - the domestic political economy inter-play has a crucial role in determining the path of Kenya's development. Critical issues include enhancing environmental governance and accountability, who pays/who doesn't pay (for environmental degradation and pollution), what mix of policy instruments works most cost-effectively and are socially acceptable and politically feasible, and what are the keys which can unlock the entrance to new environmentally sustainable behaviours, norms, production and consumption patterns, and that can build trust that lasts?

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1. Introduction

This Environmental and Climate Change Policy Brief² has been written as an input to the Swedish results strategy process in preparation of a new strategy document for Kenya. It aims at briefly presenting key environmental sustainability challenges and opportunities in Kenya, their linkages to poverty reduction and socio-economic development, and the given *entry points* and *areas of cooperation* for Swedish development cooperation in Kenya. The analysis has been conducted as a desk study during *December 2013-January 2014* and is based on the authors' own experiences with Kenya, selected reports, research papers and statistics.

The Swedish Government has identified environment and climate change as one of three thematic priorities for development cooperation. This is reinforced in the Swedish policy on environment and climate change in development cooperation concluding that these aspects are a "central point of departure for all development cooperation"³. The Policy further requires that environmental impacts, effects of climate change and associated risks are assessed and integrated in analysis, planning, strategies, implementation and follow-up in Swedish development cooperation.

2. Key environmental problems, their causes and opportunities

Environmental problems in Kenya include climate change, land degradation, forest degradation, water scarcity and pollution, and biodiversity loss and loss of ecosystem services, poor waste management and pollution.

Climate variability and change: Climate change poses significant environmental challenges for Kenya with expected increase in climate related extreme weather events e.g. droughts and floods. According to UNDP, the mean annual temperature in Kenya has increased by 1.0°C since 1960 representing an average rate of 0.21°C per decade. It is projected to increase by 1.0 to 2.8°C by the 2060s. Kenya has always been plagued by natural, weather related disasters that cause diseases and suffering throughout the nation. Given that a large portion of Kenya is semi-arid with high temperatures and low precipitation, frequent droughts, water scarcity, and unpredictable climate variability will have the largest impacts on people living in these regions. The agricultural sector, which relies on predictable rainfall and temperatures, will suffer the most. This is a major challenge for Kenya as the sector directly or indirectly supports 80 per cent of the population.⁴ The continued annual burden of the extreme climatic events could cost the economy as much as US\$500 million a year, which is equivalent to approximately 2.6 per cent of the country's GDP.⁵

² This Environmental and Climate Change Policy Brief was written, at the request of Sida (*Elisabeth Folkunger*) and the Swedish Embassy in Kenya by *Emelie César and Anders Ekbohm* at Sida's Helpdesk for Environment and Climate Change, with contributions from *Wilfred Nyangena* at *Environment for Development Initiative (EfD), Department of Economics, Nairobi University*. The views expressed in this Environmental and Climate Change Policy Brief are those of the authors and do not necessarily represent the views of Sida

³ Swedish Government Offices, 2009

⁴ UNEP, 2009

⁵ GoK, 2013a

Forest depletion: Kenya is one of the least forested countries in sub-Saharan Africa. Forest cover has reduced from 12 per cent in the 1960s to 4.4 per cent in 2012.⁶ The forests are being devastated by large-scale, uncontrolled, irregular, or illegal human activities, in particular charcoal production, logging, encroachment and settlements, and livestock grazing. The degradation of forests poses a grave threat to Kenya's water security, biodiversity conservation, and economic development. Kenya's growing population threatens the few remaining forested areas and their ecosystem goods and services. Lack of energy sources and reliance on fuel wood are the cause of much deforestation and forest fragmentation, which in turn accelerates land degradation and threatens water catchments. Among the strategies needed to increase forest areas is to reduce over-reliance on fuel wood consumption and increase access to alternative energy sources.⁷

Land degradation: Kenya's soils are highly erodible, in the highlands due to excessive rainfall and insufficient soil and water conservation, and in the drylands due to wind and occasional floods. It has large negative impacts on crop yields. It is estimated that land degradation is increasing in severity and extent in many areas in Kenya. Over 20 per cent of all cultivated areas, 30 per cent of forests, and 10 per cent of grasslands are subject to degradation. The impacts include a reduction in crop and pasture productivity and fuel wood and non-timber forest products, which are closely linked to poverty and food insecurity. As a consequence, the damage to soil, loss of habitat, water shortages, reduces biodiversity and ecosystem services have significant negative economic consequences.⁸

Biodiversity loss: Kenya has a rich natural resource base and is ranked second highest among African countries in bird and mammal species richness. However, it continues to lose biodiversity at alarming rates due to e.g. land use change and human population pressure, habitat destruction, overgrazing, deforestation, pollution, unsustainable harvesting, introduction of invasive species as well as effects of climate variability. Loss of ecosystem services and biodiversity loss reduces the country's economic, social as well ecological resilience, and impact negatively on people's livelihoods (e.g. food insecurity) and the Kenyan economy (e.g. loss in tourism revenues, forgone incomes in agriculture, forestry, fisheries etc).

The state of Kenya's fishery resources and their ecosystems is deteriorating due to unsustainable fishing practices, habitat destruction, pollution, and weak management structures. Fisheries contribute a significant proportion to Kenya's GDP and important role in ensuring food security especially in rural areas.⁹

Water degradation: Water availability in Kenya is decreasing at the same time as demand is growing and rainfall variability rises with climate change. Over 29% of the population receive their water from unsafe sources like streams, lakes and ponds. Another emerging issue is degradation of water catchments due to human settlement, agricultural activities and encroachment.¹⁰ Both surface and ground waters receive urban pollution from wastewaters and sewage and chemicals from agricultural runoff. Declining and degraded water supplies

⁶ GoK, 2013a; GoK, 2013b

⁷ UNEP, 2009

⁸ ibid

⁹ MEWNR, 2013

¹⁰ GoK, 2013b

have led to conflicts among different users, e.g. between pastoralists and farmers, upstream and downstream users, humans and wildlife, among others.¹¹

Insufficient waste management and pollution: The high rate of urbanization and increased level of consumption have inevitably resulted in an increase in waste generation. The lack of proper infrastructure for waste and poor waste management is causing urban pollution to air, water and land as well as health issues. The urban environmental problems with waste are the result of poor management, lack of planning and absence of coherent urban policies.¹² Besides proper waste management, an emerging challenge for Kenya is also the inappropriate disposal of e-waste.¹³

Trends: In terms of environmental performance, Kenya is ranked 83 out of 132 countries according to the 2012 Environmental Performance Index (EPI). Overall, some improvements are seen in the area of environmental health but there is a downward trend in terms of ecosystem vitality. Furthermore, according to the EPI trend Kenya's performance is declining in the area of climate change, state of the forests, agriculture and water in terms of ecosystem effects.¹⁴

3. What are the effects of the environmental problems including resilience?

3.1 Impacts on Poverty

Kenya has a total population of around 43 million out of which 32 million lives in rural areas. Kenyans are increasingly healthy and more educated, with better living conditions. However, poverty remains high between 34 to 42% and inequality is rising. Geographically, poverty rates are highest in rural area, especially in the arid and semi-arid regions in the north and north east. However, in terms of number of poor people, the majority of Kenya's poor live in the denser and higher potential agricultural zones, neighbouring to large urban centres.¹⁵

Increased resilience and poverty reduction are strongly linked. Strengthening resilience is basically about addressing the root causes of poverty, building households' and communities' social, human, natural and monetary capital, and enhancing peoples'/communities' capacities and capabilities to prevent or withstand shocks – natural or human-induced. Strengthening resilience typically also includes enhancing resource distribution in society, and preventing/eradicating corruption and policy mismanagement, addressing power relations in favour of equity and justice, and promoting human rights. A resilient community is a community that is knowledgeable and healthy, organized and connected, has economic opportunities, infrastructure and services, and can manage its natural resources sustainably. A poor community lacks most of these characteristics or capabilities, has limited options and is more vulnerable to shocks such as droughts, pests, sudden food- or input-price changes, conflicts or disease outbreaks. Water and energy scarcity, soil loss, air and water pollution, and other environment related pressures reduce communities' resilience, and enhance the

¹¹ UNEP, 2009

¹² MENR, 2013

¹³ GoK, 2013b

¹⁴ Yale University, 2012

¹⁵ World Bank, 2013c. These numbers are estimations. The latest survey was made 2006; a new one is needed to show the real poverty level.

risks of pushing people into destitution and deepened poverty. Safe and resilient communities and individuals are typically better prepared for, recover from, shocks and stresses.

Poor rely heavily on environment and natural resources for their livelihoods and are therefore most vulnerable to environmental degradation. Over 36 per cent of Kenya's rural poor live on marginal lands or areas that are particularly vulnerable to environmental degradation, such as floodplains, coastal areas, and degraded hillsides. Environmental hazards and extreme events, such as droughts, floods, forest fires, and landslides, are more damaging in these marginal and degraded ecosystems and the poor living there are least able to cope with their impacts.¹⁶ These events are expected to become more common with climate change.

Around 55% of Kenya's urban population lives in slum.¹⁷ Both urban migration and rapid population growth continue to expand urban areas. People living in slum often live in informal settlements with limited sanitation, poor housing and inadequate infrastructure which make them more vulnerable to environmental degradation and external shock e.g. floods and droughts expected to become worse due to climate change. Even with a decline in growth rates, the rapid urban expansion is a challenge to improve living conditions quickly enough to meet the MDG target.¹⁸

Extended periods of drought decrease livelihood opportunities and community resilience which leads to undesirable coping strategies that damage the environment and impair household nutritional status, further undermining long-term food security. The number of Kenyans requiring food assistance rose from 650,000 in 2007 to almost 3.8 million in 2009/2010.¹⁹ The current number of food insecure amounts to approximately 1 million people.

Overall, Kenya has made progress since 1990 in providing its growing population access to clean drinking water —more progress than sub-Saharan Africa in general. In Kenya's urban areas, however, access had declined during that time. Much effort is still needed to reach the 2015 target of halving the number of Kenyans without access to clean drinking water.²⁰

There are large differences in access to water between rural and urban areas, 52% in rural areas have access to an improved water sources compared to 82% urban areas.²¹ Furthermore, the access to improved sanitation is low both in rural and urban areas. Only 32% have access to improved sanitation in rural areas and 32% in urban areas respectively.²² Lack of access to safe drinking water, sanitation, and health services negatively affects people's health. Diarrheal diseases are strongly linked to contaminated water and lack of access to basic sanitation. Diarrheal prevalence of children under five is 17%.²³

Fuel wood is the nation's major source of energy, especially for rural people who make up 80 per cent of the total population. Although it constitutes the most significant energy source, the resource base is rapidly shrinking as demand outstrips the sources of local firewood and

¹⁶ UNEP, 2009

¹⁷ AfDB, 2013b

¹⁸ UNEP, 2009

¹⁹ GoK, 2013a

²⁰ UNEP, 2009

²¹ Disparity exists between districts and regions. For example, access to safe water varies from a high of 96 per cent in Nairobi to as low as 14 per cent in Mwingi District. UNEP,2009

²² World Bank, 2013a

²³ Diarrhoea prevalence is measured as the percentage of children under age five who had diarrhoea in the two weeks prior to the survey. World Bank, 2013a

charcoal.²⁴ Over 14 000 Kenyans die every year due to indoor air pollution. Especially women, children and elderly are exposed to indoor air pollution.²⁵

Women have the main responsibility for managing their household's needs for water, sanitation, and health. In a number of regions, women and girls spend many hours a day fetching water. Increasing the provision of clean, accessible water to communities can significantly decrease child mortality and fatal diseases and make it possible for children and women to go to school. Access to clean water is therefore crucial in attaining most of the MDG target.²⁶

Projected trends in climate change-related exposures will increase malnutrition and consequent disorders; increase the number of people suffering from death, disease, and injury from heat waves, floods, storms, fires and droughts; and continue to change the range of some infectious disease vectors. The burden of diarrhoeal diseases will increase and the geographical range of malaria will expand in some places and contract in others.²⁷

3.2 Impacts on Economic development

Increased economic growth is a key challenge and precondition for reducing poverty. The Kenyan government has set the ambitious Vision 2030 target to maintain a sustained economic growth of 10% per year over the next 25 years.²⁸ Despite the political disturbances that Kenya has experienced since the 2000s, the economy has stayed relatively strong. Economic growth has taken place across the whole economy: notably in agriculture, tourism, manufacturing, wholesale and retail trade, telecommunications, as well as in the social sectors. However, during the economic crisis the Kenya's situation became difficult as crisis together with a serious drought resulted in widespread food shortages.²⁹ The estimated growth of 4.2% in 2012 was reduced by a slowdown in most economic sectors.³⁰ Higher growth rates are needed to set the country on the path to actualizing Vision 2030.³¹ The fact that 42% of the country's GDP is derived from natural resource based sectors makes sustainable environmental conservation and sound management crucial for attaining the goals of Vision 2030.³²

Agriculture is the backbone of the economy. It is essential to ensure food security for millions of Kenyans. The sector accounts for 65% of informal employment in rural areas. The dependence on rain-fed agriculture for food production makes many people vulnerable to changing rain patterns and extreme weather event, which is expected to become worse due to impacts of climate change. Pastoral and marginal agricultural areas are particularly vulnerable to the impacts of climate change. Moreover, land degradation is a serious challenge that leads to limited agricultural development. It is estimated that effects of land degradation and environmental degradation is causing annual economic losses of USD 390 million or 3% of the country's GDP.

²⁴ UNEP, 2009

²⁵ WHO, 2009

²⁶ UNEP, 2009

²⁷ *ibid*

²⁸ NEMA, 2011

²⁹ Bird and Kirira, 2009

³⁰ AfDB, 2013a

³¹ NEMA, 2011

³² GoK, 2013b

Manufacturing: Growth in the manufacturing sector is heavily reliant on sufficient and reliable energy sources. Kenya's strong reliance on hydropower makes the sector vulnerable to climate variability and change. Moreover, without proper regulatory and enforcement mechanisms, the sector could exacerbate environmental degradation. Major players in the sector are associated with pollution of the country's rivers into which they discharge untreated effluent.³³

Tourism: Tourism in Kenya is dependant on the countries species richness. Encroachment by human settlements, expanding agricultural and livestock development activities together with overexploitation and climate change is a threat to the wildlife population and Kenya's rich biodiversity. These emerging issues are a threat to the tourism sector which today employs around 10% of total formal employment force and contribute to around 25% of GDP.

Energy: Energy is a major catalyst for Kenya's economic progress and qualitative development. Hydroelectric power has traditionally accounted for the majority of Kenya's energy. However, even though hydro power is considered to be a cleaner source of energy than its thermal oil counterpart, its reliance on the weather (vulnerability to droughts) has often led to power rationing and rising electricity bills, putting it out of the reach of many Kenyans and essentially hindering implementation of the rural electrification programme (REP). And, because thermal oil power plants generate electricity by burning large amounts of fossil fuels, they are heavy emitters of greenhouse gases (GHGs).³⁴

Deforestation and energy: Hydropower is derived directly from the forested catchments of Kenya's five water towers. Deforestation of their slopes has a direct impact on the amount of water available to generate power. Kenya's energy supply needs to continue growing as the population increases. At the same time, the environmental sources of power are diminishing as forests are felled and water catchments threatened. In addition, as poverty levels grow, increasing numbers of people can ill afford conventional forms of energy and turn to wood for fuel.³⁵ Deforestation, land cover conversion, or any other activity that degrades these water towers will in turn lead to a reduction in the amount of electricity generated hence directly affecting the attainment of Vision 2030.

3.3. Conflicts over natural resources

Kenya's population growth together with issues such as climate change and other environmental factors are causing a conflict between humans and wildlife for a shrinking resource base. The human wildlife conflict is of growing concern for Kenya and it is a major challenge for wildlife conservation. Wildlife causes people to lose their crops, livestock and sometimes their lives. As a response to this, animals are killed and losses remain high.³⁶

Climate-related impacts are a challenge for Kenya which are expected to become worse due to climate change. Droughts, hailstorms, extreme flooding, receding lake levels, drying of rivers and other wetlands result not only in massive economic losses but it also have severe impact on food security and people's livelihoods. The extreme climate events are forcing people to move and have led to displacement of communities and migration of pastoralists which have resulted in conflicts over natural resources.³⁷

³³ NEMA, 2011

³⁴ NEMA, 2011

³⁵ UNEP, 2009

³⁶ MENR, 2013

³⁷ GoK, 2013a

Box 1. Kenyan cut flower industry – An example of conflict over resources

Kenya's cut-flower industry, clustered mainly around Lake Naivasha, has been praised as an economic success for its contribution to economic growth, foreign exchange earnings and employment. On the other hand, the treatment of Lake Naivasha as a free 'common pool' resource threatens its sustainability and the activities dependent on it. There is therefore an urgent need for sustainable management of the water resources of the Lake Naivasha basin.

The situation is complicated by the fact that there are different users of the lake in different locations and in different sectors. Land-use changes upstream (deforestation and greater need for fuel wood) affects the availability of water downstream; the production of geothermal energy downstream requires water and affects land use; flower farms downstream withdraw water and require energy services; tourism depends on the reliable quality of water resources.

This is an example of how water, energy and land resources are interrelated such that use of one resource affects the other. This conflict over resources is leading to innovative solutions where one such solution is payment for ecosystem services (PES) whereby downstream users pay upstream users for sustainable land-use practices.³⁸

4 Policy framework and institutional capacity for managing environmental challenges

Many sectoral policies and laws are not harmonized regarding the environmental issues with each other and with the Constitution. These include policies and laws concerning agriculture, land, water, forests, trade and industry, which have significant links with, and implications for, the environment. The government's sectoral rather than integrated and ecosystem-based approach to management of natural resources has proved insufficient in addressing environmental challenges. In addition, weak enforcement of laws and weak implementation of policies remain major issues of concern. Below we outline some of the many policies pertaining to environmental sustainability (with a focus on climate change, which arguably is largest strategic environmental challenge facing Kenya), key actors in the field and lessons learned.

Vision 2030: Vision 2030 includes many environmental challenges. There is more focus on 'green' environmental issues, rather than 'brown' issues. The latter might be expected to rise as urbanisation is expected to occur at a rapid rate, rising from 21 per cent in 2007 to 33 per cent by 2030. In addition, the overemphasis on "green" issues in policy is in contradiction with the fact that biomass still constitutes the dominant source of energy. Vision 2030 also states that the institutional arrangements for addressing environmental issues are not robust at present: 'Kenya's current institutional framework to manage the environment is characterised by fragmentation. Various aspects of environmental policy cut across different institutions. Although the Environment Management and Coordination Act of 1999 was a major landmark, with the primary objective of improving coordination and management of the environment, legislation of relevant laws and regulations have not yet been completed.

National Climate Change Response Strategy (NCCRS) and National Climate Change Action Plan (NCCAP): Climate change is a relatively new entrant on the policy agenda in Kenya. The National Climate Change Response Strategy (NCCRS) and the National Climate

³⁸ Nyangena, W. and D. Willem te Velde, 2011

Change Action Plan (NCCAP) are the *de facto* policy documents for the country. Climate change response policies in Kenya are also captured in the Vision 2030, NCCRS (2010), NCCAP and The Second Medium Term Plan 2013-2017. They are also manifested in the agriculture sector strategies such as ASDS (2010-2020).

The National Climate Change Response Strategy (NCCRS),³⁹ is the framework for integrating climate concerns into development priorities, government planning and budgeting. Agriculture is the major focus on the NCCRS, with substantial needs for adaptation and mitigation identified. Kenya's early experiences, within the context of climate change and agriculture, are instructive for the country's future development. These lessons inform the efforts of Kenya in the shift towards landscape planning. Kenya is in the process of developing a national catchment management policy, in which agricultural landscapes would be managed not only for agriculture and watershed management objectives, but also related goals such as food security, climate adaptation and biodiversity conservation. The NCCRS includes indicative budgets and plans for line ministries. The implementation of the full strategy is estimated to cost US\$3 billion annually over the next 20 years, and roughly US\$100 million per year would be needed for adaptation and mitigation activities in agriculture (GoK 2010b). This would require nearly 20% of Kenyan government expenditures planned for agriculture and rural lands for the 2012-2013 fiscal year.⁴⁰

Kenya's Agricultural Sector Development Strategy makes climate adaptation a priority⁴¹, but the agricultural components of the NCCRS provide more details on prioritized activities. On adaptation, the NCCRS calls for accelerated investment in weather information systems, research on drought tolerant crop varieties, soil and water conservation, water harvesting, and strengthening integrated pest management systems, among others. On the mitigation front, emphasis will be on agricultural mitigation by hosting a variety of innovative land-based carbon projects, including Agroforestry's Agricultural Carbon Project which turns sustainable agricultural practices into carbon credits, as well as biogas development programs. Kenya plans to build on this experience and others in mitigation by prioritizing activities such as proper management of agricultural waste, organic farming, mulching, agroforestry, and selected application of biotechnology.

To operationalize and guide the NCCRS, the government in March 2013 finalized the development of the **National Climate Change Action Plan (NCCAP)**. This was also developed through a consultative process that engaged actors across government, the private sector and over 200 civil society groups. NCCAP is meant to operationalize NCCRS by providing the analysis and enabling mechanisms to make implementation successful. It will also support efforts towards the implementation of the Kenya Constitution 2010 and the attainment of Vision 2030; and encourages people-centred (inclusive) development, ensuring that climate change actions help the country move toward its long-term development goals. In particular, the NCCAP sets out a vision for a low carbon climate resilient development pathway; summarises analysis of mitigation and adaptation options and recommended actions; recommends an enabling policy and regulatory framework; and sets out next steps for knowledge management and capacity development, technology requirements, a financial mechanism, and a national performance and benefit measurement system (NPBM).⁴²

³⁹ GoK 2010b

⁴⁰ Kenya National Assembly, 2012

⁴¹ GoK 2010a

⁴² GoK 2013c

The Second Medium Term Plan 2013-2017 (MTP): The government recently launched the Second Medium Term Plan 2013-2017 (MTP) which identifies key policy actions, reforms, programmes and projects to be implemented in the 2013-2017 period in line with government priorities, the Kenya 2010 constitution and the long-term objective of Vision 2030. Accordingly, the theme of this MTP is –“Transforming Kenya: Pathway to Devolution, Socio-Economic Development, Equity and National Unity”. The MTP gives priority to devolution as spelt out in the constitution and to more rapid socio-economic development with equity as a tool for building national unity. Kenya will pay full attention to securing its environment and building its resilience to climate change. Much of this will be done in collaboration with county governments and new urban management boards as provided for under the constitution and its laws. The flagship projects under the social pillar of the MTP that will help build resilience against climate change, include strengthening environmental governance; waste management and pollution control; rehabilitation of urban rivers; land reclamation; irrigation and drainage infrastructure installation; water harvesting and storage programme; rehabilitation and protection of water towers among others.

Disaster risk management (with the purpose of ending or reducing the negative effects of drought emergencies) is stated in the MTP as a key pillar for national transformation. The MTP highlights that the most critical foundations for drought resilience are security (reduce conflicts over natural resources), improved infrastructure (increase access to markets and basic services, hence decrease vulnerability) and formation of human capital (improve health and education). These areas are all essential for strengthened resilience.

4.1 Policy actors, capacity and coherence

The foregoing review suggests that policy formulation process in the agriculture, environment and climate change spheres in Kenya involves multifarious actors defined by politics, geographical settings, interests, gender and financial resources, since it constitutes the foundation upon which the economy is built. The actors include Government ministries and institutions such as the Ministry of Environment, Water and Natural Resources (MEWNR), Ministry of Forestry and Wildlife, the National Environmental Management Authority (NEMA), the Climate Change Coordination Unit (CCCU), and several government parastatals and departments; international Non-Governmental Organizations (NGOs), United Nations (UN) and related bodies; regional NGOs and corporations; national NGOs and Community Based Organizations (CBOs); development partners; the private sector; civil society organizations; and research and academic institutions.

The National Environmental Management Authority (NEMA) is the operational government body for protection and management of environmental issues, and implementation of national environmental policies and priorities. It faces a number of constraints (e.g. staff capacity, resources, cross-sectoral influence) and, as a result, the implementation of policy priorities and compliance with legislation is compromised. Another important government institution is the Climate Change Coordination Unit (CCCU) formed under the former Office of the Prime Minister and now under the Deputy President (DP). The CCCU is small, but it is able to provide the much needed high level political support to climate change activities. Its retention is seen as evidence that the government is keen on prioritizing climate change action. The CCCU is keen to upscale the broader green growth plan in Kenya.

The National Drought Management Authority (NDMA) was established in 2011. It has the mandate to exercise general supervision and coordination over matters relating to drought

management in Kenya. Its mission is to provide coordination and leadership of Kenya's efforts in the management of drought risks and enhancing climate change adaptation. NDMA also supports the national and county governments and communities to prepare for, and react to, incidences of droughts.

The decisions that influence environment and climate change policy formulation and implementation are made by these actors interactively, which imply that policy formulation processes are becoming more systematic, transparent and inclusive. This has led to a process of sharing information among the actors, leading to ownership not only of the processes but the products. This is intended to have each institution using the same tool to inform its target audience, which will have a synergetic influence in the sectors development towards climate change proofing. However, there are multiple pieces of legislations and regulations, and draft policies in Kenya, directly and/or indirectly linked to environment and climate change. Notably, the various policy and institutional frameworks have led to weak coordination in basic approaches to the sector and overlapping jurisdictions. The policy incoherence identified at a national level is that while Kenya is remarkably committed to tackling challenges posed by climate change, coordination and management of strategic activities is fragmented between the different actors.

International donors are well organized regarding financing coordination of climate change, especially in the context of National Climate Change Response Strategy (NCCRS). A donor group chaired by MEMR and comprised of CDKN, DFID, USAID, COMESA and others, continue to meet to consider critical needs of implementing NCCRS. The World Bank is keen to support Kenya in scaling up climate smart agriculture by supporting the institutional capacity at the Climate Change Unit (CCU) at the Ministry of Agriculture (MoA) and the development of a monitoring, verification and reporting (MVR) framework at the national level.

Regarding Kenya's **devolution of rights and responsibilities** to lower levels of decision-making, mainly at county level and in forest and land management (as an effect of the recent land and forestry management reforms), there are potentials for synergies but also failures. There are several teething problems with the new governance structure coupled with self-interests and self determination. Actors and stakeholders at the county level arguably have weak and insufficient capacity in many instances to adequately contribute to decision making processes, coordinate their activities and work together productively. An illustrating example is the right, as well as responsibility, for local Community Forest Associations (CFAs) to manage local forest resources sustainably. This is a new right and responsibility, which has been devolved to them under the new Forest Act (2005) (and away from the abolished Forest Department's local/district Forest Officers). Provided that the CFAs have sufficient forest management capacity, the reform is very promising. In the absence of such capacity, there is a significant risk that forests will be less well managed compared with the earlier regime under the Forest Department (now Kenya Forest Service).

There is also the risk that political and institutional failures linked to perverse political logic, often based on patronage and local petty corruption, contribute to short term non-sustainable behaviour and biases to short term outputs. The much needed political goodwill to allow the county governments to operate fully seems to be lacking, given the tensions between governors and national government. In addition not all the intended functions, funds for county governments have been released by the national government. An implication of all these is that intended and proposed projects may be implemented inappropriately. It is premature to draw such a conclusion; future will tell, but it is important to monitor the

developments carefully since some of the projects pertain to environment and climate change, which are themes which are prioritized relatively lowly by the government.

The process of devolution has turned out to be more expensive than initially anticipated, with lots of resources being diverted to meet recurrent rather development expenditures at the country level in particular at administrative levels at the expense of addressing pertinent challenges such as climate change and environment. Initiatives to address climate change and environmental issues at the county level face significant challenges of integrating national climate change responses into county development plans, strategic policies and regulatory frameworks. The problem is compounded by the limited capacity in human and financial resources to set up viable offices to implement, monitor and enforce the Environmental Act (EMCA) at the county level. EMCA is expected to address all aspects of the procedural and substantive processes regarding administration, environmental protection, compliance, enforcement and monitoring through its sole administrative body National Environment Management Authority.

Consequently, there is inadequate investment in strategic areas for climate change adaptation and environmental management. Most actors are involved in climate change awareness-raising, capacity building and research with fewer investments in legislative aspects, coordination, advocacy and financial cooperation at the county level. Coordination mechanisms within the donor community are weak and fragmented, uncoordinated project approaches continue to local dominate development assistance.

Regarding **Green Growth/Green economy**, Kenya's government has in principal embraced this concept for operationalizing sustainable development. Transition to a green economy is officially perceived as an attractive model of development for Kenya due to its potential benefits and focus on practical implementation. However, there are challenges and risks that need to be overcome. The key policy challenges that need to be considered in supporting transition to a green economy include i) Several laws and regulations that are intended to encourage sustainable utilization of natural resources, for which compliance and enforcement remain inadequate; ii) Lack of robust national standards system that is bench-marked against various international standards and development of a sound policy framework that supports producers to meet the requisite standards; and iii) The transition towards a green economy requires substantial financial resources, which adds to the strained Government budget. The institutional and policy landscape shows that many players are involved in green economy initiatives. To enhance policy cohesiveness and build synergies, Kenya would be favoured by developing *and implementing* a green growth strategy in order to prioritize interventions for enhanced effectiveness. Government needs to align the policy landscape to embrace and support a transition to Green economy within the context of the country's political economy realities.

Improvements in the field of **disaster risk reduction (DRR)** with a focus on droughts (e.g. early warning systems, financing etc.) are needed. DRR is closely related to, and a key mechanism for climate change adaptation. Despite improvements in early warning planning and response systems the government maintains a reactive approach instead of preventative approach to managing disasters (e.g. droughts, floods). Initiatives and agendas concerning disaster risk reduction, climate change adaptation and resilience are strongly interlinked. Conceptually, resilience "merges" different agendas and initiatives, which prominently include disaster risk reduction, climate change adaptation, integrated land and water management, food security, environmental management and restoration (sustaining ecosystem services), and social protection. It serves as a unifying concept, and is useful and relevant in

development planning and support since people experience, plan and lead their lives holistically: To illustrate, Kenya's rural poor live in complex, interconnected (agro-socio-ecological) systems, where investment and production decisions inter-depend on (food-water-energy) consumption patterns and needs, formed under (ecological and economic) risks and uncertainties. An important ingredient in building resilience is the strengthening of adaptive capacity or flexibility to manage (cope with) changing external conditions and be prepared for sudden shifts of events (environmental, climate related, socio-political (including conflicts) or economic)

4.2 Governance, implementation and enforcement – Lessons learned

Despite recent promising efforts national strategy documents have not adequately prioritised environment. A major contributing factor is the fact that sufficient development funds have not been forthcoming from Treasury. However, it should also be stressed that absorption (capacity) of government finances is low across all environmental agencies. In terms of its status within the government administration, the Ministry of Environment, Water and Natural Resources lacks political clout and therefore does not receive adequate consideration. The problem is compounded by the political sensitivity of many of the issues that affect environment (deforestation, water, oil, gas, land use and degradation, urban air pollution etc).

Regarding **transparency** and **public participation in environmental governance**, the development of climate adaptation and environmental sector policies and strategies is highly dominated by state actors. Civil society organisations and local communities have so far played a limited role in the formulation of national climate change adaptation policies and strategies. This situation undermines key governance principles such as equity, stakeholder participation, accountability and transparency. Stakeholder needs and interests are therefore not adequately reflected in adaptation responses as well as sectoral policies. Furthermore, there is inadequate investment in strategic areas for climate change adaptation. Most actors are involved in climate change awareness-raising, capacity building and research with fewer investments in legislative aspects, coordination, advocacy and financial cooperation. There is emerging awareness of environmental issues within *Parliament*, but this has yet to be expressed in terms of calls for transparent accounts on budgetary allocations and spending on environmental activities.

Regarding **gender**, the current environmental policy frameworks in Kenya lack (responses to) gender-mediated impacts and dimensions of climate change. There is currently no broad policy direction towards integrating and mainstreaming gender considerations in existing sectoral climate response strategies and policies. A review and amendment of all the relevant regulatory and structural frameworks is therefore called for in order to develop a more gender-responsive and effective climate change response across the various sectors and government agencies. The lack of gender mainstreaming in policies is a serious shortcoming in view of the fact that women (compared to men) are disproportionately vulnerable to climate change due to their relatively higher: (i) dependence on climate sensitive natural resources for their families' livelihoods and sustenance; (ii) responsibility for water and food procurement for their families; and (iii) increased risk of exposure during times of extreme weather events and related disasters, among many other factors.

Arguably, there is a need to considerably strengthen **government capacity** and **cross-sectoral integration** regarding environmental management and adaptation and mitigation of climate change. Despite the volume of resources invested on capacity building, national institutional capacity remains weak and core environmental functions (such as regulation enforcement, supervision and monitoring) are not being performed effectively. This is partly because of the institutional complexity of the sector.

Within most of the recent planning documents that have been prepared by environment agencies, there appears to be a strong divide between the planning of activities and the planning of budgets, with the latter often having been given scant attention. This separation diminishes the value of both processes. The present institutional arrangements highlight the importance of coordination. Too much focus appears set on ministry or agency action and not sufficient regard is being given to strengthen existing coordination mechanisms between the various players with clear environmental responsibilities.⁴³

As the agriculture sector strategy ASDS 2010-2020 argues, implementation of NCCRS is one of the surest ways to curb climate change and variability in Kenya⁴⁴. For instance, ASDS notes the need for local communities to be encouraged to document knowledge and practices that provide early warning systems and help mitigate some of these changes within their environments for adoption and customization. However, there is a need to strengthen the linkages between NCCRS and the key sector ministries including agriculture. Still, agricultural sector goals revolve around increasing productivity and income growth, especially for smallholders; enhanced food security and equity, emphasis on irrigation to introduce stability in agricultural output, commercialisation and intensification of production especially among small scale farmers.

The government has used a “systems approach” to the agriculture sector. Agriculture sector ministries are viewed as components whose synergistic functions should lead to attainment of the objectives set out in the agricultural sector. The argument is that when each of the sector ministries aligns its operations to the tenets of the NCCRS and NCCAP, then the agricultural sector will respond effectively to the challenges of climate change and climate variability. The NCCAP has outlined how agriculture sector ministries are expected to align their climate change activities and plans to the NCCRS. This approach will however, only take care of the upstream interests at national, regional and international levels, while neglecting the downstream players in particular the county level.⁴⁵ Such an approach is only viable where the lower levels have adequate capacity and resources. Implementation of the NCCRS through the NCCAP strategies is in its formative stages and remains at the level of mainstreaming into government plans and development of implementation strategies.

5 Opportunities and risks for the next 5-year cooperation with Kenya

5.1 Opportunities

Building resilience offers an opportunity, and is a precondition, for attaining sustainable development. It is also the outcome of sound economic, social and environmental policies. A salient feature of a resilient system is diversity, to spread risks. A high level of livelihood diversification - in terms of safe access to land, resources and assets, making use of ecosystem services, environmental management, inclusive decision making and economic opportunities - increases people’s ability to anticipate, prepare and respond to crisis. Securing a sustainable future depends on achieving greater resilience, which may be seen as the capacity to survive, adapt and grow in the face of unforeseen, often sudden, changes. Inclusive green growth strategies can help economies and societies to become more (ecologically, socially and

⁴³ Bird and Kirira, 2009

⁴⁴ Both NCCRS and the NCCAP view agriculture, as the most weather dependent sector of the Kenyan economy, and one that will bear the largest brunt of climate change.

⁴⁵ Maina *et al* 2013

economically) resilient as such strategies strive to meet demands for sustainable food production, housing, energy and water, transport as well as creation of green jobs, enhance management of natural resources and environmental amenities, and build social and human capital (via education, social safety nets etc.). However, although a greener growth contributes to a greater resilience in many ways, building resilience also presupposes formulation and implementation of specific and well targeted resilience strategies.⁴⁶

Strengthening social, economic and environmental resilience involves e.g. sufficient educational and health systems, strong institutions, good governance, social safety nets, adequate disaster risk and drought management, sufficient environmental systems and sound natural resources management. Moreover, to ensure greater resilience, it is also important that domestic policies encourage diversification in key sectors, such as agriculture, industry and energy⁴⁷.

To achieve the economic growth target of 10% per year over the next 25 years the government aims to develop and modernise infrastructure, strengthen priority sectors e.g. agriculture and manufacturing, grow wider access to African and global markets, improve access to quality education and health care, increase food security, increase job opportunities especially for young unemployed, and provide better housing and improved water and sanitation facilities to Kenyan households. In all of these efforts the Kenyan government recognizes that full attention is needed to secure the Kenya's environment and build resilience to climate change.

Kenya's future economic growth presupposes resilient people, communities and ecosystems, and depends on the quality and extent of implementation of sound policies for sustainable management of Kenya's natural resources; they - together with the ecosystem services they produce - form the base of the economy (agriculture, livestock, tourism, forestry, and fisheries). Implementation of a green economy will be crucial both for the environment and economic and social outlook of the country as it would stimulate a green, inclusive and equitable growth, achieve poverty reduction and create green jobs. The implementation of the Vision 2030 together with the governments strive towards an inclusive green growth provides an opportunity to promote sustainable development in Kenya. Sound investments in sustainable agriculture, clean energy and eco-tourism as well investments in new technologies e.g. ICTs offer opportunities for creation of green jobs and improved income levels.

The government's plan to make Kenya a leading information and communication technologies (ICTs) country in Africa has not only implications for job creation and the country's economy but it can also improve environmental performance and address climate change and disaster risk reduction. Further, environmental benefits of ICT applications are evident in areas such as water management, biodiversity protection, pollution reduction.⁴⁸

However, technical solutions to environmental problems are often not sufficient to obtain sustainable development. Measures that strengthen human rights and governance principles, such as the rule of law, accountability and regulatory capacities, may be equally or more important than specific environmental projects to improve environmental outcomes and increase resilience.

⁴⁶ UNESCAP, 2012

⁴⁷ *ibid*

⁴⁸ OECD, 2013

For instance, in order to improve the effectiveness of environmental support, consideration could be given to improving the institutional and administrative capacities of relevant authorities to perform their core business (including cross-sectoral/inter-institutional coordination, develop and implement integrated and coherent policies, improve capacity for EIA and SEA and issuing of permits, monitoring compliance, enforce legislation and issue sanctions). There are also a wide array of policy instruments that could be introduced, to promote greener and low carbon growth to subsidies ‘environmental goods’ and tax ‘environmental bads’.

Moreover, weak administrative capacity and inadequate governance systems are a disadvantage in terms of attracting both private and public financing for Kenya. To move towards a green growth and a more resilient society, Kenya needs to strengthen its environmental institutional settings and secure environmental coordination across sectors. Moreover, good governance, improved policy and regulatory frameworks combined with control of corruption and improved law enforcement, are important for improving environmental outcomes. Strengthened governance systems and improved administrative capacity would reduce bottlenecks that inhibit financial flows and is an opportunity for Kenya to obtain funding from e.g. the Green Climate Fund.

Kenya is not an EITI candidate even though the country is facing an expansion of the mineral sector due to increased findings of mineral resources (e.g. oil). EITI is an international monitoring system aimed at promoting transparency for revenues earned from the extraction of natural resources and thereby preventing funds from being underreported and diverted. This requires significant strengthening of government’s PFM systems, cooperation with business, involvement of civil society for oversight and improved anti-corruption mechanisms.

5.2 Risks

The Arid and Semi-Arid Lands (ASALs) require special attention if Kenya is to achieve sustainable economic development. The ASALs cover almost 80 percent of the countries land mass and 30 percent of Kenya’s people live here.⁴⁹ Climate change poses a major risk for Kenya especially for the in the ASAL region. In the ASAL region, drought is the single most important natural hazard causing food-insecurity, deaths and nutrition-related diseases, events which are expected to increase as the impact of climate change deepens. A challenge in the ASALs is to develop an innovative approach to sustainable land management (SLM) where resource conservation and land rehabilitation can be combined with improved livelihoods and income generation for local communities and farmers/herders.⁵⁰

The Kenyan economy is heavily reliant on its natural resource base – as natural resources provide the foundation for growth in economically important sectors e.g. agriculture, energy, manufacturing, mining, tourism. Around 42% of the country’s GDP is derived from natural resources based sectors.⁵¹ Many of these sectors are highly climate sensitive sectors (agriculture, tourism, and energy). Climate change poses one of the greatest challenges for Kenya to realise its vision 2030. Continued annual burden of the extreme climatic events could cost the economy approximately 2.6 percent of the country’s GDP with implications for

⁴⁹ FAO, 2013

⁵⁰ FAO, 2013

⁵¹ Government of Kenya, 2013b

long-term growth.⁵² Moreover, effects of environmental degradation and the worrying trend of declining environmental performance is a major risk to the country's economic development and poverty reduction. Land and environmental degradation is one of the most serious challenges and is estimated to an annual loss of USD 390 million or 3 percent of the country's GDP. In addition, land degradation leads to socio-economic problems e.g. food insecurity which has major implications for communities' resilience and ability to cope with external shocks.⁵³

Climate change is likely to make rural livelihood and living conditions increasingly challenging, which will exaggerate the rural-to-urban migration trend. Urbanisation is increasing and the expansion poses major challenges for the Kenyan government to meet the demand for adequate housing, transports, water, energy, waste and sewage supply. If not met with adequate investments, the rapid urbanization will lead to high rates of unemployment and increase of urban poverty, inequality and environmental degradation which will negatively affect human health.

6 Conclusions

From this brief review it can be concluded that Kenya faces extensive environmental challenges, with serious knock-on effects on human health, ecosystem vitality and ecological resilience and longer-term social and economic development. The country's natural resources and ecosystems are crucial for the opportunities to attain/sustain economic growth and improve people's welfare. However, the natural resources have not been, and are not, managed in a sustainable or equitable manner, which causes over-exploitation and depletion. Environmental management and environmental protection is both an end in itself and a means to sustainable development. Poor environmental quality, on the other hand, reduces (ecological, social and economic) resilience, increases poverty, causes diseases, reduces living standards, food security and livelihood opportunities, and jeopardizes long-term economic growth.

Poverty-environment linkages are apparent. Many of Kenya's rural poor live on marginal lands or areas that are particularly vulnerable to environmental degradation, such as floodplains, coastal areas, and degraded hillsides. Environmental hazards and extreme events, such as droughts, floods, forest fires, and landslides, are more damaging in these marginal and degraded ecosystems and the poor living there are least able to cope with their impacts.

Measures that strengthen important governance and human rights principles such as the rule of law, transparency and public participation are key in order to improve environmental outcomes. Weak governance is correlated with negative environmental outcomes and is closely associated with social ills such as corruption, social exclusion, and lack of trust in authorities. Good governance, on the other hand, has the potential to regulate and enforce environmentally sound policies and, as such, to steer individuals and societies into productive outcomes and sustainable use of the environment. Improved governance, combined with pro-poor legal frameworks and processes, may be powerful instruments contributing to poverty reduction and sustainable development.

In view of the fact that environment and climate change is a thematic priority for the Swedish government and should always be integrated into Swedish development cooperation, this

⁵² Government of Kenya, 2013a

⁵³ Government of Kenya, 2013b

review shows that there are many important linkages between environment (including climate change) and other sectors Sweden supports/may support in the future. Continued integration and mainstreaming is essential. Below follows some issues for Sida to consider.

6.1 Issues Sida may consider

This study is based on own country experience, assessment reports, progress reports and scientific evidence. Providing realistic and feasible suggestions of possible Sida-financed support would require a stronger sense of the circumstances, opportunities and particularities in the country. Therefore, the ideas presented in this section should be seen as a basis for a discussion within Sida, and with its partners, rather than any prescription for Sweden's support or development assistance pertaining to environment and climate change. Deliberately there is a focus below on agriculture, rural land use and climate change adaptation. Closely inter-linked with Kenya's socio-economic development and needs for ensuring adequate social protection and safety nets, they constitute key challenges for Kenya to ensure sustainable development.

Arguably, many of the existing technologies (in agriculture, but also in energy, forestry, industry) are adequate if uniformly diffused, scaled up, and applied more broadly, coupled with an alleviation of organisational, financial and institutional hurdles. Credit constraints, real and perceived risks and uncertainties, poverty and inequity are big constraining factors to technology adoption. But even in the most ideal circumstances, diffusing existing technologies and practices (e.g. conservation farming) is not enough to address the challenges faced by the country. With the on-going climate change and climate variability, Kenya must adopt and *implement* policies and strategies that will make the agriculture sector fully climate resilient, more productive and sustainable. In particular, we argue that the critical and much-needed solutions for building agricultural resilience will come from expanding innovation and the adoption of next generation (high-yield climate-resilient) agricultural management systems and increasing water storage, water harvesting and irrigation. Kenya needs new and improved crop varieties that use less water, deliver increased yields, improved nutrition and withstand extreme heat and drought.

Although, the national climate strategies/policies (notably NCCRS and NCCAP) are important policy processes, there is need to develop adaptation and mitigation on different yet coordinated tracks, even in agriculture where many of the activities provide benefits for both. The separation of these processes is important for planning purposes and is necessary in order to access different streams of funding. Caution must however be exercised to avoid inefficiencies due the promotion of similar activities. The funds currently dedicated to climate change activities in agriculture are limited. Most of the ministry's activities that do support adaptation and mitigation are currently categorized as sustainable land management activities, as they have been in the past. Substantial climate change-specific funds have not begun to flow to Kenya-this is not the only case with agriculture- there have been a smattering of adaptation projects.

As the Kenyan government responds to the devastating impacts of climate change, it faces a parallel challenge of building climate change institutions. There is tension and confusion between various institutions responsible for climate change. Confusion, overlapping mandates and perceived lack of consultation has the potential to delay beneficial projects and create mistrust and sub optimal coordination among agencies and stakeholders.

In view of the above conditions, challenges and opportunities pertaining to policy frameworks and environmental governance, the following issues may be considered (for donor intervention/financial support; dialogue etc.):

- Coordination capacity needs to be strengthened and placed within a ministry or department that has sufficient political clout to make a difference and convening power to facilitate integration across other agencies and sectors. Responding to the national agenda must be a core function.
- Environmental issues, disaster risk reduction and climate adaptation in particular should be integrated into the planning frameworks of decentralised governance structures and adaptive capacity built at that level. The success of climate change adaptation will depend on the extent to which responses are felt and acted upon at the local level, especially the county level.
- In addition to more financial resources, there is a need for more efficient use of existing adaptation funding at national and county levels. Here, priority must be given to the adaptation needs of the most vulnerable in society (i.e women, small-scale farmers, subsistence fishers, the poor). Systemic capacities to improve accountability must be built at all levels of governance.
- Individual capacities located within donor partners and other non-state actors (NGOs, CBOs, private sector and research institutions) ought to be harnessed to support national adaptation needs.

Strengthening (local community) Resilience

There is no single way as to how address or ensure resilience in the context of a strategy. Alternatives include:

- A) Using resilience as an overarching framework for the strategy under which separate result areas are formulated and where the resilience perspective is mainstreamed in the respective result areas (explicitly or implicitly).
- B) Resilience is a separate result area that includes a broad array of programmes from various sectors of particular relevance for resilience
- C) Resilience is a separate result area focusing on some specific elements and where the resilience perspective is mainstreamed in other result areas
- D) Combinations of the above

Promoting resilience from a developmental/humanitarian perspective means to focus mainly on vulnerable peoples' ('individuals' and 'communities' in the definition above) ability to meet short- and long-term challenges to their livelihoods, safety and potential for development. Hence, Sida's approach to building resilience could *focus on achieving community level impact*. Any programme or project aiming to build resilience should use the community as an entry point. This acknowledges the importance of community participation in policy processes and decentralised institutions.

Areas of intervention to strengthen resilience and promote sustainable development in Kenya may be: a) strengthening early warning systems and disaster risk management, b) ensuring available and good quality education and health services, c) conservation farming (sustainable land husbandry) and diversifying agriculture to better adapt to more variable weather (CCA) and market conditions – including drought prevention and preparedness etc., d) sustainable environmental management at watershed level (including trans-boundary collaboration), e)

diversifying critical resource dependency in, for example, energy, agriculture and forestry sectors, f) long-term resource planning in water sector (i.e. sustainable water access/harvesting/conservation – not just over-utilising fossil aquifers), g) ensuring secure tenure (to women and men), h) providing an enabling environment, including institutions and governance mechanisms, i) social protection, social safety-nets, cash transfers, etc.; and j) strengthening national *systems* for environmental management, including institutional capacity building and technical assistance.

Irrespective of the thematic area(s) of intervention (agriculture, water, environmental health, social safety nets etc.), any community level intervention needs to be supported by (or well aligned with) higher level efforts to change the deep-rooted causes of vulnerability, and social, political and economic inequalities and inequities. So policy dialogues, support to governance and political reforms as well as, for example, sector support to government agencies are important in establishing an 'enabling environment' for building resilience at community levels.

The four dimensions of food security - availability, access, utilization (adequate diet, clean water and sanitation), and stability – is the backbone for a poor community/household to be resilient to stresses and shocks. **Agricultural support** in terms of diversification of crops on-farm, but also off-farm diversification e.g. support to small enterprises and access to markets are ways to increase resilience. Moreover, a prerequisite for maintaining and increasing agricultural production is tenure security and the right to (use, or own) land. Furthermore, strengthening social protection and promoting safety nets are important complements to agricultural and market development programmes to protect livelihoods, strengthen food security and resilience among vulnerable people.

To further develop the agricultural sector increasing **water efficiency** is much needed, especially in the ASAL region. For example, in order to reduce negative impacts during longer period of droughts, agricultural and water resources management plans, programs and policies need to be fully integrated or harmonized. At the operational level this might be accomplished through (better/full integration) the implementation of Water Resources Management Plans. Addressing irrigation through water conservation techniques or water storage are other examples that would strengthen livelihoods, food security and resilience of vulnerable people.

Greening the economy:

Appropriately planned and implemented Green economy constitutes a real opportunity for Kenya to transform its economy towards sustainable development. Pursuing an inclusive green economy can be said to operationalize the somewhat more nebulous concept sustainable development. It implies putting prices on pollution to a much larger extent, make polluters' pay, adopt and *make use of* appropriate mixes of economic, legal and social policy instruments (taxes, fees, subsidies, quotas, norms standards, public information campaigns etc.), targeted environmental investments etc.. It also implies a shift in focus from environmental policies toward fiscal policies, and from Ministry of environment and natural resource towards Ministry of finance. Pursuing Green economy policies wisely may be win-win with respect to environmental amenities and government revenues from resource rents and pollution fees.

Sida can play a role in this context and may assist in the development process towards inclusive green economy. It can do so by providing support to improved transparency of budgets, resource rents and concessions. The 'watch-dog' function of NGOs/CSOs could be promoted in order to help improve accountability. Transparency, participation and accountability are crucial aspects

of policy implementation and can be supported/promoted. Some examples related to this area include:

- Support to improved transparency of budgets and increased visibility on how resource rents are collected and used. Currently, the actual investment decisions appear not always be visible in the policy statements.
- Strengthened democratic institutions, transparency and accountability are likely to have a positive impact also on the use of natural resources and the environment. Special attention could be placed on major sources of pollution and natural resource extraction. Increased transparency in the capturing of natural resource rents and associated public participation may also be supported. Here The Extractive Industries Transparency Initiative (EITI) is of particular importance, also as a means to strengthen the links with, and influence on, the private sector.
- Support to environmental CSOs or NGOs, to improve their watch-dog role and collaborate with environmental authorities to improve monitoring, especially on land management, wildlife and forest conservation;
- Capacity development of CSOs/NGOs, to increase ability to participate meaningfully in policy development, review budgets and financial information, engage in public debate, understand and act on the information that is provided.

Furthermore, good governance, rule of law, and trustworthy national systems for instance related to public financial management, will be crucial to obtain international climate financing. Additional but related areas include improved Environmental Impact Assessment at project level and Strategic Environmental Impact Assessment at sector and policy levels. The needs for support and strengthened capacity in these areas are vast.

This policy brief touches upon a range of highly complex issues. Needless to say, there are many aspects that deserve a much more detailed level of analysis. We hope, however, that this Environmental and Climate Change Policy Brief fulfils its aim of being a point of departure for a discussion on how environmental and natural resources aspects can be integrated into Swedish development cooperation with Kenya.

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Annex I Policies, plans and strategies⁵⁴

The Constitution of Kenya (2010) which provides ground for the formulation of adaptation and mitigation legislation, policies and strategies by guaranteeing the right to a clean and healthy environment under the Bill of Rights.

Vision 2030, the national development blue print encapsulates flagship programmes and projects with aspects of adaptation and mitigation. This include:

Integrated National Transport Policy (2010) provides for transport solutions that have relevance to climate change mitigation.

The National Policy for the Sustainable Development of Northern Kenya and other Arid Lands focuses on climate resilience requiring Government to find solutions to address climate challenges and to come up with measures to manage drought and strengthen livelihoods. The policy also focuses on an enabling environment for accelerated investments in “foundations” to reduce poverty and build resilience and growth. The establishment of the National Drought Management Authority (NDMA), the National Disaster Contingency Fund and the Council for Pastoralists education are provided for in the policy.

The National Disaster Management Policy, 2012 institutionalizes disaster management and mainstreams disaster risk reduction in the country’s development initiatives. The policy aims to increase and sustain resilience of vulnerable communities to hazards.

Environmental Management and Coordination Act (EMCA, 1999): The Act is the principle instrument of Government for the management of the environment and provides for the relevant institutional framework for the coordination of environment management including the establishment of the National Environment Management Authority (NEMA) which is the Designated National Authority (DNA) for Clean Development Mechanism (CDM) and the National Implementing Entity (NIE) for the Adaptation Fund .

Water Act, 2002: The EMCA 1999 and the Water Act of 2002 provide the overall governance of the Water Sector. The regulations and strategies following on from this Act, recognize the climate change implications on health, sanitation and water.

The Energy Policy and Act: Kenya’s energy policy of 2004 encourages implementation of indigenous renewable energy sources to enhance the country’s electricity supply capacity. The policy is implemented through the Energy Act of 2006, which provides for mitigation of climate change, through energy efficiency and promotion of renewable energy. In addition, the Feed in Tariffs (FiTs) policy of 2008 (revised 2012) promotes generation of electricity from renewable sources. It applies to geothermal, wind, small hydro, solar and biomass

The Agricultural Sector Development Strategy 2010-2020 is the overall national policy document for the agricultural sector. The strategy promotes sustainable food production and agroforestry. There are also broad implications for the forestry sector that are detailed in one of the six sub-sectors of the agriculture sector.²⁷

The Kenya Forestry Master Plan 1995-2020 provides for an overarching framework for forestry development in the country for the 25 year period up to 2020 and was the blue print

⁵⁴ Government of Kenya, 2013

for reforms in the sector, including the Forest Act of 2005 and Forest Policy of 2007. It recognizes the environmental role of forests including water values, biodiversity values, climate change values through carbon sequestration and other environmental services.

The Second National Environment Action Plan (NEAP, 2009-2013) provides for a broad framework for the coordination of environmental activities by the private sector and Government to guide the course of development activities, with a view to integrating environment and development for better management of resources.

Threshold 21 (T21) Kenya is a dynamic simulation tool designed to support comprehensive, integrated long-term national development planning. The T21-Kenya model has been developed to integrate the analysis of the risks and impacts of climate change across the major sectors of the economy, society and environment, in order to inform coherent national development policies that encourage sustainable development, poverty eradication, and increased well-being of vulnerable groups, especially women and children, within the context of Vision 2030.

Annex II Key Actors

<p>Ministry of Environment and Mineral Resources(MEMR)</p>	<p>The mandate of the Ministry is to monitor, protect, conserve and manage the environment and natural resources through sustainable exploitation for socio-economic development aimed at eradication of poverty, improving living standards and ensuring that a clean environment is sustained now and in the future.</p> <p>The Ministry is also responsible for the coordination of climate change response in the country. The National Climate Change Secretariat (NCCS) is a department of the Ministry and spearheads the development and implementation of climate change policies, strategies and action plans. These include the National Climate Change Action Plan (2013-2017) which implements the National Climate Change Response Strategy (2010). The Ministry is the national focal point for the United Nations Framework Convention on Climate Change (UNFCCC). In addition to the NCCS, the Ministry comprises of the following departments and institutions, which also play a role in the national climate change response:</p> <ul style="list-style-type: none"> • Directorate of Environment (DoE) • Kenya Meteorological Department (KMD) • Mines and Geology Department • Department of Resource Surveys and Remote Sensing (DRSRS) • National Environment Management Authority (NEMA)
<p>Ministry of Planning and National Development</p>	<p>This is the primary ministry with responsibility for national development planning and associated monitoring and evaluation in Kenya. It is leading the process to mainstream climate change into the national plans including the 5 year mid-term plans under Vision2030. Ministry of Planning works with the Ministry of Environment to analyse the risks and impacts of climate change to national development using the Threshold 21 Model.</p>
<p>Ministry of Finance</p>	<p>The Ministry is charged with the responsibility of formulating financial and economic policies as well as the management of revenues, expenditures and borrowing by the Government. In relation to climate change, the Ministry of Finance is responsible for the allocation of funds from the exchequer.</p>
<p>Ministry of Energy</p>	<p>The Ministry of Energy is mandated to facilitate provision of clean, sustainable, affordable and secure energy for national development while protecting the environment. The Ministry has a department of renewable energy and other associated relevant institutions which include: Geothermal Development Company (GDC), Kenya Electricity Generation Company</p>

	(Kengen), Kenya Power and the Kenya Electricity Transmission Company Limited (KETRACO).
Ministry of Agriculture	The Ministry of Agriculture is mandated to promote and facilitate production of food and agricultural raw materials for food security and incomes; advance agro-based industries, and agricultural exports; and enhance sustainable use of land resources as the basis for agricultural enterprises. Due to the sensitivity of agriculture to climate change, the Ministry has established a climate change unit that coordinates climate related issues across the agriculture sector. The Ministry is also implementing various climate change programmes and projects.
Ministry of State for Development of Northern Kenya and Other Arid Lands (MSDNKOAL)	The MSDNKOAL provides policy direction and leadership in planning, implementation and coordination of development of Northern Kenya and other Arid lands which account for 80% of the country and are highly vulnerable to climate change.
Ministry of Water and Irrigation	The Ministry of Water and Irrigation facilitates sustainable management and development of water resources for national development. Its mandate includes the reclamation of degraded lands for sustainable development.
National Economic and Social Council (NESC)	Set up under the Office of the President in September 2004 in response to the Economic Recovery Strategy for Wealth and Employment Creation, NESC is Kenya's top advisory body to the Government on policies required to accelerate social and economic development of the country.
Climate Change Unit at the Office of the Prime Minister(OPM)	The Climate Change Unit, which provides technical support for the OPM, also participates in the preparation and implementation of national climate change policies, strategies and action plans.
National Environment Council (NEC)	Established by EMCA, and chaired by MEMR, the NEC is responsible for policy formulation under EMCA, contains various provisions that impact climate change mitigation, adaptation and finance. NEC sets national goals and objectives and determines policies and priorities for the protection of the environment, which ostensibly include climate change responses. Despite its strategic position to offer leadership on adaptation in particular, NEC has so far played a minimal role.
National Council for Science & Technology (NCST)	The NCST is an advisory institution on matters of Science, Technology, Innovation and Research in Kenya for national social economic development.
National Drought Management Authority (NDMA)	Established by Legal Notice in late 2011, the core mandate of the NDMA is to exercise general supervision and coordination over all matters relating to drought management in Kenya, and to be the principal instrument of Government in ensuring the delivery of all the policies and strategies that relate to drought management and climate change adaptation.

Climate Change Units/Desk Offices	Climate Change Units and Desk Offices have been established in most Government of Kenya institutions including: Kenya Agricultural Research Institute (KARI), Kenya Forest Service (KFS), Kenya Wildlife Service(KWS), Kenya Forestry Research Institute (KEFRI).
County Governments	The Kenya Constitution 2010 establishes 47 constitutionally autonomous county governments that have defined spheres of power and functions. The County Governments Act, 2012 states that a county government shall plan within a framework that integrates economic, physical, social, environmental and spatial planning, and protect and develop natural resources in a manner that aligns national and county government policies. Environment and climate change is a function of the national and county government and requires concurrent jurisdiction across both levels.

Annex III Table: Public Health

The table below shows figures for Ethiopia, Kenya and Uganda for comparison regarding diarrheal diseases due to poor access to water, sanitation and hygiene as well as number of deaths per year due to indoor and outdoor air pollution.

Table 1. Estimated deaths and DALYs⁵⁵ attributable to selected environmental risk factors

WHO estimates	Water Sanitation & Hygiene	Indoor air pollution		Outdoor air pollution	
Country	Diarrhoea DALYs/1000 capita per year	Deaths/year	DALYs/1000 capita per year	Deaths/year	DALYs/1000 capita per year
Ethiopia	49	72 400	31	2500	0,5
Kenya	24	14 300	13	600	0,2
Uganda	35	19 700	23	100	0,1

Source: WHO (2009)⁵⁶

⁵⁵ Disability-adjusted life year (DALY) is a measure of overall disease burden, expressed as the number of years lost due to ill-health, disability or early death.

⁵⁶ The latest data presented by WHO