

REDD+ and energy for rural development in East Africa

By Kimbowa Richard, David M. Mwayafu and Harriet Smith



A girl in Uganda cooking with a biogas stove. Biogas stoves are one way to reduce household dependence on fuel wood as the primary household energy source, and can contribute to reducing forest degradation.

DISCLAIMER

This paper is published by the REDD-net programme, supported by the Norwegian Agency for Development Cooperation (NORAD). The views and recommendations expressed in this paper are those of the authors and do not necessarily represent the views of the funders or institutions involved in REDD-net. Research was carried out June to November 2011.

INTRODUCTION

REDD+ stands for Reducing Emissions from Deforestation and forest Degradation, including the role of conservation, sustainable management of forest and enhancement of carbon stocks in developing countries. This mechanism is intended to provide payments to developing countries to reduce greenhouse gas emissions from forests, and could support activities such as the conservation of existing forests, sustainable forest management and enhancing carbon stocks, which may include reforestation or afforestation activities.

KEY POINTS

Due to the rising energy demand in East Africa with a fast growing population that is heavily reliant on fuel wood, REDD+ needs to contribute to reducing pressure on the remaining forest resources, while promoting affordable, alternative, renewable energy options. REDD+ can better contribute to energy sector objectives at the country and regional levels through the following:

- REDD+ should support improvement of the oversight institutions managing forestry and other natural resources at regional and national levels (legislators at national and sub-national levels).
- REDD+ needs to clearly contribute to developing policy incentives and investment plans to scale up other renewable energy alternatives to charcoal and firewood, and promote efficient energy saving technologies for small and medium scale enterprises, urban and rural dwellers.
- REDD+ needs to contribute to policy other interventions to improve the efficiency in charcoal production and fuelwood use from the source to the end users (households, small and medium scale enterprises).
- There is a need to harmonize policy and development sector frameworks in agriculture, water resources, energy and other sectors to reflect REDD+ and avoid conflicting initiatives.
- Building on the experiences from the R-PP process, REDD+ should enable foras to be created or strengthened in order to generate ideas and discussions to restrain potential conflicts and to secure ownership of planned energy-related interventions.

The emergence of REDD+ provides an opportunity on both the regional and national scale, to invest in long term sustainable forest management that not only contributes to mitigate climate change through reduced deforestation and forest degradation in the region, but also provides an opportunity to complement regional and national strategies to address energy issues.

By integrating REDD+ strategies with country-level strategies and programmes for energy it will be possible to,

- improve the sustainability of biomass energy use and production and to diversify access to energy in rural and urban areas, and
- conserve key ecosystems in order to secure a steady flow of water for hydroelectric power production that is essential for industrial growth and the growing services sector.

This article is based on the REDD-net paper on REDD+ and other sectors in East Africa (Kimbow R, et.at, 2011).

BACKGROUND TO ENERGY SECTOR IN EAST AFRICA.

Access to energy has been recognized as one of the key elements in achieving the East African Community's development vision. Currently, over 80% of the population in the five East African Community (EAC) countries live without access to modern energy services, with traditional biomass energy from fuel wood, charcoal and agricultural waste contributing more than 80% of the region's energy mix (EAC, 2006).

Most traditional biomass is burnt in open three-stone stoves which expose the users to health hazards from indoor smoke and fire hazards. Household cooking and heating use the largest amount of energy, and charcoal production is one of the key drivers of deforestation and forest degradation in East Africa (GOK, 2010; URT, 2010, GoU, 2011). REDD+ activities could directly contribute to the achievement of energy diversification, through encouragement of efficient fuel wood use and its alternatives, and indirectly through triggering processes that could enhance coordination amongst related sectors (Table 1).

Linking REDD+ into Regional and National policies

A key approach of the EAC's Strategy on Scaling-up Access to Modern Energy Services, seeks to provide access to modern cooking practices for the proportion of the population that currently uses traditional cooking fuel. To be successful, this target needs to address both the demand (addressing fuel efficiency) and supply side of energy (conservation and restocking).

National energy objectives and strategies follow the EAC's strategy, which in turn are complemented by the proposed REDD+ strategies with the aim to contribute to energy security (Table 2 overleaf). From this table, REDD+ and the energy sector are closely aligned, mainly in relation to actions on biomass energy, although this is yet to be seen in practice given that REDD+ is a recent policy strategy to be implemented in East Africa.

TABLE 1: ENERGY SOURCES IN THE EAC

| | Biomass | Modern (electricity, solar, LPG) |
|----------|---------|----------------------------------|
| Kenya | 70% | 30% |
| Tanzania | 90% | 10% |
| Uganda | 93% | 7% |
| EAC | 84% | 16% |

Source: United Nations; UNDP, 2005 as quoted by the EAC, 2010

However, while existing policies and strategies link up well with REDD+, charcoal production remains one outstanding issue in all the 3 countries requiring interventions (for example improving efficiency, enacting regulation and policy, and developing alternatives). This is because of the heavy dependence by communities on charcoal and biomass energy, as noted in Table 1 (above).

As the legal, policy and institutional frameworks to implement REDD+ are being put in place, challenges are emerging. For example, in Tanzania, over 90% of the energy consumed is from fuel wood, which puts extensive pressure on forest resources. Furthermore, there are frequent power cuts in urban areas, even when there have been sufficient rains to fill the dams so people continue to rely on biomass energy for its reliability. Hence, energy switching to reduce reliance on biomass and reduce forest degradation may prove a difficult task (URT 2010).

A lack of cross-sectoral coordination and policy harmonization could retard REDD+ initiatives as each sector tries to achieve its set performance targets irrespective of the other. For example, the Tanzania Forest Policy explicitly makes reference to linkages with other sectors (agriculture, livestock, mining, energy, wildlife, beekeeping, environment and land), but policy failures in some of these sectors contribute to the deforestation and forest degradation (URT, 1998).

HOW CAN REDD+ BETTER CONTRIBUTE TO ENERGY SECTOR OBJECTIVES AT THE COUNTRY AND REGIONAL LEVELS?

From the above analysis and discussion, the following recommendations are put forward for REDD+ to contribute to energy sector objectives in East Africa:

- REDD+ actions should support improvement of the oversight institutions managing forestry and other natural resources at regional, national level, and sub-national levels (legislators at national and lower levels). This is because as the majority of East African people rely on firewood and charcoal, and given the unquenchable demand that has been aggravated by the electricity deficit, forestry resources are under considerable pressure (illegal practices in extraction of timber, firewood and charcoal). If this is not

well-regulated, the anticipated increase in carbon stocks, watershed protection and other 'service' functions may be greatly affected in the long run.

- REDD+ needs to contribute to policy and other interventions to improve the efficiency in charcoal production and fuel wood use from the source to the end users (households, small and medium scale enterprises).
- REDD+ needs to clearly contribute to developing policy incentives and investment plans to scale up other renewable energy alternatives to charcoal and firewood, and promotion of efficient energy saving technologies for small and medium scale enterprises, urban and rural dwellers. In addition to reducing pressure on the existing forest resources, this would also contribute to co-benefits like ecosystem services, catchment protection and biodiversity conservation.

- There is a need to harmonize policy and legal frameworks in agriculture, water resources, energy and other sectors to reflect REDD+ and avoid conflicting initiatives. In light of the anticipated economic and population growth 'compartmentalization' of energy and other sectors, could further flare up the conflicting mandates at the expense of sustainable land, water, biodiversity and other resources.
- Building on the experiences from the R-PP process, REDD+ should enable foras to be created or strengthened in order to generate ideas and discussions to restrain potential conflicts and to secure ownership of planned energy-related interventions. These could include regular consultations, discussions and feedback mechanisms on intended interventions, policy development and reviews in sensitive discussions like electricity tariff setting, fees on charcoal and firewood businesses, resettlements, etc, that could enable stakeholders to contribute to a sustainable energy regime.

TABLE 2: SUMMARY OF LINKS BETWEEN NATIONAL ENERGY OBJECTIVES AND STRATEGIES AND PROPOSED REDD+ STRATEGIES

| National Energy objectives | Proposed REDD+ Strategies | What else should be included for REDD+ to more effectively contribute to energy sector objectives? |
|---|---|---|
| Kenya | | |
| <p>The Kenya Energy Act (2006)</p> <ul style="list-style-type: none"> • Development and use of Renewable Energy Technologies (RETs) • Enabling policy framework for the efficient and sustainable production and marketing of RETs • Promoting the use of fast maturing trees for energy production | <ul style="list-style-type: none"> • Promotion of efficient charcoal making technologies • Implementation of a national fuelwood development strategy, • Promotion of fast growing fuelwood plantations to supply fuelwood, and fuel efficiency. • Promote community based utilization of biofuels for lighting and cooking thus reducing demand of fuelwood. <p>[GOK 2010: pp39 – 40]]</p> | <p>Specific and urgent attention to promote:</p> <ul style="list-style-type: none"> • Efficient institutional cooking and curing, technologies (e.g schools, Small , medium and large wood consuming enterprises like tea, and tobacco, hospitals) • Fast growing fuel wood plantations be mandatory for big fuel wood consumers to mitigate their impact • Decentralised renewable energy options relevant to particular areas. For example biogas where cow dung and other substrate is available, wind power where it is feasible. • Regulate the production and trade of firewood and charcoal through incentivised community based schemes / initiatives. |
| <p>Kenya's Energy Sector Environment Programme</p> <p>Objectives: Promote the commercial growing of fuelwood and improve energy efficiency</p> | | |
| <p>Kenya's Department for Renewable Energy</p> <p>Strategies: Promote energy conservation, efficiency and alternative fuel sources.</p> | | |
| Tanzania | | |
| <p>National Energy Policy, 2003</p> <ul style="list-style-type: none"> • To ensure availability of reliable and affordable energy supplies and their use in a rational and sustainable manner • To establish an efficient energy production, procurement, transportation, distribution and end-use systems | <ul style="list-style-type: none"> • Introduce alternative energy sources, plus increased efficient utilization of biomass, • Promote alternative energy sources to wood fuel. • Sustainable management of critical watershed areas by safeguarding consistent water flow for proposed hydro-electric power generating dams. <p>[URT 2010: pp83]</p> | <ul style="list-style-type: none"> • Increase efficient utilisation of biomass by promoting efficient technologies , options and practices in institutional cooking and curing, technologies (e.g. schools, small, medium and large wood consuming enterprises like tea, and tobacco, hospitals) • Specific and urgent attention to promote efficient charcoal making technologies • Regulate the production and trade of firewood and charcoal through incentivised community-based schemes / initiatives. |
| | | |

TABLE 2: SUMMARY OF LINKS BETWEEN NATIONAL ENERGY OBJECTIVES AND STRATEGIES AND PROPOSED

REDD+ STRATEGIES (continued)

| National Energy objectives | Proposed REDD+ Strategies | What else should be included for REDD+ to more effectively contribute to energy sector objectives? |
|---|--|---|
| Uganda | | |
| <p>Renewable Energy Policy (2007)</p> <p>Overall Policy Goal: To increase the use of modern renewable energy, from the current 4% to 61% of the total energy consumption by the year 2017</p> <p>Strategies</p> <ul style="list-style-type: none"> • Maintain and improve the responsiveness of the legal and institutional framework to facilitate renewable energy investments • Establish an appropriate financing and fiscal policy to attract more investments and enable RETs to penetrate different markets • Promote mechanisms that enhance the capacity of public and private energy service providers to develop and deploy appropriate gender responsive renewable energy technologies • Raise public awareness on the benefits and opportunities of renewable energy technologies, • Promote mechanisms for international co-operation in research and development, • Technology transfer and appropriate standards, • Manage the biomass resource base in a sustainable manner • Encourage the use of biofuels in the country and especially, in the transport sector, • Promote the conversion of municipal and industrial waste to energy | <p>Strategic Option: Addressing unsustainable impact of charcoal production and utilization.</p> <ul style="list-style-type: none"> • Regulating charcoal production and trade • Clarification on land and tree tenure rights on privately owned land • Improving charcoal use efficiency • Strengthening enforcement and compliance • Undertake policy reforms in Energy Sector to facilitate growth (through incentives) and development of affordable alternative renewable energy sources that reduce pressure on biomass energy. <p>Strategic Option: Addressing impact of firewood harvesting and utilization on forestry resources in Uganda</p> <ul style="list-style-type: none"> • Increasing biomass/trees on farmland • Promote fuel wood use efficiency • Promotion of alternative and affordable clean energy sources for large fuel wood consumers <p>To develop planting stocks, to promote sustainable management and production of forest resources and to create a regulated wood processing industry (efficient use of wood for timber and other wood products).</p> <p>[GoU, 2011: pp87-90]</p> | <p>Specific and urgent attention to promote:</p> <ul style="list-style-type: none"> • Efficient institutional cooking and curing, technologies (e.g schools, Small , medium and large wood consuming enterprises like tea, and tobacco, hospitals) • Fast growing fuel wood plantations be mandatory for big fuel wood consumers to mitigate their impact • Decentralised renewable energy options relevant to particular areas. For example biogas where cow dung and other substrate is available, wind power where it is feasible. • Regulate the production and trade of firewood and charcoal through incentivised community-based schemes / initiatives. |
| <p>Renewable Energy Feed-In Tariff (REFIT) - 2010</p> <p>Objective: to promote the deployment of renewable energy that places an obligation on specific entities to purchase the output from qualifying renewable energy generators at pre-determined prices</p> | | |
| <p>National Forestry Policy, 2001</p> <p>Policy Statement 6: Tree-growing promoted in all farming systems, and innovative mechanisms for the delivery of forestry extension and advisory services will be developed</p> <p>Strategies:</p> <ul style="list-style-type: none"> • Build the capacity of farmers to integrate forestry into all farming systems. • Create awareness of the ownership of planted trees to provide clear incentives and security for individuals to undertake on-farm tree-growing. • Support the private sector to establish and manage commercial tree nurseries to support farm forestry. | | |

REFERENCES CITED AND FURTHER READING

- ERA (2010). Uganda Renewable Energy Feed-in Tariff (REFIT). Phase 2 Approved Guidelines for 2011-2012: http://www.era.or.ug/Pdf/Approved_Uganda%20REFIT%20Guidelines%20V4%20%282%29.pdf accessed September 2011
- EAC (2006). East African Community Development Strategy 2006 – 2010. Deepening and accelerating integration.
- EAC (2010). EAC Facts and Figures Report: http://www.eac.int/statistics/index.php?option=com_docman&task=doc_view&gid=131&tmpl=component&format=raw&Itemid=153 accessed July 4, 2011
- EAC (2009). Regional Strategy on Scaling-up Access to Modern Energy Services in the East African Community
- GoK (2006). The Energy Act: <http://www.erc.go.ke/energy.pdf> accessed September 2011
- GoK (2010). Revised REDD Readiness Preparation Proposal Kenya <http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/Oct2010/Revised%20RPP%20for%20Kenya.pdf> accessed June 2011
- GoU (2001). National Forestry Policy, 2001. Ministry of Water, Lands and the Environment
- GoU (2002). The Energy Policy for Uganda, Ministry of Energy and Mineral Development
- GoU (2007). The Renewable Energy Policy for Uganda. Ministry of Energy and Mineral Development: <http://www.rea.or.ug/userfiles/RENEWABLE%20ENERGY%20POLIC9-11-07.pdf> accessed September 2011
- GoU (2011). REDD Readiness Preparation Proposal for Uganda Submitted to the Forest Carbon Partnership Fund http://www.forestcarbonpartnership.org/fcp/sites/forestcarbonpartnership.org/files/Documents/PDF/Jun2011/Uganda%20Revised%20RPP%20May%2031%2C%20%202011_0.pdf accessed on June 2011.
- Kenya Energy Sector Environment Program (2011): <http://www.kengen.co.ke/index.php?page=business&subpage=ke> accessed August 4, 2011.
- Kimbow R, Mwayafu M.D., & Kairu G. (2011). Analytical Paper: REDD+ and other sectors in East Africa. REDD-net.
- URT (1998). Tanzania National Forestry Policy, 1998 Dar es Salaam
- URT (2003). The National Energy Policy, Ministry of Energy and Minerals: <http://tatedo.org/cms/images/publications/reports/energypolicy.pdf>. Accessed September 2011.
- URT (2010). National Strategy for Reduced Emissions from Deforestation and Forest Degradation (REDD+): REDD Tanzania Initiative: <http://www.reddtz.org/content/view/22/26/> accessed June 10, 2011

ABOUT REDD-NET

REDD-net is an international knowledge forum for southern civil society organizations through which they can access information about efforts to Reduce Emissions from Deforestation and forest Degradation, share their own experiences and help to build pro-poor REDD projects and policies. REDD-net is a partnership between the Overseas Development Institute, Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), RECOFTC – The Center for People and Forests and Uganda Coalition for Sustainable Development. REDD-net is funded by Norad.



For more information about the programme contact Kristy Graham at ODI (k.graham@odi.org.uk). For further information on REDD-net East Africa please contact David Mwayafu (dmwayafu@ugandacoalition.or.ug)

FOR MORE INFORMATION ABOUT REDD-NET VISIT: WWW.REDD-NET.ORG