

Malawi's initiatives in response to climate change

Malawi has recognised that climate change is an issue that needs tackling now. Adaptation and mitigation initiatives are already underway. Various government ministries are promoting tree planting or ensuring access to water. NGOs are promoting forestry and sustainable land use, while universities are working on biogas initiatives. Here, the choices facing Malawi are discussed – balancing the need to feed itself, against using this land for other purposes.

Edgar Kapiza Bayani

Farmers in Malawi are already experiencing climate change. According to Emmanuel Luhanga, a farmer in the northern district of Rumphi: “The rains these days are unpredictable... One year they start in November, another year in December, and then we have dry spells at the critical stages of crop growth...” In general, farmers observe prolonged and more frequent droughts, changes in the overall rainfall distribution, more storms and other extreme weather events. While farmers have always been able to adapt to change, relying on their knowledge and expertise, it is clear that climate change poses new challenges.

All reports and analyses agree that countries in the tropics will be more affected by climate change than other regions. This seems to be especially true for Malawi, where a large percentage of the population works in agriculture, more than half of all farm families cultivate less than one hectare of land, and the national economy relies largely on agriculture. Due to population pressure, continuous cropping and monoculture is common, even on marginal lands. Soil structures are worsening, on top of losing nutrients and organic matter. Most farmers lack the resources needed to adapt to a changing context, or to integrate agronomic practices which may help them conserve water and soil.

Adapting to change

It is no surprise then that both the government and NGOs are working hard to promote strategies for adapting to climate change. As part of a comprehensive programme, the Ministry of Irrigation has seen a significant increase in its budget to ensure that dams are built for drinking water and irrigation. Since 2005, the government has been distributing treadle pumps, with each Member of Parliament receiving 400 pumps for distribution. At the same time, the International Maize and Wheat Improvement Center, CIMMYT, is breeding maize varieties for drought tolerance. Since 2005, the same organisation has also been promoting Conservation Agriculture, an approach to farming that increases the efficiency of rainfall and water use. Jeremoti Sikelo is one of 300 farmers who pioneered Conservation Agriculture in the central district of Nkhotakota since 2005. He has noticed greater water percolation in his field, as well as improvements in the structure of its soils. With better and more fertile soils, he has had higher yields.

Total Land Care (TLC) is another organisation complementing the government's efforts on climate change. The organisation is working with farmers in five different districts of Malawi,



Photo: Joseph Phiri, EU/MPP

Several parties take an active role in tree planting in an effort to mitigate climate change. Robert Tauka, the EU/Micro-projects Programme Co-ordinator, launched a tree planting project.

helping them adapt to the effects of climate change. TLC is an international NGO based in Malawi, operating also in Zambia, Tanzania and Mozambique, and working hand in hand with the University of Washington, U.S.A. Under the Management for Adaptation to Climate Change Project, TLC is promoting water harvesting, small scale irrigation, sustainable land use practices and forestry. Together with other organisations, it is providing farmers with treadle pumps and technical assistance to develop small scale irrigation schemes using gravity-fed water systems. TLC is also promoting the use of manures and agro-forestry technologies. With fertilizer prices soaring to record highs, the organisation encourages farmers to interplant their maize with some nitrogen fixing plants like *Tephrosia vogelii* and *Sesbania sesban*. Farmers are also being encouraged to use early maturing and drought tolerant varieties.

Malawi's contribution

While all farmers realise that the climate is changing, many of them don't know why. According to farmers like Mr. Luhanga, for example, the changes are an indication of the end of times. In contrast, government reports detail the role of greenhouse gases and, rarely for a developing country, also look at Malawi's role in the problem.

Like all other countries, Malawi bears some responsibility – even if this is very small in comparison. Documents prepared by the authorities, like the State of the Environment Report, published in 2002, look at the emission of greenhouse gases in the country, mentioning that this is increasing because of different reasons. Many farmers, for example, burn their crop residues when preparing the field for another season, a process that emits considerable quantities of methane. Different estimates show that the use of nitrogen for agriculture increased from less than 10 000 metric tonnes per year in 1966 to more than 50 000 tonnes at the end of the century. These figures do not take the country's fertilizer subsidy programme into account, which has resulted in a major increase in the use of fertilizers. And while forests used to cover more than half of the country's surface 30 years ago, this figure is down to 25 percent – basically as a

result of increased need for land for agricultural production. Made worse by weak enforcement of the existing environmental and conservation policies, deforestation is also caused by a growing demand for wood. The tobacco industry, for example, demands vast amounts of wood for leaf curing and building sheds, estimated at 1 million m³ per year. Cities and towns demand large quantities of charcoal. Beer brewing, fish smoking, lime and brick production, all contribute to this increasing demand, and to higher emissions of carbon dioxide and other greenhouse gases. Just as important, however, is that deforestation is contributing to global warming by removing the possibility of storing carbon.

Mitigation

Realising that deforestation is a major source of greenhouse gases, organisations like Total Land Care also promote afforestation and the preservation of natural woodlands. At the same time, they aim to sensitise farmers about the importance of forests in managing climate change. To this effect, TLC put in place a policy that anyone benefiting from the organisation's irrigation strategy, should plant at least 100 trees along the stream banks. This policy goes together with the organisation's commitment to storing carbon in the soil, and to sequestering carbon by changing farm practices. Following a similar approach, the European Union's Micro Projects Programme has supported 17 afforestation projects in different parts of the country. This programme is also encouraging the use of cement blocks and Soil Stabilised Blocks (SSB) in construction projects, instead of red bricks. As red bricks are baked with firewood, they contribute to the demand for wood and to deforestation. To this effect, it has supported 54 building construction projects using cement blocks and 31 using SSBs.

For a second year running, the Department of Forestry, in the Ministry of Land and Natural Resources Management, is implementing a programme called Tree Planting for Carbon Sequestration. This programme started in 2007 and is working with at least one farmer in each of the 193 parliamentary constituencies of Malawi. The programme targets farmers who are willing to dedicate part of their land for trees. The government then provides tree seedlings and technical support. Farmers are then paid money in compensation for the land and the work they are doing in taking good care of the trees. The money is paid in phases after the programme assesses the establishment of the plantations and the tree survival rate.

The Clean Development Mechanism

The Clean Development Mechanism (CDM), set out in Article 12 of the Kyoto Protocol, has two aims: assisting non-industrialised countries in achieving sustainable development; and assisting industrialised countries in achieving compliance with their quantified emissions limitation and reduction commitments.

CDM is the only activity in which developing countries can participate in collective action for emissions reduction. If emissions are to be reduced while economies grow, more efficient technology needs to be introduced. The CDM aims to increase foreign investment in efficient technologies for emerging economies.

As developing countries are under no obligation to reduce greenhouse gases, there are two main sectors for CDM projects – energy and land use/land use change/forestry. In terms of land use and forests, there are many conditions in place for projects to be classified as CDM and gain the benefits. These include that projects must contribute to biodiversity conservation and sustainable use of natural resources, that projects must result in measurable emissions reduction, and that they must be in line with the sustainable development policy of the government hosting them.

In addition to efforts by NGOs and the government, national universities also can play a role. For example, the Mzuzu University's Energy Studies Department launched a biogas project with funding from the British Government. The Mzuzu University is the second state owned university located in the city of Mzuzu, in the northern region of Malawi. The project aims at helping the reduction of greenhouse gas emissions by capturing methane from organic wastes, including manures and slurries. In this way, biogas makes good use of methane and also provides an alternative to burning wood for fuel. More than 10 biogas plants are to be constructed by the project. The University's Energy Studies department is committed to making the most of the potential of anaerobic digestion to contribute to climate change, waste management and wider environmental objectives.

Benefiting from the CDM?

Whether by storing carbon, or as a major component of an effective adaptation strategy, the role of forests in facing the effects of climate change is enormous. Their importance seems even greater if we try to value them in monetary terms. Taking into account the potential advantages of the Clean Development Mechanism (see Box), there is little doubt that trees are worth more alive than they would be worth if burned (and sold as charcoal) or transformed into agricultural fields.

A major limitation is that not many small scale farmers in Malawi know that forests are valuable assets in mitigating climate change. The main concern which this country faces, however, is about food. An estimated 56 percent of the population has less than 1 hectare of land to use for all the family's needs. The challenge is to decide whether it is worthwhile to leave such a portion of land for forests or to grow food on it. The main limitation which a programme like the one started by the government faces, is land shortage. Farmers are expected to assign one hectare for trees, but few are able to. They need the land to produce food, while forests are a source of immediate income for many.

To better implement the Clean Development Mechanism in Malawi, the need to include poverty alleviation is paramount. An investment package is needed to encourage enterprises which do not exploit the environment. More carbon buyers and donors are needed if the Tree Planting for Carbon Sequestration programme in Malawi is to achieve meaningful results within a reasonable time. "We hope to court carbon buyers and other interested donors to have this programme continue in the longer term. Considering that land holding is a problem, bringing in other interventions like encouraging homestead tree planting in boundaries and educating the masses in other ways of reducing emissions is also vital", says Mr. Msiska, the Assistant Regional Forestry Officer for Malawi's northern region. Most importantly, society, including farmers, needs to be made more aware of the importance of trees in controlling climate change, through education and awareness-raising.

It has also to be borne in mind that, in Malawi, reliance on wood is continually threatened by non-sustainable exploitation of forest resources. Current policies do little to promote alternative fuels and building materials. Thus, despite the country planting millions of trees every tree-planting season, deforestation still remains a problem. The need for the Clean Development Mechanism to look into this fact is also equally important. ■

Edgar Kapiza Bayani. Social Development Officer, North GoM/EC, Micro Projects Programme IV, Region 1, Top Floor Osman Gani House, City Center. Private Bag 90, Mzuzu, Malawi. E-mail: ebayani@mz.microprojectsmalawi.org