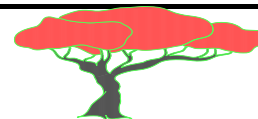


FRIM NEWSLETTER

THE NEWSLETTER OF THE FORESTRY RESEARCH INSTITUTE
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EDITORIAL

Welcome to the 97th edition of the FRIM Newsletter in this second quarter of 2015. We would like to congratulate Dr. Chilima on his appointment as Director of Forestry and wish him well in his new position as he steers the department to regain its lost glory. The editorial would also like to welcome Dr. Chanyenga who is now heading FRIM in acting capacity and pray that he becomes the next head of this institution to guide forestry research in Malawi. In this issue we present to you our dear readers articles whose focus is related to climate change adaptation and mitigation.

The views expressed in the articles are those of the authors and may not necessarily be those of the Forest Department or the Forestry Research Institute of Malawi.

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Managing insect pests of Eucalyptus trees in Malawi

Dave Moyo, Gerald Meke & Clement Chilima

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The Eucalyptus snout beetle (*Gonipterus scutellatus*)

This was once a serious pest of eucalyptus in the early 1970s. When it occurs as a pest both the larva and adult are serious leaf defoliators. Their feeding usually results in total defoliation and death of trees. However, in South Africa where it was also causing some significant damage, a biological control agent was introduced which managed to keep the pest under control and it is believed that this agent has also spread to Malawi which has helped to control the pest. There has not been any recent snout beetle outbreak in Malawi.



Larva (left) and adult (right) snout beetle feeding

General Recommendations

Most of the eucalyptus pests that have been recorded in Malawi are exotic, hence are amenable to respond to biological control agents that keep them under control in their areas of origin. Thus, it is hoped that forest entomologists will identify a suitable biological control agent for the bronze bug and the chalcid which are causing serious damage to eucalyptus trees in Malawi and the entire region. For successful control, monitoring and reporting is paramount. To this effect, FRIM is urging all eucalyptus tree owners and the general public to be vigilant and report any strange looking insect damage on trees. FRIM is continuously sharing information with local and international Entomologists on how best to control various forest pests including detection of new ones.

National launch of United Nations - REDD support to Malawi

Henry Kadzuwa & Willie Sagona

The reduction of greenhouse gases is central to Climate Change initiatives in the United Nations Framework Convention on Climate Change (UNFCCC). Forestry Department of Malawi through Malawi REDD+ Readiness Programme (MRRP) has for the past two years taken active steps towards implementing the UNFCCC policy on reducing emissions from deforestation and degradation (REDD). The major ones include development of a five year national plan for REDD+, the development of national governance framework to oversee and coordinate Malawi's pursuit of REDD+ readiness and more importantly to implement the REDD+ programme.

The REDD+ advocacy initiatives reached climax on 29th-30th April, 2015 when the country launched the United Nations-

REDD Support at Cross Roads Hotel in Lilongwe. In tandem with the UN Support, the MRRP revealed to have taken a path-way that goes beyond rewarding developing countries financially after achieving sustainable forest management and it was branded as a 'No Regrets' approach. This basically implies that the result based payments of REDD are considered of secondary importance over other immediate benefits such as capacity building, improved governance and greater clarity of land tenure. It is important to note that by implementing the REDD+ programme following conservation of forests (biomass and carbon stocks), their enhancement is what earns a country the financial rewards upon satisfying measurable, verifiable and reportable agreed protocols.

Minister of Natural Resources, Energy and Mining, Honourable Bright Msaka SC, graced the launch and delivered a motivating speech which zeroed in on the significance of **arresting** the current forest and environmental degradation and **restore** it back to its normality. In his address, the Minister indicated that Government of Malawi is more than willing to pursue the REDD+ mechanism and his presence at the function was a sign of Government's commitment on managing the environment.

Among the several presentations delivered during the launch, the process and outlook of the Malawi REDD+, conveyed a clear message that Malawi is still in the readiness phase and there is still more to do. As a matter of progress, the MRRP is currently focusing on developing other framework strategies that will support its implementation and these include; governance, Institutional Context Analysis, and Legal Policy Framework.

National Forest Monitoring System is another mechanism within the REDD+ context that is underway. In Malawi, this was agreed to have four main pillars namely; Land monitoring, Plot Based Forest Inventory (NFI), Level setting or Forest Reference Emissions Level and National Green House Gases (Emissions).

Despite registering this success, the MRRP has encountered some challenges which include inadequate levels of knowledge and capacity that affects stakeholders' delivery and of course level of participation. In addition, the country-driven ownership which is central to the engagement of stakeholders is one of the key lessons that have been learnt besides the need to avoid undertaking pre-requisite activities before moving into full implementation of the REDD+. The latter is deemed to potentially lead to fatigue amongst stakeholders thereby delaying the REDD+ progress. It is also envisaged that integration of pilot sites in planning would be quite ideal for the success of the programme.

The development of the roadmap for the National Forest Monitoring System and of the Governance policy on REDD+ with support from USAID, United States Forest Service, UN-REDD and of course from Malawi Government are some of the steps that the MRRP is currently covering

before full implementation of the programme.

Let us all join hands in implementing the MRRP in order to arrest forest and environmental degradation and restore the landscapes with abundant forests.

Climatic adaptation of forests and people in Malawi- A pilot case in *miombo* woodlands of the Lake Chilwa catchment

Henry Utila, Steve Makungwa, Clement Chilima

Introduction

Climate change and variability is affecting different parts of the world in different ways. Malawi has been one of the countries experiencing the adverse impacts of climate change. This has forced Malawi government and especially scientists to explore adaptation measures which can be used to make people and their environment resilient to such phenomena.

The Lake Chilwa Basin is one of the areas in Malawi which has been well monitored in terms of extreme weather events. Between 1982 and 2009, records show that there has been an overall increase in surface temperature of 0.3°C and 1.3°C. However, in upland areas, temperature variation has been low as compared to the low land areas. The upland areas have some forest cover while most of the lowland areas are devoid of forest cover.

Data on rainfall show that the mean annual rainfall in the catchment generally decreased between 1982 and 2009. However, the general trend showed variations in the amount of rainfall received each year in the catchment area with the highest mean annual rainfall of 2021 mm received in 1985 and the lowest mean annual rainfall of 442mm received in 1995. The catchment experienced one of the worst droughts in 1995 in which the Lake Chilwa dried out completely. In contrast, during years of heavy rainfall, flooding was not uncommon in the catchment (e.g. the Phalombe Disaster of 1991). Extreme events have also been experienced in 2015. Latest floods have destroyed infrastructure and affected crop production in the basin. These floods were followed by a prolonged dry spell that has already rendered some rivers and streams dry or with low flow before the onset of the dry season.

Impacts of climate change and variability

Observations have shown that the climate in the catchment is very irregular resulting in either droughts or floods. The impacts of these extreme events have severe impacts on both aquatic and terrestrial ecosystems and the people in the basin. The impacts have been more severe on the poor whose livelihood is already fragile and unsustainable.

Adaptation strategy

A scenario where rainfall will decline by 1 to 18% and temperature will increase by 0.6°C – 3.8°C, has been predicted for Malawi by the 21st century. This will result in a predicted 37% decline in forest biomass and a 20 to 30% decline in agricultural yield. The prognosis is therefore very bad and hopeless. This has been vindicated in the 2014/15 growing season where a decline in the agricultural yield has been recorded within the predicted range of

20 to 30%.

A study was conducted in the *miombo* woodlands in the Lake Chilwa Basin to understand climate change adaptation strategies that could be employed by people in the basin to increase their resilience against the adverse effects of climate change. This article highlights some of the adaptation measures that people can apply to the changing environment.

As a survival strategy, communities have descended on the few remaining fragile forests to harvest various forest products and to open up new gardens. Most of the people in the Lake Chilwa catchment exploit forests for fuel wood, charcoal, constructional poles and timber through selective cutting of those preferred tree species for such purposes. Where the degraded areas are not opened up as gardens, the forests are degraded and of poor quality but have remnant tree species that are well adapted and more resilient to the impact of future climate change.

For forestry; the study identified promotion of extreme heat tolerant species such as *Azadirachta indica* (Neem). The species has the ability to survive very harsh weather conditions. For people, the study identified the following; diversifying household income through environmental friendly income generating activities, adoption of energy-saving and efficient devices such as *chitetezo mbanula* which has been recommended to be one of energy saving stoves and adoption of climate smart agriculture such as Conservation Agriculture and Agro-forestry technologies.

The above adaptation measures may be seen as not adequate for the basin's population with its limited resources, however, the study discovered that the existing indigenous and scientific knowledge could be explored further to broaden human adaptation capacity in the Lake Chilwa basin. The study also falls short of mentioning other destructive adaptation strategies in the basin such as charcoal production from the *miombo* woodlands which should be prevented using all available options.

The Potential of Payment for Ecosystem Services in Conservation Agriculture practice: Lessons from Zomba Mountain Forest catchment area

Willie Sagona

Introduction

Payment for ecosystem services (PES) has raised expectations among natural resource managers that ecosystem conservation can be achieved through popular payments rather than through unpopular measures of command and control (The Katoomba group 2007). Considering the strong links that exist between forests and agricultural production, smallholder farmers living around forest catchment areas should be part of decision making process especially in land use and management matters. On the other hand, economists have argued that the conservation of tropical forests will be difficult unless custodians of these ecosystems are

compensated for the environmental services their forests provide to the wider community (Pearce 1996).

Environmental conservation efforts have been evolving in recent years towards a new 'ecosystem based approach' through which ecosystems are managed as a whole. This approach emphasizes the supplementary and buffering roles of forests and best agricultural practices such as conservation agriculture (CA) within multiple-use landscapes. Through ecosystem approach, forests and other land uses such as CA can be managed for the full range of products and services. The approach recognizes that local communities are an integral part of forest and agriculture ecosystems whose interests need to be embraced to ensure environmental sustainability. This approach enables local people to take advantage of new market opportunities such as carbon trade, water supply and hydro - electricity generation arising from PES.



However, Malawi, just like most countries in Africa, lacks the requisite knowledge to organize, design and implement PES effectively. It has been argued that the technical skills needed for PES are seldom readily available. Lack of synergy among stakeholders has also been reported when supporting action plans and policies for promoting environmental services under climate change agenda.

The views presented in this article are founded on the concept of political ecology. At the core of political ecology is the notion that social, economic, and political factors shape local environmental problems just as altered environments shape social processes. Political ecology is applicable in this article because it places a direct focus on power and politics in relation to the environment. It relates an understanding of actors to political and ecological processes through political strengths and weaknesses in relation to other actors, their motivations, interests and micro politics that informs environmental conflict and cooperation at the local level.

Lessons learnt

The main contribution of forest ecosystems to rural livelihoods is through providing subsistence products and services, and a *de facto* “safety net.” There is strong evidence that the majority of rural population in developing countries have survived and reproduced by growing a mix of staple and cash crops, irrigation farming, fishing, and gathering forest products. Recently, CA has been popularized as an adaptation measure to climate change and variability in terms of food security and other service benefits. However, the success of CA to attain food security and environmental conservation will depend on the scale at which it is being practiced. This can be made possible with serious investments in CA. Field observations in Malawi reveal scattered and isolated efforts of CA which in turn has failed to provide adequate impact in as far as environmental management is concerned.

Ecosystem services that are “public goods” require proactive efforts on the part of governments and non-government actors. At its 2003 meeting in Locarno, Switzerland, The Katoomba Group concluded that lack of policy frameworks was one of the most critical overall barriers to stakeholder coordination and expansion of PES (The Katoomba group, 2007). This has meant that the success of PES will require that local people should continue to obtain some direct or indirect ecosystem benefits while taking part in conservation efforts. These payments can only be made when prospective buyers appreciate the quantity and value of various products and services being derived from a particular ecosystem. This requirement calls for ecosystem service or product evaluation. The same applies to CA where studies are required to assess the amount of carbon being sequestered or the rate of water table recharge by the CA system on a unit land in an ecological area as this may provide basis for PES transaction.

It is now clear that the private sector and non-governmental organizations represent a critical opportunity for catchment conservation through PES. This is because the combined potential scale of private sector payments may exceed current and potential investments by government departments. Lessons can be drawn from Tanzania Electricity Supply Company (TANESCO) where user fee is paid towards basin management (Scurrah, 2006) whose beneficial effects are extended to smallholder farmers. However, in Malawi, a meaningful level of private sector involvement may not materialize until proper policies and institutional arrangements to regulate PES are put in place. PES in Malawi at times takes place in a form of social responsibility whenever an occasion arises and is not mandatory. This responsibility is optional or voluntary because national policies are silent and mostly it is not directed towards sound environmental or catchment management and rarely has it been directed towards promoting or up-scaling CA. A review of PES in developing countries (The Katoomba group, 2007) concluded that there is a need for much more strategic consideration to implement PES, so that it complements other policy instruments. It requires a strategic assessment of PES based on input from stakeholders of existing incentives,

financial resources and regulatory capacity to guide the PES process and even highlight those areas where PES could be especially promising. This requirement is also true for CA which needs ecological suitability studies for positive impacts since indiscriminate implementation has affected adoption especially in waterlogged areas.

Under PES, simple contracts offering social services rather than payments can still be more effective in securing ecosystem services flow from land and resource stewards. This argument reinforces the notion that PES mechanisms can be used to give rural communities a new social role as ecosystem service managers for ecosystems under stress. As such, it can be argued that PES schemes fit within the larger picture of rural development which includes CA practice. To make these views a reality, policy makers need to prioritize and understand the relationships between ecosystem services /degradation and rural development within any catchment area. It should be borne in mind that PES will be politically acceptable only where all the parties agree, or at least accept and are willing to sustain flow of ecosystem services and have confidence in the long-term security of the PES arrangements. This could be a challenge or an opportunity depending on PES negotiating skills available.

In Malawi, CA has thrived from project support which is short-lived spanning between 2 and 5 years but there are already signs of donor fatigue. This is a short period to overhaul an old agricultural system that has been in existence for over 50 years. No wonder, impacts of CA are far much apart, isolated and scattered despite the current level of support. Interestingly, programmes and projects continue to spend millions of *Kwachas* to promote CA because of the perceived food security and environmental benefits. However, donors are wary of continued financial support to CA projects looking at how strict they have become when it comes to controlling how much resources go to an ordinary smallholder farmer. The donors’ argument is a concern on issues to do with sustainability of CA which has come too early considering the environmental concerns that CA will address over time and the numerous issues that a smallholder farmer has to grapple with to become self reliant not forgetting the history of agriculture development in Malawi. CA smallholder farmers deserve high level support to up/out scale the practice and attain food security alongside environmental sustainability. It should be noted that long term investments are required to uplift a smallholder CA farmer who, over 50 years ago, was whipped into submission by colonialist to make ridges in his/her field. This smallholder farmer is presently at the receiving end of the many emerging farming technologies being churned out by research which at times come with conflicting messages.

CA as an agricultural ecosystem that mimics a natural ecosystem, offers many product and service benefits which under PES may attract payments to ensure environmental sustainability. The onus is on environmentalists to provide evidence to donors, government and the private sector why long term investments and financial support are a necessary evil for CA development and widespread adoption especially in fragile ecosystems.