Policy piece

Reduced emissions from deforestation and degradation

Eliakimu Zahabu[1], Margaret M. Skutsch[2], Hussein Sosovele[3] and Rogers E. Malimbwi[1]

[1]*Department of Forest Mensuration and Management, Sokoine University of Agriculture, PO Box 3013, Morogoro, Tanzania,* [2]*Technology and Sustainable Development Group, Centre for Clean Technology and Environmental Policy, University of Twente, PO Box 217, 7500AE Enschede, The Netherlands and* [3]*Institute of Resource Assessment, University of Dar es Salaam, Tanzania*

Until now forest carbon trading has been possible only through the Clean Development Mechanism (CDM) of the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC). But CDM is limited to afforestation and reforestation projects. The option for reducing rates of carbon emissions by improved forest management and by avoided deforestation is not eligible, despite the fact that the Intergovernmental Panel on Climate Change (IPCC) estimates that 20–25% of current annual carbon emissions result from loss of tropical forest (IPCC, 2007). The contribution of tropical deforestation to global carbon emissions has prompted re-negotiation of climate change policy to include Reduced Emissions from Deforestation and Degradation (REDD). This would allow tropical forest nations to claim for compensation, if they reduce national rates of deforestation and degradation through management of natural forests.

There is already a joint proposal from Papua New Guinea and Costa Rica under discussion; and proposals by several other rainforest nations to include this option in future climate agreements (UNFCCC, 2005). Negotiations started at the Eleventh Conference of the Parties to the UNFCCC (CoP 11) in Montreal, Canada, in 2005 where a 2 year process was established to review relevant scientific, technical, and methodological issues and positive incentives for reducing emissions from deforestation in developing countries. Following this process, the Subsidiary Body of Science and Technology Advice (SBSTA) of the UNFCCC at its 25th session in Nairobi, 2006, invited views on, among others, the potential policy approaches and positive incentive mechanisms for REDD. A number of proposals e.g. by the Tropical Agricultural and Higher Education Center (CATIE) and German Emissions Trading Association (BVEK), and Costa Rica in association with Central African Republic, Democratic Republic of Congo, Ghana, Kenya, Madagascar and other Latin American countries have been presented. The debate is still going on (UNFCCC, 2007). It is however noted with great concern that most African countries do not appear to be participating in this discussion.

The lack of African action might be partly because estimation of carbon emission from the forest sector has been based on forest areas cleared entirely (i.e. deforestation) and on the shifting cultivation and selective logging practices that are mostly found in rainforest areas. This excludes small scale degradation processes, which are common in dry forests in Africa and which relate to local firewood supplies, charcoal production and forest-based agriculture (Houghton, 1999). In principle, REDD could target not only tropical rainforest but also dry tropical forest. Although the carbon stock per hectare in dry forest is less than that in tropical rainforest, dry forests are in many cases more at risk from deforestation and degradation than rainforest because they are in, or close to, more populated areas. As such, total emissions from dry forest may be rather high. However, up until now, the REDD policy debate has been led and dominated by the interests of rainforest nations. At the 62nd Session of the United Nations General Assembly, New York, on 24th September 2007, a powerful joint statement by Tropical Rainforest Countries' Leaders on REDD crediting was presented, but the dry tropical forest countries at the meeting did not contribute to the debate.

For example, the President of the United Republic of Tanzania H. E. Jakaya Mrisho Kikwete presented a statement in which he mentioned the Tanzanian contribution to the fight against climate change. He pointed out that Tanzania has prepared a National Adaptation Program of Action (NAPA) through which actions such as tree planting and forest protection in reserved forests and national parks are to be carried out. He also recognized that there may be a possibility for such actions to be

© 2007 The Authors. Journal compilation © 2007 Blackwell Publishing Ltd,

compensated through the Climate Change Adaptation Fund (CCAF), which is still being negotiated. The CCAF is intended to minimize the adverse effects of climate change and will be funded through a 2% levy on the emission permits (Certified Emission Reductions or CER), which are generated by emission reduction projects under the Kyoto Protocol's CDM. The revenue that will be generated for this fund up to 2012 is however only projected to be between $160 and $950 million (Muller, 2007). The fund therefore is very limited and will hardly touch the real costs of adaptation in developing countries.

Tanzania has a total area of about 94.5 million hectares out of which 88.6 million ha is landmass and the rest inland water. Current statistics show that forestland (including woodland) covers 34 million ha of which 16 million are reserved forests and 2 million ha are in national parks. The remaining 16 million ha (47% of all forestland) are unprotected forests in general lands (United Republic of Tanzania, 1998; Forestry and Beekeeping Division, 2006). Forests in general lands are typically 'open access' characterized by insecure land tenure, shifting cultivation, annual wild fires, harvesting for wood fuel, poles and timber, and heavy pressure for conversion to other competing land uses, such as agriculture, livestock grazing, settlements and industrial development. Deforestation in Tanzania, which is estimated at between 130,000 to 500,000 ha per annum (United Republic of Tanzania, 1998; FAO, 2006), is mostly occurring in the general land forests. Reservation of forest is aimed at reversing this trend, but studies reveal a considerable level of human disturbance even inside these forest reserves, including encroachment on forest areas, illegal mining, pit sawing, illegal harvesting for building materials, firewood collection and medicinal activities (Forestry and Beekeeping Division, 2005; Frontier-Tanzania, 2005; Malimbwi *et al.*, 2005). This means that not only forests in general lands, but also reserved forests, are deteriorating.

Our estimates show that the country could potentially earn $630 million annually, or around $119 per rural household, from the REDD policy, if all this deforestation and degradation were to be halted. Although completely stopping is probably out of the question, Tanzanian forestry policy has been relatively successful in reducing rates of loss through its emphasis on the involvement of local communities in forest management. Establishment of village forest reserves was found to reverse deforestation in unreserved forestland, which is mostly in dry forest areas. This policy was enacted with a view to maintaining sustainable forests, rather than to reduce carbon emissions, but nevertheless, it has this as a secondary benefit.

However, only 11% of the country's forests are under such management at present (Forestry and Beekeeping Division, 2006). The reason for this is lack of funds and capacity. If REDD is adopted internationally, it could provide the financial means for rapidly extending this type of community forest management throughout the country, which would have multiple benefits, both environmental and social. This model could further be advantageous for many other African countries whose forests are mainly in dry areas. We therefore strongly advise the African governments, both those with rainforest and those with dry forests, to take cogniscence of this new policy and actively support the formulation of REDD at CoP13 in Bali, December 5–17 2007.

Acknowledgements

We are grateful to the Directorate General for Development Cooperation (DGIS) of the Ministry of Foreign Affairs, The Netherlands for providing the funding for the project Kyoto: Think Global Act Local research project from which the authors benefited and which enabled them to write this article (www.communitycarbonforestry.org).

References

FAO (2006) Global Forest Resources Assessment 2005. Progress Towards Sustainable Forest Management. Food and Agriculture Organization of the United Nations Forestry Paper 147, Rome. ftp://ftp.fao.org/docrep/fao/008/A0400E/A0400E00.pdf

Forestry and Beekeeping Division (2005) Forest condition assessment of the Eastern Arc Mountains Forests of Tanzania. Conservation and Management of the Eastern Arc Mountain Forests, Forestry and Beekeeping Division, Dar es Salaam.

Forestry and Beekeeping Division (2006) Participatory Forest Management in Tanzania-Facts and Figures. Extension and Public Unity, Forestry and Beekeeping Division, Ministry of natural resources and tourism, Dar es Salaam.

Frontier-Tanzania (2005) Uluguru North Forest Reserve. In: Uluguru Component Biodiversity Survey (Volume III), (Eds. C. Bracebridge, E. Fanning, K. M. Howell and R. St. John). Forestry and Beekeeping Divison, Dar es Salaam.

Houghton, R.A. (1999) The annual net flux of carbon to the atmosphere from changes in land use 1850–1990. *Tellus* **51B**, 296–313.

IPCC (2007) Fourth Assessment Report (AR4). International Panel on Climate Change. http://www.mnp.nl/ipcc/pages_media/AR4-chapters.html

MALIMBWI, R.E., SHEMWETTA, D.T.K., ZAHABU, E., KINGAZI, S.P., KATANI, J.Z. & SILAYO, D.A. (2005) Summary Report of Forest Inventory for the Eleven Districts of Eastern and Southern Tanzania. Forestry and Beekeeping Division, Dar es Salaam.

MULLER, B. (2007) A Break Through for Adaptation. Comment to the Nairobi UNFCCC. Oxford Energy and Environment, Oxford.

UNFCCC (2005) Reducing Emissions From Deforestation in Developing Countries: Approaches to Stimulate Action. UNFCCC, Montreal. FCCC/CP/2005/MISC.1.

UNFCCC (2007) Climate Change Country Parties Discuss Approaches to Reduce Emissions From Deforestation in Developing Countries. unfccc.int/press/news_room/newsletter/in_focus/items/3944.php

UNITED REPUBLIC OF TANZANIA. (1998) National Forest Policy. Forestry and Beekeeping Division, Ministry of Natural Resources and Tourism, Dar es Salaam.

doi: 10.1111/j.1365-2028.2007.00886.x



Fig 1 Scientists from Sokoine University establishing 1 hectare permanent sample plots in the Udzungwa Mountains National Park to measure forest carbon under the 'Valuing the Arc' project. Photo Credit: Tom Lovett