

Coping with crisis in Central Africa: enhanced role for non-wood forest products

J.C. Tieguhong, O. Ndoye, P. Vantomme, S. Grouwels, J. Zwolinski and J. Masuch

Examples from Cameroon and other countries highlight the capacity of non-wood forest products to provide employment, income and sustenance in times of crisis – given a suitable legal framework to help safeguard local access and prevent resource depletion.

The current financial and economic crisis has directly and indirectly affected the drivers of Africa's recent growth performance (AfDB, 2009). Demand for and prices of African commodities are falling, capital flows are declining, and promised increased aid has not materialized. Through contagion, the crisis has affected financial markets, foreign exchange markets and commodity markets – the last being of particular importance for forest products.

In Central Africa – considered in this article as the ten member countries of the Central African Forests Commission (COMIFAC): Burundi, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Rwanda and Sao Tome and Principe – the crisis has taken a heavy toll on the economies that are highly dependent on natural resources. Several extractive industries in the Democratic Republic of the Congo, the Central African Republic and Cameroon have cancelled or postponed projects. Closure of 70 mining companies in the Kantaga region of the Democratic Republic of the Congo, for instance, led to a loss of up to 200 000 jobs between the end of 2008 and mid-2009. The recent crisis is also having serious impacts on the timber sector as orders for timber from importing countries diminish and logging and timber processing companies are forced to cut costs, close concessions and lay off workers.

Apart from the overall macroeconomic impacts, the crisis presents a gloomy situation for rural households, which make up 62 percent of the region's popu-

lation. For resilience in times of crisis, many rural communities depend on the presence of accessible economic opportunities such as the collection of non-wood forest products (NWFPs) (Arnold and Townson, 1998).

In a region where forests cover 44.6 percent of the land area (FAO, 2009), about 60 percent of the rural population depends on access to forests to meet their daily needs in terms of subsistence, employment and cash income (Arnold and Ruiz-Pérez, 1998; Tieguhong and Ndoye, 2004, 2006; Tieguhong and Zwolinski, 2008). The main products extracted by forest-dwelling people are fuelwood, poles and NWFPs, including bushmeat. Political, economic, technical and legal entry requirements for earning

A Baka pygmy family completely dependent on the forest for housing and food: about 60 percent of the rural population in Central Africa depends on access to forests to meet their daily needs



Julius C. Tieguhong is with the Technical Training and Research Centre for Development (TTRECED), Yaounde, Cameroon.

Ousseynou Ndoye is Regional Coordinator of the FAO project "Mobilization and Capacity Building of Small and Medium Enterprises involved in Non-Wood Forest Products value chains in Central Africa", Yaounde, Cameroon.

Paul Vantomme is Senior Forestry Officer (Non-Wood Forest Products), and **Sophie Grouwels** is Forestry Officer (Small-Scale Enterprise Development), Forestry Department, FAO, Rome.

J. Zwolinski is Head of the Forestry Programme, Faculty of Science and Agriculture, University of KwaZulu-Natal, Scottsville, South Africa.

J. Masuch is FAO Associate Professional Officer with the project "Contribution of Non-Wood Forest Products to Poverty Alleviation and Food Security", Yaounde, Cameroon.

income from NWFP gathering are relatively few (in comparison with timber enterprise, for example). Particularly in times of crisis, NWFPs are a major source of supplementary income and work for those unable to obtain formal or other sufficient employment; they also provide food, medication and other products for household and subsistence use, thus acting as a “safety net”. But economic crisis can aggravate conflict among users (and between subsistence and commercial users) by creating increased dependence on and competition for NWFP resources.

This article reviews the importance of NWFPs as a source of self-employment, income, livelihood and sustenance in Central Africa, with particular reference to Cameroon and the Democratic Republic of the Congo. It outlines how free access to forest resources must be guaranteed for poor forest-dependent people so as to reduce poverty and help diminish the negative impacts of the global financial and economic crisis for rural households. Finally, it describes the development of a legal framework for commercial use of NWFPs, to safeguard people’s rights of access and prevent depletion of the resources.

NOT THE FIRST CRISIS

The countries of Central Africa already experienced more than one economic crisis in the mid-1980s and the devaluation by 100 percent of the local currency (the CFA franc) in the mid-1990s. Rural people’s reliance on NWFPs increased as a result. In Cameroon, for example, the crisis lowered the financial profitability of cocoa in the international market, and induced rural communities to diversify their income sources (to minimize the risk associated with cocoa farming) (Ndoye and Kaimowitz, 2000) and to turn increasingly to NWFPs for income (Tieguhong and Ndoye, 2004). Furthermore, the economic crisis increased the level of poverty in rural areas as many people who had had minimum-wage jobs

in cities had to return to their villages, and NWFPs began to substitute now less affordable products. For example, the currency devaluation increased the price of beer and whiskey and made palm wine more attractive; and the price of pharmaceutical products increased, so rural dwellers and poor urban households increasingly turned to herbal medicines for their health care (Ndoye and Tieguhong, 2004).

Before the current crisis, the region’s gross domestic product (GDP) per capita was already low, ranging from US\$107 in the Democratic Republic of the Congo to US\$5 915 in Equatorial Guinea (where oil exploration has raised per capita GDP from previously among the lowest in the region). Apart from Equatorial Guinea, which has an annual GDP growth rate of just over 16 percent, growth rates are below 5 percent; the Central African Republic is in recession with –0.8 percent growth. Meanwhile, the region’s population (almost 117 million in 2006) continues to grow quickly, at an average annual rate of 2.5 percent (FAO, 2009).

ECONOMIC CONTRIBUTION OF NON-WOOD FOREST PRODUCTS National economies

In Central African countries, data on NWFPs are not included in national production and trade statistics, so their contribution to GDP is poorly known

(Tieguhong and Ndoye, 2006). Research in Cameroon has shown that NWFPs are of great economic importance to rural households, traders and the national economy (Ndoye and Tieguhong, 2004; Tieguhong and Ndoye, 2006) (Table). Between 1999 and 2003, the regeneration tax owed to the Cameroon Government by NWFP licensees (10 CFA francs [US\$0.02] per kilogram of NWFP harvested and sold, ostensibly for replanting harvested plants) was alone worth over 350 million CFA francs (US\$700 000) (Betti, 2004) – and this figure does not take into account other taxes, e.g. on exports and on NWFP processing industries. The international market value of NWFPs in Cameroon is also significant. For example, export value for 206 tonnes of *Dacryodes edulis* (an edible fruit rich in fats and oils) to France and Belgium in 1999 amounted to US\$1.7 million. The annual market value of *D. edulis* fruits in Cameroon was estimated at over US\$7 million (Awono *et al.*, 2002).

Household economies

The importance of NWFPs in Central Africa is most visible at the household level. For instance, Tieguhong (2009) found that in five villages surrounding Lobeke National Park in Cameroon, household-consumed goods represented 44.6 percent of the cash flow to surveyed households. Goods associated with

Some NWFPs of high economic value in Cameroon

Product	Part of plant used	Use	Value (US\$)
Edible plants^a			
<i>Cola acuminata</i>	Seed	Snack, stimulant, aphrodisiac	212 000
<i>Dacryodes edulis</i>	Fruit	Food (vegetable)	244 000
<i>Irvingia</i> spp.	Seed	Condiment	302 000
<i>Ricinodendron heudelotii</i>	Seed	Condiment	460 000
Medicinal plants^b			
<i>Pausinystalia johimbe</i>	Bark	Aphrodisiac, stimulant, tonic	600 000
<i>Prunus africana</i>	Bark	Prostate treatment	700 000

Source: Ndoye, 1995 (edible plants); CARPE, 2001 (medicinal plants).

^a January to July in the humid forest region.

^b Annual value at national level.

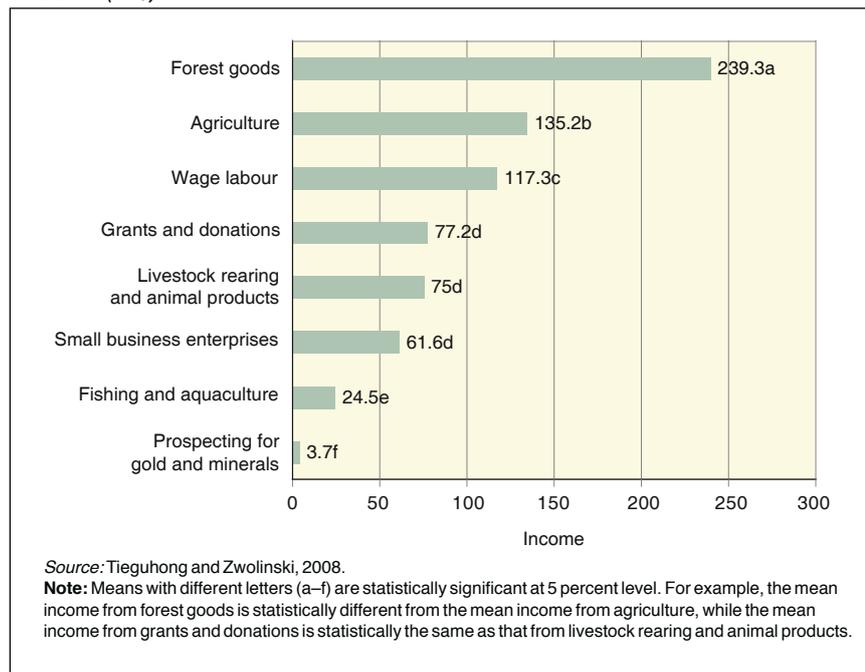
shelter and food security dominated the income generated by the households, with forest products being the main and most valuable source of them (Tieguhong and Zwolinski, 2008) (Figures 1 and 2). NWFPs were also found to constitute the main source of income for 39 percent of women in Nko'ongop village, located at the periphery of Campo Ma'an National Park in South Cameroon (Sonne, 2001).

In Équateur Province of the Democratic Republic of the Congo, charcoal, palm wine and edible leaves of *Gnetum* spp. are the NWFPs that provide the highest profit to traders, averaging US\$216, \$166 and \$131 per month, respectively. These profits are higher than the average wage of secondary school teachers (US\$50 to \$70). In the same province, households selling six NWFPs (Marantaceae leaves, caterpillars, mushrooms, charcoal, *Gnetum* spp., palm wine) obtained, on average, a monthly revenue

In Cameroon, fruits of *Dacryodes edulis* are of great economic importance to the economy, with annual market value estimated at over US\$7 million (Makenene market)



1
Mean annual household income by activities registered in villages near Lobeke National Park in Cameroon (US\$)



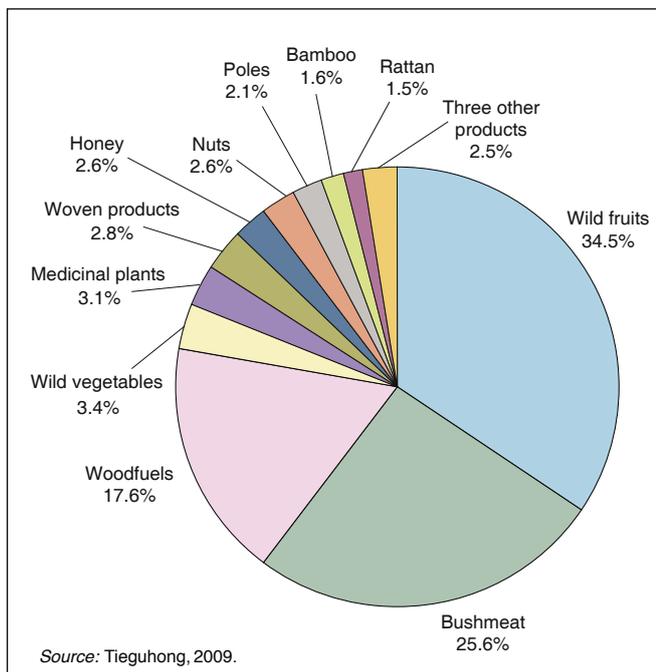
of US\$84, comparable to that of a civil servant (US\$80) (Ndoye *et al.*, 2007). In Bandundu Province, traders in these same products gained a profit of US\$40 per month. Traders from Bandundu exporting leaves of *Gnetum* spp. to Kinshasa

gained an average monthly income of US\$270, which is higher than that of a medical doctor (US\$190 to \$250).

Employment

NWFPs have a major role in rural employment and income generation, mostly in the informal sector. A survey of a heavily forested zone in southern Ghana showed that 10 percent of the rural population gains some income from activities in the NWFP value chain (Arnold and Townson, 1998). If a similar percentage is assumed in Central Africa, it can be estimated that about 6.5 million people in the region are engaged in NWFP activities (based on population estimates from FAO, 2009).

Rural women are particularly involved in gathering and processing NWFPs and are likely to be the main beneficiaries or losers from forest resource management interventions in Central Africa that may affect free access to the forests. In Cameroon, for example, women represent 51 percent of the population, but more than 70 percent of them live in rural areas and exploit natural resources to meet



2
The most important forest products in terms of income and/or subsistence for households surveyed in villages near Lobeke National Park, Cameroon

these resources; the increasing access to trade (national, regional and global) facilitated by the expanding network of roads and logging tracks; or the surge in subsistence and commercial demand arising from the ongoing recession in the timber sector. The national forest codes and legislation elaborated in the 1990s did not address these weaknesses of the traditional regulatory framework, partly because they were more geared to timber products.

Through a fully participatory process within a recently completed regional project (2006–2008), major forest stakeholders and representatives of governments, the private sector and local people's associations in Central Africa have developed innovative model legislation governing the subsistence and commercial use of NWFPs in Central Africa. The model law – *Directives sous-régionales relatives à la gestion durable des produits forestiers non ligneux d'origine végétale en Afrique centrale* (FAO, 2008) – is designed to promote business development but also to protect the rights of the weakest segments of society to access forest resources for their subsistence needs. It serves as a blueprint that can be adapted to national circumstances for integration in national forest legislation. The model law was endorsed by all COMIFAC countries in November

the livelihood needs of their families. More than 94 percent of 1 100 NWFP traders surveyed in rural and urban markets in Cameroon were women (Ndoye, Ruiz-Pérez and Eyebe, 1997). In the Democratic Republic of the Congo, more women than men were observed to participate in the bushmeat trade (Tshombe *et al.*, 2000); women represented 80 percent of bushmeat traders in Kinshasa markets (Ndonga, 2004).

Domestication of wild resources (see Box) presents a promising opportunity for investment and for employment (or self-employment) for local farmers and NWFP gatherers – who may well be the same. However, neither domestication nor increasing the gathering and hunting pressure of NWFP species can go on in an unregulated way, as it may exclude the weakest members of rural society from continuing their NWFP gathering activities for subsistence and income generation. Furthermore, unregulated exploitation of any NWFP may lead to overharvesting of the species and forest degradation. Hence the need to put in place a regulatory framework governing access to the forests for all users.

LEGAL AND INSTITUTIONAL DIMENSIONS

As long as NWFPs were primarily used for subsistence, centuries-old informal rules and customary practices were sufficient for overall use and stewardship of the forests by many diverse user groups. However, the traditional regulatory framework is no longer adequate to deal with the needs of increasing populations; the complexities of expanding commercial use of

Rural women are particularly involved in gathering, processing and selling non-wood forest products (women selling leaves of *Gnetum* spp. in Kinshasa market, Democratic Republic of the Congo)



2008. Cameroon and the Democratic Republic of the Congo are already in the process of adapting and implementing the legislation at the national level, and three more countries (Congo, Gabon and the Central African Republic) are beginning to do so.

The model legislation is intended to supplement relevant traditional customary rights and enables self-employment in commercialization of NWFPs to become formal and legal. It covers:

- access to NWFPs: user rights and norms and procedures for obtaining harvesting titles;
- NWFP market chains: procedures for harvesting, transport, processing and commercialization;
- fiscal arrangements: taxation, special funds;
- infractions and sanctions;
- institutional arrangements and capacity building;
- identification of competent authori-

ties and procedures for implementation of the law.

Additional institutional support to increase the contribution of NWFPs might include:

- capacity-building for actors involved in NWFP value chains;
- promotion of local community participation in all aspects of forest management, and sharing of benefits derived from forest products;
- analysis of institutional factors that favour or disadvantage access to benefits along the value chain;
- initiatives to ensure access to resources and to empower weaker rural populations and minority groups, especially once NWFP values become important;
- dissemination and implementation of the legal framework, including identification of inequities in trade transactions in terms of selected commodity chains.

CONCLUSION AND RECOMMENDATIONS

As a consequence of economic crisis, the pressure on many NWFPs has increased, which could lead to overexploitation of these species. But with sustainable harvesting techniques and domestication, the economic and ecological benefits could be substantial. The NWFP sector could benefit substantially from investment and the development of local technologies, increased quality standards and recognition of property rights of local communities. The main problem is to translate policies from official, well-designed texts into concrete development activities on the ground.

Domestication of species providing NWFPs offers great potential as an income and/or employment source, but it requires large investments which are not easily available during a financial crisis, and definitely not to poor forest dependent people. "Small is beautiful", and it is likely to be through small-scale investment that the NWFP sector can contribute most during the current crisis. The sector involves numerous collectors, using simple tools and requiring little investment, who can easily adapt to changing economic patterns to improve their livelihoods. However, an appropriate legal and institutional framework must be in place to prevent the weakest segments of society from exclusion and to avoid resource degradation. The NWFP model law project in Central Africa has piloted a participatory process for incorporating rights-based legislation into national government programmes – a prerequisite for supporting self-employment and small-scale enterprises; and it has demonstrated the value of involving regional structures (in this case COMIFAC) to facilitate harmonization and collaboration among the countries of a region, enabling them to have a comparable basis for their rules and laws. ♦

Opportunity for investors: domestication of NWFP-producing species

Since the economic crises of the 1980s, cocoa farmers in the humid forest zone of Cameroon have diversified their farm income by planting *Irvingia* spp. and *Ricinodendron heudelotii*, both used as condiments (Tieguhong and Ndoye, 2006). Between 1996 and 2003, the average price of 1 kg of the fruits from these species in the Yaounde region of Cameroon was 200 percent higher than the average price of 1 kg of cocoa beans (Ndoye and Tieguhong, 2004). This comparison suggests that NWFPs should not be overlooked as a source of income generation in Central Africa.

Another exciting NWFP with potential that could be developed further is *Prunus africana*, whose bark has medicinal uses. *P. africana* is a major economic resource in many countries of East, West and Central Africa; it is already cultivated, but only on a small scale to date. According to Tchoundjeu (2004), the world market requires about 5 million trees of *P. africana* in cultivation to satisfy demand. This could come from 1 farmer growing 5 million trees, 10 farmers growing 500 000 trees, 100 farmers growing 50 000 trees, 1 000 farmers growing 5 000 trees, 10 000 farmers growing 500 trees, 100 000 farmers growing 50 trees or 1 million farmers growing 5 trees. Economic analysis (Tieguhong and Ndoye, in preparation) shows that 10 000 farmers (with average age of 30 years and average household size of two) each growing 500 trees of *P. africana* to maturity and exploiting their bark following sustainable harvesting methods with rotation of five years, would each earn an average sustainable annual income of 975 254 CFA francs (US\$1 950), more than twice the country's per capita income. Perhaps investment of a few million dollars would suffice to realize this potential in less than two decades.



Bibliography

- AfDB.** 2009. *Impact of the global economic and financial crisis on Africa*. Working Paper Series No. 96. Tunis, Tunisia, African Development Bank.
- Arnold, J.E.M. & Ruiz-Pérez, M.** 1998. The role of non-timber forest products in conservation and development. In E. Wollenberg & A. Ingles, eds. *Income from the forest: methods for the development and conservation of forest products for local communities*, pp. 17–42. Bogor, Indonesia, Center for International Forestry Research (CIFOR) & International Union for the Conservation of Nature (IUCN).
- Arnold, J.E.M. & Townson, I.** 1998. *Assessing the potential of forest product activities to contribute to rural incomes in Africa*. ODI Natural Resource Perspectives No. 37. London, UK, Overseas Development Institute (ODI).
- Awono, A., Ndoye, O., Schreckenburg, K., Tabuna, H., Isseri, H. & Temple, L.** 2002. Production and marketing of safou (*Dacryodes edulis*) in Cameroon and internationally: market development issues. *Forest Trees and Livelihoods*, 12(1&2): 125–128.
- Betti, J.L.** 2004. Politique forestière sur les produits non-ligneux au Cameroun: Vers une maîtrise de l'assiette fiscale. *Proceedings of the fifth Conference on Central African Moist Forest Ecosystems (CEFDHAC)*, Yaounde, Cameroon, 24–26 May, pp. 348–356. Yaounde, IUCN Regional Office for Central Africa.
- CARPE.** 2001. *Rich forests, poor countries: adapting forest conservation to economic realities*. CARPE Information Series No. 10. Washington, DC, USA, Central African Regional Program for the Environment, United States Agency for International Development (USAID).
- FAO.** 2008. *Directives sous-régionales relatives à la gestion durable des produits forestiers non ligneux d'origine végétale en Afrique centrale*. Project GCP/RAF/398/GER. Rome.
- FAO.** 2009. *State of the World Forests 2009*. Rome.
- Ndona, G.J.C.** 2004. Contribution socio-économique du gibier dans la lutte contre la pauvreté et l'insécurité alimentaire à Kinshasa (RDC). Thesis, University of Dschang, Dschang, Cameroon.
- Ndoye, O.** 1995. Commercialization and diversification opportunities for farmers in the humid forest zone of Cameroon: the case of non-timber forest products. Alternatives to Slash-and-Burn (ASB) consultancy report. Yaounde, Cameroon, International Institute of Tropical Agriculture (IITA).
- Ndoye, O., Awono, A., Preece, L. & Toirambel, B.** 2007. Markets in non-timber forest products in the provinces of Equateur and Bandundu: presentation on a field survey. In C. Croizer & T. Trefon, eds. *What does the future hold for the forests in the Democratic Republic of Congo? Innovative tools and mechanisms for sustainable forest management*. Brussels, Belgium, Belgian Development Cooperation, Tervuren Africa Museum, CIFOR & International Cooperation Centre of Agricultural Research for Development (CIRAD).
- Ndoye, O. & Kaimowitz, D.** 2000. Macroeconomics, markets and the humid forest of Cameroon, 1967–1997. *Journal of Modern African Studies*, 38(2): 225–253.
- Ndoye, O., Ruiz-Pérez, M. & Eyebe, A.** 1997. *The markets of non-timber forest products in the humid forest zone of Cameroon*. Rural Development Forestry Network, Network Paper 22c. London, UK, Overseas Development Institute (ODI).
- Ndoye, O. & Tieguhong, J.C.** 2004. Forest resources and rural livelihoods: the conflict between timber and non-timber forest products in the Congo Basin. *Scandinavian Journal of Forest Research*, 19(Suppl. 4): 36–44.
- Sonne, N.** 2001. Non-timber forest products in the Campo Ma'an Project Area. A case study of the North Eastern periphery of the Campo Ma'an National Park, South Cameroon. Report to World Bank/GEF Biodiversity and Management Project.
- Tchoundjeu, Z.** 2004. Update on the domestication of indigenous fruit trees and medicinal plants of West and Central Africa. In *Proceedings of the fifth Conference on Central African Moist Forest Ecosystems (CEFDHAC)*, Yaounde, Cameroon, 24–26 May, pp. 219–223. Yaounde, IUCN Regional Office for Central Africa.
- Tieguhong, J.C.** 2009. Ecotourism for sustainable development: economic valuation of recreational potentials of protected areas in the Congo Basin. Unpublished Ph.D. thesis, University of KwaZulu-Natal, Pietermaritzburg, South Africa.
- Tieguhong, J.C. & Ndoye, O.** 2004. Development of trade and marketing of non-wood forest products for poverty alleviation in Africa. Paper presented at the Workshop on Lessons Learnt on Sustainable Forest Management in Africa, Uppsala, Sweden, 18–22 October.
- Tieguhong, J.C. & Ndoye, O.** 2006. Transforming subsistence products to propellers of sustainable rural development: non-timber forest products (NTFPs) production and trade in Cameroon. In *Africa – escaping the primary commodities dilemma. African Development Perspective Yearbook*, Vol. 11, Unit 1, pp. 107–137. Münster, Germany, Lit Verlag.
- Tieguhong, J.C. & Zwolinski, J.** 2008. Unrevealed economic benefits from forests in Cameroon. Paper presented at the IUFRO Conference (IUFRO Unit 4.05.00 – Managerial Economics and Accounting), Ljubljana, Slovenia, 22–24 May.
- Tshombe, R., Mwinyihali, R., Girineza, M. & de Merode, E.** 2000. Decentralising wildlife management in the Democratic Republic of Congo: integrating conservation and development objectives in a country at war. In J. Abbot, ed. *Promoting partnerships: managing wildlife resources in Central and West Africa*. Evaluating Eden Series 3. London, UK, International Institute for Environment and Development (IIED). ♦