

Forest Sector Analysis and Participation for Climate Change Adaptation in the Congo Basin

Cyprain JUM
Consultant

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Forest sector goods and services

Forest Sectors	Goods and services
Food	Non Timber Forest products (NTFPs)
Energy	Fuel wood
Water	Fresh water
Health	Medicinal Plants
Construction	Timber, Fiber
Recreation	Hunting , Tourism, Game Park
Security	Bonds
Science	Training and Research



Methodology

- **Literature Review**

What's on the papers

FOOD

- ❑ A study of NTFP use in southern Cameroon identified about 200 animal species and 500 plant species, the latter accounting for 1200 different uses including food. About 300 species were used medicinally (Dijk 1999; Dijk & Wiersum 1999)
- ❑ Pagezy (1993) reported that a Ntomba community in the Democratic Republic of Congo (DRC) used 74 non-cultivated species, including 26 mushroom species, as food, as well as 118 animals and a variety of fish. The animals eaten included 44 species of invertebrate of which 31 were caterpillars.
- ❑ In his work on the ethnoecology of the Aka pygmies of the Central Africa Republic (CAR), Bahuchet (1985) recorded a wide variety of foods, including: 9 species of roots, 9 species of leaves, 19 species of seeds, 14 species of fruit and at least 22 species of mushroom (several had not been identified). Also noted was the use of a wide variety of plants as sources of fibre and construction materials.

Energy Sector

- In a 1996 report, Cameroon's Ministry of Environment and Forestry estimated that 80 percent of Cameroon's populations rely on fuelwood, using about 12million m³ annually (Nkamleu et al 2002). The provision of fuelwood is also a valuable source of income for many. For instance, one study of a village near Yaoundé found that 80% of the community's income came from the sale of firewood (Tchatat et al 2003)
- Research from Kinshasa (DRC), undertaken in 1990, found that charcoal and wood provide almost all the fuel for domestic use. Daily consumption was estimated to be equivalent to 2.76kg or (1.26 m³ by volume) of wood per person. With a population of some 4million, this is equivalent to about 11,000 tonnes of wood. This demand for fuel has resulted in deforestation in the surrounding areas, and a fuelwood shortage within the city (Tshibangu, 1996). A recent study of NTFP use in Northern DRC reported that the demand for firewood and charcoal was one of the main human pressures on forest resources in the region (CREF 2006). There was a significant trade in fuelwood and also in timber for construction from artisanal and sawmills.
- A 1991 report on Congo-Brazzaville's forest estimated that the populations of Brazzaville and Pointe Noire used 1.25 tonnes of fuelwood per person per year, of which approximately 85% was wood and 15% charcoal (Jaffre & Otouba 1991)

Health sector

- A study around Cameroon's Mbalmayo forest reserve found that over 70% of the population depended on herbal medicines, and that these were 50-90% cheaper than pharmaceutical equivalents (Ndoye & Tieghuhong 2004, cited Ndoye et al 1999)
- In a survey in Equateur and Bandundu provinces of the Democratic Republic of Congo (DRC), 85% of households interviewed used medicinal plants to cure common ailments (Ndoye & Awono 2005), and another study from Kivu province reported that 95% of the population used traditional medicines (Chifundera 2001, cited Alison 2007)
- A preliminary survey in Rio Muni of Equatorial Guinea reported that the majority of the people depend on traditional medicines and healers for their primary healthcare (Sunderland & Obama 1999)

Inter-Sectoral Vulnerabilities and linkages :Need for Collaboration

FOOD SECTOR

- Forest foods supplement and complement what is obtained from agriculture and also of a wide range of medicines and other products that contribute significantly to the health sector (→**health sector**). Forests food adds variety to diets, sauces as flavouring, as medicines, provide essential vitamins, minerals, proteins and calories with vary impacts on the health sectors. Forest trees are a source of fuels (**energy sector**) with which to cook food (→**Food sector**).

Energy sector

- According to Byron and Arnold (1997) the supplies of wood fuels can influence nutrition (**Food sector**) through their impact on the availability of cooked food. If there is less fuel for cooking, consumption of uncooked food or food not properly cooked is most likely to increase. This may cause a serious rise in disease incidence as parasites may persist. → **health sector**. This may have damaging effect on child nutrition as the number of meals (often unbalanced diet) provided may be reduced (Cecelski 1987; Falconer 1989) cited by Byron and Arnold (1997).

Health Sector

- Medicinal plants are used for both curative and preventative treatments, and many are added to foods. Thus, there is an overlapping between medicinal usage of NTFPs and that of forest foods (Byron and Arnold (1997). → **Food sector**. Some medicinal NTFPS added to food serve both to improve palatability and act as a health tonic (Arnold and Ruiz Perez 1998). There are also often strong links between medicinal use and cultural values; for example, in some communities, medicinal plants is sometimes use in conjunction with mystical and ritual practices.

Water Sector

- The heavy downpours in the rainy season cause the rapid flow of flood water, erosion and destruction of slopes in the valleys. In fact, rapid flow of water results from the destruction of plant cover in river basin (overgrazing, farming on steep slopes, cutting of trees, etc...) with negative effects on agriculture and food sector → **Food sector**. In the dry season and particularly in years or periods of drought, drinking water for people and animals is very scarce. Floods are frequent after heavy rains and stagnant waters in the dry seasons result in unhealthy conditions (**Health sector**). Traditional or modern wells from which water is drawn using ropes and scoops are still very much in use in villages. Health-wise, this method entails risks of diarrheal diseases, which are particularly dangerous to children → **health sector**.

Activities of the sectors affecting vulnerability to climate impacts

Priority sector	Activities that can cause or increase the vulnerability of the sector to climate impacts	Activities that can reduce vulnerability of the sector to climate impacts.
Food	<p>The alteration of forest landscape and forest biodiversity through forest removal may reduce access to forest products (NTFPs). Removal of forest cover increases soil erosion and consequently flooding – thus NTFPs are threatened by the rapidly disappearing habitat in which they occur.</p>	<ul style="list-style-type: none"> •Reduce deforestation Sustainable harvesting or exploitation of NTFPS •Protecting the forest and replanting those already lost are essential both to reduce flooding and soil erosion to safeguard wood and water supply
Water	<p>Destruction of plant cover, overgrazing, farming on steep slopes, cutting of trees. Forest loss can contribute directly to the severity of health problems through disruption of water cycle and increased soil erosion, as well as indirectly – though very significantly – through its effect on local and global climate change, which in turn can have a profound effect on the survival and spread of disease pathogens (World Bank 2001).</p>	

Activities of the sectors affecting vulnerability to climate impacts

	Activities that can cause or increase the vulnerability of the sector to climate impacts	Activities that can reduce vulnerability of the sector to climate impacts.
Energy	<p>Trees can be used to supply wood for timber and for fuel. The removal of the forests set up a cycle - Soil erosion occurs as there are no trees to protect the soil, deserts spread. The removal of trees can cause problems in other sectors - without the trees to hold water, flooding can take place and also water catchments are destroyed.</p>	<ul style="list-style-type: none"> -Reduce deforestation -Sustainable management of forests and its resources -Protecting the forests and replanting those already lost are essential both to reduce flooding and soil erosion to safeguard wood and water supplies
Health	<p>Removal of plant cover or trees reduces access to traditional medicines derived from forest plants. Removal of plant cover increases soil erosion and consequently exposing the sector to severe floods – which could ultimately endanger some wild medicinal</p>	<ul style="list-style-type: none"> - Same as above

Existing adaptive capacity within the sectors

Vulnerable sectors	Existing capacities
Food	<ul style="list-style-type: none">• Training of traders: In 2000, CIFOR started training traders using the information collected in the market surveys. The training focused on the following modules: market trends, product specialization, storage of forest products and availability of raw material (CIFOR 2003).• Educational and outreach programmes on Sustainable harvesting of NTFPs
Water	<ul style="list-style-type: none">• Awareness on the protection of water catchment areas through various conservational efforts to protect the forest
Health	<ul style="list-style-type: none">• Educational and outreach programmes on Sustainable harvesting of medicinal plants
Energy	<ul style="list-style-type: none">• Educational and outreach programmes on Sustainable harvesting of fuel wood



To be continued...

Thank You !