# Climate change and non-wood forest products: vulnerability and adaptation in West Africa

*M. Idinoba, F. Kalame, J. Nkem, D. Blay and Y. Coulibaly*

**Monica Idinoba, Fobissie Kalame** and **Yacouba Coulibaly** are with the Center for International Forestry Research (CIFOR), Ouagadougou, Burkina Faso.
**Johnson Nkem** is with CIFOR in Bogor, Indonesia.
**Dominic Blay** is with the Forestry Research Institute of Ghana, Kumasi, Ghana.

Forest ecosystems in West Africa provide numerous non-wood forest products (NWFPs) including food, medicines and construction materials valuable to rural livelihoods and national economies. In recent years the sub-region has experienced concurrent extremes of droughts (a result of reduced rainfall frequency) and floods (often caused by sporadic intense rainfall coupled with reduced forest cover) which have affected the natural regeneration and survival of the resources.

Research carried out by the Tropical Forest and Climate Change Adaptation (TroFCCA) project of the Center for International Forestry Research (CIFOR) in some local communities in northern Burkina Faso indicates significant reduction in the distribution and availability of some NWFP species and high variability in their productivity, making forest-dependent communities more vulnerable. These changes are attributed to rising temperatures and changing rainfall patterns in combination with human activities such as deforestation, agricultural expansion, overharvesting, annual bush fires and overgrazing.

In some locations such as Djomga and Gnalalaye villages, some valuable NWFP-producing tree species (e.g. *Adansonia digitata*, *Diospyros mespiliformis* and *Anogeissus leiocarpus*) have become extinct. Although the extinction of species cannot be linked completely to climate variability and change, the perception of local communities is that recurrent droughts have greatly contributed to changes in species composition – a perception that is in line with findings from Burkina Faso's National Adaptation Programme of Action. The term "climate change" does not exist in the weather lexicon of local communities, but they readily point to reduced rainfall amount, increasing temperatures and the observable differences in weather conditions over the decades, and perceive loss of species as local evidence of climate-induced changes, particularly in Sahelian zones.

Different adaptation measures have been put in place to reduce vulnerabilities through forest management and conservation practices. In Burkina Faso, the government's reforestation and afforestation programme aims at the ecological zoning of tree species following the southward shift in rainfall patterns to facilitate the evolution of the forest ecosystem under current and predicted changes in climatic conditions. Farmers are preserving and protecting particularly useful tree species (e.g. *Vitellaria paradoxa*, *Parkia biglobosa*, *Adansonia digitata*) on their farmlands to ensure a continuous supply of NWFPs. Research institutions in the region (e.g. the Forest Research Institute of Ghana, the Institut de l'Environnement et de Recherches Agricoles and the Centre National de Semences Forestières in Burkina Faso, and the Forestry Department of the Institut d'Économie Rurale in Mali) are improving the resistance and adaptation of useful tree species to recurrent droughts and bushfires.

The major constraint to the effectiveness of these measures is the inadequate supply of improved planting materials because of insufficient financial resources. Moreover, the sub-region currently lacks a dynamic participatory planning process involving all stakeholders at the local, district and national levels, using a forest ecosystem approach with continuous monitoring and evaluation, which is needed for effective adaptation.

For more information on the work of TroFCCA in West Africa, see: www.cifor.cgiar.org/trofcca/_ref/africa/index.htm

F. BATIONO

***Reforestation of* Euphorbia balsamifera*, a source of medicinal products, in Dori, Burkina Faso***