



POLICY BRIEF

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NATURAL RESOURCE USE AND ADAPTATION TO CLIMATE CHANGE IN THE NIGERIAN SAVANNA

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HIGHLIGHTS

Nigeria is a country at high risk concerning food security, poverty, energy production, and most importantly, unsatisfactory infrastructure and economic development (FGN, 2008). In the near future daytime temperatures (mean maximum temperature) are predicted to rise between 3–5°C in most parts of Nigeria, and that a decrease in rainfall events will increase drought probabilities (Adejuwon, 2006). The effect of these events on the ecosystems will cause increasing water shortage, poor agricultural yield, food insecurity as well as malnutrition and health problems. The future climate projection, coupled with an expected increase in population, would present serious challenges for ecosystems and the associated livelihoods.

- The majority of dwellers the Nigerian savanna depend on firewood for cooking and heating, and the trees are not replanted by most of them.
- Slash and burn remains the dominant method of bush clearing for agriculture while free range grazing by nomadic pastoralists remains a key factor of ecosystem degradation.
- There is a lack of regulation or coordination of logging and charcoal businesses by the government.
- The intentions of various policy documents are not aligned with the actions or plans of natural resource management projects in the communities.
- There is need for joint ownership of projects on ecosystems management by government, development partners, and the community.
- Communities are willing to change or modify some of their farming practices, especially the slash and burn system, but they also want farming inputs and modern implements made available at highly subsidized rates.

THE CHALLENGE

In the Inclusive Wealth Report (IWR) assessment of 20 countries for the period from 1990 to 2008 released in June 2012, Nigeria is one of the 5 countries (with Colombia, Russia, Saudi Arabia, and Venezuela) that had negative growth rates for the Inclusive Wealth Index (IWI). This suggests an unsustainable track, as most of the country's GDP growth has come at the expense of the natural capital base (UNU-IHDP and UNEP, 2012). Livelihoods in Nigerian wooded savanna are substantially tied to the terrestrial ecosystem, and rainfall determines the rhythm of life. Future drier climate projections will have severe impact on the land and water that support food production and rural livelihoods. Many aspects of rural livelihoods in Nigeria have always been in conflict with the objectives of natural resource preservation. Given the vital role that natural resources play in sustaining growing human population, the governance framework and management systems at local levels are crucial. Ensuring sustainability, by meeting the challenges of livelihoods and preserving the ability of ecosystems to perform long-term regulating and supporting services, in natural resource-dependent, rural society is a challenge. Improving adaptive capacity of rural communities that are primordial natural resource users requires the integration of rural livelihood perspectives—which focus on people—with the natural resource management perspectives—which focus on natural resource production potential conservation and use.

The Nigerian Savanna is a densely settled zone where different social groups compete for access to finite natural resources. The question is how can small-holder farmers, migrant pastoralists, wood charcoal producers, hunters, fuelwood harvesters, leave collectors, and other economically marginalized populations be mobilized and galvanized to support the ecosystems management in order to safe-guard their own future? This brief highlights the climate change challenge and declining natural resources, effectiveness of existing policies in addressing these challenges and the viewpoints of households who directly suffer from these pressures.

STATUS OF FORESTS AND WOODLANDS AND USE OF NATURAL RESOURCES

The wooded savanna is dominated by shrubs, grassland and woodlands interspersed by footprints of small-holder, rain-fed agriculture. Findings (Fasona et al, 2014) show that cashew, mango, and citrus are the common fruit trees locally grown in individual small plantations. Teak and Gmelina plantations ranging from about 400ha to 1500ha, either owned by the State Governments or some private firms, were sighted in several places. Twenty-four different species of trees contribute significantly to the local economy. *Anogeissus leiocarpus*, *Prosopis Africana*, *Vitalaria Paradoxa*, *Kassia*, and *Azadiractathta Indica* are the most preferred wood species for a variety of domestic uses including construction and herbs for managing health issues. *Vitalaria Paradoxa* is outstanding as the most preferred tree species for charcoal. It is also highly important for a lot of local construction, herbs, oil and therapy. The combination of these uses has placed *Vitalaria Paradoxa* as the most endangered tree in the wooded savanna. No local economic tree is cultivated on woodlot or plantation either by government, private organization, or individual. About 84% of rural dwellers depend on firewood for cooking and heating. Fifty-six percent of the respondents claimed that trees harvested for both charcoal and fuelwood are never replanted.

CROSS-CUTTING ISSUES IN THE EXISTING POLICIES

The Nigeria national polices and programme documents related to natural resources, ecosystems, rural livelihoods, and food security (water, agriculture, energy, forest, environment, climate change, etc.) are detailed, well intentioned and cross cutting. The nexus among these key issues is also well articulated. The thorn in the side seems to lie in the disconnection between the policies and the actual situation on the ground, even decades after implementation of some of these policies commenced (Fasona et al, 2014). In detail, a big gap exists between existing policies or programs and the status of the rural communities. The intentions of various policy documents are not aligned with the actions or plans of the projects in the communities.

The following cross-cutting issues of natural resource use, ecosystems services, rural livelihoods, and climate change were revealed in the various policy documents analyzed:

- Strengthening forest protection programmes to ensure adequate vegetation cover in critical areas and to discourage developments likely to cause harmful changes.

- Combining desirable features of the traditional approach (of ecosystems management) with modern scientific methods of conservation.
- Increasing support for non-governmental organizations (NGOs) and community tree-planting programmes.
- Encouraging viable afforestation and reforestation programmes using tested drought resistant and/ or (local) economic tree species and conserving indigenous tree species that are endangered.
- Reducing the percentage of fuel wood consumption in the domestic agricultural and industrial sectors.
- Encouraging the use of alternative sources of energy e.g. coal briquettes, efficient wood stoves, solar energy, wind energy, biogas, etc.
- Integrated human development issues including income generation, increased local control of resources, local institution strengthening, capacity-building, and greater involvement of community based non-governmental organizations and lower tiers of government as delivery mechanisms.

TRADE-OFFS IN IMPLEMENTED AGRICULTURAL PRACTICES TO IMPROVE RURAL LIVELIHOODS

Ensuring sustainability by meeting the challenges of livelihoods and preserving the ability of ecosystems to perform long-term regulating and supporting functions in the savanna requires adjustments and trade-offs. Groups engaged in harvesting of wood for charcoal and fuelwood require trade-offs. There is a need for innovations to devise local solar heating devices that will be inexpensive and yet locally available. Communities are willing to engage in agroforestry or silviculture and would provide land to government for mass silviculture. In turn they ask for a strong assurance that such will be community managed and with no intention from the government to excise their lands. Communities are willing to change or modify some of their farming practices, especially the slash and burn system, but they also want farming inputs such as herbicides, fertilizers, and modern implements such as tractors made available at highly subsidized rate (Fasona et al, 2014).

RURAL COMMUNITIES PARTICIPATION IN THE MANAGEMENT OF THE ECOSYSTEMS

Community members expressed readiness and willingness to embrace alternative livelihoods that will improve the ecosystems in relation to forest conservation and food production. All the local government authorities (LGAs) expressed willingness to partner with communities and other stakeholders to drive the process of natural resources management. There are trends of functionality gaps and a dearth of management schemes and tools. For instance, about 49% of the LGAs are not aware of methods for preserving their forest land and animals; 70% of households have never had any training concerning forest management and 40% are not aware of future threats to the sustainability forest and woodland that may result from their actions. In over 70% of the LGAs there are no systematic procedures for applying for logging, felling of trees for charcoal and fuelwood harvesting. This suggests a lack of regulation or coordination of logging and charcoal businesses by the government (Fasona et al, 2014).

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POLICY RECOMMENDATIONS

Climate services: Local climate information must be made available to farmers in the rural communities to aid or improve their decision-making and adjustment options. This means a densification of existing meteorological networks as well as plans to present farmers with seasonal forecasts.

Building partnership and using existing local networks: Partnerships between the community, government and research institutes should be developed. The capacity for programs and projects implementation strengthened to manage rural ecosystems and improve rural livelihoods and food security.

Opportunity for partnership should be offered by existing community-based networks (especially local and international institutes) including trade association, age groups, women societies, and cooperatives should be involved. The traditional rulers and community leaders have enormous potential to drive grass-roots participation at the community levels. Local and international institutes located close to the wooded savanna have much to contribute. In addition, the capacities of relevant departments in surrounding universities also present workable partnership prospects.

Encourage and strengthen local resource conflict resolution: Already existing innovative methods of resolving conflicts over resources by some of the communities should be encouraged and upscale to other communities.

Actionable research: Action projects on ecosystems management that will be community-driven or substantially involve community participation with opportunity for livelihoods or alternative livelihoods should be conceptualized and executed. Such research should target increased agricultural productivity, climate resilience, and sustainability, particularly for the rural smallholder farmers. But the community should be part of such projects from their inception.

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