

Integrating climate change into the environmental assessment process: what is the situation in African Francophone countries?

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Introduction

Climate change (CC) creates negative perverse impacts requiring appropriate action. However, populations and productive systems in many developing countries are highly dependent on natural resources and often have a relatively limited adaptive capacity. Rain – fed agriculture in these countries is more dependent on the climate. As a result, these countries are often among those most affected by climate change. While the need for action has been clearly recognized by the entire development community, the debate on how to integrate climate change into the development practice and initiatives still has a long way. Environmental assessment (EA) thus appears as a tool for integrating climate change into decision-making. Indeed, the impacts of global warming on territories, resources and lifestyles are unprecedented and still poorly controlled. Least developed countries (LDCs), developing countries and small island states are the most affected with the increase of natural risks and disasters, water stress, desertification, rainfall modification.

In the francophone sub-Saharan Africa (SSA) countries, the situation is quite complex because of many bottlenecks and impediments in integrating issue of climate change in the EA processes, among which:

- Poor knowledge on the topic and uncertainty about the local impacts of CC;
- The thorny problem of funding for adaptation (insignificant in agricultural domain);
- The fuzzy limit between development and adaptation;
- The difficulty of analyzing vulnerabilities and adaptive capacity locally (because of illiteracy, lack of sensitisation and capacity building);
- The real control of EA processes itself by governments and NGOs.

Nevertheless, this paper will take support on three main situations both theoretical and practical.

1. Development planning documents and reports

Theoretically, the Federal-Provincial-Territorial Committee on Climate Change and Environmental Assessment (2003) stated that the EA practitioner should carry out an in-depth analysis of the CC's impacts range and determine the level of confidence that may be attributed to the data. Also, integrating CC considerations into EA can help determining the project's compliance with GHG measures, including national adaptation and government plans on CC. Integration can help proponents adopting best practices that promote and facilitate CC adaptation, including changes in the frequency and intensity of extreme weather events, average temperature rises and changes in rainfall patterns. However, despite the expected massive reduction of GHG emissions in the near future, changes in climate conditions will continue to occur and the extent of its impacts will increase significantly in the future. For this reason, the paper will emphasize on three main practical issues.

2. Strategies, plans and programs documents

Since the ratification of the United Nations Convention on Climate Change (UNFCCC), most African French-speaking countries have tied to the international evolution of the global climate situation, as can be seen from several documents relating to CC. They used environmental assessment methods and tools, including a participatory approach in writing and disseminating policies and planning documents, namely:

- ❖ Vision 2020, 2025 or 2035; are important national planning and development documents issued by each country. Such documents should be extended to

economic growth strategies and plans as well as national action plans to fight against desertification (PAN-LCD/NAP-FAD)

- ❖ Second national climate change communications (SNCC), National Adaptation Program of Action (NAPAs), National Adaptation Plan for Climate Change (NAPCC), Nationally Appropriate Mitigation Actions (NAMAs), Reducing emissions due to deforestation and degradation (REDD+), Monitoring – Reporting – Verification (MRV) and Intended Nationally Determined Contributions (INDC). These reports are based on GHG emissions, climatic risk and vulnerabilities.

Lastly, the above strategic documents are drawn up with a broad vertical and horizontal consultation (bottom-up and top-down). Its cover key vulnerable sectors (agriculture, water, coastal areas or health) and on cross-cutting issues on CC, including adaptation and mitigation measures. Its validation is done after public participation (local population, donors, NGO, Governments and stakeholders).

3. Climate Proofing for Development of the GIZ (German Technical Cooperation)

“Climate Proofing for Development” (CPDev) is a tool built by German development cooperation (GIZ), and designed to support the integration of CC impacts and reducing its risks (Hahn & Fröde, 2011). It is a methodological approach that aims at incorporating CC issues into development planning; raising awareness of the CC challenges and opportunities as well as more effective and resilient measures.

The tools started by project screening before extended to options practices that are common practices in environmental assessment. This explain why CPDev can be used at different levels, being national (cross-sectoral policies, development plans, budget), sectoral (policies, strategies, investments programs), local (municipal plans, land-use planning) and project level (projects and programs). As for EA, CPDev appears to be a multiusers tool involving stakeholders, public authorities, national and international organizations, donors, NGOs, associations and private sector. The following paragraphs describe two cases of adaptation (agriculture) and mitigation (energy) related to the CPDev field application.

SSA countries practice rain fed agriculture vulnerable to CC. Due to poor climate finance, African continent agriculture is the less responsible for CC while being the most vulnerable (Dupoux & Zrikem, 2016). CPDev was successfully applied in Morocco, Mali, Togo and Burkina Faso agriculture using EA approach with four main steps (preparation, analysis, options for actions and integration). For example, in the humid and subhumid agricultural areas (Togo, Cameroon), excessive rainfall lead to the proliferation of insect pests such as mirids and the emergence of plant diseases like the necrotic decay of the coffee tree, the swollen shoot and the brown rot for the cocoa (Amougou et al, 2013). It attacks the root system of plants, leading to the wilting of these crops. In the dry regions of SSA (Mali, Senegal, Burkina Faso, Northern Cameroon), cereals (maize, millet and sorghum specifically) are particularly vulnerable due to their high sensitivity to water stress, resulting in productivity decline and reduction in food supply. Such a situation leads to the surge in prices and food starvation/insecurity. The above results give way to issue a CPDev manual / guide for Sustainable Land Management projects and programs in those countries.

According to Maurice Strong¹ “, we must treat climate as a security issue, the most important threat to global security we will ever face. Energy is at the heart of this transition. Climate security and energy security are two sides of the same coin: one cannot be achieved without the other.” Food security matches with energy availability. **Energy sector** representing the major producer of GHG emissions through fossil fuel combustion, is also vulnerable to CC

¹ Maurice Strong is the former Secretary General of the UN Conferences – Stockholm (1972) and Rio (1992).

impacts. Given the inextricable link between socio-economic development and access to energy, it is clear that any approach to securing development in the context of a changing climate must consider the adaptation needs of the energy sector. Weak energy systems constrain efforts to reach the sustainable development goals. For instance, energy is essential in reducing disease levels and consequences. Clean energy (solar, biomass, biogas) can reduce SSA traditional wood burning and related respiratory deadly diseases as described by WHO (2007).

It is known that changes in temperature affects biomass growth and distribution which impacted quantity and quality of animal fodder and crops, material for human shelter, heating, fuel agriculture, electricity generation, health and sanitation. Also, changes in rainfall patterns influences agriculture, electricity generation, health and sanitation. Given the clean and efficient energy's role in economic development, it is crucial to reduce energy system vulnerability while increasing system resilience. In this light, HELIO international (2009) developed a straightforward methodology with a set of indicators to assess the vulnerability and resilience of national-level energy systems to CC via EA tools and CPDev. HELIO succeeded in identifying policies and measures able to easier and support adaptation activities. After analyzing energy problems within 10 SSA countries (Benin, Burkina Faso, Cameroon, D.R. Congo, Kenya, Mali, Nigeria, Senegal, Tanzania, Uganda) in four domains (Hydropower, biomass, Wind and solar energy), HELIO concludes that these countries are directly impacted by changes in rainfall and temperature level.

According to HELIO (2009), adaptation measures can be categorized into infrastructural/technical and behavioural/social responses.

- ❖ Technical adaptation tries to make infrastructures less vulnerable against long-term changes in meteorological variables and extreme events.
- ❖ Behavioural adaptation adjusts the operation of the infrastructure (both existing and new) and the siting of new infrastructures to minimize damages.

Lastly, Helio International (2009) report summarizes anticipated climate-induced impacts on key energy systems and outlines possible adaptation measures, proposing eight recommendations to help reinforcing the resilience of energy systems.

1. Systematically assess and monitor energy systems to ensure that they are robust enough to adapt to anticipated climate-related impacts.
2. Expand the current assessment process for new energy systems (solar, biogas, etc.).
3. Develop a medium to long-term strategy to move toward a safer, decentralized, low-carbon energy supply system.
4. Implement energy demand management as an adaptation measures.
5. Cultivate in-countries capacity to evaluate and respond to energy needs from a climate perspective.
6. Invest in ecosystem services that support existing and planned energy production.
7. Establish transparent technology transfer and financing procedures.
8. Develop participatory energy governance to cultivate first-hand knowledge of energy needs while mobilizing vital support from beneficiaries

4. Green Sahel Operation (Cameroon).

In the Northern Cameroon cities, (Garoua and Maroua), population frequently use firewood for household purposes. According to Ntsama Atangana et al. (2010), more than 94% households use firewood, 90% charcoal and 64%, wood. Wood consumption is more than 12 times the amount of gas used by households with an average, of 2–3 kg/day individual wood requirement per inhabitant. The anarchical way of collecting firewood provokes huge pressure on this resource. This situation has brought the Cameroon government to relaunch the Green Sahel Operation in this environmentally sensitive dry region characterized by poor farming practices and overgrazing (Tchindjang et al, 2012). After an environmental audit of former projects, population (more than 80%) were sensitized through awareness campaign

an awareness campaign in the implementation and monitoring of afforestation program to stop the desert's advance. This participative project using EA methods aims at preventing and reducing the semi-arid and dry lands degradation, and then restoring degraded soils. It also contributes to restore and improve the fertility of degraded and marginal lands, to strengthen this sahelian vegetation cover, to discourage the firewood cutting. Lastly, the project distributes improved cooking stoves to stakeholders and raises public awareness against desertification.

As findings, there was a return of wildlife and a revival of economic activities related to non-timber forest products (NTFPs). The remaining problems to solve were bush fires, vandalism, deferred grazing, nocturnal pasture and the lack of species signaling on different sites. The afforestation project describes sounds like the best approach in the fighting against desertification. For, it appears to be the most effective response incorporating complementary processes such as water conservation, soil retention, reducing the runoff, fighting against wind erosion and bush fires.

Another program was since 2013 by UNDP (PNUD, 2016) through landscape analysis. Local communities are central in this adaptation strategies which enable the re-greening of the Sahel and afforestation of the school yard by pupils.

Discussion and recommendations

Overall, the above listed strategy documents have integrated adaptation to the various stages of the national policy cycle (policy formulation, planning, allocation and resource mobilization stakeholders identification and mobilization). Thus, SSA francophone countries ratified UNFCCC Convention, but, the CC assessment parameters are not yet included in the these various countries legislation, resulting in a lack of legal constraints. However, best practices at the grassroots level help to correct this gap. This is the case with CPDev approach, which is integrative, participatory and flexible. Moreover, this tool really does not need standardized knowledge and it enables a strong ownership. It also improves the participation of vulnerable communities in valuing traditional knowledge and local know-how in spontaneous adaptation.

Lastly, the CPDev in agriculture entirely joins the program launched at the COP 22 on the Adaptation of African Agriculture (AAA) to CC. African Agriculture Adaptation initiative aims to reduce the vulnerability of Africa and its agriculture to CC (AAA White paper, 2016). HELIO International also uses CPDev in improving energy systems and availability in SSA.

Conclusively, best practices in integrating EA into climate change adaptation lead decisively to the following aspects.

- More resilient ecological agriculture with efficient and integrated agro-pastoral systems for food security.
- More resilient agricultural and biophysical landscapes.
- Better ecosystems protection and biodiversity conservation.
- Fighting against desertification.
- More resilient and smart investments (not only in ecosystems services).
- More resilient economies.
- Energy sources diversification and production with best technologies.
- Participatory energy governance bringing populations and beneficiaries to good ownership.

Conclusion

The Climate change evidence requires appropriate actions. Biophysical and socio-economic impacts that aggravate existing development problems are: water shortages, floods, heat waves, biodiversity loss, electricity production shortage, population migration, population

conflicts and health risks. The integration of EA tools and CPDev approach into planning is a real fact in SSA. Notwithstanding the existence of environmental regulation in each country, there is a lack of a permanent framework, integrating adaptation, including CC law and regulations governing the coordination of institutions. Nevertheless, the establishment of national climate change observatories is also a good practice that supplements this regulation gap. Moreover, CPDev integration into the EA process becomes a successful story and effective substitute.

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