Incorporating Environmental and Social Safeguards into Climate Change Adaptation Strategies in Households

Professor Jonathan Ali-ogwuche
Dean Faculty of Environmental Sciences, Benue State University, Makurdi
Lead paper presenter for the second international conference, April 7-10th, 2019

Abstract
The effect of climate change on households cannot be overemphasized. A wide range of actions – structural, institutional or social – are employed in adapting to the vagaries of climate change. These actions, though anthropogenic, create new threats for both local and regional ecosystems. At the household level, the actions/strategies fall under category B, which indicates minor and non-cumulative potential impacts on the environment and the socio-economic life of the people. To mitigate the risks of these actions requires the incorporation of environmental and social safeguards into climate change adaptation measures. This paper therefore recommends for enforcement, implementation and monitoring of this safeguards system in all climate change adaptation measures/ interventions, as this is the only sure way of achieving sustainable socio-economic development, poverty elimination and environmental sustainability in the households in particular, and communities in general.

Introduction

The effect of climate change has been widely acknowledged and documented, especially by policy makers and researchers, and can be tangible, and demand actions (Klein 2011, Pielke et al 2007). The actions can be mitigation, to prevent greenhouse gas emissions or reduce their atmospheric concentration, or adaptation, to adjust to actual or expected climate and its effects (Field *et al* 2014). Adaptation is a widely accepted action in addressing climate change (Klein et al 2005, Wilbanks *et al* 2007, Warren et al 2012).

Encouraging adaptation is an essential aspect of the policy response to climate change. Adaptation seeks to reduce the harmful consequences and harness any beneficial opportunities arising from the changing climate (Carlo et al 2015). Adaptation to climate change is at the intersection of science and technology, households/communities and decision-making with different spatial and temporal scales (Scarlett 2011), and is influenced by social issues, financial resources, political context, public awareness, politicization of climate of change or scientific uncertainty (Carlson and McCormick 2015). Many climate change adaptations build on traditional measures adjusted to deal with new or increased impacts and can be achieved through a wide range of actions - structural, institutional or social.

Gender Perspectives of Climate Change Adaptation in Households

Women are known to be harder hit by climate impacts compared to men (William at al 2019). This is partly due to differences in the ownership of economic resources, and also due to entrenched cultural norms and beliefs, social and political discriminations that work against women (Bjornberg and Haussan 2013, Eastin 2018). Also, the generally high poverty levels among women also predispose them to severe climate change impacts and reduce their adaptive capacities (William et al 2019). The

implication is that climate change and its associated shocks and disasters could worsen existing gender inequalities, especially due to a decline in women's economic and social rights (McKune *et al* 2015, Eastin 2018, Adzawla and Kane 2019). Considering the significant role of gender in development, it is therefore required that research within the climate change domain should address gender concerns. This justifies the calls for gender mainstreaming into climate discussions (Alston 2014).

One strategy of responding to climate change is through climate adaptation mechanisms which according to Adzawla & Kane (2019), is an anticipatory, reactive or proactive measure to reduce climate impacts. Environmental initiative in Africa are centered on climate adaptation (Epula *et al* 2017). Climate adaptation, rather than climate mitigation, is important to provide short term and localized benefits from climate shocks to households. This therefore makes climates adaptation an effective strategy for households. Climate change adaptation is not gender neutral, as there are established differences in climate adaptation among gender groups (Alhassan *et al* 2018), due to gender barriers and not a preferred decision by men and women (Marsha and Laerhoven 2016).

The evidence of gender differences in climate vulnerability is a primary reason for the differences in climate change adaptation by men and women (William et al 2019). Women are often constrained in decision-making and access to resources that can improve their livelihoods (Carr and Thompson 2014). Evidences are abounding that show that climate change adaptation is either low for females than males or the strategies adapted by males is different from that adopted by females (Carr and Thompson 2014, Wrigley-Asante et al 2017, Assan *et al* 2018). However, in spite of all of these, the significant roles of women in climate change adaptation cannot be underrated, due to the fact that women are important agents of change, especially in environmental concerns (Sandstrom and Mccright 2018).

Climate Change Adaptation and Environmental Impact

Given that human activities are the main cause of environmental transformation worldwide (Vitousek *et al* 1997), it follows that adaptation itself also has the potential to generate further pressures, creating new threats for both local and global ecosystems. Although climate change adaptation provides significant advantages (Abid *et al* 2016, Wrigley *et al* 2017, Alhassan *et al* 2019), it can also produce negative environmental impacts (Enriquez-de-Salamanca et al 2017), and this must be given the needed attention (Juhola *et al* 2016). It therefore means that policies designed to encourage adaptation may conflict with regulations aimed at preserving or enhancing environmental quality. For instance, climate change adaptation in the farming sector will generate fundamental changes in river quality. Regrettably, this aspect of adaptation that considers its environmental impact has received relatively little or no consideration in either policy design or academic debate. Also, technical, social and economic perspectives on climate change adaptation receive much more attention than the environmental perspective (Alvaro *et al* 2017).

Adaptation to climate change may be done through a wide range of actions – structural, institutional or social (Agard *et al* 2014). Some of these strategies could be structural that may involve massive infrastructure that qualify for Category A, with major and cumulative potential impacts on the environment and the socio-economic life of the people, while light ones could qualify as Category B, which indicates minor and non-cumulative potential impacts. To mitigate the risks of potential impacts of the climate change adaptation measures or strategies, requires the application of environmental and social safeguards, ranging from the Environmental Impact Assessment (EIA) to Incorporation of Environmental and Social Safeguards into project activities, depending on the categories. At the household level,

the climate change adaptation measures usually fall under category B. There is therefore the need to handle such environmental impacts by incorporating environmental and social safeguards into climate change adaptation to those adaptation strategies with minimal environmental impacts.

Environmental and Social Safeguards

There is not formally agreed definition of safeguards. The term has been used by multilateral financial institutions, such as the World Bank, to refer to measures or policies that guard against undue harm from investment or development activities. In order words, safeguards relate to decisions aimed at preventing activities from causing harm to people and the environment.

International development agencies have adopted policies, procedures and guidelines to address the potential environmental and social risks of their operations since the late 1970s (Hornberry 2014). During the 1980s and 1990s, most development agencies adopted some form of formal environmental policy and procedures, often supported by technical guidance. Since then, these policies and procedures have become more comprehensive and systematic, with an increasing degree of normalization among the main development agencies. They are generally known as environmental and social safeguards or safeguards systems and were called for by United Nations Framework Convention on Climate Change (UNFCCC) decision, notably at COP 16 in Cancun, Mexico. Essentially, these systems are focused on ensuring that its country partners identify and assess the potential environmental and social risks of any operation they intend to support early in the project cycle, seeking to avoid, minimize or manage any significant impacts the operation might cause.

Environmental safeguards support the integration of environmental considerations into the project decision-making process. They are triggered if a proposed project or activity is likely to have negative environmental impacts and risks to the physical, biological, socio-economic components of the environment that comprise the project's area of influence.

On the other hand, social safeguards include potential negative impacts on the health, lifestyle and safety of people, vulnerable groups and gender issues, as well as livelihoods through environmental media. Therefore, environmental and social safeguards aim to avoid, reduce or compensate for negative effect of activities, with the objective of preventing and mitigating undue harm to people and their environment in the development process.

To buttress this further, Principle 17 of Rio Declaration on Environment and Development calls for the use of Environmental Impact Assessment (EIA) as a national decision-making instrument to be used in assessing whether proposed activities are likely to have significant adverse impact on the environment. This is mandatory for all countries of the world to comply with. This EIA takes place within the legal and/or policy and institutional frameworks established by individual countries and international agencies. Nigeria enacted the Environmental Impact Assessment (EIA) Act No. 86 of 1992, which statutorily gave the Federal Ministry of Environment the mandate to ensure compliance and environmental sustainability of all major development activities in the country.

Safeguards and Climate Change Adaptation

Adaptation is simply accepting that climate change will occur and preparing for it. At the local or household level, the single most important response to climate change is adaptation. All over the world, interventions, from development partners and multilateral financial organization, have evolved, with emergence response especially the ones included by climate change. In the household, such climate change adaptation interventions or measures or strategies fall under category B, which indicates minor and non-cumulative potential impacts on the socio-economic life of the people. As such,

the impacts of the adaptation measures can easily be managed to acceptable level. This approach will help turn the members of the household into positive agents of change in environmental issues. It is therefore essential to ensure that environmental and social safeguards are integrated into climate change adaptation measures. For instance, Miththapala (2008) provides the following safeguards tips for household climate change adaptation:

a) Rainwater collection tanks for water conservation should be built in dry areas.
b) Innovative and traditional agricultural methods used should suite the local environment.
c) Building designs should suite the local climates, such as proper ventilation and through-flow for hot climates.
d) Buildings should be constructed with appropriate environmentally friendly materials, such as having foundations on raised platforms.
e) Houses should be painted with appropriate colors, such as light colors to reflect the heat in hot climates.
f) Landscaping should be used as a means of providing natural shade and cooling in hot climates.
g) Ensure that environmentally sensitive areas are not cleared for any activity.
h) Ensure that protected areas are not encroached upon.
i) Ensure that toilets are built at safe distances from drinking water sources.
j) Ensure safe locations for dumping of solid waste.
k) Ensure that gender sensitivity is incorporated into any climate change adaptation measure.
l) Ensure the identification of communities or households that are most vulnerable to the impact s of climate change, using hazard and risk mapping techniques.
m) Identify the most vulnerable group (women and children) as an important group for climate change adaptation.
n) Adopted energy conservation measures (such as energy saving bulbs) and alternate energy sources (such as solar power).
o) Replant trees and landscape during structural changes.

From the foregoing therefore, addressing climate change with the touch of environmental safeguards requires technology transfer and dissemination, training, building indigenous technological capacity and human capital. This is the sure way of achieving sustainable socio-economic development, poverty elimination and environmental protection in our communities. According to CSTEC (2011), a number of such technologies exist and include

a) Renewable energy technologies (solar photo-thermal technology, household use photovoltaic power generation system, biogas production of organic waste utilization, wind generator, etc).
b) Agricultural technologies (irrigation and water-saving farming, crop breading technology), agricultural machinery, pest management and control, fail amendment and fertilizer, animal breeding and food processing).
c) Forest technologies (pest monitoring and control, forest management, plantation, tree variety breeding, and forest fire prevention).
d) Waste utilization technologies (agricultural waste utilization, industrial waste utilization, landfill, incineration and composting of waste).
e) Water resources technology (technology for the reuse of rainwater and flood water, sewage treatment and reuse technology, seawater desalination, water conservancy).
f) Natural resources and environmental technologies (environmental monitoring, ecosystem restoration, natural resources, desertification combating and prevention).
g) Energy-saving technologies for buildings.

h) Energy conservation and emissions reducing technologies for industrial production (enhancing energy efficiency, improved and alternative production technology).
i) Energy conservation and emissions reduction technologies for civil and commercial use, and
j) Health technologies (tropical disease prevention and control).

Conclusion and Recommendation

As anthropogenic and natural causes continue to cause climate change, households will continue to experience its effects. However, as households adapt to the effects of climate change, so are emerging threats to the environment and people. Environmental and social safeguards have come to be internationally recognized as the sure way of mitigating the risks of climate change adaptation measures. International development organizations and multilateral financial groups have recognized and imbibed safeguards as *sine qua non* for overcoming undue harm to people and the environment. Multilateral Development Banks and Bilateral Donor Organizations have developed and applied strategic frameworks, policies and procedures to integrate the identification and management of environmental and social risks into their work to support responsible economic development

To achieve sustainable socio-economic development, poverty elimination and environmental sustainability in the households, the following recommendations are made:

1. Compliance to environmental and social safeguards in all climate change adaptation measures.
2. Incorporation of environmental and social safeguards in all climate change adaptation project cycles
3. Enforcement of environmental and social safeguards implementation, compliance and monitoring.

References

Abid, M., Schneider, U.A., Scheffran, J., (2016). Adaptation to Climate Change and its Impacts on Food Productivity and Crop Income: Perspectives of Farmers in Rural Pakistan. *Journal of Rural Studies*. 47, 254-266

Adzawla W, Kane A. (2019). Effects of Climate Shocks and Climate Adaptation through Livelihoods Diversification on Gendered Welfare Gaps in Northern Ghana. *International Journal of Environmental Climate Change* 9(2), 104 - 119.

Agard, J., Schipper, E.L.F., Birkmann, J., Campos, M., Dubeux, C., Nojiri, Y., et al., (2014). Glossary. In: Barros, V.R., Field, C.B., Dokken, D.J., Mastrandrea, M.D., Mach, K.J., Bilir, T.E., et al. (Eds.), Climate Change 2014: Impacts, Adaptation and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge and New York, pp. 1757–1776.

Alhassan *et al* (2018) Gender Dimension of Vulnerability to Climate Change and Variability. Empirical Evidence of Smallholder Farming. *International Journal of Climate Change Strategy and Management.*

Alhassan *et al* (2019) Farmers Choice of Adaptation Strategies to Climate Change and Variability in ARID Region of Ghana. *Rev. Agric. Appl. Econ*. 22(1), 32 - 40.

Alstom M. (2014) Gender Mainstreaming and Climate Change. *Women's Study International Forum* 47, 287-294.

Alvaro *et al* (2017) Environmental Impacts of Climate Change Adaptation. *EIA Review* 64, 87-96, Elsevier.

Assan *et al* (2018) Coping with and adapting to Climate Change: A Gender Perspective from Smallholder Farming in Ghana. *Environments* 5 (86), 1-19.

Carlo *et al* (2015) Environmental Impact of Climate Change Adaptation. *Nature*

Climate Change. DOI:10.38/ NCLIMATE 2525

Carlson, K., McCormick, S., (2015). American adaptation: social factors affecting new developments to address climate change. *Global Environmental Change*. 35, 360–367.

Carr, E.R., Thompson, M.C., (2014). Gender and climate change adaptation in agrarian Settings: Current Thinking, New directions, and Research Frontiers. Geographical Compass 8 (3), 182-197.

China Science and Technology Exchange Centre (CSTEC) (2011) South-South Cooperation on Science and Technology to Address Climate Change. Applicable Technology Manual.

Eastin, J., (2018). Climate change and gender equality in developing states. World Development, 107, 289-305.

Enríquez-de-Salamanca, _A., Díaz-Sierra, R., Martín-Aranda, R.M., Santos, M.J., (2017). Environmental Impacts of Climate Change Adaptation. *Environmental Impact Assessment Review*. 64, 87-96.

Enríquez-de-Salamanca, A., Martín-Aranda, R.M., Díaz-Sierra, R., (2016). Consideration of Climate Change on Environmental Impact Assessment in Spain. *Environmental Impact Assessment Review,* Rev. 57, 31-39.

Epule, T.E., Ford, J.D., Lwasa, S., Lepage, L., (2017). Climate Change Adaptation in the Sahel. *Environmental Science Policy,* 75, 121-137.

Field, C.B., Barros, V.R., Mach, K.J., Mastrandrea, M.D., van Aalst, M., Adger, W.N., et al, (2014). Technical Summary. In Field, C.B. Barros, V.R. Dokken, D.J. Mach, K.J. Mastrandrea. M.D. Bilir, T.E. et al. (Eds.), Climate Change 2014: Impacts, Adaptation and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge and New York, pp. 35-94

Hornberry J. (2014) Environmental and Social Safeguards. DFID.

Juhola, S., Glaas, E., Linn_er, B.O., Neset, T.S., (2016). Redefining Maladaptation. *Environmental Science Policy* 55, 135-140.

Klein, R.J.T., Schipper, E.L.F., Dessai, S., (2005). Integrating Mitigation and Adaptation into Climate and Development Policy: Three Research Questions. *Environmental Science Policy.* Pol. 8, 579–588.

Mckune, S.L., Borresen, E.C., Young, A.G., Auria, T.D., Russo, S.L., Diao, A., et al., (2015). Climate Change Through a Gendered Lens: Examining Livestock Holder Food Security. *Global Food Security*. 6, 1–8.

Mersha, A.A., Van Laerhoven, F., (2016). A Gender Approach to Understanding the Differentiated Impact of Barriers to Adaptation: Response to Climate Change in Rural. Regional Environmental Change. 16 (6), 1701-1713

Miththapala S (2008) Incorporating Environmental Safeguards into Disaster Risk Management Vol. 2: The Disaster Management Cycle. Colombo. Ecosystems and Livelihoods Group, Asia IUCN.

Pielke, R., Prins, G. P., Rayner, S. & Sarewitz, D. (2007) Lifting the Taboo on Adaptation. *Nature,* 445, 597-598

Scarlett, L., (2011). Climate Adaptation. Science and Collaborative Decision Making. In: Linkov, I., Bridges, T.S. (Eds.), Climate: Global Change and Local Adaptation. NATO Science for Peace and Security Series. Springer, Dordrecht, pp. 9–17.

Sundstr€om, A., Mccright, A.M., (2014). Gender Differences in Environmental Concern Among Swidish Citizens and Politicians. *Environmental Policy*, 23 (6), 1082-1095

Vitousek et al (1997) Human Domination of Earth's Ecosystems. Science 277, 494-499.

Warren, R., Benzie, M., Arnell, N., Nicholls, R., Hope, C., Klein, R., Watkiss, P., 2012. Scoping Study: Modelling the Interaction Between Mitigation and Adaptation for Decision Making. UEA/Tyndall Centre, Stockholm Environment Institute, Walker Institute, University of Southampton, University of Cambridge. http://www.metoffice.gov.uk/ media/ pdf/t/9/AVOID_WS2_D1_39.pdf (accessed 7.6.16).

Wilbanks, T.J., Leiby, P., Perlack, R., Ensminger, J.T.,Wright, S.B., (2007). Toward an Integrated Analysis of Mitigation and Adaptation: Some Preliminary Findings. Mitig. Adapt. Strateg. *Global Change*. 12 (5), 713–725.

Williams C (2013). Review and Update of the World Bank Environmental and Social Safeguards Policies. Ottawa.

Wrigley-Asante, C., Owusu, K., Egyir, I.S., Owiyo, T.M., (2017). Gender Dimensions of Climate Change Adaptation Practices: The Experiences of Smallholder Crop Farmers in the Transition Zone of Ghana. African Geographical Review, 1-14