

Community-Scale Climate Adaptation: Evidence from Ebonyi State, Nigeria

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Background and Introduction

Community-scale collective action is necessary for building resilience to changing climatic regimes, but not much is known about how this might take place in sub-Saharan Africa, or how it might be scaled up or supported. Literature on community-based disaster preparedness suggests that communities can play a vital role in responding to climate-induced risk, but care should be taken to avoid disempowering or over-burdening already vulnerable communities. Moreover, much of the literature on community-based efforts focuses on short-term response or preparedness to a particular disaster, not on more systemic changes. Climate change is likely to bring multiple interacting stressors to rural communities. Many community-based analyses do not provide a nuanced look at the different yet complementary roles undertaken by different groups in a community; nor do they actively engage with what communities might already be doing to mitigate risk; the assumption is often that knowledge and capacity to respond to risk must be built from outside. The social complexity of many West African societies suggests that the power to use absorptive, adaptive, or transformative capacities to move a community towards resilience likely lies with multiple types of community groups operating in diverse ways. It is therefore important to understand the roles and responsibilities of these groups when working at a community scale to address climate risk. Because external researchers have limited ability to understand or observe the internal dynamics of community decision-making, this suggests the need for a participatory approach to documenting climate resilience efforts that involves diverse community leaders.

We conducted a participatory survey of community-based climate adaptation measures in Ebonyi State, Nigeria. The goal of this research was to learn about community-scale collective action in Nigeria for building absorptive, adaptive, and transformative climate resilience, and the potential of these strategies for being adopted elsewhere, scaled up, or

Key Findings:

- **Communities in Nigeria are already organizing for climate adaptation**
- **Most adaptation efforts are either structural or social**
- **Though adaptation is occurring, more transformative interventions may be needed in future.**

supported through targeted interventions. We focused on Ebonyi state which was especially vulnerable to climate impacts through flooding, unpredictable rainfall and increasing temperature. We focused on climate resilience in agricultural systems, although other types of climate adaptation measures were allowed to emerge from the research. We developed an inventory of past climate shocks in each community using historical records and a background study of the area. Data were available through the state emergency management agency, and Ebonyi State Office of the Nigeria Erosion and Watershed Management Project, as well as through interviews with community leaders. We then identified key informants in each community, including leaders and members of groups involved in climate adaptation in both formal and informal settings, through snowball sampling beginning with community leaders. These groups active in climate adaptation included traditional leadership, chiefs, NGOs, Religious leaders, Age grades (a cultural group comprised of members of the community born within approximately a 5-year window), women's groups, farmers' groups, extension, local government leadership, and other community groups.

We found that these communities contained multiple active and engaged groups (13) which have implemented a wide range of interventions to reduce climate risk (Figure 2), most of which are seen as effective by community members (Table 1). Flooding was the most common form of risk in this region, but drought, windstorms, and irregular rainy climate adaptation will have to be sensitive to multiple types of risk. Structural interventions (constructing roads, bridges, etc.) were the most common type of intervention, suggesting



suggesting that communities are seasons are capable of marshaling considerable organizational and human power for adaptation efforts, even in the absence of external assistance. This is perhaps surprising given the substantial effort and resources needed to undertake such interventions (compared to educational campaigns, for example), but it serves to further emphasize the community's commitment to addressing climate risk. Social interventions were the second most common, consisting of donations of relief materials, educational campaigns, and strengthening social ties. Other interventions (environmental, economic, legislative and technological) were much less common, suggesting that the community may not have capacity in these areas, or may not see such interventions as valuable. If the former, these areas could provide grounds for capacity building or collaboration with groups external to the community. If the latter, further investigation would be important to determine the reasons behind the community's lack of adoption of these types of interventions.

The majority of the interventions described by community members fall into the absorptive (immediate response to a disaster) or adaptive (anticipating future disasters) space of the resilience framework. The two exceptions include

liaising with meteorological professionals to create new communication networks; and promoting new methods of farming that are more ecologically sensitive, both examples from Ezzamgbo community. In almost every case, community members reported being satisfied with the effectiveness of the interventions (Table 1). This was true even for community members who were not part of the groups responsible for the interventions. This would imply that, for the time being, absorptive and adaptive responses to risk are working for the communities in Ebonyi. One notable exception was communities' dissatisfaction with efforts to control erosion, implying that assistance with this specific problem may be helpful in Ebonyi. However, even the interventions with which community members are generally satisfied may no longer be sufficient for an altered climatic regime, which will coincide with a number of other changes occurring in Ebonyi (population growth, development, etc.). There may be a role for outside scientists, extension workers and policy makers to dialog with active community groups around what their community's long-term future could look like given anticipated changes, and what interventions they might take to propel the community towards a desired future and away from unacceptable future risk. Scenario visioning exercises have been used for this type of planning.

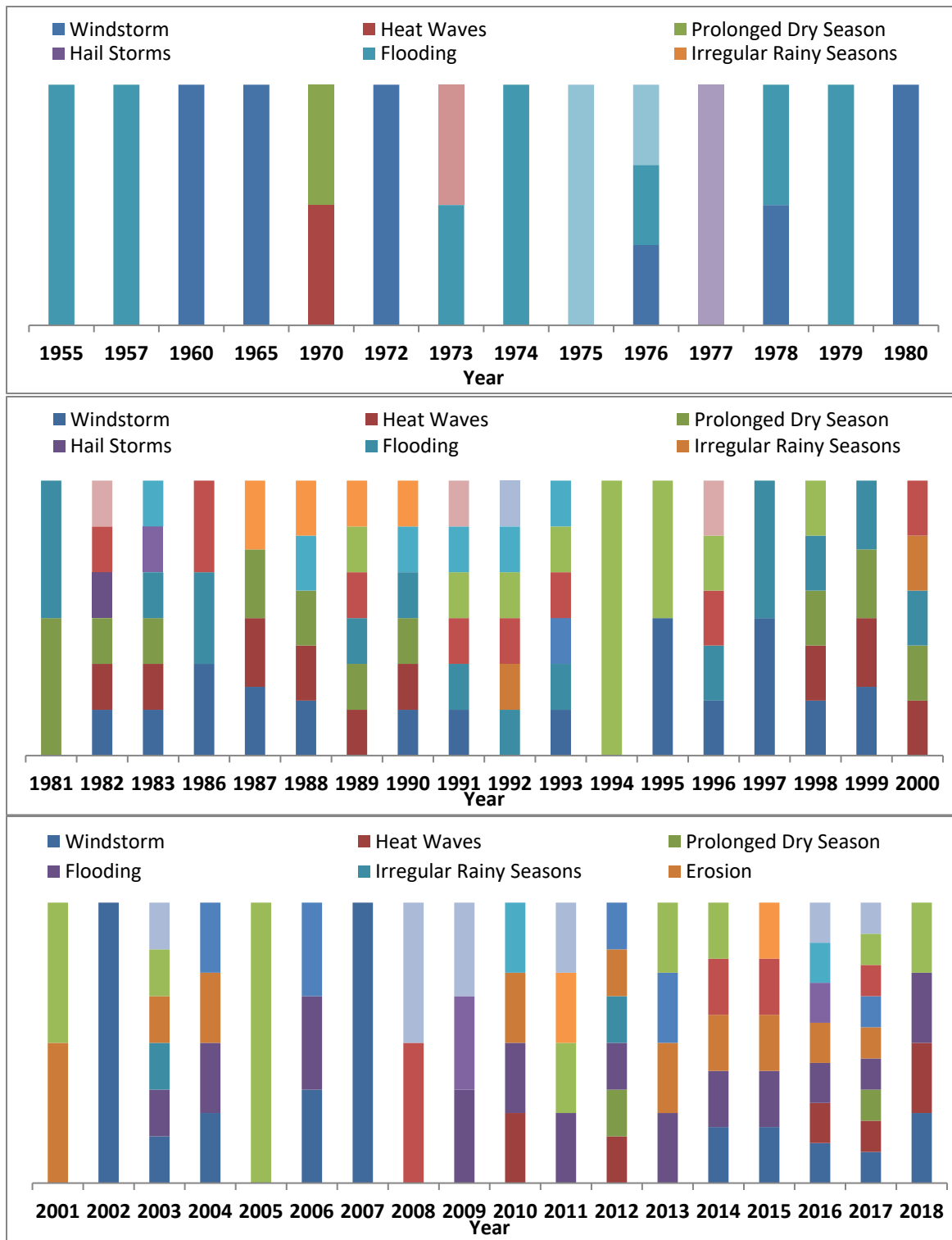


Figure 1. Type of climatic event for each year from 1955-2018 for all communities in Ebonyi State, as recounted to community residents and state records. No significant patterns were observed by region of the state, so results are aggregated.

Table 1: Community residents’ perceptions of the effectiveness of climate adaptation interventions by risk type, group implementing intervention, and year

Group	Incidence	Time	Intervention	Effective/Not-effective
Age grade	Windstorm	2014	Contributing to the efforts to check the erosion at the former LG headquarters before the NEWMAP project.	Not-effective
		1989; 1991	Contributed to the rehabilitation of the primary school.	Effective
	Flooding	1970; 1982; 1983; 1989; 1990; 2017; 2018	Construction of local bridges and culverts. Building of embankments. Organize community environmental and maintenance works. Constitute the local community vigilante group.	Effective
	Erosion		Construction of bridge. Filling eroded paths, clearing waterways. Contributing to the efforts to check the erosion.	Not-effective
	Prolonged season Dry	1982; 1983; 2018	Building of embankments. Organize community environmental and maintenance works. Constitute the local community vigilante group.	Effective
Others	Flooding	1991; 2012; 2015; 2016; 2017; 2018	Financial & manpower contributions and providing relief materials to the flooding victims. Construction of culverts and local bridges. Maintenance of road paths. Making courtesy visits to the caretakers of the community. Advisory roles. Sensitizing the people of weather/climate forecasts. Group work in farms of flood victims. Discouraging people to cultivate on lands prone to flooding. Dry season farming of vegetables. Providing local materials e.g. bamboos for damaged bridges from flooding. Sensitization of farmers. Introduction of early maturing crop varieties.	Effective
	Erosion	2012; 2016; 2018	Filling of erosion sites and maintaining the roads. Dry season farming of vegetables. Making repairs on pathways eroded. Checking the erosion of the road before the major construction of the road.	Effective

			Rebuilding of public damaged structures. Constructed erosion preventive structures. Provision of relief materials to disaster victims.	
			Communal road repairs, road maintenance and reclamation from erosion	Not-effective
	Windstorm	2018	Repairing the damages of windstorms by general contributions. Making repairs on pathways eroded.	Effective
	Irregular rainy season/Prolonged dry season	2016	Filling of erosion sites and maintaining the roads	Effective
	Pest and diseases	2018	The activities of the community in checking the erosion of the road along Nguzu junction before the major construction of the road	Effective
Women's group	Erosion	2017	Provision of relief materials and physical assistance for victims. Road repairs and maintenance.	Effective
	Windstorm	2006; 2017	Provide relief materials for the persons affected. Repairing the roofs, Ezechi primary school classrooms and houses of victims of windstorm. Labor and financial contributions towards repairing eroded roads using stone and sand bags.	Effective
	Flooding	2012	Road maintenance and repairs of the eroding parts. Construction of gutters.	Effective
Men's group	Erosion		Provision of relief materials to persons affected by the adverse climatic events. Repairing and Maintaining the pathway/road and bridge.	Effective
Youth group	Flooding	2014	Alternating farmlands for cultivation based on season.	Not-effective
		1996; 2015; 2017	Clearing of the roads and pathways before the floods. Construction of bamboo bridges to help people crossover the waterways. Construction of boats/ferries to help people reach their farm plots and salvage some crops during the flooding. Using sand bags and laterite to aid crossing.	Effective
	Erosion	2015	We have always worked on the erosion advancing site using sand bags and laterite	Not-effective
Farmer's group	Flooding	2012; 2015; 2017; 2018	Liaised with the metrological professionals to train members on the use of implements and be equipped with the knowledge of the warning signs. Advisory services on climate reports. Training of the members on better methods of farming (e.g. ridging). Avoiding farming at flood prone areas and riverbanks. Use of early planting and early maturing varieties. Early/Late cultivation methods.	Effective

			Encouraging the use of best farming practices. Use of metrological information.	
Corporate worker	Flooding/Scorching sun	2017; 2018	Provision of monetary relief by the state government	Not-effective
Religious group	Flooding	2015	Dry season/Irrigation farming	Effective

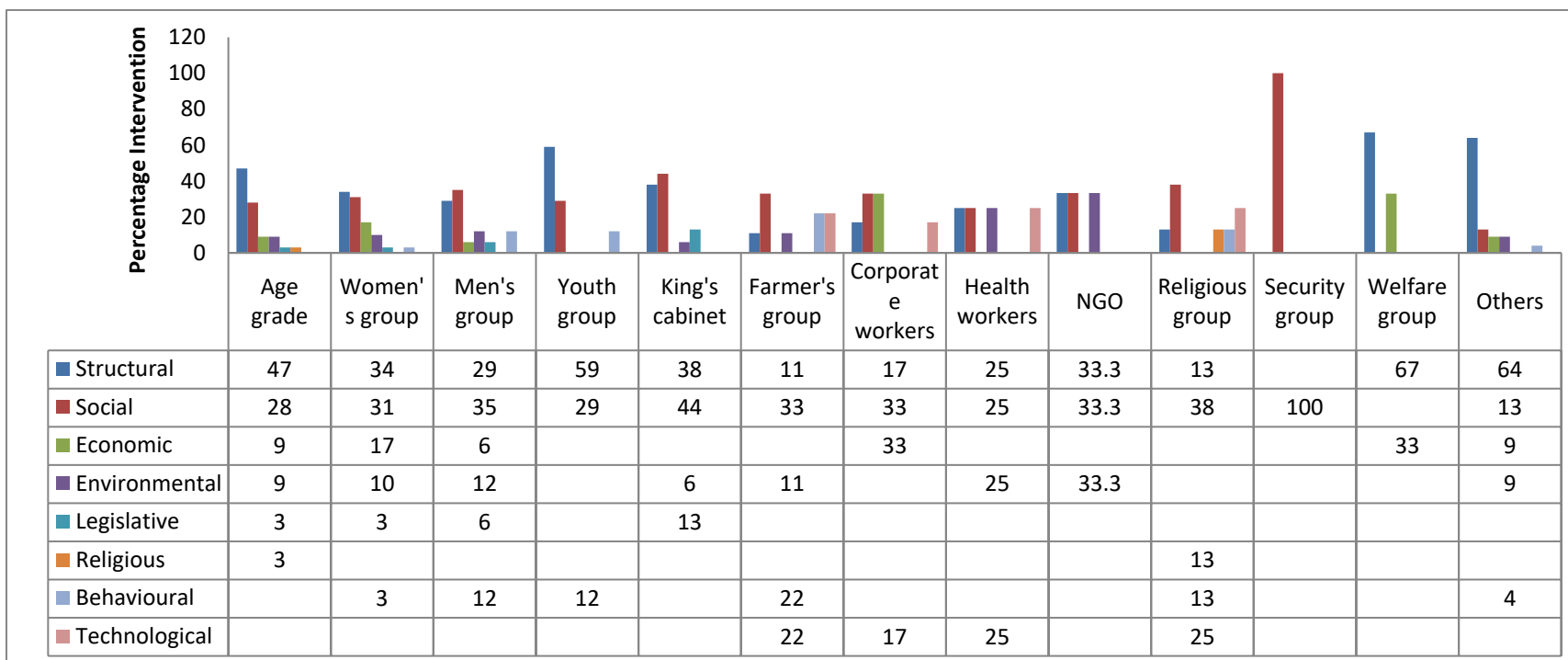


Figure 2: Climate change intervention types by group

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