



How Adaptive Capacity enables Climate Resilience: Insights from two communities in Northern Ghana

The UNFCCC Paris Agreement creates the framework for increased financial flows for adaptation to the impacts of climate change. It is now widely acknowledged that building adaptive capacity is a critical component of successful adaptation and many organisations have been supporting interventions aimed at building adaptive capacity for several years now. In 2011 the Africa Climate Change Resilience Alliance (ACCRA) developed the Local Adaptive Capacity Framework (LAC) – a framework of five different dimensions that are considered to contribute to the adaptive capacity of a system in a particular context. Yet there is still relatively little understanding about the barriers and enabling factors that impact on people's decision making and why people make the decisions they do. With new funding streams like the Green Climate Fund coming online and a global mandate to integrate adaptation interventions into national development planning through INDC's, there is a need for greater understanding about adaptive capacity.

Rainy-season farming forms the heart of household livelihoods in two communities in Northern Ghana, Farfar and Kanyini. A new study supported by CARE's Adaptation Learning Programme for Africa (ALP) found that rain fed farming is the basis on which men and women's adaptive capacity is strengthened, as is the case among most rural households of northern Ghana. In these communities staple crops such as maize, sorghum, cassava, beans and soya are the traditional food security and income strategies, combined with a range of livestock – cows, goats, pigs and poultry. There is only one rainy season per year and as

climate change impacts are felt, farmers are struggling to sustain their productivity. The decision to engage in other livelihood strategies, such as dry-season farming, migration for casual labour and small businesses, and the success thereof, can only be understood through the prism of rainy-season farming as the foundational strategy.

This 2017 study from northern Ghana evaluated community based adaptation (CBA) and adaptive capacity in order to offer insights into what is changing in people's knowledge and practices and what triggers those changes. The study revisits the LAC framework and offers some reflections about how our understanding of adaptive capacity has evolved, the relevance and applicability of the framework and how its use could better inform adaptation and climate resilience plans and actions, drawing on ALP's six years of experience of building adaptive capacity in practice and offering some recommendations for priority areas to scale up.

Key Lessons for Policy and Practice

- **Take differential vulnerability seriously in participatory adaptation planning processes.** Adaptation plans and strategies tend to benefit better off households most. Adaptation plans at community level need to account for differential vulnerability and recognize the need for targeted measures which provide social protection and address underlying barriers such as land rights, so that they support inclusion of the most vulnerable men and women to become climate resilient.

- **Balance social, economic and environmental benefits and impacts.** To diversify risk, households need a portfolio of income opportunities. Economic opportunities are also critical drivers of innovation, decision-making and ability of individuals and households to implement adaptation strategies. Expanding choices are an indicator of increasing adaptive capacity and resilience, but if they come at a social or environmental cost or impact on other groups their positive impact on adaptive capacity will be short-lived.
- **Community based microfinance such as village level savings and loans (VSLA) groups provide an important social and financial platform** that strengthens capacity for implementing livelihood investment and risk management decisions made during adaptation planning processes. VSLA groups should not be seen as the magic bullet for resilience however: they have different limitations of access and value for both better off and more vulnerable members.
- **Climate informed decisions: learning to work with information, risk and trade-offs.** Community decision-making and attitudes to risk are influenced by a complex range of underlying causes, by culture, opportunities, wealth and barriers to change. Adaptation decision-making needs to work with the inherent trade offs involved and understand and communicate current and future implications, positive or negative, for men, women and youth in order to motivate innovation and action.
- **Collective action requires good governance support.** Community organisations and strong leadership are key to ensuring plans turn into action which is beneficial to all. Community organisations have succeeded in lobbying for public services where local government leadership have demonstrated lower political will - cultural and governance barriers to engaging in local advocacy need to be addressed.
- **Strengthen governance over natural resource management at community and ecosystem level** combined with climate informed forward-looking planning. This is essential to help ensure long-term climate resilience.
- **Migration is not always a negative coping strategy.** Migration in Ghana is often a risky and insecure coping strategy, but it is also driving innovation and economic development back home. Adaptation programmes should find a way of embedding migration patterns and aim to strengthen informed decision making which takes into account a widening selection of options at home and elsewhere for all family members.
- **Participatory review and monitoring of the impacts of adaptation strategies on people's choices** is important to ensure the benefits outweigh the negatives and the negatives are addressed consciously e.g. through land use management and inclusive micro-finance like VSLAs.

Practical community based adaptation (CBA) approaches developed by ALP

emphasise participation in, and access to, assets, information and institutions, innovation and flexible and anticipatory governance and decision making as important drivers of local adaptation capacity in line with the ACCRA-LAC framework. The most important approaches promoted by ALP are; Climate Vulnerability and Capacity Assessment (CVCA), in order to build people's understanding about climate risks and appropriate adaptation strategies; the participatory development of Community Adaptation Action Plans (CAAP) to identify adaptation priorities based on information gathered from the CVCA; Participatory Scenario Planning (PSP), which creates a multi-stakeholder platform to combine local knowledge with scientific climate data in order to develop and communicate seasonal weather scenarios and advisories for specific livelihood choices; and Village Savings and Loans Associations (VSLAs), a community-based microfinance system which allows group members to make micro savings and take loans in order to finance appropriate adaptation measures, including livelihood and crop/seed diversification.

Study Approach

The study explored how community members in two rural communities in northern Ghana are currently responding to climate change, how those responses have changed over time, to what people attribute those changes, and finally, what drivers and barriers exist which prevent or enable people to strengthen their adaptive capacity. Farfar in Ghana's Upper East Region, and Kanyini, in Ghana's Upper West Region, are among the 14 communities where the Adaptation Learning

Programme (ALP), implemented by CARE International, has supported community based adaptation to climate change. ALP has been working in Farfar since 2010, and in Kanyini since 2015, providing useful comparisons from the two different contexts.

The study was designed to enable understanding on how knowledge, capacity and practice have changed for different genders, age, wealth groups in the two communities from their own perspective. It explored which mechanisms have triggered those changes; how community members employ mechanisms for adaptation (in terms of new innovations, collective action, access to information, access to finance etc.); and to what they themselves attribute the changes in how they respond to climatic change and variation. In other words, for men and women, old and young, better off and poorer, in each of the communities, what for them are the most important triggers in their decision making for livelihood, risk management and lobbying actions?

The study was conducted in Farfar and Kanyini communities in Northern Ghana. It used a mixture of community focus group discussions disaggregated by gender and age, individual interviews, informal discussions during a week long stay in each community and a literature review. The study used the ACCRA Local Adaptive Capacity (LAC) framework, developed in 2011 and used consistently by ALP to inform design of adaptation processes, as the evaluative framework for the study. The ACCRA-LAC Framework stresses not only what people have (their asset base), but also how people are able to work together towards a more resilient future. As a result, the ACCRA-LAC Framework suggests that adaptive capacity is a function of: access, control, protection and accumulation of assets; access to knowledge and information; strong institutions and entitlements; capacity to innovate, and lastly, flexible and forward-thinking decision-making and governance.

Findings: When and why do communities adapt?

Whilst the study found that CBA activities and processes strengthened local adaptive capacity across communities, as well as groups within communities, not all components have been equally effective in strengthening adaptive capacity. There are differences across groups within communities as well as between the two communities. The duration of involvement with ALP (seven years in Farfar, compared to less than two years in Kanyini) and the availability of water resources to engage in highly lucrative watermelon farming in Farfar enabled this community to reap more benefits

from ALP programming. Farfar has had more exposure to development support than Kanyini where ALP was the first serious development intervention. The study also learnt how CBA approaches have not always been effective in ways in which they were intended to be, with a series of both positive and negative spill over effects. Emerging lessons and effects are outlined below.

The study findings suggests that while rainy-season farming forms the heart of rural livelihoods in northern Ghana, dry-season farming holds the potential to drive investments into both improving rainy-season farming and diversifying income through local micro enterprises. This reduces dependence on often hazardous seasonal migration, thus reducing vulnerabilities during the dry-season. However, from the apparently more successful case of Farfar, it is also evident that unsustainable farming practices and depletion of the natural resource base on which rural livelihoods depend directly, will undermine adaptive capacity in the longer term.

Watermelon farming is made possible by the existence of a low lying plain in Farfar, which floods during the rainy-season, and is irrigated by a river, rather than a man-made dugout or dam. It is unclear what role ALP has had in directly stimulating Farfar's watermelon boom. In Kanyini, the natural potential for dry-season farming is limited, there is less financial capacity to engage climate smart agriculture (even where the long term impact of new practices is more profitable), and social structures are still weak.

1. Community Based Micro-finance

In ALP programming in Ghana, Village Saving and Loans Associations (VSLA's) form the cornerstone of efforts to strengthen adaptive capacity. VSLAs have helped better-off VSLA members invest in micro enterprises and new crops/seed varieties, and poorer VSLA members to cover basic needs such as school fees or food stocks to bolster them against unexpected shocks like extreme weather events. Accessing financial services through VSLAs were found to influence adaptive capacity beyond financial assets, with both negative and positive unintended effects observed. VSLAs provide a powerful platform for driving both livelihood investment and social protection and support, also for learning and business innovation, stronger women's empowerment, organisation and agency. VSLAs are intended to provide members (who are mainly women) with start-up capital for small-business enterprises such as pito (local beer) brewing, shea butter and rice processing, and selling goods at local markets and to stock small stores. Diversification of livelihoods in this way hedges risks across



Dry season watermelon farmers in Northern Ghana, credit: Sebastiaan Soeters/2017

income streams, and therefore reduces exposure to climatic changes. This is true especially of women who possess an existing income stream and/or are members of asset-rich households. Women from asset-poor households in both Farfar and Kanyini tend to lack the confidence to take loans for fear of not being able to make payments. They value loans from VSLAs for the purposes of buffering against unexpected shocks, such as medical costs or covering food shortages should they arise, but are reluctant to take loans for investment purposes. They fear that not being able to make loan repayments as a result of a 'lack of market', might result in losing access to VSLAs as buffer against potential shocks. VSLAs are strengthening their coping capacity, but not their longer-term resilience. Thus, whilst VSLAs serve as an important driver of strengthened local adaptive capacity supporting investment in resilient livelihood options as well as serving as a buffer against shocks and risk, support for members from asset-poor households is required if the full value of VSLAs are to reach the most vulnerable members of the community.

For many women in Farfar, who are more asset rich, VSLAs provide a series of additional benefits beyond access to finance. More entrepreneurial members and/or those who are positioned to take greater risks, use loans for innovative ventures. Other group members, who are less inclined to

take risks, observe their colleagues innovations to see what works, and what does not work (and why), with potential that they may emulate those ventures with proven success. VSLAs also provide an important mechanism for structuring collective action. Some groups work (as a group) as labourers on local farms, and wages earned are committed to the VSLA box. In some groups VSLAs have enabled successful lobbying of local government service provision.

In both Farfar and Kanyini, many of the loans taken by women for non-income generating expenses are repaid through tree felling for the production and retail of charcoal. This undermines the natural resource base and adaptive capacity. It creates a negative spill over effect; since tree felling means less access to firewood and is also associated with declining soil fertility, lower crop yields and/or increased application of chemical fertilizer. Attention to socially differential vulnerability and the different opportunities and barriers faced by different groups is an important component when linking VSLAs to adaptation planning.

2. Climate Informed Decision-making

ALP has established several structures through which climate information (both daily as well as seasonal) is accessed, generated collectively and communicated to community

members. In Farfar access to seasonal climate information and weather forecasts are regarded as particularly valuable, and determine largely which crops and seed varieties farmers will use for rainy-season farming. In Kanyini, whilst people appear to have differentiated access to climate information and seasonal forecasts and the means to put them into use, (e.g. which seed and/or crop varieties are appropriate), there are higher barriers to action. Social fragmentation within the community on the basis of age and gender means that information is poorly circulated. The lack of money in circulation (in contrast to Farfar) makes it difficult for people to purchase new seed and crop varieties, and fertilizer which those crops invariably require, which serves as a barrier to the use of sustainable, climate-smart agriculture, which in turn, undermines the relevance of seasonal forecasts. Farmers view their traditional crops as 'climate proof' while they need climate information to inform their choice of new crops and varieties.

High levels of income are generated through dry-season watermelon farming in Farfar and this has enabled a widespread uptake by men of new climate-smart crop and/or seed varieties for their rainy season farms. This in turn, increases the relevance of advisories from Participatory Scenario Planning workshops, which are disseminated at community meetings, and are well attended. Valuing these "software" components has a chain reaction, where Community Adaptation Action Plans (CAAPs), PSPs and VSLAs become drivers for diversifying income, platforms for innovation as well as new structures for collective action. In Kanyini, in contrast, the uptake of new climate-smart crop and/or seed varieties is slow. There appears to be a lack of financial capacity to implement new technologies. This is the case despite a unanimous observation (largely on the basis of demonstration farms) that the new crop and/or seed varieties yield better than those currently used. VSLA loans as well as the annual share out of interest are generally too small to support large farm investments, so are of less value to men than to women who farm smaller land sizes.

3. Collective Action

Collective action is a key feature of Community-Based Adaptation interventions, including those promoted by ALP. Collective action is important for ensuring all available knowledge and expertise is brought together in determining the best way forward, in lobbying and advocacy for the provision of services by, for instance, local government and for defining rules for VSLAs, and, in line with commons theory, for the purposes of sustainable natural resource management. For both Farfar and Kanyini, many of the community level priorities set out in their Community

Adaptation Action Plans (CAAP), rested on increased local capacities for lobby and advocacy. CAAPs are developed through a participatory analysis and planning process in which ALP supports the community to develop long term development visions and climate resilient pathways to achieving them. In addition to household level livelihood and risk management actions, both community's CAAPs identify the building of roads and bridges, a healthcare facility and dams or dugouts for dry-season farming as priority development needs. However, requests for support for these community-wide initiatives appear to have been largely unsuccessful with no evidence of a dam or dug-out or indeed, improved roads and/or bridges. The Community Health Facilities (CHPS compounds) have been built, although in Farfar it is not complete. It is unclear how far those facilities were already planned and finances designated prior to the implementation of ALP.

Despite the apparent lack of success in accessing new infrastructure through local government, there are several examples of sub-community structures, such as VSLA groups, community sections and smaller sub-communities, successfully lobbying local government for services. These sub-community structures appear more effective mechanisms for collective action than larger, community-wide structures. Women VSLA groups for example have succeeded in accessing land from the chief to farm as a group.

4. Managing Natural Resources

While the study suggests many factors that shape different adaptation decisions under different conditions, the availability and management of natural resources is a determining factor. In the case of Farfar, profitable dry-season water melon farming, made available from access to irrigation from a nearby river, enabled farmers to invest in new rainy-season seeds and crops as well as diversify into micro enterprises both of which are reducing migration to other parts of Ghana. In contrast, households in Kanyini do not enjoy the same natural assets, depending largely on income from migration during the dry-season.

Unsustainable natural resource management is a key barrier to long-term improvements in adaptive capacity. It appears that a number of the strategies communities are employing to adapt to climatic and other changes carry an ecological cost that is not internalised. Watermelon farming is a local innovation, which has been highly beneficial economically for the farmers (mainly young men) and the community as a whole, creating new economic growth and opportunities and retaining young men at home. However, for reasons that are unclear, the benefits of community organisation in VSLAs have not crossed over into motivating the youth to

organise together towards improving land use management for watermelon farming, which remains a short term and competitive income generating activity. The ungoverned nature of the trend has led to the following effects:

- Watermelon farmers have felled trees to reduce shade under which watermelon cannot grow, leading to a rapid reduction in soil moisture;
- Farming is practiced up to the riverbank with no buffer zone, resulting in the riverbank continuously collapsing, eroding farms, and dumping sand in the river, reducing the water flow;
- Pesticides are excessively used to clear grass which reduces grazing for bullocks which leads to use of tractors for ploughing rather than animal traction, which further degrades the soil
- All of the above have altered the course of the river and washed away nutrient rich top soil.

Some of these unsustainable practices have implications for other groups. For instance, whilst men claim that they use an increasing amount of pesticide in order to combat pests, which they claim to be a result of climatic changes, women complain that excessive pesticide use is resulting in a higher incidence of illness amongst children, a burden carried largely by women. Similarly, as noted, many women repay VSLA loans by felling trees and producing (and selling) charcoal.

In direct contrast to the watermelon experience, rainy season farms continue to be well planned with an eye to long-term resilient production. The use of agro-ecological practices is increasing on these farms and climate information from PSPs is used to make seasonal decisions on choices of crops and varieties, and planting time.

5. Migration

Migration in Ghana is often a risky coping strategy, involving insecure and sometimes dangerous activities such as artisanal mining, but it is also driving innovation and economic development back home. To diversify risk, households need a portfolio of income opportunities. Expanding choices are an indicator of increasing adaptive capacity and resilience, but may also have negative consequences. Since migration rates are likely to increase, future adaptation programming must find ways of internalising some of the benefits provided by mobile groups (as a source of innovation and/or remittances), harnessing its potential, and limiting its downsides. In other words, adaptation should aim to strengthen informed decision making which takes into account a widening selection of options at home and elsewhere for all family members.

For example, the watermelon farming in Farfar, which underpins much of the success of CBA in Farfar, was started by seasonal migrants who had seen watermelon farming in the south and took seeds back to Farfar to make an attempt to farm watermelon there. A bar owner in Kanyini, who is widely regarded as a successful businessman, notes that he saw bars working in small communities in the south, and used money earned in the south to open a bar in Kanyini. A member in his VSLA group decided to emulate him in another part of Kanyini. Furthermore, where watermelon props up much of the development in Farfar, participants in Kanyini note that much of the building of houses, motorbikes and motokings (three-wheeled motorcycle) is funded through income generated through galamsey (gold mining). Having said this, the negative impacts of galamsey (dangerous, unhealthy, illegal) must not be downplayed.

Revisiting the ACCRA – LAC Framework

Reflecting on the ACCRA-LAC Framework, the study confirms the **importance of the five identified pillars** (1. asset base, 2. knowledge and information, 3. institutions and entitlements, 4. capacity for innovation and 5.) forward-thinking and flexible decision-making and governance, as drivers of adaptive capacity. The pillars do not operate in isolation but work together and may have unintended spill overs and trade-offs. For instance, women who are members of VSLAs are afforded access to finance (asset base) but, as the study demonstrates, VSLAs also provide platforms to disseminate innovations (capacity to innovate), disseminate and discuss implications for seasonal forecasts (access to knowledge and information) and are used as a vehicle for lobbying local government for services (institutions and entitlements). Whilst each of these functions of VSLAs clearly drives adaptive capacity, narrower frameworks of adaptive capacity, which are biased towards the asset base, do not capture these dynamics.

The impact of adaptation activities on local ecosystems is fundamentally important in contexts where livelihoods depend so squarely on the natural resource base. Making natural assets a stand-alone pillar in the ACCRA-LAC Framework would emphasise the fact that any adaptation strategies that undermine the natural resource base are in fact not adaptation strategies at all. Any efforts to do this would need to take heed of the fact that different groups might have different definitions of sustainability in terms of how natural resources are exploited. It would also need to consider the social and cultural drivers and barriers that determine natural resource management decisions. A stand-alone pillar for natural assets in the ACCRA-LAC Framework would also encourage future adaptation programming to commit

resources to monitoring the ecological impacts of adaptation strategies.

Capturing spill overs and trade-offs between elements was relatively weak in the use of the ACCRA-LAC framework. Thus, for instance, many watermelon farmers have diversified into transportation, purchasing three-wheeled motorbikes to transport goods and people. Women especially use these services to be transported to local markets to sell their produce (beans, groundnuts, cloth, shea butter etc.). This new opportunity drives new possibilities, especially for women. Those markets might have been difficult to access previously as they were either too far to walk, or a much larger truck would come and they would need to wait until it was full, which often takes several hours.

The result of men diversifying their livelihoods in this way clearly has positive implications for the adaptive capacity of women. The ACCRA-LAC framework could better capture linkages between the adaptive capacity of different groups and how changes in one group affect other groups, both positively and negatively. Hence adaptation activities which may be seen as immediately positive, may have negative implication for other pillars, and actions which might be dismissed as 'coping strategies', might have far reaching positive implications for household or community adaptive capacity. These spill over effects should be captured by the ACCRA-LAC Framework (the framework acknowledges the linkages), but circular causalities and/or the directions of linkages need to be much more explicit if a more accurate understanding of local adaptive capacity is to be established.

Using the ACCRA-LAC Framework to assess adaptive capacity can provide a snapshot of the five pillars of adaptive capacity but since adaptive capacity is a long-run dynamic within a context of increasing (climatic) uncertainty, at the broadest level, snapshots themselves may be misleading. Whilst the simplicity of snapshots is understandably attractive, a framework that aims to assess adaptive capacity should be able to provide indication of trends. This is especially true of adaptation programming, where flexibility is required both to seize new opportunities as well as address emerging threats. In principle, there is no reason why the ACCRA-LAC Framework might not take a series of 'snapshots' over time, and in doing so, provide some insights into changes or trends, but this needs to be undertaken at regular intervals over the period of a given project.

RECOMMENDATIONS FOR DEVELOPING THE ACCRA LAC FRAMEWORK

- Capture inter-linkages and spill overs between elements and across different vulnerable groups
- Capture ecological impacts of different climate change adaptation interventions
- Capture the long term versus short term impacts and trade offs
- Capture impacts and trade offs across locations and livelihood groups
- Use a weighting for the five different dimensions

Conclusions

In conclusion, it is clear that community based adaptation programmes like CARE International's ALP programme have created a valuable format for strengthening local adaptive capacity. The study illustrates that (albeit to different degrees), CBA has successfully strengthened the adaptive capacities of community groups (women, youth men etc.) and that the potential to increase local adaptive capacity through CBA approaches is significant. Having said that, adaptation programmes must better acknowledge that communities are not homogenous, and that the CBA is not a one-size fits all approach but that the tools, processes and approaches must be selected and implemented according to local context.

As a result, a better contextual understanding of structural inequalities is required in the pre-implementation phase, in order to better anticipate how adaptation interventions are likely to play out (both socially, economically and ecologically). It is clear that information and participation, albeit necessary, are not sufficient conditions for the prioritisation and uptake of adaptation strategies, nor are they sufficient conditions for pro-poor and/or ecologically sustainable outcomes (with increased resilience). More inclusive and sustainable CBA programming will require more overt strategies to address existing gender and age (power) inequalities (in terms of accessing the benefits of CBAs), as well intersectionality between these and the five pillars of adaptive capacity.

Reference

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The Adaptation Learning Programme (ALP) for Africa aims to increase the capacity of vulnerable households in sub-Saharan Africa to adapt to climate change and climate variability. Since 2010, ALP has been working with communities, government institutions and civil society organisations in Ghana, Kenya, Mozambique and Niger to ensure that community-based adaptation approaches and actions are integrated in development policies and programmes. This is achieved through the demonstration and dissemination of innovative approaches for CBA, supported by practical tools, methodologies and evidence of impact. ALP is also working to create an enabling environment for CBA by working directly with local and national governments and with civil society to influence national and international policy frameworks and financing mechanisms for adaptation.

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