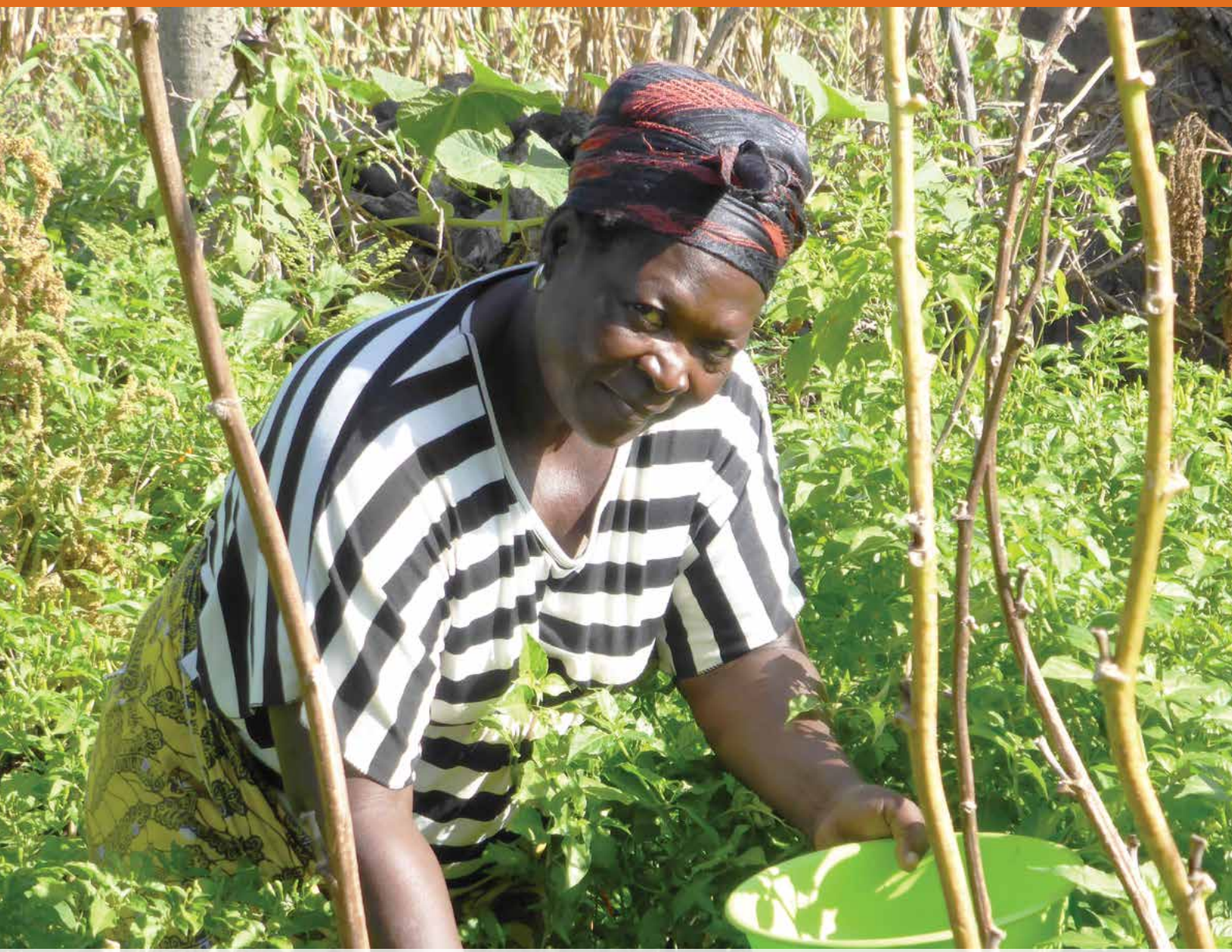

Strengthening Adaptive Capacity to Climate Change: Learning From Practice

PRACTITIONER BRIEF 4

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Acknowledgements

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Cover image: Juliana Tungkuba harvesting peppers from her garden in Nanville Community, northern Ghana. Credit: Charlotte Klevenfeldt/CARE Denmark, 2015.

Contents

1. INTRODUCTION

Women from Azagor harvesting potatoes in the community market garden. Credit: Boube Chayaya Abdoulkadri/ALP

Building adaptive capacity is increasingly understood as a critical piece in successful adaptation to climate change, and there has been much conceptual debate on what it consists of. Yet, there is still lack of clarity as to what it may look like in practice.

This practitioner brief synthesises the learning on adaptive capacity that has emerged from the Adaptation Learning Programme (ALP) for Africa, a multi-country programme designed to demonstrate, document and disseminate innovative approaches for community based adaptation (CBA). Because it was explicitly designed as a learning programme, ALP has adopted a range of learning approaches, with a focus on learning by doing, reflecting and co-generating new knowledge with others. After five years of implementation, the programme is now in a position to synthesise and share learning on a range of aspects of CBA and related policy and practice.

Specifically, this brief explains in simple, practical terms how strengthening adaptive capacity is critical for effective adaptation. It does this by presenting how ALP has interpreted the Local Adaptive Capacity Framework developed by the Africa Climate Change Resilience Alliance, in its practical approaches to engaging communities and other actors in community-based adaptation. This brief draws on ALP's work with vulnerable communities living in Niger and Northern Ghana, which are Sahelian climate change hotspots also affected by high levels of chronic poverty. It gives insights into the dynamic interplay between analysis and planning processes, information, resources and decisions required for strengthening adaptive capacity, which is a key condition for adaptation. With recent attention on resilience, different types of critical capacities have been in discussion; for example, "absorptive", "anticipatory" and "transformative" capacity. ALP's work on adaptive capacity has been approaching these concepts in practical ways, exploring how vulnerable people can realise their own development, with adequate support, in the face of changing conditions. Through the lens of these experiences the brief aims to provide conceptual and practical knowledge for actors in adaptation, disaster risk reduction, development and humanitarian action, including NGOs, local government institutions, researchers, donors, sectoral ministries and policymakers across Africa.

2. No Adaptive Capacity, No Adaptation

People living in poverty in the Sahel are less and less able to cope with the growing number and intensity of climate shocks, which interact with other factors behind food and nutrition insecurity, ranging from economic volatility, inequality and conflict to regular drought. In 2014, poor rains, among other things, triggered an emergency in which over 24 million people were in need of acute and long-term assistance – an increase by 6 million people in relation to similar events in 2012. Millions are struggling to get back on their feet after repeated food and nutrition crises in 2005, 2008, 2010, 2012, and 2014. This chronic vulnerability has been undermining development in the West Africa region for decades. It is becoming clear that, despite huge increases in funding, humanitarian assistance alone cannot address the structural roots of vulnerability that are pushing ever more desperate people over the edge.[1] Climate change impacts serve to exacerbate this to unacceptable levels. For people to be better equipped to deal with the range of increasing unpredictable and recurring shocks and overcome chronic poverty and vulnerability in this context, business as usual needs to change.

Part of what is problematic with the business-as-usual approach is the assumption that resilience means recovery - being able to bounce back from a shock to the previous status quo, a normal state that is viable and stable. Sahelian conditions have never been stable – and variability is, in fact, a central tenet of life for mobile pastoralists.[2] Also, what would be the "normal" state is now understood to be unacceptable levels of poverty. In addition, climate change is creating new and unknown, changing conditions. So all in all, there is no 'normal state' to bounce back to, but there could be a future to look forward to and shape.

To be resilient in this context, households, communities and states need to keep 'positively developing, adapting and transforming their structures and means for living in the face of ongoing and long-term stresses, change and uncertainty.'[3] Adequate integration of climate change adaptation and disaster risk reduction in development initiatives, therefore, is one of the most urgent priorities identified by the regional resilience initiative AGIR (Alliance Globale pour l'Initiative Resilience au Sahel – Global Alliance for Resilience in the Sahel).[4]

2.1 COMMUNITY-BASED ADAPTATION TO CLIMATE CHANGE: DISCOVERING THE VALUE OF ADAPTIVE CAPACITY

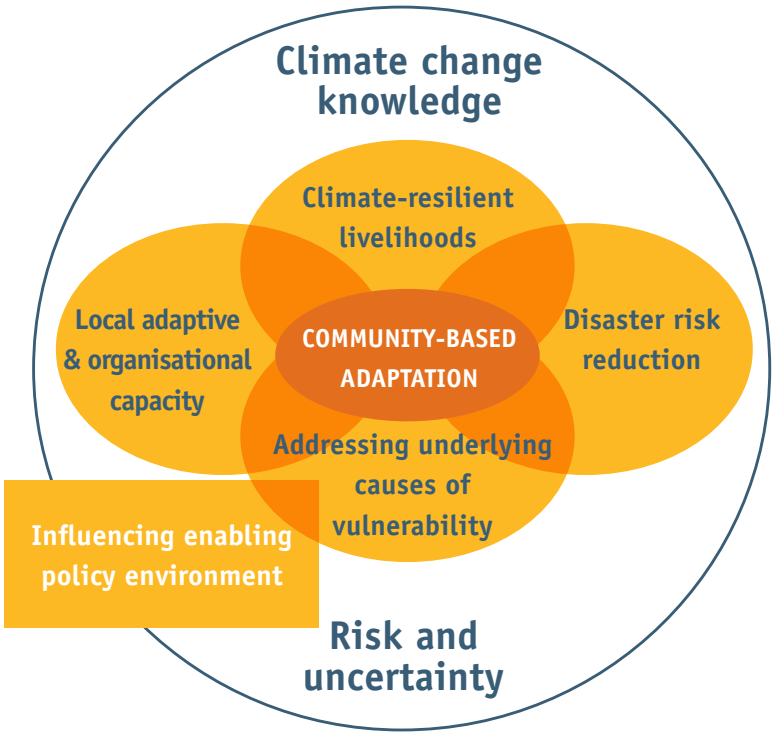
Across different countries in the Sahel, people have always known what it means to adapt to climatic and environmental variability. For many among them, lifestyle has literally followed the climate, always on the move to lead herds of cattle toward the greenest pastures or to migrate to cities during the lean season to seek employment. In drylands worldwide, including the West African Sahel, variability is not just a challenge but an asset and opportunity for both pastoralists and farmers.[5] In that sense, their inhabitants have always demonstrated their capacity to adapt to changes as they occur in their environment.

Research by the International Institute for Environment and Development shows that 'there is a need to understand variability as an inherent feature of the drylands – a functional element within a dynamic system, rather than a disturbance within a system naturally prone to a state of stability'. From this positive point of view on variability, livelihood strategies such as pastoral mobility, which would have been seen as irrational or disruptive under a more negative interpretation of variability – make more sense than efforts to force the system into a state of stability.[6]

As climate change accelerates alongside other development challenges, it becomes ever more urgent to understand and respond to these dynamics and to add to this through more deliberate, planned and supported efforts to adapt. What these should look like has been the key question. For example, can community-based adaptation, rather than trying and failing to control climatic and environmental uncertainties, embrace "the opportunities offered by [their] variability, and the advantages of understanding the productivity that results from engaging with variability in a positive way"[7]? Community-based adaptation will also need to add new knowledge, ways of working, options and systems which enable anticipation and an effective response to the previously unknown conditions that climate change impacts are creating.

ALP has been working on useful ways to address uncertainty, along with other ingredients for effective adaptation, by testing practical approaches in four countries, actively co-learning with partners, and influencing policy and practice across Africa and globally. In this, ALP has been guided by a framework suggesting a holistic approach with a distinct set of components (see figure 1). The different approaches emerging in ALP's work are grounded in this framework. They support a combination of building climate-resilient livelihoods, disaster risk reduction, addressing underlying causes of vulnerability, the enabling environment and building local adaptive and organisational capacity. Importantly, all these are guided by knowledge of climate change, changing risks and uncertainty, and climate information. Understanding and addressing how different social groups – and in particular women and men in different socioeconomic situations and at different stages in their lives – are affected by climate change in different ways, and what strategies they can resort to in response, has been a particular concern in ALP's work.

Figure 1 Care's Community-based Adaptation Framework



Around 2010, at the time ALP began its work in Ghana, Niger, Kenya and Mozambique, the question mostly being asked was: what are the right technologies and livelihood strategies to adopt if local communities are to adapt climate change? As a result, early solutions were focused on, for example, the best way to secure irrigation despite volatile rains, better seeds to plant in drier conditions, livestock breeds that are more resistant to drought and sickness, storage where seeds and harvest would be safe from humidity, and off-farm income generating activities to secure an income in the absence of reliable harvests. In Dakoro, the location in the Maradi region of Niger where ALP has been working, early maturing seed varieties became a popular choice for farmers struggling with unpredictable, often delayed and/or shorter rainy seasons. ALP supported diversification of livelihood options to help reduce or avoid dependence on climate sensitive rain fed agriculture systems. Women's groups saving money together started small businesses selling doughnuts made of millet, or charging mobile phones with solar power for a small fee. In the Upper East Region of Ghana, communities involved in ALP's work tried out improved irrigation methods for using water collected during the rainy season to supplement their harvest with vegetables grown during the dry season.

Community-based adaptation initiatives all over the world took on similar shapes – in Bangladesh, "floating gardens" and duck rearing[8] became popular strategies to deal with constantly changing water levels; in Carhuaz in the Peruvian Andes, drip irrigation systems were put in place to help farmers reduce losses due to seasonal drought and address the longer-term threat to water supply posed by the melting of the world's only tropical glacier system.[9] The aim was to employ win-win strategies through which individuals and communities could strengthen their livelihoods and be more climate resilient.

But in reality, the local impacts of climate change are surrounded by more uncertainty than ability to predict and control. In fact, in many places – such as the Sahel – the picture gets more and more uncertain the more climate models for the future emerge, some predicting a wetter, and others a drier future for the arid and semi-arid regions between the Sahara and tropics in West Africa.[10] Over the years, it became clear that adaptation is much more than a one-off decision on a new source of income, a change in crops or a better irrigation system. It requires a continuous process of adjustment and decision-making in response to dynamic changes – and for this to be possible, farmers and pastoralists themselves need to make their own, informed decisions.

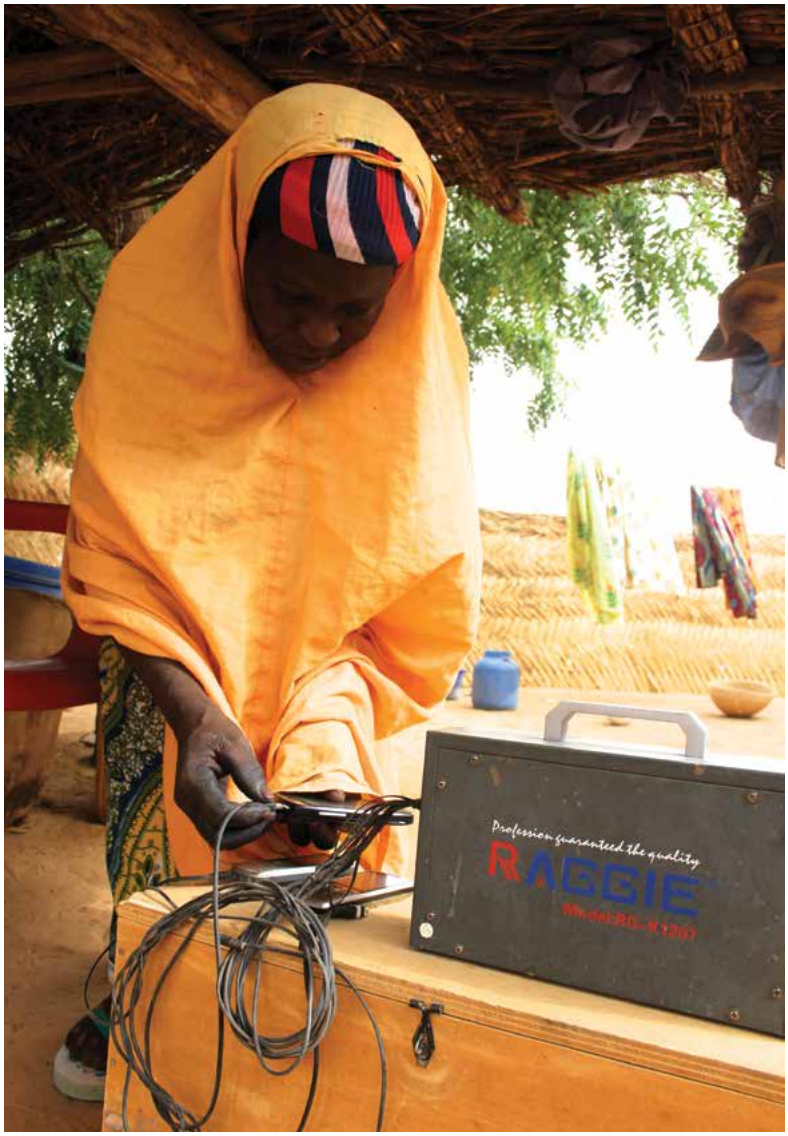
Trying to control uncertainty and variability in the drylands is futile. Instead, the focus needs to be on strengthening the skills and "capacity for real-time adaptation to the events that arise unexpectedly and uncontrollably – avoiding the worst consequences while taking advantage of the opportunities that variability can also offer."[11] This includes building capacity to anticipate and plan ahead with a better sense of what is likely or unlikely to happen, and deliberate investments in both development opportunities and contingency measures should a worst-case scenario materialise. In the drylands, this is very much about reviving and strengthening the traditional capacities mobile pastoralists have developed over centuries.

Women in Niger participating in a community group meeting. Credit: Fiona Percy/ ALP, 2012.

These insights led to the emergence of "adaptive capacity" as an important ingredient of adaptation: without it, all of the above strategies, from new irrigation systems to new off-farm livelihoods opportunities, are not very different from what is already known to be "good development". Also, without this continuous process of informed decision-making and adjustment across communities and landscapes, there is a risk of maladaptation, i.e. employing these strategies in ways that ultimately worsen the impacts of climate change on people's lives and livelihoods.

Experiences from Niger and Ghana: new seeds alone don't make farming "adaptive"

The need for continuous adjustment and informed decisions which characterizes adaptive capacity is illustrated by an early experience from Niger, where fast-maturing seeds were distributed in 2010 as a 'quick win' in response to community needs in a drought emergency at the time. Detailed advice and training were provided on the husbandry of these varieties. When farmers first used these seeds, rainfall was low, so their yields turned out better than they would have without the new seeds. As agreed, seeds from the harvest were distributed to all other farmers in the community ready for planting the next year. However, the rainfall patterns experienced during the following rainy season were different. Because farmers had not fully understood the difference between their own traditional seed varieties and the new seed, and had not accessed information about the coming season's climate forecast, they planted them all at the same time at the start of the season. Crops were lost due to rainfall coming late, leaving farmers with little to show for their growing season and the loss of valuable improved seeds. Farmers own traditional seed varieties must be planted as early as possible to have enough rain to produce, and they are freely available for replanting if needed. In contrast, if they had waited to plant the drought tolerant seeds later in the season they would have had a better outcome as they mature in a shorter time and with less rain. In comparison, farmers in Ghana had a better knowledge of the crop management for different varieties and access to the forecast for the rainy season. They timed the planting of improved seeds accordingly, with better results in terms of their harvest.[12] The winning ingredient, here, was local capacity to match technologies and inputs with needed information and knowledge.



Zennou Boukari runs a solar powered mobile phone recharging business in Aman Bader village in Dakoro, Niger. Credit: Agnes Otzelberger/ALP, 2015.

THE NEED FOR SOFTWARE AS WELL AS HARDWARE

Learning from ALP's early experiences showed that, to implement community-based adaptation successfully, the introduction of new 'hardware' (eg. strategies or technologies which are considered more climate resilient), must be combined with strengthening 'software' – i.e. processes, capacities, skills, and behaviours which help any social system from a household to a community, organisation or network to be agile and proactive in the face of changing risks and uncertainties rather than passively responding to them.[13]

Collective vulnerability and capacity analysis and adaptation planning processes are critical components of this 'software'. In addition to enabling new knowledge and decisions these types of participatory processes can open up and provide regular spaces for dialogue, learning and reflection among a range of actors. Multi-actor interactions integrate and enhance local and external knowledge, help people become more observant of and proactive in response to uncertainty and dynamic changes and allow for co-generation of new knowledge. They strengthen people's influence, confidence and trust in their own agency, judgment and decisions as well as those of others (for example, meteorological and agriculture extension services).

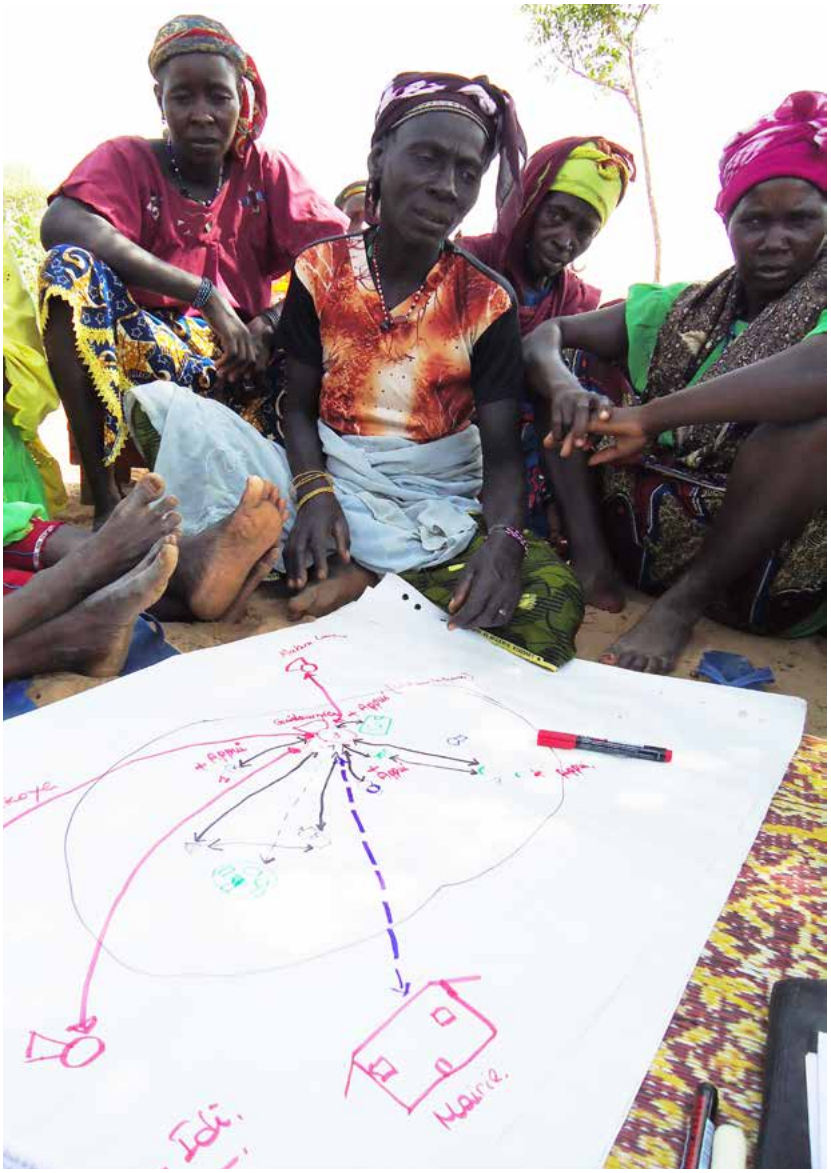
Community-based adaptation as now promoted by ALP, therefore, insists that support to specific adaptation strategies that emerge at community level (e.g. diversified sources of income, new seeds and irrigation practices, community financial and risk management schemes, see Box 1) must be complemented with strengthening decision making processes (including information access, anticipation and planning at multiple levels). Recognising the important role these processes play in building adaptive capacity was a landmark in ALP's evolving understanding of community-based adaptation The role of building adaptive capacity (or the 'software') as a precondition to the success and sustainability of any adaptation or climate resilience intervention became a core message in ALP's facilitation of learning and adoption of CBA by policy makers and practitioners across Africa.

This also means that good governance at all levels is a fundamental cornerstone of effective community-based adaptation 'software'. With a foundation of good governance, adaptation can be realised through applying a climate 'lens' to on-going decision making and planning processes. The urgency to address immediate causes of vulnerability – such as access to water and sanitation, food security and effectiveness and participation in governance – often leads to CBA processes prioritising actions responding to these basic issues as quick wins. These activities may be the same as 'business-as-usual' development activities, but when they have been determined through a climate informed and community owned decision-making process, they are better adapted, embedded in a larger resilient development process and more flexible in the details of their application. Equally, underlying causes of vulnerability such as lack of literacy, gender inequality and unequal power relations can undermine the success of both development and adaptation efforts – which calls for attention to power dynamics and governance. In other words, when adaptation is integrated in all sectors and governance processes, with inclusion of the most vulnerable people in the process, climate resilient development may become a reality.

2.2 THE COMPONENTS OF ADAPTIVE CAPACITY

With the recognition that adaptive capacity is a precondition for continuous, forward looking and climate informed adaptation – as opposed to a one-off adjustment or unintended maladaptation – the need arises to explore in more detail what adaptive capacity looks like and what practical approaches can help build and strengthen it.

ALP found the Local Adaptive Capacity framework developed by the Africa Climate Change Resilience Alliance (ACCRA) in 2011 based on observations of communities engaging in adaptation processes in Ethiopia, Uganda and Mozambique to be the most in line with ALP local level experiences. Based on ACCRA's insights, adaptive capacity essentially talks about the potential of people, communities and institutions to respond to change. ACCRA found it difficult, if not impossible to measure it directly – and so elaborated a framework of five different 'dimensions that are considered to contribute to the adaptive capacity of a system in a particular context'. A system can be, for example, a household, a community, the communities united within an ecosystem, or a certain unit of governance, e.g. department, municipality or region.[14] The dimensions are:

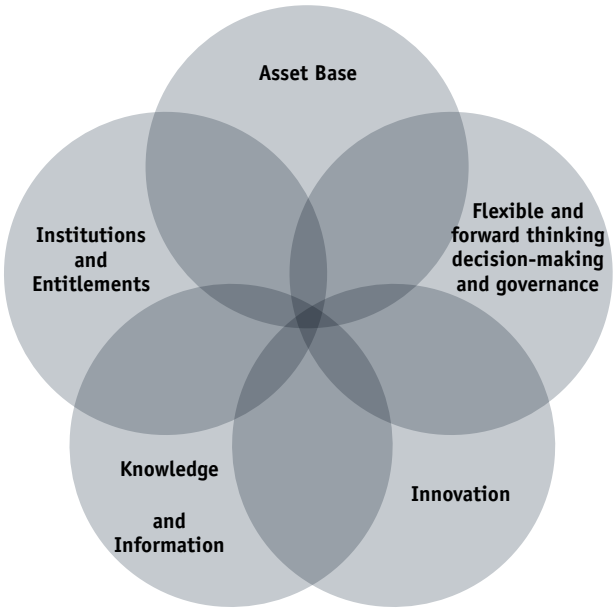


Women from Dan Maza Idi community create a resource map of their community as part of the climate change vulnerability and capacity analysis. Credit: Awaiss Yahaya/ALP, 2010.

- **Asset base:** availability, access and accumulation of key assets allows for a positive response to evolving circumstances
- **Institutions and entitlements:** Existence of an appropriate and evolving institutional environment that allows fair access and entitlement to key assets and capitals
- **Knowledge and information:** ability to collect, analyse, and disseminate knowledge and information in support of adaptation activities
- **Innovation:** an enabling environment to foster innovation, experimentation and the ability to explore niche solutions in order to take advantage of new opportunities
- **Flexible and forward-looking decision making and governance:** ability to anticipate, incorporate and respond to changes with regard to governance structures and future planning

ACCRA emphasises the interdependence of these five characteristics – maintaining that they are not 'stand-alones' and that building adaptive capacity means 'understanding these dimensions of people's and communities' lives, and designing and implementing interventions in ways that enhance the way in which assets, institutions, innovation, knowledge flows and decision-making contribute to increased agency, and more informed decision-making for the long-term.[15]

Figure 2 The ACCRA framework for Local Adaptive Capacity



The costs and benefits of community based adaptation

The New Economics Foundation studied the costs and benefits of community based adaptation in Niger using evidence of adaptation actions and development outcomes in Dakoro. Results showed a return of $4 of social, environmental and economic benefits on every $1 invested with positive returns even on the highest discount rates and best case climate scenarios. NEF concluded that "a community-based approach appears to present dual dividends: it enhances the decision-making ability of communities at a local level as well as considerably impacting on 'hard' outcomes, such as increased agricultural production. Community-based adaptation impacts on the overall development of communities. Indeed, the benefits considered in our analysis are based on typical development outcomes such as health and education. Our findings demonstrate that community-based adaptation responds both to short-run disaster mitigation measures as well as long-run development needs [16]."

Exploring adaptive capacity has led to important shifts in the understanding and practice of community-based adaptation. For ALP, it has meant an increasingly coordinated and integrated approach which goes beyond stand-alone adaptation actions and builds adaptive capacity at multiple levels. It provides a framework which supports analysis and strengthening of individual and organisational capacities and emphasises the need for multi-actor processes operating across levels and influencing mainstream systems such as local and national development planning, disaster risk reduction and early warning systems, ecosystem management and sustainable development.[17] The concept of adaptive capacity – and the more recent nuances of anticipatory and transformative capacity – serve to emphasise the importance of informed, forward looking, flexible decision making by those whose lives are affected by the decisions and by those who support them, as a pre-condition for effective adaptation and ultimately resilience to climate change. Attention to adaptive capacity makes clear the connections between good governance, enabling policy environments and community level actions and impacts. It demonstrates that 'hardware' strategies (interventions or technologies) are resilient to climate change only when they are determined through adaptive or transformative 'software' processes.[18]

Women from Dan Maza Idi proudly present their community adaptation action plan in Niger. Credit: Harouna Hama/ALP, 2013.

3. Practical Ways To Strengthen Adaptive Capacity - Experiences from ALP in Ghana and Niger

ALP has introduced a number of processes and activities in Niger, Ghana and Kenya which focus on developing adaptive capacity, building on some tried and tested approaches and also piloting new ones. In Kenya ALP has focused more on developing climate information services to strengthen adaptive capacity through information for anticipation and decision making for investment and risk management. These are documented in detail in other ALP briefs.[19] In Ghana and Niger a community-based adaptation planning process[20] has evolved which involves a number of components, including climate information, some of which are repeated and inform each other in cyclical patterns. Learning from these experiences has informed this section on approaches to strengthening adaptive capacity.

The first is an **analysis of climate vulnerability and adaptive capacity** at community level, which provides valuable information which feeds into the design of **Community Adaptation Action Plans** - an annual exercise whereby community members plan for a series of activities towards realizing their own development visions in ways that are climate resilient. Some of these they are able to implement themselves and others require external assistance from local government departments or service providers.

In Niger, communities and local government also engage in a bottom-up, climate-informed community-based disaster **early warning system**[21], which generates information not only for governmental emergency response but also for the annual community adaptation action planning exercise, and for seasonal participatory scenario planning (see Further Reading for all of the above approaches) at local government level.

Participatory Scenario Planning[22], in Ghana and Niger as well as Kenya, brings local government, communities and weather forecasters together in a regular effort to interpret traditional and scientific seasonal weather forecasts for the coming rainy season and issue advisories for farmers, livestock herders and others.

Throughout all these processes, the emphasis is on understanding the underlying causes of vulnerability in communities, understanding and integrating information about the climate, and identifying actions and behaviours both in response to learning from the past and better consideration of future risks and uncertainties. All of these processes - and the dialogue that takes place through them, among and between men and women, community actors and local government and services providers are designed to strengthen capacity to anticipate and manage risks and opportunities among local communities and the institutions affecting their lives. The actual **adaptation strategies** (see Box 1 on page 12) then chosen and implemented differ from context to context, as the examples from Ghana and Niger will show. Different aspects of adaptive capacity are strengthened through the decision making processes resulting in choices of a range of adaptation strategies, and through design, implementation and outcomes of the strategies themselves.

Box 1. Overview of adaptation strategies chosen by communities working with ALP in Ghana and Niger

Village Savings and Loans Associations – VSLAs (Ghana and Niger) are a local, semi-formal community banking technique that offers individuals a way to save money and access small loans at modest interest rates - usually between 5 to 10%. VSLAs allow people to save up the capital to diversify into less 'climate sensitive' livelihoods, in order to spread risk and build resilience. They also allow people access to funds in times of shocks and stress so that they are able to buffer against hardship and recover more quickly. VSLAs are versatile, easily owned and led by the group members and have their own momentum – as the financial aspect ensures members meet regularly. In addition to financial benefits, the real power of VSLAs lies in group solidarity, voice and agency that emerges from their regular meeting.

"Warrantage" (Niger) is a rural inventory credit system that was designed to break the debt cycle many poor households have been trapped in by guaranteeing loans to producers' organisations or their members. Producer groups store part of their harvest in the group store in return for a loan, which is paid back after the grain is sold, when the prices are higher. In this way producers avoid selling their entire harvest at times of high supply and low prices, while at the same time still being able to pay their debt to traders at that time. The loans also provide credit for additional income generating activities, allowing people to repay part or the sum of the loan and remove their stock. They are then also free to sell or keep the returned stock for household use such as seed for replanting or consumption during the lean period.

Conservation agriculture (Ghana). Conservation agriculture involves a mixed cropping system with more disease- and drought-resistant crops, using zero tillage and permanent crop cover, improving soil health and producing a harvest even when the main crop fails. ALP uses farmer field schools as a learning platform to promote the approach and to support farmers to innovate – women's groups in Ghana receive particular support. The farmers test and select new methods and crop varieties that are most appropriate for the climate context they are experiencing. It is also a space for learning and sharing information, with links to local agricultural research and variety trials with both scientific and indigenous knowledge of farming techniques combining to help reduce the impacts of climate change.

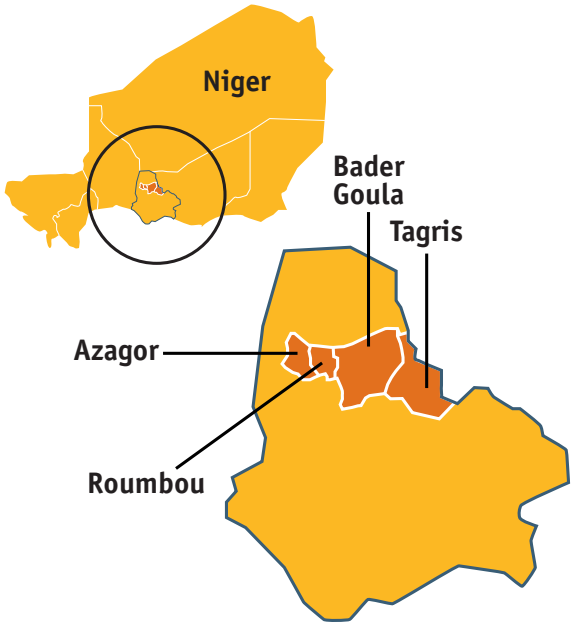
Small ruminants scheme (Niger): This strategy of small livestock rearing known as Habbanayé in Niger, consists in identifying the most vulnerable women in each community, dividing them into two groups and providing one group with small ruminants. Once they have bred, the animals are exchanged with the second group of women, and so on. The small ruminants can be either goats or cattle, according to the beneficiaries' preference, and would also be related to the species most adapted to the context of the area.

Improved, short maturing seeds (Ghana and Niger): This strategy involves the use of short maturing crop varieties helping to secure better harvests when the rainy season is delayed or shortened – cassava in Ghana, cow pea and millet in Niger. The short maturing seeds are especially useful in connection with the community-based early warning system in place in Dakoro, Niger, whereby farmers learn to make better planting decisions based on timely and accurate rainfall readings.

Dry Season Gardening (Ghana): This strategy is about supporting farmers to improve and expand dry season farming activities and better manage food security through the annual hunger gap. Water pumps replace the manual method of irrigating crops during the dry season. Dry season farming refers to irrigated crop production (i.e. no rainfall expected) using local water points (usually small dams).

Note: For further adaptation strategies applied in the four ALP countries, please see the "ALP Adaptation Strategies Compendium: Voices from the Field" (see Further Reading section)

3.1 BUILDING ADAPTIVE CAPACITY IN PRACTICE IN DAKORO, NIGER



Context

In Dakoro, Niger, a harsh, dry climate, dependence on natural resources and recurrent shocks leading to food crises have created a state of chronic vulnerability and food insecurity lasting almost thirty years to date. Faced with environmental degradation, political changes and increasing uncertainty about rainfall and other weather patterns, communities within the Department of Dakoro are seeking new ways to manage their livelihoods and ensure food security.

ALP is working in 20 communities in four communes – Azagor, Bader Goula, Roumbou and Soly Tagriss in the department of Dakoro in Niger. The area and the population living there are particularly affected by the impacts of climate change. With a short rainy season of average 350 mm, their activities are highly sensitive to extreme events and fluctuations in rainfall, in terms of both timing and amount. Late or low rainfall and strong winds results in eroded soils and reduced crop productivity and in the worst cases failed harvests and starvation of animals. As an important source of food and income security, the loss of livestock is a major blow to the household asset base. Heavy rainfall events on the other hand wash away seeds and soil and cause damage to crops, sometimes leading to flooding, which has devastating effects on agricultural production in more fertile areas near rivers.

"What is happening right now is not normal, we have never seen this before. April has never been a cool season, and this back and forth between hot and cold makes no more sense"

Focus group with men leading a community early warning group in Marafa, April 2015

Sandstorms are a common hazard that communities have to content with in Niger. Credit: Marie Monimart, 2012.

ALP Niger's community-based adaptation activities in Dakoro

Through the community based vulnerability and capacity analysis (CVCA) and planning processes conducted in Dakoro, the communities identified a number of suitable adaptation strategies appropriate for both men and women vulnerable to climate change impacts. The most popular strategies used by communities in Dakoro are presented in Box 1 on page 12.

Mariam Chaibou of Maigochi village in Niger with two of the four goats she received through ALP's restocking scheme. Credit: Agnes Otzelberger/ALP-CARE, 2015.

These different strategies are selected and prioritized flexibly, in ways that support continuous adaptation. This is encouraged through an interplay between various, linked community-based adaptation processes that help develop relevant knowledge, communication processes, and the capacity to anticipate and gauge the potential impacts of different scenarios among community members and local institutions.

For example, communities in Dakoro run a community-based early warning system to keep an eye on human and animal health and food security, the environment, social relations and the climate. This volunteer-led system not only feeds into the national emergency management mechanism, but also helps people with day-to-day decisions on these strategies – in particular when and which seeds to plant. Equipped with rain gauges, radios, mobile phones and solar power kits to keep these charged, many people in Dakoro now produce and receive up-to-date, live information on rainfall. Knowing exactly how much rain has fallen in a given location has, among other things, helped many people avoid an unnecessary loss of seeds. Prior to this system, almost half of their seeds could be wasted due to premature planting. The Village Savings and Loans Groups run by and for women in the same communities, have seen how empowering improved communication and access to information can be for them. There is huge desire for more education and more communication.

Each year is different, so people's preferred strategies vary from time to time. Every year, both the Community Adaptation Action Planning exercise in the communities, and the Participatory Scenario Planning exercise at departmental level, provide communities and local stakeholders with opportunities to review the successes and challenges of past seasons, consider the traditional and scientific forecast for the coming season. Through these processes of collective planning and decision-making, more informed plans are made for the season ahead. Community members are expanding their range of livelihood options and risk management strategies and learning how to be flexible and make livelihood decisions in the right time.

For example, people notice when it is time to de-stock their livestock in anticipation of a drought, sell off the weakest animals and use the profit to keep the remaining animals well fed and healthy. Expectations of a delayed or irregular rainy season now prompt people to use new, short-maturing seeds, which help them secure an acceptable harvest. And when the harvest is over, there are new options which simultaneously provide direct livelihood benefits and help manage and spread risk: the *warrantage* scheme and savings from the VSLA groups, provide poor families with cash both for immediate needs and longer-term investments – a guaranteed loan that allows both for investment during the times of plenty, and something to fall back on when the stocks run low and prices go up.

How has this helped build adaptive capacity?

The interplay between the adaptation processes and strategies has helped people and local institutions anticipate upcoming events and continue adjusting their lives and livelihoods. This has helped build the five elements of local adaptive capacity (see figure 2) as follows:

Asset base: Through the warrantage system, small ruminants scheme, VSLA groups, and use of short maturing seeds, people have gained access to different options for building their asset base instead of seeing them eroding season after season. Thanks to some savings and alternative income sources, emergency sales of animals or crops at inconvenient times when prices are low, are becoming less frequent.

Community Adaptation Action Planning and community early warning are improving awareness of which assets are at risk and how they might be protected from an impending threat. In a context where repeated shocks due to the climate, volatile markets and insecurity put people's livelihoods under extremely trying conditions, strategies that help to build rather than erode assets are the basis for building adaptive capacity.

Innovation: Through a combination of new information and group solidarity gained through the different CBA-related processes – adaptation action planning, community-based early warning and participatory scenario planning – on the one hand, and access to different adaptation strategies they are linked to on the other, people are gaining new confidence to try out new and different things. For example, they try using different combinations of regular and short maturing seeds, or new income-generating activities alongside their farming and pastoral activities. As new technologies – e.g. solar mobile phone charging kits – become accessible, village savings and loans groups (see box 1) have grasped the opportunity to make extra income for the group which, in turn, is invested in other forms of new income generation.

Institutions and entitlements: Pro-poor processes that support the spreading and collective management of risk such as the small ruminants scheme, VSLA groups and warrantage, as well as Community Adaptation Action Planning and community based early warning system are supporting the aspect of institutions and entitlements. These processes build social capital and influence social relations: through them, collaboration within the community increases as people manage and share community resources. They involve coming together on a regular basis, reflecting together, having different groups' voices heard, improving communication and social cohesion. Women in particular have gained respect and influence within their communities through their group solidarity. In one community, the women argued successfully for priority space in the warrantage store for their cowpeas, leaving the men to seek alternatives for storing their millet once the store as full.

Through strengthened participation and better collaboration between different community groups, benefits from collective action are spread more equitably, benefiting especially those who normally wouldn't be in the position to secure credit or an investment from a formal institution. The practice of monitoring and sharing data on vulnerability through the community early warning system has also helped strengthen institutional links between different levels, albeit with strong limitation as there is limited feedback and follow-up from the levels above.

Information and knowledge: For the new adaptation strategies to be selected and used appropriately, processes enabling the collection and analysis of new information and knowledge have been key. Community-based early warning systems on the one hand, and local government level Participatory Scenario Planning on the other, are practical ways of producing and processing timely climate and other adaptation-relevant information. Also, improved communication of rainfall data via mobile phones and the national radio has helped ensure wider access to crucial rainfall information. This has even improved the lot of those migrating to cities in Niger and Nigeria during the lean season, giving them more certainty about the right time to return to farm the fields back home.

Flexible and forward-looking decision-making: People tend to make decisions based on their past experiences. The season-to-season planting decisions by farmers, for example, are often strongly influenced by what happened in the previous year. While experience is a valuable asset, for community-based adaptation it is important to not only act on past events, but to also make more anticipatory decisions based on emerging situation and information, and new strategies available. Community adaptation action planning, community-based early warning, and Participatory Scenario Planning are all processes which encourage such forward-looking decisions and flexibility for households, communities and local institutions. These processes work on different time-scales: Community adaptation action planning, for example, includes a longer-term visioning component and tends to be synchronized with the year-to-year local development planning cycle. Participatory scenario planning, on the other hand, focuses on the coming rainy season and the rain gauges and community-based early warning captures and communicates information relevant from the immediate to the medium-term - from the same day to the coming weeks and months.

Flexibility in planning is encouraged through the concept of 'living plans' in community adaptation action planning, which can be adapted and adjusted in response to new information, learning and changes over time. A more secure asset base, as described further above, is also crucial for flexibility: it provides people with the basis to invest in and try out different options responding to different scenarios, and to adjust them over time.

An agro-pastoralist in Garissa, Kenya, reading a climate advisorie. Caption: Eric Aduma/ALP, 2014.

Dela Jari, Community Early Warning Volunteer reading the rain gauge in Aman Bader village, Niger. Credit: Agnes Otzelberger/ALP, 2015.

"We now look to the horizon. It's like something you see on the horizon, you see what is coming, and you get ready"

A group of women involved in community early warning in Aman Bader village in Dakoro stated, they are now able to look ahead and know, for example, when and when not to plant improved early maturing seeds. There has been an overall attitude change from reacting to past events to looking ahead – to the horizon, as they say. Impending health problems are also recognized and acted on earlier; at the earliest signs, mothers take their children to get vaccinated, warn others, and seek advice in advance of rather than in the middle of a crisis. They also know how to prepare for any potential issues with their livestock: when the environment around them and the weather announce a bad season for pastures, they sell the least healthy animals and, with the revenue, buy fodder and supplements to keep the rest of their animals healthy.

Focus group Aman Bader, April 2015

What the case of Niger also makes clear, is that adaptive capacity can only be meaningful when underlying causes of vulnerability – basic questions for good development – are addressed. The barriers are still many: decentralized governance has not necessarily led to a decentralization of resources, especially for drought-related emergencies that keep too many people chronically undernourished. Conflict and insecurity hold development hostage. The education gap between rich and poor, and between men and women, continues to be large – many of the illiterate women in Dakoro even struggle to make use of a phone. Basic infrastructure – markets, health centres, often schools – remains difficult to reach for people without means of transportation or with limited mobility. This is especially the case for women in the Hausa community who often have heavy workloads, or are not free to move around because social norms do not allow it. And inequalities within communities are significant – inclusion of and lasting benefits for the poorest among people living in poverty remain a challenge. Therefore efforts to build adaptive capacity must go hand in hand with efforts to address basic development challenges that will otherwise hinder effective adaptation and frustrate those who have gained new knowledge and skills they are unable to apply.

As a focus group in Marafa put it, *"everyone can adapt only as much as their means will allow"*. According to them, 7 out of 10 people don't have the means to make use of all the new adaptation strategies available.

Focus group in Marafa, April 2015

Ardo Ousseini Kouggou, Chief of Fulani community in Kouggou and president of Early Warning System (EWS) cluster of Kouggou, Marafa and Dan Sarko communities. Credit: Agnes Otzelberger/ALP, 2015.

3.2 DIFFERENT CONTEXT – DIFFERENT CHOICES: BUILDING ADAPTIVE CAPACITY IN THE UPPER EAST AND NORTHERN REGIONS OF GHANA

Situated in the Sudan Savannah agro-ecological zone, northern Ghana is characterized by dispersed trees and grasses. Like in Dakoro, Niger, there are two main seasons: a long dry period (October to April) and the rainy season (May to September). Here, too, rainfall patterns are increasingly erratic causing poor and declining agricultural productivity, though rainfall amount (approx. 1200mm) and season length is significantly higher than in Niger. Drought and floods are the major climate hazards experienced in the region. Other natural hazards include pest (especially locusts) and disease outbreaks. The climate-related hazards are thus similar to those experienced in Niger, but livelihoods look different. With up to three times the amount of annual rainfall in Dakoro, Ghana's Upper East and Northern regions are a much less arid context, with more sedentary farming. In addition to millet, maize is also an important staple here. The yields from both are continuously declining.[23] Despite the agro-ecological differences and Ghana ranking much higher than Niger on the Human Development Index[24], the populations of East Mamprusi and Garu Tempane are extremely vulnerable – chronic poverty and debt are widely present, and limits to land access and rights present enormous structural challenges to development.

The adaptation strategies identified through climate vulnerability and capacity analysis and community adaptation action planning processes in East Mamprusi and Garu Tempane are listed in Box 1 on page 12.

Building adaptive capacity in Northern Ghana: some comparisons

The CBA process applied by ALP in Ghana is quite similar to Niger, in that it includes a vulnerability and capacity analysis process, community adaptation action planning at community level, and participatory scenario planning at local government level. Like in Niger, the participatory scenario planning work in northern Ghana brings meteorologists, agriculture experts, District Assembly workers and community members together to discuss predicted seasonal forecasts along with appropriate actions – but it happens at a much bigger scale here with around 400 people attending, and special climate information centers having been established with support of local met services and radio stations. The advisories resulting from the process, in turn, inform Community Adaptation Action Planning in Garu Tempane and East Mamprusi districts.

Group Village Savings and Loans (VSLA) box and member passbook in Tariganga community, Ghana. Credit: Joseph Ndiritu/CARE 2013.

Similar to Niger, the **asset base** of vulnerable communities in East Mamprusi and Garu Tempane has been strengthened in various ways, improving access to e.g. agricultural inputs, income, financial services and credit, and productive land; and **innovation** is taking place in the form of experimentation with different farming practices and micro-enterprises. People also have improved **knowledge and information** on climate, weather and relevant adaptation strategies. As in Dakoro, the combination of scenario planning, community adaptation planning and a basket of adaptation strategies to select from is vital to communities in East Mamprusi and Garu Tempane as, together, they enable households and community groups to make better-informed, more **forward-looking decisions** about adaptation strategies, based on predicted scenarios.[25]

Dry season gardening in Tariganga, Ghana. Credit: Agnes Otzelberger/ALP 2015.

But there have been differences, too. For example, given the context of different socio-economic conditions to those of Dakoro, ALP's work in Ghana has been less focused on predicting and dealing with shocks and emergencies and more on community visioning and planning for climate resilient livelihood development outcomes. In contrast to the community early warning system of volunteers operating in Niger, in Ghana, these critical actors are called "community monitors" and have developed a network of volunteers championing CBA in their communities. They support facilitation of community organisation and planning, monitor rain gauges and support the generation of improved climate records.

Working with District Assemblies in Ghana's decentralized local government structure has enabled communities to communicate their adaptation plans and priorities to the District level in several ways – through presenting them at District level, engaging with the sub District level assembly members to champion their cause, and making direct requests to the Districts for infrastructure and service elements of their plans which need government support. Borrowing from Ghana's District level public hearing process for development plans and budgets, ALP has mobilized question and answer sessions for local government to learn from the community level on their CBA priorities and concerns. As a result, many CBA priorities are included in annual local development plans and budgets and some communities have improved dams, water supply and health clinics.

Building and protecting people's asset base, strengthening knowledge and information and forward-looking decision making have been the stronger elements of adaptive capacity building in Niger. In Ghana, the focus on integrating communities' CBA priorities into local government development planning in northern Ghana has produced stronger outcomes on the aspect of **institutions and entitlements**.

Households in the East Mamprusi and Garu Tempane areas now have greater knowledge of what they can expect from their local government, and whom to approach in order to obtain these services. For instance, community members know the services that the National Disaster Management Organisation (NADMO) can provide when their homesteads have been affected by storms and can use their links with local DA members and traditional leaders to leverage a response from district decision makers. Community activities supported by ALP in East Mampusi and Garu Tempane have directly built on previously existing traditional and informal organisations, as well as more formal institutions,[26] unlike in Niger, where new community structures such as the community-based early warning system were originally set up by development agencies.

4. Emerging Learning On Adaptive Capacity

Over the years, ALP's CBA work has developed a number of promising, tangible ways to strengthen adaptive capacity. Many of them are being replicated, modified and expanded on in numerous other countries, as well as other regions beyond the Sahel and beyond Sub-Saharan Africa. Their success is contingent upon a wider commitment to real learning – with all the enabling conditions for flexibility, modification, trial and error, and relationship-building that involves – as opposed to using these approaches as rigid blueprints. Continuous learning itself becomes part and parcel of adaptive capacity.

Strengthening adaptive capacity has become an essential ingredient of community-based adaptation and sustainable resilient development in the face of climate change and other changes. ALP learning highlights a number of critical processes to strengthen adaptive capacity, as follows;

Balancing software, hardware and different vulnerabilities. The use of new livelihood strategies, technologies, agricultural practices (often referred to as "hardware") by communities struggling with the combined impacts of poverty and climate change needs to be embedded in a coordinated process that also strengthens "software" (governance and collective and individual capacities for accessing and using knowledge and information, flexible and forward looking decision making etc). The application of adaptation "hardware" without also the "software" risks not delivering the wanted result in the long run: lives and livelihoods that are more resilient to shocks and stresses, flexible and adaptable under a range of changes, from climatic to economic.

New choices, synergies and trust. Comparing ALP's experiences in southern Niger and in northern Ghana, we can see similarities in the community-based adaptation processes across different contexts. For example, community vulnerability analysis, adaptation action planning and participatory scenario planning work together well. All these processes are designed to bring together multiple actors, recognizing that one alone cannot solve the challenges of a changing climate. They are key for enhancing and integrating local knowledge and new information such as local interpretation of seasonal forecasts. This, in turn, builds trust across different actors, levels and institutions vital for community-based adaptation such as national meteorological services, and people's confidence in their own observations and decision-making capacity in the face of uncertainty.

A multiplier effect of incremental benefits, resulting from these processes over time, has been observed especially for community members making use of multiple adaptation strategies in parallel. They learn to make suitable choices among a number of autonomous and externally supported adaptation strategies, and to apply them flexibly in response to changing circumstances and forecasts, through their participation in the above-mentioned collective planning and social learning processes and improved access to information.[27]

The dynamics of leading change. CBA practitioners need an appropriate process for understanding how and why local vulnerability is changing over time for different groups - as people become more aware of climatic and other patterns, and develop the habit to anticipate oncoming events and choose actions that work for the right groups of people and at the right time. In the context of drylands especially, it also requires understanding variability as an asset rather than a hindrance to a dynamic system – akin to the way pastoralists have traditionally understood how to deal with rainfall variability over time and across different locations.

Further, local champions – be they early warning volunteers as in Dakoro, or community monitors as in northern Ghana, are important for driving conscious community engagement in CBA – i.e. adaptation that happens through empowerment and planning, as opposed to reactively and passively. Designing community-based adaptation becomes a continuous learning process, not a one-off exercise. It requires people and institutions to work together in new ways to continuously adjust their plans and strategies in response to the dynamic world around them – whether changing weather and climate, changing economic, environmental or political circumstances.

In contexts of high vulnerability and poverty, community-based adaptation planning and decision-making processes, have little chance to succeed, if they cannot offer people – especially those with the fewest assets and highest levels of livelihood insecurity – access to tangible adaptation options or deliver concrete, immediate results. In other words, when immediate needs, e.g. health

or food related, are not met, people living in extremely poor conditions will find it difficult to invest in, and remain motivated in the time-intensive processes of social learning, collective reflecting and decision-making associated with building adaptive capacity unless support to meet their immediate needs is provided. "Quick win" activities that strengthen resilience regardless of climatic impacts, can help support vulnerable people's short-term needs earlier on, before identifying more specifically climate-responsive capacities and strategies. Governance structures for local adaptation need to factor these differentials into their strategies, targeting social protection, safety nets and risk reduction systems as well as promoting investment opportunities.

Successful community-based adaptation combines 'software' and 'hardware' sensitively, with adaptation strategies emerging from the decision-making processes, capacities, skills and behaviours that help any social system from a household to a community, organisation or network to be secure, agile and proactive in the face of changing risks and uncertainties. Hence the dynamic interplay between the community-based adaptation *process* and *adaptation strategies* – the ways they inform and reinforce one another –, becomes essential for strengthening adaptive capacity in vulnerable communities and among local stakeholders.

Building blocks for strengthening adaptive capacity

- **Strengthening community capacity to analyse and use information on risk and uncertainty**– e.g. through community vulnerability analysis, community-based early warning mechanisms, community adaptation planning and scenario planning – is critical for their decision making on livelihood choices and to spread and manage risks.

- **Building a habit of anticipation among communities** – the capacity to weigh up risks and opportunities on a continuous basis and aim for an optimum mix of investment and preparedness, is vital.

- **Collective planning and decision-making** for adaptation by and with those directly affected allows for the real needs and priorities of communities and local ownership and management to occur at the most appropriate level, informed by the local context and local knowledge.

- **Supporting innovation and community-driven action** based on the analysis and priorities of women and men affected by poverty and climate change is more successful and equitable than pre-determining adaptation strategies.

- **Working with both local knowledge and climate science information** helps build trust in institutions vital for community-based adaptation such as the meteorological services, as well as people's confidence in their own observations and capacity to flexibly apply, deviate from and tailor adaptation strategies

- **Building on and strengthening local governance systems** is a key condition for adaptive capacity to be supported, sustained and realised at scale. The dynamics of relationships between all stakeholders should be well understood at the beginning of a deliberate CBA effort, and inform the strategies for ensuring inclusion, equality, organisational development and linkages at all levels. Under project time and resource pressures local power dynamics and governance can easily be overlooked but are a critical success factor.

- **Mobilising collective action and communities' knowledge of their entitlements** and roles vis à vis local institutions (e.g. government, service providers) builds social capital. This, in turn strengthens community crisis management skills, ability to access development, financial and investment options and the capacity of individuals to seek support and learn from peers. It also serves as a critical starting point for women's empowerment.

- **Continuous learning** and reflection with and among the range of stakeholders involved in designing, supporting and implementing adaptation is a pre-requisite to long term successful adaptation. CBA approaches, governance structures, monitoring systems and learning / exchange platforms can all contribute to learning and to coordination and use of ongoing learning.

A woman harvesting sorghum in Kaluri community, Northern Ghana. Credit: Charlotte Klevenfeldt/ALP, 2015

5. Reflections for Future Practice

The same challenges keep surfacing underneath all aspects of adaptive capacity explored in ALP's work with vulnerable communities: gaps in basic service provision, governance issues, gender inequalities, other social inequalities, conflict and insecurity, education gaps, etc. are all longstanding challenges for development. The poorest households and social groups often do not have the time, the means or social permission to engage, and even the most pro-poor and inclusive of strategies are often found to fail marginalised ethnic groups, younger or older people, women or the poorest and most excluded households. And if these challenges are not addressed, the additional negative impacts of climate change threaten to reverse any development gains, whether or not people have increased their adaptive capacity.

Populations living in poverty in the Sahel, such as the communities in southern Niger or northern Ghana are affected by these problems with or without climate change. Often, the question emerges how much capacity there really is to deal with an abstract, complex problem such as climate change, and with the long-term future, in places where day-to-day sustenance is a chronic question mark for large parts of the population. It is therefore often argued that progress toward climate change adaptation is best achieved with actions addressing these underlying causes of poverty and vulnerability – in other words, by doing 'good development' as well as possible. ALP's learning provides good examples – the Village Savings and Loans Associations approach, for example, which originally emerged in Niger in the early 1990s, is by no means specific to climate change adaptation but frequently quoted as one of the most effective and accessible adaptation strategies by very poor and vulnerable women participating in ALP activities in Niger and elsewhere.

The temptation – and pressure – is great to focus entirely on quick-win strategies that deliver immediately visible, straightforward results: they are easier to plan and carry out than the more complex, time consuming and less measurable processes of building adaptive capacity, which can seem quite abstract in contexts of deep, chronic poverty.

The question 'What is really new, then?' often follows. In fact, critical aspects of adaptive capacity such as the asset base, institutions and entitlements point toward 'simply' enabling basic, safe livelihood conditions. Community-driven innovation faces strong barriers in extremely poor contexts where only few people can afford to take risks. And so, for many poor and vulnerable people, adaptation continues to be mostly reactive not proactive.[28] What flexible and forward-looking decision-making requires and can look like in practice in such places is still poorly understood.[29]

But looking at Niger and northern Ghana, climate change is neither abstract nor only happening in the future, and it is, in fact, becoming a day-to-day problem. The need for capacity to deal with ever-changing, unpredictable circumstances – not only in the climate – is evident. As ALP has learned through its work in Ghana, Niger and two other countries, increasing people's potential for adaptation now and in future requires doing more than achieving quick wins.

The challenge and opportunity in pursuing adaptive capacity is to strike an appropriate balance between addressing these basic issues in 'good development' and finding better ways to embrace uncertainty and changing risks. Innovation, knowledge and information related to climate change are being addressed by many new initiatives working with new technologies, new information systems and integrating climate science into decision-making. More and more communities are learning to rebuild the adaptive capacities deeply rooted in their traditional livelihood strategies while at the same time developing new, proactive habits and skills, strengthening their collective voice and governance to deal with longstanding and emerging challenges. And in various instances, these very processes are also helping to overcome some deep-rooted barriers to development, such as women's lack of voice in public spaces or the lack of access to credit by people living in deep poverty.

This leads to a final key point on the road to resilience in the Sahel: Navigating the relationships between delivering 'good development', risk reduction or response, and adaptation to climate change is not about choosing to focus on one or the other; they are inseparable. In times when climate change is threatening to reverse all development gains so far, while development progress itself – on food and nutrition security, health, etc. – has failed to deliver the conditions for adaptation in the region, an integrated approach is essential. Adaptive capacity strengthening has been initiated in response to the impacts and uncertainties of climate change, but once gained, it can be applied in all life contexts, not only climate change. Changes in knowledge, capacity and attitude are resulting in anticipation, innovation, contingency planning, flexibility, organisation and pro-active decision making becoming the new norms which guide households and communities towards more resilient future livelihoods.

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The Adaptation Learning Program (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 with civil society groups to influence national and international policy frameworks and financing mechanisms for adaptation.

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