



Climate services for resilience: the changing roles of NGOs in Burkina Faso



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Summary

The growing focus on resilience in the context of climate change and international development has led to a push for more integrated approaches to planning for and responding to climate change, managing disaster risk, and addressing broader development challenges. Included in this move is an increased emphasis on the use of climate and weather information in decision-making. Non-Governmental Organisations (NGOs) across Africa and Asia have responded accordingly, and are increasingly acting as brokers, and sometimes producers, of climate information services as part of their “resilience building” programmes (Jones, Harvey & Godfrey-Wood, 2016). To enrich our understanding of these trends, this study traces the emergence of climate services as a core element of resilience programming and explores how development NGOs are contributing to the climate services system in Burkina Faso. It examines when, and how, the emergence of resilience programming has affected programme activities and practices in the country, using the 2001-2002 as a baseline for comparison. The study approaches climate services as a value chain, looking systemically at the range of entry points where NGO engagement has had an impact.

More specifically, the study is focused and structured around three areas of inquiry:

1. Understanding the climate services landscape in Burkina Faso: How has it evolved over time and why?
2. NGO contributions to the climate services system: How have development and humanitarian NGOs contributed to the design and delivery of climate services? Have their roles changed over time? How?
3. Changes in NGO practice: Has NGO engagement in the design or delivery of climate services (particularly under the banner of resilience) led to wider changes in organisational practice?

As in many other African contexts, Burkina Faso’s chief meteorological agency, ANAM, is challenged by a lack of clarity in terms of its mandate for climate service delivery, and in developing a sustainable financing model for this delivery. Despite these challenges, we observe a significant rise in technical capacity and infrastructure in Burkina Faso’s national meteorological and hydrological services over time, driven to a great extent through project-based funding. However, less progress can be observed in offering sustained two-way engagement with users beyond pilot and project-based initiatives.

NGOs have long-standing roles as translators and brokers of climate information at the community level in Burkina Faso. This role has continued to grow under the banner of resilience, building on strong personal connections between governmental and non-governmental actors working in this field. Over time, however the range of roles NGOs have played, and the capacities they have developed, has expanded. This has led to valuable innovations across the climate services system, but also raises concerns about the coherence and continuity of national climate services.

Finally, the increased focus on resilience, including the integration of climate information into development and humanitarian practice, has expanded NGOs’ opportunities for fundraising and policy engagement, and broadened the range of themes and collaborations that they are engaged in. One consequence of this, however, is that it has increased the complexity of their programming. The question of whether this increased focus on resilience has had an impact (whether positive or negative) on NGO practice remains unclear however. Further research is needed to understand how the *enactment* of resilience practice translates into community-level outcomes.

Based upon these trends we conclude that:

- NGOs continue to play a critical role in supporting the effective delivery of climate services – including defining how information can best meet user needs at the community scale. There remains further potential to draw on NGOs in building the feedback loops that are currently lacking in Burkina Faso’s climate services landscape.
- The risk of a continuous cycle of pilots and time-bound projects at the core of national climate service delivery limits the amount of lasting change that NGO contributions can bring, and risks creating community dependencies on unsustainable services.

- NGOs and national climate information providers should reflect together on the most appropriate levels and forms of support to climate services that NGOs should provide. Current efforts to promote user-oriented climate services and strengthen the role of national meteorological services could provide an important context for this reflection.
- Climate information services are neither apolitical nor value-neutral. They reflect choices and priorities that are often contested and may benefit some more than others. We need to better understand and acknowledge the politically-sensitive nature of forecasts in order to promote their communication and uptake.
- Finally, more research is needed to understand how these new 'resilience building' functions are being integrated into NGO practice at field level.

Acronyms

ACMAD	African Centre of Meteorological Applications for Development
AGHYMET	Centre Régional de Formation et d'Application en Agrométéorologie et Hydrologie Opérationnelle (Agro-Meteorology and Hydrology Regional Centre)
AGIR	Global Alliance for Resilience
ANAM	Agence Nationale de la Météorologie
ASECNA	Agence pour la sécurité de la navigation aérienne en Afrique et Madagascar
CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
CFAR	Climate Forecasting for Agricultural Resources
CILSS	Interstate Committee for Drought Control in the Sahel
CONASUR	Comité National de Secours d'Urgence et de Réhabilitation
CVD	Comité villageois du développement
DGM	Direction générale de la météorologie
FEWSNet	Famine Early Warning Systems Network
GFCS	Global Framework for Climate Services
INERA	Institut National pour l'Etude et la Recherche Agronomiques
INGO	International Non-Governmental Organisation
IRI	International Research Institute for Climate and Society, Columbia University
NMHS	National Meteorological and Hydrological Services
PRESASS	PRÉvisions climatiques Saisonnières en Afrique Soudano-Sahélienne
PRESAO	PRÉvisions Saisonnières en Afrique de l'Ouest
RCOF	Regional climate outlook forum
SAP-IC	Renforcement de l'information climatique et des systèmes d'alerte précoce en Afrique pour le développement de la résilience et de l'adaptation aux changements climatiques au Burkina Faso
SOFITEX	Société Burkinabé des Fibres Textiles
UNDP	United Nations Development Programme
WASCAL	West African Science Service Center on Climate Change and Adapted Land Use)
WMO	World Meteorological

1. Overview

As one of the most vulnerable countries in the world to climate change impacts¹ Burkina Faso faces a dual challenge of addressing urgent development needs while building its resilience to current and future climate change and extreme weather events. With 80-90% of its population engaged in a predominantly-rain-fed agriculture sector for their livelihoods (GFCS and Météo Burkina 2016; yieldgap.org), the country's development pathways are deeply tied to climate trends. As a result, considerable attention has been given to better understanding how regional climate trends will affect Burkina Faso and on how resource-dependent communities will be impacted by, or adapt to these changes (Roncoli et al. 2002; Ingram et al. 2002). The Burkina Faso government has also recognised these vulnerabilities as a major concern in the country's overall development planning through a range of policy documents, from dedicated adaptation plans to national and sectoral development strategies (Crawford et al. 2016). International agencies have followed suit, particularly in the form of climate-related official development assistance (or ODA), which exceeded USD \$400 million between 2010 and 2013 (ibid).

It is within this context of a rising recognition and subsequent investment into the climate-related impacts on livelihoods and development in Burkina Faso that the focus on climate services has grown nationally. Climate services, understood as services providing climate information² in a way that assists decision making by individuals and organizations (WMO.int), are still in formative stages of evolution within Burkina Faso. For instance, the provision of seasonal forecasts, critical for planning on agriculture and food security, dates back less than 20 years (Roncoli 2009), and the current information flows of this information to vulnerable groups remain weak (Tarhule and Lamb 2003). Academic research has predominantly focused on understanding obstacles to use of climate information among vulnerable (particularly smallholder) communities (e.g. Roncoli et al. 2001, Ingram et al. 2002, Roncoli et al. 2009, Rasmussen et al. 2014; Zongo et al. 2016, Ouédraogo et al. 2015). However, investment and policy focus has thus far focused on infrastructure and capacity for producing and processing observational and modelling data at national and regional levels. Analysis and investment into other aspects of the climate services chain (or system) remains limited.

Given the inextricable links between climate trends and health, poverty and wellbeing in Burkina Faso, another set of actors to have shown a growing interest in the potential of climate services are international development actors including intergovernmental and non-governmental agencies (NGOs). This has usually been through the services to their traditional areas of intervention such as food security, sustainable livelihoods, and disaster risk management. The rise of the so-called 'resilience agenda' (Weichselgartner and Kelman 2015, Jones et al. 2016) as an integrative framework between these themes and climate change is arguably another driver of this interest - as explored in Jones et al. (2016). What is undeniable is that, over the past 20 years, climate services in Burkina Faso have risen from the status of "experimental" analysis (Roncoli et al. 2009) to being described as "fundamental" to safeguarding people's lives, increasing economic efficiency and social stability (GFCS 2016).

This study traces the emergence of climate services as a core element of resilience programming and explores how development NGOs are contributing to the climate services system within Burkina Faso. It also examines when, and how, the emergence of resilience programming has affected programme activities and practices in the country over the past 15-20 years. In doing so, it reveals priorities for future action to support an effective climate services system that offers benefits to those who need it the most. For

¹ Burkina Faso ranked 161st globally in terms of 2015 climate change vulnerability and readiness according to the ND-GAIN index (<http://gain.org>).

² For the purposes of this study we consider climate services to include nearer term weather information. As such we examine the production and provision of information that spans daily to decadal scales.

programmes like BRACED³ this can in turn offer opportunities to support more effective collaboration between the NGOs that represent the majority of the members of the BRACED partnership, and other actors intervening in the climate services landscape, particularly national government agencies and bilateral or multilateral funding agencies.

³ Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) is a three-year programme which aims to build the resilience of up to 5 million vulnerable people against climate extremes and disasters. It does so through 15 projects working across 13 countries in East Africa, the Sahel and Asia.

2. Methods

To capture the evolution of roles and functions in the Burkinabé climate services landscape, and interrogate the roles of NGOs within it, we carried out a desk-based review of recent academic and grey literature on climate information services in Burkina Faso and complemented this review with a series of semi-structured key informant interviews. Key informants were identified via literature review, actor mapping, and snowball sampling from three categories:

- Respondents directly engaged in producing climate information services through data acquisition, analysis or interpretation;
- Representatives of development NGOs using climate information as part of resilience-building projects or programmes;
- Agency representatives from bilateral and international donor agencies that support climate services or resilience-building programmes in the country.

Interviews with 15 key informants were carried out both via Skype and face to face in Burkina Faso, Uganda and the UK, between February and March 2017.

As stated in the opening section of this paper, the climate services landscape in Burkina Faso has witnessed a dramatic evolution since the turn of the century. In this study we adopt a 'value chain' approach to mapping the climate services system to observe the relationships between actors and processes that enable the flow of data to decision-relevant information (see Figure 1 below).

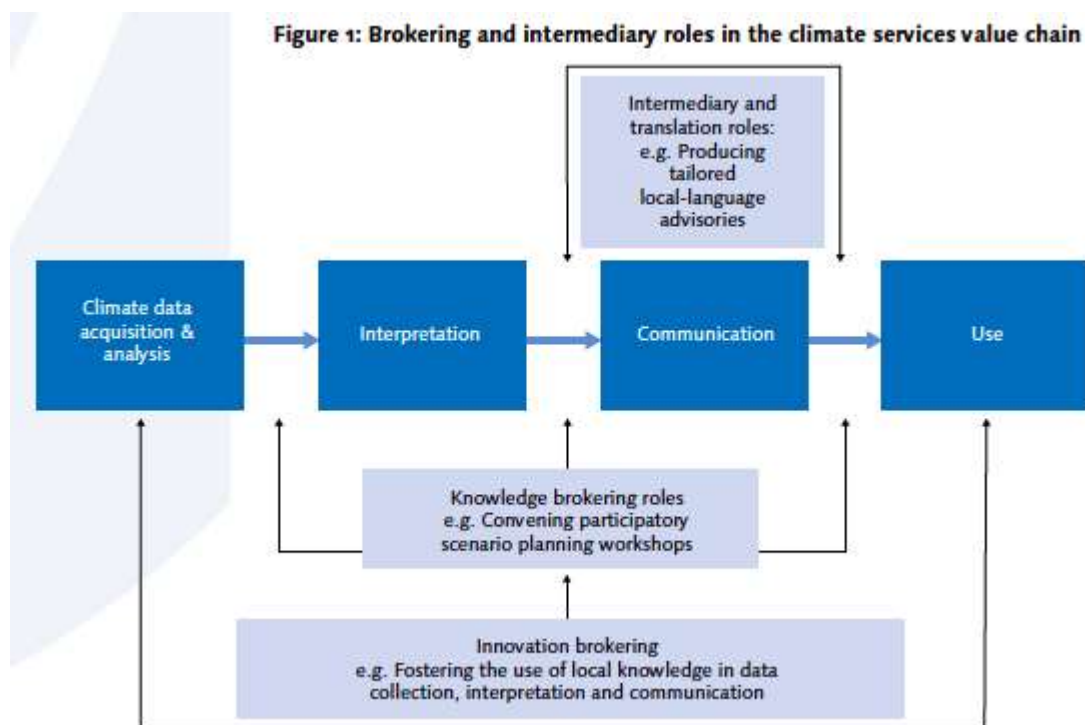


Figure 1 Generic value chain diagram for climate information services (Jones et al. 2016)

This system is dynamic, changing over time as new actors emerge, ways of working evolve, or external developments (such as the explosion in mobile telephony in Africa) trigger changes in the information and communication landscape. To capture these evolutions we mapped the landscape at two points in time:

- ca.2002, when the provision of climate information services to guide decision making was at its infancy; and
- 2017, capturing the current state of the value chain within the country.

The selection of 2002 as a baseline for comparison was also based upon the availability of peer-reviewed findings on the availability and use of climate information – specifically seasonal forecasts – based upon a survey of farmers and intermediary organisations (Tarhule and Lamb, 2003).

We should note that the analysis is intended to document national trends. This is not always easy given the tendency for work on climate services (particularly on communication and use of climate information) to be undertaken as pilots at sub-national scales (usually local to provincial/district). This means that not all of the significant initiatives that currently exist or were underway during the baseline period have been captured in this analysis. We have sought to focus on those that have had country-wide uptake or influence, or to feature examples that are indicative of types of initiatives that were being carried out by different actors in many parts of the country.

3. Climate Context

Summary:

- Burkina Faso already faces high incidences of extreme weather including both floods and drought. These have significant social and environmental impacts.
- The country is projected to see average temperatures rise between 1.5°C and 3°C by 2040. This could lead to heatwaves, further water shortages, and reduced crop yields and pasture.
- Uncertainty around future rainfall patterns in West Africa makes it challenging to fully understand the implications of climate change for Burkina Faso's people and economy.

Climate variability in the Sahel

Historically the Sahel, including Burkina Faso, has experienced large, multi-decadal shifts in rainfall. Across the Sahel there are fewer rainy days, as during persistent drought, but an increase in the volume of rainfall during extreme events (Panthou et al. 2014; De Longueville et al. 2016). In Burkina Faso the reduction in seasonal rainfall total is linked to a reduction in the number of rain days in August and September and a related early cessation of the rainy season (Lodoun et al. 2013). High inter-annual variability is also a characteristic of the current climate in the Sahel, marked by large shifts in total seasonal rainfall, and drought and flood disasters following one another. While the main driver of historical changes to rainfall on the decadal and inter-annual timescale is linked to changes in sea surface temperatures in tropical oceans, the drivers of the recent changes are still an active area of research with climate change likely playing a role (Giannini et al, 2013).

Climate change

West Africa has been identified as a climate change hotspot where temperatures are expected to move beyond the current range of variability, into unprecedented climates, earlier than the global average (Niang et al. 2014; DeSouza et al. 2015). A recent comparison of regional climate model simulations suggests that western Africa, including Burkina Faso, will experience mean annual temperature increases of at least 1.5°C and possibly up to 3°C by 2040 (Daron 2014). This could lead to an amplification of existing water shortages, reduced crop production, and less availability of pasture (Crawford et al. 2016). Few studies have quantified the risk and impact of heatwaves in West Africa indicating a gap in research that must be filled in order to anticipate and plan for upcoming changes.

Precipitation extremes have also changed in West Africa with longer dry spells and greater year-to-year variability in dry spells (IPCC 2012). A case study looking at flood occurrence in Burkina Faso concludes that flooding has increased from a frequency of 11 major events over 10 years (1.1 flood event/year) between 1986 to 2005 to a frequency of 55 over 11 years (5 flood events/year) from 2006 to 2016 (Taylor et al. 2017). However, the link between increases in extreme rainfall and flooding is indirect, and changes in vulnerability and exposure such as population density, land use, infrastructure also play a role in whether or not extreme rainfall results in flooding (Cardonna et al. 2012).

Projections of future precipitation are uncertain in part because global models are unable to accurately represent the convective rainfall in the Sahel (Niang et al. 2014). Models disagree on whether rainfall will increase or decrease with projections for July to September in the 2050s ranging from -40% to +20% in the Western Sahel (FCFA 2016). The high uncertainty in future changes in rainfall mean that adaptation options will need to be able to face a range of possible futures, or remain sufficiently flexible to adapt to changes as they occur.

4. National Climate Services in Burkina Faso: An evolving landscape

Summary:

- The past 15 years have seen a significant rise in Burkina Faso’s technical capacities for monitoring climate and weather data. However, important capacity gaps remain.
- Little progress has been made in providing sustained two-way user engagement beyond pilots and limited-term projects.
- A lack of clarity in mandates for climate service delivery at national and regional levels leads to a lack of coordination and coherence. Work under the GFCS is helping to address this.
- Burkina Faso continues to struggle in finding a sustainable financing model for climate services. This has led to a reliance on project partnerships, a tendency to charge for data access, and pressure to find private sector partnerships to finance the work.

Looking first at the acquisition, analysis and interpretation of climate and weather information for Burkina Faso we focus primarily on the work of national and regional meteorological agencies – namely Météo Burkina⁴, ACMAD and AGHRYMET. The evolution in the landscape of climate services for Burkina Faso since 2002 can be characterised by a number of trends. These include:

- A considerable expansion in national infrastructure and technical capacity for data acquisition and analysis – however, this has been plagued by increasing challenges in obtaining the data.
- Ongoing tension or uncertainty in mandates at both regional (West African) and national levels – a tension that appears to be slowly resolving itself at present, but around which questions still remain.
- A persistent challenge of financial sustainability of national climate service production and delivery.

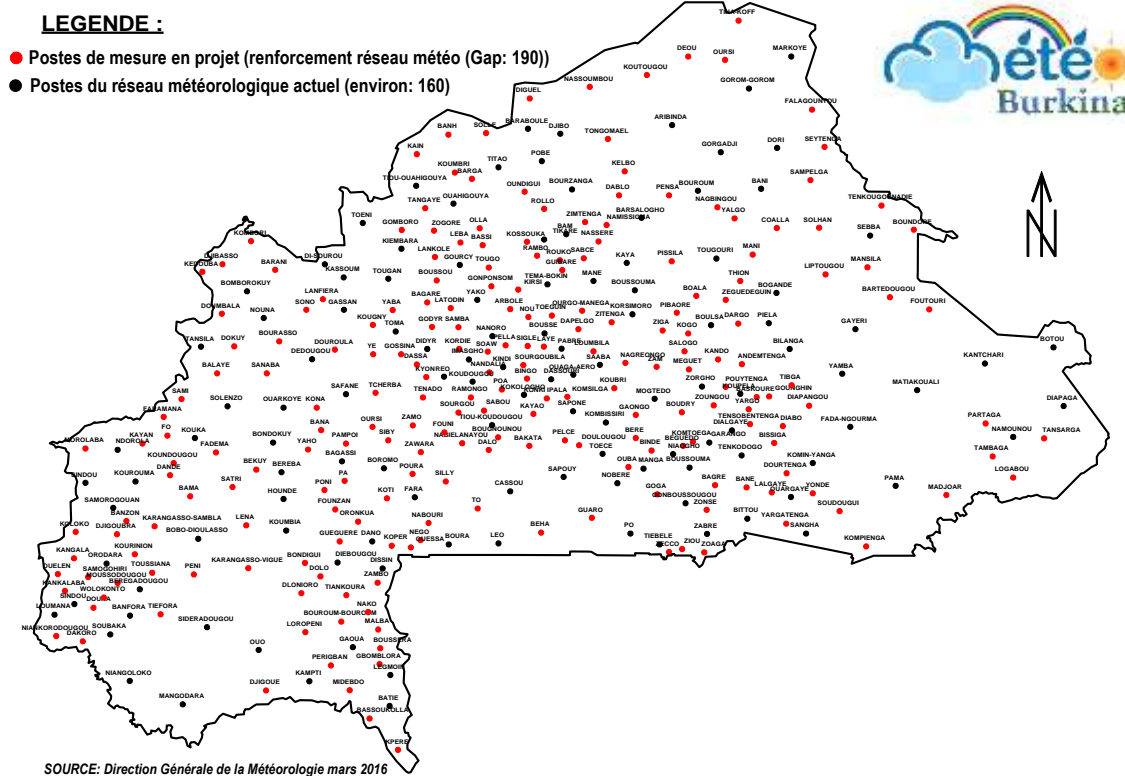
4.1 Expanded capacity

One of the significant changes that has occurred in Burkina climate services since 2002 is the rise in technical and infrastructure capacity of its national meteorological services. The country’s array of automated weather stations and rain gauges has been steadily expanding and becoming less dependent on volunteers and manual measurement. Figures vary, but recent reports now put the total number of stations at over 200 across the country (Diasso 2017), with considerable investment in infrastructure being acquired through project partnerships with UNDP, BRACED, the World Bank, and through the country’s NAPA process, amongst others. Alongside this investment into technology and infrastructure, some efforts have been made to strengthening the technical capacities of Météo Burkina staff, through collaborations with

⁴ Météo Burkina is the public-facing name for Burkina Faso’s national meteorological service. Until late 2016 this was formally known as the Direction Generale de la Météorologie (DGM) and it is now formally known as l’Agence Nationale de la Météorologie (ANAM). Where appropriate, we use the name Meteo Burkina to refer to both entities for the sake of brevity and consistency.

AGHRYMET, IRI, French and UK Met agencies, USAID and the University of Cape Town, amongst others. These investments represent a considerable evolution from past heavy reliance on regional institutions' expertise and infrastructure to assemble data and generate forecasts and longer-term projections, to such an extent that some argue that "Burkina's hydro-meteorological monitoring system is set to become one of the most substantial in West Africa" (Diasso, 2016).

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Despite these investments, however, respondents directly engaged in the production of climate information services and recent reports point to numerous remaining gaps in national capacity, which include:

- Insufficient staffing and technical expertise;
- Delays in data transfer that inhibit timely delivery of forecasts or early warnings;
- A need for greater strengthening of observational capacity (both expanding and maintaining existing infrastructure);
- A need for greater financial resources to retain and expand staffing, scale up communication of information, and address infrastructure gaps. (see Section 4.3)

(Bain and Henley 2014, GFCS 2016, Diasso 2017)

Further, representatives from the Météo Burkina report that in some cases, the rapid improvements in capacity are not yet recognised by outside parties who instead defer to regional institutions like ACMAD and AGHRYMET, bypassing the national authorities. This is something that respondents working with global and regional institutions like GFCS and ACMAD are now actively trying to discourage, particularly through the guidance being issued through the WMO.

One area where Météo Burkina capacity does not seem to have evolved fundamentally against the 2002-3 baseline is in communication and outreach with to users of climate services outside of government,

particularly local communities. While partnerships and pilots have been undertaken in this regard (as explored below), the institutional focus and capacity in this area has not seen a great deal of evolution.

Table 1: Current Météo Burkina communication practices for climate and weather information⁵

Timescale	Information disseminated	Format(s) used
0-5 days	Daily weather summary and 24 hour forecast (temperature and rainfall)	Mailing list bulletin; contribution to national Radio/TV broadcasts
10 days	<i>Bulletin Agrométéorologique Décadaire</i> covering rainfall update, inter-seasonal comparison and weather forecast	PDF document shared by mailing list and website (to government agencies/ working groups, NGOs, farmers' unions, etc.)
Seasonal	Seasonal outlook including rainfall onset/cessation and quality, farming and disaster preparedness advice. Updated based on ACMAD's regional update. Uses tercile system based on PRESAO RCOF format.	Presentation to ministers; National press conference; roving workshops (not used consistently)
Years- Decades	Decadal agrometeorological forecasts	Bulletins for government agencies

Any other work in this area continues to be largely assumed by collaboration in time-bound NGO or Inter-governmental agency-led projects with limited or no funding provided by government for these functions (Roncoli et al. 2009; Bain and Henley 2014). Neoliberal policies adopted in the late 1990s considerably reduced government funding for agricultural extension (and other public services), so that extension agents are mostly active in areas covered by projects that provide resources for transport and activities. As noted in a review from the UK Met Office, there is also a lack of clarity in mandate for who should deliver short-term and early warning information which constrains its effectiveness, and there is no mechanism for receiving user feedback to better understand whether information is meeting people's needs (Bain and Henley 2014)⁶. What emerges from respondents is a continued discomfort or lack of confidence from within the national climate services providers to take on this communication and user engagement role. This discomfort is attributable not only to questions of mandate and capacity, but also the political liability associated with inaccurate forecasts and alerts (experienced for instance, in issuing an advisory in 2011 for flooding that did not occur), and the sensitivities associated with issuing seasonal forecasts that project reduced yields in this strongly agricultural economy. As such, capacity (in institutional, technical or financial terms) is an important but insufficient precondition for the communication of climate information. Scaling up delivery must also take into account the socio-political implications of forecasts or projections being correct or incorrect.

Signs of change are visible however. The recent National Action Plan developed by Météo Burkina with support from GFCS calls for an increased investment into their dissemination and user engagement capacities (Météo Burkina and GFCS 2016). There also GFCS/USAID investment into setting up national climate outlook forums in Burkina and neighbouring countries, to support seasonal interpretation meetings with key stakeholders. This may be undertaken through the national climate services plan for Burkina but at the time of fieldwork had yet to be confirmed.

4.2 Mixed Mandates

As noted above, a second and more recent trend has been a shift in the formal mandate of the national climate services, most significantly through the December 2016 accreditation of the Direction Generale de

⁵ Sources: GFCS 2016, Bain and Henley 2014, Diasso 2017, Kadi et al 2011. Note: This does not cover information disseminated by other government agencies such as CONASUR or ASECNA.

⁶ The PRESAO seasonal outlooks for West Africa were intended to play this role, but limited non-governmental involvement has meant that user feedback has been limited.

la Météorologie as an autonomous agency, now known as l'Agence Nationale de la Météorologie (ANAM). This new status offers the agency greater autonomy and the ability to establish public-private-partnerships, something it is now exploring with telephone companies in the country, for instance.

As in many other countries, Burkina Faso's chief meteorological office had very limited political profile and limited financial support from government. Housed in the country's Ministry for Transport, its mandated role is for the collection and production of forecasts and monitoring products, but not for communicating that information to the public. Weather forecast information is instead provided by ASECNA, the country's aviation agency with inputs from Météo Burkina (Bain and Henley 2014). A recent UK Met Office review noted that "the overlap in mandate between ASECNA and Météo Burkina for short term forecasting and the lack of clarity as to which part of the forecast is produced by each organisation is potentially a barrier to there being a single authoritative national weather forecast and also for there being an effective national warning system for severe weather" (Bain and Henley 2014:10)

The lack of a clearly-defined mandate for the delivery of climate services could be perceived not only at the level of national government as described above, but also at subnational and regional levels, and between governmental and non-governmental entities, such as NGOs, donor-funded initiatives and, most recently, private information providers. At sub-national level, this has been experienced as a lack of coordination between working groups, ministries or priority areas such as disaster preparedness and climate change adaptation, which has led to a lack of clear communication at the local level (GFCS and Météo Burkina 2016). At regional level, the relative strength and well-established nature of AGHRYMET and ACMAD has sometimes created incentives to bypass the national services altogether and instead work through regional institutions. Further, the well-established PRESAO (PRÉvisions Saisonnières en Afrique de l'Ouest) West African climate outlook forum coordinated by AGHRYMET is seen by many as the primary forum for disseminating seasonal climate information. Though these forecasts are further tailored and refined to the national context by Météo Burkina, many see them as AGHRYMET services and source them from AGHRYMET. A similar trend is seen to potentially be emerging with private providers of climate information, who are able to offer services directly to NGO-led projects. This can lead to scenarios where the Météo Burkina are unaware of what advisories or forecasts are being issued to communities, or whether there is conflicting information being issued by different parties.

These tendencies continued to be highlighted by interview respondents and, with a national decentralisation process introducing greater urgency to cross-scale coordination and planning processes that seek to integrate climate information into an ever-widening array of sectors, the need for a clear delineation of responsibilities seems more pressing than ever. Recent trends in this regard highlight both challenges and steps in the right direction. In terms of challenges, new actors and initiatives working on the production of climate services in Burkina in recent years mean that the sheer number of actors to align under a coherent delivery model is a growing challenge. However, efforts being led by the WMO, through their Global Framework on Climate Services, and other international actors are pushing for greater coherence and coordination in national climate services information systems, and investing into national capacities to deliver in line with this vision, which position national hydro-meteorological services the key intermediary between global and regional climate centres and all national actors (WMO 2014). Météo Burkina's new status as an autonomous agency, described above, is seen as a positive step in that direction.

4.3 Financial sustainability

A final important trend which has not changed considerably over time is the limited level of government investment into core functions of national climate service development and delivery. This lack of investment can be attributed to a wide range of factors, from the historically low profile and recognition of climate services' potential contributions to national development and risk management strategies, to intense competition for scarce national resources, to the assumption that these services should be self-sustaining either through investments from international development partners or the sale of data. The consequences of this limited core financing, and the related challenge of attracting and retaining a critical mass of qualified staff, have a significant influence on the development of both climate service design and delivery.

Burkina Faso is far from alone in facing challenges linked to financing for climate services. A recent UNDP study captures how this challenge is being experienced across Africa, with these points being echoed in both the literature and interviews carried out in Burkina:

Since the mid-1980s, donor support for modernizing weather and climate services in developing countries has conservatively totalled almost US\$1 billion, with the majority of commitments since 2000. [...] So what hasn't worked? [...] The problems vary by country but typically include some combination of poor planning for the ongoing expenses and skills required for the maintenance, service and management of weather and climate monitoring systems. They also include a preference for technological solutions that work well in the developed world but are not well suited for the unique rigours of deployment in sub-Saharan Africa, as well as poor integration between disparate donor-supported investments in the hydromet services space. (UNDP 2016: 8)

Indeed, a key trend in the Burkina Faso context has been the reliance on donor and project-based funding for investment into both the expansion of technical infrastructure such as monitoring stations, and of extension and dissemination activities. On the positive side, the rise in investment into climate change adaptation and climate-resilient development activities has meant that a steady stream of projects has been available to provide that financing. However, this has created a strain on coordination of disparate delivery and reporting requirements; it has meant that investments often need to be aligned with the priorities of outside partners (for example, adding infrastructure where NGOs have project sites rather than based on a systemic assessment). It has also meant that critical interpretation and dissemination services and departmental expertise have come and gone with the life cycles of project funding. This “projectisation” of core service delivery can give rise to risks for end-users who become dependent on information flows for livelihood activities (Honadle & Rosengard 1983). Respondents report examples where the success of initial projects has led to them being sustained, replicated, or at times scaled up, for example by transferring responsibility and training local authorities assume responsibilities for initiatives, but this is not always the case.

A second, related trend that was highlighted by several actors working as climate information intermediaries in Burkina Faso is the growing tendency to have to pay for data that had historically been freely available. As one NGO respondent noted, “there is now a difficult dynamic between government agents, NGOs and donors – everything has a price. Accessing relevant information costs a huge amount and this has an effect on the sustainability of initiatives.” In theory, national institutions and students can still access data for free, but in practice it is extremely difficult. External projects are charged 50 CFA (0.076 Euro) per data point and are challenged with incomplete historical data that make it difficult to use. As a result, some organizations bypass the national services and get information from international sources because it is easier and cheaper than receiving them from Météo Burkina. This can ultimately affect the perceived relevance and reliability of national meteorological service, and creates potential tensions with international funding partners who are investing in the availability of climate services.

One alternative approach to ensuring financial sustainability of climate services being increasingly put forward is the through the establishment of public private partnerships (PPPs). This approach is at the core of a recent UNDP study, where they argue that “Given the size and scale of the problem, and the limited resources that governments and donors can apply to resolving it, engaging the private sector becomes more than just an interesting idea—it is a necessity” (UNDP 2016: 64). In the case of Burkina Faso, which is profiled in the report, the cotton, mining and infrastructure sectors are seen to offer opportunities for partnering with NMHS for information service provision (ibid.), while the government is already pursuing partnerships with mobile phone providers for early warning services. The transition of Météo Burkina to an Agency structure which has the autonomy (and likely, the expectation) of establishing public-private partnerships is perhaps early evidence that this approach is being pursued (Diasso 2017). This approach raises important questions, however. For instance, about how priorities will be established and potential impacts on ANAM’s public mandate, the capacity of ANAM to compete against private information providers in this domain, and whether there is genuinely demand from private sector actors to pay for such services from the national government.

5. NGO contributions to the climate services system

Summary:

- NGOs have long been seen as the key brokers of climate information for communities in Burkina Faso. This role continues to grow under the banner of “resilience”.
- While interpretation and communication functions remain the core NGO activities related to climate services, organisations now operate across the full Climate Information System (CIS) value chain.
- The expansion of NGO-led initiatives offers avenues for system-wide innovation and capacity strengthening, but also raises concerns about the coherence and continuity of national climate services.
- Areas of collaboration and innovation appear to rest heavily on personal relationships and a small number of key individuals who act as knowledge and relationship brokers.

Shifting focus from the national meteorological service to NGOs who are working within the climate services system, this study reveals a fast-evolving landscape, yet a persistence in many of the main trends relating to interpreting and communicating climate information. Chief among these persistent trends is perhaps the absence of sustainable pathways through which information on climate variability reaches vulnerable groups (Tarhule and Lamb 2003). Here the role of NGOs remains as central as ever, though not without its risks and challenges.

5.1 Baseline situation

Looking back to assessments from the ca. 2000-2002 baseline for this study, Tarhule and Lamb provided this assessment of the role and performance of NGOs sources of seasonal climate information in West Africa (based on survey findings from Mali and Burkina Faso):

NGOs currently outpace government agencies by a margin of 2:1 as the major source of information [...]. Their role in providing basic services to rural communities has become increasingly essential in recent years as government services have atrophied. This greater visibility of NGOs in rural areas, relative to government agencies, likely explains their status as the preeminent current source of climate information and may imply that they could assume a larger future role. However [...] most NGOs are ill-equipped in terms of personnel and expertise to increase their activities in this area. Additionally, many NGOs are transient and the nature and scope of their activities depend on funding, which is frequently unpredictable, raising the issue of continuity and sustainability. Nevertheless, at the present time and conceivably in the future, NGOs are major stakeholders and sources of climate and environmental information for rural inhabitants of central West Africa (2003: 1749)

This assessment also shows NGOs acting as information intermediaries, fillings gaps left from the well-documented erosion of state-led extension services to rural communities across West Africa. The views on the limitations of NGO capacity to provide expertise in this area at the time are supported by experiences from the earliest stages of the CFAR project in Burkina (1998-2001), where NGO input from Plan International was primarily logistical, building on their long-standing relationships with communities in the study area. Over time the project stimulated both interest and opportunities for capacity development for government and non-governmental partners alike.

In the years that followed, NGOs built on past work in food security, agriculture and rural development to integrate interpretation and communication of climate information for early warning systems, agricultural planning, and early work on adaptation to climate change. These pioneering initiatives⁷ laid the groundwork for many of the current governmental and non-governmental initiatives operating in the country today, introducing the use of national outlook forums, roaming seminars for forecast interpretation, mobile-based early warnings, and community engagement through village rain gauges and integration of indigenous knowledge into forecasting. Most were in the form of pilots, with some being institutionalised through NGOs like Christian Aid or other agencies, and being sustained.

5.2 Current NGO contributions

Looking at the current climate services system, Tarhule and Lamb's 2003 assertion that NGOs would "remain major stakeholders and sources of climate information for rural communities" has held true. While our study suggests a growth in the range of roles and number of non-governmental actors working in Burkina Faso's climate information services landscape, NGOs' brokering and intermediary roles at the interface of communities continue to dominate. NGO engagement tends to be closely aligned with their institutional mandates, with humanitarian organisations focusing on early warnings and extreme weather events while development and livelihoods-focused NGOs tend to focus on seasonal information that may inform decisions around key livelihood activities like agriculture.

The use of the concept of "resilience" to frame linking climate information and development or humanitarian interventions appears to be growing. For instance, Crawford et al.'s inventory of recent projects working to address vulnerability to the impacts of climate change in Burkina Faso (2016: 39-48) identified seven large programmes with a specific focus on the use of climate information. Of these seven, six specifically identify resilience building as a core objective, while the seventh has "resilience" in the name of the initiative. While this does not, in and of itself, confirm a change in practice, it suggests an emerging discursive connection between these concepts. We consider whether this results in concrete changes in NGO practice in section 6 below.

Expanding NGO roles across the Climate Information System (CIS) value chain:

Looking across the climate services value chain (see Fig. 1), the increase in number and technical capacity of non-governmental actors operating in Burkina Faso is evident. Some of those operating at the earlier stages of analysis and interpretation, such as the German-funded West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) or the CGIAR's Climate Change Agriculture and Food Security Programme (CCAFS) are specialised research entities rather than community-focused NGOs, but their contributions in this space warrant mention. They have expanded the in-country technical capacity on climate services and provide scientific and capacity support both upward, to government, and outward to communities and other agencies. WASCAL, for instance, has signed an MoU with the national meteorological service covering data acquisition, including near real-time data. In exchange, they provide services such as data processing, technical support, and funding for advanced studies to Météo Burkina and its staff. WASCAL then communicates their analyses with research centres, farmers' organisations, and NGOs using forums, bulletins and atlases for further dissemination. In addition, a small number of humanitarian and development NGOs (such as Welthungerhilfe and Action Contre la Faim) are collecting or acquiring raw data using community rain gauges and using analyses of satellite imagery.

Further along the value chain the increasing numbers of non-governmental actors have taken on roles interpreting, translating and communicating climate and weather information for the stakeholder groups with whom they tend to work. The range of examples here is innumerable, covering both early warnings and agrometeorological information for farmers from near-term to seasonal (see Crawford et al. 2016 and

⁷ Réseau MARP, SAP-IC, CFAR, METAGRI and RANET were among those cited.

GFCS 2016 for a sample of initiatives, and Box 1 below). Specific interpretation and communication functions being undertaken by NGOs highlighted by respondents include:

- Information and relationship brokering;
- Translation of information into local languages;
- Communication of early warning information and forecasts through community radio;
- Providing training to communities, media, and government stakeholders; extension agents;
- Integration/comparison of indigenous knowledge and conventional forecasts.

Box 1: NGO-led climate information services in the BRACED Programme

Three NGO-led consortia are working towards enhancing the access to and use of climate information in Burkina Faso within the BRACED programme: Livestock Mobility (led by Acting for Life), Changing Farming Practices (led by Welthungerhilfe) and Zaman Lebidi (led by Christian Aid). The activities undertaken through these three projects focus predominantly on translating, communicating, and supporting the interpretation of information, but in some cases include producing new information or using forecasts to inform their own development interventions. Examples of their activities include:

- Working with local radio stations to translate information into an accessible and local language formats for communities;
- Setting up community rainfall gauges to support agricultural decision-making;
- Training for journalists, extension officers, lead farmers and project staff;
- Partnering with private information providers who can distribute mobile voice and text weather information.

Two years into project activities, two of the consortia are reporting significant changes in both access to and reported use of climate information at household level. Zaman Lebidi has seen use an increase from 40% at the baseline to 63% at present. Changing Farming Practices report a similar level up uptake, with 60.6% of project beneficiaries using weather and climate information for agricultural decision making including seed selection, planning, and crop management techniques.

(Source: BRACED Monitoring and Results Reporting 2017)

While the nature of the functions listed here has not evolved significantly over the past 15 years, it has grown in scale and number of actors. In keeping with the dominant mode of funding for NGO activities, these have largely been undertaken through pilots and projects rather than long-term initiatives, though there are some exceptions.

It is also worth noting some significant roles other non-governmental actors are playing, namely private sector enterprises and farmers' unions and federations. Private sector actors have grown in prominence in recent years and have activities covering the full range of functions from data acquisition and analysis (new private climate data providers like Ecodata⁸ and industry-specific forecasts for SOFITEX), new communication partners such as mobile phone companies who are partnering in initiatives on early warning alerts, and as new users of tailored climate information – such as index-based insurance schemes. Some respondents felt that the rise of private sector actors, particularly in data acquisition and analysis could be a major disruptor of the current system in years to come. Meanwhile, farmers' and producers' unions have long been key interpreters and disseminators of information, providing an important link between national met services and rural farmers. They remain important knowledge brokers in the climate services system today.

⁸ Ecodata (www.ecodata.bf) is a private sector agrometeorological information provider that is currently working with both BRACED consortia in Burkina Faso.

5.3 Impacts of NGO engagement in climate services

In reviewing the impacts of this growing NGO engagement in climate services, some of the concerns raised by Tarhule and Lamb appear to have held true. Across nearly all respondents, concerns were raised about the coherence and continuity of the climate services system with so many disparate actors and lines of accountability in play. Conversely, however, far fewer concerns were raised about NGO capacity in these roles – with a number of respondents noting the growing capacities within NGOs over recent years. Indeed, as stated above, there is a case to be made that it is in fact national meteorological services who have gained in capacity thanks to their interactions with NGOs and the initiatives they are spearheading. These themes are outlined below.

From innovation brokering to service delivery – limits to NGO involvement?

The near-universal concerns regarding the coherence and sustainability of NGO-led climate services initiatives as a part of the wider climate services system point to a more fundamental challenge of erosion and privatisation of state services as a result of neoliberal reform. As one respondent noted, “NGOs are all going to different donors and doing their own thing. They are filling the gaps operationally but not necessarily building into the [climate services] system. The pilots they lead are well resourced and often successful but really hard to scale up. There’s a real risk of creating parallel systems, and the lack of feedback mechanisms and disconnections mean that the overall coherence of the system is lacking.” The national decentralisation process and the increased role of decentralised district or village-level development committees (CVDs) are seen by some as an opportunity for coordinating NGO activities at the scale that they tend to intervene. However, this does not address the mismatch in lines of accountability or priorities between the ANAM and funding agencies – breaking important feedback loops, or the competing delivery timelines that may frustrate coherence as a result of the “projectization” of delivery discussed earlier.

The prevalence of NGO-led pilots also brings important benefits to the climate services landscape. One of the clear strengths of NGOs contributions is directly attributable to their capacity to pilot, innovate, and test new ways of working – activities that are difficult within the conservative and slower-moving government systems. NGOs have acted as the pioneers or “disruptors” in many of the key innovations in climate services to date, not only in Burkina Faso but elsewhere across the continent and beyond (see Whitehead 2016). Examples include the use of participatory approaches and community media for interpreting and disseminating climate information, the integration of indigenous knowledge into forecasting processes, and the use of games to better understand risk and uncertainty. While a number of respondents noted the challenge of scaling up documented good practices, it is clear that some of these practices, such as the “roving seminar” model of interpretation/communication where small multi-stakeholder workshops are held around the country, have been adopted more widely and are now seen as core elements of the national climate services delivery model (Meteo Burkina and GFCS 2016). Respondents also pointed to the ability of some NGOs (particularly INGOs) to distance themselves from the power dynamics associated with forecasts and their implied consequences, thereby giving them some leeway to be bearers of difficult or controversial news. For instance, forecasts of a poor upcoming season in cotton-growing regions may be met with unease by government actors and SOFITEX due to fears that farmers will then abandon planting cotton and the economic impacts that would result. Respondents noted that international NGOs are sometimes more adept at negotiating this unease and getting information out to producers. In sum, it seems important to understand the trade-offs between enmeshing NGO work into a cohesive system which ensures investments build on one another and work toward common aims, and retaining the capacity to be nimble, experimental, and perhaps counter-cultural in both the approaches used and information communicated.

NGO-Government Collaboration on climate services

That NGOs have continued to play the primary role in translating and communicating climate information cannot simply be attributed to a lack of interest on the part of national government. Bain and Henley note that “there is a strong desire by the staff [of Météo Burkina] to do more dissemination of information, but there is currently not the mandate nor the financial means to do everything they would like to do.” (Bain and Henley 2014: 15). Paired with funders’ pressure that NGOs demonstrate greater engagement with government, this has given rise to an expanding range of NGO-Météo Burkina/ANAM collaborations using a variety of partnership arrangements. In the context of the BRACED programme for instance (see Box 1), this has resulted in them establishing service provider agreement with one NGO consortium, and a partnership agreement with another. Neither agreement type appears to be free of challenges, with NGOs reporting of costly service provision on one hand, and ANAM reporting dissatisfaction with partnership agreements that undermine their autonomy as a government agency and burden them with constant accountability checks and reporting requirements. Many respondents also questioned whether the national meteorological services can keep pace with the expanding demands of these various partnerships.

Despite the administrative, political and capacity challenges that these arrangements present, they can offer a compromise between the trade-offs described above. They can raise government awareness of what is unfolding at community scales – in the face of reduced capacity of extension services; improve system-wide coordination; offer direct avenues for informing national policy and practice; and strengthen national capacities (see Box 2 for an early example).

Box 2: NGO-Government collaboration on climate services through the CFAR Project

Météo Burkina was an active partner in the CFAR project and allowed seasonal climate forecast (SCF) dissemination to occur in the CFAR site from the onset. It was through CFAR that Météo Burkina became more engaged with local communities, and Directors who led the DGM over that period participated in some of the farmer workshops. Key personnel in today’s ANAM participated in the farmer workshops and research activities during the formative stages of their careers. These individuals went on to play key roles of leadership in climate services development and knowledge brokering between the Meteo and other institutions, including NGO.

CFAR also had facilitators (retired extension workers) in each intervention zone – paid by the project – who coordinated activities and communicated with the research team and the Météo Burkina. These were well respected actors in the local scene, provided important continuity of presence and connectivity between the research team, the forecast producers (Météo Burkina), and the communities.

Burkinabe partners benefited from capacity building and research experience, computer equipment, but did not receive substantial budgets. Burkina Faso collaborators from the Météo Burkina and other partner institutions received fellowships to support training in modelling at the University of Georgia.

Most notably, it was the first time that personnel from the Météo in Burkina Faso interacted directly with rural producers, and the experience significantly altered institutional culture by generating a greater appreciation for the value of local knowledge and stronger commitment to responding to local users’ information needs. The project also engendered lasting collaborative relationships between US-based researchers and national partners.

(Sources: Roncoli, personal communication; Roncoli et al. 2009)

What resonates clearly from the CFAR case, and in interviewee’s responses, is how central the role of personal relationships is to these collaborations. Trust and sustained personal connection are keys to overcoming institutional inertia or resistance to changing ways of working or practices in knowledge use. A

small number of individuals and/or initiatives were noted as having been particularly important brokers and making important contributions to the evolution of relationships over time. These observations are consistent with our understandings of knowledge brokering (Cash et al. 2003; Fleming et al. 2007) and information usability (Lemos et al. 2012).

The risk in such a system, however, is that it can create a heightened dependence on one or two key individuals to function. As one respondent noted: “the role of the broker is critical, but people move around and turnover leads to gaps and means that the capacity drops off. Especially with the best people. They get picked up [by other organisations] and leave a gap. A sustained investment into creating an enabling institutional environment for people to succeed in one place would help address this.”

6. Changes in NGO practices

Summary:

- The rise of the ‘resilience agenda’, including integration of climate information in to humanitarian and development programming has enabled NGOs to pursue new opportunities for fundraising and policy engagement.
- It has broadened the range of themes and collaborations NGOs engage in, which also increases the complexity of programming.
- Specific changes in NGO practice at community level are less clear. Research is needed to understand how the concept of resilience affects development practice over the long term.

The final dimension of analysis in this study was to look beyond the new or expanded roles that NGOs and development practitioners are playing, asking whether and how these trends have affected their audiences, partnerships or interventions. As noted earlier in the paper, we find a strong discursive connection between climate information services and a “resilience building” agenda articulated in project and programme descriptions that involve NGOs in Burkina Faso. However, does this amount to fundamental changes in NGOs ways of working, and if so, what are the implications of any changes for NGO practice more widely? Literature on this aspect of the analysis is far sparser, and respondents’ views were more tentative. However, there were areas of emerging consensus.

Changes in the ‘opportunity space’ for NGO activities

Perhaps least surprising among the findings was that many NGOs see the increased profile and investment into resilience building as an opportunity to branch into new streams of work, resourcing, and policy engagement. The opportunity was primarily highlighted by more senior NGO representatives who lead strategy and programme development within NGOs, but less so from field-level actors. One respondent observed that some agencies from the humanitarian sector were more resistant to the resilience framing as they felt it was a donor-driven agenda that was “undermining the humanitarian space.” For others, however, resilience was seen to not only open new opportunities for funding, but also for advocacy and influence – particularly at national and regional scales. In Burkina Faso, as well as numerous other Sahelian countries, the concepts of risk and resilience have found their way in to national and regional policy processes such as AGIR⁹, which focuses on resilience in agriculture and food security. This has opened new avenues for engagement into high-profile processes, which international NGOs in particular are keen to capitalise on.

Changes in NGO partnerships and collaboration

Perhaps the most commonly-cited area of change for NGOs and development practitioners who are engaging more with climate information services and resilience was the range and nature of the partners with whom they work. NGO respondents were nearly unanimous in mentioning this change, both as a benefit and a challenge. As one noted: “Resilience has widened the range of collaboration. Single agencies are not doing things on their own. There are more shared learning spaces as well (for example between Niger and Burkina).” Many others noted the integrative nature of resilience as a concept, describing how this has pushed them to work across a wider range of development themes (such as climate information

⁹ <http://www.oecd.org/site/rpca/agir/>

services and health) and partners (such as ANAM, with whom many are working for the first time). Respondents generally viewed this expansion in a positive light, but many pointed to the added coordination and delivery challenges of working across a wider and more diverse set of partners. This added coordination and delivery challenge, one respondent noted, is an important factor in considering the timescales for effective resilience building programmes. The nature of the challenges that NGOs are trying to address in resilience programmes means that it is unrealistic to expect clear evidence of impact in two or three years, as many funders do (Visman et al. 2016).

Changes in areas and modes of intervention

Closer to community scale, where many of the resilience interventions reviewed seek to encourage use of climate information, the changes in practice brought about by the ‘resilience agenda’ are less clear. Recent analysis in the BRACED programme suggests that many longstanding development interventions, from village savings and loan schemes to community vulnerability assessments have been re-cast as resilience building, often with relatively minor changes to what is being implemented at field level – such as a stronger integration of climate risks and climate information into radio programmes focusing on agricultural radio broadcasts (Grist and Harvey 2017). One respondent suggested “resilience is framing the work of actors at sub-national and village level, but are they really ‘thinking’ resilience?” This observation, combined with the points highlighted above, may mean that:

1. Current resilience-building work, as being undertaken by NGOs, differs more in terms of how it assembles collaborations and “portfolios” of interventions than in how individual field agents are expected to perform day to day tasks at the community or household level.

And/Or,

2. Recent changes in the opportunity space and modes of collaboration highlighted at higher orders of practice have yet to fully filter down into practice at more decentralised levels.

Further research is needed to better understand these trends. They may be significant in terms of how climate information is most effectively integrated into resilience-building activities at the level of implementation, and how to support these practices amongst field staff.

An additional point raised by representatives on the increased role of NGOs in supporting (and often delivering) climate services in Burkina Faso was on the potential tension between this work and their advocacy work. Does the push for close coordination with national agencies, and the growing emphasis on service delivery work associated with these initiatives ultimately undermine the NGOs’ capacity to maintain a critical distance in pushing for greater government accountability or more international action for the most vulnerable (see Bebbington, Hickey and Mitlin 2008)? Two respondents expressed concern that this may be the case.

7. Conclusions

This study has sought to trace the evolution of climate services in Burkina Faso over the course of approximately 15 years, with a specific focus on the evolving role of NGOs in supporting these services. Building on the premise that the rise in attention on resilience has triggered a greater interest in climate information services as a part of development programming, it has also examined how the push, in some NGOs, to increase their engagement with the climate services system has affected their ways of working. Methodologically, the 'value chain' approach to analysing climate services offers a novel perspective on how the system functions as a whole. While studies often focus on NGO interventions at community scale, this approach has served to reveal less obvious but nonetheless important points of interface that are shaping the delivery of climate services in the country. A number of points emerge from this analysis:

Perhaps most fundamentally, the study has confirmed that NGOs continue to play a critical role in supporting the effective delivery of climate services – including developing a clearer understanding of how information can best meet user needs at community scale. NGOs' deep and longstanding engagement with communities, and recognised roles as knowledge brokers and translators present an untapped opportunity to build the feedback loops that are currently lacking in Burkina Faso's climate services landscape. However, without a robust national framework upon which to build – including a strong national focus user-oriented climate services – they risk continuing in a cycle of pilots and time-bound projects. This may well impose limits on the amount of lasting change that NGO work can bring to the climate services system in Burkina Faso, and risks creating community dependencies on climate information that cannot be sustained in the long term.

In light of these concerns, NGOs and national climate information providers should reflect together on the most appropriate levels and forms of support to climate services that NGOs should provide given the realities of the funding models they work within. Are they best placed as piloters, innovators and 'disruptors' or as core vehicles for service delivery? The work currently being undertaken through the Global Framework for Climate Services toward promoting user-oriented climate services and strengthening the role of national meteorological services as focal institutions for coordinating climate services across scales could provide an important context for this reflection. At the same time, more research is needed to understand how these new 'resilience building' functions are being integrated into NGO practice at field level. Are they leading to trade-offs with other core development or humanitarian objectives? Do they require new forms of awareness raising and capacity support for field officers? This study yielded more questions than answers in this regard, perhaps due to the very emergent nature of these dynamics.

This study has also underscored that the development and functioning of climate information service systems - from investment into data collection to translation and distribution of tailored advisories - is neither apolitical nor value-neutral. These systems reflect choices and priorities that are often contested, and may benefit some more than others. We need to better understand and acknowledge the politically-sensitive nature of forecasts (from early warnings to seasonal forecasts) in order to promote their communication and uptake. We also need to better understand how trust and relationship-building beyond just individuals might help to address some of the risk associated with communicating this information.

Finally, we must recognise that climate services are by no means a panacea for the challenges presented by increasing climate variability and change in the Sahel. Accurate, timely and relevant information is only useful if its users are in a position to act upon it. In countries like Burkina Faso material and institutional constraints (access to land and credit, insecurity and political marginalisation, etc.) as well as psychological barriers (feelings of powerlessness, etc.), can frequently present such barriers, and cannot be overlooked in favour of technological "fixes" (Roncoli 2009). With this said, recent evidence points to clear benefits offered through access to robust and timely climate services - benefits that can translate into development gains for vulnerable communities (Singh et al. 2017).

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The BRACED Knowledge Manager generates evidence and learning on resilience and adaptation in partnership with the BRACED projects and the wider resilience community. It gathers robust evidence of what works to strengthen resilience to climate extremes and disasters, and initiates and supports processes to ensure that evidence is put into use in policy and programmes. The Knowledge Manager also fosters partnerships to amplify the impact of new evidence and learning, in order to significantly improve levels of resilience in poor and vulnerable countries and communities around the world.

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