

# What impact are NGOs having on the wider development of climate services?

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Non-governmental organisations (NGOs) are playing an increasingly prominent role in delivering climate and weather information services to communities in developing countries. Drawing on three BRACED projects, this paper highlights some of the challenges associated with supporting communities in this way, and the implications for public sector climate service provision more broadly. NGOs should aim to strengthen state capacity to produce relevant information so government agencies in partnership with NGOs, can deliver these critical services in the future.



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### CHALLENGING ASSUMPTIONS

This series of BRACED papers explore the underlying assumptions made in the design of resilience-building approaches and whether these do or do not hold true in differing contexts.

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# INTRODUCTION

Climate and weather information services (abbreviated throughout here as CIS) are a vital resource for climate-vulnerable communities. Meanwhile, they are receiving increasing recognition for the role they can play in enhancing people's capacity to deal with climate and weather extremes and the impacts of climate change (Zillman 2009; Mitchell et al., 2010; Hellmuth et al., 2011; Hansen et al., 2014; Traore et al., 2017).

The paper challenges the notion that CIS can be effectively delivered directly to communities without engaging with – and building capacity of – national official CIS providers. Weather forecasts in particular, are a public good and non-governmental organisation (NGO) led projects should prioritise the maintenance and development of existing services over those delivered independently of public sector CIS.

There is no universally accepted definition of CIS, and different communities of practice adopt different framings and approaches, but the aim of CIS is broadly to 'provide people and organisations with timely, tailored, climate-related knowledge and information that they can use to reduce climate-related losses and enhance benefits, including the protection of lives, livelihoods, and property' (Vaughan and Dessai, 2014: 588). CIS refers to the generation, provision and contextualisation of climate information and knowledge, to inform decision-making from community to international levels (Vaughan and Dessai, 2014).

There are many different types of CIS, and activities involved in their delivery, which in turn have various applications

in risk management and resilience programming. Examples range from early warning systems, to daily and weekly forecasts, seasonal predictions, decadal and multi-decadal climate projections, daily rainfall figures and hydrological reports. CIS can help farmers take decisions at the start of the growing season, manage the risks associated with lower-than-average rainfall or extreme events and adapt to changes – especially for the 80% of agriculture globally which is rainfed (Alexandratos and Bruinsma, 2012; Tall et al., 2014).

NGOs have become increasingly important players in CIS delivery in developing countries, particularly at community level. Their influence, reach, autonomy and social legitimacy, as well as experience in delivering other services at community level, are attributes that many funders are keen to exploit in supporting climate resilience (Yaro et al., 2015; Jones et al., 2016). Bilateral funding agencies like

## Box 1: The seven roles performed by NGOs in support of climate services

1. Knowledge producers
2. Knowledge brokers
3. Innovation brokers
4. Knowledge translators
5. Information intermediaries
6. Consumers of climate information
7. Policy advocates

See Jones et al. (2016) for a full explanation of these roles, including the multiple key functions that sit under each of them.

the UK Department for International Development (DFID) and the US Agency for International Development (USAID) have funded multi-million dollar resilience initiatives, such as Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED) and the multi-donor Global Resilience Partnership (GRP). These are creating opportunities and incentives for NGOs to engage in climate services, acting as intermediaries between providers of climate and weather information and the communities that need it.

Jones et al. (2016) identify seven broad roles and multiple functions performed by NGOs in CIS. These include the translation of knowledge into accessible language and formats; communicating information to beneficiaries; facilitating the co-generation of knowledge

between producers and users of climate information; encouraging innovation in how climate information is produced and used; and working as policy advocates and brokers between governments and citizens (see Box 1 for the seven roles). As weather forecasts develop and are combined with social and economic information to estimate potential impacts – known as 'impact-based forecasting' – NGOs can also play a role in strengthening understanding of these impacts and clarifying what action can be taken to avoid these, for different groups of end users at the local level. Over time, and with the participation of these NGOs, it is hoped that impact-based forecasting and early action will improve. These NGO roles are still very much in their infancy, with additional staff and skills being brought on board

### **Box 2: Why do we need climate services?**

In its raw form, climate information generated through monitoring and analysis by meteorologists and climate science-related researchers is highly technical, complex and inaccessible to the majority of groups who would benefit from it (Wilkinson et al., 2015). It includes historical observations of the past and current climate, future projections (using either statistical or empirical techniques, such as coupled land-atmosphere-ocean climate models) and climate impact information (which also requires economic, social and environmental information and analysis) (Jones et al., 2016). Different user groups have varying needs with regard to climate information, as the impacts of the same weather or climate trends can be very different from one group to the next. Pastoralists experience weather (e.g. daily extremes) and seasonal climate impacts differently from subsistence farmers,

for example, whereas weather conditions that may be beneficial for the farming of one crop can be damaging for others.

To inform decision-making and manage the risk associated with extreme weather events, uncertainty and longer-term climate stressors, CIS are needed to make this knowledge more accessible and actionable by the public or a specific user group (WMO, 2011; Wilkinson et al., 2015; Harvey and Singh, 2017). These services can be delivered through radio, bulletins, mailing lists, local centres such as mosques, deploying science mentors, training in using equipment or the creation of community groups or committees to deliver CIS and build awareness in their communities (Harvey and Singh, 2017). In recent years, the emergence of low-cost mobile phones and SMS has opened up new opportunities for reaching communities with CIS (Traore et al., 2017).

to support delivery. However, with donor funding readily available, CIS are likely to become an increasingly important component of NGO project activities under resilience programmes.

As the design and delivery of CIS in developing countries matures, and the role of NGOs in this area evolves, attention should be paid to the new roles, responsibilities and relationships being created on both sides of the intermediary equation: between NGOs and climate-vulnerable communities, and with the producers of climate and weather information, usually the national hydro-meteorological services (NHMS). Much of the focus to date has been on understanding

the roles and experiences of NGOs in their interaction with communities. Relatively little attention has been given to the relationship between NGOs and the providers of climate information. Related to this, there has been little consideration of the impact NGO-led efforts at community level are having on the broader development of CIS (Jones et al., 2016; Musah-Surugu et al., 2018).

This paper explores these issues, looking at how NGOs interact with NHMS, the challenges associated with these relationships and the implications for the development of public sector CIS provision more broadly.<sup>1</sup> It draws on the experiences of projects funded by DFID under the BRACED programme.

## THE ROLE OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES

Most countries have an NHMS<sup>2</sup> with a mandate for producing climate and weather information. These agencies are therefore key players in the development and delivery of CIS. They vary considerably across countries in terms of their mandate and how they view their role, their levels of capacity, the part of government in which they sit, their relationships

with other ministries and their level of independence. To encourage convergence and improve standards and practices across NHMS, the World Meteorological Organization (WMO) has developed a Global Framework for Climate Services (GFCS) to support NHMS to develop and deliver CIS in five priority areas: agriculture and food security; disaster risk reduction;

### Box 3: Climate information as a public good?

Disaster risk management and adaptation activities, including the provision of CIS, have characteristics of what economists refer to as 'public goods' because they are underprovided by the market, are free from rivalry and are non-excludible (Wilkinson,

2012). Non-rivalry means that consumption by one individual does not reduce the availability of the good to others, and non-excludability means people cannot be excluded from using the good. Early warning systems are good examples of both public good characteristics. Providing CIS to vulnerable groups is also in the national interest; for example, small-scale

farmers accessing CIS to increase their yields has benefits for societal food security. In addition to these political economy factors, there are security and ethical arguments for governments maintaining control over the collection, analysis and communication of climate information as well for the need to ensure that NHMS, research institutes and other climate service centres maintain intellectual, economic and political independence for generating knowledge.

The private sector is nonetheless playing an increasingly dominant role in CIS provision, whether supporting public climate service providers by providing much-needed financial resources or developing commercial opportunities and applications (Agrawala et al., 2011; Vaughan and Dessai, 2014). These fall into two categories: those that use government-collected data to develop new tools and more sophisticated or tailored products that they then sell to users; and those that, in addition, collect their own proprietary data. Mobile telephone companies fall into the first category, acting as providers of seasonal forecasts to farmers (Tall et al., 2014). Insurance and some energy companies fall into the second category, creating their own models for assessing climate change impacts. EDF Energy, for example, models climate change impacts on long-term energy demand and supply in different regions around the world (Vaughan and Dessai, 2014). In some cases, private companies are entering into public-private partnerships around CIS, working with NHMS and other relevant government agencies; elsewhere, they operate independently. Some of these private companies sell CIS as a standalone 'product'; others sell CIS alongside another primary product, such as fertiliser, to help inform and promote the use of that product. The climate information they supply is typically

higher – or seen to be higher-quality than that available from low capacity NHMS, and NGOs can use this in resilience initiatives.

Private companies are undoubtedly playing a role in enhancing the quality of CIS available to vulnerable communities. This model also presents an avenue for the sustainability of CIS, as community users have been shown to be willing to pay for a CIS that they have found useful. Nevertheless, there are problems with the model. Questions remain about the ethics of paid-for private sector CIS provision, and the implications that CIS arrangements that circumvent NHMS have for national capacity. The most vulnerable are typically the least able to pay, and therefore there is a real possibility of denying vulnerable people information for financial reasons. Related to this, as they are inherently profit-driven, private sector CIS providers may not target their outputs to assist the poorest and most vulnerable user groups, as they may not see them as 'good business cases' (Webber and Donner, 2016). In addition, we are not aware of any comprehensive review of the quality of outputs from private CIS suppliers, and questions have been raised about the quality of information generated by some providers. If an NGO does not have the skills to understand the basic climatology and physical dynamics of the area in which it is working, as well as in data collection and analysis techniques, it may not have the capacity to ascertain if the data and information provided is valid. Furthermore, the public goods characteristics of CIS (non-excludability) mean that communities can undermine the business model for private provision of CIS: one person in a community can sign up for the service and then share it with everyone else.

energy; water; and health (WMO, 2018). This requires attention to observations and monitoring, climate services information systems, research, modelling and prediction, user interface platform development and capacity development (WMO, 2018). The GCFS initiative began in 2013 so is relatively new, but many NHMS are already participating, or are keen to move in this direction.

Meanwhile, the quality of NHMS-led climate services varies considerably. In countries such as the UK, the public weather forecast is just one of many NHMS services the Met Office provides; a wide range of CIS are produced for a range of sectors, including aviation, agriculture, water and energy, and for major events such as sporting events. In many low-income countries in Africa and Asia, however, NHMS are undervalued, critically understaffed and under-resourced (Ziervogel and Zermoglio, 2009). They lack the basic observational and data storage infrastructure needed to accurately record and analyse historical climate trends. They also lack the computational and energy resources needed to run complex weather and climate models and produce forecasts and projections, and often rely on the ability of Regional Climate Centres and Regional Climate Outlook Forums to provide tailored early warning information and seasonal outlooks, which are subsequently fed down to them (Jones et al., 2016).

Most staff employed in NHMS are operational, with responsibility for delivering technical forecasting, and often have limited capacity to engage with end users, understand the kinds of decisions users need to take or produce tailored CIS for climate-sensitive sectors such as agriculture, energy, health and water (Vaughan and Dessai, 2014). Many do not deliver a 24-hour service, which is

a critical requirement for effective weather services. Some of the information and data NHMS produce is considered a state secret, is proprietary or can be accessed only for a fee, making it inaccessible to many potential users. The information that is freely available is usually not well tailored to end user needs, or is provided in a format that is difficult to understand and/or incorporate into decision-making.

The gaps and challenges in CIS provision by national governments have led donors to fund NGO engagement in this sector, to help provide essential CIS to vulnerable communities. In parallel, the GCFS, the UK Met Office and others are working with NHMS in developing countries to build public sector capacity in CIS. Large investments through programmes such as Weather and Climate Information Services for Africa (WISER) and Future Climate for Africa (FCFA), and from the World Bank, among other major donors, are being made to strengthen national and regional meteorological service capabilities to perform CIS functions (Jones et al., 2016; Opitz-Stapleton et al., 2017). Furthermore, small private initiatives are being implemented, helping citizens operate low-cost but accurate weather stations to begin collecting data to feed into a higher-density station network.

While NGOs have an important role to play in enhancing CIS in developing countries, the relationship between NGOs and NHMS is not straightforward. It is shaped by wider constraints, such as donors' tendency to fund relatively short (five years or less) initiatives, and, in countries such as Mali, by ambivalent and even hostile national government attitudes towards NGO engagement more broadly. There is generally a high degree of understanding on the part of NGOs of the need to involve NHMS in their CIS initiatives aimed at strengthening community access to these

services, but not a clear understanding of how best to do so.

*There are a lot of projects on climate adaptation, under the green climate fund etc.,... but there isn't a clear understanding yet about how you actually help countries adapt to climate change and how you develop climate services as*

*part of that. We think it should involve Met services but we're not sure how.*

(HELEN TICEHURST, UK MET OFFICE).

While there are no guidelines yet on how to do this, NGOs are learning from experiences of supporting country NHMS to develop better CIS, NGOs are learning from experiences of supporting.

## NGOS IN THE DEVELOPMENT OF CIS PROVISION

This section considers how NGO support to NHMS can be enhanced through co-production of climate services.

### NHMS capacity vs. community resilience

Low NHMS capacity and often limited experience in communicating CIS present a challenge for NGOs with a core mandate and a primary objective of supporting community-level climate resilience. Ensuring the best possible support to target communities means that CIS need to be relevant to this scale or decision-making. NGOs need access to accurate, downscaled, timely information, in an appropriate data format, which can be opened, read and translated – whether by the NHMS itself, NGOs or other partners – and delivered to the communities in which they are working. In countries where NHMS capacity is weak, it may not be the source of the best information.

Even where project partners have the technical skills to support NHMS in tailoring CIS, limited project resources, mandates and timeframes means they are unlikely be able to transform capacity for

climate services to a significant degree. In these cases, NGOs must make a choice between meeting short-term project objectives to achieve the best outcome for vulnerable communities – which may mean using an alternative source of information – and maximising their contribution to the longer-term development of climate services in a country.

In some cases, NGOs turn to private sector providers that can – or that are seen to be able to, rightly or wrongly (see Box 3) – deliver readily available, quality information at a reasonable cost. The BRACED project RIC4REC is one example of this (see Box 4). By using these 'off-the-shelf' CIS products, NGOs can provide effective CIS from the start, increasing the potential to secure resilience gains for vulnerable communities within a short timeframe.

Using private sector providers can have positive outcomes for communities, NGOs and donors, but bypassing the NHMS to secure short-term gains can present challenges. There are many nuances in the ways NHMS undertake weather forecasting and climate modelling; these agencies understand these processes best, including the levels of uncertainty,

**Box 4: RIC4REC  
(now called Wati Yelema  
Labenw) – strengthening  
community initiatives for resilience  
to climate extremes in Mali**

Led by IRD/ Blumont in partnership with ICRISAT, CCAFS, Orange Mali, AMASSA Afrique Verte, GForce, Association des Femmes Ingénieurs du Mali and other partners, RIC4REC sources climate information from a private company, IGNITIA. This climate information is shared with end users via SMS by Orange Mobile; farmers pay a small fee (\$0.04) for it, and are now continuing to do so without subsidy from the project.

IGNITIA is a Swedish company with its own proprietary models in West Africa. The 'off-the-shelf' IGNITIA product is an accurate, localised, downscaled daily weather forecast. The information available from Mali Météo,

in contrast, was not found to be of a quality that would be useful to the communities the project worked in. As far as the project team is aware, there is no link between IGNITIA and Mali Météo. While there are strong reasons for the project's use of this alternative data source, this has caused tensions with Mali Météo.

This new partnership raises important ethical and practical questions about the future of climate services in Africa. Will private companies take over the principal role of service providers and what will be the consequences? How will national met agencies survive? What happens if their forecasts disagree with the official forecasts from the NHMS? Further research and practical experience is needed to fully answer these questions. However, the initial experience of working with private service providers within BRACED appears to be positive, at least for the farmers using the forecasts.

accuracy of the models and how decisions are taken to establish consensus and release forecast information. Meanwhile, when there are multiple and conflicting sources of information reaching citizens, this may erode the authority and mandate of NHMS, leading to confusion and distrust in information provided by the government. This is the concern of Mali Météo with regard to the approach taken by the RIC4REC project (Box 4).

On the other hand, if private initiatives are repurposing NHMS data for specific users, this can strengthen the perceived importance of the NHMS data and of the NHMS itself, with positive implications for central government funding of CIS. However, if other private providers are thought to be doing a good job in

providing information, the government may decide to withdraw funding from the NHMS and the initial problem of weak NHMS capacity endures. In addition, questions remain about what happens if a private company decides that this activity is no longer profitable or ends the services for other reasons. While private sector engagement in resilience-building activities is broadly encouraged, these issues raise questions about the kind of public-private partnership model best suited to the development of CIS.

An alternative approach is for NGOs to act not just as intermediaries but also as 'knowledge brokers', serving the needs of the most vulnerable (Jones et al, 2016). This requires NGOs, and the donors and programmes that support them,

to view NHMS not as suppliers of climate information (see below) but as partners in developing and delivering CIS. NGOs have much to offer in the co-production of CIS, as they have a degree of penetration and relationships at community level that NHMS could never match. In addition, NGOs have much stronger understanding, relative to NHMS, of the social, political and cultural contexts and challenges, and technological limitations of the communities in which they work. They can therefore build understanding among both producers and users of climate information about what CIS can and cannot offer, and enhance understanding of information needs and appropriate ways of communicating, working with the NHMS. Equally, they can help dispel any distrust that may exist between NHMS and communities. For instance, INADES Tanzania acted as an intermediary between farming communities and the NHMS in Tanzania, helping dispel farmers' misconceptions regarding the strength of knowledge the NHMS held, specifically that the NHMS was deliberately rationing knowledge about the future weather.

This co-development would require a cyclical, continual process of learning and improvement using, as a starting point, the information currently available from the NHMS and working with end users and NHMS to develop better CIS over time. This gradual process of using and improving NHMS-led CIS can help leverage government interest and investment. The more communities and government agencies use these climate services, the more they will see the value in investing in developing them. One example of this is the Oxfam-led Africa Climate Change Resilience Alliance (ACCRA) in Uganda, which partnered with the Uganda National Meteorological Agency to build trust between the NHMS, civil society and local beneficiaries and to

co-produce CIS, with feedback gathered regarding how forecasts were received and used, and improvements made each subsequent season. However, a process like this takes time to establish and to come to fruition, and the NHMS in question needs to be willing and able to adapt and to work with new partners.

### NHMS as supplier or partner in CIS?

According to many NHMS and stakeholders involved in the development of state-led CIS, NGOs view NHMS as simply suppliers of climate information and their projects are not typically designed with the needs and realities of the NHMS in mind.

One consequence of this is that NHMS receive a proliferation of requests for information, which can be a significant problem. Projects will naturally request the information they consider best serves their own needs and those of beneficiary communities, which may or may not be the information the NHMS currently produces. Meanwhile, according to those involved in resilience projects, there is little coordination between programmes focussed on community resilience and those supporting NHMS – in stark contrast with the picture in sectors such as education, where support to non-governmental agencies and national governments is often well coordinated. The degree of overlap between the services and information requested by different projects varies considerably, and with it the potential for overstretched NHMS and duplicated efforts. NHMS cannot dedicate staff to coordinating these efforts, to prioritise which projects to engage with and how.

In addition, NGOs with limited climate science knowledge typically lack understanding of the time and

computational resources required to run certain information requests; detailed forecasts, predictions and projections can take weeks or months to deliver, particularly if the NHMS does not have high technological capacity. As a result, these projects can pull NHMS in multiple directions. Staff may be pulled away from their core work in order to deliver these extra services, stretching the service more thinly and often not in accordance with any strategic plan the NHMS has. The national framework for climate services is an effort to address this lack of coherence in CIS:

*The National Framework for Climate Services is just starting now. Anyone trying to support the development of climate services in these countries needs to be working under that national framework. And this is what the met services are calling for too, to make it work better. The met service cannot take every day a new user knocking on the door and asking for this service or that information (CHEIKH KANE, RED CROSS RED CRESCENT CLIMATE CENTRE).*

In this sense, there is an imbalance in the direction of NGO interest in their role as CIS intermediary in some bottom-up projects, favouring communities at the expense of NHMS. There is a risk that, in striving to meet the short-term CIS needs of beneficiary communities, NGOs and their donors are undermining the long-term potential for quality services provided by NHMS, while at the same time other major donor investments are trying to develop this capacity – such as DFID's WISER programme.

### NGO capacity

Limited technical capacity in NGOs is also a problem. In accessing and assessing sources of weather and climate data –

both that from NHMS and that from other sources – NGO staff need to be able to understand data and climate forecasting limitations, and to ask pertinent questions about data quality, assumptions and analysis techniques. This will help them ensure data is credible and avoid misinterpreting and misrepresenting information to end users (Opitz-Stapleton et al., 2017). Datasets that look to be high quality can be highly inaccurate, particularly in the case of mountainous countries and along some coastlines. While many NGOs have employed staff with these skills and knowledge, not all those engaging in CIS have this capacity. This limits the ability of NGOs to have informed conversations with their NHMS counterparts. This also restricts the potential for NGOs to engage in processes of co-production, to provide useful and appropriate capacity-building support to NHMS or to ensure that engagement is based on a shared understanding, of what the ultimate objective of CIS should be.

### Funding, benefits and CIS charges

NGOs do not usually pay for NHMS staff time to engage in project activities. Instead, to help boost budgets, NHMS will often request technology and infrastructure inputs, such as weather stations, financial support and/or the buying of information. In some cases, NHMS over-commit to these projects and don't have the capacity to deliver, or agree to deliver services that are not aligned with their own strategy (attracted by the funding). Other problems include financing for NHMS being appropriated by the ministry in which it sits, starving the NHMS of the intended support.

Affordability of NHMS weather and climate data can also be an issue for

### **Box 5: CIARE – supporting communities in Ethiopia to overcome the negative impact of climate change**

The CIARE project, led by Christian Aid in partnership with the Ethiopian National Meteorological Agency (NMA), the UK Met Office, King's College London and BBC Media action, builds on prior experience and relationships around climate services mainly relating to disaster risk reduction. In designing this project, Christian Aid and the partners' awareness of the limitations of NGO-led solutions, in terms of their sustainability and lack of accountability in the long term, led them to avoid establishing parallel structures for delivering CIS that would ultimately undermine the NMA-led process, and

instead to seek a long-term relationship with the NMA (Cochrane and Singh, 2017). To secure the NMA's involvement, the project contributed resources to the NMA to expand its coverage of automatic weather stations, and provided training and capacity-building support from the UK Met Office. The UK Met Office worked with the NMA to assess the strengths, weaknesses and strategic support needs of the NMA, and the project sought to address these needs. This built the relationship with the NMA around CIS, and allowed the NGO partners to gain access to data and downscaled forecasts from the NMA. An extension phase of this project will now work with the NMA and other stakeholders in Ethiopia to define a National Framework for Climate Services.

NGOs (Opitz-Stapleton et al., 2017). There is little consistency in the fees that NHMS will charge to NGO-led projects for the information they supply. Even within the same country, NGOs are sometimes able to access this information for free – usually provided they sign a simple memorandum of understanding and/or explicitly target groups of interest to the particular NHMS – and sometimes will have to pay. This seems to rest in part on, but also shape, the relationship between the NHMS and the project partners. Where a long-standing relationship exists however, the NHMS may offer the information free of charge. This was the case with the CIARE project in Ethiopia.

Some NHMS charge considerable sums for sharing information – international NGOs in particular are perceived to be wealthy organisations and asked to pay much higher rates – and when NGO-led projects are not able to pay they are forced

to look elsewhere for CIS. This happened in the case of the RIC4REC BRACED project in Mali, where the fee Mali Météo charged the project was prohibitively high (as a proportion of the overall project budget). The uncertainty and inconsistency facing NGOs in accessing services from NHMS creates difficulty for those wishing to work with NHMS, particularly where a strong relationship has not already been established.

### **NHMS capacity-building**

NHMS are increasingly being engaged as partners in NGO-led resilience programmes, recognising the centrality of these actors to the long-term development of CIS capacity in the country. Some NGOs are providing training to address some of the capacity constraints identified above, with positive implications for the longer-term development of these services in-country. The process of co-development

of CIS described previously is one example of an effective form of capacity building.

Many NHMS welcome NGO involvement in climate services, and are keen to be part of an NGO-led process that uses their outputs. However, some NHMS hesitate to accept training and support from NGOs, preferring capacity development to come from other NHMS (which in some cases are partners in NGO projects, such as the UK Met Office in several BRACED projects). Offers of NGO support are less welcome if the NGO is not perceived to be a specialist in this field. Related to this, some NHMS see these projects as competitors, and misunderstandings and negative perceptions are common.

For some NHMS, NGOs (and particularly international NGOs) delivering CIS and creating demand for better services, represent a threat to their mandate. This may be related to a wider challenge facing NGOs in countries where national governments are distrustful of NGOs and/or prefer them to work only with communities and not government agencies.

NGO-led projects that provide training to NHMS typically design training activities from the perspective of the project, rather than with the strategic objectives of the NHMS in mind. This approach limits the benefits of capacity-building efforts. Often, training provided is not directly relevant to the NHMS' work; and even when it is, NHMS staff are may not be able to change ways of working when they return. In addition, the way training is delivered can directly undermine the capacity of the NHMS to deliver core services. Training sessions often pull staff away from core tasks, which is a significant problem for NHMS that are already thinly stretched. At the same time, staff may be offered personal incentives for participation, such as per diems, encouraging attendance

even when the training provided does not serve the interests of the NHMS itself. Training typically better serves the long-term development of CIS in a country if it is delivered in situ, rather than in a workshop setting, and is designed in accordance with a NHMS strategy.

## NHMS continuity and rivalries

In many countries, the NHMS is not the only department charged with operating weather stations and engaging in CIS. Departments of hydrology, water and agriculture, as well as the air force and navy, may operate their own networks. Rivalries and different mandates often lead to data becoming siloed, and to poor communication.

Structural reforms in government can mean changes to where the NHMS sits institutionally; and who leads the agency, can have significant implications for how NGOs engage around climate services. The ministry in which a NHMS is hosted shapes the way the agency perceives its role, the influence it has and the user groups it prioritises. It can be housed in defence, aviation, environment, agriculture or many others. Changes in government, and to where the agency sits, can quickly alter the way NGOs are able to engage around CIS. The loss of continuity requires the rebuilding of trust and relationships, and can require renegotiation of the NHMS engagement with an NGO or project. Changes can happen frequently: the Sudanese NHMS was moved between three different ministries in just five years, making sustained engagement challenging for NGOs operating in the country.

In BRACED, major changes in government early in the Zaman Lebedi project severely affected the ability of the partners to work with the NHMS, Burkina Météo (now

called ANAM), to enhance climate services for vulnerable communities. Following the coup in the country in 2015, a large-scale change in personnel in the government and in the Météo leadership meant that the strong relationship, shared understanding and ambition built between the project partners, including the Météo, around developing climate services was lost.

In this case, the demands from the Météo changed and required renegotiation, and ultimately the agency remained involved in the project's implementation. However, structural and leadership changes such as this cause frustrations for NHMS staff, as they can interrupt their ability to engage with NGO-led CIS efforts, and for the NGOs they work with.

## CONCLUSIONS: TOWARDS MORE EFFECTIVE NGO-NHMS PARTNERSHIPS

NGOs are playing an increasingly prominent role in delivering CIS to communities in developing countries. This role is borne out of the need for tailored, context specific information at the local level in places affected by extreme weather events, variability and changes in climate that are making it difficult for people to plan ahead, minimise negative impacts and maximise opportunities. NHMS are not well positioned or mandated to communicate directly with communities but the information they produce on weather and climate needs to be tailored and translated for local use and this is where NGOs come in. Reflecting critically on this new NGO role as 'climate information intermediaries' reveals some important challenges ahead for NGOs and NHMS. If NGOs are to deliver useful information and provide advice to communities on how to plan ahead and prepare for adverse conditions (and take advantage of favourable ones), they will need to coordinate closely with NHMS and pay greater attention to strengthening capacity within these institutions. This should not be seen as a trade off: transforming state capacity over the long term to produce locally appropriate

CIS is the best outcome for vulnerable communities, particularly where NGOs can continue to support and shape how information is delivered on the ground.

At the heart of the challenges identified in this paper are questions about whom these projects are intended to serve, and on what timeframe. Bottom-up, NGO-led projects around CIS necessarily focus on the needs of the most vulnerable; NHMS should be a partner in meeting the CIS needs of vulnerable groups, but it is not the primary job of these NGOs, or these projects, to build NHMS capacity more broadly. Nevertheless, where a core objective is to develop high-quality, sustainable CIS that vulnerable communities can rely on, projects should contribute to a long-term, sustainable vision – even in the face of short-term and project-based development funding (Webber and Donner, 2016). In addition, in order to be able to act effectively as intermediaries between community-level users and the providers of climate information, NGOs will need to work closely with the information providers.

The process of establishing National Frameworks for Climate Services, under

### **Box 6: Zaman Lebedi – strengthening resilience to adapt to the effects of climate change in Burkina Faso**

The Zaman Lebedi consortium is led by Christian Aid (Burkina Faso) involves 10 partners including Oxfam, the UK Met Office, King's College London, Télévision du Burkina and others. The project entered into agreement with the Agence Nationale de la Météorologie (ANAM), with the intention to work closely with the agency and provide capacity-building support from the UK Met Office. At the start of the project, the partners had very strong links with ANAM, in part through relationships built up through previous projects, which generated interest from ANAM in working together to expand their value of their work. However, several obstacles have affected this relationship.

First, a bomb attack shortly after the start of the project meant that, for security reasons, UK Met Office staff were no

longer able to travel to the country. Instead, the planned capacity-building support had to be delivered remotely. At this point, ANAM was still able to actively engage in the project, and was, independently of the project, undertaking a series of small pilots to explore how farmers received and used climate services. Zaman Lebedi intended to build on this. However, following the coup in 2015, there was a large-scale change in personnel in ANAM and the relationship became much more challenging. In the negotiations that followed, ANAM demanded additional automatic weather stations beyond what the project could deliver, and announced intentions to withdraw from the BRACED project. As a result, obtaining information and working with ANAM was difficult in the early stages of the project. Nevertheless, while development of a common agreement was challenging, a partnership between the consortium and ANAM in the second year of BRACED facilitated access to the necessary weather and climate information.

the GFCS, is new, but offers an opportunity to address some of these challenges. It makes it possible to build a common ethical and regulatory framework, so that all stakeholders – including NHMS and other public sector bodies, private sector companies and NGOs – can work together to promote sustainable service provision that reaches everyone, especially the most vulnerable. These Frameworks can help NHMS organise their approach to CIS, the sectors they will focus on and how they will work with other agencies – including NGOs and NGO-led projects. Where welcomed by NHMS, NGOs can play a valuable role in shaping these Frameworks. This is the purpose of the extension phase of the BRACED CIARE project in Ethiopia: the partners will now work with the

NMA and other stakeholders in Ethiopia to define the National Framework for Climate Services.

The agreement of these Frameworks should help address many problems associated with the coordination of efforts, standardise charges for NHMS data, provide a framework for the co-development for CIS in collaboration with NHMS and smooth relationships between NGOs and NHMS. Therefore, they currently offer the best avenue for addressing many of the concerns outlined above. To address the challenges associated with short-term, project-based funding for NGO engagement with NHMS on CIS, these Frameworks can help NGO-led projects prioritise the maintenance and development

of existing climate services, rather than short-lived new projects and products (Webber and Donner, 2016).

Nevertheless, working in partnership with NHMS to co-produce and develop CIS takes time, raising questions about how to do this without providing sub-standard CIS to vulnerable people in the short term for a longer-term gain – and when, using a private sector data provider could deliver benefits more rapidly for the communities in question. To take a BRACED example, if the approach of the RIC4REC project in Mali

had been to use Mali Météo information and co-produce CIS, the communities the project served wouldn't have seen the same degree of benefits in the timespan that the project was in fact able to deliver. As the National Frameworks for Climate Services become established, and as NGOs increasingly interact with NHMS, clear guidelines and regulations are needed on how to leverage readily available, higher-quality climate information from alternative sources. At the same time, developing NHMS interest and capacity to lead and coordinate the delivery of CIS is critical.

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## NOTES

1. The observations outlined in this paper are based on a review of literature and interviews with the following people: Huntley Brownell (Blumont, Ric4Rec project); Richard Ewbank (Christian Aid, Zaman Lebedi and CIARE projects); Cheikh Kane (Red Cross Red Crescent Climate Centre); Fatema Rajabali (FAO); Boubu Traore (Blumont, Ric4Rec project); Arame Tall (World Bank); and Helen Ticehurst (UK Met Office).
2. The NHMS is known by different names, and are situated in different parts of government, in different countries. For the purposes of this paper we refer to all government agencies responsible for weather and climate services as NHMS.



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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