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RESEARCH ARTICLE

Revisiting the Local Adaptive Capacity framework: learning from the implementation of a research and programming framework in Africa

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While adaptation to climate change has emerged as a key area of development research, little is known about the enablers and constraints to implementing adaptation-oriented frameworks for research and development programming. This paper documents lessons learned from the Africa Climate Change Resilience Alliance (ACCRA) programme – a multi-stakeholder consortium comprised of four large international non-governmental organizations (NGOs) and a research organization. It revisits the development and implementation of the conceptual framework that guided ACCRA's work: the Local Adaptive Capacity (LAC) framework. Between 2009 and 2013, ACCRA's research used the LAC to understand the impact of development interventions on levels of adaptive capacity at community and household levels. This in turn informed targeting of NGO and government programming. Challenges such as definitional overlaps between resilience and adaptation, difficulties in articulating the intangible elements of LAC's five characteristics of adaptive capacity and differing interpretations of commonly used terms between academic and practitioner partners each had to be grappled with. Experiences from ACCRA's research highlight the LAC's utility as a unifying framework. However, they also point to the need to ensure that certain elements of the LAC are not under-represented (such as gender, power and politics). In addition, the need for improved guidance in describing how the conceptual elements of the LAC can be operationalized, and ensuring greater levels of collaboration between all stakeholders were identified. It is hoped that the lessons from ACCRA not only help to shape future applications of the LAC but the large number of other adaptation and resilience-oriented frameworks that guide development research and practice.

Keywords: adaptation; resilience; climate change; disaster risk management; adaptive capacity

1. Introduction

The development community is increasingly aware of the role their interventions and investments can play in enhancing the ability of communities to deal with climate variability and change (Gitay et al., 2013; Mitchell, 2013). As such, both the development and research communities have shifted towards the promotion of unifying concepts such as resilience, Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) (Schipper & Langston, 2015). Despite this, our understanding of how current development interventions are supporting people's ability to deal with and respond to current and future climate change remains poor (Schipper & Pelling, 2006). Moreover, few tools exist for assessing how development interventions affect communities' capacity to deal with risk (Levine, 2014).

It is against this backdrop that a consortium of Non-Governmental Organizations (NGOs) (comprising Oxfam GB, Care International, Save the Children UK and World

Vision UK) and a research organization (the Overseas Development Institute [ODI]) formed the Africa Climate Change Resilience Alliance (ACCRA) in 2009. ACCRA's research sought to assess if and how different types of development interventions – whether in the form of DRR, social protection (SP) or livelihoods programmes – influence the adaptive capacity of rural communities (see Levine, Ludi, & Jones, 2011). While a number of overarching frameworks for describing adaptive capacity and resilience were available at the time (Brooks, Adger, & Kelly, 2005; Gupta et al., 2010; Pahl-Wostl, 2009; Vincent, 2007; Yohe & Tol, 2002), none were felt to sufficiently break adaptive capacity into its constituent parts and lend themselves to assessing the roles that development interventions play in supporting (or inhibiting) a community's ability to adapt. As such, the Local Adaptive Capacity (LAC) framework was developed, tested and applied

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across eight field sites in three countries (Ethiopia, Uganda and Mozambique). The LAC has since been adopted and is used as a framework in research and programming by a wide range of actors spanning academia, policy and practice (see Ashley, Zhumanova, Isaeva, & Dear, 2016; Folkema, Ibrahim, & Wilkinson, 2013; Frank & Penrose Buckley, 2012; Williams, Fenton, & Huq, 2015).

Discourse around CCA and risk reduction have progressed considerably since the LAC's development in 2010 (Jones, Ludi, & Levine, 2010; Olsson, Jerneck, Thoren, Persson, & O'Byrne, 2015). With this in mind, this paper aims to elaborate on the LAC's conceptual underpinnings, and the theoretical and methodological tensions in assessing adaptive capacity and resilience in practice. We interrogate how learnings from the LAC's application over five years of research activities can feed into rapidly evolving discourses around adaptive capacity, resilience and risk reduction. Finally, we detail a number of lessons learned in coordinating a large multi-stakeholder alliance focused on supporting research and influencing CCA planning processes with multiple overlapping goals. The discussion on lesson learning focuses on how ACCRA's alliance partners have used the LAC framework. An assessment of how successful the framework has been in supporting local actors, including local government and communities, to better anticipate, manage and plan for change is not within the remit of this paper though warrants future research.

The paper is intended primarily as an internally-reflective piece. It synthesizes the wealth of knowledge amassed through the course of ACCRA's research activities between 2009 and 2013. Inputs to the paper are manifold and include: document analysis of ACCRA's various research outputs (see Jones et al., 2010; Levine et al., 2011; Ludi, Jones, & Levine, 2012) and reports derived from an independent evaluation of the project's programmatic operations and outputs; collation of outputs from dialogue workshops held with ACCRA staff in each of the three host countries in addition to a final consolidation workshop held in 2013; and gathering of inputs from a number of key informants from stakeholders working with ACCRA during various stages of the programme. The following insights are based on the author's synthesis of these inputs and their collective learning in having engaged in the project since its inception.

2. The evolution of resilience and its relationship with adaptive capacity

ACCRA's research sought to assess the influence that development interventions have on communities' ability to deal with and respond to future change and uncertainty. The need for a well-defined framework that enabled an understanding of local complex situations and assessing the outcomes of development interventions on adaptive

capacity was therefore clear from the start. Given that 'resilience' was built into the alliance's initial approach, ACCRA's research team had intended on using a resilience framework to guide its research from its inception in 2009. However the understanding and application of resilience was at that time, rapidly evolving and the resulting diversity of definitions, interpretations and applications (Brand & Jax, 2007; Cutter et al., 2008; Gallopín, 2006) presented a practical challenge for the programme's action research.

The conceptual evolution of resilience within the social sciences is well illustrated by the changing length and nature of its definition in the Intergovernmental Panel on Climate Change (IPCC)'s successive Assessment Reports. As seen in Table 1, the definition has evolved from a relatively short and simple concept, centred around the ability to maintain the same state and function in the Third Assessment Report (IPCC, 2001), to one that is noticeable more complex and contested in the Fifth Assessment (Agard et al., 2014b). Here it encompasses capacities not only associated with maintaining function, but adapting and transforming to change. By comparison, the IPCC's definitions of adaptive capacity have remained relatively consistent.

The rapid proliferation of frameworks related to resilience, and the term's discussion within the academic literature in subsequent years (Bahadur & Pichon, 2016), has done little to make the task easier (Aldunce, Beilin, Handmer, & Howden, 2014; Aldunce, Beilin, Howden, & Handmer, 2015; Alexander, 2013); if anything, the process of understanding and describing resilience amongst the social sciences has become harder:

It is clear that resilience thinking describes important attributes of ecosystems, of materials, and of human beings, that is, the ability to cope with, and recover after, disturbance, shocks, and stress. However, with popularity comes the risk of blurring and diluting the meaning. (Olsson et al., 2015)

Despite this, the evolving meaning and application of resilience have inspired dialogue and debate in the development community and helped the innovation of development interventions that support the wide range of capacities, assets and functions needed to build local resilience (Miller et al., 2010). And the wide range of resilience pathways 'provides different perspectives from which to explore a broader set of policy and practice options' (Aldunce et al., 2014). However, this same diversity makes real time research including the assessment of development interventions fiendishly difficult. More specifically, uncertainty over the characteristics of resilience can mean that the same outcome of a development intervention can be interpreted in multiple contrasting ways – whether it contributes positively or negatively to a community's resilience. It is for these reasons that the ACCRA research team made a conscious decision to use adaptive capacity rather

Table 1. The definitional evolution of ‘Resilience’ and ‘Adaptive Capacity’ in successive IPCC assessment reports.

Term	TAR (2001)	AR4 (2007)	AR5 (2014)
Resilience	‘Amount of change a system can undergo without changing state.’	‘The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.’	‘The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.’
Adaptive capacity	‘The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.’	‘The ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.’	‘The ability of systems, institutions, humans, and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.’

Sources: IPCC (2001); IPCC (2007); Agard et al. (2014a).

than resilience as the conceptual basis for ACCRA’s research, given the comparative definitional conciseness and greater level of clarity regarding the concept’s scope.

Broadly speaking, adaptive capacity is concerned with the preconditions and capabilities needed to enable adaptation, and the ability to mobilize them (Nelson, Adger, & Brown, 2007). It relates closely to peoples’ agency and their capabilities with strong overlaps with the capabilities approach developed by Sen and Nussbaum (Nussbaum, 2000; Sen, 1985, 1999). More precisely, it denotes the capacity of a system to adjust, modify or change its characteristics or actions to moderate potential damage, take advantage of opportunities or cope with the consequences of shock or stress (Brooks, 2003; Agard et al., 2014b; Jones et al., 2010).

A number of different interpretations exist with regards to the relationship between resilience and adaptive capacity. Many are dependent on the extent to which resilience is considered as ‘bouncing back’ or as ‘bouncing back and transforming’ (Olsson et al., 2015). The first viewpoint sees resilience and adaptive capacity as separate entities: they are associated primarily with the ability to cope and maintain the same function. The second viewpoint is concerned with adapting to changing risks by transforming a system’s core functions (Berman, Quinn, & Paavola, 2012; Tschakert, Oort, St. Clair, & LaMadrid, 2013). Adaptive capacity is therefore seen as situated within a wider framework of a resilient system, one that encompasses various different capacities – including bouncing back, adapting and transforming. Despite its contested conceptual definition and diverse interpretations, it is this second interpretation that has gained most traction amongst the development and humanitarian communities (Béné, Wood, Newsham, & Davies, 2012). This relates not only to programming activities, but also to academic assessments of adaptive capacity (Bahadur & Pichon,

2016). With this in mind, we discuss adaptive capacity in relation to the ACCRA programme as an integral component of a wider resilient system.

The exact determinants of adaptive capacity are highly context specific (Vincent, 2007): what supports the ability of pastoralists in north-western Kenya to adapt to changing rainfall patterns may not be the same that supports the capacity of a community of fishers in Bangladesh to adapt to the same threat. However, a number of studies have found that similar patterns and broad characteristics of adaptive capacity can relate to different groups of people (Eriksen, Brown, & Kelly, 2005; Nelson et al., 2007). Though few overarching frameworks exist that bring together the constituent parts of adaptive capacity, a number of core characteristics have been identified. Effective institutions and governance (Folke et al., 2002; Pahl-Wostl, 2009), social learning (Pahl-Wostl et al., 2007; Pelling, High, Dearing, & Smith, 2008), trust (Gupta et al., 2010), collective action (Adger, 2003) and the availability of assets (Adger & Vincent, 2005) have each been associated with the adaptive capacity of people, communities and nations. The characteristics of adaptive capacity are, however, by no means limited to these, and the determinants under each are likely to be different depending on the scale and context (Vincent, 2007). Returning to the example of the pastoralist and fisher, while the presence of diverse and sufficient assets is undoubtedly important for adaptation at all geographic scales and across different livelihoods, the mixture of assets that support a pastoralist will not be the same as those needed to support a fisher.

It is upon this premise that the LAC framework was developed. Namely, that the broad characteristics of adaptive capacity at the local level have commonality across social groups, while actual determinates of each is likely to be different depending on the context. Below we

briefly describe the process behind the LAC's development and the justification behind the framework's five characteristics (for further details see Jones et al., 2010; Ludi et al., 2012; and Levine et al., 2011).

3. Developing the LAC framework

An extensive process of consultation with academics and practitioners in the UK and ACCRA's three focal countries (see Levine et al., 2011) was conducted in 2009. The programme's review process concluded that few, if any, available conceptual frameworks of adaptive capacity were suited to ACCRA's objectives: observing the impact of development interventions on the ability of different social groups – including gender, ethnicity and age – to adapt.

Early frameworks for the conceptualization of adaptive capacity focused largely on the availability of a sufficient and diverse set of livelihood assets or capitals (Brooks et al., 2005; Yohe & Tol, 2002). Although it is clear that the assets available to an individual, household or community are likely to support their ability to adapt (Bryan, Deressa, Gbetibouo, & Ringler, 2009), they generally fail to capture many of the processes and contextual factors that influence adaptive capacity. They are not, therefore, an effective reflection of adaptive capacity at the level where most adaptation actions take place (Eriksen & Kelly, 2007; Jones et al., 2010). For example, behaviours, norms and institutional arrangements each play an important role in shaping LAC, yet are inherently intangible and difficult to observe (Adger, 2003). With this in mind, a holistic understanding of adaptive capacity should also recognize and incorporate various process-based elements.

In practice, these processes may take the form of: learning, innovation, experimentation and the ability to exploit opportunity (Berkes, 2009; Folke, 2006; Pahl-Wostl et al., 2007); promoting flexible decision-making processes and systems of governance that allow for future change and uncertainty to be incorporated into planning processes (Berkes 2009; Pahl-Wostl, 2009); or ensuring an enabling institutional environment that allows those most vulnerable to have access to key safety nets and resources during times of need. Given the failure of existing frameworks to adequately capture many of the process elements of adaptive capacity, and a scarcity of frameworks of adaptive capacity focusing at the local level, the ACCRA research team saw a clear need for the development of a new framework (Jones et al., 2010). The focus on 'local' was chosen because much of the attention of existing frameworks was given to characteristics and indicators at national level (e.g. World Resources Institute [WRI], 2009), whereas little research and analysis has been done on adaptive capacity at household and community levels.

Using these inputs as a starting point, a workshop brought practitioners from the alliance together to

develop a draft framework of adaptive capacity and broadly agree on its constituent characteristics. This initial draft was further refined by researchers from the ODI. The draft framework was then presented at a public meeting in early 2010 and refined in a consolidation workshop held with range of academics and development practitioners (ACCRA, 2010).

The draft framework of the LAC framework was further developed and validated through field visits, pilot studies and consultation with national DRR and CCA experts in Ethiopia, Mozambique and Uganda throughout 2010. Using the consolidated framework, research was then conducted in each of the three countries between late 2010 and 2011. In each country, two or three research sites representing different livelihoods, different agro-ecological characteristics and different types of project intervention, were identified where one of the alliance members implements development interventions. In addition to the research team's evaluation work, the LAC framework was subsequently used by the wider ACCRA alliance as an operational tool to engage with governments and NGOs in guiding CCA-related investments, and supporting capacity building and influencing activities at district, national and international levels. The implications of the LAC's transition from research to programming are discussed further in Section 4.

Given ACCRA's emphasis on assessing a wide range of development interventions (not just those identified as climate specific) the LAC framework drew on insights from across the DRR, CCA, livelihoods and SP literature. The framework is structured around 5 core characteristics, namely: assets; institutions and entitlement; knowledge and information; innovation; and flexible and forward-looking decision-making and governance. These characteristics influence the degree to which people and communities are prepared for and able to respond to changes in their external environment. As shown in Figure 1, these characteristics are interdependent. For example, flexible forward-looking decision-making often requires accurate and applicable knowledge, information and expertise; successful innovation may derive from effective and supportive institutions. Yet they each serve a very important and distinct role in helping to promote the ability of people or communities in adapting to shock and stress. In Table 2 we briefly outline each of the five characteristics of LAC.

4. Reflections and lessons learned

ACCRA carried out observational and evaluative research using the LAC framework in eight districts across Ethiopia, Mozambique and Uganda. In so doing, the ACCRA team learnt a considerable amount about what works and what doesn't in applying a conceptual framework, and translating it into practice. Important insights emerged as to how the LAC fits into evolving academic debates around

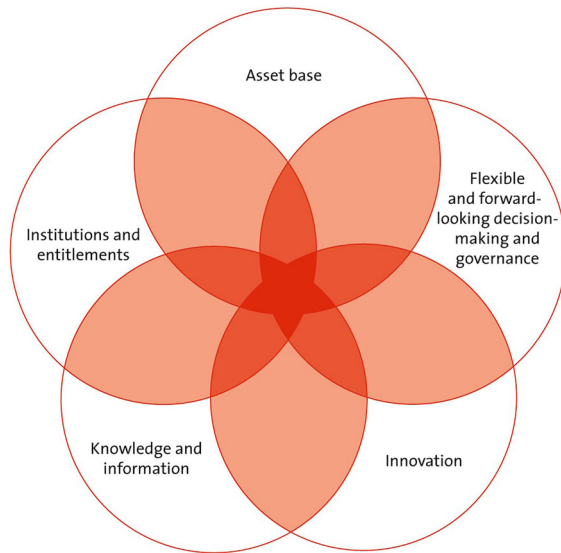


Figure 1. The five characteristics of the LAC framework and their interconnectedness.

resilience and adaptive capacity, as well as how a conceptual framework can inform research, programming and policy engagement.

4.1. *Development interventions can support adaptive capacity (even if not explicit intended)*

One important aspect when appraising the use of the LAC is the differences between the framework's evaluative and programmatic applications. From both academic and practitioner perspectives, the LAC helps to break down adaptive capacity into its constituent parts. The overlaps between each of the five characteristics (as shown in Figure 1) assist in emphasizing the interrelated nature of contributory factors that support LAC. For example, for local governance processes to ensure flexible forward-looking decision-making often requires accurate and applicable knowledge, information and technical expertise to be effectively integrated and taken up (Cornell et al., 2013; Polasky, Carpenter, Folke, & Keeler, 2011); successful innovation often necessitates supportive institutional enabling environments (Rodima-Taylor, Olwig, & Chhetri, 2012). This holistic conceptualization of the term is important in stressing the complexity of different assets and processes that contribute towards a household or community's capacity to respond to change. Seen from this perspective, adaptive capacity can neither be assessed, nor built, by looking at a single characteristic: all five characteristics need to be taken into consideration together, albeit with different weight depending on the specific context.

The implications of this holistic view of adaptive capacity for development interventions in a changing environment are profound. Not only does it suggest that many different types of development interventions –

including those that are not traditionally associated with CCA – may contribute to particular characteristics of adaptive capacity, but it encourages a more systemic and joined-up approach to the implementation of development strategies. Rather than concentrating on 'siloed' themes, like SP, DRR or livelihood support programmes, the LAC encourages development actors to support greater coordination and cross-fertilization of different types of approaches, recognizing the important role that each plays on different characteristics of adaptive capacity. This is in line with the more recent push towards 'resilience programming' within the development community that seeks to support resilience of people and the sustainability of development interventions by incentivizing cross-sectoral planning, coordination and programme delivery (Davoudi et al., 2012; World Bank, 2013).

4.2. *The importance of entry-points*

The challenge of incorporating all five elements of the LAC into the delivery of programmatic interventions quickly becomes apparent when considering the wide scope of activities that fall under each. Government and NGO staff can find it difficult to identify activities that address multiple characteristics under the LAC, and risk diluting the impact of their interventions by attempting to incorporate many overlapping activities and deliverables in an attempt to cover all five characteristics. ACCRA's NGO partners often engaged with stakeholders by using a single characteristic of adaptive capacity as an entry point from which they sought to maximize the potential impacts and overlaps with the other four characteristics (Jones, Ludi, Carabine, & Grist, 2014). For example, Flexible Forward-looking Decision Making (FFDM) was chosen as the entry for many of ACCRA's programme activities from 2012 to 2014. While seeking to develop capacity building tools for local government officials in Ethiopia, Uganda and Mozambique, ACCRA's partners demonstrated how the promotion of FFDM is not only dependent on, but can help to support the enhancement of the other characteristics such as: an effective institutional environment; robust knowledge and understanding of future threats and uncertainties; a diverse asset base; and support for innovation or trialling of new livelihood activities (Jones et al., 2014).

From a research perspective, one helpful quality of the LAC is that it is based on concepts that many researchers are familiar with. For example, it draws heavily on the 'Sustainable Livelihoods framework' (DFID, 2011), which has strong overlaps with properties outlined under 'asset base' and 'institutions and entitlements'. By bringing together elements from frameworks researchers are to a large degree familiar with helped in allowing more seasoned researchers grasp the focus of ACCRA's research aim quickly and kept training efforts of more junior

Table 2. A summary of the five characteristics of the LAC framework.

Characteristic	Summary	Brief description and supportive literature
Asset base	The availability of a diverse range of key livelihood assets that allow households or communities to respond to evolving circumstances	The ability of people or communities to cope with and respond to change depends heavily on access to, and control over, key assets (Daze, Amborse, & Ehrhart, 2009). Adaptive capacity is not only influenced by the quantity and quality of assets available but whether some of the assets can be substituted in the case of disruption or degradation. As a result, asset diversity, and the ability to access assets that are in some sense surplus and interchangeable may each be as important as ‘asset abundance’ (Ospina & Heeks, 2010).
Institutions and entitlements	The existence of an appropriate and evolving institutional environment that allows for access and entitlement to key assets and capitals	Access to, and control of, assets is typically mediated through institutions and entitlements. Given that entitlements to ‘ <i>elements of adaptive capacity are socially differentiated along the lines of age, ethnicity, class, religion and gender</i> ’ (Adger, Agrawala, & Mirza, 2007, p.730), it is often thought that institutions that ensure equitable opportunities to access resources are likely to promote adaptive capacity. The adaptive capacity of societies depends on the ability to act collectively, which in turn depends on institutions that govern social relations at multiple scales. Norms, rules and behaviour may form social barriers that can influence how and which individuals are able to cope or adapt to climate variability and change.
Knowledge and information	The ability households and communities have to generate, receive, assess and disseminate knowledge and information in support of appropriate adaptation options	Successful adaptation can benefit from: an understanding of likely future change in one system (e.g. the climate system); its interactions with other systems (e.g. the land use system); knowledge about adaptation options; and the capacity to evaluate suitable interventions (Frankhauser & Tol, 1997). Relevant information needs to reach key stakeholders to ensure that actions are effective in the long term, and prevent maladaptive practices (i.e. actions or processes that may deliver short-term gains but ultimately increase vulnerability in the longer term). Knowledge can also play a role in ensuring local empowerment and raising awareness of the needs of particular groups within a community (Ospina & Heeks, 2010).
Innovation	The presence of an enabling environment to foster innovation, experimentation and learning in order to take advantage of new opportunities	As social and environmental changes continue, people and communities will need to alter existing practices, resources and behaviours, or in some cases adopt completely new ones. Moreover, innovation is crucial to enable a system to remain dynamic and functioning – though the willingness and capacity to foster innovation (and to accept failure) vary greatly. Innovation is not only about ‘high-tech’ and large-scale, but equally about spontaneous, autonomous and micro-level initiatives (Wongtschowski, Verburg, & Waters-Bayer, 2009). Such local experimentation and innovations are often not recognized under current paradigms that favour more technological or infrastructural innovations – though care should be taken not to ‘romanticise’ traditional local practices.
Flexible Forward-looking Decision Making (FFDM)	The ability to anticipate, incorporate and respond to changes with regard to governance, structure and future planning	Decision-making and governance that is flexible, collaborative and learning-based may be better able to cope with evolving circumstances. This recognizes the importance of dynamic institutions and the entitlements and assets they control in response to changing future threats (Smith, Klein, & Huq, 2003). Moreover, decision-making systems can gain from being flexible and including new information regarding changing environmental, social and political conditions. Taking a longer-term approach within governance and decision-making is crucial in order to prevent maladaptive interventions (Ayers & Huq, 2009).

researchers low. By using existing frameworks and a language many are familiar with in the LAC, communication of research findings and their relevance for programming or policy making was made easier, especially when dealing with practitioners who are not necessarily versant in climate change terminology.

4.3. Navigating differences in knowledge and terminology

Despite this familiarity, difficulties in relation to terminology still presented major barriers to the LAC's implementation and uptake. The framework was initially designed with an evaluative objective in mind: to provide a conceptual framework to qualitatively assess the impact of development interventions on adaptive capacity. The terminology in the framework's background material therefore reflects that of a research-orientated community. However, its subsequent adoption by programmatic NGO staff revealed notable contrasts in how researchers and practitioners relate to specific terms within the framework. For example, the 'institutions and entitlements' characteristic is considered a central element of the LAC, relating to existence of an appropriate and evolving institutional environment that allows fair access and entitlement to key assets and capitals. Drawing on the wider development literature, institutions here refers to the rules that govern belief systems, behaviour and organisational structure (Ostrom, 2005). Yet a major obstacle and source of confusion came from the very specific interpretation of institutions adopted by many NGO and development practitioners that most commonly relates to organizations: 'groups of individuals bound together by some common purpose to achieve certain objectives' (North, 1994, p. 361).

While these terms are by no means contradictory, they relate to two different aspects. The former encompassing the many formal and informal rules and constraints that govern social relations and structures; the latter a specific form of institution 'that involves (a) criteria to establish their boundaries and to distinguish their members from non-members, (b) principles of sovereignty concerning who is in charge and (c) chains of command delineating responsibilities within the organization' (Hodgson, 2006, p. 18). As informal institutional elements are critical to understanding and enhancing LAC (Agrawal, 2010), considerable care was needed in building a shared understanding of key terms and in improving the communication and translation of the LAC into agreed and user-friendly language. Similar difficulties in communicating abstract terms related to the other five characteristics, such as FFDM or innovation, required researchers and practitioners to come together and discuss their respective understandings to reach a shared understanding that supports programme implementation and policy engagement. Others,

such as assets, generated higher levels of consensus and clarity given their common interpretation and application across academic and practitioner communities. Indeed, misunderstandings of key concepts were not only limited to programmatic staff, as a number of the research partners used in carrying out the assessment of development activities using the LAC demonstrated similar misgivings – demonstrating the need to invest resources in developing a shared approach and for careful communication and alignment when using the LAC amongst a wide range of different stakeholders.

4.4. Preventing elements of the LAC from being underemphasized

Relatedly, important lessons were learned in understanding elements of the LAC that were underemphasized or missing. Two such examples are especially evident: power and agency. It is of little surprise that both are at the heart of a person or community's adaptive capacity (Grothmann & Patt, 2005; Tschakert & Dietrich, 2010):

Without agency there is no adaptive capacity, and without adaptive capacity there is no sustainability or ongoing development. (Levine et al., 2011, p. 31)

Yet, given that power and agency runs throughout each of the five characteristics – for example, a woman's or man's entitlement to key assets and resources during times of need can be largely seen as an issue of power (Baumann & Sinha, 2001) – a decision was made from the outset to have power and agency as a cross-cutting theme. Inevitably, and somewhat understandably, this diluted their importance when it came to prioritizing actions for mainstreaming the LAC into development programmes. It required special attention by the ACCRA programmatic team to ensure power was mainstreamed in the Alliance's activities through ongoing training. Upon reflection, and in considering the LAC's roll out amongst other programmes of work, it is clear that greater care needs to be taken to ensure that such cross-cutting issues continue to be emphasized. This is especially pertinent given their absence from the headline table and graphic depicting the LAC. In practice, few people have the time or interest to read the full technical reports detailing the conceptualization of the LAC and hence frequently miss reference to the cross-cutting themes.

The implications of these omissions are profound. For example, they had clear knock on effects on promoting the role of gender equity and justice in adaptive capacity, despite their centrality to core characteristics like 'institutions and entitlements'. Although ACCRA's programmatic team took conscious steps to embed gender equity and justice into the alliance's work, it was generally felt that more explicit consideration for power and gender justice

and its implication across all five LAC elements would have facilitated quicker and clearer engagement with policy-makers on issues of gender. With this in mind, future iterations of the LAC may be better served by explicitly depicting power and agency alongside the five characteristics in the LAC's headline table and graphic.

In addition, issues of dilution amongst processes within each individual characteristic are important. Experience from applying the LAC suggests that careful consideration needs to be given to specifying how the LAC's characteristics are broken down in each given context (this relates strongly to issues of indicator or characteristic weighting). For example, natural capital may play a strong role in rural environments, or areas where livelihoods are strongly dependent on environmental goods or services. This dependence may not be as high or as pronounced in certain urban contexts (though this will certainly not always be the case). Indeed, these considerations go somewhat beyond the remit of the initial framework, as it was merely intended as a guiding tool. What is however clear is that identifying rigorous and collaborative processes for taking the LAC past a simple conceptual framework, to one that is locally-meaningful and nuanced, is not only challenging but necessary to deliver impact. This requires time and input from all relevant stakeholders, and may often result in an application of the LAC that is far more expanded; it may even look radically different from the original framework itself.

4.5. *Recognizing the importance of context and dialogue*

The LAC deliberately highlights higher-level characteristics that are common across most contexts. Given the contextual nature of adaptive capacity (Vincent, 2007) this necessitated that each characteristic remains open to a range of different applications. For example, while FFDM is undoubtedly key to enabling people and communities to adapt to change and uncertainty, what it translates into in practice in terms of defining development interventions will be different from one location to the next or across different scales. The factors that promote FFDM in the context of a local government in Uganda, whose primary aim may be to prepare for increasingly variable rainfall owing to climate change, will be different to those that help a farmer's collective in rural India anticipate and buffer seasonal food price shocks. Operationalization of each of the five characteristics needed to be worked out by ACCRA's NGO partners in each context based on the insights gained from the research and ongoing learning and reflection in each of the countries and the ACCRA programme as a whole.

Key to this was bringing together a wider range of stakeholders (whether researchers, development practitioners, government or local communities) to discuss how each

element of the LAC can be applied in their context given existing needs, capacities and resources. Experience from ACCRA's NGO partners demonstrates that interactive and two-way processes of social learning and stakeholder engagement (such as participatory scenario planning, 'serious games' and role play) can prove to be far more effective than top down forms of knowledge exchange in contextualizing and operationalizing conceptual and novel ideas that support adaptive capacity (Armitage, Berkes, Dale, Kocho-Schellenberg, & Patton, 2011; Jones et al., 2014; Lemos, Kirchhoff, & Ramprasad, 2012). The LAC framework is most effectively used as a tool for guiding and facilitating multi-stakeholder discussions and can help to identify the broader types of actions that may be required to support adaptive capacity through processes of local engagement and embeddedness within local institutional and political contexts.

5. *Future directions for conceptualizing adaptive capacity and the application of the LAC*

From the outset, a decision by ACCRA alliance partners was taken not to use the LAC framework as a means of quantifying the adaptive capacity of households and communities during the programme's research activities. Others have, however, used it to inform their measurement efforts, for example Oxfam GB in its work on measuring resilience (Hughes & Bushell, 2013). Given that many of the processes identified in the framework are relatively intangible and difficult to reduce into quantifiable variables, qualitative methods were preferred at the time. Since the LAC's formulation however, there has been considerable pressure to develop robust methods for measuring qualities such as resilience and adaptive capacity – particularly in light of prominence given to resilience in the Sustainable Development Goals. Much of this can be ascribed to growing pressure from donors to demonstrate the impact of development interventions and showcase value for money in their activities (Constas, Frankenberger, & Hodinott, 2014).

With this in mind, provided that adequate methods for evaluating many of the process-based elements of the LAC can be identified, there should not be any large impediments to the application of the LAC as a tool for quantification. Yet, while a number of recent advances have been made in the design of research tools for evaluating softer elements of adaptive capacity (Frank, Eakin, & Lopez-Carr, 2011; Nguyen & James, 2013) and subjective resilience (Jones & Tanner, 2015; Marshall, 2010), to date the authors do not see evidence for suitably robust approaches that lend themselves to adequately quantify the five characteristics of adaptive capacity – either individually or in combination. Further methodological challenges relate to the ability of measurement tools to adequately account for the contextual elements of adaptive capacity as well

as how to robustly weight each of the five characteristics of adaptive capacity. Each of these challenges will require further testing, research and innovation in order to act as a reliable and holistic measurement tool.

A further area for development relates to conceptual clarity between adaptive capacity and resilience. If adaptive capacity is to be seen as a core process that sits within the wider resilience of a system, then clarifying its relationships with other related processes such as transformational capacity and coping capacity will be key to providing practical guidance for applying the LAC. Furthermore, more can be done to establish the conceptual nature of adaptive capacity in contexts outside of those applied in ACCRA's two phases of research. For example, are the five characteristics equally apparent in a developed country context? Are there elements that are unique to Asian and Latin American contexts? Moreover, as the LAC has predominantly been applied in rural areas to date, little is known as to whether the same characteristics or cross-cutting themes operate similarly in urban regions. Gaining insights into these questions will be of considerable relevance to the utility and expansion of the LAC going forward.

6. Conclusions

In developing its own framework, the ACCRA alliance is, in part, culpable of contributing to the growing number of frameworks for conceptualizing resilience or adaptive capacity. However, experiences from the framework's application in the pilot countries, and its subsequent popularity and adoption by other external initiatives, suggests that there may be merit in a process-orientated framework for assessing adaptive capacity. Despite efforts to ensure simplicity of use and draw on familiar concepts, considerable challenges were faced as researchers and practitioners did not necessarily share the same understanding of terminology or concepts as the designers of the LAC framework. Successful uptake of the framework is therefore largely dependent on the promotion of dialogue and learning process amongst all stakeholders in discussing the specific manifestations of the five characteristics of adaptive capacity and how they can be tailored to the local context.

One benefit of the LAC comes from its flexibility. This enables the framework to not only be used for evaluative research but facilitate multi-stakeholder discussions that support the development of context specific solutions. The mutual collaboration of researchers and practitioners is critical to this. Whilst researchers are situated at a slight distance to programmatic work, they are able to provide the necessary rigour and clarity to conceptualize a holistic approach to adaptive capacity. Equally, practitioners are embedded in local relationships and political processes and are able to facilitate its understanding and uptake into national planning processes. Each stakeholder has a lot to bring to the table. Above all, the framework's

future success is likely to be dependent on the ability of others to tailor it towards their specific needs. This could be through providing further clarity on the five characteristics, or through embedding aspects of the framework into other conceptualizations of adaptive capacity and resilience.

Disclosure statement

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