



# THE 3AS: TRACKING RESILIENCE ACROSS BRACED

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Working paper



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# 1. INTRODUCTION

IMAGE: ASIAN  
DEVELOPMENT  
BANK

Resilience is generally understood as the ability of systems to function in the face of disturbance (Holling, 1973). There has been a substantial push to operationalise this concept to reduce the vulnerability of marginalised communities. While development actors across the world recognise the potential of resilience thinking, operationalising the concept presents a number of conundrums. These include challenges related to translating ideas from the study of natural systems to work on systems with social components; managing trade-offs in building resilience – for example enhancing resilience for one individual could exacerbate the vulnerability of another; and developing a better understanding of the thresholds that need to be crossed for a system to become resilient (Bahadur and Tanner, 2014a).

One very important challenge in operationalising the concept relates to the measurement of the resilience of systems to varied disturbances. Resilience covers a number of sophisticated theoretical assumptions on systems thinking, cross-scalar interaction and non-equilibrium dynamics that are difficult to gauge and evaluate. Researchers and practitioners are also challenged to come up with methods to measure resilience before disasters strike (Bahadur et al., 2013; Quinlan, 2014), but, even as the community of practice grapples with these challenges, resilience programmes are proliferating across the world.

One important resilience programme is the Department for International Development (DFID)-funded Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED)<sup>1</sup> – one of the largest resilience programmes globally at the time of writing. This initiative aims to help people become more resilient to climate-induced shocks and stresses in South and Southeast Asia, East Africa and the Sahel. Grants have been awarded to 15 consortia, with projects covering a wide range of issues, from securing, servicing and promoting trans-border livestock mobility across the Sahel, to sharing skills and technology to improve uptake of climate information in Ethiopia, to supporting smallholder farmers in Nepal to take advantage of economic opportunities and investments in climate-smart technologies (Harvey 2015, forthcoming).

A 'Knowledge Manager' (KM) has been appointed to undertake monitoring, evaluation, research, learning and communications work. One of its key functions is to understand the manner in which and the extent to which BRACED is enhancing the

<sup>1</sup> Details of the BRACED programme, and the 15 consortia that lead projects, can be found on [www.braced.org](http://www.braced.org)

resilience of communities through different types of interventions and in different contexts.

The KM is challenged with measuring outcomes but also reconciling the diverse visions of resilience embraced by the different projects being implemented in highly varied geographies. There is now a growing body of literature that recognises that resilience is highly contextual and pathways to enhancing it vary greatly from one location to the next (Carpenter et al., 2001). The projects funded under BRACED will produce a diverse set of outcomes based on the varied hazards, vulnerabilities and socioeconomic characteristics of the locales in which they are unfolding.

### **Resilience is highly contextual and pathways to enhancing it vary greatly from one location to the next**

This paper presents an explanatory conceptual framework for measuring resilient outcomes that embraces and makes sense of this diversity. Outcomes from BRACED projects are understood to be a set of interrelated resilience capacities – the capacity to adapt to, anticipate and absorb climate extremes and disasters (the 3As). The 3As framework can organise practical actions or processes, but which of the 3As they fall into can vary depending on the context, as actions and processes can overlap and interact.

In acknowledgment of the growing discourse on ‘transformation’, this paper also presents a workable approach to analysing the potentially transformative impact of BRACED interventions. While the examples this paper draws on are from BRACED – details of which can be found on the programme website –

they also illustrate the potential of the 3As to be deployed more widely to understand resilience outcomes. The 3As is an effective approach to understanding resilience because:

1. It breaks down the concept of resilience into three readily recognisable capacities or abilities.
2. Outcomes from diverse projects can be analysed and compared in terms of outcomes across the whole programme.
3. Tracking changes in these capacities provides an *ex-ante* perspective on the likelihood of climate extremes and disasters disrupting a system (i.e. a disaster does not actually have to occur).
4. Understanding resilience as a set of capacities is gaining substantial traction beyond BRACED and therefore analysing outcomes in this way will ensure that insights generated across the programme have a wider influence on global resilience policies and programmes (Béné et al., 2012).





## 2. METHODOLOGY

IMAGE: ERIC  
MONTFORT

We first conducted a literature review focusing on a subset of literature aligned with a predetermined purpose of mapping ways of understanding resilience outcomes. The objective of this was to devise an approach to understanding outcomes from BRACED. The 3As concept was hence developed through consultation with partners across the programme. This paper will be of interest to others engaged in this topic, but its specific aim is to inform the community of practitioners and researchers working to deliver BRACED.

The literature review entailed three steps: 1) a search of academic journal databases and indices using key terms; 2) a more targeted search looking for grey literature developed by organisations active in resilience research; and 3) exponential discriminative snowball sampling, to help refine the resources being collected

(Denzin and Lincoln, 2005).<sup>2</sup> This led to consolidation of the key conceptual lens (presented in Section 3) and supported exploration of the 3As concept and ideas about transformation within project documents.

Once the conceptual lens was sufficiently developed, we examined project documents to see how project interventions align with this concept. More specifically, this entailed a close scrutiny of project Theories of Change, log frames, monitoring and evaluation plans and project proposals. Emphasis was placed on examining the approaches, metrics and indicators these projects have adopted to track changes in outcomes, as the 3As and transformation are concepts that are useful for understanding the 'end-points' of resilience-building processes as opposed to the processes (inputs/outputs) themselves.<sup>3</sup> At this stage, we extracted, analysed and coded relevant information on resilience outcomes using the elements of the conceptual lens developed in the previous step. This facilitated a sharp understanding of what we could expect to learn from these projects about changes in the 3As and transformation. It is vital to note that, given the complexities that are a part of any large initiative, many of the documents analysed are undergoing iteration and revision. We analysed the documents as they existed on 15 July 2015, at which point some were in draft form.

- 2 This is a sampling process whereby the researcher starts with a small core set of data sources and uncovers new sources through these, rejecting those that are not centrally aligned with the research design.
- 3 For example, it is vital to understand the manner in which the capacity-building of communities on understanding disaster risk (input) that may lead to the preparation of household preparedness plans (output) results in the household's capacity to absorb, anticipate and adapt to shocks/stresses (outcome).



# 3. KEY CONCEPTS

IMAGE: JEAN-  
MARIE HULLOT

Resilience has multiple meanings. Within BRACED, it is understood to be the 'ability to anticipate, avoid, plan for, cope with, recover from and adapt to (climate related) shocks and stresses' (DFID, 2014a). The father of resilience thinking, C.S. Holling, understood it to be 'the persistence of relationships within a system; a measure of the ability of systems to absorb changes of state variables, driving variables, and parameters, and still persist' (Holling, 1973). And within the UN system it is thought of as 'the capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing, in order to reach and maintain an acceptable level of functioning and structure' (UNISDR, 2005).

These and other conceptualisations of resilience suggest social systems (e.g. communities) have a number of different properties

that allow them to function 'well' (in the sense of providing stability, predictable rules, security and other benefits to their members). Their ability to deal with shocks and stresses is derived from various capacities that collective and individual actions can enhance. These capacities can be divided into interlinked absorptive, anticipatory and adaptive capacities. A social system with these capacities is less likely to be undermined by shocks and stresses, so wellbeing can be ensured and human development can continue to progress in locations exposed to climate extremes and disasters.

### **Communities' ability to deal with shocks and stresses is derived from interlinked absorptive, anticipatory and adaptive capacities**

The concept of 'transformation' is fast gaining traction, and certain experts have argued for including "transformative capacity" in any schema of resilience capacities (Béné et al., 2012). Having examined the issue carefully, we feel that, in the context of BRACED, transformation is not a type of capacity (that contributes to resilience in the same way as the 3As), but rather is an approach to holistically and fundamentally build, reshape and enhance people's capacity to adapt to, anticipate and absorb shocks and stresses (for more see Section 3.4).

What follows is an exploration of each of the three capacities of resilience: adaptive, anticipatory and absorptive, plus a section on transformation. First, we consider the conceptual foundations; this is followed by a practical grounding on each capacity using examples from the 15 consortia that make up the BRACED programme. The examples also explore

how the BRACED portfolio of projects is planning to track changes in the 3As and transformational outcomes.

The analysis draws on a thorough review of monitoring and evaluation plans, log frames and theories of change. Where necessary, we provide further detail from other sources such as project proposals, communication with BRACED partners and supplementary notes written by those running the projects. Note, as indicated above, that many of these documents reviewed present only draft or indicative metrics and indicators; processes to finalise them will continue until the end of 2015.

### 3.1 Adaptive capacity

Adaptive capacity is the ability of social systems to adapt to multiple, long-term and future climate change risks, and also to learn and adjust after a disaster. It is the capacity to take deliberate and planned decisions to achieve a desired state even when conditions have changed or are about to change. This includes the ability to 'react to evolving hazards and stresses [well in advance] so as to reduce the likelihood of the occurrence and/or the magnitude of harmful outcomes resulting from climate-related hazards' (Malone, 2009: 6). Adaptive capacity also includes the ability to take advantage of a disturbance and to 'build or bounce back better' (Manyena et al., 2011), as well as learning from the legacy of recurring shocks and stresses. This ability to recover in such a way as to reduce vulnerability to future events is vital to the notion of adaptive capacity. Without it, communities often get stuck in risk traps and recurring cycles of vulnerability (Becchetti and Castriota, 2011).

Resilience capacities can also be understood in terms of the timeframe within which they are 'exercised' or 'operationalised'. Adaptive capacity is usually made apparent and strengthened



during non-emergency periods, for example in accessing and using a mix of historical data and downscaled climate projections to understand changing rainfall patterns to inform the design of drainage systems. The same can be said for changes in livelihoods and incomes: farmers can diversify their risk profiles by deciding to pursue non-agricultural livelihood activities in sectors that may be less climate-sensitive (e.g. artisanal trades) so that, even if one source of livelihood is disrupted, another continues.

As a key element of adaptive capacity is learning from disturbances (including by looking at historical patterns), communities with such capacity are able to recover in ways that reduce their vulnerability to the same shocks should they occur again, as well as to new and emerging risks (Smit et al., 2001). For instance, farmers could decide to decrease their reliance on sources of livelihoods that have been affected by certain disasters in favour of others. Key to our interpretation of adaptive capacity is the awareness of changing conditions, with communities thus also able to adopt new strategies to engage with evolving and unexpected shocks and stresses (Lopez-Marrero and Yarnal, 2010).

Taken alone, adaptive capacity can be seen as 'good development'. Actions to improve adaptive capacity – diversifying livelihoods in resource-dependent communities and helping farmers use better-quality inputs to agricultural production – aim to improve wellbeing regardless of whether climatic events will affect the beneficiaries in the near future (Huq and Reid, 2009). They make communities more resilient to disaster events, and, by increasing access to and use of basic services, for example, improve overall health, economic, social and institutional outcomes independently of climate-related ecological changes (Schipper and Pelling, 2006; Smit et al, 2000).

## A CLOSER LOOK AT: adaptive capacity through BRACED

A review of the ways in which BRACED projects are tracking the outcomes of their interventions reveals that, when it comes to adaptive capacity, projects are geared towards measuring changes in assets and incomes (collective or individual); in the structure and nature of livelihoods; in the availability and use of climate information; and in the availability and use of basic services.

### **Assets and incomes**

'Lack of availability and access to appropriate resources may significantly limit the ability of a system to cope with the effects of climate change and wider development pressures' (Jones et al., 2010: 5). Therefore, a number of BRACED initiatives aim to build assets and increase the incomes of vulnerable communities in their target areas as a way of enhancing their adaptive capacity. For example, the Christian Aid-led consortium considers an increase in income an important outcome of its initiative. It aims to understand changes in income through the deployment of a threshold scoring system by looking at how communities graduate from one income bracket to another or by understanding the degree of self-sufficiency in securing access to food for 12 months in the year. Crucially, instead of predetermining these thresholds, the team running the project intends to allow communities to define these for themselves in the way that is most locally relevant. Apart from tracking these graduations from one monitoring period to another, the Christian Aid-led consortium supplements this indicator with another that will track annual variability in income in terms of cash or nutrition over previous years and within individual years.

The Catholic Relief Services (CRS)-led consortium also underlines the importance of this theme in its Theory of Change, but adds an emphasis on the diversification and intensification of livelihoods as a route to achieving higher incomes.

### **Initiatives aim to build assets and increase the incomes of vulnerable communities as a way of enhancing their adaptive capacity**

Plan also considers income an important indicator for understanding outcomes. Similar to Christian Aid's emphasis on income variability, its project uses 'income stability' as a significant outcome indicator. This indicator attempts to gauge whether the stability of income has reduced, stayed the same or increased, and examines the number of income sources and seasonal income stability as well as total annual income.

Even though tracking changes in assets that communities can access is in itself not a sufficient measure of increased adaptive capacity, when coupled with a range of other attributes it can contribute to a holistic understanding of changes in this capacity (Jones et al., 2010). For this reason, Acting for Life's (AFL) consortium, which aims to enhance the resilience of pastoralist communities, considers improvements in livestock assets an important outcome indicator. Its initiative aims to track animal health, access to and use of fodder supplements and access to livestock markets as a way of understanding its interventions' outcomes.

The Mercy Corps-led consortium also focuses on asset ownership but chooses to track increases in three categories of assets: consumer durables (using a checklist of 11 options), agricultural

productive assets (using a checklist of 22 options) and livestock. These data are then compiled into an overall asset index.

### **Strengthening and adapting livelihoods**

Ensuring the economic foundations of social systems remain stable requires community-level livelihood pathways that are secure and that do not erode as a result of climate extremes and disasters. Pre-empting this, a number of projects across the BRACED programme are tracking how communities are strengthening their livelihoods by adapting to long-term changing climate conditions. A good example is the project being run by Concern in South Sudan, which aims to track the use of seeds that can survive increased periods of inundation (a potential climate change impact). In combination, it aims to embed 'climate-smart technology' within communities' livelihood practices and to understand the degree to which community members have taken up these technologies.

The CRS-led consortium too is focused on strengthening livelihoods through the promotion of climate-smart approaches and by reinforcing agricultural value chains through the creation of sustainable linkages between producers and buyers. This in turn will enhance household incomes, thereby contributing to adaptive capacity.

International Development Enterprises's (iDE) evaluation plan adopts a similar emphasis on strengthening livelihoods and also aims to track access to climate-smart services and technologies. A diverse array of energy and agriculture interventions being delivered through their intervention aim to enhance the adaptive capacity of local communities across Nepal, and their monitoring and evaluation systems will provide a clear picture of the manner in which this is happening.

Similarly, the International Relief and Development (IRD)-led consortium is planning on building the capacity of local governments and farmers to apply climate-smart agricultural practices, drawing on technical insights from the Consultative Group for International Agricultural Research (CGIAR), International Crops Research Institute for the Semi-Arid Tropics and the Climate Change, Agriculture and Food Security Research Program. It then intends to track the '% of beneficiaries that state they have applied climate smart practices with project assistance'.

The consortium run by Mercy Corps similarly puts an emphasis on livelihoods but deploys an approach that is integral to the idea of resilience: diversity. Diversity is understood to be one of the core tenets of resilience thinking: the ability to substitute one livelihood for another depending on the particular exigent situation is key to enhancing adaptive capacity (Bahadur et al., 2013). This is why Mercy Corps aims to track the 'diversity of livelihoods' (calculated as the number of livelihood activities with different risk profiles) that a community is engaged with by asking communities about the 'sources' of their household food/income over a 12-month period.

Plan too has 'diversity' of livelihood sources as an important outcome metric of its project in Myanmar.

## **Climate information**

Information is a theme that is revisited in section 3.2 as certain types of information support adaptive capacity whereas others allow communities to better anticipate climate extremes and disasters. As part of this, adaptive capacity also refers to the ability to take deliberate and planned decisions even when conditions have changed or are about to change. Information on long-term climate change that includes trends and patterns



that push systems closer to disasters is therefore vital in enhancing adaptive capacity. This understanding is reflected quite clearly in a number of the indicators BRACED projects are deploying to measure changes in the availability and use of climate information.

**Information on long-term climate change – that includes trends and patterns that push systems closer to disasters – is vital for enhancing adaptive capacity**

This issue is embedded firmly within the CRS-led consortium's Theory of Change, which aims to support men and women individually and collectively improve the management of their pastoral/agro-forestry systems. The aim is to do so by enhancing people's ability to make better use of climate information and trend data (as an important outcome of their initiative). More specifically, this project intends to ensure seasonal climate forecasts are provided to vulnerable communities and disseminated in a manner that is comprehensible. Climate information will be made available through bulletins and radio messages tailored for particular communities.

The initiative led by Farm Africa aims to test innovative, market-based approaches to improve the resilience of economic, ecological and social systems in the Ethiopian lowlands. It provides different kinds of information to enhance adaptive capacity and will track the manner in which this is delivered and used. For example, those delivering the project will track the delivery of information services to support livestock and crop production capacity as well as access to information on markets.

Plan too is intending to track changes in the use of climate information through the monitoring and evaluation systems within its consortium. A key element of its draft composite index on resilience aims to track the number of people who have access to 'weather forecasts', 'climate change prediction information' and other general information on climate change, either through public service announcements or through other media outputs. As it is now well understood that the availability of information does not necessarily translate into its use, Plan also intends to track the number of people reporting that they have made a 'key livelihood decision' using available climate and weather information, as well as the number of people who report they have used available climate and weather information in planning processes to build resilience at the community level. Overall, there is a strong emphasis across BRACED on tracking the availability of, access to and use of different kinds of information to enhance the adaptive capacity of communities to climate extremes and disasters.

### **Basic services**

A number of initiatives within the BRACED programme focus on enhancing basic services for vulnerable populations and tracking progress as a way of understanding how changes in adaptive capacity are occurring. The quality of basic service provision significantly affects the ability of individuals and communities to adapt to climate extremes and disasters and is therefore seen as important for enhancing resilience (Khan, 2014). The AFL consortium monitoring and evaluation plan outlines how its project is concerned with enhancing the resilience of pastoralists and so will track herders' access to water, transit grazing areas and markets and supports initiatives that aim to reduce the possibility of conflict with other pastoralist communities.

Access to water is also detailed in iDE's evaluation plan. iDE plans to track changes in 'access to an improved water source less than 30 minutes from home or fields' as an indicator of adaptive capacity. The project's justification for using this as an indicator of adaptive capacity stems from the fact that access to basic services enhances the possibilities for irrigation and increased income and that the availability of fresh water has positive health impacts. This in turn supports an individual's ability to successfully deal with the impacts of climate extremes and disasters.

The emphasis on basic services is also evident in the log frame for the initiative Plan is running in Myanmar. The log frame is designed to track the number of people (including the percentage of women) who report that access to 'core systems' is 'stable and climate-resilient'. 'Core systems' here pertain specifically to food, drinking water, water for irrigation, energy (fuel) and ecosystem services. Overall, the range of projects unfolding as part of BRACED demonstrate an adequate understanding of the manner in which basic services support enhancements in adaptive capacity and aim to track changes in access/use by vulnerable communities.

### **Other elements of adaptive capacity**

Apart from the issues that fit neatly into the four clusters explored in the preceding sections, BRACED projects are tracking other changes that will shed light on enhancements in adaptive capacity in the areas where the programme is operating. AFL's initiative focuses on enhancing the resilience of pastoralists, it will also track 'fluidity of livestock movements along the corridors' because, as per the logic of the intervention and the experience of pastoralism in the region, enhanced mobility will augment the ability of herds to adapt to changing conditions.

In another example, Farm Africa intends to track the number of households that benefit from improved watershed management and the manner in which soil and water conservation techniques are benefiting the household. This is in line with a vast and growing body of evidence on the manner in which in these vital activities enhance adaptive capacity and support resilience (Carabine et al., 2015; Tanner et al., 2015).

## 3.2 Anticipatory capacity

Anticipatory capacity is the ability of social systems to anticipate and reduce the impact of climate variability and extremes through preparedness and planning. Anticipatory capacity is seen in proactive action before a foreseen event to avoid upheaval, either by avoiding or reducing exposure or by minimising vulnerability to specific hazards (Kellett and Peters, 2014). This is in contrast with the more 'reactive' actions that take place after a disturbance has been felt (assuming the community in question has not been overwhelmed to the point of collapse) (Levine et al., 2011).

### Anticipatory capacity is the ability of social systems to anticipate and reduce the impact of climate variability and extremes through preparedness and planning

Anticipatory capacity is displayed when communities are able to forecast particular shocks, for example through the use of drought and cyclone early warning systems or geospatial information. They must also be ready to act on this information and undertake pre-emptive measures to reduce the impact of impending hazards such as preparing and moving to the nearest cyclone shelter (Fankhauser et al., 1999). An additional component of anticipatory capacity is the ability of communities to undertake vital planning and preparedness activities to manage disaster risk (e.g. organising the community so volunteers are charged with ensuring the physically challenged and senior citizens are taken to shelters) (Adger, 2003). While adaptive capacity is needed in the context of varied and potentially evolving risks – and long-term changes in a system to manage



those changes – anticipatory capacity enables targeted responses to engage with specific known shocks and stresses. This is also why anticipatory capacity is useful to engage with shocks and stresses likely to occur in the medium to short term.

A wide range of actions demonstrate this ability to anticipate shocks and stresses and take adequate measures to reduce their impact. These could include responding to short-term weather forecasts and to warnings on impending hazards, through, for instance, a flood risk monitoring system that tracks water levels upstream from a community. Planning activities, in the case of flood risk, comprise disseminating information on elevated evacuation routes to be used in times of inundation and designing community-level flood management plans with designated roles and responsibilities for community members (ADB, 2009). Actions that are indicative of anticipatory capacity also include a range of emergency preparedness activities, such as training exercises and simulations, contingency preparedness and response planning and pre-positioning of goods and services (Kellett and Peters, 2014). In this way, interventions aimed at enhancing anticipatory capacity focus on limiting mortality and the negative social, economic and physical effects of climate extremes and disasters.

Actions to strengthen anticipatory capacity tend to be hazard-focused, though some may also serve a secondary purpose. For example, digging ditches to reduce the impacts of storm surges can help farmers irrigate their crops, increasing their productivity and output, as well as reducing soil erosion and deforestation by optimising previously inefficient farming practices (Tanner et. al. 2015). Similarly, enhanced preparedness can be used to support existing community coordination initiatives (Fordham and Gupta, 2011). This need not be through an external intervention but can include communities' capacity to self-coordinate (Bredholt and Wingate, 2007).

## A CLOSER LOOK AT: anticipatory capacity through BRACED

A review of how BRACED projects are tracking the outcomes of their interventions makes it clear that, when it comes to anticipatory capacity, projects are geared towards measuring changes in preparedness and planning; capacities and coordination; and risk information.

**Projects aim to enhance anticipatory capacity by supporting communities in preparing and planning for climate extremes and disasters**

### **Preparedness and planning**

A number of projects within the BRACED programme aim to enhance anticipatory capacity by supporting communities in preparing and planning for climate extremes and disasters. Activities of this nature are front and centre in the Theory of Change guiding the Concern-led initiative, which lists disaster preparedness and natural resource management for buffering against disaster impacts as key outcomes. Concern's baseline and endline surveys will track changes in preparedness; more specifically, they will track changes in knowledge on planning for effective disaster risk reduction among communities.

The Consortium pour la Recherche Economique et Sociale (CRES) led consortium approaches anticipatory capacity through preparedness and planning from a different perspective, as its Theory of Change emphasises effective flood preparedness. This refers to the importance of enhancing communication

between and among vulnerable communities and the relevant government agencies. It also highlights the importance of flood contingency planning.

IRD highlights similar issues in the bank of indicators it has developed to track the progress of project activities. IRD's project aims to measure changes in the numbers of Citizen Working Groups (the basic organisational unit of the project) that are undertaking community-based disaster risk management (CBDRM) planning with project assistance. Its monitoring and evaluation systems are also geared to track the numbers of CBDRM plans that are 'communicated' to the representatives of the local government as a rough measure of the buy-in/sustainability of community-driven preparedness and planning activities.

Plan, through its consortium in Myanmar, is also gauging changes in people's capacity to anticipate the risk of climate extremes and disasters by tracking the number of people with 'increased preparedness mechanisms'. More specifically, its' monitoring and evaluation protocols will gather data on the number of people who feel they have the ability to cope with and adapt to floods, droughts, heavy rains, cyclones, tidal surges, saline intrusion, heat and cold waves and other climatic hazards. In this way, a number of projects will examine changes in anticipatory capacity by tracking the extent of community-level planning and preparedness for reducing the risk of climate extremes and disasters.

### **Capacity, coordination and mobilisation**

Closely related to the preceding sub-section, a number of projects are also geared towards tracking changes in the capacity of vulnerable communities and institutions to anticipate

the risk of climate extremes and disasters as well as their levels of coordination/organisation in responding to these risks. A good example of this is the outcome indicator CRES employs to track the extent to which its project is enhancing the degree of 'self-organisation' to tackle climate extremes and disasters. An analysis of its project proposal reveals that self-organisation pertains to communities' ability to manage their internal functioning and coordination so as to respond flexibly to risks. Additionally, its Theory of Change places emphasis on the preparation of an integrated flood policy. A key component of this is the strengthening of government capacity and coordination mechanisms to deliver a more efficient and effective flood response.

CRS too emphasises the importance of enhancing capacity and coordination to better anticipate the risk of climate extremes and disasters by providing training to community members on disaster risk reduction strategies. These include disaster risk mapping, data collection, disaster risk mitigation, and community response to disasters.

A focus on training and capacity-building is also evident in the indicators IRD is deploying to measure outcomes. IRD will track the numbers of beneficiaries who have been trained in one or more CBDRM practices, such as the establishment of cereal banks, which have been seen as a solution to hunger, volatile food prices and scarcity during the dry season (FAO, 2013).

## **Risk information**

Section 3.2 outlined how anticipatory capacity is displayed when communities are able to forecast and expect particular shocks, for example through the use of drought and cyclone early warning systems. Communities must also be ready to act on this

information and undertake pre-emptive measures to reduce the impact of impending hazards, such as preparing and moving to the nearest cyclone shelter (Fankhauser et al., 1999). Using this framing, projects under BRACED will enhance adaptive capacity through the generation, distribution and uptake of information on the risk of climate extremes and disasters.<sup>4</sup> For example, Christian Aid's project in Burkina Faso expects its indicators (undergoing a process of validation at the time of writing) will be focused on measuring changes in the levels of 'awareness' and understanding of risks and vulnerabilities. More specifically, the monitoring and evaluation plan articulates how this information can be gathered through the use of Likert Scales, on which community members will be able to rate whether they 'strongly agree', 'agree', 'don't know' or 'disagree' with statements such as 'Droughts are an act of God, there is nothing we can do about this.' Movements in peoples' ratings from 'strongly agree' to 'disagree' through the course of the project would then provide a measure of improvements in awareness.

### **Projects will enhance adaptive capacity through the generation, distribution and uptake of information on the risk of climate extremes and disasters**

The project CRS is running in Niger, Burkina Faso and Mali also aims to enhance anticipatory capacity through the provision of risk information. Its initiative plans on instituting

<sup>4</sup> Unlike the section on 'information' included in Section 3, the discussion on information here pertains to information on the short- and medium-risks of specific disturbances (e.g. early warning on floods).

and strengthening Early Warning Groups formed of community members, and monitoring and evaluation systems will be geared towards tracking how these groups improve their competencies in risk data collection and disaster risk mapping. Apart from the focus on building community-level institutional capacity, the project also aims to enhance the use and effectiveness of early warning systems. It aims to do this in a number of ways, including by ensuring national early warning systems are receptive to community-level risk data and early warning data are communicated more robustly through cell phones.

The emphasis on tracking the use of early warnings is part of the iDE evaluation plan for its consortium in Nepal. As part of this, iDE plans on tracking not only the population covered by flood early warnings but also the people heeding and responding beneficially to the warnings issued.

A similar emphasis on gauging the use and uptake of early warnings is seen in the IRD initiative. One of its outcome indicators aims to track the percentage of project beneficiaries who have used early warning information to take 'livelihood decisions'. Associated output indicators aim to track the numbers of community members trained in the use of risk information from sources such as Famine Early Warning System.

### 3.3 Absorptive capacity

The ability of social systems to absorb and cope with the impacts of climate variability and extremes is known as 'absorptive capacity'. It refers to the ability of social systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters (Hudner and Kurtz, 2002). While anticipatory capacity comes into play before a shock or stress, absorptive capacity is exercised during and after a disturbance has occurred to reduce the immediate impact on people's livelihoods and basic needs. In conceptual terms, it is concerned principally with 'functional persistence' – that is, the ability of a system to buffer, bear and endure the impacts of climate extremes in the short term and avoid collapse (death, debilitation and destruction of livelihoods) (Blaikie et al., 2003; Folke et al., 2010, Bene, 2012). In practical terms, this is most visible in the form of coping with the impacts of a disaster.

**Absorptive capacity refers to the ability of social systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters**

For the purposes of tracking and measurement, absorptive capacity can be seen in the ability of communities to access and deploy tangible assets such as savings and intangible assets like social networks to help them survive intensive shocks and maintain levels of wellbeing (Levine et al., 2011). The extent to which absorptive capacity is present (and deployed) has implications for longer-term adaptation and transformation: if communities cannot endure the immediate aftermath of



a disaster, they will be unable to sustain themselves or their livelihoods or to take advantage of any new opportunities that arise.

Research on disaster recovery has highlighted the importance of accessing financial resources in the immediate aftermath of a disaster, as communities and states attempt to rebuild and maintain essential functions. This can include substituting and drawing on diverse assets and resources, and can happen at a variety of scales: from individuals accessing finance via personal connections and remittances through to a government protecting its budgets through sovereign risk insurance. Savings and safety nets can help communities 'buffer against' the financial impacts of disasters (Levine et al., 2011). Meanwhile, collective loans and savings schemes can prompt a release of funds through predetermined triggers, helping vulnerable communities cope with and recover from disaster events (Bastagli and Harman, 2015)

Disaster relief, micro-credit, weather-indexed insurance and social protection can all help households meet their consumption needs in the immediate aftermath of a hazard (Brouwer et al., 2007; Carter et al., 2004; Devereux, 2001; Doocy et al., 2005). In the absence of capital and facing a serious loss of resources, poor households are often forced to reduce their own consumption in order to avoid selling off productive assets to meet basic needs. This in turn can have devastating impacts on childhood nutrition and long-term household wellbeing (Becchetti and Castriota, 2011). If households have access to timely finance, they are better able to cope during periods of turmoil. This requires having microfinance and social protection schemes in place well before the impact of a disaster is felt. As well as the provision of additional resources, 'asset diversity' is also understood to be key to resilience and enhances absorptive

capacity (Carpenter et al., 2001; Folke, 2006; Holling, 1973; Resilience Alliance, 2009). This is simply because disasters often erode the assets on which communities rely for their wellbeing. Key to communities successfully absorbing these shocks is their ability to substitute one critical asset or resource with another.

## A CLOSER LOOK AT: absorptive capacity through BRACED

After reviewing how BRACED projects are tracking the outcomes of their interventions, when it comes to absorptive capacity projects are geared towards measuring changes in the access communities enjoy to savings and safety nets; their ability to substitute one critical asset with another; and access to support and advice in the event of climate extremes and disasters.

### **Savings and safety nets**

The ability of vulnerable communities to 'cope with' or 'buffer against' the exigencies posed by climate extremes and disasters depends on the resources they can access to bridge periods of turmoil and to smooth consumption to ensure they can maintain their levels of wellbeing (Levine et al., 2011). This is clearly evident across a number of projects unfolding under the BRACED programme. Even though the indicators that Christian Aid will employ are yet to be finalised, it is highly likely they will track changes in the levels of savings, wealth and exchangeable assets vulnerable communities in Burkina Faso hold. This will be assessed by asking questions on the number of people with bank accounts, the number of savings and loans schemes in operation at the community level, their membership and the total amount of funds available from these. In addition to tracking savings levels, the project will track the use of loans.

CRS also emphasises the importance of savings in enhancing the capacity of individuals to buffer shocks and stresses. Its project tracks the degree to which women and men access community-based savings and lending structures it has established. This pertains to the use of Savings and Internal Lending Committees – community-level institutions promoted

by the project that aim to allow vulnerable communities to access credit and savings.

The project led by Farm Africa aims to support financial institutions in expanding mobile banking into remote areas. The monitoring and evaluation systems for this initiative are then geared to track numbers of mobile bank accounts, levels of savings and use of mobile banking services for the receipt of remittances. As the project also aims to extend insurance mechanisms to vulnerable communities in partnership with a private insurance company, it will track the uptake of these mechanisms across project areas.

Similarly, Mercy Corps emphasises Index-Based Livestock Insurance as a key approach in its project in Kenya and Uganda, and its monitoring and evaluation systems will most likely track changes in access to insurance by communities in case of livestock mortality. Its project also intends to track changes in the number of community organisations providing informal safety nets (e.g. religious groups, women's groups, savings groups).

The approach Plan employs is also heavily reliant on the use of financial services for enhancing resilience. Its project will track changes in the number of people reporting access to Village Savings and Loans Associations. Interestingly, as well as tracking 'access', the project is also likely to yield data on the 'use' of loans vulnerable communities take and how the loans households receive are invested in measures to promote resilience. These measures would include support to or development of new resilient livelihoods, carrying out housing improvements, purchasing equipment to receive climate/risk information (e.g. mobile phones), etc.

## **Substitutable and diverse assets and resources**

As discussed in Section 3.1, absorptive capacity refers to the ability of social systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters (Hudner and Kurtz, 2002). Key to communities having the capacity to do this is the ability of individuals/households to substitute one critical asset with another by ensuring diversity and redundancy in resources key to their livelihoods. This is to ensure that, even if a disturbance prevents access to a particular asset, a household should be able to draw on others to smoothen its consumption and maintain its wellbeing. This is reflected in the monitoring and evaluation plan being devised for the project being led by Christian Aid. It is expected that an important indicator will be to track changes in the 'number of income/nutrition streams available to a family'. This could refer to crop diversification or changes in varieties of cattle owned by households. As part of this, the project will also consider tracking changes in the proportion of wealth retained in the form of cash and as livestock by households. The draft monitoring and evaluation plan also emphasises the importance of tracking 'nutritional diversification' at household level, as reliance on a broader basket of foods is likely to ensure continued nutrition during disturbances.

**Key to communities having the capacity to face and manage adverse conditions is the ability of individuals/households to substitute one critical asset with another**

The same measure is also included by iDE, which too intends to track changes in 'dietary diversity'. iDE emphasises that,

in addition to measuring absorptive capacity, data gleaned for this indicator will provide insights into general wellbeing, as a 'balanced diet' has been linked to better health outcomes more broadly. Diversity in this sub-section refers to asset/resource diversity, which is somewhat different to 'livelihood diversity' as discussed in Section 3.1.

### **Other elements of absorptive capacity**

Apart from the issues that fit neatly into the two clusters explored in the preceding sections, BRACED projects are tracking other changes, all of which will shed light on enhancements in absorptive capacity in the areas where they are operating. A good example of this is evident in the list of indicators prepared by Plan for its consortium in Myanmar. In congruence with a substantial body of literature that highlights how social networks and support systems are vital in helping communities survive disasters, Plan intends to track the number of people who feel they have access to support, advice or services in the event of climate extremes. In particular, this indicator will help track access to community-based organisations, village development committees and other similar bodies that are potential sources of social support, self-organisation and networks during disturbances.

Another interesting indicator of absorptive capacity is seen in AFL's initiative, which is focused on building the resilience of pastoralists. This project will track levels of income derived from livestock in spite of shocks and stresses (without compromising herd reproduction and growth and without depleting women's livestock assets). In essence, this will help in tracking the degree to which pastoralists are able to absorb disturbances while still maintaining income levels.

## 3.4 Transformation

Researchers and practitioners are increasingly asking how to go beyond incremental adjustments and current adaptation and resilience-building approaches, and interest in how to understand and create the transformational changes required for addressing climate change challenges is growing (Kates et al., 2012; O'Brien et al., 2012; Park et al., 2012; Pelling, 2010; Tanner and Horn-Phathanothai, 2014). Transformation can describe an unintended change, but generally refers to deliberate attempts to engineer the changes required to achieve a desired goal or outcome (O'Brien, 2012).

**Transformation can describe an unintended change, but generally refers to deliberate attempts to engineer the changes required to achieve a desired goal or outcome**

A scan of the transformation literature reveals a set of properties common to the concept: in the context of climate and development policy and planning, these include strategic thinking and policy, leadership, empowerment and innovation. Other common characteristics are 'catalytic', 'at scale' and sustainable outcomes, all of which we explore briefly below (DFID 2014b; Kates et al., 2012).

The capacity of social systems to adapt to, anticipate and absorb climate extremes and disasters can be influenced by transformational policy shifts that fundamentally change the institutional 'rules of the game' (Béné et al., 2012). These policy shifts may be at the national scale, for example the creation and enforcement of legislation to deter the concentration of people



and economic assets within a certain distance of the coastline after tsunamis or at lower scales of governance.

Transformation can also be brought about by leadership and empowerment processes (Olsson et al., 2004). Transformation requires 'leaders' who see a need for change and then carry it through (Francis et al., 2003; Kotter, 1995). Leadership, and in some cases key individuals, can therefore play a central role in transformation (Olsson et al., 2004). Leadership is crucial both in recognising needs and opportunities and in effectively communicating a vision of change to others. Leaders can challenge the *status quo*, provide alternate visions of what is possible, take advantage of 'policy windows' and manage conflicts that may emerge during transformational processes (Michaels et al., 2006).

Transformation requires engagement with issues of power at two levels (Kapoor, 2007): changes in the social structures that influence decision-making (in units that could include households, communities, businesses, government departments, non-governmental organisations) and changes in individual values, capabilities and choices. Many of the transformational changes therefore depend on altering existing power relations (eg. gender dynamics), which involves recognising the social and political processes that both undermine and constrain resilience. They also entail building greater transparency and the inclusion of marginalised groups into formal and informal governance systems, policies/regulations and decision-making spaces. Within the household, changing power relations may come about through shifts in the domestic economy, such as providing conditional cash transfers to women to enhance their strategic position within the family (Béné et al., 2012).

Empowerment and decision-making are also transformed through behavioural changes related to values and capabilities (Boyd and Myers, 1988; Mezirow, 1997). Many capacity development and knowledge-based actions will be geared towards this end. Sometimes, this is through enhancing skills and knowledge (such as access to and use of climate information) and challenging pre-conceived ideas, ways of working and oppressive power structures (such as forced marriage, caste and gender discrimination) that may curtail expression (Bivens et al., 2009).

In essence, the 'empowerment pillar' of transformation pertains to successfully tackling the underlying drivers of vulnerability to climate extremes and disasters (Bahadur and Tanner, 2014a). Key to the discussion on empowerment as a pathway of transformation is a discussion on tackling trade-offs, whereby empowerment for one group or individual could come at the cost of the oppression of another, which in turn could have negative consequences for their resilience. These trade-offs can be tackled through decision-making processes that are inclusive and iterative (ibid.).

Apart from leadership and empowerment, innovative technologies and processes can also transform systems. While 'innovation' can be applied to many contexts, there is an important distinction between approaches that strengthen the *status quo* and those that champion innovation with the potential for change (Pelling, 2010). Such innovation is likely to be disruptive and may destroy, at least in part, existing approaches to livelihoods, governance and business (and the associated skills) to enable transformation to occur (Francis et al., 2003). Again, robust, inclusive and participatory approaches need to be deployed in order to understand the costs and benefits of disturbing the *status quo* in favour of more innovative approaches.

Innovation is commonly associated with the introduction of new technologies and new processes or ways of doing things that could lead to wider and sustained change. Innovative approaches could include new business models or approaches to engaging with communities that have the potential to challenge the *status quo*, for example by harnessing the power of the private sector and engaging small businesses to sustain and scale up project impacts after the end of the implementation instead of singular reliance on governments or civil society. Of course, as with all development and change processes, checks and balances will need to ensure the benefits of innovations are being reaped equitably.

**Transformation pertains to the holistic and fundamental ways in which people's capacity to adapt to, anticipate and absorb shocks can be built, reshaped and enhanced**

Transformation pertains to the holistic and fundamental ways in which people's capacity to adapt to, anticipate and absorb shocks can be built, reshaped and enhanced. In the context of climate and development interventions, the literature suggests that, to demonstrate the potential for transformation, any initiative must embody three essential characteristics: be catalytic, have impact at scale and produce sustainable outcomes (DFID 2014b). Catalytic effects imply the ability to leverage wider change, including the replication and financing of similar approaches by others. Catalytic interventions may produce shifts in policy, regulations and behaviour. 'At scale' reflects one of the most common interpretations of transformation, whereby

interventions become transformational when they are used at a greater scale or in integrated combinations with much larger effects than before (Kates et al., 2012). The scale of impacts may be measured in terms of the outcomes achieved in relation to the magnitude of resource inputs. Transformational scale may also refer to the potential of the approach to be up-scaled through replication. Finally, transformational actions are expected to have sustainable outcomes, so lead to a process of resilience-building that can withstand changes in the wider environmental, socio-political, economic and cultural context.

## A CLOSER LOOK AT: transformation through BRACED

Within BRACED, transformation refers to the likelihood of human systems to fundamentally and sustainably improve the resilience of vulnerable citizens to the impacts of climate extremes and change. As measuring whether a system has transformed objectively is virtually impossible for a number of reasons, a number of projects within BRACED will track the 'likelihood' of transformation that aligns with the three pillars of transformation discussed earlier in Section 3 (DFID 2014b).

Transformation is explored here through different themes, from supporting the empowerment of marginalised groups within communities to have more of a say in decision-making through to strengthening the mechanisms of accountability and transparency that would allow vulnerable communities more agency to effect structural changes in planning and policy regimes.

### **Leadership, empowerment and decision-making processes**

Across the BRACED programme, a number of projects track changes in the degree to which communities have agency and demonstrate leadership in dealing with climate extremes and disasters. The foundational design of BRACED places substantial emphasis on the empowerment of women; thus empowerment is at the very heart of the programme. The project being run by AFL aims to enhance the resilience of pastoralists and, as part of this, will track the control women have of livestock assets. Within the context of the pastoralist community, greater control of livestock by women is representative of changed power relationships. The project goes further and proposes to track changes in

livestock ownership by women in spite of climate shocks and stresses, to see if and how climate extremes and disasters impact women's empowerment.

### Projects track changes in the degree to which communities have agency and demonstrate leadership in dealing with climate extremes and disasters

Along with asset ownership, AFL will measure changes in women's agency and leadership by tracking changes in the degree to which women are being included in key decision-making processes related to trans-border livestock mobility and the number of women involved in public debates at local and national government levels on these issues.

A similar thrust on women's empowerment through productive resources is explored in the consortium led by Mercy Corps, which aims to track changes in the control of assets by men and women over the course of the initiative.

Christian Aid too focuses on tracking changes in women's empowerment. Its draft indicators include one to track women's voice within communities, which could be measured by asking women their own perceptions on an issue or by looking at it objectively through gauging the number of women in project committees and traditional community forums.

Concern is tracking something quite similar by emphasising 'more inclusive decision-making' in its Theory of Change and then tracking changes in the degree to which women are responsible for key decisions taken within the household.

The Theory of Change guiding the project CRS is running also emphasises empowerment through increased participation in policy- and decision-making. For this initiative, a key pathway to enhancing the resilience of the community is a greater awareness of their rights, promoted through education on participation in communal councils, using appropriate tools and strategies. The project, taking place in Niger and Mali, also focuses on transforming the position of women by advocating for an increase in the number of votes women candidates in decision-making bodies receive and an increase in women's representation in regional, communal and local political structures.

Similarly, the initiative being led by Mercy Corps will track changes in the number of women participating in formal and informal community groups over the course of their project.

Plan will track the participation of women in decision-making too but is considering also tracking changes in the subjective perceptions of women and children regarding how confident they feel in raising their concerns to local committees or authorities.

### **Strategic planning and policy**

The capacity of systems (e.g. households, communities, businesses) to adapt to, anticipate and absorb climate extremes and disasters can be influenced by transformational policy shifts that fundamentally change the institutional 'rules of the game' (Béné et al., 2012). Key to bringing about these changes are shifts in the structures of strategic planning and policy processes. Projects unfolding as part of BRACED will track changes in how plans and policies are formulated to improve the resilience of communities to climate extremes and disasters. AFL's interventions are focused on enhancing the trans-boundary movement of cattle herds as a pathway to enhancing resilience



using a number of approaches, including changing national and regional policies through advocacy and lobbying. This is why its monitoring and evaluation plan states its intention of tracking the extent to which local governments, civil society and producers' organisations have claimed ownership of the tools developed by the project and translated them into lobbying strategies to effect policy shifts.

CRS approaches this using the prism of citizen participation in local governance. Its Theory of Change outlines how the project is centrally concerned with the ability of citizens to voice their concerns effectively to their representatives and with enhancing greater transparency. The project, taking place in Niger and Mali, also aims to support civil society organisations to become empowered with the capacity and tools necessary to have greater voice in policy processes and to hold elected officials to account.

The project being led by Mercy Corps will also track shifts in a community's ability to participate gainfully in policy and planning processes. The monitoring and evaluation plan for this initiative states how the project will track changes in the degree to which community members are participating in government decision-making processes, such as budget reviews and development planning, while also tracking changes in their knowledge of the available avenues for such participation. In this way, the BRACED programme will shed light on how vulnerable communities are becoming able to feed into the decisions that will affect their ability to adapt to, anticipate and absorb climate extremes and disasters.

## Innovative approaches

Contextually relevant disruptions to the *status quo* through the institution of novel processes and technologies are key to the idea of transformation. Innovative approaches to enhancing adaptive, anticipatory and absorptive capacity to support the empowerment of marginalised groups and enhance the role of vulnerable communities in processes of planning and decision-making are woven throughout this paper. Section 3.1 highlighted how BRACED would track the uptake of innovative technologies such as climate-smart agricultural practices that are like to enhance adaptive capacity. Section 3.2's exploration of how BRACED will track changes in anticipatory capacity noted that projects would track how innovative information and communications technologies will deliver early warnings on disasters to vulnerable communities. Similarly, BRACED initiatives will also track the deployment and uptake of mobile banking services to enhance the access of vulnerable communities to savings, which in turn will support their ability to absorb shocks and stresses induced by climate extremes and disasters (Section 3.3).

### Innovative approaches to enhancing adaptive, anticipatory and absorptive capacity are key to the idea of transformation

Apart from innovative technologies, BRACED will also track the institution of disruptive processes and protocols to enhance resilience. These include the enhanced movement of herders across national boundaries in West Africa as a key component of enhancing their adaptive capacity (Section 3.1); improving

the understanding and uptake of risk information by vulnerable communities to allow them to better anticipate shocks and stresses (Section 3.2); and the provision of hazard insurance to enhance the absorptive capacity of those suffering from climate extremes and disasters (Section 3.3). In this way, BRACED will provide a considerable amount of data on how innovative technologies and processes will be deployed to enhance the likelihood of transforming how vulnerable communities engage with climate-induced disturbance to enhance their resilience.



# 4. THE 3AS: THE FUTURE ZEITGEIST OF RESILIENCE

IMAGE:  
WORLD BANK

This paper has argued that the idea of resilience can be broken down into three readily recognisable capacities of adaptation, anticipation and absorption. It has also argued that, unlike in certain existing frameworks, 'transformation' is not a capacity but rather an approach to holistically and fundamentally build, reshape and enhance people's capacity to adapt to, anticipate and absorb shocks and stresses. The paper has attempted to breathe life into these ideas by providing empirical examples of how the BRACED programme will track and measure these four areas.

The 3As and transformation concepts this paper describes provide a useful starting point for understanding and measuring changes in the resilience of social systems, from households and communities to states and markets. By focusing on the capacities

of these systems and processes, we can understand how best to enhance resilience through tracking and measurement. Resilience can thus be measured without the need for a disaster to occur to demonstrate where it is lacking.

### **Resilience can be broken down into three readily recognisable capacities of adaptation, anticipation and absorption**

Importantly, while this paper has attempted to demonstrate the explanatory power this framework has in terms of understanding resilience outcomes, it is feasible to think of this also as an approach that can guide the design and execution of resilience programmes. Using this analytical lens at the formative stages of an operational initiative could ensure a broader range of interventions are considered, and hedges against the risk of resilience programmes focusing only on one capacity and overlooking another that may also be needed in that particular context. Together, the 3As and transformation approach covers a wide gamut of possibilities for enhancing resilience.

The 3As should not be seen as a directive or graduated scale of priorities that need to be addressed. Having adaptive capacity is not necessarily better than having absorptive capacity. The needs and priorities of communities and projects will differ from one context to another. It would be imprudent, for example, to start building the long-term adaptive capacity of a community that is in the path of a Category 5 hurricane about to make landfall in a day or two. Conversely, for a farming community experiencing creeping soil salination, it would be fairly important to understand the nature of changes and adapt to new conditions rather than prioritising short-term coping strategies. It is,

however, vital to undertake an in-depth analysis of the context and consider which capacities (spanning the 3As) a community needs and how to enhance these in a transformative way.

**Transformation is a not a capacity but rather an approach to holistically and fundamentally build, reshape and enhance people's capacity to adapt to, anticipate and absorb shocks and stresses**

There are obvious synergies between these capacities, and building one capacity can often support the building of another. For instance, without the capacity to absorb shock, a community hit by an extreme weather event may collapse, and therefore the question of developing adaptive capacity may never arise. Similarly, in a community affected by shocks (e.g. hurricanes) and stresses (e.g. salination), one may need to simultaneously deploy anticipatory capacity to deal with the former and adaptive capacity for the latter. In this case, a combination of these capacities would jointly deliver higher levels of resilience. Complementarity of the 3As might therefore be usefully represented in the aggregation of various indicators into a composite index illustrating the overlaps and the interrelationships between the three components.

Different actors and initiatives will interpret the 3As in accordance with their own Theories of Change and priorities, and probably develop very different sets of indicators for each capacity. It is only through this application that the concept will be sharpened over time and validated as a useful approach to tracking the outcomes of resilience-building processes.

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The Knowledge Manager consortium is led by the Overseas Development Institute and includes the Red Cross Red Crescent Climate Centre, the Asian Disaster Preparedness Center, ENDA Energie, ITAD, Thomson Reuters Foundation and the University of Nairobi.

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This paper has been awarded with the BRACED Knowledge Manager's SILVER Accreditation. The purpose of Gold and Silver Accreditation is to set apart knowledge and evidence that significantly advances understanding of what it takes to build resilience to climate and disaster extremes. To be awarded, publications are reviewed by an Accreditation Board whose aim is to identify BRACED funded products that significantly advance knowledge, thinking or practice.

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