

Making Community Based Adaptation a Reality: Different Conceptualisations, Different Politics

Community-based adaptation (CBA) is criticised for ignoring power realities and damaging the very communities it aims to assist. This paper shows how CBA is not a homogenous, technical practice but is itself a political endeavour. It suggests that there are five types of CBA, based on actors' conceptualisation of communities, approach to development, and interest in either transition or transformation. It then focuses on how the "change agent" type of CBA can overcome this critique. It draws on findings from a three year, multi-disciplinary, participatory research project on water and CBA in four local communities in South Africa.

Introduction

Both climate change—and our response to it—are social justice issues. Poor populations, typically in the South, are most vulnerable to the impacts of climate change, but their lifestyles are not driving massive carbon emissions. Aware of the impending, devastating impacts of climate change, policy makers formulate strategies for adaptation. Yet these strategies are typically designed and implemented in a top-down, technocratic fashion with little or no attention to the local realities of poor people who will experience climate change impacts most directly.

In response to the limitations of adaptation, an alternative approach emerged in the early 2000s: Community Based Adaptation (CBA). It recognises that large and regional scale predictions and studies are not nuanced enough to be appropriate for local contexts, and that climate change has a human dimension. The aim of CBA is to build on the principles of participatory development, in which local residents and communities play a central role in their own development. CBA focuses on residents' needs and priorities as well as their knowledges and capacities, and empowers them to plan for and cope with climate change impacts (Reid et al, 2009, p.13; McNamara & Buggy, 2017, p.443). Its activities involve 'participatory processes building on autonomous actions', based on how a community perceives climate risk and the factors shaping its vulnerability (Boyd et al, 2009, p. 662). CBA often uses co-learning, which draw on both local knowledge and knowledge from scientists outside the community (Reid et al, 2009, p. 16).

The literature analysing CBA is not keeping pace with its rapid development in practice. It treats CBA as a single approach that arose to challenge negative aspects of adaptation. In contrast this article argues that—in practice—CBA engages with power, authority and community members in different ways, which determine the contours of its implementation. Understanding the different approaches to CBA is important not only in terms of successful adaptation, but also in terms of its wider socio-political impact.

This article asks: how can we conceptualise the differences between CBA practice and how can CBA open up possibilities for the promotion of social justice (through transformation)? It proposes a typology of CBA and argues that the change agent approach is most promising in terms of transformation and social justice. As the types of CBA are not mutually exclusive, with one type sharing aspects of other types, the change agent type has the potential to influence the nature of other types toward transformation.

After summarising critiques of adaptation, this article examines various ways in which CBA is conceptualised and implemented. Drawing from theoretical literature and empirical examples in secondary sources, it argues that there are important differences between types of CBA, and proposes a typology based on these differences. Then, based on findings from a three year, multi-disciplinary action research project in South Africa, it shows how CBA can be implemented to contribute to transformation and overcome critiques. Working in four areas of South Africa, this project developed local hydrological models which then served as a basis for community action planning, showing how CBA can be community led and driven.

1. Apolitical Adaptation

Community based adaptation was developed to overcome the problematic and damaging aspects of adaptation. Adaptation has been characterised a top-down, driven by experts, and responding to a generalised threat of climate change to an 'undifferentiated population' (Smucker et al, 2015, p. 48). According to this critique, adaptation silences the voices and needs of communities through its 'technical mystification' and use of discourses that 'erase the politics of development and create a chasm between external development agendas and local realities' (Smucker et al, 2015, p. 39).

Community based adaptation offered a new response, firmly associated with more reflective development that supports local communities. Although CBA shifts focus to the local level, placing residents as partners or actors in adaptation, this is hardly new. It has been a focus of development over the past three decades, sparked by Chambers' *Putting the Last First* (1983). Since then there have been numerous critiques of participation as a salvo, most powerfully captured by Cooke and Kothari (2001). Moreover the "community" aspect of CBA threatens to fall into the well-recognised trap of treating communities as homogeneous, rather than recognising the complexity of socio-economic and political differences and contestations related to class, ethnicity, gender, age and other factors (Buggy & McNamara, 2016). Yet CBA bolsters communities' power by using their own knowledge; one of the innovative offerings of CBA is co-learning, which draws on both local and external knowledge (Reid et al, 2009, p. 16).

This article focuses explicitly on whether and how CBA can operate differently than adaptation, which, as a seemingly neutral and apolitical approach, ignores power relations. Smucker et al (2015, p.48) describe adaptation as a 'wider set of choices that are, however, deeply embedded in existing institutions and practices'. They show how, like Ferguson's notion expounded in the *Anti-Politics Machine* (1990), adaptation acts as a veil for deeper dynamics: depoliticised development is based on the priorities of economic and political elites, not ordinary people whose lack of power makes them invisible. Adaptation promotes resilience which simply maintains system stability in an apolitical and ahistorical manner (Ribot, 2011; Rodina et al, 2017).

What can be achieved by adaptation is limited to 'transition' or a 'moderate reform of governance systems ... that does not challenge vulnerability but promotes incremental changes that are made through the assertion of pre-existing, unclaimed rights'. The threat of climate change may make stakeholders reflect on their existing development goals, but this simply shifts 'how problems are framed in terms of priorities and assumptions of how this can be achieved'. (Pelling, 2010, p. 24)

Even if policy makers have the best of intentions, they are implementing adaptation within an existing system of political-economic relations from local to global levels, and its consequences are likely to be shaped by social stratification and power dynamics of inclusion and exclusion (Marino & Ribot, 2012, p. 324). Given people's vulnerabilities at the individual, household, and community levels, adaptation may 'inadvertently reproduce or deepen the damages they intend to redress' (Barnett & O'Neill, 2010, as cited in Marino & Ribot, 2012, p. 323). Social equity dimensions of climate change adaptation such as unequal access to natural resources are ignored (Smucker et al, 2015, p. 39), which means that adaptation measures can reinforce inequalities between community members and between highly and less vulnerable communities (Smucker et al, 2015, p. 40).

While CBA appears to offer something new by being more sensitive to community needs and rooted in local realities, Ensor argues that CBA's participatory approach does not engage with 'broader structural issues, power relations, (social relations) and the challenge of transformation' (Ensor, 2014, ch 11, para 4). Some of the ways in which CBA is implemented uses the very spaces opened up by local participation *apolitically*. For example, when outside organisations implement CBA in communities whose livelihoods depend on natural resources, this cannot be achieved without engaging in wider political and economic realities (Ensor, 2011). Like many neo-liberal ploys, CBA can be seen as a 'cynical and tokenistic mechanism for off-loading responsibilities and costs onto local communities' (Wiseman & Williamson, 2009, p. 137).

Whether CBA operates in a way that perpetuates negative practices that are characteristic of adaptation seems to depend on the values or ideology that inform the approach of organisations, not the type of the organisation per se. Organisations are no longer consistent with a certain type of practice or set of values. This is evident in extensive critiques of NGOs as organisations and their placement along a continuum of working with or challenging government (Galvin 2010) as well as in the progressiveness of some local municipalities' responses to the issue of climate change. So while some organisations adopt CBA because plans and activities grounded in and driven by the community actualise their values, others view CBA instrumentally as a means to an end. This end may include improving the effectiveness of wider adaptation processes, and strengthening the 'trust, transparency and credibility of decision making processes' (Wiseman & Williamson, 2009, p. 135-6), allowing them to legitimise and strengthen existing plans.

This article takes the position that what is required is the transformation of values, discourses and socioeconomic structures to achieve distributive justice (Smucker et al, 2015, p. 41). Transformation is irreversible regime change, challenging 'paradigms and structural constraints (that) impede widespread and deep social reform' (Pelling, 2010, p. 24). Of course, transformation is not limited to a community focus but requires change of the system as a whole – of the community and broader society, relationships with local authorities, and economic options. In *This Changes Everything*, Klein (2014) powerfully depicts and features numerous community struggles that together challenge the logic of capitalism and demand systemic change.

A number of authors cited by Ensor et al (2014) have developed arguments about the type of political action that this requires. For example, Dodman and Mitlin (2013) assert that communities need to organise and create representative structures able to engage with power structures at a higher/macro level. Instead of structures, Ensor (2011, ch 11, para 4) highlights the need to use rights based approaches through 'politicised actions and reworked networks of accountability', pointing to social movements of the poor.

However it is important to remember that transformation does not only require different and more inclusive social and political interactions, but that this must also take root in changing how actors conceptualise themselves and communities. External actors need to move away from treating communities as objects requiring assistance and themselves as expert but caring custodians who know better.

This paper explores whether CBA can operate in a manner that opens up possibilities for communities to reconceptualise their actions and role, and to drive socio-political change toward

not just transition but transformation. This type of CBA does not compromise people's natural ability to adapt, but enhances and politicises it.

2. A Typology of Community-Based Adaptation

Practitioners have developed CBA as a means of strengthening communities' ability to adapt to climate change. However the only differentiation has been of CBA from adaptation overall (Dumaru, 2010) or in debates about the various ways CBA relates to development (Boyd et al, 2009; Dodman et al, 2010; Conway, 2011). Since there has been no explicit differentiation of types of CBA, differences are signalled by practitioners' use of climate change - related concepts to describe their approach (Ayers & Dodman, 2010). Some CBA practitioners focus on assessing and addressing a community's vulnerability, while others strengthen communities' adaptive capacity, and still others aim to build their resilience. Arguably these terms tell us something about the intervening actor's perception of communities and what they expect their intervention to be capable of achieving. Assessing and addressing specific vulnerabilities has a specific focus that avoids over-generalising. For example, if a community is most vulnerable in terms of the health of its children, an intervention can focus resources and support to that area so that it is in a stronger position when the community faces the impact of climate change. In contrast, strengthening adaptive capacity does not try to forecast how community is most vulnerable, but focuses on ensuring that people have the awareness, knowledge and skills and have put in place mechanisms to be able to respond to a range of likely climate change impacts. Finally resilience, which most 'development' work seeks to strengthen, makes people and communities able to 'bounce back' from climate change impacts. For a resilience approach to succeed in Southern Africa, for example, often requires dealing with social justice and equity challenges to avoid deepening existing inequalities (Rodina et al, 2017, p. 145; Meerow and Newell, 2016).

While these differences are interesting conceptually, practitioners often use climate change terms such as addressing vulnerability, strengthening adaptive capacity and building resilience interchangeably as no one 'fits' particularly well. Without a basis for differentiating between approaches to CBA it continues to be used as a term that describes a range of activities that cohere loosely around the aim of adaptation (McNamara & Buggy, 2017, p. 445). This article reviews various CBA activities and draws on actual CBA work as a basis for proposing a typology of CBA.

This typology makes explicit how different types of CBA operate as the basis for a more systematic and accurate analysis of CBA. It may also allow for like-minded activists or practitioners to identify each other, build on previous work and formulate ideas cumulatively (Picketts et al, 2011, p. 91) and

develop their approach - especially its political nature - in a more pointed manner. It cannot be assumed that documenting processes is all about sharing and good practice (Reid et al, 2009, p. 28); different types of CBA may be rooted in conflicting commitments about “who benefits”.

It distinguishes between six types of CBA (table 1). They are not based on scale of operation or on the type of actor implementing them. Instead types are based on the area of focus, and the role of communities in an intervention (or non-intervention).

It is an actor’s conceptualisation of communities, approach to development, and own socio-political interests that leads it to choose one type of CBA over another. These factors also play a central role in determining the nature of an actor’s relationship with government and other stakeholders, in short their engagement in either transition or transformation. (However it is important to recognise that the type of CBA is not a predictor, but an indicator, of the nature of the relationship between actor and government or other stakeholders.)

Table 1: Types of Community Based Adaptation Interventions

Technical	Often conceptualised for widespread adoption, technical CBA has one or more elements that are considered solutions to large scale threats but are also projected to benefit the community. The technical response can be located at the community level.
Mainstream/development	Adaptation is promoted through mainstreaming it into ongoing development work. This has been referred to as ‘adaptation as development’, where development is treated as ‘the basis for, and in some cases synonymous with’ adaptation. CBA is often seen as this type alone (Ayers & Dodman, 2010, p. 165).
Hot spots	Instead of reactive disaster relief, these are stand-alone projects targeted to ‘hot spots’ that are likely to experience the most severe impacts of climate change or are otherwise identified as deserving of special interventions.
Beneficiary	Planning is done by experts and the communities are included as beneficiaries rather than participants. This approach can also have a technical focus, usually focusing on application within a municipal or other local area.
Change agents	Contextually specific and focused specifically on climate change impacts (although not exclusively), different tactics of challenge and engagement may be used to engage with issues of power. The choice of approach is rooted in communities but external actors play a supportive, infusory, or catalytic role as needed. Change agent CBA can be a ‘staged’ movement toward transformation, which may initially appear to take a transitional form through multi-stakeholder work. However its intended outcome requires systemic change. It requires a change of thinking and behaviour by the community, which may attempt to influence such change in other actors with whom they engage.
Non interventionist	This approach allows for the natural development of adaptive actions by communities, who organise themselves around pressing issues. It may also take a transformative form, in which communities organise to protest the status quo and make demands at other levels.

The **technical** approach assumes that macro, technical projects can be implemented as a means to adaptation, and that they will benefit communities. They are often described as reactive, responding to needs that have already emerged. This may include building dams or making plans for rising sea levels. In many cases the issue of additionality applies, in which case these projects were likely to be implemented in any case but the link to climate change assures funding sources to cover these projects. The interest of the actors is to fulfil their responsibilities, and to respond to climate change projections in a way that coincides with this.

In South Africa this is evident in statements by representatives from the South African Department of Water and Sanitation, that they will respond to water scarcity projections through the Department's existing work in integrated water resource planning and will alter plans once there is 'evidence' of climate change (observation of the Water Sector Leadership Group 2012). The former head of eThekweni Water and Sanitation made similar statements about climate change work fitting into the municipality's existing plans and needing to make sense financially (observation at a workshop convened by Umphilo waManzi in 2012). In both cases, climate change divisions were either in place or thereafter established, which raises the question of their effective integration into the work of water officials.

A seemingly opposite approach actually has a similar impetus in terms of continuing work as usual. Many **mainstream/development** approaches consider communities as important actors and focus their work at the community level. They continue with their development projects but point to how they strengthen community resilience. This applies to a range of sectors; one example would be practitioners who work with communities to grow seedlings building the initiative into one that supports CBA. In South Africa, an Oxfam survey of NGO work on climate change adaptation defines climate change in such a way that hundreds of NGOs can be described as working in the area of climate change adaptation (Oxfam, 2013). There is little doubt that these organisations are doing important work that will, in the process, strengthen communities in terms of resilience or adaptive capacity generally. Yet this is not 'new' or directed toward adaptation specifically.

Ayers and Dodman (2010, p. 165) describe CBA as 'adaptation as development', saying that advocates 'claim that it helps to identify, assist and implement community based development activities, research and policy in response to climate change.' Similarly, through an examination of food security, Ziervogel and Erickson (2010, p. 526) show how climate change challenges are 'closely intertwined with challenges of human development and economic growth'. There are widespread calls for the 'development community' to take on adaptation, and for researchers and community members to interact (Conway, 2011, p. 440). Conway concludes that development agendas can

incorporate adaptation effectively through ‘vulnerability reduction programmes, based on existing knowledge and experience; adopting low regret options in the near future, coupled with some modest capacity development for regular monitoring and strategic planning for highly uncertain future climate risks’ (Conway, 2011, p. 442). This has tremendous potential for scaling up, with a more generic approach that can reach more people as well as affect policies and programmes (Schipper et al, 2014). One of the challenges is that adaptation tools on process guidance, data and information provision, and knowledge-sharing, are used as the starting point for creating CBA tools, and there are range of limitations that need to be addressed in developing them (Rossing et al, 2014, p.104).

The difference between development and CBA is not the types of activities but how problems are defined and the related selection of strategies. What are defined as CBA activities may be typical ones that tackle vulnerability, with little focus on climate change; focus on capacity building of communities, with some focus on climate change in activities; or confront climate change directly, which are few (WRI, 2007, as cited in Boyd et al, 2009, p. 662).

Beneficiary approaches are similarly proactive, but place adaptation on the local political agenda. For example, Deborah Roberts, Deputy Head of the Environmental Planning and Climate Protection Department in eThekweni (Durban), has been active in disseminating its work internationally as cutting edge in CBA. Her focus has been on CEBA (community ecosystem-based adaptation), which ‘increases the political agency of adaptation’ with a cost-effective approach that harnesses natural systems (Roberts et al, 2012, p. 168). Roberts et al (2012) focus on improving the adaptive capacity of local communities, describing local adaptation as an ‘incremental, iterative, and non-linear process that relies on experimentation, flexibility, and innovation’ (p. 173) and that addresses the need for ‘local fine scale practical guidance on implementation mechanisms’ (p. 172).

However, as promising as the approach may sound analytically, the project’s involvement of the community was establishing a large scale reforestation project of sugarcane land around a landfill site. It was seen by the city as having other benefits: addressing biodiversity loss, carbon sequestration, increased supply of ecosystem services, and developing a model of enterprise development (p. 183). Through a local NGO, 583 community members were trained as ‘trepreneurs’ to propagate seeds and collect seedlings. In return they were issued with credit notes to be used at ‘tree stores’ to buy food, school fees, building materials and other pre-ordered goods. It is reported that 23 full time jobs and hundreds of temporary jobs were created, together with the Public Works Programme and skills training as part of the municipality’s ‘building the green economy’ focus.

While this form of CBA involved communities, they were not an equal actor but a 'beneficiary' where they were informed rather than involved. The relationship of the municipality to communities was evident in the fact that the project did not engage community members about the concept of climate change at all or even the purported logic of tree-planting and reforestation. In their own self-analysis, Roberts et al (2012, p. 184) state that there is a need to develop effective communication with local communities so they know the link between planting trees, making credit notes, and climate change. It is inaccurate and disingenuous to portray what was actually implemented as CEBA in which there are 'mutually beneficial and positively reinforcing relationship that exists between ecosystems and human communities' (p. 190), as communities are unaware that they are in such a relationship, that such claims are made in their name, and no awareness raising activities have been undertaken. Roberts et al (2012, p. 191) project the future as implementing projects with 'direct and immediate development co-benefits for communities'. While bringing income into an area is certainly desirable for poor communities, the way that this project was implemented was far from community based and is an example of the challenges faced by civil society in eThekweni (Galvin 2013). For CBA, communities need to be involved, not informed, need to be participants not beneficiaries, need awareness raising and training so they can actively participate in discussions of trade-offs and adaptation plans.

The final types, hotspot and non-interventionist, share a minimalist strategy. Focusing on **hotspots** is an attempt to identify places that face extreme bio-physical effects of climate change and to implement stand-alone projects there. The IDRC (2012) has been focusing its research on such areas. In many African countries, socio-economic vulnerabilities are so widespread that the hot spot areas that face extreme biophysical challenges will also face socio-economic ones. This is a minimalist strategy because it does not focus on the non-hot spot areas that will certainly feel the effects of climate change, exacerbated by their socio-economic vulnerability.

In contrast, **non-interventionist** approaches leave it to local communities to self-organise and to take action. They recognise that their vulnerability is directly tied to the wider political economy. Of course, activists may play a role as part of movements and alliances of the poor that emerge, such as the Slum/Shack Dwellers International or Via Campesina (Ensor, 2014), but they will not be the initiators or the drivers of such movements. The limitation of this approach is that such movements are strong in certain regions, e.g. Via Campesina in Asia and Latin America, but organisation across Africa is very weak. The non-interventionist approach leaves these people to sink or swim.

3. Community-Based Adaptation as Change Agents

To overcome the limitations of the types of CBA discussed above, the author, through her work with a South African NGO, engaged in action research around a new approach to CBA. Upon completion of the project and the concomitant opportunity for reflection, she identified aspects of the approach which differed from existing ones and began to consider it as 'Change Agent CBA'. The following section presents research findings about the 'change agent' type, which can be considered a 'corrective' to the mainstream and beneficiary approaches.

The action research project started with a political premise: communities must participate as equal actors in debates and planning. Information produced by hydrologists from modelling different scenarios of the projected impact of climate change on temperature and precipitation must not remain at a macro-scale and only available to policy makers. World class hydrological studies have been conducted that model the various impacts of climate change on South Africa's catchments (Schulze, 2011). While these studies are used to inform national and possibly catchment level planning, poor communities have been absent. Models can be extracted to the local level and shared with residents of specific areas, levelling the playing field in debates and planning.

The aim of this multi-disciplinary project was to establish how CBA can be community-led and driven. From 2012-2015 NGOs Umphilo waManzi and the Environmental Monitoring Group, deeply involved in four local communities in the Western Cape and KwaZulu-Natal, conducted participatory research by working with university hydrologists and climate modellers to develop down-scaled GCM and hydrological models for local communities. As part of their long term relationships with communities, they wanted to provide support to these communities in terms of projections specific to the local area as a basis for communities to formulate local adaptation plans. This research was important because it aimed to fill a gap in which 'there are few if any approaches or frameworks for 'connecting the dots' between global climate sciences and information on one hand, and the range of local community activities and options on the other' (Sheppard et al, 2011, p. 401). The project is described below and then assessed in the following section:

- Selection of areas to meet agreed criteria

Areas were selected based on specific criteria including high levels of civic engagement and social cohesion; community leadership; and an existing relationship with one of the NGOs so that implementation could proceed smoothly and the analysis of its impact would not be confused with other factors. This article describes our findings from two areas: kwaNgcolosi in the Mgeni River catchment and Goedverwacht in the Berg River catchment.

As an overall profile, kwaNgcolosi is part of the former KwaZulu 'homeland', part of the Valley of 1000 Hills so named because of its numerous hills and dramatic landscape. Households are largely reliant on state pensions with some employment in factories or as domestic workers on the nearby farms. It has a powerful traditional leadership structure that operates alongside the elected local government leadership. In the case of this research, three izinduna (headmen) areas came together to participate. While there are a couple of active community leaders, by virtue of their age and community status, they lack organisation and tend to seek external financial and organisational assistance.

While Inanda Dam was built in the area in 1989 to store water for nearby Durban metro, local households were not provided with drinking water and at the time of this project some were accessing and drinking untreated water in pipes going to the waste water treatment plant.

In contrast, Goedverwacht is a small area of a former Moravian Mission with a defined community of a few hundred households living on land owned by the church. Families have lived there for generations, and people are well-grounded in the history of the area. There is significant social cohesion and self-mobilisation; the community is known for an annual Snoek en Patat (fish and potatoes) festival and are aspiring in terms of farming and tourism. Their vulnerability is due to dependence on the church, which owns all the land and is therefore responsible for the provision of services including water. Their water security is also affected by the increasing demand and use of water by upstream commercial farmers. Although the local Afrikaans-speaking community could be overwhelmed by their circumstances, the community has worked with NGOs in the past and has developed strong leaders who have been exposed to and engaged in development processes. People are seeking opportunities to implement activities that will strengthen their livelihoods and, as such, are engaging in activities around climate change adaptation.

- Presentations and activities to raise awareness about climate change

One of the first steps was for NGOs to spark *awareness* of the causes and impacts of climate change as a cornerstone of CBA, with the aim of empowering community members to make their own decisions about adaptation. Instead of using the language and concepts of climate change and adaptation measures to make discussion of issues exclusive, presentations and activities established a common mode of conversing about issues.

Although awareness raising is important, it can backfire by giving participants a sense of powerlessness. All participants need to recognise how much local people already know about climate change (variability) through their own experiences and how they have coped in the past. (Reid et al, 2009, p.18). We found people lacked formal knowledge of the concept of climate change

and what/ who is responsible for it, which led them to doubt their ability to engage with outsiders. However they related immediately to the expected impacts of climate change, drawing timelines of weather events and changes in seasonality that went back nearly 50 years. Scientists confirmed these events and were impressed by their accuracy. While climate change researchers may not find this surprising, in this case both local participants and scientists did.

People's experience in these areas was that they were largely ignored during these times of crisis; under apartheid this was due to their dislocation and disregard and in the post-apartheid period it was due to focus on elite interests with ordinary people left aside. Part of people's local knowledge is their assessment and critique of the institutional contexts which may utilise or disregard this knowledge (Velempini et al, 2018, p.45). To date, their knowledge of the institutional context during and post-apartheid had eroded many community members' sense of confidence in the value of their own experience as well as their sense of agency that it could be used to change their future.

While the substance of engagement between community participants and outsiders clearly depends on the local context, the aim is to strengthen a community's ability to respond to challenges 'stemming from the overwhelming scale of the problem, massive uncertainty, scientific abstraction, and the predominantly global nature of the available modelling and scenarios' (Sheppard et al, 2011, p. 401).

- Participatory methods to look at present situation/ vulnerabilities

The second step was for NGOs to support community members to compile information around their area as a means of identifying its vulnerabilities, also allowing the project leader to tailor the approach of workshops to their issues. Using participatory tools such as timelines, mapping, transect walks, pie charts and ranking (Reid et al, 2009, p.17), community members created a profile of the general education level and health status of people in the area; main sources of income; level of dependence on agriculture, livestock, and water sources for their livelihoods; geography, water sources and land ownership; and forms of community organisation. Other factors that were raised included race and class divisions, challenges of drug and alcohol abuse, and systems of employment that included unacceptable labour practices by farmers and small scale industry owners.

- Formulate hydrological models for specific areas, and present them in an accessible form at community workshops

Using this background information, modellers and hydrologists working on the project then developed projected local impacts to be translated and presented in community workshops. This

included impacts of climate change on water sources, rainfall, and temperature. There has been a growing call, including from the IPCC, for consulting climate modellers and incorporating future climate risks when designing CBA project activities (Dumaru, 2010, p. 752). Boyd et al (2009, p.670) explain how climate scientists and local stakeholders can undertake 'mutual envisioning and planning processes' that integrate 'local observation with global/regional meteorological observation and climate change predictions'.

Rather than responding to climate related problems, the aim of workshops was to be 'anticipatory' in formulating action plans. We experimented in using 'backcasting', an approach in which participants focus on what they want in the future and then work out what they need to do to get there. We also encouraged participants to identify coping mechanisms that they used in the past. This assisted people to realise that they will not be overwhelmed by future events but that they coped in the past and will in the future. It is a matter of applying the coping mechanisms that worked and altering these or developing new ones where necessary (Wiseman & Williamson, 2009, p. 139 & 141).

- Support for adaptation planning and beginning to take action

In developing action plans, it has been suggested that climate scenarios be presented to local communities (Picketts et al, 2011, p. 90). For example, Sheppard et al (2011) use 3D images of landscapes to make explicit alternatives between short and long term. We considered this to be an irresponsible intervention in the areas in which we worked; scenarios are highly uncertain not only climatically, demanding greater certainty than scientists are able to provide, but also in social, economic and political terms (Conway, 2011, p. 442). Our decision was also informed by the experience of some practitioners who found that communities struggled to understand 'scenarios', which caused undue anxiety about the future.

Still it was possible to provide a 'stimulus of impending risks and positive stimulus of the things people can do to adapt to changing conditions' (Sheppard et al, 2011, p. 402). Although less coherent than an overall plan related to a scenario, community members participated interactively in joint analysis (Reid et al, 2009, p.24) and identified proactive, future actions to adapt. As a result of co-learning, the two communities began to take steps such as monitoring rainfall, establishing own weather station, and planning to capture surface water and rainwater. These are detailed in the following section 5.2.

Finally, while communities can draw on existing community networks, resources and activities (Adger et al, 2003), connecting communities to networks outside of their local area is 'necessary for

accessing the information and resources they need to implement adaptation actions' (Dumaru, 2010, p. 754). Of course useful networks can sometimes be found, with organisations and individuals that are open to community engagement, but in other places such networks do not exist. While the rise of social media is opening up network options generally, its application to complex areas like CBA requires further exploration.

5. Achievements of Change Agent CBA

Findings about what a Change Agent CBA approach can achieve and what increases its likelihood of success are described below. These include improving community awareness and knowledge of climate change, and of their previous coping strategies as a basis for future adaptation plans; ensuring that organising around climate change adaptation is based on making tangible changes in the community; and assisting to widen the community's networks (Galvin et al, 2015). What these achievements mean for transition or deeper transformation is discussed in the final part of this section.

5.1 Awareness and knowledge

Community members in the pilot sites were experiencing the impacts of climatic changes in their area, although they did not have the scientific language to describe 'climate change' as such. In kwaNgcolosi the weather timelines that community members constructed for the past 50 years, drawing on the memories of older participants, identified weather events that scientists confirmed were highly accurate. Modellers were surprised by this store of community knowledge, and communities were bolstered to find that they 'knew as well as' scientists.

Similarly the modelled weather for Goedverwacht, based on data from the one weather station in the area rather than several, is not always accurate because it has a complex local climate created by its mountainous geography. The NGO was able to explain how the modelling worked and what information went in to it; the community was enthused and could see that their experience differed from the input data and therefore the results might be flawed. Overall the community was proud and empowered that they are able to contribute their knowledge, and that scientists are not always 'right'.

The project showed the importance of transdisciplinary work and the co-production of knowledge by scientists, NGOs and communities (Rist & Dahdouh-Guebas, 2006). The process of working together strengthened the effectiveness of both scientists and NGO practitioners, sharing external and local indigenous knowledge in a way that complements each other (Dumaru 2010, p. 752). While

communities brought in-depth local knowledge, scientists and NGOs brought 'outside' information at a higher scale, which widened the perspectives of community members. NGOs played a role as intermediaries in 'mediating' knowledge so that it was useful both to scientists and people living in local areas. Understanding how the co-production of knowledge works and the role of the different groups is important. Knowledge developed through such collaboration is immediately useful and could be a more effective way of developing appropriate responses at a policy level.

5.2 Tangible change and building networks

One of the key learnings was to recognise that community members' engagement is embedded in wider challenges faced by communities. The root of these challenges is typically historical, particularly people's lack of access to natural resource due to 'accumulation by dispossession' (Harvey, 2004). This means that it was almost impossible-- and not particularly helpful-- to separate 'water' and 'climate change' from other challenges that a community faces. For example, whatever the focus of CBA, issues related to water will arise directly through drought or flood, water quality and increasing scarcity and indirectly through impacts on agriculture and food security. The overall approach needs to be holistic (Sheppard et al, 2011, p. 402).

While one of the aims of the project was to assist communities in formulating their own action plans around climate change adaptation, this was only an immediate result in three of the four areas. One of the main reasons was that community members wanted to engage with their immediate needs and were seeking tangible responses. Dumar (2010, p. 761) asserts that, given the limited resources available to poor communities, it is not unusual to find that the best approach may be to respond to difficulties that communities already face. It was not that community members only cared about the short to immediate term, but that this was the necessary focus within the longer term horizon.

For example, aside from a handful of farmers trying to operate commercially, few households in kwaNgcolosi have livestock or agriculture, so it is difficult to engage directly with climate change impacts on livelihoods. Instead people experience recurrent problems with their domestic water supply, resorting to the use of untreated water, so the NGO Umphilo waManzi facilitated a meeting with the water utility eThekweni Water and Sanitation. The municipality pointed to vandalism of water infrastructure as the main cause of disruptions and encouraged the community to phone and report issues until they are resolved. They said that new reticulation projects are planned. Community members did not raise their human right to access to water, but complained that outside plumbers are used who cannot even find the area. The interaction seemed a clear case of

groups having established perspectives on the problems and on each other, hidden under technical language.

Since many local women are engaged with household or community gardens and have formed small garden groups, the NGO decided to engage with this and to expose them to new approaches to trenching and rainwater harvesting through a DVD. While they were enthused by examples of local action in the DVD, they did not formulate an explicit action plan at that stage both because of a lack of leadership and uncertainty how they might take up these ideas.

In contrast, in Goedverwacht NGOs provided ideas that showed the climate change model's 'relevance and implications for the local landscape, as well as for appropriate local policy and action' (Sheppard et al, 2011, p. 406). In other words, instead of raising awareness of climate change and providing information, and then communities making the link with their current realities, outsiders more consciously and openly assert ideas of adaptation activities based on these realities.

The NGO Environmental Monitoring Group provided people with 'learning by doing' (Reid et al, 2009, p.17) and other tools to record and monitor their own weather, exploring community removal of alien plants along the river, meeting with the church around problems related to land ownership, and supporting community participation in an area-based network. The local community made a number of plans, as the area had already been introduced to climate change, saw the link between the issues, the role of the NGO and their lives, and had strong participants and leaders. Starting from this position, and then widening people's exposure and connections through the area-based network, infused people with confidence and determination to embark on activities and to begin to question power relations.

Communities need to establish links with appropriate and active organisations and institutions that will support and further enable them to realise their action plans. As they build networks with non-government, municipal, state, academic and business institutions, and cooperation and consultation develops, communities become less isolated and vulnerable and opportunities open up, making CBA more likely to succeed. For example, EMG introduced the Goedverwacht community to the Berg River Knowledge Network, which includes academics, NGO practitioners and officials from Provincial and local government. There a local leader from Goedverwacht raised the issue of alien vegetation and the importance of clearing it to secure their water supply. A number of people there gave him tips on how to sort it out, including contacts within various government departments that might assist. Of course the effectiveness of the relationships is directly related to how well the network operates and whether participants from the local area sustain their linkage with the network.

5.3 Transition and Transformation

It would be a mistake to consider CBA as simply local adaptation actions out of the broader context of policy decisions. While some activities can be implemented by individuals or households alone, much of the adaptation required depends on 'larger scale interactions and change within a broader governance network' (Keskitalo & Kulyasova, 2009, p. 61).

A key success factor of CBA is 'ensuring that the outcomes of engagement schemes have a genuine impact on relevant decisions and outcomes' (Wiseman & Williamson, 2009, p. 137). Once community members can engage the climate change discourse and are part of networks, they are in the position to contribute to debates. What is needed is power structures that are open to transition, which place climate change on their agenda and create openings and opportunities for community engagement. Not surprisingly there are typically few openings and opportunities for community action to engage with or participate in broader power structures around climate change. In the South African context, the question is whether new Catchment Management Agencies and Forums will ensure community representation and place climate change adaptation on their agenda.

Community members recognising their agency in the face of inevitable climate change impacts is an important first step in initiating CBA. Of course community agency is tempered by socio-political structural factors—formal and informal institutions, political and social structures that potentially perpetuate or feed unequal power relations (Dumarú, 2010, p. 752). When CBA is the change agent type, it can serve as the driving force behind mobilisation for more transformative and systemic change of these factors. In the case of Goedverwacht, community members' self-conceptualisation shifted and they participated in an area network, got scientific projections and took issue with them, saw themselves as important actors with something to contribute and engaged with other organisations able to provide resources to help them meet their aims.

It is critical to remember that CBA can place communities in a change agent role vis a vis wider power structures and relations, but what happens locally is really about the community's own struggles in terms of both tangible benefits and local power dynamics. As Galvin (2010) has shown, regardless of the intent of external interventions, community members use them to support the socio-political direction in which the community is already moving. So if the community is 'open' with empowered community structures, it may become more participatory and able to take on a transformative agenda. Conversely, if structures and processes are driven by an elite group, it is likely that the focus will remain on 'the replication of existing power imbalances and patterns of exclusion in communities in terms of control and use of resources and opportunities for participation

and leadership' (Osbourne et al, 2006, as cited in Wiseman & Williamson, 2009, p. 139). Even local knowledge, which is often praised as a key part of CBA, 'masks the power relations and inequalities that may exist within communities and may further strengthen the interests of elites given that community norms or local knowledge is founded on a process of social control by the more dominant players in society' (Kothari in Dumar, 2010, p. 753).

6. Conclusion

This article has shown that, amongst various types of CBA, 'change agent' CBA has the potential to address the critiques of adaptation as technical, apolitical and ahistorical. It has presented findings from the implementation of a pilot consciously using the 'change agent' approach. However there are three obstacles which must be overcome for change agent CBA to be taken up widely. First, in terms of institutional capacity, this approach needs to be introduced by organisations with certain skills and ethos. Such organisations conceptualise an ongoing relationship built on trust, transparency and openness, and encourage wide community participation, not just the elite. Their staff members have strong facilitation skills, including dynamic and receptive listening and flexibility; experience with community processes; and a good knowledge of climate change content (Galvin et al, 2015).

Not all organisations that engage in CBA have an ethos that is likely to support transformation. The following examples show how CBA can be used instrumentally by those with power. First, development practitioners may plan activities with policy makers, who may "use" them to gain access to and trust of communities, using the skills that practitioners have 'painstakingly honed over the last 40 years' (Boyd et al, 2012, p. 670). Second, instead of working hand in hand with communities, development practitioners may act as gatekeepers who partake in planning with little community engagement. Finally, other references are to government 'using' NGOs to avoid 'inflaming' communities as they seek acceptance of their planned adaptation actions (Sally & Wescott, 2011, p. 399).

Without recognising the political nature of CBA, adaptive actions can do damage to the natural possibilities for real adaptation. CBA may not be neutral in impact but may 'eclipse and even render less effective the adaptive practices and capacities of communities' (Smucker et al, 2015, p. 40). This follows from Hart's (2001) argument about the 'damage of intentional development to obscure the emergent processes of development' (as quoted in Smucker et al, 2015, p. 40). This article argues that change-agent CBA may well avoid this damage.

A second issue related to institutional capacity is that change agent CBA can only be implemented successfully in communities that meet certain criteria. This means that, in 'development speak', there is limited scope for scaling up and out of this approach. For the uptake of information to lead to the community taking action, our finding is that interventions are most likely to succeed if the selected community largely meets the following criteria: a high level of civic engagement, social cohesion and self-mobilisation; community leadership; vulnerability and susceptibility to direct effects of climate change; and a high level of interest, influenced in particular by engagement in activities linked to food security (Galvin et al, 2015, p. v). This allows for replication through multiple, small initiatives (Pelling 2011), with the potential to build up to influence wider regime change.

It is important to consider what this may mean for communities that do not meet these criteria and are unlikely to take action toward adaptation. Arguably, assistance could be directed toward biophysical 'hotspots' that are expected to feel the effects of climate change most dramatically and their overlap with socio-economic vulnerability. People in these areas can be engaged directly, strengthening disaster preparedness by directing human and financial resources to the area; ensuring action plans for climate change related events are in place; and developing a sense of agency and solidarity at the local level over the long term.

Finally, in terms of financial capacity, it is notable that, while multilateral and bilateral organisations administer twelve international adaptation funds, funding to support CBA has been limited to sharing experiences and developing toolkits. Given the limitations of these funds in general, and to support CBA in particular, and the unlikelihood of aid being diverted from existing development budgets, other support mechanisms need to be explored (Boyd et al, 2009, p. 663). It is unfathomable that support is directed only to top down actions, denying funding to the very people who desperately need to undertake CBA in their own communities. Yet realistically, support is unlikely to be forthcoming to a CBA approach that promotes transformation, since its politics threatens the support agencies themselves.

We need to recognise the complexity of the political, social, institutional and biophysical stresses that converge under climate change and forge new circumstances that people face (Quinn et al, 2011). With adequate support, translated scientific models and a solid change agent CBA approach can make a difference to vulnerable communities confronting these new circumstances. It is only by acknowledging the inadequacy and potentially damaging nature of present adaptation efforts and by embracing approaches that promote transformation that we can respond to the daunting challenge on the horizon.

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