Community education and the crisis of biodiversity loss: Reflections from the hall of mirrors of past projects

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Abstract

South Africa is one of the most biologically diverse countries on our planet, and many South Africans depend on our biodiversity for their livelihoods. However, we face a rising biodiversity crisis, with many of our ecosystems destroyed, damaged or increasingly threatened by human activities. Effective community education is needed to limit further degradation of natural ecosystems that provide us with clean air and water, food and fuel, medicinal plants, and health-giving environments.

In the KwaZulu-Natal (KZN) province, 80% of ecosystems needing protection for their survival are within communal or privately owned land. Past top-down engagement approaches to conservation efforts targeting rural communities failed to turn many communities towards desirable conservation practices, and, instead, tended to alienate and divide people in rural communities. This chapter discusses key understandings and dynamics in community education initiatives aimed at reversing the biodiversity crisis, and bringing long-term, sustainable, biodiversity conservation solutions that truly benefit ecosystems and people in rural KZN and beyond.

Introduction

> *In its simplest terms, biodiversity means variety of life. This includes all life, from tiny plant and insect life to the biggest animals. The reason this is so important is that it plays a critical role in meeting human needs as well as maintaining the ecological processes, upon which people in our province, and, ultimately, humanity's survival on Earth depends. The more species we lose, the less diverse life becomes and the more unhealthy our ecosystem becomes. (Lombard 2016: 1)*

With a view to optimising the potential of planned community projects to ameliorate the crisis of biodiversity loss and the looming danger it holds for people and other forms of life, this chapter reflects on reports of conservation projects spanning the last few decades in KZN and beyond, and discusses the importance of the following:

- The heterogeneity of communities and the diverse needs community members have in relation to natural resources within their reach;
- The relationship between incentives and conservation practices, and implications of short- term material incentives compared with longer-term intangible incentives; and
- How considerations that foreground community representatives may represent the views and needs of only a few among the community, and how 'who learns what' affects the long-term goals of biodiversity.

Rural communities in Africa that have access to, and control over, natural resources are often underdeveloped and poor, and they may not be aware that the biodiversity in their area is threatened, or what the implications of biodiversity loss are for their way of life. Furthermore, individual members of rural communities are likely to have different views on what should be prioritised and worked towards, since they naturally experience needs differently, have different understandings of the desirability of different incentives, and may not see the loss of a particular species or their habitat as important. Therefore, completely different types of engagement are likely to be appropriate for different environmental education projects in different contexts.

Unsurprisingly, the goal of community education for biodiversity conservation has been to encourage behaviour and practices that will conserve rather than threaten biodiversity. Concomitantly, the traditional approach of conservation agencies to avert loss of biodiversity by offering indigenous communities incentives to cooperate with them has been based squarely on one of the most intuitive bases for human learning and associated behaviour change: instrumental learning (Skinner 1974). The theory of instrumental learning is a behaviourist theory based on positive and negative reinforcers of behaviour, and it offers a way of understanding and predicting learning ranging from its simplest form, where, for instance, a person behaves in a particular way simply to gain an

immediate concrete reward, to complex learning, where people go to extraordinary lengths to gain deferred, complex and abstract gratification.

However, as is shown later in this chapter, the success of incentive-based initiatives has been limited and often temporary, and may simply mirror the shortcomings and limitations of behaviourist theory in explaining complex human behaviour. It has become apparent that, in biodiversity conservation initiatives, healthy shifts in behaviour are most likely with a careful combination of negotiated tangible and intangible incentives, delivered on a transparent basis that is clear to all stakeholders and acceptable to them, and are likely to be sustained where there is shared awareness of long-term positive outcomes associated with avoiding the loss of biodiversity. This awareness indicates a necessary shift in underlying beliefs about learning and behaviour from behaviourist thinking, towards concepts implicit in Amartya Sen's Capability Approach (Sen 2000). In this approach, Sen sees people's welfare as measurable in terms of 'functionings', which include being healthy, having access to shelter and adequate nourishment, and being able to move freely. When people see that these freedoms are linked to the preservation of biodiversity, and may be furthered by particular practices, they are likely to adopt them.

Biodiversity in KwaZulu-Natal, and conservation

Owing to its diverse landscape and varied habitats for both flora and fauna, the province of KZN in South Africa is abundantly rich in biodiversity. In an effort to safeguard the richness of flora, fauna and habitat, Ezemvelo KZN Wildlife initiated a KwaZulu-Natal Biodiversity Stewardship Programme (KZN BDS) in 2005 to expand the network of protected areas and improve the management of biodiversity on land under both private and communal ownership (SANBI 2018; Ezemvelo KZN Wildlife nd). The programme aims to encourage landowners to commit to practices that allow natural, indigenous biodiversity to flourish, and makes use of legal tools such as the National Environmental Management: Protected Areas Act 57 of 2003 (NEMPAA) that maximise protection of the landowners' biodiversity. There are six different types of protected area, each with its own limitations on land use. By 2018, more than 564 000 hectares were declared as protected under biodiversity stewardship programmes (Wright 2018).

One critical aspect of the KZN BDS Programme is the use of incentives to support the adoption of practices and attitudes conducive to the conservation and sustainable use of biodiversity. The current KZN BDS's suite of incentives for stewardship sites is geared to encouraging private or individual landowners to practise biodiversity conservation and avoid the loss of diversity on their land. However, it fails to adequately address the determining of incentives for rural communities, which are heterogeneous groupings of people with different interests, complex social networks and power relations, 'best portrayed as "communities of communities" where complexity and competing interests are

standard and trade-offs are necessary' (Roe, Nelson & Sandbrook 2009). A shift in thinking away from oversimplified behaviourist principles towards those of Sen's Capability Approach, even if not consciously articulated, is likely to enable this and other biodiversity programmes to gain more traction in the long term and improve their chances of enabling awareness of the value of biodiversity among the people they aim to benefit.

For effective adoption of attitudes and practices compatible with the conservation of biodiversity at community level, the life gains for the affected communities must be emphasised, especially since many South Africans associate notions of conservation with forced removals and other apartheid practices that prioritised the preservation of ecosystems over their quality of life. Also, people in rural communities exploit natural resources to sustain their livelihoods, often relying on plants and animals of the veld and forests for food, medicine and other purposes (Muhumuza & Balkwill 2013). In conservation work, it is therefore important to follow processes such as those based on community-based natural resource management principles (Fabricius, Cundill & Sisitka 2003), which put emphasis on improving livelihoods of local people, ensuring effective communication with all affected people (including those most often marginalised), acknowledging local knowledge, securing rights of community members to long-term control over resources, and ensuring clarity in relation to roles, rights and responsibilities of all involved.

Ultimately, biodiversity conservation depends on decisions made by people (Reyers, Roux & O'Farrell 2010), and, in terms of the Capability Approach, people will adopt and maintain practices that do best in removing restrictions to freedom such as poverty and lack of opportunity. Therefore, an understanding of what encourages each land user to see value in, and buy into, stewardship for conservation, is imperative. Understanding drivers of this decision-making is complicated in rural communities where one deals not with individuals, but with groups of different landowners and land users with differing needs, who use the same resources for different purposes, and may have different aspirations for the land. Here, a finer understanding of complex systems can lead to co-learning[1] and more sustainable initiatives (Ostrom & Cox 2010). Interventions that claim to promote co-learning should consider that co-learning cannot take place in an environment that promotes rigid, prescriptive pathways and a culture of silence (Freire & Ramos 1970). On the contrary, co-learning can occur only in an environment that encourages a coercion-free and inclusive dialogue (Habermas 1990), and action based on social integration and solidarity can be coordinated only where mutual understanding is achieved through open dialogue (Habermas 1984). When practices consistent with conservation of biodiversity are maintained by communities without associated

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1   Co-learning is defined here as collaborative knowledge creation, where different individuals or groups share and take notice of one another's views. In this case, people involved would be community members, their leaders and representatives, and external agents, and possibly their representatives.

incentives, it is reasonable to conclude that they may be experiencing the direct benefits of, and thus integral incentives for, biodiversity conservation. An instance of this is where conservation of vultures, and hence their increased numbers, can result in reduced incidences of diseases affecting livestock (Gross 2006). Alternately, environmentally positive changes in behaviour may be because, through co-learning, people have become aware of the negative consequences of over-exploitation of at-risk species, and, in Sen's terms, of the value of biodiversity conservation practices in allowing them increased political freedoms, economic resources, social opportunities, security, or transparency in systems they are a part of (Sen 2000).

Thus, as Freire noted in *Pedagogy of the oppressed* more than 40 years ago, it is important for any agency involved in co-learning for biodiversity conservation, or in community environmental education, to develop a deep understanding of each community that it deals with. This understanding must include its sociopolitical environment and socio-economic dynamics, its ways of relating to resources, and the influence that various factors have on ownership of, access to, and use of communal land. Developing this understanding will enable agencies to avoid two common 'traps' associated with biodiversity conservation learning in communal areas: an over-emphasis on tangible incentives, and the fallacy of community 'representatives' as comprehensively representative voices of the community, which we address in more detail below.

Historical land dispossession and alienation of people from resources as stigmatisation of conservation efforts

There is evidence from the beginning of the 19th century that, in Southern Africa, the *Amakhosi* (traditional leaders of the Nguni people) traditionally maintained conservation initiatives but that their authority was undermined by colonisation-driven conservation initiatives (Honey 1999). In South Africa, this was exacerbated when rural communities were dispossessed of their land through the Natives Land Act 27 of 1913, and the enactment of laws that criminalised African livelihood practices that were in conflict with colonial conceptions of conservation (Duffy, St John, Büscher et al. 2016).

Conflicts that have occurred since then between rural communities and conservation efforts are well documented (Andrew-Essien & Bisong 2009; Roe et al. 2009). In colonised Africa, conservation areas were usually put out of reach of local communities through forced removals, were protected using military techniques, were financed through government subsidies, and were run with political and social blinders (Honey 1999). Laws that imposed unilateral conservation initiatives by force, marginalised rural communities and often provoked hostility between conservation initiatives and these communities (Andrew-Essien & Bisong 2009). For instance, hostility between the KwaJobe people and the Mkhuze Game Reserve authorities in South Africa was triggered by the removal of the KwaJobe people for the establishment of

Mkhuze (Lewis 1997). Trust between communities and the conservation agency was destroyed, and many communities continue to treat initiatives by conservation agencies with suspicion. In addition, outside of designated conservation areas, people may see conservation laws that criminalise their use of wildlife as part of the remaining vicissitudes of an oppressive legal system of colonial regimes. Consequently, some African communities continue to refuse to accept legislation intended to protect wildlife and avoid the loss of biodiversity (Duffy et al. 2016). In these cases, external agencies may offer incentives as a first step for community members to start to unlearn these negative associations and move towards gains that biodiversity conservation practices may hold for them.

Factors to be taken into account in co-learning for conservation initiatives

Socio-economic dynamics within communities

Currently, rural communities across Africa, particularly those in remote rural areas, have socio-economic challenges related to high poverty levels, low education levels (Stats SA 2020), internal conflicts, poor infrastructure, and weak support services (Roe et al. 2009). One of the main reasons that biodiversity is used unsustainably and degraded in such areas is that exploiting resources makes economic sense to people maintaining their livelihoods. In KZN, while rural people might support the concept of conservation in principle, their economic needs make it difficult to comply with practising sustainable use and conservation of natural resources (Wright, Hill, Roe et al. 2016). In the iGxalingenwa and Kwayili forests in the Drakensburg, KZN, where traditional institutions that might have worked to preserve natural resources were weak, communities over-utilised the forest in providing for their livelihoods (Robertson & Lawes 2005). Clearly, here, people's practices of overuse of forest resources provided enough positive, short-term reinforcement for them to overlook the consequences of not ensuring regeneration of resources.

In contrast, another study at Ongoye Forest in KZN showed that, even where communities rely heavily on natural resources to support themselves, resource use can be maintained at sustainable levels (Boudreau, Lawes, Piper et al. 2005; Phadima 2005). This case demonstrated the value of co-learning and shared agency in rural conservation interventions that acknowledge economic, social and environmental constraints of communities, and avoid prescribing uniform sets of incentives for a rural community with context-bound livelihoods, dynamics, social networks and governance. In the Ongoye Forest instance, strong local traditional governance added complexity, but was possibly a powerful factor in maintaining awareness of the intrinsic rewards of keeping use to a sustainable level and avoiding the loss of biodiversity.

As demonstrated in the Ongoye Forest example, a thorough understanding of how people make choices regarding land and resources, and how they see various benefits, is needed (Wright et al. 2016), and livelihoods and attitude assessment should be undertaken in each case. A livelihood assessment looks at the nature of livelihoods and the constraints, imperatives and shortfalls that drive people to degrade natural resources in the search for subsistence resources, income and employment (Emerton 1999) when common-property management fails. This is important because, in the absence of functioning institutions and governance systems, users of shared resources make independent and anonymous decisions that lead to what Ostrom (2007) terms the 'tragedy of the commons', which refers to the depletion or degradation of shared resources and hence massive loss of biodiversity through the cumulative effect of the behaviour of individual users to benefit themselves without consideration of the common good. In terms of the Capability Approach, it is clear that, when this happens, short-term rewards or opportunities have trumped the consideration of freedoms implicit in any positive, long-term consequences of biodiversity conservation in shaping the practices of a community. Where the state of people's perceptions in relation to biodiversity and the options they have is not clear, there is value in an attitude assessment to explore people's attitudes to the resources and environment in question and reveal what people understand about relevant issues and their own position in relation to them. Key here is the transparency perceived by affected people in dealings with agents for biodiversity conservation, the extent to which they believe they have agency, and the extent to which they perceive the system represented by the agents as trustworthy. It is vital to take these factors into account in planning any community education initiative.

Communities as heterogeneous groups

People working from a Western perspective frequently assume that rural African communities are unified homogenous and harmonious entities that simply await some community education initiative and/or incentives in order to adopt biodiversity-friendly practices. In reality, just like communities everywhere else in the world, they are heterogeneous, complex and politically driven, and frequently characterised by conflicting interests (Roe et al. 2009).

The emphasis in the South African post-1994 democracy era on human rights added complications for traditional areas. In some communities, democratically elected councils were set up to work alongside traditional leaders who previously controlled the allocation of land in areas under traditional African authorities (Ntsebeza 2000). This was socially divisive, causing conflicts over decision-making power (Roe et al. 2009), particularly in rural parts of the KZN province where a significant proportion of land (over 33% of the area of the province) is in the hands of traditional African authorities.[2] Since social

2   In KZN, 3.1 million hectares of land is owned by the Ingonyama Trust (in other words, is held for the Zulu people by their king) in accordance with the KZN Ingonyama Trust Act, No. 3KZ of 1994 (SANBI 2018).

heterogeneity and differing needs impact on access to resources and leadership struggles (Van Heck 2003), identifying various groups within communities and their political dynamism is fundamental to any intervention. Understanding what information is appropriate for each group (such as women, the poor, and subgroups involved in activities like small garden committees), and the processes that determine appropriate co-learning for conservation initiatives within a rural community, is equally important.

Attention to process is vital for ensuring that the people who bear the costs of biodiversity conservation understand the reasons for, and consequences of, conserving or not conserving resources, and receive any accompanying incentives. This is because, as the principles of instrumental learning tell us, people will manage their environment only if gains from such management exceed their costs (Wright et al. 2016), and because of the importance, in terms of the Capability Approach, of people's perceptions of transparency and trustworthiness (Sen 2000). Consequently, when dealing with heterogeneous and politically driven rural communities, community educators should try to understand and take into account the complex and not always harmonious systems existent in communities, and consider the multifaceted implications of what this means for planning, delivery, and hoped-for outcomes of education initiatives as well as for what incentives are offered to whom. An operational paradigm shift from mechanical, product-orientated programmes with rigid time frames and quantified goals, to genuine continual and sustainable participatory involvement of communal landowners at their pace, is needed. For this to happen, it is imperative that all concerned hear one another's points of view, and together work out strategies that accommodate felt needs. In some instances, sharing of ideas in this co-learning practice may result in the development of new, context-specific tactics.

## The myth of 'representative' community structures

There are critical considerations around who is approached in the initial steps of interacting with communal landowners and planning community education. Simply involving apparent community representatives is shown in Figure 1, where the innermost circle represents people in a community who are ignored, having not been directly contacted by conservation agents (represented in the outermost ring). The inner ring, between the innermost and outermost rings, represents the community representatives who are in contact with both ordinary community members and conservation agents, and through whom all communication is filtered.

Working through community representatives and relying on them to pass on the substance of community education is an option that appears convenient in the short term, since no time is spent discovering the dynamics of a community and becoming involved in extended communication with multiple participants. However, the weakness of this option is that it is less participatory and does not

give external agents insight into the community they are working with. Without insight gained from direct communication, agents cannot plan co-learning for conservation strategies that are likely to be most effective in particular instances of community education. They also cannot see if proposed incentives are appropriate, or how they will be distributed among community members. If incentives do not reach intended beneficiaries, they cannot be effective in encouraging the adoption of the biodiversity conservation behaviours and practices they were designed to reinforce in the long run.

Figure 1: Community representatives
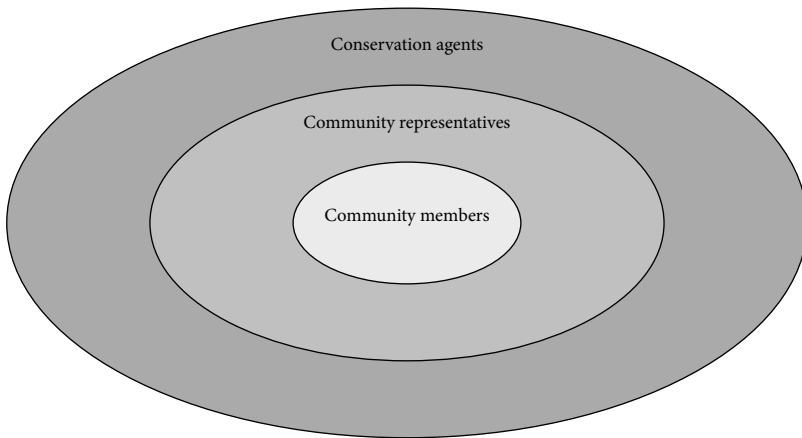
Source: Phadima, Memela and Land

In fact, the most immediately available community 'representatives' can actually prevent ordinary community members from accessing benefits, in a pattern referred to by Roe et al. (2009) as 'elite capture', which seems common, especially in commercial projects that impact the environment, where monetary incentives are offered to selected people in compensation for the impact. An instance of this happened in 2017 in the Fuleni area just south east of the Hluhluwe-Mfolozi Park in KZN. Here, community leadership supported a proposed coal-mining venture while occupants of approximately two-and-a-half-thousand households vehemently opposed it (Save our iMfolozi Wilderness 2017). This kind of capture by the powerful might often characterise rural parts of KZN, where dialogues about incentives tend to take place in 'higher'-level community structures that are often dominated by men, whilst behavioural change is expected from women as the main land users. Another example of what seems to be elite capture, current at the time of writing, is that of the fuel company Shell's prospecting for gas and oil reserves off South Africa's pristine Wild Coast, a stretch of approximately 250 kilometres of relatively unspoilt coastal ecosystems on the scenic coast of the Eastern Cape province. Shell gained approval from South Africa's Minister of Mineral

Resources and Energy, and from selected community leaders, and started prospecting by way of repetitive seismic blasting of the seabed in December 2021. However, in a landmark judgment for local communities, Shell was forced to halt the survey when, in response to a case brought by activists, including inhabitants of the coast nearest the area of the seismic survey, an Eastern Cape court found that the company 'had failed to meaningfully consult people who would be affected by the seismic survey' (*The Guardian* 2021) and, presumably, by the oil and gas extraction activities that could have followed the survey.

These examples resonate with Habermas's warning (1984) of 'lifeworlds' falling into the power of 'steering media' when, among other changes, traditional forms of life lose coherence, and available rewards are claimed by powerful individuals or groups. It is interesting that in the Wild Coast example, local communities seem to have won at least a short-term victory against a government-supported profit-driven enterprise that threatened the natural environment that is their home. This is unusual, and raises the question of whether the involvement of environmental activists from outside the community and the high media interest in the case were salient factors in the outcome.

Even projects that are ecologically sensitive can be vulnerable to elite capture. Some years ago, Kiss (2004: 234) noted that 'overall … most Community Based Ecotourism projects produce (at best) modest cash benefits, and these are often captured by a relatively small proportion of the community'.

In terms of communities' own impacts on their environment, two decades ago Lewis (1997) cautioned against the blanket assumption that 'so-called community structures' or representatives account to their respective communities. This is particularly important since activities that destroy biodiversity often take place at individual and household level, although their impacts are seen at community or higher level. This underlines the need for people whose learning and behaviour is critical in the preservation of biodiversity to be directly involved in community education initiatives, and for reinforcers of ecologically positive shifts in behaviour and practices to be felt directly by the people who have altered their behaviour. Overall, community representatives should not be assumed to automatically and fully represent constituent communities. As with all social groupings, social dynamics inform how communities are organised and who represents them. Vocal and well-off community members, whose affluence determines community decision-making may well be over-represented amongst the most apparent community representatives (van Heck 2003).

Challenges to cooperation with and among communal landowners and land users

Efforts to achieve desirable collaboration with communities often engage only a few social groups and individuals, and fail to build representation across groups within diverse communities (Margerum & Rosenberg 2003), and dynamics within communities can thwart less powerful community members. In Tanzanian income-generating projects, the required payment of fees and upfront investment of capital effectively excludes poor people (Roe et al. 2009), and in the Makuleke land claim in South Africa (Carruthers 2007), the traditional royal family received a disproportionately large share of benefits from the Common Property Association that made the land claim. Interestingly, most community members there supported this disproportionate sharing, since, because of their traditional beliefs, they saw traditional royalty as the rightful controller of the land. Some would say, ironically, in the context of the colonial oppression in Africa, that this perception is an example of Freire's (1970) 'oppressed consciousness', where oppressed people see their condition as part of normality, which they accept without question.

Thus, as Botha (2004) stated almost two decades ago with reference to a South African study on education for, and implementation of, biodiversity stewardship in a communal setting, it is important to research the history of previous relationships and interventions in the community, and to bear several things in mind. These are that the dynamics of communities might require specialist facilitation skills, that communities might not recognise local authorities, or might have developed a willingness to give up independence and agency in return for handouts (again, an instance of instrumental learning), that they might accept the dominance of oppressors and their own lack of agency, and that it is vitally important to keep all stakeholders well informed so that the process is not derailed. The continued relevance of these points is noted by environmental law specialists Ndlovu De Villiers (SANBI 2019).

Participatory methods involving communal landowners

Biodiversity conservation in communal areas in the apartheid era appears to have been carried out as conservation against communities; initiatives did not recognise communities as agents in conservation but reduced them to objects to be removed from their land in the name of conservation. Such a model of conservation was oppressive towards communities, failing to acknowledge their human dignity. If one draws from Freire and Ramos (1970: 55), then:

> *Any situation in which "A" objectively exploits "B" or hinders his and her pursuit of self-affirmation as a responsible person is one of oppression. Such a situation in itself constitutes violence, even when sweetened by false generosity, because it interferes with the individual's ontological and historical vocation to be more fully human. With the establishment*

> *of a relationship of oppression, violence has already begun. Never in history has violence been initiated by the oppressed. How could they be the initiators, if they themselves are the result of violence?*

In Freire and Ramos's (1970) terms, the pre-1994 model of conservation was dehumanising, oppressive, founded on the culture of silence, and not affirming of the communities as role players or as primary users of biodiversity. The South African Constitution, 1996, provides a legal framework that is conducive to a shift from conservation against communities to conservation with communities. Section 7 (1) of the Constitution makes a commitment to respect human dignity. In addition, section 7 (2) of the Constitution states: 'The state must respect, protect, promote and fulfil the rights in the Bill of Rights.' One of these rights is in section 24(a) of the Constitution, which protects every South African's right to an environment that is not detrimental to their well-being or health. To ensure that the environmental rights that are promised in section 24(a) are fulfilled, section 24(b) guarantees everyone's right:

> *to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that –*
> *(i)   prevent pollution and ecological degradation;*
> *(ii)   promote conservation; and*
> *(iii)   secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

However, it is clear that these rights are not experienced or enjoyed by many people living in rural South African communities, who, it seems, have yet to realise that, in the post-apartheid era, they have these rights and could access support in exercising them.

## Co-learning in participatory community education for environmental sustainability

For biodiversity conservation initiatives to emerge from the long shadows of the pre-1994 model of conservation, they need to be truly participatory and explicitly declare commitment to using participatory methods for engaging communities in biodiversity conservation. Any intervention that claims to be participatory has to create a conducive environment for community members to shift their perception of their own position from silent, powerless observers, to discovering their rights, and finding their voice. Transformation is needed for people to cease being self-deprecating and become self-affirming, to cease being spectators and become active actors in matters that affect their lives, and to cease being proxies for others and become autonomous (Freire & Ramos 1970).

Participatory methods involving more than the most immediately apparent community representatives are clearly valuable for the quality of participation and

the resultant long-term benefits of potentially useful initiatives. Both community representatives and ordinary community members can be involved in a truly engaging and empowering process when everyone is involved in learning, empowerment, and negotiating appropriate incentives in the interests of the entire community (see Figure 2). This option obviates influence from biased community representatives, since the external agent communicates directly with ordinary community members and can assess the distribution and effects of incentives. However, there can be no guarantee against bias on the part of the external agent, and, in the case of agents working for conservation initiatives, it is possible that their career choice may indicate a bias stemming from a conviction that 'doing all we can to maintain existing ecosystems is of general benefit'. This might not be congruent with communities' views on their right to use natural resources in their areas in whatever way they wish to. Nevertheless, if the process of co-learning is genuine, the parties should be able to find common ground as they work through differences.

Different participatory community education methods can facilitate participation of ordinary community members. One of these, Participatory Rural Appraisal (PRA), is an action-research strategy utilising techniques such as joint construction and discussion of analytic tools such as Venn diagrams, timelines and time trends to actively engage participants/communities in analysing information about their settings and conditions (Bhandari 2003). With truly participatory approaches, both community representatives and ordinary community members are involved in exploring and learning about issues and the development and determination of incentives. Participatory methods also facilitate local members' engagement and learning by encouraging the inclusive involvement of all community sectors. This does not mean, however, that external stakeholders or change agents must bypass and disrespect local protocol and leadership, as this could jeopardise the implementation of community education strategies and the sustainability of solutions. Figure 2 illustrates the model of communication and interaction suggested for current initiatives to attain true participation while embracing local structures and institutions.

Figure 2: Model of communication and interaction used by KZN BDS
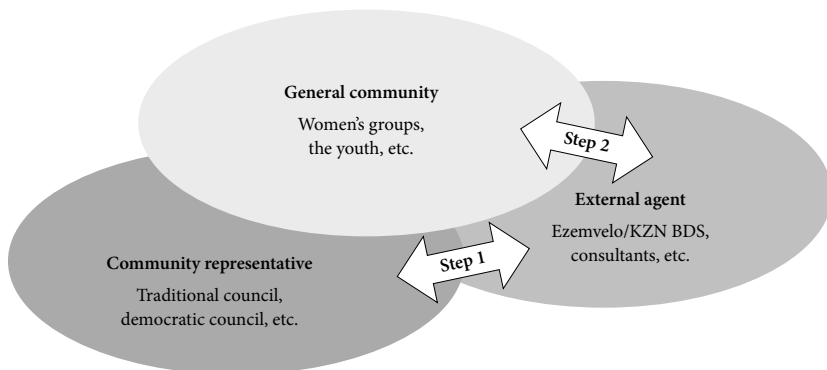
Source: Phadima, Memela and Land

Comprehensive implementation of participatory methods in community education and in devising reinforcers for behaviour required from different parties necessitates particular awareness. A common error associated with this approach is to assume that the presence of ordinary community members in meetings that apparently have the sanction of prominent community members guarantees or translates into their participation; in fact, they may well be present but alienated from what is going on, and from the perception of value in rewards or potential gains, both offered for, and intrinsic to, conservation practices.

Another mistake is to fail to realise that participatory methodologies are open to misuse. In some instances, participatory methodologies have indirectly promoted further marginalisation of communities. As early as 2001, Cooke and Kothari, in their book *Participation: The new tyranny?*, offered accounts by different authors of instances where participatory facilitators unintentionally overrode legitimate decision-making by participants, or where interests of already powerful people were reinforced, or where the use of participatory methods excluded other methods that may have been advantageous.

Participatory methodologies can also fail when facilitators come from organisations that are 'product'-driven, as opposed to 'process'-driven. Pressure to achieve results speedily, and habitual reliance on previously used methods such as set workshops, can result in the mechanical use of strategies with little consideration of sociopolitical factors underpinning communities' interactions and prevalent social networks. If the focus is on the delivery of products within given time frames rather than on the processes of engagement, learning, and empowerment of the community, the result can be a mimicry or pretence of participatory approaches that actually entrenches community disempowerment.

Factors associated with the upholding or adoption of conservation practices

Awareness programmes can sensitise people to the need to conserve natural resources within their reach, alert them to possible gains, and build popular support for conservation initiatives. Planned awareness-raising and community education initiatives improved conservation practices among people living near the Masoala National Park in Madagascar, in forest conservation projects in Botswana, Malawi, Mozambique and Namibia, and in Uganda's Bwindi Impenetrable National Park (Muhumuza & Balkwill 2013).

It is predictable on the basis of instrumental learning theory that conservation practices will be upheld or adopted only if people experience benefits from them (Roe 2017). In new conservation initiatives, if people are involved from the stage of conceptualisation to the stage of monitoring and review, and if people are offered opportunities to expand their understanding, there is greater feeling of belonging, and thereby greater possibility of success. Water-harvesting structures introduced by government agencies in Rajasthan, for instance, were

much less successful than those initiated by local non-governmental organisations (NGOs) and community institutions, because Rajasthani government agencies did not involve the local people in planning and implementation (Kothari 2001). Therefore, they did not lay a basis for Habermas's (1984) 'communicative action', and consequently did not build a base for continuous maintenance. More positively, the recovery of lion and elephant populations in Namibia is attributed to the strong incentive of retention by community conservancies of 100% of the income from ecotourism in these areas (Nelson, Sulle & Roe 2016). However, while emphasis on tangible incentives such as the permitted slaughter of game for meat distribution and short-term employment may work for mobilising people around conservation initiatives, this emphasis can equally diminish rural communities' active learning and participation in, and commitment to, sustained biodiversity conservation in the long run (Pimbert & Pretty 1995). This can happen if communities' dependence on resources in conservation is inadequately understood and/or not compensated for. It can also happen where consumerism is stimulated by development, which weakens cultural management and knowledge of natural resources, actually resulting in increased or over-exploitation of resources (Muhumuza & Balkwill 2013). In this case, the reinforcers associated with consumerism have perhaps been stronger forces for the people concerned than the reinforcers of behaviour associated with the conservation of biodiversity.

Another important factor is that ordinary community members might expect or demand incentives that are not within the power of any participating agent to grant. This is to be expected, as rural communities that have access to, and control over, natural resources are often underdeveloped and poverty-stricken, and desire incentives unrelated to conservation of biodiversity, for example agriculture, healthcare, access to grants, and so on. Also, community members will naturally have conflicting interests and varying opinions on what incentives they should negotiate for. For instance, some community members may expect a conservation organisation to offer seedlings and agricultural support, which are unlikely to be within the expertise and resources of a conservation organisation. In these cases, people working within the programme need to explore possibilities of facilitating collaboration with organisations that can offer those incentives, or participants need to pool their resources and ideas in order to generate alternatives that have possibly not been considered before. This strategy is popularly known as alternative livelihoods facilitation, as opposed to provisioning (Wright et al. 2016).

The value of interactive participation incorporating environmental education, skills transfer, human development, and empowerment (Pimbert & Pretty 1995) has long been recognised. Here, people participate in joint analysis and action plans underpinned by multiple information source perspectives, and, where appropriate, the negotiation of incentives as reinforcers of conservation practices. The goal of this kind of community education is to shift rural and communal communities from conservation associated with simple material gains towards

'deeper levels' of conservation. This shift can be seen as an awakening to, and discovery of, their own agency and benefits intrinsic to the conservation of biodiversity. These gains may be less tangible, more subtle, and not as immediate as incentives initially offered by external agencies, which may be crudely seen as simple bribes to elicit conservation. Co-learning, here, is the process that leads from the initial acceptance of 'conservation bribes' to the adoption of practices suited to particular communities and contexts, and to transformed awareness on the part of participants of the long-term, less tangible value of biodiversity conservation to their communities. In Freire's terms, this would be an example of people learning to 'read the world', with a 'critical reading of reality, whether it takes place in the literacy process or not, and associated above all with the clearly political practices of mobilization and organization' (Freire & Macedo 1987: 24).

Thus, material incentives can be ultimately successful in leading people towards long-term commitment to more sustainable practices, although a strong focus on intangible incentives can reduce reasons for participation by communities interested in material gain only. This was the case with the initiative involving KwaJobe community members in north-eastern KZN, who supported the idea of resource-based tourism enterprise on their land only because of the assurance that it would generate economic returns and not because they valued its benefits to conservation (Lewis 1997). More recently, in Benin's Pendjari National Park, successful conservation of biodiversity was attributed to the park authorities working with representatives of local communities, who informed park staff of activities that local people intended to carry out within the park. Because their organisation was acknowledged, people saw the park positively, and, through communication with park staff, they gained understanding of the value of biodiversity conservation for themselves (Muhumuza & Balkwill 2013). With reference to information flowing in the other direction, a new source of positive influence in community conservation initiatives is the emergence, notably in Kenya and Tanzania, of civil society organisations active in the sphere of wildlife governance reform. These organisations work to ensure that rural communities affected by conservation initiatives can influence policy and gain greater advantages for themselves (Nelson et al. 2016).

It is vital to appreciate that different types of engagement and different incentives will be appropriate at different stages and contexts of conservation initiatives, which need to take into account current complexities of motivations and political–economic contexts (Duffy et al. 2016). A combination of tangible and intangible incentives – provided that they are actually delivered, and that the system governing them is transparent, clearly understood and accepted by all stakeholders – attracts people to initial participatory exercises and learning, and increases the chances of sustainability because people experience positive impacts on their lives or livelihoods (Muhumuza & Balkwill 2013). This may also stimulate their awareness of the long-term, less tangible rewards of conservation such as increased agency on the part of communities. Ideally, tangible incentives should be gradually replaced by intangible incentives as the partnership develops

between a conservation agency/programme and the community. As has long been shown by research in instrumental learning, practices are more likely to be maintained in the long term if rewards become available less immediately, and less regularly (Skinner 1974), or when reinforcers are secondary, that is, when behaviour is strengthened by something that leads to another gain (McLeod 2015). This supports the suggested shift from immediate, tangible incentives towards less-immediate, less-tangible incentives in biodiversity conservation, and increasingly towards people's sense that their own quality of life and freedoms as defined by the Capability Approach (Sen 2000) are bound up with preservation of biodiversity.

Figure 3: Shift from tangible to intangible reinforcers over time
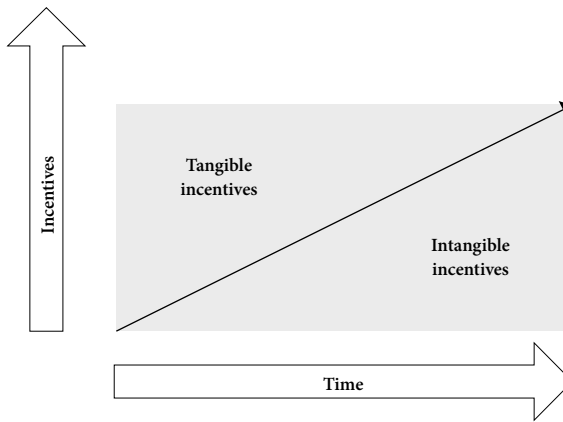
Source: Phadima, Memela and Land

The CAMPFIRE Programme run in Zimbabwe by the International Institute for Environment and Development (IIED) (1994) showed that failure to shift to intangible incentives can negatively affect an intervention. While the CAMPFIRE Programme provided incentives such as funding for schools, it failed to provide intangible incentives and development of people's agency in empowering local communities to manage their natural resources. In this situation, communities remained passive recipients of the incentives, acting as spectators instead of participants in processes that affected them.

At the turn of the last century, Emerton (1999) proposed steps towards community education for biodiversity conservation, starting with describing the resource and socio-economic contexts of a community, and ending with implementing incentive schemes. She suggested an ongoing circular process of selecting and implementing incentives, with continual reviewing and redesigning of the plan for education and incentives. This continual cycle of implementation, review and adaptation still seems ideal where the aim is to ensure reflective co-learning, and a shift in a planned and consultative way from short-term, immediate tangible

incentives towards long-term, intangible and 'deeper' incentives and, in terms of the Capability Approach (Sen 2000), the enjoyment of independence and freedoms associated with biodiversity conservation.

The way forward

Unquestionably, there is a healthy conceptual shift from programmes based on externally determined conservation goals and time limits towards programmes that are authentically participatory, are orientated to long-term processes, co-learning and critical reading of reality, and that entail development of the agency of communities and sustainability.

However, to ensure that a community education initiative starts well, it is important to win the confidence of politicians, officials and elites to support, or at least tolerate, effective forms of participation of rural, underprivileged people in development (Muhumuza & Balkwill 2013). The ideal conceptual approach is to adopt a process that speaks to acknowledgement of existing local stakeholders and authority, while bearing in mind that knowledge and detailed insight of the myriad contextual details of any community lie within the minds of its ordinary members. At the core of this fully participatory approach is interaction with all stakeholders and involvement of ordinary community members in all decisions affecting them, free from intimidation from powerful local community members, or dictates as to what appropriate incentives should be for ordinary community members (see Figure 2). Emerging African civil society organisations (Nelson et al. 2016) may well be a positive new source of energy in ensuring that ordinary community members are involved in co-learning, and that they become aware of and more likely to exercise their rights, as they did in the Wild Coast communities versus Shell instance described above. Increased cooperation between ordinary community members and civil society may well ensure that hitherto disadvantaged South Africans find that their voices can be heard, that benefits and incentives are transparently and equably shared, and that opportunities for ordinary community members to develop their critical understanding of biodiversity issues in their areas are maximised.

Obviously, extension workers and educators working with the conceptual model shown in Figure 2 should be aware of, and understand as far as possible, the social, political and economic dynamics of the community with which they are working. The approach to gaining and understanding these issues needs to be methodical, from the initial phases of information-gathering and information-sharing, and establishing and understanding the dynamics and interrelatedness of variables, through the analysis of information and exploration of incentives and their implications for communities and the development of their understanding of biodiversity conservation, to the final mutual identification of

appropriate community education projects for conservation and the benchmarks against which they will be measured.

Throughout these processes, educators and conservation extension workers need to acknowledge that participatory processes are as important as their outcomes, and these should be allowed to unfold fully in order for their potential benefit to be realised. Regrettably, many conservation initiatives remain formulaic in their approach, based on rigid, prescriptive protocols and on tangible incentives such as job creation. For instance, the KZN BDS has been able to increase the area of stewardship estate (land) under conservation, but participation remains mainly elitist with local traditional authorities often determining how representation is constituted and, at times, by whom within the community. This status is a result of a myriad of issues, which include the need for implementing agents to adhere to annual performance cycles that leave little space for protracted community engagement, and the need to speedily show value for money where donor funds have to be invested within relatively short time frames. There is also the unfortunate burden on officials working for state institutions to rush to increase the land area under conservation within tight time frames and without consideration of the opportunities for community learning and the development of critical consciousness and agency on the part of community members. The implications of all of these issues require further research.

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