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Success Factors for Community-Based Natural Resource Management (CBNRM): Lessons from Kenya and Australia

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Abstract Recent concerns over a crisis of identity and legitimacy in community-based natural resource management (CBNRM) have emerged following several decades of documented failure. A substantial literature has developed on the reasons for failure in CBNRM. In this paper, we complement this literature by considering these factors in relation to two successful CBNRM case studies. These cases have distinct differences, one focusing on the conservation of hirola in Kenya on community-held trust land and the other focusing on remnant vegetation conservation from grazing pressure on privately held farm land in Australia. What these cases have in common is that both CBNRM projects were initiated by local communities with strong attachments to their local environments. The projects both represent genuine community initiatives, closely aligned to the original aims of CBNRM. The intrinsically high level of "ownership" held by local residents has proven effective in surviving many challenges which have affected other CBNRM projects: from impacts on local livelihoods to complex governance arrangements involving non-government organizations and research organizations. The cases provide some signs of hope among broader signs of crisis in CBNRM practice.

Keywords Community-based conservation · Capacity building · Community participation · Livelihoods

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Introduction

The premise for this article stems from the need for scholarship to establish the conditions under which community-based natural resource management (CBNRM) works (Campbell and others 2000). In the last decade, most of the literature on this subject has focused not on the reasons that CBNRM succeeds, but on the reasons that it fails (Blaikie 2006; Singleton 2009; Zulu 2008). The reason for this pessimistic focus is that failure is considerably more prevalent than success for CBNRM (Kellert and others 2000). While lessons for success can be inferred from examples of failure, we propose that it is pertinent to focus specifically on examples of successful CBNRM, in order to consolidate our understanding of the circumstances under which success occurs. This process is timely due to the evolving context in which CBNRM occurs, including an increasing importance of conservation on private tenures within a framework of collective action (Child and Barnes 2010).

Despite original intentions focused on empowerment and decentralization, three decades of CBNRM practice have struggled to live up to these ambitions, plagued by complex administrative structures, intervening higher levels of government leading to compromised applications which undermine both the integrity of participation and the effectiveness of conservation programs (Shackleton and Campbell 2001; Blaikie 2006; Corson 2012). Other

theorists have argued that CBNRM applications have failed precisely because of their decentralized nature: that local communities are riddled with power dynamics and local politics can feature crippling injustice or incompetent leadership (Lane and Corbett 2005; Lane and McDonald 2005; Balint and Mashinya 2006). These wide-ranging concerns have led some authors to argue that CBNRM has experienced a crisis of identity and purpose (Dressler and others 2010; Mulrennan and others 2012). However, even these authors maintain that the underpinning aims of CBNRM are sound, and they are optimistic that application can live up to these aims in the right circumstances. Certainly, there are signs of hope from a minority of applications around the world, with much depending on the particular governance arrangements surrounding individual projects (see e.g., Austin and Eder 2007).

Overview of CBNRM

No single definition of CBNRM is universally accepted, however, most theorists converge on the principle that CBNRM generally seeks to encourage better resource management outcomes through wide participation of local communities in decision-making activities and the incorporation of local knowledge systems in management processes (Armitage 2005).

CBNRM evolved predominantly in southern Africa. Prior to the development of CBNRM, conservation tended to be centralized and coercive, funded by the international donors with interests in strong conservation, often for the benefit of elites and tourists (Brandon and Wells 1992; Brockington 2002). The morality and effectiveness of this strategy was questioned by conservationists (Dressler and others 2010). A new approach developed from the 1960s in Zimbabwe was influenced by broader social movements of this period (Schuerholz and Baldus 2007). CBNRM became formalized through defining projects such as the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) Program in the 1980s (United States Agency for International Development [USAID] 2009). From a conservation point of view, CBNRM acknowledges that the concern for biodiversity, in its broadest sense, "encompasses not only threatened flora and fauna, but also the survivability of human communities, as stewards of the natural environment and as producers" (Barkin 2000, p. 168). Since its rise in southern Africa, CBNRM has become popular around the world (Rodriquez-Izquierdo and others 2010).

The natural resources associated with CBNRM are usually (but not exclusively) common pool resources (Blaikie 2006; Mbaiwa and others 2011). As such, much CBNRM occurs on lands held by community resource titles, as well as state-owned protected areas such as parks (Armitage 2005; Rozwadowska 2011). CBNRM initiatives have often occurred where groups of people are concerned about the integrity of social ecological systems based on indigenous cultural obligations, social values, morality, and personal interests (Rozwadowska 2011). Increasingly, CBNRM also occurs on private lands where communities of neighboring landholders collaborate for conservation and social outcomes, such as where their management actions directly affect specially valued environmental features such as lakes, plains, or forests (Child 2003; Measham 2007; Dressler and Büscher 2008). Across these different applications and tenure types, one common feature is proximity: CBNRM tends to be conducted close to the communities in question.

Despite the promise of CBNRM, failure is more prevalent than success. In this paper, we present an overview of known reasons for the failures of CBNRM projects, followed by two case studies of successful CBNRM projects, one in the Ijara district of North Eastern Kenya and one in Gippsland, Australia. By successful, we mean that conservation outcomes were being advanced and that community participants felt empowered by the process as demonstrated in project evaluation documents. The trigger for considering these two projects side by side was a serendipitous exchange between the authors during a scientific internship. Following an informal discussion of the projects, we set about the structured comparison presented in this paper. We recognize that this approach is somewhat opportunistic, and put it forward for consideration and scrutiny in scientific debates and to inform the design of new research programs.

Why do Most CBNRM Projects Fail?

A substantial literature has focused on specifying criteria for the success of CBNRM, attempting to explain the frequent failure of CBNRM due to the absence of particular criteria (Blaikie 2006). In reviewing such literature, Agrawal (2001) identified 35 such criteria, many of which were quite detailed, leading him to question the value of this approach in favor of constructing more causal mechanisms based on statistical designs and by considering comparative studies rather than single-case analyses. Some authors have equated this challenge to finding a needle in haystack, hence, the tendency to continue with determining criteria for success, yet moving beyond specific details to broader principles such as the governance arrangements between non-government organizations (NGOs) and recipients (Blaikie 2006). It is beyond the scope of this paper to review all the potential reasons why CBNRM fails. Rather, given the space available, we summarize the

four most widely recognized factors in the following section.

Top Down Project Initiation

CBNRM projects have different origins. When projects are externally initiated and imposed on local communities, they can seem alien and local residents may lack motivation to make the project work. For example, CBNRM projects in Madagascar were initiated by either NGOs or government and the local communities had a very minimal role both in their initiation and management leading to their eventual collapse (Duffy 2006). The external imposition of projects isn't a guarantee of failure, with the foundation CAMPFIRE program a case in point. This program, initiated by civil servants in Zimbabwe in the late 1970s, has had mixed success but has continued to operate into the twenty-first century (Child and Barnes 2010). The continuation of this program was an outcome of a focus on engaging local communities and attempting to devolve revenue to lower scales of governance. This raises the next factor affecting the success of CBNRM projects.

Lack of Economic Incentives

In some cases, CBNRM fails to provide sufficient economic incentive to sustainably manage a resource relative to other options such as lucrative illegal poaching of prized species. This is particularly the case when communities engaged in CBNRM have limited livelihood options, and where taxation revenues are withheld from the local institutions (Francis and James 2003). A classic example of this occurred in the Luangwa Valley of Zambia. The valley is a major conservation area with two national parks and six Game Management Areas. However, massive poaching of elephants and rhinos continued due to a lack of incentives for conservation and lucrative returns from illegal poaching (Abel and Blaikie 1986; Milner-Gulland and Leader-Williams 1992). During the 1990s, an attempt was made to enable communities within the area to derive income from trophy hunting. Initially, the project was highly successful: it is estimated that about 45,000 people who live in the Lupande Game Management Area benefited from the project before its collapse in 2000. The collapse was due to the lack of incentive for wildlife management in the area after the government suspended all international trophy hunting. The evolution of a strong CBNRM program in the Luangwa was also constrained by national-level policy, and political conflicts (Lubilo and Child 2010). One way to avoid this problem of insufficient incentives is to construe CBNRM programs under a different heading, such as payments for ecosystem services. This approach involves engaging directly with private sector actors and bypassing higher levels of government (Naidoo and others 2011).

Lack of Autonomy

The aspiration of grass roots community empowerment is often compromised by the involvement of higher levels of authority "overseeing" the project and withholding funds from local decision makers. In India, "community forest agreements" have been formally replaced by "joint forest management" systems to cement the role of state authorities (Nayak and Berkes 2008). A variation on this theme is that decisions taken by higher levels of government restrict resource utilization by local residents. In Nepal, for example, projects under the title of "community forestry" have resulted in improvements to forest condition, but without benefits to local communities due to a preference to reduce forest-utilization in favor of forest-protection measures (Shrestha and McManus 2008). Indeed, the presence of higher powers has been all too common in the implementation of community-based projects, going back to the foundation CAMPFIRE project in Zimbabwe which required approval from an "Appropriate Authority" under the Parks and Wildlife Act (1975) of Zimbabwe, in the form of a District Council. Thus, management of local natural resources is not entirely at local, community level, but is the obligation of a district-level authority. Here, the communities feel disengaged from management and hence, the lack of incentive (Alexander and McGregor 2000).

Incompatible Livelihoods and Opportunity Costs

Some CBNRM projects fail simply because their opportunity costs are too high or the project fails to add value to pre-existing resource use. It is well recognized that ecotourism, for example, often fails to deliver economic benefits to local residents unless they already have the interest and capacity to derive benefit from livelihood strategies relating to tourism (Goodwin 2002; Blackstock 2005). Other cases represent a more overt attempt to stop livelihoods viewed as destructive from the perspective of conservation. In the Philippines, CBNRM in Palawan Island aimed at conserving forest resources failed because it meant a reluctant change from swidden farming to rice cultivation, because it undermined traditional livelihoods (Dressler 2006, 2010). Part of the problem concerning the opportunity costs is optimistic or untested assumptions about the profitability of espoused technologies which have disrupted traditional practices for conservation friendly techniques, which fail to live up to their production goals. An example is alley cropping in Thailand, which disrupted traditional practices but failed to increase production, and

left fields vulnerable to infestation by pest plants and animals (Li 2002).

What Can We Learn from Successful CBNRM Projects?

Faced with a considerable literature on the failures of CBNRM, the authors argue for the benefit of considering the successful examples of CBNRM. By successful, our main focus here is on the "community" dimension of CBNRM. The preceding section demonstrates that the problems in this field are overwhelmingly social and economic: livelihood incompatibility, lack of local autonomy, and poor governance. During the course of an internship visit, the authors found themselves discussing these issues and drawing comparisons with two distinct case studies of successful CBNRM in different contexts where the authors had previously researched CBNRM: the Ishaqbini Hirola Community Conservancy in Kenya and the Gippsland Red Gum Plains Tree Health initiative in Australia. The structure of this comparison was twofold. First, we systematically assessed the applicability of the recognized success criteria distilled from literature review and described in the introduction to this paper. Second, we compared factors which emerged inductively from our individual involvement with the projects as researchers. These issues included attachment to place, the role of conflict, and the ways that the projects interacted with scientific partners. Both cases are defined as successful in contrast to the criteria presented in the previous section: local initiation, adequate incentives for resource management, local autonomy of implementation, compatibility with local livelihoods, and limited dependence on local natural resources for local livelihoods. The authors acknowledge that both case studies are relatively young (around 5-year-old at time of writing) and that success in the past is no guarantee of success in the future.

Case Studies

Ishaqbini Hirola Community Conservancy in Kenya

The Ishaqbini Hirola Community Conservancy was formed for the protection and management of the hirola antelope (an umbrella species) in the northeastern part of Kenya. The local community in the Ijara district in North Eastern Kenya established the conservancy in 2007 with expert advice from the Kenya Wildlife Service (KWS) and the Northern Rangeland Trust (NRT). It had been active for 5 years at the time of writing (NRT 2012). The 30 km^2 conservancy is owned and managed by approximately 3,500 local Somali pastoralists who inhabit the area (Fig. 1).

The hirola (*Beatragus hunteri*) is the last member of an ancient (c.3.1 million-year-old) and once widespread genus of antelope. IUCN has categorized it as a "critically endangered" species. This category is the last stage prior to the extinction of a species should the factors causing the decline remain (IUCN 2000). As the only extant member of its genus, if such a loss occurred, it would be the first such case since the evolution of *Homo sapiens* (Butynski 2000). The population has declined from roughly 14,000 animals in the 1970s to about 600 today (Kingdon 1982, 1997). Several factors are believed to have cause the decline in hirola population: competition for resources with livestock, diseases passed on by livestock, increased degradation of critical grazing areas, shrinking habitat, and poaching (Andanje and Ottichilo 1999; Andanje 2002).

Several initiatives have been undertaken to save the hirola from extinction; in 1963, about 29 hirolas were translocated to Tsavo National Park by the KWS in order to preserve their genes. Amidst protest and court battles between the KWS and the local community, a further 29 were translocated to the same park in 1996 (Woodfine and others 2009). However, the numbers in Tsavo stagnated at about 100 individuals due to suspected predation by lions. The conservation of hirola within its natural range was therefore thought to be the best option by KWS scientists. This was quite challenging until 1996 when the Ijara

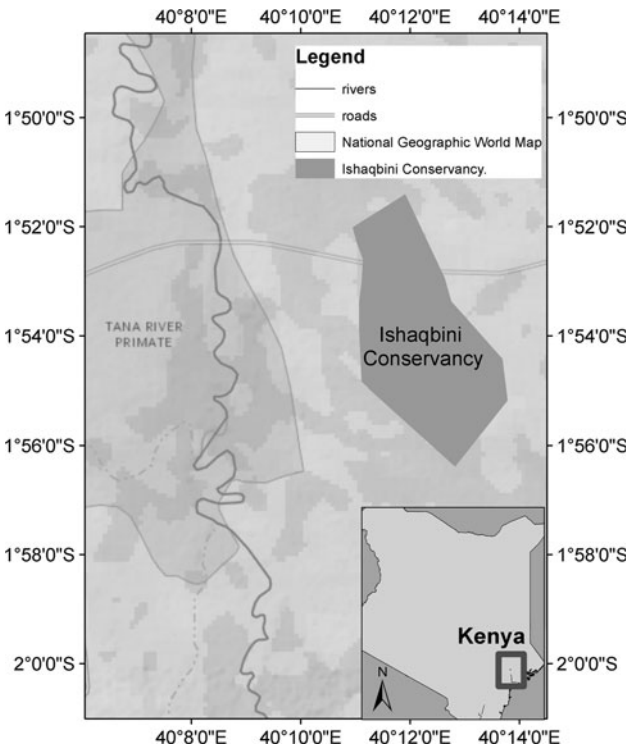

Fig. 1 Location of Ishaqbini Hirola Community Conservancy

community voluntarily decided to form and run the now famous Ishaqbini Hirola Community Conservancy to protect the hirola antelope. It has been the local Somali clans' desire that their natural heritage (hirola) is protected. This strong affiliation to the species is what prompted them to take KWS to court during the 1996 translocation.

Efforts to save the species through translocation to Tsavo National Park faced many obstacles: a high-mortality rate during translocation, strong opposition from local residents, the high cost of translocation, and eventually predation by lions in Tsavo East National Park (Butynski 2000). Due to its strong attachment to the hirola antelope, the Ijara community of North Eastern Kenya swore to protect the species. In fact, some people from Ijara seemed to feel that taking their hirola away would make the gods angry and there would be no rains, their livestock would die and the community would be destroyed.

The local community had protected hirola as part of traditional culture long before the establishment of the conservancy. When KWS intended to translocate the hirola to Tsavo National Park, young men with formal education approached KWS, representing their Somali clan, and asked for training on how to manage the hirola in a more technical way to formalize and extend their long-held cultural practices. The young men formed their own community organization called Ijara Wildlife Conservation and Environment Trust as a basis to interact with KWS and NRT. KWS only entered into this arrangement to provide technical advice. The only input that KWS had into the impetus for the decision was its intention to relocate the animals to Tsavo National Park. The threat of losing the hirola from their traditional lands triggered the community's legal action to stop the relocation, and to establish a formal conservancy.

Their strong attachment to the animal can also be evidenced by the names of many local shops, hotels, and even in the logos of transit vehicles. Together with local leaders, a decision to set up a community run conservancy was made, much to the delight of the conservation community. The community set aside 19,000 ha of land for conservation of hirola. Other species benefiting from the conservancy include giraffes, duikers, porcupines, baboons, hartebeests, warthogs, and African hare. The land is not fenced and there are no plans for fencing the land since that would adversely restrict the movement of animals in and outside of the conservancy. The land is protected by community scouts who traverse the land to guard against poaching. Due to the threat of poaching, enhanced security for the community scouts had to be provided by armed KWS rangers. The land is managed by restricting grazing within the conservancy. This ensures that competition from livestock is minimized. The aim for tourism is to get investors to construct eco-tourism facilities to guarantee the future survival of the conservancy against economic pressure to graze the land for livestock production.

In Kenya, a high percentage of wildlife is located on land outside national parks. Ijara, where the hirola is found, is one such example. However, all wildlife are usually under the jurisdiction of KWS. But KWS has no jurisdiction over the management of the land. In other areas, where communities have converted land use from pastoralism to crop farming, KWS has been forced to translocate wildlife to other areas.

Therefore, the creation of the conservancy by the community meant that hirola's survival in its natural range was protected. However, due to inadequate knowledge in the process of establishing a conservancy, the local community had to rely on KWS and the NRT for expert knowledge. Several meetings and workshops were organized to sensitize the community on the implications of a conservancy within their land. Issues paramount to the survival of hirola were discussed and agreed upon. The community spearheaded the process. They sold livestock to pay for the cost of registering the conservancy and the cost of sending people to meet KWS officers for consultation. They registered the conservancy without involvement from KWS or NRT in any aspect of the application or administration of the conservancy. They did, however, receive technical advice from KWS and NRT for the purposes of registering the conservancy and wildlife monitoring.

The Ishaqbini Hirola Community Conservancy was established in 2007. The local community voted for conservancy leaders from the local community, devoid of state interference. The community appointed 17 youths to act as hirola scouts (Low and others 2009). A manager and an accountant were also employed from the local community. The youths were trained by KWS and NRT on hirola ecology, aging, sexing, and identifying individual hirola. The scouts are now able to collect detailed demographic data on hirola groups, which is important in long-term monitoring of the species. Scouts are able to successfully identify different hirola with characteristic markings; given their deep knowledge acquired through livestock herding they have an in-depth knowledge of cattle recognition which means scouts are intuitively able to sex, age, and identify individual hirola. NRT equipped the scouts with GPS and radio sets for monitoring and communication, respectively. NRT also committed to fundraising for the conservancy, until it became self-sustaining. However, to guarantee sustainability of the conservancy, several investors intent in setting up hotels in the conservancy are in discussion with the community. Once these are in place, the conservancy will be self-sufficient. At the moment, limited camping tours are provided in the conservancy (Low and others 2009). The local communities have set up their own rules vital for survival of hirola in the

conservancy. Grazing rules have been formulated and are adhered to by all. Livestock is not allowed within the conservancy and there is prescribed punishment for any offenders.

Although, the conservancy was formed to protect hirola, other animals as well as plants species benefit from this conservation. The hirola acts as an umbrella species. Giraffes, hyenas, warthogs, elephants, and wild dogs are also protected within the conservancy. Since its inception, the vegetation condition has improved and poaching of hirola and other species has almost been eliminated with the arrest of poachers in the area. The Ishaqbini Hirola Conservancy remains the only conservancy in Kenya that was initiated by the community due to strong opposition to the local species being taken away.

Vegetation Management on the Gippsland Red Gum Plains, Victoria Australia

A group of concerned Gippsland residents, mostly farmers plus some retired forestry professionals living in rural towns, came together under the title of the Gippsland Plains Tree Health Group (GPTHG—herein the Group) in 2004, due to long-held concerns about remnant vegetation management and revegetation. The Gippsland Plains are nationally threatened grassy woodlands in eastern Victoria featuring the Australian Red Gum (*Eucalyptus tereticornis*) as a canopy species. The area is also a productive agricultural region (Australian Government 2010; Fitzsimons and Wescott 2005). The region is bounded by the Avon, Freestone, and Mitchell Rivers and covers an area of about 1,500 km^2 (Fig. 2). The issue which galvanized the Group was "dieback"—a general term referring to severe deterioration in native vegetation. While there is no universal scientific definition of dieback, in this context, it refers to the extreme effects of prolonged herbivory that occur in remnant areas of native vegetation surrounded by farming lands (Landsberg and Cork 1997). Whereas in healthy eucalypt communities, herbivores generally keep in balance with their hosts, the small size of remnants can allow insects to reach very high densities. Enrichment of tree foliage from fertilizer and animal droppings exacerbates the problem, as does reduced numbers of insect-eating birds due to loss of understory habitat (Landsberg and Cork 1997).

In a similar way to the Ishaqbini Hirola Conservancy initiative, the Gippsland CBNRM initiative was instigated by local residents, seeking ways to better understand dieback, how to improve ecosystem health and in addition, how to engage neighboring landholders in addressing the issues. Seeking help in implementing this agenda, the Group turned to the Australian Landscape Trust (2012), an NGO with a conservation interest in the Gippsland Plains; and to social and ecological researchers from CSIRO to address dieback as well as build their own capacity to address this issue. The Group had been active for at least 5 years at the time of writing.

A key element in the development of the group was conducting a survey of local landholders. The group wanted to understand the vegetation management actions undertaken by their fellow landholders and to canvas interest in new vegetation management initiatives. The survey was designed in a series of meetings with group members at the Bairnsdale RSL Club, facilitated by one of the authors who helped group members convert their interests into survey questions. The survey was conducted face to face between group members and surrounding landholders. The data were entered into a spreadsheet by one of the authors and presented to the group as a series of summary statistics in the form of a written report and associated verbal presentation. The survey results, described in detail elsewhere (Measham 2007), were useful to Group members to understand the attitudes toward dieback, remnant vegetation and revegetation among fellow landholders, as a basis for designing new vegetation management initiatives. Through designing and implementing the survey themselves, the group had strong ownership over the process and the results, which enhanced the local agency. This increased local agency was expressed through newspaper articles initiated by group members and requests to the State to update policies for roadside vegetation management.

Comparison Between Case Studies: Failure Criteria from Literature Review

In both case studies, the project was initiated by local residents. Certainly, in both locations, the local communities drew on the expertise and funding of agencies and NGOs, however, the impetus originated in the communities themselves rather than external partners. This had flow on effects throughout the projects. In both locations, there was no need for fostering ownership of the process among residents, which is often a concern in other applications when projects are initiated by outside organizations such as NGOs or government agencies (Duffy 2006; Child and Barnes 2010). Quite simply, the community owned the process in each case study from the outset. The other actors who became involved did so on terms which were acceptable to local residents. Moreover, the focus of each project was on conservation issues which were locally relevant, rather than part of a broader political or ideological agenda exogenous to the focal region (Dressler and others 2010). Rather, the expertise, equipment, and infrastructure of external organizations (NGOs and government

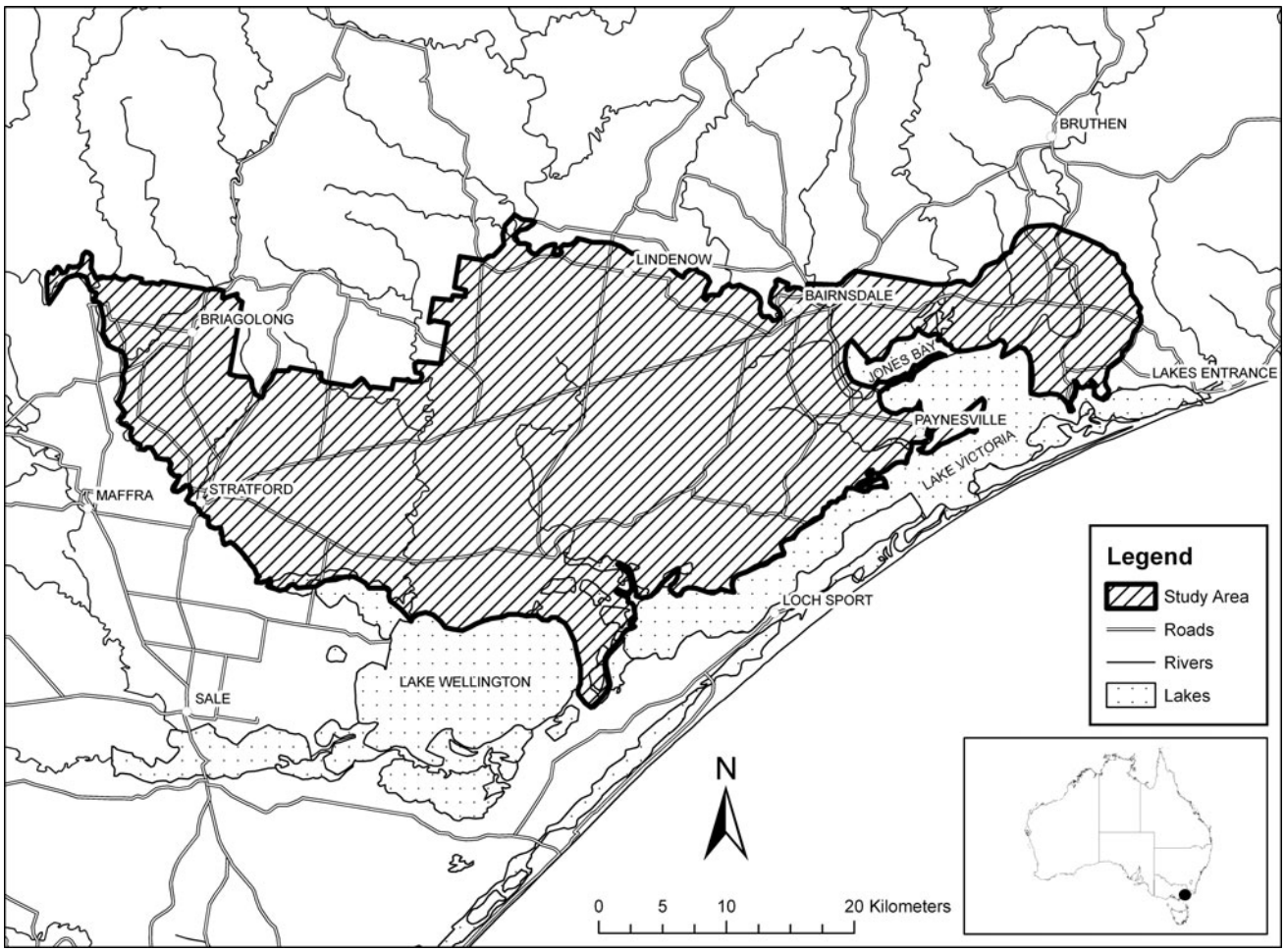

Fig. 2 Location of Gippsland Red Gum Plains study area

researchers) were made available to address locally defined concerns, and assisted local groups to manage the CBNRM projects.

In the introduction, we demonstrated that one recognized reason for the failure of CBNRM projects is lack of economic incentives to participate in conservation (Abel and Blaikie 1986; Milner-Gulland and Leader-Williams 1992). This was particularly thought to be acute for communities with limited livelihood options, or where taxation revenues are not disseminated to the local scale (Francis and James 2003). By contrast, neither of our cases demonstrate that economic incentive was a crucial concern for the success of the CBNRM projects. Neither the project involved direct economic benefit to the CBNRM participants. That is not to say that economic issues were ignored altogether. In the Kenyan case study, the potential for future income through tourism was recognized due to the proximity to the tourist towns of Mombasa and Malindi on the Kenyan coast. In the future, the prospect of income generation could become an important issue to the long-term viability of the project, should donor support dwindle over time. However, at the time of writing, economic benefit was not a deciding factor on the success of the project. In the Gippsland case, the initiative did not substantially affect the income of Group members, who were sufficiently wealthy from agriculture or salary earnings. They were keen to understand how the conservation initiative affected the income of farmers in the area, and incorporated questions on these issues into the landholder survey. The findings from this survey demonstrated that CBNRM was seen as cost-neutral: that costs associated with the initiative were mediated by providing shelter benefits to livestock.

Overall, both our cases suggest that economic factors were of secondary importance, behind other drivers, notably a strong attachment to the local landscape and to the conserved species in focus. Neither of the CBNRM projects required a change of land use, so both projects were compatible with existing livelihoods. Furthermore, the opportunity costs were low. In the Kenyan study, the opportunity to graze the conserved area was lost, but this was acceptable to residents, given the importance of

conserving the hirola. In the Australian study, the community survey revealed that farmers who had undertaken rehabilitation on private land had used careful designs, so that plantings had multiple purposes. Acts of revegetation were primarily aimed at ecological rehabilitation, but also enhanced farmers' esthetic appreciation of their properties. In addition, land lost from production was partly compensated by designing plantings as shelter belts for improving livestock condition in neighboring areas (Measham 2007).

In our cases, the autonomy of the community groups was cemented at the point of project initiation. A key dimension to this autonomy was that the communities had clearly identified objectives from the outset. Some of these objectives focused directly on conservation, and others focused on understanding the attitudes and practices of surrounding residents. The important issue is that these objectives provided grounds for collaboration with other organizations such as NGOs and research organizations. Therefore, the resources provided by partners came with minimum conditions which didn't adversely affect the initiatives. Due to the lack of economic benefits, local autonomy was also immune from local corruption and concerns over retention of funds by higher levels of government (Balint and Mashinya 2006; Alexander and McGregor 2000).

Comparison of Broader Issues

Moving beyond a consideration of the case studies, vis-à-vis established success factors within the literature, a number of additional observations can be made. Both communities had a strong affiliation with the natural resource. In Kenya, the Ishaqbini community showed exceptionally strong attachment to hirola antelope to the extent of vowing to protect the species by all the possible means. It is this same strong attachment that led the community to fundraise and pay lawyers to stop translocation of hirola from their land. In Australia, the GPTHG landholders had a strong attachment to the Red Gums as a species, and to the vegetation pattern they dominate. Attachment to specific environments (e.g., particular forests or rivers) has been noted as an important motivation for voluntary participation in conservation activities (Gooch 2003; Measham and Barnett 2008).

A comparison between the two case studies is summarized in Table 1. Unlike the Ishaqbini Hirola Community Conservancy, the GPTHG Project was not born out of urgency or conflict. Rather it could be represented as a coalition of the willing who were committed to managing the human interaction with a local natural system. GPTHG members certainly demonstrated a commitment to place, symbolized by the first two words of their group title, namely the Gippsland Plains, and by a strong focus on engaging fellow local residents. However, neither the Group members nor the participants they surveyed demonstrated the same level of intensity in their attachment to place seen in the Ishaqbini Hirola Community Conservancy, evidenced by legal action toward state authorities and a belief that failure to protect the hirola would lead to divine acts of vengeance.

Property Rights

Like most examples of CBNRM, the Ishaqbini Hirola Conservancy was established on community land (trust land). In other words, the land belonged collectively to the local community of Ijara rather than individuals. For this reason, the whole community has to be consulted with regards to all the decisions involving land use. This can be a time-consuming process but has advantages for conservation. For instance, in this community, individuals are not allowed to make transactions on land. Prior to establishing the conservancy, several meetings and workshops were held to consult with the whole community. It was only after the community's consent that the conservancy was established. The Ijara County Council too was involved at all stages. The Ijara County Council holds the land in trust for the community. The council is composed mainly of local people with the clerk as the only official outside the local community. By contrast, the Gippsland case study was concerned entirely with lands held by individuals. These private landholders were able to make decisions on land management, subject to Australian laws.

Role of Management Agencies

In the Ishaqbini Hirola Community Conservancy, the KWS played a very active role in supporting the conservation actions undertaken by the community. Like the Gippsland study, these actions had a strong focus on monitoring the biological condition of the target species, and the broader ecological significance of this species. KWS was crucial in providing experts and scientific advice, which helped the local community to establish the conservancy. KWS hosted several meetings both at the KWS headquarters and in Ijara district where the communities discussed the management of the conservancy. KWS mediated between the community and the NRT. In a similar way, researchers played a crucial role in the Gippsland study, providing research expertise, facilitating meetings, and supporting the Group to implement its objectives. Both cases involved an NGO which provided funding, equipment, and facilities toward

Table 1 Similarities and differences that emerged in GPTHG and IHCC projects

	GPTHG	IHCC
Similarities		
Attachment to place	Strong	Fundamental to identity
Capacity building dimensions	Focus was on understanding local environment	Focus on vocational training and understanding
Environmental monitoring role	Umbrella species: Red Gum *Eucalyptus tereticornis*, general vegetation health, species diversity, evaluating tree health condition	Umbrella species: hirola—*Beatragus hunteri*), counting and sexing population vegetation health monitoring
Conservation status of umbrella species	Threatened locally	Critically endangered (globally)
Major control mechanism	Grazing control	Grazing control
Interaction with science	Science informed process experts invited by community, held workshops	Science informed process Experts invited by community, held workshops invited experts, held workshops
Principle mode of communicating role of group	Local newspapers	Letters, verbally by local leaders
Group formal establishment	Initiated by NGO	Initiated by community with NGO support after scientific recommendation by KWS
Application of research findings	Used by community to lobby state agency	Used by community to protect the species
Nature of interaction with science	Intermittent collaboration-dependent on available funding	Ongoing collaboration between KWS/NGO/ community with limited funding
Differences		
Urgency	Not urgent (species not endangered)	Urgent: endangered critically
Conflict	Absent	Preceding court battle over retaining species
Land tenure	Private ownership: individually held land	Community owned land (trust land)
Land use	Consumptive utilization (farming)	Non-consumptive utilization (tourism aspiration)
Decision making	Individual decisions	Whole of community (community representatives)
About project involvement		

achieving conservation outcomes. As such, the agencies provided critical support, expertise, and funding, but they neither designed the projects nor impose them on the communities.

The role of NGOs in CBNRM is an important area for research. Duffy (2006) notes that NGOs are already playing an increasing role in all aspects of resource management, from managing parks on behalf of national governments to facilitating ownership of local CBNRM initiatives. The complex relationships between actors and agendas at different scales have been recognized as negatively affecting local interests in CBNRM. For example, Dressler and others (2010) demonstrate that NGO influence in the Palawan Islands served to marginalize local interests in favor of developing alternative and more intensive land uses. In contrast to these concerns, our cases demonstrated valuable input from NGOs. The conservation agendas of local residents and national NGOs were mutually compatible, and the resources made available by the NGOs were welcome. Our results further support the principle that effective CBNRM can draw strength from a collaborative focal species approach, which can serve to reinforce the binds between multi-actor collaborative designs. The iconic giant Red Gums of Gippsland and the culturally significant hirola served to galvanize links as have done other iconic species in other contexts (Hill and others 2010).

Capacity building ensures that communities acquire knowledge to manage the natural resource effectively (Measham 2007). With assistance from State and Federal researchers, capacity building included facilitating training in monitoring techniques, development of technical capabilities, and development of organizational skills. In both case studies, the training focused on the local community to ensure that the potential of their resources were exhaustively discussed and fully understood in order to cement their already existing attachment to it.

The issue of timeframes is another area for further research. It was not possible from this data to predict how

much longer the case studies will be considered successful. A substantial review of when CBNRM cases fail would shed further light on this topic.

Conclusion

CBNRM remains an appealing goal for both social and ecological aims. However, the balance of recent studies emphasizes widespread and deep-seated concerns over the practice of CBNRM, which has rarely lived up to its aims. Despite what some authors have termed a crisis of confidence and legitimacy, hope remains that CBNRM can achieve the social and ecological outcomes that are aspired to. In contrast to the multiple counts of application failure, our two case studies demonstrate that it is possible to avoid the pitfalls which have affected other applications. Based on the findings presented here, the most important condition for the success of CBNRM projects is that they are initiated by the communities themselves, rather than by donors, state managers, or researchers.

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