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Social dimensions of crane and wetland conservation in African rural landscapes: insights from Kenya, Uganda and Zimbabwe
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Community members assessing the condition of a section of the Saiwa Wetland used by cranes for breeding

Twenty-five years of community-led crane and wetland conservation: Learning from social processes in western Kenya

Abstract

This chapter presents results of an analysis of the social dimensions of a crane and wetland conservation project spearheaded by local communities in western Kenya. It presents narratives of approaches used to prompt local action to curb the degradation of wetlands and save cranes over 25 years. Lessons on the effectiveness of community-led conservation are drawn from the analysis, with a focus on the role of transformational leadership in conservation, approaches for building and sustaining local institutions for species and habitat stewardship and ways to align community-led project interventions with desired conservation impacts.

4.1. Introduction

4.1.1. Conservation in human-dominated landscapes

Conservation in human-dominated landscapes is a challenge because, in most cases, it entails dealing with complex social issues, including finding alternatives to livelihood activities causing habitat degradation, regulating resource extraction patterns and introducing new conservation agendas into the day-to-day routines of local communities (Western 2000; Miller and Hobbs 2002; Chazdon *et al.* 2009). These actions, often driven by external facilitators, are not always aligned with prevailing land use priorities, practices and preferences (Kaimowitz and Sheil 2007; Game *et al.* 2011). This predicament leads to the contemporary question: How can threatened species and ecosystems be conserved in a way that addresses the needs of local communities while meeting the ecological requirements of species targeted for conservation? (Ban *et al.* 2013; Brooks *et al.* 2013). Gathering empirical evidence to learn from conservation initiatives in human-dominated landscapes where species of conservation concern are found is one way of generating answers to the question. The overall objective of this chapter is to draw evidence-based lessons on the effectiveness of community-led conservation approaches through an analysis of field experiences from the Kipsaina Crane and Wetland Conservation Project (hereafter referred to as the project), a community-led initiative started in 1990. The primary goal of the project is to prevent local extinction of the Grey Crowned Crane *Balearica regulorum* and maintain the ecological integrity of wetlands that provide breeding habitats to the species. This evaluative study was conducted to contribute to the generation of knowledge on

the merits and shortcomings of conservation approaches that emphasize local community participation in project planning, implementation, monitoring, evaluation and adaptation.

4.1.2. Community participation as a condition for project success

Conservation projects that are initiated and primarily led by local communities are receiving attention as efforts to halt biodiversity loss across the globe intensify. Since the 1980s, community participation has increasingly been recognised as one of the preconditions for effective conservation of natural resources (Drijver 1991; Pomeroy and Carlos 1997; Brooks *et al.* 2013). Community participation is generally conceptualised as a continuum defining the degree of involvement of social groups (e.g., users of shared natural resources) in decision-making and practical action to address problems that affect them (Drijver 1991; Beaumont 1997; Cornwall 2008). One form of participation, often placed at the desired end of the continuum, is signified by cases of communities that identify problems impacting the environment and their well-being and take the initiative to develop and implement solutions to the problems. This is defined as self-mobilisation (Pretty 1995; Evely *et al.* 2011).

Decades after the term “community participation” became a buzzword in conservation and development, the role of communities in project planning, implementation and evaluation continue to receive research scrutiny (Gezon 1997; Cleaver 1999; Luyet *et al.* 2012). The contentious issue has been whether conservation projects can be designed, monitored and evaluated effectively by communities without the technical guidance of external facilitators working for NGOs or governmental agencies (Brown 2002; Campbell and Vainio-Mattila 2003). In recent decades, however, successful projects primarily initiated and led by local communities have been acknowledged. These community-led projects have been documented in the community development sector (e.g., Korten 1980; Mansuri and Rao 2004; Harvey and Reed 2006), with some examples emerging in the conservation sector too (e.g., Bray *et al.* 2004; Porter-Bolland *et al.* 2011; Colquhoun 2015). Though some of them receive financial and technical support from external organisations, community-led projects remain highly autonomous in terms of management and decision making and are, in most cases, led by influential members of the community (Kontogeorgopoulos 2005; Dasgupta and Beard 2007). The leadership, management and activities of the Kipsaina Crane and Wetland Conservation Project reflect strong elements of community self-mobilisation.

4.1.3. *Community-led conservation*

Community-led conservation falls under the umbrella of community-based conservation, as they are principally aimed at empowering resource user communities to take charge of the management of natural resources to maintain ecosystem values, functions and benefits derived thereof (Brown 2002). Community-led conservation has been brought into the spotlight because it provides opportunities to address conservation challenges in landscapes that lie outside formally protected areas (Kaimowitz and Sheil 2007; Chazdon et al. 2009; Evely et al. 2011). Diverse merits and demerits of community-based projects have been put forward by researchers. Arguments in support of such projects include the creation of platforms for: (1) shaping institutions for improved resource conservation (Pretty and Smith 2004; Tai 2007), (2) motivating communities to appreciate the value of species and take action to resolve human-wildlife conflict (Treves et al. 2006; Dickman 2010), and (3) improving communities' environmental knowledge, attitudes and behaviour (Mehta and Heinen 2001; Lepp and Holland 2006). On the other hand, the downsides cited in literature include the challenges of attaining collective agreement on resource use and joint environmental action since communities comprise individuals and groups with divergent interests (Songorwa 1999; King 2007), pitfalls of prioritising human welfare over wildlife conservation issues (Brown 2002; Chan et al. 2007), and complexities of enforcing regulations for species and habitat protection under common property resource management systems (Agrawal 2001; Berkes 2004). These positive and negative arguments highlight the importance of contextualising and gaining a sound understanding of the social dimensions of conservation.

4.1.4. *Conservation as a social process*

Globally, conservation is now recognised as a social process, involving interactions, collective decision making, prioritisation processes and commitment to actions by natural resource users and other actors (Brechin et al. 2002; Wilhusen 2009). There is common agreement among conservation researchers that these factors, that may enhance or reduce the effectiveness and sustainability of conservation projects, can only be well understood if the social processes are well documented and analysed (Knight et al. 2010; Wadley et al. 2010). Analysing the social process entails taking a closer look at how, when and why individuals and community groups interact and how their interactions lead to institutional and conservation outcomes (Brechin et al. 2002, Richie et al. 2012; Chapman

2014). Analysing social processes also helps untangle complexities associated with the interface between communities and the concerned resources (Gottret and White 2000; Blaikie 2006). Ultimately, conservation initiatives can only be said to be sustainable if they are successfully embedded into the social processes of local communities (Shrestha and McManus 2007; Wadley et al. 2010). Evaluation of social processes to understand how species and habitat conservation outcomes evolve and identify factors that either enable or constraint project success is an approach used in contemporary species and habitat conservation research (Clark and Wallace 1998; Brechin et al. 2002, Richie et al. 2012; Chapman 2014).

4.1.5. *An overview of the Kipsaina Crane and Wetland Conservation Project*

The remainder of the present section gives a broad overview of the Kipsaina Crane and Wetland Conservation Project. The overview is a consolidation of information drawn from unpublished project reports, verbal accounts of the history of the project provided by the leader of the project (Maurice Wanjala, hereafter referred to the Project Leader) and field observations by the author (see the next section). The Project Leader and his team of advisors maintain records of field activities, events and achievements, some dating back to the early 1990s.

Since 1990, project activities were implemented in western Kenya under the auspices of the Kipsaina Crane and Wetland Conservation Group. The group was registered as a community-based organisation in 1991. The group's initial aim was to raise awareness of the need for the local community around Saiwa Swamp National Park to take action to address environmental problems that were impacting negatively on wetland functions and species. The group adopted the Grey Crowned Crane as their flagship species but also advocated the protection of the Sitatunga *Tragelaphus spekii* and the DeBrazza's Monkey *Cercopithecus neglectus*. They lobbied for community action to address the degradation of wetland ecosystems as a result of agricultural encroachment, planting of eucalyptus in wetlands, and overharvesting of wetland plants, uncontrolled fires and deforestation of riverine forests. Between 1990 and 2003, the group's outreach activities were focused on the communities around Saiwa Swamp National Park. After 2003, the project focal area expanded to include seven other districts (now referred to as counties). Over the years, the group's main activities have revolved around (i) environmental education outreach targeting schools and community groups, (ii) promotion of income-generating projects as alternatives to wetland utilisation, (iii) wetland ecosystem restoration through re-introduction of indigenous trees and, (iv)

community-enforced regulations and monitoring of the three species stated above. The clustering of the main project activities into these four intervention areas is based on the common themes that emerged during interviews with project members. Most of the funding the group has to date received came from the International Crane Foundation. A timeline showing major achievements and notable developments over the 25 years is shown in Table 4.1.

Table 4.1. Timeline showing project milestones since 1990

Year	Milestone
1990	Kipsaina Crane and Wetland Conservation Group formed
1991	Kipsaina Crane and Wetland Conservation Group registered as a self-help group
1993	Tree nursery established at Kipsaina Village
1997	Success in halting wetland encroachment at the Kipsaina Section of Saiwa Wetland
2002	Funds received from Disney Wildlife Conservation Fund
2006	Kipsaina Crane and Wetland Conservation Group wins Equator Award (first runner up)
2009	Beginning of annual financial support from ICF (\$10,000 annually for the next three years)
2012	Expansion of project focal area to include Kingwal Swamp

Since its inception, Maurice Wanjala has led the project. His main responsibilities include taking the lead in activity planning and supervision of all project activities. Apart from leading community engagement and collective actions, he also acts as the project's liaison with government officials, donors, researchers and technical supporters. Under the group's constitution, the Project Leader is assisted in making decisions by a five-member steering committee. The committee members are elected by the community, with individuals that have participated in projects for at least five years being eligible for election. The steering committee approves budgets of field activities and meets once every three months to assess project progress. Occasionally, the committee members provide field support to the Project Leader during routine crane monitoring activities, visits to livelihood project sites and environmental education and awareness outreach in schools. Technical support and advice on conservation action have, over the years, been provided by staff from the International Crane Foundation (ICF), working in partnership with the Endangered Wildlife Trust (EWT). The Project Leader and the steering committee have also benefitted from technical training and capacity building programs by organisations such as the Kenyan Government, World Wildlife Fund (WWF) and the United Nations Development Programme (UNDP).

The project is Africa's pioneering Grey Crowned Crane conservation initiative in human-dominated landscapes (Archibald²² *pers comm*). Since it has been running for over 25 years, it provides opportunities for research to generate insights on how community-led conservation fares in ensuring the survival of species and maintenance of suitable habitats outside formally protected areas. It also provides an opportunity to evaluate the effectiveness of community-led projects under a myriad of unfavourable contextual factors, including limited external funding, no cultural and economic incentives for species conservation and minimal support from state agencies. It has received international awards, including the first runner-up position in the Equator Award contest in 2006. It has attracted research teams comprising ecologists, botanists and hydrologists from local and international universities. It has been described in the media locally and internationally as a model that provides lessons for other communities (e.g., British Broadcasting Corporation documentary produced in 1996 and profiling on the United Nations Development Programme Equator Initiative portal).

Despite the publicity and interest from ecological researchers, not much attention has been paid to the social dimensions of the project. Linkages between the social processes and conservation outcomes had not been documented and analysed. This chapter, therefore, fills the knowledge gap. Elaborating on the basic research question posed in Chapter 1, this chapter addresses this knowledge gap by answering the following questions:

- 1) What social processes unfolded as the project evolved over 25 years?
- 2) What were the notable environmental impacts (species and habitat conservation) linked to the social processes?
- 3) What social and institutional factors contributed to the realisation of the ecological impacts?
- 4) What lessons can be drawn from the case study on ways to integrate social dimensions into conservation project planning processes?

4.1.6. Characteristics of the project area

²² Dr. George Archibald is the co-founder of the International Crane Foundation. An avian biologist by profession, he spearheaded the identification of individuals who led crane conservation projects in Africa and Asia over a 40-year period. He has been instrumental in raising funds for the Kipsaina Crane and Wetland Conservation Project since 1993.

The project area straddles five counties in the Lake Victoria Basin: Bungoma, Busia, Nandi, Trans Nzoia and Uasin Gishu. All five counties are located in the western region of Kenya (Fig 4.1). Despite the extensive transformation of wetlands into agricultural fields, the area still provides breeding habitats for cranes. Conservation actions are targeted at three large wetland systems (Busia Swamp, Kingwal Swamp, Saiwa Wetlands) as well as isolated wetlands on privately owned farms. These wetlands provide breeding habitats for cranes, especially where sedges, rushes and typha still predominate. Though fragmented remnants of riverine forests are found, eucalyptus plantations are increasingly becoming a dominant feature at the wetland edges. Due to reliable rainfall patterns and fertile soils, most farmers grow maize and wheat for home consumption and sale. The area experiences bimodal rainfall patterns with the wettest period being March-May, and a shorter season between September and November. The average annual rainfall is 1100 mm.

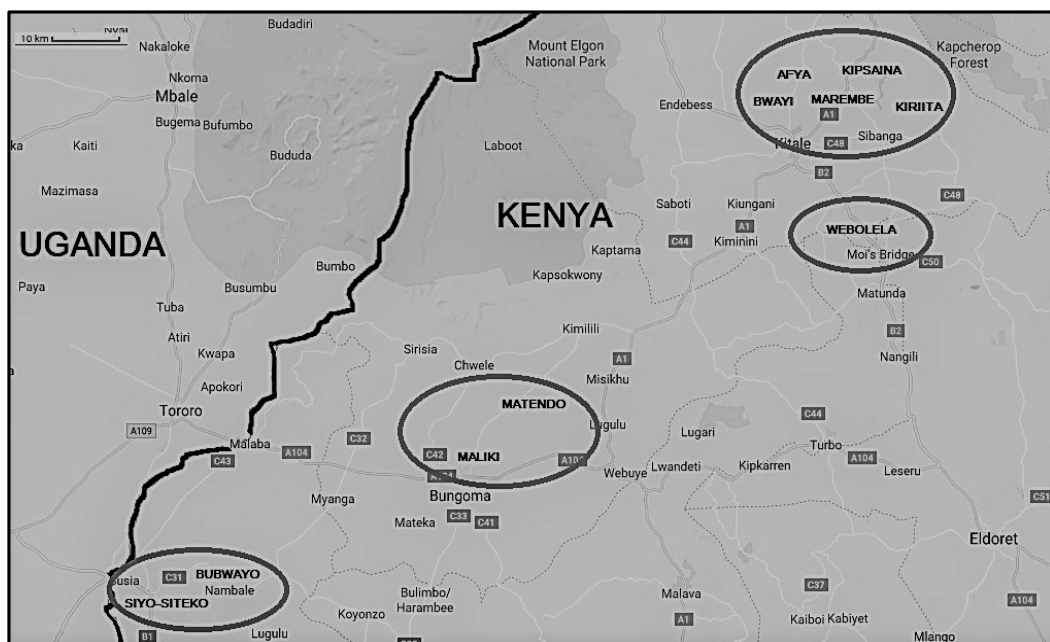


Fig 4.1. Location of village clusters (encircled) covered by the project

Historically, the project area was inhabited by the Kalenjin, Luhya and Bukusu people. Migration into the area by other tribal groups in the early years after independence (1963–1973) led to the ethnic diversity in the villages that form part of the project area. Generally, households fall into three socio-

economic classes: (1) an upper class comprising the rich households residing in towns, owning businesses and large farms, (2) a middle class usually owning small farms and engaged in small-scale trading, and (3) the poor landless families and generated income through petty trading and working as labourers.

The area was previously administered by district councils, which were delineated into counties following the new constitution in 2012. Human settlements can be categorised into villages and residential zones around rural business centres and towns. Management of natural resources is governed by state-based environmental regulations as well as customary institutions, with chiefs and village heads playing a major role. Much of the land is subdivided into privately owned farms, but patches of communal land remain as well. Rain-fed crop production and cattle production (mainly dairy cows) are the common farming systems. Household food gardens on wetland fringes and riverbanks are common. Cattle provide draught power and manure and are used as an investment that can be converted to cash when the need arises. Employment opportunities and markets for agricultural products are found at the business centres and towns. Village elders and politically appointed chiefs are responsible for maintaining social order in the community.

Land transfer is done through transactions between owner and prospective buyer and is registered with the administrative authority. Modern institutions such as burial societies, production identities, credit and collective saving groups and women groups have emerged. Women were previously marginalised and with limited opportunities to form groups for income generation or other purposes. The last two decades have seen the promotion of gender equality in the project area, leading to an increase of platforms for social interaction and collective projects aimed at empowering women.

The Saiwa Swamp National Park is part of the greater Saiwa wetland system. Surveys undertaken in 2012 by the Project Leader revealed that 12 Grey Crowned Crane breeding pairs utilised the Saiwa wetland system. Large crane flocks, numbering hundreds of individuals, have been recorded at Moi and Ziwa Farms (both in Trans Nzoia County), Moi Barracks (Uasin Gishu County) and Baraton University Farm (Nandi County). Kingwal Swamp is home to more than half of the 250 Sitatungas left in Kenya (Kenya Wildlife Service *unpublished data*) and supports over 25 breeding pairs of cranes (Wanjala *unpublished data*).

4.2. Methods

A qualitative research approach was used to retrospectively analyse social processes that characterised the project implementation between 1990 and 2014. To facilitate the collection of comprehensive data from the field, a mixed method approach, involving a combination of semi-structured interviews, focus group discussions, researcher observation and content analysis, was used. Field data collection was conducted in three phases. Following initial visits to collect data on human-crane interactions in 2011, data collection as part of this evaluative study started in 2012. First, a week-long reconnaissance trip to the study area was undertaken in October 2012 to better understand the project thematic focus, map the geographical focal area and the profile of target community groups. During the trip, background information on the evolution and operations of the project was collected through informal discussions with project steering committee members, traditional leaders, agricultural, forestry and environmental officers. The second phase, completed within the first six months of 2013, involved the perusal of project progress reports (compiled by the Project Leader and ICF technical advisors). Technical reports and scientific publications on the project featured on international organisations' websites (e.g., UNDP, ICF) were also reviewed.

The reconnaissance trip and content analyses revealed that social processes and their influence on project impacts and pathways had not been critically analysed. Inspired by a generic social process analytical framework initially developed by Clark and Wallace (1998) and subsequently modified by Clark *et al.* (2009) and Richie *et al.* (2012), a semi-structured questionnaire was designed to provide a structured way of collecting data on social processes that unfolded as the project was being implemented. The generic social process framework enables a researcher to document and analyse community interactions and actions and associated social and environmental outcomes of environmental projects. The framework factors in the embeddedness of conservation in social systems, allowing the determination of social explanations behind project impacts. The explanations include pursuing the “who”, “why” and “how” aspects of environmental decisions and actions at community level which enable researchers and practitioners to discern community responses to locally-driven resource management agendas. This also enables the identification of individuals driving change, a range of motivations for community actions, opportunities for and constraints to community-driven agendas.

Based on the generic social process framework described above, data were collected under the following categories: (i) participants and their motivations, (ii) strategies for bring participants together and mobilising action, (iii) decision-making, interaction and action platforms, (iv) social outcomes of interactions and actions, (v) impacts on social relations, cranes and wetlands and (vi) elements of resilience and sustainability. This was done through the questions that are presented in Box 4.1.

Box 4.1. Key questions that guided interviews with respondents during field data collection

1. Who drove the process of community interactions, who was involved, what was the motivation for their involvement, what criteria was used for selecting participants?
2. What strategies were used to bring communities together and promote individual and collective actions? What were the actual actions undertaken?
3. What were the platforms for decision-making, participant interactions and mobilisation of actions by participants?
4. What were the social outcomes (e.g., social relationships, livelihood benefits, social costs, new institutions, evolving social agendas, flow of behaviour)?
5. What were the environmental (general natural resource management) impacts associated with the actions and social outcomes?
6. How were the environmental and social outcomes linked to crane and wetland conservation?
7. Does evidence exist of successful mainstreaming of environmental conservation agendas into social dialogue platforms, social learning and action arenas? Does evidence of resilience of project impacts over time exist?

The seven questions were used as a guide during data collection, targeting villages from which project participants were drawn between 1990 and 2014. The set of questions was transformed into a list of topics for flexible semi-structured interviewing following a qualitative data collection approach articulated by Edwards and Holland (2013). The topics were: (1) Origins, social drivers and motivations of community interactions, (2) Strategies for collective decision-making and actions, (3) Nature and levels of participation, (4) Social outcomes of community interactions and actions, (5) Environmental impacts of community decisions and actions, and (6) Linkages between social outcomes and environmental impacts, and (7) Evidence of project sustainability.

There were 10 community groups affiliated to the Kipsaina Crane and Wetland Conservation Project, namely Afya, Bwayi, Bubwayo, Kipsaina, Kirita, Maliki, Marembe, Matendo, Siyo-Siteko and Webolela. A community group clustering system developed by the Project Leader when planning, implementing and monitoring project activities, was used to stratify and select respondents. Because a cluster was the unit around which project activities were planned and implemented, different group members belonging to one cluster had opportunities to interact and undertake activities jointly. They, therefore, had common knowledge about the various elements of the social processes associated with the project emanating from their shared project experiences. As shown in Fig 4.1, the groups were combined to form four clusters. Afya, Bwayi, Kipsaina and Marembe formed Cluster 1. Clustered 2 comprised Kirita and Webolela. Maliki and Matendo formed Cluster 3. Bubwayo and Siyo-Siteko fell under Cluster 4. The affairs of each cluster were overseen by a five-member committee.

Using the seven topics listed above as departure points for framing questions, interviews were conducted with project committees and non-committee members in each cluster. Cluster committee members holding positions of chairperson, secretary and a non-designated committee member for each cluster were interviewed. Four non-committee members were then randomly selected from a list of project participants (provided by the cluster leaders) and also interviewed. This was done for each of the four clusters. In total, 28 active project members (all adults representing households) were interviewed.

Twenty key informants, defined as individuals holding leadership positions in the community and having knowledge about the project were interviewed. They included two chiefs, five village leaders, ten teachers, the warden of Saiwa National Park and two environmental officers, were interviewed. The project area falls under the jurisdiction of two chiefs and both were interviewed. Five leaders of the villages under which the project area lied were interviewed. Ten primary schools had been engaged in environmental education and awareness activities since the project started. Teachers, one per school, responsible for coordinating the education and awareness activities were chosen as respondents. At the time of this research, there were two environmental officers providing extension services in the project area. The set of seven questions were used as a guide for key informant interviews.

Cluster committee and non-committee members formed the first category of respondents broadly defined as those that intimate knowledge of the project activities and impacts by virtue of having participated actively in the project activities over the years. The second category consisted of villagers that, save for occasionally attending crane conservation awareness meetings, had not actively participated in other project activities over the years. In consultation with cluster leaders, households that were not actively involved in the project were interviewed. Seven households per cluster were randomly selected from a list of non-active households drawn in consultation with cluster leaders. In total, 28 respondents (all adults) under this category were interviewed. Although the set of seven questions were again used as a guide during the interviews, the intention was to elicit their observations and perceptions as non-participants. They were asked to inform the interviewer if they did not have answers to specific questions.

The two-dimensional stratification of the respondents was designed to ensure qualitative data richness, capturing diverse observations and perspectives of project participants and passive households. Since the main goal was to piece together local communities' experiences and observations regarding the project to generate coherent narratives of social processes that had unfolded over the years, the sampling criteria was, by no means, intended to attain quantitative representativeness.

Four focus group discussions, attended by five project members per cluster, were conducted. For each cluster, the chairperson, one committee member and three ordinary project members were

invited. The ordinary members were selected after an initial review of responses captured during face-to-face interviews. Those that had given several responses that were considered notably divergent from the rest were selected. Involving them was therefore in group discussion was a strategy to verify facts and gain a deeper understanding of the unique responses they had given. During the group discussions, each of the seven questions was posed to trigger a discussion, allowing debate and consensus-building on changes that project members had observed over the years. The group discussions took up to two hours.

Interview questions were posed in a way that allowed respondents to narrate their experiences and views on the implementation process and results (short, medium and long term). Semi-structured interviews lasted 40–60 minutes. Questions were posed in English and, when necessary, translated to Kiswahili by a local interpreter. Each interview started with an explanation about the research goal (evaluating the project to improve its performance and impacts) to respondents, with consent to participate in the interview being sought first. Respondents were also informed that about the benefits (from a community perspective) of providing honest responses and were given the assurance that their views and observations would remain confidential.

At the end of each day, the main author would confer with the translator to go through the responses and check for clarity. This process was instrumental in constructing common narratives about the project. Personal observations were recorded during visits to established project infrastructure (tree nurseries, fishery ponds, pottery kilns, beekeeping sites, wetland restoration sites) and transect walks along and across wetlands. Quotations that substantiated specific field observations were also recorded. Trends in crane distribution and population dynamics and observed changes in wetland extent and vegetation structure were used as proxies for ecological conservation impacts. These ecological indicators were then matched with descriptions and explanations for observed changes derived through interviews and group discussions to help understand causality (attribution).

As a first step towards qualitative data analysis, a project timeline was developed and used to chronologically organise project activities and identify key milestones (events marking key successes and strategic decisions). Data were then categorised into common themes and patterns, by intervention, that emerged from responses to the seven questions. The themes and patterns were integrated to form narratives that reflected the local communities' common understanding of the

project, highlighting characteristics of social processes that unfolded and contributed to the project's social and ecological impacts. This made it possible to identify key achievements and associated success factors from a social perspective. Since the gist of the research was to discern lessons for conservation planning, project failures were analysed, to identify failure factors.

In the next section, the results are reported through these themes under different interventions.

4.3. Results

Key elements of social processes, as well as the institutional and environmental outcomes of the project between 1990 and 2014, were synthesised. They are presented in this section under four thematic project interventions (tree planting, environmental education and awareness, livelihood interventions and regulation of wetland utilisation). These four themes were discerned from explanations given when respondents were asked to explain the key focal areas over the 25-year period.

4.3.1. Tree planting

Tree planting was a well-recognised aspect of the project, with the narratives by respondents confirming that over the years, the community had grown to associate the project and the Project Leader with tree planting. *“He is the tree man, and everyone associates him with tree planting. Some have even forgotten that he is also a crane man”*, explained one teacher from one of the six schools that were engaged over the entire project duration. Tree planting was used as an entry intervention (technology) to generate interest in nature conservation and win the support of target communities and schools. Two factors made it possible for tree planting to be a prominent feature of the project. First, when the project started, the Project Leader was already a tree planting enthusiast, having been trained as a forester and as a tree nursery assistant in the 1980s. Secondly, tree planting had been on the national environmental agenda since the 1970s, with the Kenyan government providing incentives for tree planting around homesteads, farms and degraded open spaces. By including a tree planting agenda, the project facilitators believed they would receive technical support and recognition from the government.

Tree planting activities had three goals: restoration of riverine forests through the planting of indigenous trees on degraded sections of riverine wetlands, improving food household security and incomes through fruit production, and production of hardwood to meet energy needs and timber for crafts and construction. A 500 m² tree nursery, located on a piece of land owned by the Project Leader and used as a tree propagation demonstration site, was established on the edges of Saiwa wetlands in 1993. An assortment of trees, including fast-growing exotic and indigenous hardwoods, were propagated. Tree propagation was one activity that was undertaken consistently over the years, inspired by the target of “one million trees by 2015”.

The nursery provided a platform for local community interaction as school children, youths, and community members met at the site and took part in maintenance work at the nursery. The nursery also became a centre of attraction and learning as visitors were often taken on a tour of the site, with government officials also using it as a venue for demonstrating reforestation activities. Tree seedlings were given to interested individuals and groups for free. Social units that formed the distribution chain of the tree seedlings included individual households, schools, community group centres, churches and government offices. Interviews and visits to sites where trees were planted revealed two contrasting developments. There was evidence that schools took the initiative to ensure high tree survival rates resulting in the emergence of a network of schools that proudly identified themselves as affiliates of the project. Tree seedlings distributed to households and community project sites were meant to have a symbolic value, confirming the household's affiliation to the project. However, the mechanism for tracking survival rates, highlighting benefits that trees could generate and building social connections was not as effective as envisaged. As one steering committee member lamented, giving seedlings to individuals may not have been a good idea because it did not result in collective identity and shared learning among tree seedling recipients. Plans to establish nurseries at other wetland sites did not materialise. This was attributed to the fact that the project had failed to identify individuals with the passion and spirit of volunteerism to establish similar community-managed nurseries in other villages.

As part of wetland restoration, trees were planted on the edges of a river that formed part of the Saiwa wetland system, on a 500 m long stretch previously degraded after the removal of the indigenous riverine forests. Planting was done by pupils from five schools located within 1 km of the wetland and some community volunteers. The aim was to create a 30 m wide buffer zone to improve

vegetation cover and reduce erosion on the edges of the wetland. Trees planted in the mid-1990s created collective benefits since the wood harvested from the buffer was used to construct social infrastructure (a school and venue for community events) in 2012. Planting trees to restore indigenous forests was not without social challenges. Due to the prevailing land tenure system, individual households had ownership rights over sections of wetland edges on which trees were planted. This meant that if they choose not to participate in the project, no trees would be planted on their properties. The other challenge was that seedlings were prone to trampling by livestock. On several occasions, replanting had to be done when the seedlings were either uprooted or trampled by livestock. By 2014, an estimated 20,000 seedlings had been planted in various parts of the project area.

The nursery project had some notable social impacts. Individuals from the locality and other counties as well as foreign visitors came to learn about tree planting at the nursery. On average, 50 individuals visit the nursery per annum to learn and receive tree seedlings. As much as tree planting has helped raise the profile of the project, the landscapes where trees are planted, were mostly detached from wetlands. Over the years, tree seedlings have been given for free. The Project Leader often used his own resources (money and vehicle) to ferry trees to schools and community centres.

4.3.2. Environmental awareness in schools and communities

Environmental awareness was introduced because founders of the project believed that the low conservation value attached to cranes and limited knowledge on the importance of wetlands among community members were contributing to threats to cranes and wetlands. As a former youth leader and church organiser, the Project Leader used his influence within local community structures and knowledge of popular platforms for community interactions to identify the entry points and targets of the outreach. This enabled him and his team to build an extensive network of awareness outreach targets. These included primary and secondary schools, church groups, women's self-help groups and volunteer households that were willing to become local ambassadors of crane and wetland conservation. The expectation was that these affiliate groups would not only spread conservation messages but ultimately be empowered to influence decision making environmental conservation matters. They were guided by the motto “touch one, touch all”, which, according to the Project Leader, meant that “*if one community member was exposed to conservation message, they would spread it to their peers, relatives and neighbours*”.

The awareness outreach targeted at school children and the public was meant to introduce positive attitudes towards cranes and prompt action to address threats to wetlands. To this end, emotive facts about cranes, wetlands and common environmental challenges in the area (wetland degradation, soil erosion, deforestation, loss of habitats of animal species) were disseminated. The outreach activities in schools included environmentally-themed film shows, lectures, drama, poetry, song and dance and drawing competitions. Crane-specific messages were mainly disseminated through factsheets, posters and a documentary on the project made by the British Broadcasting Corporation in 1996. Engagement of the general public was *ad hoc*, with community social events (village meetings, church sessions, national days, weddings) used as platforms for environmental awareness raising. Environmental awareness also took place during farmer field days and environmental events when the Project Leader was given the opportunity to speak about soil erosion control, fire management and tree planting and rotational grazing. These were some of the land management practices that would reduce wetland degradation for the benefit of cranes and community livelihoods. Starting with an outreach coverage of two villages and eight schools within a 5 km radius of the Saiwa Swamp National Park between 1991 and 2001, the coverage expanded to 14 schools and seven village clusters in 2002. This was done to incorporate other villages and schools in areas where isolated crane populations were found.

Communities and schools located near the project headquarters were exposed to more awareness events than the ones located in the other counties. The Project Leader explained that he had observed a positive trend in attitudes since the late 1990s. He described the trend as a change from a time when community members viewed cranes “as any other birds” to the prevailing situation where community members were now consciously avoiding being near crane breeding sites and reporting cases of injured or dead cranes. The role that project had played in spreading crane and wetland conservation messages was particularly recognised by like-minded organisations. He was asked to deliver presentations at environmental events organised by WWF, UNDP, National Museums of Kenya, among others. On numerous occasions, project sites were selected as venues for events such as World Wetlands Day, World Environment Day and National Tree Planting Day. Teachers interviewed agreed that the project had provided opportunities for environmental learning for schoolchildren, filling a crucial gap as the schools were poorly equipped to handle environmental learning activities. One key development showing successful mainstreaming of project-initiated

activities into school programmes was the willingness, confirmed at all the eight schools at Saiwa, to provide opportunities for Maurice to interact with school children at designated times during school terms.

One noteworthy disconnection between environmental knowledge imparted to learners and expected participation in crane and wetland conservation was highlighted by teachers. When learners graduated from high school, most of them left the area to pursue further education or skills training away from their villages. As one teacher summarised: “Once they leave the area, they tend to forget about cranes and wetlands, making it impossible to track the fruits of our environmental education efforts”. Furthermore, teachers also noted that careers in conservation were not lucrative and as a result, most of the successful youngsters opted to pursue other careers that did not allow them to directly add value to the project.

4.3.3. Livelihood interventions

Group-based livelihood interventions only became a component of the project in 2002 when funding was received from the Disney Conservation Fund (DCF), through ICF. The diverse livelihood projects (Table 4.2) were introduced to win the support of the communities by demonstrating the project was not just about cranes and trees but was also about relieving hunger and improving household incomes. Ten groups that were engaged had been formed when the government promoted village-based self-help cooperatives in the 1980s. Owing to a lack of funds, these cooperatives were generally operating below capacity. The project's thrust was to provide appropriate inputs and develop the groups' technical skills to enable the cooperative enterprises to realise their full production potential. The idea was to start with ten groups first, as pilot cases, and then set up similar group-based projects when more funds became available. As the Project Leader noted, “*the livelihood interventions were not initially tied to specific community actions or conservation impacts*”. The main goal was to set up demonstration models of alternative livelihood options that households could adopt without degrading wetlands. The general criteria (in no particular order) for selecting target areas and beneficiaries were: (1) presence of already-existing community groups, (2) beneficiaries' willingness to be affiliated to the project and (3) presence of crane breeding and flocking sites around target villages.

Table 4.2. Details and operational status of groups that participated in livelihood interventions in 2014

Name of group	County	Livelihood activity	Membership in 2002	Membership in 2014	Operational (OP), Dormant (DO), Defunct (DE)
Afya	Trans Nzoia	Fishery	20		DE
Bubwayo	Busia	Fishery	30		DE
Bwayi	Trans Nzoia	Poultry, Fishery, Gardening	20	15	OP
Kiriita	Trans Nzoia	Fishery	12	8	OP
Kipsaina	Trans Nzoia	Beekeeping, Crafts	30	27	DO
Maliki	Bungoma	Fishery	15	9	OP
Matendo	Bungoma	Fishery	30	20	DO
Merembe	Trans Nzoia	Fishery	25	25	DO
Siyo-Siteko	Busia	Fishery, Crafts	30	23	DO
Webolela	Uasin Gishu	Pottery	30	20	OP

Most beneficiaries acknowledged that through the support from the project, they were able to increase production and undertake joint activities more regularly. They largely attributed successful revival and enhancement of their operations to improved sense of common purpose and inspiration from the Project Leader. He made bi-monthly visits to the livelihood project sites to provide technical support during the two years of financial support from Disney Wildlife Conservation Fund. At the peak of the project, group members met bi-monthly to discuss progress, organise joint actions and plan for future activities. Narratives by group representatives interviewed and minutes of meetings revealed that agendas for discussions by group members were largely centred on the livelihood issues, with crane and wetland conservation matters receiving peripheral attention, mostly rhetorical.

The group-based projects followed progression pathways with trends in operational performance and membership structures changing variedly as shown in Table 4.2. Only the Bwayi, Kiriita and Maliki fisheries were stocked and operational at the time of this research. On average, they sold 15 fish

monthly, at 250 Kenya Shillings (KES)²³ each. Fishponds associated with the five dormant projects were in a dilapidated state, mainly due to non-maintenance. The Afya fishery project became defunct after the group secretary's family sold land on which the pond was located, after the secretary's death. The Bubwayo fishery went defunct after the pond was flooded, resulting in siltation. They did not take the initiative to reconstruct the pond. The Bwayo chicken project was still operating though five members relocated from the village, after the 2008 post-election conflict. Though production had slumped in recent years, they sold 5 chickens per month, at 250 KES each. The pottery project was operational despite losing 10 members through death. Although they bemoaned the lack of viable market, they made 3,500 KES per month from the sale of energy-saving stoves. They also lost access to the wetland site from where they used to collect clay, after a non-member claimed ownership of the land following the post-election conflict in 2008.

Group membership decline was largely attributed to demoralisation, with some members opting to withdraw their membership citing depressed profitability of the income-generating initiatives. All the same, the groups remained registered self-help cooperatives and were recognised social units within their villages. One of the motivations for maintaining their registration status is that, should new projects arise, whether donor-funded or government-initiated, they would be strategically positioned to benefit. The influence of individuals that continued to strive to keep the projects afloat was also a major contributing factor to sustained operations for the groups. A decline in group members' morale, a common factor among the projects, was attributed to reduced motivation as visits by the Project Leader became less frequent.

As funding remained limited for the period 2004–2009, plans to set up new groups and widen the geographical reach of the project did not materialise. The frequency of the Project Leader's visits also declined after funds from the DCF ran out in June 2004. He made irregular and opportunistic visits thereafter. Funds provided by ICF between 2010 and 2014 were mainly used to sustain conservation awareness outreach (in schools and communities) and ensure regular crane monitoring.

A physical assessment of the location of livelihood project sites, distribution of wetlands used by cranes and scatter patterns of homes of individuals involved revealed social, institutional and

²³ 1USD = 100 KES (Average conversion rate in 2014)

biophysical challenges associated with linking livelihood projects to wetland conservation. Though the groups implicitly associated their project with wetland conservation, the actual wetland patches (containing crane breeding sites) that they presumably sought to protect were widely scattered, with some patches falling under the management of households that were not members of the self-help groups. Although the livelihood interventions attained emblematic conservation status in the villages where they were located, pro-wetland conservation practices that could be directly linked to the interventions were not easily discernible. Since joining livelihood projects was voluntary, some households felt no social obligation to curb encroachment into wetlands or practise pro-crane conservation behaviour as they were not part of the cooperative network. During a group discussion at Saiwa, participants concurred that the livelihood interventions promoted by the project were only attractive to the poor and most affluent households did not actively participate in project activities. They felt that agricultural encroachment into wetlands continued at some sections of the target wetlands owned by well-to-do families. Planting of eucalyptus on wetland edges also escalated (especially in Trans Nzoia) and sugar cane was gradually introduced in wetlands (in Busia and Bungoma) between 2004 and 2014. These two plantation farming options were more lucrative than the livelihood options promoted by the project. Failure to self-sustain the group group-based livelihood interventions after the funding ended was also attributed to group members' dependence on an external facilitator, without taking ownership of their enterprises.

4.3.4. Village-based wetland management regulations

A village-based wetland management system was introduced as an institutional intervention to put an end to three practices that were degrading the Saiwa Wetland in Kipsaina Village: unregulated conversion of wetland edges into crop fields, overgrazing and overharvesting of grass. This involved the development of informal and locally enforced regulations which primarily made crop cultivation within a sedge-covered floodplain of the riverine wetland an impermissible practice. The regulations were also designed to regulate plant resource harvesting to allow the recovery of natural vegetation in sections that had already been affected by agricultural encroachment. The regulations were also aimed at preventing any privatisation (by individual households) of sections of wetlands valued as common access zones by the community and used by cranes for breeding. The vision was to create a wetland landscape managed by the community to sustain shared benefits and ensuring the spatial and temporal management patterns also befitted cranes. Ultimately, having the regulations in place

would lead to the restoration and protection of wetland patches used by cranes for breeding and ensure a sustained supply of wetland plants for construction and feeding livestock.

A decision was made in 1993 to identify wetland sections worst affected by agricultural encroachment but still provided breeding habitats for cranes. Individual households that had encroached onto the wetland were engaged with a view to persuading them to stop cultivating with the sedge-covered floodplain. Between 1993 and 1996, 15 households that had dug ditches, cleared wetland vegetation and cultivated sections of a 1.7 km stretch of the wetland were successfully persuaded to stop the wetland-degrading practices. The households were given priority in the distribution of the fruit tree seedlings and were targeted in the provision of technical support on agro-forestry, crop husbandry and soil and water conservation facilitated by the Project Leader. This was then followed by the designation of zones where grazing, plant harvesting and use of fires to clear land were prohibited at certain times of the year. The Project Leader played an exemplary champion role in the process. He owned agricultural fields in the uplands but near the wetland zone governed by village-based regulations but had not encroached onto the wetland. He donated part of the land so that it could be used to establish a tree nursery. His reputation as a respectable opinion leader who was knowledgeable in land management issues was a major factor that contributed to the effective persuasion of the 15 households. Enforcement and monitoring of community adherence to the regulations were championed by the project steering committee led by the Project Leader. The local chief was also approached and provided backing for the enforcement of the village-based wetland management regulations. During village meetings, villagers were reminded of the need to adhere to the wetland management regulations and to avoid actions that would reduce breeding success (trampling of nests, collecting eggs, startling nesting cranes).

The contribution of village-based regulations to the recovery of the wetland vegetation and the return of the Sitatunga families became a well-known success story in Kipsaina Village and beyond. At the time of this research, there were four pairs of cranes breeding on the stretch of wetland governed by the village-based regulations, the same number of pairs counted during the 2004 survey. Owing to its proximity to the tree nursery and the project headquarters, the wetland section that was protected through the regulations became one of the tangible project outcomes that were showcased to visitors. It was projected to neighbouring communities and other outsiders as a successful demonstration of how individual households could voluntarily change their livelihood practices for conservation gain.

The success story at Kipsaina was a bright spot but a patchy project impact since attempts to introduce village-based regulations upstream and downstream of the village were not successful. Given that the project depended on voluntary participation and, to some extent, social pressure, some households simply chose not to be part of the project. Inequitable access to land also triggered wetland encroachment as some community members (12 households), locally referred to as “squatters”, continued to grow crops on wetland edges because they did not own any other land in the uplands. These households fell under the category of groups that did not participate in project activities. Despite encouraging levels of adherence to the regulations over the years, there were instances when the project steering committee members were rebuked for enacting restrictions in Kipsaina and yet there were not successful in doing the same in other villages. Some committee members expressed their frustration at being questioned by some encroachers about their legitimacy given that the government was not taking action to address wetland encroachment. Other concerns raised included failure to provide matching alternatives to wetland cultivation for the households that had agreed to stop wetland encroachment. This was a source of disillusionment but as one committee member put it, “*they were adhering to the regulations because they did not want to disappoint Maurice and everyone who had worked hard for so long to conserve the wetland*”.

4.4. Lessons for integrating social dimensions into conservation project planning processes

As exemplified by Clark and Wallace (1998), Richie *et al.* (2012) and Chapman (2014), analyses of social processes generate evidence-based insights on how community interests, interactions and actions can be integrated in practice to achieve stewardship of natural resources. In this section, factors that influenced local communities’ decisions and actions, leading to positive social and environmental outcomes and lack thereof over 25 years, are discussed. The aim is to discern factors that can aid or inhibit the linkages between social processes and the desired environmental outcomes under community-led projects. This analysis is geared towards generating project design and field methodological insights for effective community-led conservation, to identify predictors for project effectiveness and sustainability. The gist of the discussion in the following sub-sections is to identify “bright spots”, defined as decisions in the project design and steps in the implementation of project activities that led to the desired social and environmental outcomes, based on broad-based evaluative

criteria used by Clark *et al.* (1998), Richie *et al.* (2002) and Chapman (2014). The criteria include the human and social aspects that are critical when promoting community stewardship of natural resources, including community environmental awareness, conservation-livelihood linkages, locally-enforced site protection mechanisms, community participation and social learning in conservation. Apart from focusing on the bright spots, reference is made to some of the notable bottlenecks to social processes.

In drawing the overall project lessons, mention must be made of the project resourcing and operating environment constraints that inherently bottlenecked the project implementation process over the period covered in this evaluation. However, this represents the situation in the real world characterised by struggles to get financial, social, institutional and material support.

4.4.1. Lessons on bridging the environmental information-behaviour gap

Through environmental awareness outreach, the project facilitators sought to inculcate a new conservation ethic (resource values, use patterns and restoration actions) among community members which they envisaged would lead to the protection of cranes and sustainable utilisation of wetland resources. The effectiveness of environmental outreach is influenced by the criteria for selecting the target audience and the methods used to reach out to the audience, as studies by Trewhella *et al.* (2005) and Meadows (2011) show. Based on their recommendations, it is important to take an analytical look at the audience targeting criteria and outreach platforms. There were some positive attributes associated with both the selected target audience and outreach platforms. The project presented collective learning opportunities for enhancing community understanding of environmental issues in the project area. The platforms were rooted in the community systems, with popular social events being used to disseminate environmental information and calls for environmental action. This resulted in crane and wetland conservation issues being gradually embedded into community social dialogues and problem-solving arenas. This was a strategic approach in that it helped communities to internalise and prioritise an agenda of crane conservation that was previously peripheral in their day-to-day affairs. Positive spinoffs of embedding new agendas, which may otherwise be viewed as external by communities, into community dialogues and action arenas, resulting in the uptake of desired environmental behaviours, practices and technologies have been documented (Jacobson and McDuff 1997; Seyfang and Smith 2007). The approach presents opportunities for triggering environmental attitude and behaviour change when

the target individuals or groups are inspired by influential individuals, peers or opinion-makers within a community, defined as a normative social influence (Beedell and Rehman 2000; Steg and Vlek 2009). This was the case for the 25-year period under consideration as the project leader was exemplary and influential.

The approach used to reach out to the target audience fits into an old linear model of pro-environmental behaviour, based on the assumption that dissemination of information leads to knowledge gain, translating into positive attitude change and ultimately triggering the desired behaviour (Kollmuss and Agyeman 2002). To a great extent, the conveyance of relevant information helped build a good understanding of the environmental challenges at hand, but the question is whether that in itself would lead to the desired environmental outcomes. Recent research findings have highlighted the need to look beyond information dissemination and placing emphasis on encouraging the adoption of practical and sustainable actions that are linked to notable environmental outcomes (Monroe *et al.* 2008; Steg and Vlek 2009). Building on this proposition for bridging the information-behaviour-impact gap, the outcomes of the project outreach could have been enhanced through the inclusion of practical and interactive approaches to conservation awareness. These could have been in the form of practical actions to protect crane pairs and community participation in crane and wetland monitoring as an avenue to promote environmental learning and enhance emotional attachment to the species. Participatory monitoring is also gaining popularity in community-based conservation as it enables local communities to appreciate trends in species and habitats and contextualise the linkage between threats and local resource and land management (Van Rijsoort and Jinfeng 2005; Sekercioglu 2012). The project could have benefitted from a multi-faceted approach to environmental awareness, integrating information dissemination, community interactions involving practical environmental actions and participatory monitoring.

4.4.2. Lessons on linking alternative livelihoods to conservation targets

The project attempted to balance local communities' socio-economic needs with wetland ecosystem conservation and crane habitat protection. In recent years, this has become a common approach, adopted to give conservation a human face and enhance community acceptance of conservation project interventions (Knight *et al.* 2010; Mariki 2013). From a community engagement point of view, there were some positives regarding the strategic entry points for introducing livelihood interventions. The project was built on already-existing community groups to develop social

structures supportive of conservation goals, an approach known to facilitate quick acceptance and provide primers for wider adoption of desired institutions and practices for resource management (Pomeroy and Carlos 1997; Thompson *et al.* 2003; Brooks *et al.* 2013). However, the livelihood interventions were not immune to the disconnection between livelihood and conservation aims, a situation whereby the provision of livelihood support to local communities does not lead to clear and measurable conservation impacts. This dilemma is a common challenge that warrants research attention, as calls for the justifiability of investment in conservation grow globally (Salafsky *et al.* 2001; Wright *et al.* 2015). In their contribution to addressing the disconnection, Salafsky *et al.* (2001) and Wicander and Coad (2014) recommend that linkages between the livelihood intervention and the desired conservation outcomes be defined explicitly first. They describe these linkages in terms of regulated rights to resources, practical actions by beneficiaries to mitigate specific threats to resources or habitats targeted for conservation, and restorative efforts to regenerate lost ecosystem services. Failure to acknowledge these linkages at the beginning of the project may result in the livelihood interventions being viewed as mere opportunities for livelihood diversification detached from conservation (Wright *et al.* 2015).

Livelihood-conservation linkage remained fuzzy in the minds of beneficiary community groups. Emerging insights on ways to address the disconnection at project design and implementation could have been valuable for the project. The disconnection was exacerbated by internal factors that hindered the viability and profitability of the interventions. The experiences across the sites where livelihood interventions were implemented show that bridging the livelihood-conservation divide is a complex social process that calls for careful consideration of social equity, the influence of community groups in resource management, land tenure systems and other factors that influence the human-landscape interactions. The beneficiary community groups lacked the power to enforce new wetland management systems, especially in zones they had no control over due to tenure complexities. Inequitable access to and distribution of livelihood inputs and technical support can breed a sense of exclusion among non-beneficiaries and therefore derail the evolution of collective values and social capital crucial for sustainable resource management. If the livelihood interventions fail to generate tangible benefits or if the benefits become erratic, participants become demotivated and the development of livelihood enterprises as a platform for community action may falter.

Acknowledging that livelihood interventions were pilot initiatives intended to act as learning platforms, the fact that beneficiaries were selected from established cooperatives added complexities to linking livelihoods to conservation. The beneficiaries were not necessarily the primary actors behind the practices causing wetland degradation and crane habitat loss. They were also not necessarily the households most dependent on the wetlands in question. These are some of the complexities associated with aligning livelihood interventions with conservation goals when working with communities that have already defined livelihood priorities and social structures. Project experiences also highlight some of the dilemmas encountered when building on already-existing community livelihood systems. Whilst the already-existing livelihood options that represent the desired practices compatible with resource conservation can be identified easily, nurturing them so that they are effectively linked to conservation calls for persuasive skills on the part of project facilitators to change mindsets. This involves inculcating new attitudes among communities so that the livelihood interventions are not viewed as mere opportunities for improving household incomes and food security but community platforms for prompting environmental action. New innovative approaches that stress the need to identify actors behind threats and targeting them in the quest to ensure linkages between livelihoods and conservation are gaining popularity (Wicander and Coad 2014; Wright *et al.* 2015). This also involves the identification of actions that beneficiaries of livelihood interventions can perform that contribute to reducing threats to resources or species in question. Without discounting the benefits of building on existing community structures, the livelihood interventions could be strongly aligned to conservation impacts if the households or community groups behind threats to wetlands and cranes are identified. An effective way to achieve that, which also allows the conservationist to understand the underlying motivations and underlying drivers of the problem is to use the Action-in-Context framework (see preceding chapters). Recognising that individuals leading community-led projects may not have the technical skills to conduct these initial social causation analysis, external organisations could play that role as part of the technical support to the projects.

4.4.3. Lessons on community cognition of project interventions and impact pathways

Tree planting, initially introduced as an entry intervention, helped the project team win the hearts of local communities and government officials, with its reputation spreading beyond the boundaries of the county where the project was headquartered. Over the years, its popularity resulted in local stakeholders associating the project thrust and facilitators with “trees”, thereby overshadowing

“cranes” and “wetlands” in the minds of the stakeholders. This should not be viewed as a project failure. In communities where the quest to address socio-economic problems supersedes environmental conservation, it is necessary to promote practices that have a positive appeal to local communities. Local relevance of entry points (technologies, individuals, social platforms) provides a sound footing for successful projects (Schenk *et al.* 2007; Ruiz-Mallen *et al.* 2015). Ideally, the entry interventions should generate tangible benefits and have the high potential to effectively mitigate known environmental problems. This is also a practical way to gradually inculcate land management and stewardship ethics among local communities whilst winning community trust in the project area. The entry points act as stepping stones for embedding desired conservation actions into community agendas and practices in a socially acceptable manner (Chan *et al.* 2007; Chazdon *et al.* 2009; Bryan *et al.* 2010). Tree planting was a strategic intervention as it was geared towards creating resource units (trees and plantations) that the communities would value, gradually embedding it in the crane and wetland conservation agenda.

The fervent pursuit of the tree planting agenda by the project team was indicative of a common dilemma in community-based conservation projects whereby the quest to secure protracted support from the community may be at odds with the efficient delivery of conservation targets, in spatial and temporal terms. The inherent challenge associated with it is that for the project to follow the desired conservation pathway, the facilitators may need to timely act to avoid needlessly allocating resources on an intervention that is weakly linked to the conservation goals. Whilst popular entry strategies may be relatively easy to identify, knowing when and how to make entry interventions be aligned with conservation goals can be problematic and calls for an understanding of how to deal with the delicate and gradual alignment process. The project facilitator should therefore look for the right social networks or benefit chains that help highlight the cognitive and practical connections between the entry intervention and conservation impacts. The project approach was inherently appropriate as the social units targeted in the distribution of tree seedlings (e.g., schools, churches, community development groups) were recognised platforms for social interactions, learning and opinion-making. However, the tree planting would have translated into more recognisable land management and conservation impacts had some of the trees been primarily planted to address common environmental problems, especially in the uplands where soil erosion was a major issue. To enhance practical species conservation relevance, trees used by cranes for roosting could have been planted too.

Despite the complexities associated with linking tree planting to crane and wetland conservation, reintroduction of trees on the edges of the Saiwa wetlands represented a simple approach of ensuring that practical action by grassroots communities leads to tangible environmental impacts. The logic behind the approach, as the project experiences show, is to carefully create a common vision among community members, highlighting tangible benefits that accrue to the community as a result of the practical action. Community knowledge of the ecological history of riverine wetlands (in this case, past vegetation structure) was leveraged to create a common vision of desired landscape attributes that would gradually revive lost ecosystem services. The shared memory about wetland ecosystem changes that took place due to the removal of wetland vegetation and how restorative action would bring about tangible benefits made community mobilisation for participation in tree planting on wetland edges easier. Trees planted on wetland edges generated collective socioeconomic benefits in the form of wood, used in the construction of community infrastructure. Enhancing social values attached to landscape patches and shared resources is recognised innovative approach for sustainable habitat protection (Shafer 1999; Leigh 2005). The restoration process through tree planting involved active participation by locals which creates collective motivations for territorial protection of landscape patches and resources by community groups, contributing to habitat protection.

4.4.4. Lessons on habitat protection and restoration

Through local regulations, a section of the Saiwa Wetlands that contained crane breeding sites was successfully protected, paving way for a natural restoration process to unfold. This was a tangible conservation outcome, directly attributable to a project intervention purposefully designed to address agricultural encroachment, unsustainable harvesting of plants and overgrazing. It confirms that if clear species and habitat conservation targets (e.g., specific wetland sections) and the required actions by local communities are defined at the initial project design stage, the desired conservation outcomes can be attained. Spatial targeting of conservation focal areas and matching with desired land use, which may require cessation of specific land uses for restorative purposes is a novel approach in conservation planning (Redford *et al.* 2003; Bryan *et al.* 2010).

Delineating boundaries of specific wetland sections where the regulations would be applied, as opposed to focusing on the entire wetland, made the focal conservation area and the resource units therein manageable (i.e., could be effectively monitored and policed by the locals). This inherently

also meant that a smaller target community, which had direct vested interests, possessed experiential knowledge of the problems affecting the wetland section and interacted regularly, was carved out of the larger community in the catchment. This wetland-connected sub-community was small enough to allow the quicker building of consensus on specific rules and norms for wetland management for common benefits. Outsiders could easily be differentiated as part of the enforcement of common property resource regime at the target patch for regulated wetland access and resource harvesting. These are known to be conducive conditions and considerations for successful community management of shared resources (Ostrom 1990; Agrawal 2001). This implies therefore that if appropriate entry strategies could be identified and an effective facilitation process put in place, a network of wetland patches governed under similar village-based regulations would emerge. This would ultimately form a network of social units responsible for regulating ecosystem conservation driven and enforced through local arrangements. Such institutional arrangements, uniting resource user groups and rooted in common values (socioeconomic, cultural, leadership, etc.), are important for the effectiveness and sustainability of ecosystem conservation (Dixon 2008). A combination of project design factors, demonstrating the conceptual linkages between actors, actions and outcomes for effective species and habitat conservation, resonate with pertinent methodological considerations to achieve landscape stewardship beneficial to species of conservation concern defined by Bennett *et al.* (2018).

The process of developing wetland management regulations calls for a good understanding of contextual factors that may enable or hinder the success of the intervention. In the case of the project under consideration, the presence of an influential process facilitator helped much in the initiation and informal enforcement of regulations, but such facilitators or leaders may not exist in other areas and communities targeted under conservation projects. The other challenge encountered was the lack of group empowerment exacerbated by the fact that there were diverse interests among community members, with some members even opting not to be part of the project. If not nested in or supported by relevant environmental policy frameworks and effective local enforcement mechanisms, village-based regulations may be hampered by exclusivity emanating from private land tenure, as some households opt to maintain certain practices degrading the resource for economic benefit.

4.4.5. Lessons on transformational leadership as a driver of social processes

Overall, effective group leadership was a notable success factor that largely contributed to the effective delivery of project outcomes over the 25 years. The Project Leader was the social driver whose outstanding abilities and reputation gave the project its unique public image. Innovative and reputable leadership within communities is a success factor in environmental and community development projects (Brooks *et al.* 2013; Gutierrez *et al.* 2011). The Project Leader's commitment and charisma were instrumental in keeping the project going despite limited funding and minimal support from local administrative and environmental extension agencies. Holding influential group leadership and honorary positions helped him play multiple roles which he successfully leveraged to promote the project's conservation agenda. To have a marked impact, the leadership should be transformational, implying that the leader should possess skills to clearly define a vision and benefits for working together to achieve the vision, be a hands-on person and stimulate new collective thinking to solve common problems (Bass and Steidlmeier 1999; Black *et al.* 2011). Undoubtedly, the Project Leader demonstrated these attributes and capabilities. As the project experiences revealed, transformational leadership can prod communities towards action pathways to generate solutions to problems. The experiences also illustrate that transformational leadership is not only important for social mobilisation and technical guidance but can also provide social motivations for the adoption of pro-environmental and pro-social behaviour.

The presence of exceptional leadership was a key strength for the project, no succession plans or emergence of equally competent leaders within the ranks of the affiliate groups was documented. Although the leader had remained steadfast in driving project activities for 25 years, it did not mean perpetual sustainability. Like any other initiative, the project would, at some stage, need someone to not only perpetuate the remarkable leadership legacy but introduce innovative ideas in response to emerging challenges and opportunities. The question is how and when such a person to lead would emerge. Expecting another leader who matched the leadership standards already set to just emerge would be too optimistic. In reality, the groups could add a clause in their constitution, outlining how the issue of leadership succession could be handled. This could entail creating opportunities for the project members to define the desired qualities of the future leader and articulate an election process. To avoid conflicts, power struggles and voids if the project leader was no longer available, the groups could adopt a managed leadership transition process, whereby a leadership talent pool could be

nurtured and mentored gradually (Gothard and Austin 2013). This is not to suggest though that the project loses the self-less transformational leadership model. Assuming that the project would remain community-led, the elected leader would need to be aware of the implications and personal obligations of assuming such a demanding position, including being prepared to bear the financial and social costs and no direct economic benefits. The elected leader would also need to act positively to win local support and earn the respect of not just the project members but the community as a whole.

4.5. Conclusions

In this chapter, social processes associated with a long-running community-led conservation initiative were analysed using a qualitative research approach. With a focus was on platforms, drivers and outcomes of the social processes over a 25-year period, insights on field methodological approaches and key considerations for addressing threats to cranes and wetlands in rural landscapes were generated. The findings shed light on factors that may aid or hinder the success of community-led conservation initiatives in landscapes undergoing human-driven transformation.

Demonstrable habitat and species protection through village-based wetland regulations were attained at Saiwa. The lesson from this intervention is that such positive conservation outcomes can be achieved through delineation of manageable zones for targeted conservation and defining locally agreeable and enforceable regulations to protect the zones. As project experiences revealed, the presence of a respected and dedicated local conservation champion can enhance adherence to locally-enforced regulations for years, cultivating a recognisable conservation ethic that benefits species of conservation concern. The study showed that if the linkages between alternative livelihoods and intended conservation outcomes are not clearly defined and internalised by beneficiaries of the livelihood interventions, the desired conservation impacts may not be realised. This points to the need for the analysis of actors and actions behind an environmental problem (e.g., wetland degradation). Such analysis could be used to identify specific individuals or households that should primarily adopt the desired practical conservation actions to reduce threats to either species or habitats. The disconnection between livelihoods and conservation exposed through this study highlights the need for conceptual pathways on how project facilitators can work with communities to translate livelihood interventions into conservation impacts over time.

Findings from this study show that transformational leadership plays a significant role in protracted social mobilisation and persuasion required for community groups to adopt pro-environmental and pro-social behaviour that leads to conservation outcomes. Given the meagre resources (financial, human and material) allocated to conservation in developing countries, transformational leadership can effectively fill gaps in conservation extension. The experiences from the project brought to the fore some of the key attributes of leadership under community-led conservation, including selflessness, dedication, leading by example, maintenance of good reputation and disposition to practical action.

Identification of appropriate platforms for disseminating conservation messages, rooted in the community's interaction networks, is an important step in the process of embedding conservation into social dialogues and problem-solving arenas. Popular entry interventions (environmental practices and technologies) and entry points (social platforms) can effectively give projects local relevance and contribute to widespread acceptance of the projects. However, there is a need for periodic reflection to ensure that the interventions meant to win the support of the community proceed on a pathway that is not tangential to the desired conservation targets. The environmental information-behaviour gap unearthed through this study could have been bridged more effectively through the adoption of more practical and interactive approaches to conservation awareness, including capacity building for action to address threats and enhancing emotional attachment to the species and habitats targeted for conservation.

Apart from guiding crane conservationists, these findings are relevant for similar community-led and NGO-facilitated conservation projects.

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