CHAPTER

16

Improved and Alternative Livelihoods: Links Between Poverty Alleviation, Biodiversity, and Cheetah Conservation

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INTRODUCTION

A livelihood is a means of securing the necessities of life: food, water, and shelter (Chambers and Conway, 1991). Livelihoods in Africa are often traditional or cultural practices whereby people often raise livestock and/or harvest natural resources (e.g., wild animals and plants harvested for food or medicines, building materials, and energy sources; Roe, 2010) for subsistence needs and income (herein referred to as traditional livelihoods). In rural sub-Saharan Africa the majority of people support themselves and their families through these traditional livelihoods, primarily working as subsistence or small-scale farmers. Fourty percent of these rural residents live below the poverty line (less than US $1.25 per day; UN, 2015). They share the land with wildlife species, such as the cheetah (Table 16.1), but competition

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and conflict over resources can pose direct and indirect threats to both people and wildlife (Chapter 13).

Cheetah survival is particularly threatened from unsustainable land uses and conflict with humans because 77% of the land supporting resident cheetah populations is located outside of protected areas (Chapters 4 and 39). Indeed, one of the primary threats to the cheetah's survival is habitat loss and fragmentation caused by the growing human population (Chapter 10). Habitat loss impacts cheetah populations directly, as well as indirectly as it results in a decline in biodiversity and prey loss (Chapter 11), which in turn compounds human-cheetah conflict (Chapter 13). Improved management of human-dominated landscapes, is critical to cheetah survival and conservation tools must look beyond the biology of the cheetah and deeper into the relationship between human poverty alleviation and biodiversity conservation throughout the cheetah's range.

Poverty alleviation aims to improve the quality of life for people currently living in poverty. To permanently lift people out of poverty, both economic and humanitarian measures, use two primary links between human livelihoods and biodiversity conservation: (1) biodiversity as a means of providing income or input into livelihoods, or (2) biodiversity as an insurance to buffer livelihoods in future times of need (Roe, 2010). Biodiversity loss, therefore negatively impacts human well being in addition to the environment. For example, overgrazing and bush encroachment negatively affect the carrying capacity for cheetahs and their prey, but also seriously threaten livestock grazing areas resulting in decreased profits from livestock farming (Marker et al., 2010). In the past, most documented studies on the link between poverty alleviation and biodiversity conservation have focused on forest products or related resource use. However, there is an increasing emphasis on rangeland ecosystems (Ives et al., 2005), particularly pertaining to human–predator–prey interactions.

Programs in areas of high biodiversity, which use natural resource management to link conservation with socioeconomic interests on both local and international scales, are known as Integrated Conservation and Development Programs (ICDPs) (Silva and Khatiwada, 2014). ICDPs were introduced to the developing world in the mid-1960s (Silva and Khatiwada, 2014), and formally defined in the 1990s with an aim to improve or provide alternative income sources to poor communities (Davies et al., 2013). In 2011, it was estimated that the world spent

TABLE 16.1 Cheetah Range, Nationally Protected Areas, and Poverty Index in Four Cheetah Range Countries With Improved and Alternative Livelihood Programs Targeting Cheetah Conservation

Country	Total land area (ha)	Protected area[a] (percentage of total land area) (%)	Cheetah range[b] (percentage of total land area) (%)	Poverty index[c] (year of data) (%)
Botswana	60,037,000	29.20	95	19.3 (2010)
Kenya	58,265,000	12.40	48	45.9 (2005)
Namibia	82,329,000	37.90	60	28.7 (2009)
South Africa	121,309,000	8.90	17	53.8 (2010)

[a] *Protected area refers to a land mass of 1000 ha or more under total or partial protection as designated by national authorities.*
[b] *Percentage of land mass inhabited by cheetahs uses the resident, possible, and connected land as identified in regional strategies and used by IUCN for population estimates published in 2015 (Durant et al., 2015).*
[c] *The poverty index is the percentage of the population under international poverty lines, also known as the headcount ratio (Kinyua et al., 2000; World Bank 2015).*

US $126 billion in annual aid addressing global poverty and an additional US $8–12 billion on issues of biodiversity loss (Roe et al., 2011) without significant success. The combined aims are highlighted by the United Nations' "Sustainable Development Goals" (Fig. 16.1), which include goals to alleviate human poverty (#1), reduce marine (#14), and terrestrial (#15) biodiversity loss and address climate change (#13) (UN, 2015). Integrated programs that address biodiversity loss and poverty alleviation can impact cheetah conservation by reducing threats to the species from habitat degradation, biodiversity loss, and human-wildlife conflict. Similarly, the "One-Health" vision promoted by the World Health Organization, links biodiversity conservation, environmental stability, and human health (Mazet et al., 2009), and is providing support for projects like cheetah programs that incorporate human livelihoods with species-specific research (Okello, 2015).

Improving the economic situation (i.e., livelihoods) of individuals is likely to increase tolerance toward cheetahs and facilitate cheetah–human coexistence. Economic costs of sharing the land with cheetahs are either direct through depredation of livestock or indirect through additional costs associated with protecting livestock from predators (Chapter 13). These costs can have a significant impact on household livelihoods, and are one of the drivers of human-cheetah conflict, although they can sometimes be perceived as worse than they are in reality. Improving livelihoods of individuals living with cheetahs is achieved when income is directly increased or losses of income (e.g., due to

FIGURE 16.1 **Sustainable development goals provide leadership and catalyze actions under the United Nations Division for Sustainable Development (DSD).** The 17 Sustainable Development Goals (SDGs) promote and coordinate implementation of internationally agreed development goals adopted by Heads of State and Governments in September 2015. *Source: Printed with permission from UN SDGs.*

predation) are reduced, enabling individuals to better support their families. Additionally, by diversifying livelihoods outside of the cultural or traditional sources of income, rural citizens can achieve more economical viability and reduce their reliance on livestock farming alone (herein these programs are referred to as alternative livelihood projects; Write et al., 2015). Programs that provide financial income from the sustainable use of natural resources are likely to promote coexistence beyond that achieved by the financial incentive alone, as individuals may be less likely to view wildlife species as a threat to their existence if they are able to profit directly from them.

Targeted poverty alleviation in connection with biodiversity conservation is therefore a significant aspect of cheetah conservation strategies. Many cheetah conservation organizations have instigated or promoted programs that have the aim of reducing poverty by improving traditional livelihoods (primarily livestock farming) or by promoting alternative income streams. These programs, many of which are still in the implementation phase, can be applied across the matrix of private and communally owned land upon which cheetahs occur.

This chapter describes examples of improved and alternative livelihood programs that impact cheetah conservation and discusses the development of such programs. There is only a small amount of literature documenting cheetah-conservation related community projects and their successes. Therefore, the majority of information in this chapter comes from internal reports and personal communication.

IMPROVED LIVELIHOODS

Many of the cheetah-conservation organizations in Africa, including Action for Cheetahs in Kenya (ACK), Cheetah Conservation Botswana (CCB), Cheetah Conservation Fund (CCF) in Namibia, and Cheetah Outreach (CO) in South Africa provide opportunities for rural farmers to improve their livelihood while educating individuals about cheetahs and ecosystem conservation.

Livestock Management

Healthy livestock herds in appropriate numbers for the environmental conditions are less likely to be targeted by predators (Marker and Dickman, 2004; Ogada et al., 2003) and carry greater overall economic value. Integrated programs developed by cheetah conservation organizations have aimed at incorporating indigenous knowledge and culture with modern concepts that improve livestock care, increase productivity, and reduce losses to predators. Materials and advice on improved conflict mitigation and livestock husbandry are disseminated to rural communities through educational programs and are successfully raising awareness, leading to positive behavior change (Chapters 13 and 18). Evaluation surveys of community outreach activities in the Ghanzi district of Botswana, in 2015 and 2016, indicated that 83% of participants in farmer training workshops (n = 108) made direct improvements to livestock management and of those, 89% had seen a decrease in livestock losses (CCB, unpublished data). Similarly, 94% of conservancy members surveyed in Namibia after attending training workshops (n = 85) reported that the health of their livestock had improved, and 70% of respondents (n = 63) reported that they were using the provided resources to implement best practices in livestock husbandry (CCF, unpublished data).

In addition to the general programs, cheetah organizations run specific programs targeting livestock health and protection from predators. A "Build a Better Boma" campaign conducted by ACK provides information (posters) and physical assistance to improve livestock enclosures (also known as bomas) to reduce the opportunity for predator attacks on livestock in the enclosure. From January 2013 to December 2016, 1000 posters were distributed and field

staff assisted in building over 300 bomas, with 98% of recipients reporting to have had zero predator attacks in the boma since receiving assistance (ACK, unpublished data). Similarly, to reduce depredation, CCF, CO, and CCB have all implemented livestock guarding dog programs, collectively placing nearly 1000 livestock guarding dogs on farms and assisting with veterinary care (Chapter 15).

To improve livestock health, in 2004, ACK restored four community-managed dips (cement ponds which are filled with diluted tick repellent to prevent tick infestation of livestock and dogs), which served about 400 households, each with 3–65 head of livestock. Tick infestation causes livestock death and lack of production accounting for a loss of over US $364 million annually in eastern Africa (Ragwa, 2012). As part of the cattle dip restoration project, ACK conducted seminars on livestock health and dip management to improve community capacity in livestock management. Out of 247 interviews conducted at the dips between 2007 and 2009, 49% of the respondents reported attending the dips weekly (ACK, unpublished data). All of those attending with regularity reported increased milk production and livestock weight, and decreased veterinary costs related to tick borne diseases. After ACK's support ended in 2007, the community managers continued the project as a business and, as of 2016, three of the four dips continue thriving as a source of community income while improving livestock management for small-scale farmers.

Programs have observed that improved husbandry management increases income, by reducing losses and improving herd health and livestock productivity (i.e., milk/calf production), and simultaneously can improve tolerance for the presence of predators through increased awareness. However, the economic impact of integrated management and reduced depredation for local communities was not evaluated at a household level and remains an important area for further study.

Ecocertification of Meat and Dairy Products

Ecocertification programs follow recent trends of environmentally conscious consumers becoming aware of food origins and the ecological impacts of food production (Aquino and Falk, 2001). Businesses use a marketable label assuring consumers that their products comply with environmental and social standards. This empowers consumers, sometimes in distant markets, to make environmentally responsible purchases; giving them confidence in the accredited environmental impact of the product (Stein, personal communication). For example, "Predator-friendly" certification of meat and dairy products increases consumer confidence that predator species were not harmed during production; this concept is applied by the "Dingo for Biodiversity Project" in Australia (DBP, 2016) and "Wolf-friendly" beef in the USA (AWI, 2017; WFEN, 2015). Certified farmers commit to using nonlethal conflict mitigation tools; for example, guarding animals or deterrent systems (lights, electric fences, sound boxes)—to reduce predation on livestock. Ecocertification aims to give the farmers a premium for their product (Lewis and Alpert, 1997). Because consumers often expect environmentally friendly products to be competitive on price, the premium is not always reflected as a per unit price increase. Instead the benefits come in indirect ways, such as increased demand through access to new markets or consumer loyalty over the long term (Stein, personal communication). Although the predator-friendly concept does not always generate a premium, many of the dedicated members participate because of their philosophical and ethical commitments to a healthy environment (Early, 2012).

CCF's "Cheetah Country Beef" business plan predicts an increase in profits for ecocertified farmers (Bell, 2006; Marker et al., 2010) through price premiums and other associated benefits. Farmers must abide by guidelines for

predator-friendly farming practices, including nonlethal cheetah conflict mitigation to maintain third party certification. Developing a market and the associated premiums for producers can be time-consuming, costly, and technically challenging (Early, 2012; Treves and Jones, 2010) and as of yet predator-friendly meat products originating from within the cheetah's range are not being sold on a commercial scale.

Predator-friendly labeled cheese, ice cream, soap, and fudge made from goat milk are sold in Namibia at the CCF facility and through national outlets. The dairy products are produced on CCF's model farm as part of an initiative to develop alternative income sources. CCF's *Dancing Goat Creamery* label is branded with the Wildlife Friendly Enterprise Network (WFEN) trademark. WFEN is a "global community dedicated to the development and marketing of products that conserve threatened wildlife while contributing to the economic vitality of rural communities" (WFEN, 2015). The Wildlife Friendly label is a certified ecolabel that denotes enterprises meeting the highest standards of integrated farming practices. The goat creamery has generated employment for five women in the local community. The United Nations (UN) documented that on average women use 90% of their income to benefit family and community (GACC, 2012), thus promotion of women into income positions aids in poverty alleviation. Since women are actively involved in livelihood decision-making (Roberts, 1996), assuring the link between economic income and cheetah conservation is essential.

ALTERNATIVE LIVELIHOODS

In the context of cheetah conservation, alternative livelihood programs generally provide an additional source of income outside of the realm of livestock farming. Natural resource management can be a valuable aspect of alternative livelihood projects as it encourages people to see an economic value in the biodiversity around them. Integrated wildlife farming with livestock agriculture can increase economic and environmental stability. Other alternative livelihood programs, which benefit cheetah conservation, include the production of fuel logs, cooking stoves and the promotion, and sale of handcraft products.

Wildlife Farming, Tourism, and Hunting

Wildlife farming, photographic-tourism, and game hunting can provide financial returns on public and private land, especially in areas where wildlife numbers or landscape features are sufficient to attract clients. In South Africa, tourists spend US $90 billion in combined domestic and international tourism spread across several provinces (SAT, 2015). Similarly, in Kenya, the tourism industry supplies over 700,000 jobs (direct, indirect, and induced) and contributes US $6.4 billion to Kenya's Gross Domestic Product (Turner, 2015). However, revenues from national tourism do not always reach the population or communities who are coexisting with wildlife, and who may have had livestock losses due to predation (Roe, 2010). Additionally, negative effects of land designation for tourism may result in eviction of inhabitants from land with natural resources and exclude historical land use options like grazing or water and firewood collection (Norton-Griffiths and Southey, 1995). These drawbacks have historically exacerbated poverty or have been viewed as a threat to human rights, especially pertaining to water access (Brockington, 2002).

Opportunities for communities to directly manage wildlife tourism and game hunting operations for improved income distribution, has increased through the development of conservancies (Chapter 17). These conservancies are either community or private owned and consist of farms or tribal lands utilizing a unified management plan. Larger landscape management

reduces costs and makes wildlife farming (often in conjunction with livestock farming) a more viable option. Wild game species can be utilized for photographic tourism, hunting, or meat, potentially generating employment opportunities and increased profits for conservancy members. In 2013, an evaluation of income from Namibian conservancies revealed that 47% of the overall conservancy income was generated from game use (hunting, meat sales, and live sale), 48% from tourism (joint-venture, community conservancies, and craft sales), and 5% from plants and other interests (Denker, 2015). At the end of 2014, the 83 communal conservancies in Namibia were employing approximately 1700 full time employees, 400 part time employees, plus 2100 indigenous plant product harvesters, and 760 craft producers. The total cash income and inkind benefits to rural communities was estimated to be over US $6.9 million (Denker, 2015). However, the impact of tourism income on poverty alleviation and alternative livelihood generation depends heavily on local conditions and management policies, particularly in regards to revenue sharing (Archibald and Naughton, 2001).

Even when community based tourism or hunting projects have successfully increased employment opportunities and raised household income (for at least some community members), people living in the area do not always acknowledge such benefits due to negative perceptions of predators or the affiliated organizations (Silva and Khatiwada, 2014). Additional challenges include removing barriers to private sector investment in communal areas, developing revenue streams in areas with low tourism potential and improving the quality of community-run tourism enterprises (Denker, 2015).

Large carnivores are a particular attractant to both tourists and hunters. Tourists ranked leopard (*Panthera pardus*), lion (*Panthera leo*), and cheetah as the species that they most wanted to see, and expressed a willingness to pay extra fees for places known to have high probabilities of seeing big cats in the wild (Hazzah, 2006; Lindsey et al., 2007; Stein, 2008). Although carnivore hunting is a controversial conservation management option, it has the potential to generate substantial income and community employment (Muposhi et al., 2016), which could lead to improved tolerance toward carnivores. Trophy hunting of cheetahs is only permitted by international and national law in Namibia and Zimbabwe. It is carefully regulated by CITES and the respective governments, and is not thought to have had a negative impact on cheetah populations (Chapter 21). While the presence of cheetahs (e.g., through tourism and hunting) may contribute to the overall income in a country, the distribution of benefits to rural communities or the awareness of such benefits can be improved.

Alternatives to Charcoal—Fuel Logs and Cooking Stoves

Bush encroachment—the increased growth and invasion of woody bushes at the detriment of grasses—is a widespread problem across livestock farming areas in sub-Saharan Africa. It is primarily caused by overgrazing by livestock in arid ecosystems coupled with a reduction of large, wild browsers [i.e., elephant (*Loxodata* spp.), black rhinoceros (*Diceros bicornis*) and giraffe (*Giraffa* spp.)]. Bush encroachment reduces the productivity of livestock grazing areas, negatively affecting both human livelihoods and biodiversity (Marker et al., 2010). In Namibia, CCF launched a research project into the feasibility of harvesting and processing bush, and manufacturing and marketing ecofuel logs made from the compressed branches, under the trade name "Bushblok" (CCF, 2015). The ecofriendly fuel log has a similar energy value (4600 cal/g) as good-quality wood and is a clean burning, low emission home heating, and cooking energy fuel source that could replace charcoal. Feasibility studies determined that approximately, 10 metric tons of excess woody biomass were available per hectare from thickened bush.

CCF's Business plans estimate one production plant could process about 5000 tons of woody biomass per year, and could thereby, clear large tracts of land for human, livestock, and wildlife use. The "Bushblok" product has a dual certification with the Wildlife Friendly Environmental Network (WFEN, 2015), and the Forest Stewardship Council (FSC), the highest standard achieved in forest certification. As of 2016, the project employs 30 harvesters and factory workers, it is building incountry capacity, and has the potential to locally increase biodiversity and restore cheetah habitat.

A related project in Kenya is the Improved Cooking Stoves Program started in 2011 by Sustainable Community Development Services and the Global Alliance for Clean Cookstoves (GACC) under UN guidance/financing. In Kenya, over 85% of the population relies on traditional fuels, such as wood, charcoal, dung, and agricultural residues for cooking and heating (KME, 2011). Despite alternative fuel sources, firewood remains the predominant fuel for cooking. The nonsustainable harvesting of plant species strongly contributes to land degradation, accelerating the loss of cheetah habitat. Traditional use of biomass as fuel is often inefficient, with an energy conversion efficiency of only 2%–20%, and can result in indoor air pollution that adversely affects human health (UN, 2012). Clean cook stoves evolved dramatically over the past decade, and modern bioenergy technologies offer energy conversion efficiencies of up to 90% (Haines et al., 2007), lowering the quantity of wood harvested and reducing harmful emissions (GACC, 2012; UN, 2012). In Kenya, the Improved Cooking Stoves Program has distributed or installed more than 10,000 stoves between 2011 and 2014, thus reducing firewood consumption by approximately 60%. Potential production is estimated at 11,000 additional stoves annually with a profit for employees comparable to wages in rural areas. Since 2011, 13 women's groups (200 people) were trained and participated in business management training to make stoves in the Rural Stoves West Kenya Project, creating employment opportunities and financial independence (HIVOS, 2014). As a result, the women have gained status, self-confidence, and financial independence (Holm, 2005). Many cheetah range areas could greatly benefit from expansion of the Clean Stove Program. ACK is exploring the program specifically at sites in the Ngare Mara region of the Samburu district in northern Kenya and the Salama region of Kenya's Makueni district as a means of habitat conservation and alternative financial incentive.

Local Artisans, Traditional Handcrafts, and Conservation

The cheetah has been depicted in art throughout the millennia (Chapter 2). Still today, local art in cheetah range countries is expressive in character. The traditional art of beading and craft making is common throughout much of Africa and the cheetah can be seen in traditional batiks, carvings, beadwork, and embroidery. Traditional items, such as jewelry, decorative gourds, and spears are highly sought after as souvenirs and decorations, providing potential to generate substantial sales through the craft markets. For example, in Namibia, 2% of income on surveyed commercial and communal conservancies is derived from craft sales (Denker, 2015). Several cheetah projects (e.g., ACK, CCB, CCF, and CO) work with the art and craft industry to market hand-crafted items and assist communities in designing cheetah specific items. For example, CCF supports artisans making crafts using traditional makalani nuts, leather, embroidery, and beadwork and promotes these products under the Wildlife Friendly Cheetah Country Craft brand, to local and international marketplaces.

A similar project is ACK's COOL (Cheetah, Owl, Otter, and Lion) Craft project (Fig. 16.2A). Initiated in 2010, the project annually purchases a minimum of US $8000 of species themed handcrafts from nine community groups. The COOL project promotes quality workmanship

FIGURE 16.2 **Cheetah branded products show the level of community support, as well as the link to the cheetah in their designs and marketing of improved and alternative livelihood items.** The branding appeals to the buyer and represents the value of the product in conservation. Artisans and farmers are proud to see their products in the branded line (A) Action for Cheetahs in Kenya (ACK) branded products are called COOL Crafts in partnership with other species conservation (i.e., Cheetah, Otter, Owl, and Lion). (B) Cheetah Conservation Fund (CCF) branded products hold Forest Stewardship Council and Wildlife Friendly certifications. *Source: Part A, ACK; part B, CCF.*

marketing traditional, and new designs that utilize recycled and renewable resources, to an overseas market. Due to internal market saturation and an influx of cheap, mass-produced items from overseas factories resembling locally made crafts, traditional artisan skills are often viewed as unprofitable (Wykstra, personal observation). As a result, young people are increasingly drawn into illegal activities, such as prostitution, poaching, unauthorized sand harvesting, and charcoal burning (cutting trees to produce charcoal). ACK provides seminars on business management and environmental friendly livelihoods and responsibility, along with assisting the community groups to find lucrative local markets. By increasing the profitability of craft

making and emphasizing the link between sustainable natural resource management and livelihoods, ACK is enticing younger generations to embrace the art of handcrafts and hopefully also to value wildlife like the cheetah. ACK's COOL project sales increased from US $12,040 in 2015 to $17,005 in 2016, thus building the foundation for project expansion.

The Painted Dog Project in Zimbabwe addresses issues of youth, poaching, and predator conservation by producing "snare art" made from poachers' snares under the *Iganyana Arts* brand (PDC, 2016). Similar snare art is marketed by the "Catching Hope Re-Purposed Poaching Snare Program" run by the Henry Vilas Zoo in partnership with the IUCN Saola (antelope) Working Group based in Laos and Vietnam (Flynn, personal communication). Both projects turn a stark symbol of wildlife destruction into something that benefits conservation and offers an alternative source of income (to poaching among others). An antipoaching measure is achieved through the use of removed wire snares, and the snare art brings immediate financial benefit to communities that are provided with materials, equipment, a place to work, and training. Through such projects, tourists, retail purchasers, and local residents learn about the target species and their fight for survival.

Involvement in artisan groups establishes relationships between conservation organizations and the community, particularly nonfarming groups. Sales of community-based crafts provide an added livelihood to household income, thus reducing the dependency on the competitive farming market and promoting biodiversity conservation. Conservation organizations can help build the capacity to produce quality products in sufficient quantity and link them to sales outlets. In the past, gift shops required high-turnover value for the products sold, but increasingly, individual zoo and aquarium souvenir shops promote conservation projects and their community-based one-of-a-kind craft products despite lower profits. Additionally, many handcraft programs use online retail sites and zoo-related conferences to increase sales.

No studies of household impact from community craft sales have been conducted specifically on crafts produced in cheetah study sites. However, the Snow Leopard Enterprise Program, which works with women to produce and sell Wildlife Friendly (WFEN) certified handwoven crafts (specifically representing the relationship between snow leopards and livestock) documents a 40% increase in household income to families participating in the program, along with decreased livestock loss to depredation (Jackson and Lama, 2016; SLT, 2016).

Product Branding to Maximize Conservation Impact

The conservation impact of many of these alternative livelihood programs is not just through poverty alleviation but also through awareness raising of predator conservation to both communities and product consumers. Telling a story about the product will make the consumer aware of the bigger issues and inspired by their purchases and the companies from whom they buy (Stein, personal communication). Product branding is important in relaying that message and ensuring the buyer is fully aware of the conservation value of their purchase in order to maximize the return to the project sponsors, beneficiary households, and communities. Bushblok and Dancing Goat Creamery, for example, are well thought out businesses that carry their own creative logo and ecocertification labels while also having the CCF logo to increase the link between the product and cheetah conservation (Fig. 16.2B). Bushblok in particular has captured the imagination of major grocery retailers in the United States (Stein, personal communication), with the potential to introduce sales there in the future. ACK's COOL Crafts project (Fig. 16.2A) is also an example of a branded program where promoting a sound business and community empowerment plan incorporates livelihood

improvement actions into cheetah conservation in Kenya.

DEVELOPMENT OF LIVELIHOOD PROGRAMS

The launch of a new livelihood program can be a challenging task because community members are often hesitant to reconsider old methods or try new practices, especially when old practices are deep-seated in local cultures (Dickman, 2008). Conservation scientists tend to focus on the biological indicators of success and often fail to set up appropriate social or economic indicators. This oversight contributes to the public perception that conservationists care more about animals than they do about the people who use the same land as wildlife (Goldman et al., 2013), and can lead to a degree of mistrust toward initiatives proposed by conservationists.

Conservation Measures Partnership (CMP) was developed in 2004 by a group of prominent conservation NGO's as a means to design, manage, and measure impacts of conservation actions using an "Open Standards" approach in stakeholder participation (CMP, 2012). CMP used successful models in conservation (including threat reduction assessment of biological conservation success; Margoluis and Salafsky, 2001), public health, family planning, international development, social services, education, and business to determine common concepts and approaches. The basic steps in CMP are widely used in project-based programs to achieve clearly defined goals in program design, implementation, monitoring, and evaluation that are hinged on a policy science approach that stems from philosophies of John Dewey (1910) and Harold Laswell (1948) using a social decision making process.

Program Implementation

Elements of the decision making process necessary during the implementation of livelihood projects are intelligence, promotion, and prescription (Table 16.2). Gathering information (*intelligence*) to address the status and threats to cheetahs lays the foundation for species conservation, and is a starting point in identifying a meaningful project within the community. Intelligence also includes identifying meaningful participation by all stakeholders—from administrators (government, NGOs, conservationists, etc.) to land owners to herders—that is crucial in considering which livelihood projects will serve shared common interests that benefit the species and the community (Jackson and Lama, 2016). For a project to be successful, the stakeholders must understand and promote a clear link between a conservation target (e.g., the cheetah), and the economic benefits of the projects implemented by the conservation organization.

It is also important that during the *promotional* element of the decision-making process, stakeholders are given the opportunity to discuss livelihood threats and related solutions (Table 16.2). Stakeholder meetings provide opportunities to encourage support and collaboration for the introduction and development of an alternative or improved livelihood program. For programs to be effective key human values of enlightenment—wealth, power, respect, well-being, skill, affection, and rectitude—should be considered (Lasswell, 1971). During the *prescription* element a livelihood program is selected, the project plan is formalized and the planning document is developed and approved by stakeholders, including clear measures for evaluation (indicators for success) in both the short and long term. Conservation scientists tend to focus on the biological indicators and often fail to set up appropriate social or economic indicators (Child et al., 2012), even when biodiversity and human livelihoods are so critically linked. These indicators should be developed and endorsed through an equitable participatory planning process with community members to reduce potential future

TABLE 16.2 Elements of the Decision Process Used During the Development, Implementation, and Appraisal of Alternative and Improved Livelihood Projects

Elements	Definitions	Actions
IMPLEMENTATION		
Intelligence	Research dependable information relevant to the project area	• Identify key stakeholders. • Understand community needs and current livelihood dependencies. • Understand relevant cultural aspects of community including the value of biodiversity and the cheetah's role in the ecosystem. • Analyze previous livelihood projects and outcomes.
Promotion	Discussion of problems and potential livelihood projects with relevant stakeholders	• Workshops involving international experts, community members, wildlife authorities, and other stakeholders. • Open debate of problems and potential livelihood projects. • Clarify expectations of all stakeholders. • Develop a media plan.
Prescription	Formalize the project plan and develop the planning document	• Develop management document for project; it should include clear actions and timeline. • Obtain support and endorsements for planning document from various stakeholders.
Invocation	Implementation of the project	• Actions produce results that are timely and dependable.
MONITORING AND EVALUATION		
Appraisal	Assessment of the project	• Conduct timely, regular assessment of the project's actions and results. Appraisal should be independently conducted, ongoing, and the findings acted upon to develop and improve the project. • Review intelligence, promotion and prescription based on findings.
Termination	Ending the project or moving to a new phase	• Repeal or large-scale adjustment of prescription.

Adapted from: Clark, 2002.

disappointments if community members' expectations are not met. ACK conducted community meetings and stakeholder forums providing opportunities for sharing ideas that led to the cattle dip project, for example, whereby the community put forward several projects with which ACK could assist. A common goal was evaluated—*promoting a healthy ecosystem through tick control*—(*promotional element*) and agreements were made between ACK and the community as to the roles each would play in construction, management, data collection, and data distribution within the community (*prescription element*).

Upon agreement, the program can be enacted (*invocated*) within the agreed timelines and conditions (Table 16.2). The frequency of meetings and reviews during invocation depend on the guidelines set by the project team.

Monitoring and Evaluation

Conservation-driven poverty alleviation projects often fail somewhere between invocation and *appraisal*, as disputes arise when common interests are not adequately recognized or benefits to community members are not acknowledged quickly enough (Clark, 2002). Appraisal

of the cattle dip project included interviews during and after the implementation of the project. Out of the 374 conflict investigations conducted in the Salama area between 2006 and 2014, 82% of the interviews reported that one of the valuable aspects of the cheetah is the implementation of the cattle dips, and associated training seminars in the community (ACK, unpublished data) showing that the community understood the link between the project and the survival of the cheetah in this region. Additionally, 100% of the members who regularly attended (once per week) the dipping sessions reported to have zero incidents of tick related disease mortality in their herd exceeding the expectation of the community members.

Cheetah organizations are burdened with the problematic issue of human–predator conflict (Chapter 13). As a consequence, community members' receptiveness to conservation organizations and livelihood programs can be reduced, especially during project promotion. Livestock losses to predators can reduce household income, potentially to levels above that which can be offset by traditional livelihood programs. Donor investment along with technical support for driving a new project's start-up is, therefore vital during the first difficult stages until projects become established and self-sustainable. Both government and donor support enabled the implementation of the cattle dip project, which intended to reduce donor dependence to zero by the end of the 3-year plan. Project management seminars during the 3-year program enabled the dip management committees to sustain funding through product sales—that is, the cost of dipping charged to the clients (members). The three dips that are still functioning have implemented product sale increases based on the business skills learned in the seminars, thus enabling them to maintain their business to date, 10 years after implementation.

Programs should conduct rigorous monitoring and regular reporting to community members and all relevant stakeholders, focusing on the indicators of success defined in the planning stages. The use of branding, strong conservation messaging, and continuous outreach programs must clearly promote the link between the environment and community livelihoods. Signage at each cattle dip clearly states the partnership of ACK and the dip management in establishing the facility, and announcement postings include the ACK logo as an endorsement of policy changes.

No studies of the economic impact on households from individual alternative or improved livelihood programs have been conducted in cheetah study sites. However, CCF measured the joint economic output of its programs (including the *International Research and Education Centre*, the *Bushblok Project*, *Dancing Goat Dairy*, and *Cheetah Country Crafts*) to Namibia due both to on-site spending and to off-site spending throughout Namibia by visitors coming to CCF. The principal finding revealed that the overall economic impact of CCF on Namibia in 2014 was approximately US $10 million (Humphreys, 2016).

CONCLUSIONS

Cheetah conservation related improved and alternative livelihood programs, such as those discussed in this chapter, have the potential to be viable solutions that can boost income levels for community members and help build positive attitudes toward cheetah conservation. However, cheetah conservationists are now challenged with scaling up their economic models to reach a greater number of communities. Such expansion will require the empowerment of land-owners and communities to manage and plan for sustainable natural resource conservation.

Conservation efforts associated with community development strive to achieve strong, visible relationships between their achievements in biodiversity conservation and poverty alleviation. Although difficult to quantify, the economic value of cheetah conservation efforts

through improved and alternative livelihoods needs to be made available to policy makers, donors, and the community. Strengthening the promotion, monitoring and evaluation of existing and all future projects will therefore be the key in embedding cheetah conservation action into the homes of the people who live with the cheetah.

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