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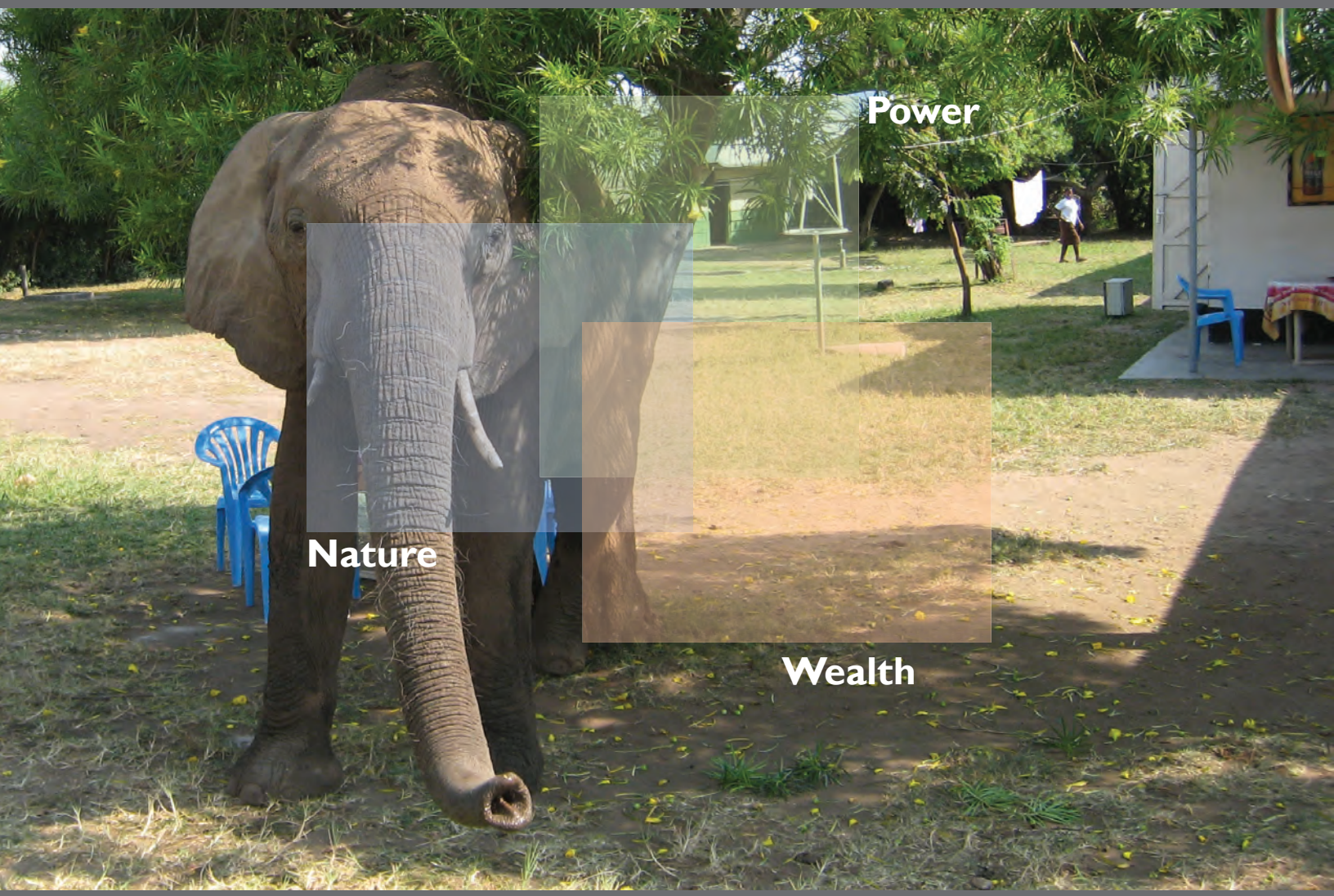

Lessons Learned, Opportunities and Innovations in Human Wildlife Conflict Compensation and Insurance Schemes

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Lessons Learned, Opportunities and Innovations in Human Wildlife Conflict Compensation and Insurance Schemes

Report prepared for WCS TransLinks Program

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Preface

Prevention and mitigation of human wildlife conflict continues to be a challenge facing human populations living in close proximity to wildlife habitat and to stakeholders concerned with the conservation of threatened and endangered species. Wildlife managers have a variety of tools at their disposal to help prevent and mitigate the impacts of human wildlife conflict. This short discussion paper presents some of the lessons learned, opportunities and innovations of compensation and insurance schemes, with the hopes of assisting conservation managers with the choice of management tools appropriate to their context.

Introduction

Human wildlife conflict (HWC) results in damage to property and crops, loss of livestock and, in some cases, loss of human life. In the developing world, where many rural poor live in close proximity to wildlife, even one incidence of property, crop or livestock loss can impose severe economic and livelihood hardship on individuals and families. It can also produce psychological and social costs that are not easily quantified or compensated, such as the opportunity costs or the fear arising from potential attacks against oneself and one's property. Human wildlife conflict management measures are designed to either prevent (reduce the occurrence) or mitigate the effects of human wildlife conflict.

Human wildlife conflict management measures can roughly be divided into those that are designed to reduce the incidence of HWC before it happens (*ex ante*), and those that mitigate the impacts of HWC after it happens (*ex post*). Preventative or avoidance measures represent an essential component of any HWC strategy. Examples of preventative management measures include actions such as land use planning, herd management, creating physical, chemical or psychological barriers, and the use of guard animals. Other complimentary measures can also help mitigate the impacts of HWC. For example, education and awareness programs that lead to improved management practices and greater appreciation of conservation concerns can increase the social carrying capacity or tolerance toward wildlife that cause damage. Direct economic incentive programs, as well as cultural and religious reinforcements, can also contribute to achieving greater tolerance for living with wildlife. Development initiatives can also have a significant impact. Diversification of income opportunities creates more tolerance for wildlife predation as people rely less on livestock or vulnerable crops for their livelihoods, and conflict is thus reduced. Incentive payments provide an additional income source and thus are used as a way to help mitigate HWC impacts; however, they differ from financial mechanisms established to mitigate the effects of wildlife predation.

Compensation and insurance schemes are designed to mitigate the effects of wildlife conflict once damages have been incurred by making payments to cover losses from predation. These measures have both *ex ante* as well as *ex post* benefits. Human wildlife conflict compensation schemes aim to spread the costs of wildlife conservation more fairly within society. Specifically, they aim to reimburse costs of lost property or life. Compensation programs may also aim to increase tolerance for wildlife and conservation policies, thereby reducing illegal killing of wildlife and resistance to conservation management actions. However, these approaches and programs are rarely successful unless people affected by conflicts view them as their own and are willing to invest in their success.

Human wildlife conflict insurance schemes have similar objectives to compensation schemes; however, the payments, or claims, under the insurance schemes are funded at least in part by premiums paid by policyholders, usually farmers. There are a variety of cost sharing scenarios being implemented and discussed in the literature (De Klem 1996, Madhusan 2003, Mishra et al. 2003), where various stakeholders share the costs of compensation to some degree.

For the purposes of this paper, schemes where some part of the HWC compensation is paid through premiums are considered insurance schemes, while those that provide compensation payments from funds generated from a third-party source (donations, income from tourism, etc.) are referred to as compensation schemes.

Methodology

The authors researched peer reviewed and grey literature and consulted with experts in human wildlife conflict compensation schemes and commercial and micro insurance. The authors reviewed the literature to gather information on the financial structure and management of past and present compensation and insurance schemes, along with the theoretical constraints and benefits of the various management structures and lessons learned from implementation of the various schemes. We mainly focus on compensation and insurance schemes that have been implemented to compensate the loss of livestock to wild carnivores.

Findings and Lessons Learned

Managing Conflict

Effective management of human wildlife conflict involves the use of multi-pronged strategies that focus on management, both of wildlife and livestock, financial mechanisms, and education and outreach. The development of these strategies is generally based on existing threats and options to reduce and mitigate those threats. A threats-based conceptual model of conflict management is presented in Figure 1, showing the main causes, desired target conditions, and examples of effective management interventions.

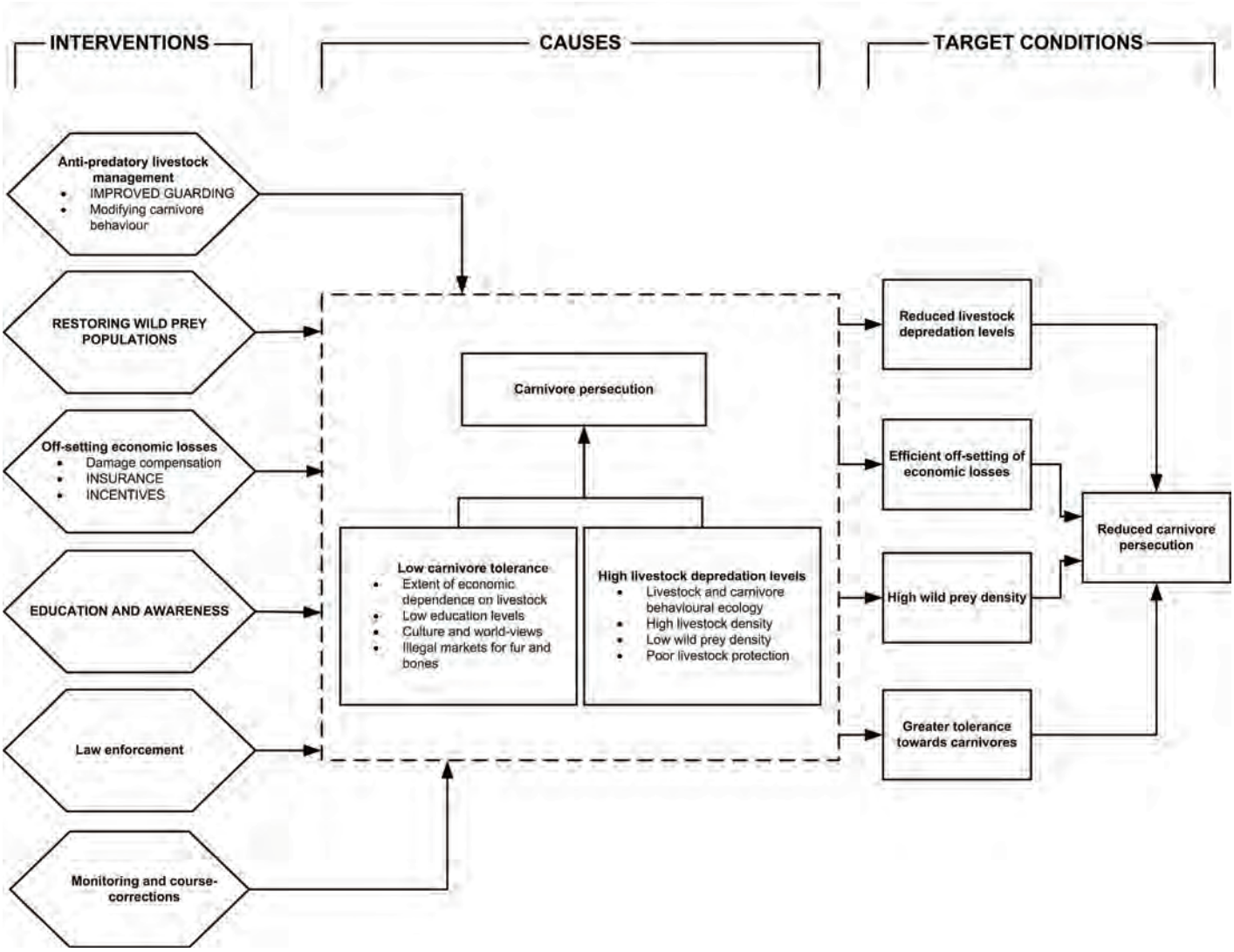

Figure 1. A conceptual model of human-wildlife conflict showing causes, interventions, and target conditions. (The capitalized interventions shown in this model have been employed in a human-snow leopard conflict program in India.)

Compensation

Although considered a key component of a human wildlife conflict strategy, the use of compensation mechanisms as a mitigation tool for human wildlife conflict has had mixed results (De Klem 1996, Fourli 1999, Nyhus 2003, Muruthi 2005, Montag 2003, Mishra et al 2003). Schemes have been implemented in a wide variety of environments and governance contexts and have taken a variety of forms (See Table 1).

A review of current literature showed that Europe has a variety of compensation schemes, mostly government-run, targeting farmers affected by damage by wolf, bears, lynx and other wildlife. In North America, the US federal government has avoided getting involved in compensation schemes; however, state governments and conservation NGOs have filled the gap in funding and implementation of a variety of wolf and bear conflict compensation schemes. Nineteen states in the U.S. and seven provinces in Canada reported having wildlife compensation schemes (Wagner et al. 1997).

Compensation schemes in the developing world and emerging economies are fewer and farther between, and are managed by NGOs or the private sector and at

Table 1. Examples of compensation and insurance schemes (*continued on next page*).

Country	Species	Compensation or Insurance	Status	Funding
EUROPE				
France	Bears, wolves, lynx	Compensation	Active	Ministry of Environment (through NGOs)
Spain	Wolves	Compensation and Insurance	Active	Regional government/private sector
Portugal	Wolves and game	Compensation	Active	National government/managers of game (hunting tenants)
Scotland	Geese	Compensation	Not clear	National government
Italy	Wolves, bear	Compensation	Active	Regional government
Switzerland	Lynx, protected and game species	Compensation and Insurance	Active	Swiss League for Nature Protection (73-88), cantons, national government (88-)
Sweden	Wolves	Compensation	Active	National government
Norway	Large predators and game	Compensation	Active	National government/county
Austria (Land of Salzburg)	Wolf, bear, wild cat, otter, beaver, birds of prey	Compensation	Active	State/"Land"
Belgium	Game species	Compensation	Active	"Region", hunting tenant
Finland	Deer, bear, lynx, wolf, wolverine, etc	Compensation	Active	National government
Germany	Protected and game species	Compensation	Active	National government/province and hunting tenant
Lithuania	Endangered species/ game species	Compensation	Active	National government/hunter associations
Luxembourg	Badger/big game	Compensation	Active	National government (management)/ hunting tenants/hunting association
Netherlands	Waterfowl	Compensation	Active	Government/hunting fees
Poland	Bison, bears, beavers and game	Compensation	Active	National government/hunting tenants
Czech Republic	Game	Compensation	Active	National government/hunting tenants
Slovenia	Protected animals and game	Compensation	Active	National government/hunting tenants

least partially funded by philanthropic organizations. India and some other Asian countries have a mix of government run and smaller site-based schemes run by NGOs or community groups. Government programs in India are failing to meet expectations because of low compensation rates, corruption, bureaucratic apathy, and the time and costs involved in securing compensation (Mishra 1997; Madhusan 2003). Nevertheless, some innovative site-based schemes are emerging in the region. One program to protect snow leopards is being implemented by the Snow Leopard Trust and its country partner, the Nature Conservation Foundation, with the implementation of community-based insurance schemes in two Trans-Himalayan communities with important snow leopard populations. The first one became financially sustainable within five years (though it had to be supplemented with additional funds during a subsequent year of unusually high livestock mortality). Success was based on a well-designed, community-managed payment scheme coupled with increasing wild prey density and livestock husbandry, as well as tolerance through education and outreach (Mishra, unpublished). Two other examples are discussed later in this paper.

Table 1, cont. Examples of compensation and insurance schemes.

Country	Species	Compensation or Insurance	Status	Funding
AFRICA				
Kenya	Elephant	Compensation	Inactive (1989)	National government
Kenya- Mbirikani Predator Compensation Fund	Large predators	Compensation	Active	Conservancy and donations
Zimbabwe	Elephant	Compensation	Operated one year (1990)	District government
Botswana	Elephant	Compensation	Active	National government
South Africa	Cheetah	Compensation	Active	Self financing/NGO
Namibia	Wildlife	Insurance/ Compensation	Active	NGO/Private Sector
NORTH AMERICA				
Minnesota	Wolves	Compensation	Active	State
Northern Rockies, Western Great Lakes	Wolves	Compensation	Active	Defenders of Wildlife
Wisconsin	Wolves	Compensation	Active	State
ASIA/RUSSIA/MIDDLE EAST				
Pakistan (Baltistan)	Snow leopard	Insurance	Active	NGO/Private/Farmer Association
Turkmenistan	Central Asian leopard	Compensation	Active	WWF with self-financing goal
India	Tiger, elephant, snow leopard	Compensation	Active	Government-Forest Department Community-based
Israel	Wolves	Compensation	Inactive	Government/kibutz
China	Wildlife	Compensation	Active	Local governments
Russia	Tigers, leopard	Compensation	Active	NGO, Tigris and Phoenix Fund
Mongolia	Snow leopard	Compensation/ Micro-insurance	Active	Community/NGO
Nepal	Tiger and leopard	Compensation	Active	Government/NGO
Sri Lanka	Elephant	Compensation from voluntary levies on insurance premiums	Unknown	Private Sector, communities linked to urban areas with life and automobile insurance

In Africa, HWC compensation schemes are scarce and have rarely been effective (Lamarque, 2008). A few government-run schemes have been initiated (Botswana, Kenya, Zimbabwe, Mozambique) but these have generally not lasted long and the ones that remain (Kenya and Botswana) have not met expectations due to low compensation rates, procedural barriers to many rural poor, and administrative delays (Muruthi 2005, Lamarque 2008). Several site-based schemes run by conservancies, NGOs or community groups exist and are having varying degrees of success, but financial sustainability remains a primary concern.

Common Challenges and Elements of Successful Compensation Schemes

While the reasons for the failure of HWC compensation schemes are usually financial, the underlying causes of financial problems are varied. Some are due to poor design, management, undercapitalization, or lack of technical capacity, while others can be attributed to governance structure or political considerations. While each case is different (Box 1), the literature has identified a number of common challenges to the successful implementation of HWC compensation schemes (Box 2). Countries with high poverty levels, weak government capacity, poor governance and little wildlife management capacity could be expected to present more substantial challenges to successful compensation schemes. Lamarque et al. (2008) and Muruthi (2005) identified a number of reasons why government-managed compensation schemes are unlikely to be sustainable in Africa:

- Bureaucratic inadequacies
- Corruption
- Cheating, fraudulent claims
- Time and costs involved
- Moral hazard
- Practical barriers that less literate farmers must overcome to generate a compensation claim
- Difficult to manage
- Require reliable and mobile personnel and logistics to verify and objectively quantify damage over wide areas
- Delayed decisions, low rate of irregular and inadequate payments or rejection of compensation claims

Wildlife managers, donors and policy makers should keep these challenges in mind when deciding whether or not to pursue compensation schemes in similar contexts.

The literature has also identified determinants of success that mitigate some of the challenges of compensation schemes. Nyhus et al. (2003) gathered insights from 23 experts in the field of compensation programs for wildlife conflict and identified six key determinants of success (Box 3).

The literature also emphasizes the importance of community participation in decision making, transparency,

Box 1: Examples of Unsustainable HWC Compensation Schemes

- In Israel, in the early 1980s, a new compensation scheme was abandoned so that funds could be diverted to preventative measures (e.g., guard dogs and fences), which was perceived as a more economical and effective means of dealing with HWC (Nemtzov 2003).
- A compensation scheme was tried by one district in Zimbabwe but abandoned when the number of claims quadrupled in the second year of operation (Taylor 1993).
- A pilot compensation scheme introduced by a voluntary conservation group, Friends of Nairobi National Park, to compensate Maasai livestock owners for predation by the Park's lions, leopards or cheetahs, proved too expensive to sustain (Muruthi 2005).
- In another Kenyan compensation scheme, damage caused by wildlife was compensated under a national policy until 1989. However, in that year, payments for crop damage were suspended because of widespread cheating on claims, high administration costs and lack of disbursable funds (Thouless 1993; from IUCN Elephant specialist group).
- Wagner et al. (1997) reported six states or provinces in North America that had to cancel programs because of budget cutbacks or changing priorities (from Nyhus 2003).

Box 2: Common Challenges of Compensation Schemes

- They are susceptible to corruption when managers/payers misappropriate funds.
- They are susceptible to fraud when recipients exaggerate, conceal, or fabricate evidence in support of claims. This risk can be minimized with scientific verification and separation of authority between verifiers, recipients and payers.
- They are susceptible to waste when financial transactions, claims, or verifications are cumbersome, costly, or time-consuming.
- They are susceptible to moral hazard. In other words, when the full value for a lost good is paid and/or protection is more costly (or less preferable) to seeking compensation, it may be easier to allow a loss than to protect one's property, which may result in negligent ownership.
- They are difficult to reduce or phase out once begun. As wildlife populations recover or spread, the costs may increase. If special interest politics and lobbying is allowed to sway payment rules, costs are likely to increase.
- Trade-offs are often invisible (high opportunity costs). Namely the funds used for compensation could be devoted to other conservation activities or other wildlife.
- Recipients tend to view compensation as inadequate – even if generous financially – because of wasted time, lost investments, stress, frustration, or fear, especially when they are not vested in the system.
- Claimants tend to be better educated or wealthier. Non-claimants who believe they have lost property to wildlife may outnumber claimants.
- Payments do not appear to raise the tolerance for the damaging wildlife among recipients – although before-and-after assessments of the same individuals are lacking.
- Compensation programs appear to create political space for multi-stakeholder discussions of wildlife policy – although systematic studies of this conjecture are lacking.
- Political clashes between donors, payers, and recipients are likely, especially when rules are formulated or renegotiated.
- Donor disaffection or defection from the program is likely if rules change, wildlife are reclassified, or if lethal control of wildlife is paired with compensation payments. This is especially true where donors have short-term funding horizons and sustainability lies further into the future.

and a thorough understanding by all participants of the problem, responsibilities, and expectations involved with a compensation program as key to the success of compensation schemes (Sinnot 2006). Traditionally, many communities have lived with wildlife and accepted a certain amount of loss. Often, when the government or an outside agency steps in and offers to compensate, people start perceiving the wildlife as the government's property and responsibility, and, in its extreme manifestation, HWC as an issue that the government should be held completely responsible for. This can particularly happen when such programs are not accompanied with adequate and sustained education and awareness. Often compensation programs can have the opposite effect to building support for wildlife or policy. This is also one reason why insurance programs, particularly community-based ones, work better, as people view them as their own program and investment (Mishra, unpublished).

All compensation schemes, whether community-run or operated by some other entity, require clear rules to lower the risk of corruption. Such guidelines relate to the management (e.g., transparent accounting and monitoring) and separation of powers between verifiers of claims, payers of claims, and managers of funds. Furthermore, the risk of fraud by recipients can be minimized with scientific verification and separation of authority between verifiers, recipients and payers, or through systems of community peer pressure.

Box 3: Core Elements of Successful Compensation Schemes (from Nyhus 2003)

Quick, accurate verification of damage. This requires training, adequate tools to properly identify losses, and a mechanism to establish trust among all participants to ensure that the process is fair and honest.

Prompt and fair payment. Timely payment can temper the anger of wildlife damage victims and reduce retaliation against animals or conservation authorities. The compensation process needs to be transparent, protect against abuse, account for unverifiable losses (i.e., when it is difficult to determine how or how many livestock were killed), and be capable of evaluating differences in the value of different livestock or crops.

Sufficient and sustainable funds. An inadequately funded scheme may cause more problems than no scheme at all. Wildlife damage may vary considerably from year to year, or wildlife may make multiple kills creating large losses at a single point in time. Managers need to plan for contingencies, for long-term sustainability, and/or for an exit strategy. Solid baseline information is necessary to accurately predict future compensation claims and to determine if compensation makes sense in a local context.

Site specificity. Although there are some general guidelines that can aid wildlife managers in implementing effective compensation schemes, it is important to be sensitive to site, species, and culture-specific issues. A sense of shared program ownership between local people and institutions running compensation schemes can reduce the potential for conflict and abuse.

Clear rules and guidelines. Successful programs tend to have strong institutional support and clear guidelines. Compensation should be linked to sound management practices. Efforts cannot be ad hoc.

Measures of success. Is a compensation scheme having its intended impact? For example, are more people supportive of wildlife and conservation? Ultimately, are fewer animals of conservation interest being killed than would have been without the program?

Insurance

There are several examples of private (e.g., Spain, Finland, Austria, Minnesota) and public (Greece) insurance schemes for damage caused by wildlife in Europe and North America (De Klem 1996, Fourli 1999). More recently there have been a few examples (e.g., Baltistan, Namibia; see below) of locally run insurance schemes funded by a mix of donor and private funding in combination with participant premiums. However, the list of insurance schemes in the developing world context is very short. It is unclear if this is due to the nature of human wildlife conflict, the relative unfamiliarity of conservationists with how insurance works, or a lack of understanding of human wildlife conflict by insurance companies. The technical difficulties in implementing successful insurance schemes are discussed later in this brief, and may provide some insights into the paucity of existing schemes.

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Although lessons learned from HWC insurance schemes are limited, there has been a surge of recent literature on the design and implementation of micro insurance – insurance for low income earners (similar in concept to micro-lending). This literature (along with lessons from insurance in general), is examined below to determine if it provides any insights on how insurance for wildlife damage could be viable in poor, rural areas.

Common Challenges and Elements of Successful Insurance Schemes

In order for insurance to be a viable solution to any risk situation, there are six preconditions that have to be met (Churchill 2006):

- **Randomness:** The occurrence of loss or damage must be unpredictable. Otherwise, systematic saving is a better alternative because risk pooling would not result in lower premiums.
- **Low probability of occurrence:** If the majority of members are likely to incur a loss or damage, premiums will be similar to the cost of individual provision.
- **Independence of risk:** Collectively insured risks of individuals have to be independent with regard to their occurrence in order not to threaten the long-term stability of the insurance.
- **Uncontrollability of loss or damage:** The policyholder should not be able to cause the occurrence of loss or damage.
- **Unequivocal:** The insurer must be able to verify the occurrence and the scope of loss.
- **Existence of insurable interest:** For an individual to be interested in an insurance solution, the loss must have adverse financial consequences. The potential losses should be high in relation to the cost of premium payments.

These preconditions do not seem to rule out insurance as a theoretical option for managing economic loss due to human wildlife conflict. The existence of long-running HWC insurance schemes in Europe and North America indicates that, at least in some circumstances, these preconditions are met. And these preconditions do not include elements that would suggest they are dependent on governance or economic context. However, verification and monitoring definitely depend on technical and administrative capacity.

Operationally, the challenges facing insurance schemes are similar to those of compensation schemes for human wildlife conflict. Nyhus (2003) identified fraudulent claims, moral hazard and adverse selection as key challenges to the success of HWC insurance schemes.

In addition to these challenges, there are the added complications of the necessity of a willingness to pay on behalf of the potential insurees (the farmers) and the need for a system to collect the premiums from a large number of poor farmers.

While there is relatively little experience with commercial HWC insurance in developing country contexts, there is a growing literature describing the challenges of providing agricultural, health and property insurance to low income earners who are usually outside formal markets, located in remote locations and spread over large geographical areas (Churchill 2006, Loewe 2006, ILO 2005, Jutting 2002, Roth and McCord 2007). One might expect to encounter similar challenges to HWC insurance schemes in developing countries precisely because those most affected by HWC tend to be poor rural farmers spread over large distances.

Churchill (2006) identifies a number of operational challenges facing the traditional insurance model in reaching and being useful to low-income earners (Box 4), while Loewe (2006) identifies key elements to providing insurance to low-income earners (Box 5).

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Examples of Innovative Compensation and Insurance Schemes

Some NGOs, private actors and communities are using innovative solutions to overcome the challenges of sustainability that most compensation and insurance schemes face. This section provides several examples of solutions that provide innovative ideas for addressing some of the constraints of traditional compensation and insurance schemes.

Box 4: Challenges for the Traditional Insurance Industry when Serving Low-Income Earners (Churchill 2006)

High administrative and transaction costs and inappropriate distribution systems

Inappropriate insurance product design that:

- does not consider irregular cash flows of households in the informal economy.
- includes inappropriate insured amounts, complex exclusions and indecipherable legal policy language.

Inadequate Data: Insurers generally have inadequate data to set appropriate insured amounts and premiums for the poor and may inflate them to cover the increased risk resulting from low information availability.

Risk Control: Insurers *do not have the right insurance risk control mechanisms* to address conditions such as adverse selection and fraud, among the low-income market.

Education: A major challenge in extending insurance to the poor is *educating the market* and overcoming its bias against insurance.

The people who work for insurance companies are usually *unfamiliar with the needs priorities and concerns of the poor.*

Incentives: The *culture and incentives in insurance companies* reward salespersons for focusing on larger policies and more profitable clients.

Box 5: Key Elements of Successful Insurance Schemes for Low-Income Earners (Loewe 2006)

The insurance provider must:

- Have *the technical skills to design an insurance contract*; this requires that insurance provider know the average probability of risk occurrence and the expected value of the effects to calculate what premium rates to charge.
- Have *a large number of clients to be able to pool their risks adequately* to minimize the risk of depleting the reserves of the insurer due to covariant risks.
- Have *access to profitable investment opportunities* to allow for high capital yields and lower premium rates.
- Have *legal and political acceptance*.
- *Appear sufficiently reliable to the target group* of potential clients, who are expected to commit their premium payments to the provider and trust the latter to grant compensation when the insured risk occurs.
- *Have some basic information and knowledge of the risk profile and behavior of the clients* to control for adverse selection, moral hazard and fraud.
- *Offer insurance at a reasonable price*, a price that is affordable to potential clients and reasonable in relation to the insurance package offered (defined by the expectations and needs of the potential clients and on their income more than on the objective actuarial fairness of the relationship).

In-Kind Compensation: The Central Asian Leopard – Turkmenistan

In Turkmenistan, WWF and local ranchers have teamed up to provide compensation to ranchers for livestock lost to Central Asian Leopards, through the provision of replacement livestock from a group flock (for more details, see Box 6). In-kind compensation has the advantage that the compensation program could become sustainable through the natural reproduction of the group flock (or herd). However, the sustainability of this approach will depend on the health of the group flock/herd and may encounter problems of covariant risk (disease outbreak) if one flock/herd is the only source of replacement livestock. These challenges could be mitigated by scaling up – cultivating multiple flocks or herds and joining with other groups to increase numbers and share the risk.

The approach of this project builds on the technical capacity of ranchers and WWF, taking advantage of local knowledge and reducing asymmetric information and peer pressure in order to alleviate some of the false claims and moral hazard.

Self-Help Mutual Insurance Program: Snow Leopard Project in Baltistan

A promising mutual insurance program in Baltistan is combining contributions from farmers with income from ecotourism while leveraging local communities' organizational capacity to address issues of financial sustainability and reduce fraud and moral hazard risk (for more details, see Box 7).

This approach has a number of elements that address the challenges facing many insurance schemes. Sustainability issues are being managed through both the payment of premiums from farmers and income from a business that depends directly on the predator responsible for livestock damage. The mutual self-help group approach takes advantage of local information and peer pressure to reduce asymmetries of information and the incentives for fraudulent claims which face traditional insurance schemes. The project also benefits from the technical expertise of an international conservation NGO, which mitigates technical problems which usually face self-help insurance groups. However, this approach may be vulnerable to covariant risks due to the small number of participants and site-specificity of the project. Links with other groups may help to mitigate some of these risks.

Box 6: In-Kind Compensation and Sustainability Strategy

Central Asian Leopard in Turkmenistan

In Turkmensitstan, WWF partnered with local ranchers to develop a compensation scheme based on in-kind compensation. The project involved establishing a flock of sheep (WWF bought 196 sheep, which subsequently became the property of the Catena Ecoclub), and compensating ranchers who have suffered sheep losses due to leopard kills with sheep from this common flock. The project is based on the premise that, under proper management, a flock of 650-700 sheep would grow on its own and cover the cost of paying shepherds and veterinarians.

WWF bought the initial sheep to transfer, along with management responsibilities, to a ranchers' society (Kara Kala Ranchers Society). Sheep kills are investigated by two experts to determine if the kill was made by a leopard, and ranchers have a set time period to report attacks. Compensation is only paid if the rancher was employing some accepted management precautions.

Expanding the flock also provides the opportunity to offer the same service to neighboring regions that have similar conflicts between people and nature.

Source: Lukarevsky, V. 2003. Saving the Central Asian leopard in Turkmenistan. (C.Angst, J.-M.Landry, J.Linnell, and U. Breitenmooser, Eds.). *Carnivore Prevention News* 6: 13-15.

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Box 7: Private Sector, Community and NGO Partnership for Insurance

Snow Leopard in Baltistan

Project Snow Leopard (PSL) was initiated in 1998 to meet the dual challenge of alleviating farmers' losses and conserving the snow leopard population in Baltistan.

This project has two basic components: a collective insurance fund and the promotion of ecotourism activities focusing on the snow leopard. The former consists of premium contributions paid in by farmers per head of livestock. The latter generates income for a second fund that cofinances insurance compensation if losses incurred are higher than expected.

Under the insurance scheme, all households in Skoyo village have now taken out insurance on their goats. The premium rate has been set at 1% of a goat's current value. Indeed, given that the average annual loss in the past 5 years has been 2% of the total value of herds and that this percentage is expected to remain constant in the coming years, the villagers' own premium payments should cover at least 50% of the costs of the average annual loss. The other 50% will be covered by an ecotourism fund. Some issues include:

- The probability of being hit by such a loss is randomly but evenly distributed among the farmers. This is an argument in favor of collective coverage of farmers' individual risk.
- 11 animals, representing about 2% of the village's total livestock holdings (approximately 600 head), are taken per year.
- As most of the animals killed by snow leopards were goats, the villagers decided to insure only goats during the pilot stage of the project.
- Insurance premiums are paid annually by the villagers into Fund 1, which is kept in an account at a local bank.
- The money is held collectively, but individuals' payment records are kept separately in the village.
- Since the value of each goat is PKR 1500, at a rate of 1%, premiums have been set at PKR15 per goat.

Source: S. Hussein. 2000. Protecting the Snow Leopard and Enhancing Farmers' Livelihoods: A Pilot Insurance Scheme in *Baltistan Mountain Research and Development* 20(3): 226–231

A Private Sector-NGO Partnership for HWC Compensation Insurance: HACSIS Namibia

Conservancy owners and a local NGO in Namibia (IRDNC) have embarked on a project to provide HWC compensation to people living in and around several conservancies (for more details, see Box 8). In this project, as with the snow leopard program in Baltistan, businesses that benefit directly from wildlife are assuming some of the costs associated with compensating people for HWC damage; in this scheme, the villagers pay no premiums and the conservancy owners can be seen as the parties paying for insurance against claims made by villagers for wildlife damage. Even with the financial support of the local NGO, costs of wildlife damage are threatening to bankrupt the scheme. One option being discussed to address this is the expansion of the program to encompass more conservancies and the development and endowment of a trust fund so that claims could be paid out of the interest from the fund.

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Box 8: Private Sector-NGO Partnership for Insurance

The Human Animal Conflict Self-Insurance Scheme (HACSIS) in Namibia

HACSIS seeks to further balance the individual losses of conservancy members with the benefits received by the conservancy by offering payment for livestock mortalities to the members who have taken the required precautions to protect their livestock from wildlife (e.g., the use of crocodile-proof fences at drinking points for cattle, careful herding during the day and kraaling cattle at night). No payments are made for livestock killed in a protected area or conservancy's exclusive wildlife zone, or those killed at night without being in a secure kraal or other enclosure duly inspected by conservancy staff and traditional leaders. Furthermore, claims are not accepted if members were warned that predators were in the area and they took no action to bring the livestock to safety.

The scheme covers human life, livestock deaths and crop damage. IRDNC, a local NGO, pays half of the costs while the conservancies pay the other half. Over the past 4.5 years, the conservancies have paid out over US$14,300.00 for 112 livestock and 4 human deaths. They have also paid US$1,012.00 for the crop insurance scheme, which started in March 2007. There is some indication that the scheme could become a drain on conservancy finances if total annual payments are not capped, or if conservancies are not able to increase their incomes. Some conservancies are considering establishing livestock herds that can be specifically used to replace animals lost to predators, instead of making payments.

Source: Lamarque, F., J. Anderson, P. Chardonnet, R. Fergusson, M. Lagrange, Y. Osei-Owusu, L. Bakker, U. Belemsobgo, B. Beytell, H. Boulet, B. Soto and P. Tabi Tako-Eta. 2008. *Human-wildlife conflict in Africa: An overview of causes, consequences and management strategies.* WORKING PAPER, Rome.

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Direct Incentives to Reduce HWC: The National Cheetah Management Program Compensation Scheme – South Africa

The National Cheetah Management Program Compensation Scheme in South Africa provides direct incentives to farmers and ranchers to trap problem cheetahs and relocate them to conservancies and parks (for more details, see Box 9). This program takes advantage of an inherent market for cheetahs, as an asset that parks and conservancies are willing to pay to attract tourism clients. This approach relies on that specific market and, therefore, its applicability may be limited to economically valuable problem animals.

Box 9: Direct Incentives to Reduce HWC

The National Cheetah Management Program Compensation Scheme in South Africa

Domestic stock farmers in SA are legally allowed to destroy cheetahs that cause damage to their stock; they may even destroy cheetahs if they are found to be in the vicinity of the domestic stock animals.

The Compensation Fund compensates farmers for excess and/or perceived "problem" cheetah(s) that have been captured alive using methods approved by the NCMP. Cheetahs can only be captured after permits have been approved. The farm owner gets compensated R10,000 (~US 1000) after the provincial conservation authority has verified that the cheetah was captured legally. Cheetahs are transferred to protected areas or private conservancies which pay R15,000 per cheetah directly into the compensation fund. The fund is managed from the difference in these two amounts (R5,000). This solution, while financially sustainable, is seen as a short-term solution and further options for conserving cheetahs are being explored.

Source: Cilliers, D. 2003. South African cheetah compensation fund. (C. Angst, J.-M. Landry, J. Linnell and U. Breitenmooser, Eds.). Pp. 15-16 in *Carnivore Prevention News* 6.

In summary, while the examples presented above are by no means exhaustive, they do present some interesting approaches that have the potential to be adapted and replicated in other contexts to help mitigate the impact of human wildlife damage and conflict. However, most are still grappling with issues of scale and financial sustainability.

Overcoming the Problems of Scale and Financial Sustainability: Lessons from Micro-Insurance

There are a number of technical challenges common to the design of compensation and insurance schemes, including keeping administrative and verification costs low, preventing fraudulent claims, reducing moral hazard and achieving a scale that can reduce the risk of a surge in claims weakening the financial sustainability of the schemes. The examples provided above present ideas on how to overcome some of these challenges; however, further lessons from the field of micro-insurance may be useful.

Micro-insurance has emerged as a promising concept in the search to provide tools for low income earners to manage challenges and risks in the health, agriculture, life and property sectors. In 2007, there were over 60 million poor people being served by micro-insurance schemes that provide insurance for health, life, disability and property (Roth et al 2007). Micro-insurance is the protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved (ILO 2006). The structures of micro-insurance systems in the agricultural, health and life insurance sectors are varied and may hold some insights applicable to human wildlife conflict compensation and insurance schemes.

According to the micro-insurance literature (e.g., Loewe 2006, Brown 2000, Churchill 2006, ILO 2005, Murdoch and Sharma 2002), the most common recommended institutional arrangements are ones that link: (1) informal self-help groups or community-based organizations with (2) NGOs or microfinance institutions (MFIs), who in turn link with (3) the formal insurance and reinsurance companies and public sector institutions to capitalize on their strengths and minimize their respective weaknesses.

Self-help groups often lack the scale to spread and minimize the risk of financial collapse, and lack the technical capacity to design and implement successful insurance schemes. They have challenges similar to many site-based HWC compensation schemes in developing countries (Box 10). They are, however, more apt to understand the local context and priorities and be trusted by local target groups. Commercial and public institutions are usually too far removed from the rural poor, both spatially and socially, to effectively serve the needs of targeted groups for micro-insurance. However, they have valuable technical expertise and access to resources and they operate at a scale that can spread the risk and maximize economies of scale. NGOs and MFIs can bring expertise and link self-help insurance groups cross-regionally to spread risk.

As with microcredit, the provision of micro-insurance services can be achieved by scaling up the activities of self-help mutual insurance groups, through the development and adaptation of products from commercial insurance companies, or by linking these

Box 10: Constraints of Self-Help Mutual Insurance Groups (Loewe 2006)

Issues which mutual insurance groups often have to deal with include:

- *Technical capacity*: local groups often lack the expertise to design insurance contracts (calculate sustainable premium rates; control for information problems, adverse selection and moral hazard).
- *Covariant risks*: smaller groups and limited area make it more difficult to manage the random coincidence of a large number of claims, which can deplete reserve funds.
- *Limited access to capital markets* to invest reserves and maintain the value of their capital in face of inflation.
- *Lack of political support* and government backing.

two types of institutions to capitalize on both their strengths. Lessons from micro-insurance suggest that linking local site-based organizations to larger organizations with more technical knowledge of insurance and financial resources capitalizes on various institutional strengths (Loewe 2006, Churchill 2006, Brown 2000) (see Box 11).

In the case of HWC insurance schemes, in addition to networking with other self-help insurance groups, local community self-help groups or community-based organizations could, for example, partner with micro-finance institutions, commercial insurance companies or international NGOs to increase technical capacity and financial resources, and to scale up activities to spread risk.

Box 11: Strengths and Weaknesses of Potential Micro-Insurers (Brown 2000)

Institution	Strengths as a Micro-Insurer	Weaknesses as a Micro-Insurer
MFIs	• Second most trusted type of institution for most low-income households • Existing distribution channels for credit and savings reach poor clients frequently at a relatively low cost • Already focused on reducing transactions costs • Potential for integration of insurance with other financial services • Pre-established groups for group based insurance	• Lack of insurance expertise • Limited ability to finance the initial investment required to start up an insurance product • Lack of managerial expertise in running the largest MFIs • Relatively small client base (for all but the largest MFIs) • Limited geographic scope (for all but the largest MFIs)
Governments	• Access to large population base • Ability to adopt regulations and legislation favorable to low-income insurance provision • Potential for integration with other services provided to low-income communities	• Least trusted institution for most low-income households • Limited insurance expertise • Susceptible to political manipulation of funds and coverage packages • Poor history of operation insurance programs • Increasingly limited resources to invest in social security measures
Commercial Insurers	• Substantial insurance expertise • Financial strength and access to global reinsurance markets • Reduced cost of producing insurance through economies of scale • Significant geographic scope	• Limited understanding of the low-income market • Limited access to low-income populations • Potential conflict between profit motive and development objectives • Potential lack of interest in serving the low-income market
Community Organizations	• Most trusted institutions for most low-income households • Control by local households leads to greater understanding and integration of households' needs • Potentially low-cost access to low-income households • Pre-established groups for group-based insurance	• Limited access to required financing • Lack of insurance expertise • Limited management expertise • Limited geographic scope • Small existing client base (per institution)
Credit Unions and Cooperatives (CUs)	• Experience in offering insurance to low-income populations • Access to some financing through reinsurance with co-operative/credit union reinsurers • Potential for integration of insurance with existing financial services • Pre-established groups for group-based insurance	• Insurance expertise concentrated in relatively few institutions • Relatively small client base (for most developing-world CUs) • Limited geographic scope (for most developing-world CUs)

What a HWC Micro-Insurance Scheme Might Look Like

While there are no examples in the literature of what a HWC Micro-Insurance scheme might look like, building on the examples of innovative insurance schemes discussed above, one can envision the possibilities and potential institutional roles in a HWC micro-insurance scheme (Table 2).

In the case of the snow leopard project in Baltistan, we have an example of a local community self-help group partnering with a local NGO and private sector business to fund and run the insurance scheme. One could imagine a scenario where an international NGO helps this project expand or link up with other HWC projects in the region to create a larger association and spread the risk/client base. This step has been achieved in the case of the snow leopard insurance scheme in India partnered by the Snow Leopard Trust, the largest international NGO dedicated to saving this endangered cat. The international NGO could, in turn, approach commercial insurers to help standardize and design technically sound contracts and procedures (on a commercial or pro-bono basis), assess risk and potentially manage funds. Government agencies involved with wildlife management, social welfare and agricultural development could be approached to provide co-funding and ensure a favorable policy environment. Development and philanthropic organizations with common goals could also be approached to subsidize premiums, increase the program's attractiveness to potential clients, and improve its financial sustainability.

In the case of HACSIS in Namibia, stakeholders are already discussing the possibility of expanding the network of conservancies to increase its scale and spread risk. By creating a network of conservancies across Namibia (and potentially other countries like Botswana), individual conservancies could reduce the risk of a string of claims crippling the program and its ability to compensate farmers for their losses. One option would be to approach commercial insurance companies to provide insurance products (either to the conservancies or to individual farmers). This could reduce the financial burden on individual conservancies and make premium payments by individual farmers more affordable/feasible (especially if other potential cofunders such as government agencies contribute).

Interestingly, HACSIS is discussing the development of a trust fund to finance compensation claims across conservancies. With the capitalization of the fund, premiums for individual farmers (or concessionaires) may not be necessary or would be reduced dramatically.

Table 2. Potential Institutional Roles in HWC Micro Insurance Schemes.

Institution/Actor	Potential Roles	Comment
Farmer/client	Insured- pays premiums, reports losses, receives compensation	-
Community self-help group, local NGO or CBO, conservancy	Agent – monitoring, verification, customer support, collection of premiums and settlement of claims	Roles take advantage of local knowledge and trust in local communities, and proximity to clients/farmers
National or international NGO, MFI	Organization, technical support, networking of CBOs, potential co-funding, startup costs	Takes advantage of technical expertise and links with other organizations and potential to raise co-funding
Government agencies	Subsidizing funding, legal framework, combining with other social services	Role minimizes direct interaction and encourages decentralization
Commercial insurance and reinsurance companies	Design of products, product management, investment of cash flows, overall risk management	Takes advantage of technical expertise, scale and investment opportunities
Development and philanthropic organizations	Co-funding, outreach, education, startup costs	Because of mutual objectives, co-funding can reduce premium payments and encourage participation

Many of the principles of the micro-insurance model discussed above are equally applicable to compensation schemes, and could be used to alleviate problems of financial sustainability of HWC compensation schemes. The networking of local organizations, NGOs and the private sector can provide increased technical expertise and reduce the likelihood of cheating and moral hazard, while increasing the client base and scale of compensation programs can spread risk and improve financial sustainability. A significant challenge with this approach will be raising commercial insurance companies' awareness of the potential viability of micro-insurance and their understanding of the factors relevant to human wildlife damage.

Similar partnership approaches that bring technical capacity, resources and scale efficiencies to site-based community compensation schemes may be warranted and, in fact, are being implemented in many of the projects discussed above:

- Site-based schemes that possess local knowledge and understanding of community needs and priorities can be linked with other community groups to spread risk and take advantage of scale efficiencies.
- NGOs can provide technical capacity and resources to design compensation schemes and build knowledge of sustainable financing mechanisms (including trust funds).
- Private businesses that receive financial benefits from wildlife can be engaged to help finance compensation schemes, along with government institutions and donors.

Discussion and Opportunities

Compensation and insurance schemes are only a couple, of many, tools being used to prevent and mitigate human wildlife conflict. In reality, they are important tools along a continuum of financial mechanisms that aim to mitigate the impacts of HWC with the choice and design of approach depending on the availability of resources and wealth in the community. Other tools, such as land-use planning, direct incentives, preventative management measures and awareness-raising should also be considered in an overall strategy to address human wildlife conflict. There is much debate about the efficacy of HWC compensation and insurance schemes. Although this brief has attempted to bring some information together that may be useful to those considering the use of these tools, many questions and challenges will likely still remain.

The HWC micro-insurance approach could address persistent challenges of compensation and insurance schemes: its networking approach capitalizes on the strengths and minimizes the weaknesses of local community groups, NGOs, the commercial insurance sector, government agencies, development and philanthropic organizations; moral hazard can be minimized through the involvement of local community groups; technical design of contracts and monitoring can be developed by commercial insurance companies; scale can be increased and risk can be spread across a network of community groups, reducing the risk of covariant claims bankrupting the scheme; and funding can be spread across a number of stakeholders who have an interest in reducing human wildlife conflict (farmers, government agencies, NGOs and development organizations).

While it does address some of the challenges of implementing an insurance scheme in developing and emerging economies, the challenges of educating farmers on the usefulness of insurance is still one of the primary obstacles to it becoming a prevalent tool (Churchill 2006, Loewe 2006). Insurance companies are still relatively ignorant of the human wildlife conflict context and are reluctant to invest in the development of HWC insurance products, especially those serving the rural poor where margins are small and risks are relatively unknown.

Despite the apparent potential of HWC micro-insurance schemes, the fact is that this approach has not been tested. This would suggest that, before the extensive promotion and adoption of this approach, some pilot studies and model testing should be undertaken to better understand the viability and applicability of micro-insurance and compensation schemes in much of the developing world.

Further Research and Ways Forward

A review of the literature on HWC compensation and insurance schemes has revealed some innovative approaches and projects and pointed to some opportunities and further work that needs to be pursued. Some

research questions that deserve further investigation include:

- Both the HACSIS and the Snow Leopard projects have the potential to scale up by increasing networking across projects and engagement of partners in the insurance industry. Investing in the scaling up of these projects, as well as the documentation of lessons learned from them, could provide useful information for conservation managers.
- It is clear that insufficient understanding (and trust) of insurance agencies by farmers, along with the uncertainty regarding the viability of HWC insurance markets by insurance agencies, create significant barriers for the success of HWC insurance schemes. Moreover, the costs and benefits of reducing these barriers are poorly understood.
- Does the existence of many long-lived compensation and insurance schemes funded by 'high capacity' governments in both Europe and North America speak to the relative stability of compensation schemes funded by governments as compared to those funded through traditional philanthropy or NGOs? Can this sustainability be replicated in developing countries?
- What is the potential of engaging private businesses that benefit directly and indirectly from wildlife to contribute to HWC compensation or insurance? Can the experience of European countries, that have often implemented schemes where those who are benefiting from wildlife (e.g., hunting tenants) share the costs of compensation schemes, be replicated in developing countries?
- What is the potential for conservation funds to play a role in compensation or covering risks? Is there potential for creating partnerships with private insurers to create opportunities to enlist local participation in the design, implementation, and financing of such schemes?

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The program is organized around four core activities that will be implemented in overlapping phases over the life of the program. These are:

1. Knowledge building including an initial review, synthesis and dissemination of current knowledge, and applied comparative research in a number of different field locations to help fill gaps in our knowledge;
2. Identification and development of diagnostic and decision support tools that will help us better understand the positive, negative or neutral relationships among natural resource conservation, natural resource governance and alleviation of rural poverty;
3. Cross-partner skill exchange to better enable planning, implementing and adaptively managing projects and programs in ways that maximize synergies among good governance, conservation and wealth creation; and
4. Global dissemination of knowledge, tools and best practices for promoting wealth creation of the rural poor, environmental governance and resource conservation.

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