



Paying for Results

WCS experience with direct incentives for conservation

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Biodiversity continues to be lost at alarming rates, despite decades of conservation efforts. The causes of the current biodiversity crisis are clearly anthropogenic, a result of the over-use of nature's bounty for human consumption, globally and locally. Our best hope for conservation rests in steering people towards less environmentally destructive, natural resource-intensive land uses and economic activities.

Given the realization of the important impact of human activities on biodiversity, conservation approaches nowadays often combine the establishment and management of protected areas with landscape-scale approaches that try to affect human activities in the wider landscape surrounding protected areas. Regardless of which conservation paradigm is employed in a particular setting, decisions have to be made about where and how best to allocate conservation funds. Faced by often tight budgets, conservation practitioners have to ensure that their resources achieve conservation outcomes as efficiently as possible, in other words to get the greatest conservation benefits at the least cost.

This paper explores the concept of direct incentives for conservation, and summarizes current discussion on their benefits and potential drawbacks. It then highlights the current experience at the Wildlife Conservation Society (WCS) with various forms of more or less direct incentives for wildlife conservation. A short analysis of the potential these schemes have to achieve the desired results is also presented.

Paying for the invaluable

People's land use decisions are, largely, driven by economics. Because biodiversity is a public good, the benefits that conservation provides accrue to everyone, but private users often benefit more from the destruction or overuse of biodiversity than from its conservation. Economists would say that the public benefits (or the public costs of destruction) need to be internalized to arrive at the real economic value of biodiversity for the private user. For example, if a farmer could earn US\$100 by cutting down a piece of rainforest (on his or her land) to plant a cash crop, then in order to entice him/her to set aside that land instead, s/he has to perceive that conserving the rainforest is worth at least that much.

Although many conservationists do not like to think of biodiversity as an economic good, preferring instead to emphasize the intrinsic worth of nature, most recognize that economic incentives, primarily for people living adjacent to or in areas of high conservation value, can be useful for achieving the needed behavior change to conserve it. Regardless of the non-economic values of biodiversity in people's minds, these often appear insufficient to overcome the economic forces that drive its destruction. The question then is how best to make the link between conservation and economic value, or at a more basic level between conservation and livelihood security, explicit in people's minds.

At the local level, most attempts to ensure an economic benefit for people that will result, it is hoped, in biodiversity conservation have to date been project-based. In developing countries such initiatives tend to be grouped under the mantle of "community-based conservation", "sustainable forest management" or "**integrated conservation and development projects (ICDPs)**" and rely mainly on fairly **indirect incentives** to affect people's behavior. Typically these involve alternative income-generation projects in cases where people's traditional livelihood strategies lead to biodiversity loss, and attempts to get people to utilize biodiversity sustainably. Examples commonly include sup-

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Box 1

Payments for Environmental Services (PES)

PES are based on the principle that people who provide environmental services should be compensated for their efforts, while those who benefit from such services should pay, or in economic terms “internalize the benefits”. (Mayrand et al., 2004)

Typically, environmental services providers are compensated for one or more of the following:

- ◆ Biodiversity protection (both in and outside protected areas, including in agricultural landscapes)
- ◆ Watershed protection
- ◆ Protection of landscape beauty
- ◆ Carbon sequestration (Pagiola et al., 2004; Wunder, 2005)

port for the establishment of “biodiversity enterprises” such as collection and selling of non-timber forest products (NTFP) or ecotourism ventures, or quotas on hunting or collection of biodiversity products, such as turtle egg collection limits. The track record of such initiatives in achieving conservation results is, however, checkered, often neither achieving the desired results for people or for conservation (Newmark et al., 2000; Ferraro, 2001; Agrawal et al., 2006).

The problems of ICDPs and other indirect approaches are many, but one of the principal ones appears to be that the desired results (simultaneous achievement of biodiversity conservation and development) are often not achieved. One of the main concerns is that people may welcome the new income-generation activities promoted by projects as complementary, providing additional income, but not substituting for activities that destroy or over-use biodiversity (Ferraro & Kiss, 2002). In other words, if people can derive additional income from, say, ecotourism and still hunt threatened wildlife in the forest, they may choose to do both, since it will improve their livelihoods. If, however, income is provided for **not** hunting threatened wildlife, and this income is sufficiently attractive, then the hunting should stop. Therefore, in recent years, some economists have argued that **direct incentives** for conservation are likely to be superior in terms of efficiency and effectiveness (Ferraro & Kiss, 2002).

What are direct incentives, and why use them

Direct incentives for biodiversity protection can range from conservation **land purchases**, leases, **conservation easements** (retirement of biodiversity use rights), to **performance payments** (for example paying for successfully hatched turtle eggs) and tax incentives. A hybrid form between direct and indirect methods are **payments for environmental (or ecosystem) services**. They may be deemed less direct than strict performance payments because typically one is not paying for outcomes, but rather for services which, it is hoped, will lead to the desired outcomes (Ferraro & Simpson, 2002). Nevertheless, they are considered here in the same category as direct incentives because of the similar requirements and circumstances under which they can be implemented.

All of these schemes are increasingly being employed in the United States, Europe and Australia through a myriad of different schemes. Di-



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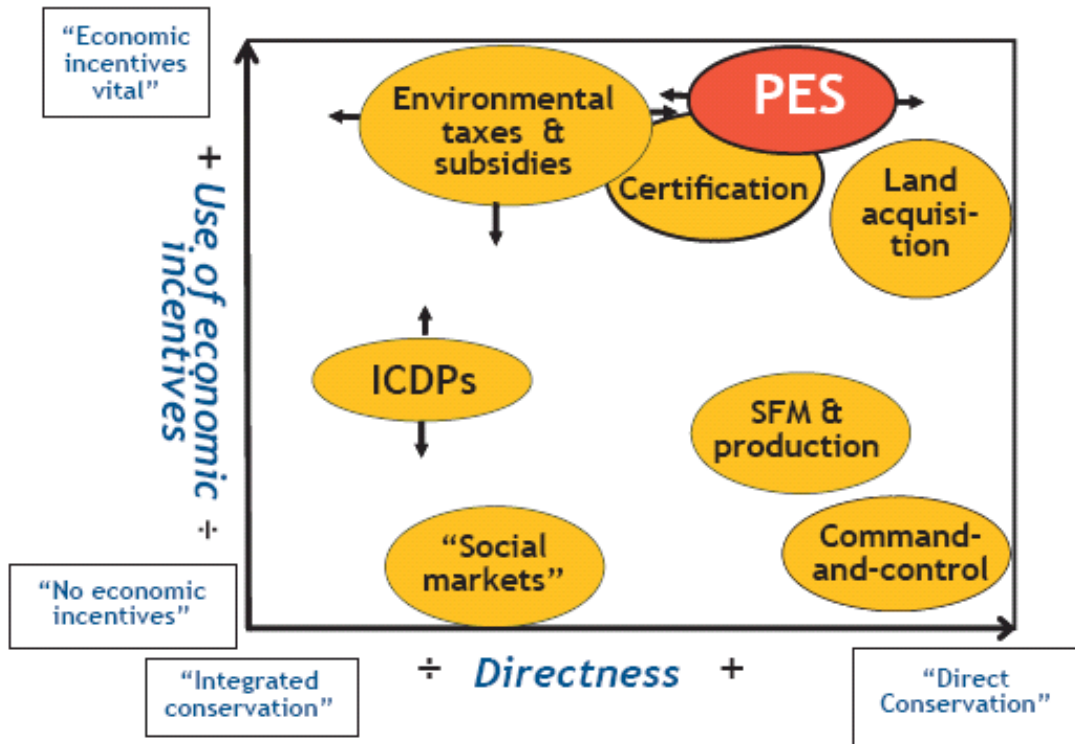


Figure 1 -- Comparing different conservation approaches in terms of “directness” and level of use of economic incentives (Source: Wunder 2005)

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Direct incentive approaches to conservation are still in their infancy in the biodiversity-rich tropics. Most of the pioneer experiences written up in published literature are from Costa Rica and other Latin American countries.

Figure 1 illustrates that different conservation approaches tend to rely on the use of economic incentives to varying degrees and may seek to achieve conservation results relatively indirectly (for example ICDPs) or quite directly (for example through land acquisition), with intermediate approaches also possible. Payments for environmental services feature among the most direct approaches that also rely heavily on economic incentives. Missing from the figure are performance payments, which would feature in the upper right hand corner of the graph, being the most direct and economically driven approach to conservation.

The key to direct incentives such as performance payments and PES is that they are **conditional**, i.e. they are only made if a certain action is undertaken or, as the case may be, avoided. For example, land owners may be paid for wa-

tershed protection services that they provide through avoided deforestation and afforestation on their lands. Direct payments can be seen as a form of **compensation** for forgone land uses, where destructive actions are not undertaken based on a contractual obligation, or as a **payment for services** rendered, the service here being biodiversity conservation, where people actively engage in agreed-upon pro-biodiversity activities. Most usefully, such conditionality emphasizes the link between biodiversity and the benefits it provides to people **if** it is conserved.

Proponents argue that direct payment approaches are also likely to be more **cost-efficient** than indirect approaches because conservation is being paid for directly (Ferraro & Simpson, 2002) rather than within the framework of a complex conservation and development project. This does not mean, however, that direct payments do not also yield **development benefits**, or that they should be employed in a vacuum without ancillary activities. It could be argued that direct payments provide for multiple development **choices** for the payees, in that they usually get to decide for themselves what purpose to use this income for, whereas in ICDPs

and similar initiatives the types of economic activities people are to undertake is sometimes predetermined or at least recommended by the project proponents (Ferraro & Kiss, 2002).

Critics of the direct payments approach contend that it **does not work well under all circumstances**, especially because it requires fairly sophisticated contractual frameworks and monitoring capacity to maintain the crucial element of conditionality. It may also be that political or cultural barriers exist to receiving payments for environmental services. Evidence from initial lessons learned indicates that PES systems work best (are most cost-efficient) when the services provided are visible and beneficiaries are well organized, and when secure property rights are accompanied by strong legal frameworks, and relatively wealthy and well structured land user communities (Mayrand *et al.*, 2004). These conditions are often not present in some of the most biodiversity-rich countries.

Direct incentives in practice – the WCS experience

WCS field staff have been experimenting with a number of direct incentive approaches, although for most of these the experience is too recent to allow an assessment of long-term results. Nevertheless, there are some preliminary findings and lessons, which are worth reporting here.

The five cases are from Cambodia, Lao PDR, Tanzania, Zambia, and Russia. They all employ one or the other type of economic incentive designed to stimulate a conservation response, but the degree of directness varies. It should also be pointed out that none of these initiatives are stand-alone. Rather,



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they all were/are being implemented as part of broader site-based conservation programmes. As such, it is sometimes difficult to judge whether results achieved are due mainly due to the economic incentives provided, or influenced also by some of the other project activities, such as education and outreach.

Cambodia: Paying local people to protect crane nests and Paying not to convert wetlands into flooded rice paddies

Case study details provided by Tom Clements, WCS, 2005 and 2007

An experiment with direct incentives for conservation hails from the WCS Office in Cambodia, at Preah Vihear. This activity is an integral part of the overall conservation program of WCS Cambodia, which includes many other components, such as environmental education, protected area establishment and management, and support to ecotourism ventures, such as the Tmatboey Ibis Ecotourism Project. Though the ecotourism project has resulted in income generation for local families and conservation of Ibis and their wetland habitat, it is not reported on here because it belongs to the class of initiatives typically undertaken by traditional ICDPs.

Preah Vihear is globally important for its populations of at least six globally threatened large waterbirds: two ibis species (*Pseudibis gigantea* and *Pseudibis davisoni*), rare Greater Adjutant storks (*Leptoptilos dubius*), in addition to colonies of Lesser Adjutants (*Leptoptilos javanicus*), Black-necked (*Ephippiorhynchus asiaticus*) and Woolly-necked Storks (*Ciconia episcopus*) and Sarus Cranes (*Grus antigone*).

All these large waterbirds are threatened by human disturbance and collection of nesting sites. Sarus Cranes, for example, are known to fetch a high market price (more than the equivalent of US \$100 per bird in Thailand). The collection is mostly done by local communities, who sell the chicks on to cross-border traders.

Since 2003 WCS has been actively working to locate and protect the nesting waterbirds. Initially the research, protection and monitoring was undertaken by WCS staff and rangers. How-

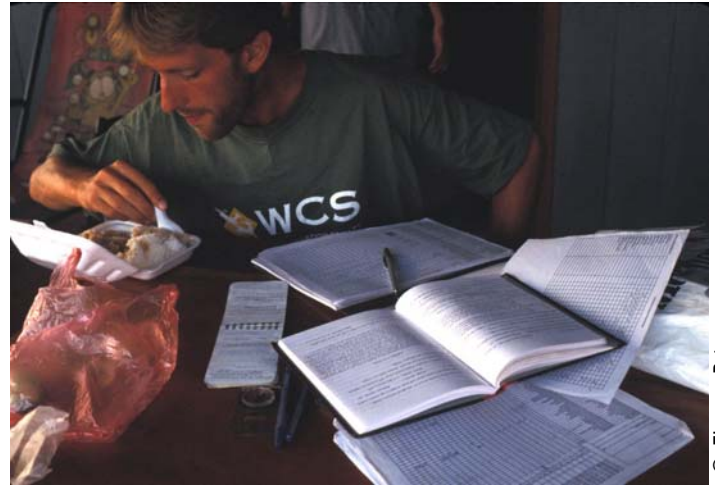
ever increasingly it has been found that a much greater number of nests can be found and successfully protected by working in cooperation with the local communities. Under a direct payment scheme, local people are now offered a reward for reporting nests, and for monitoring and protecting the birds until the chicks successfully fledge. To administer the scheme, WCS staff issue standard contracts to protectors, which include rules and a code of conduct.

In 2003 and 2004 nest protectors were paid \$60 at the end of the month, assuming that the nest went undisturbed during that period. In 2005 the payment system was changed, following community consultations, to \$1/day for protecting the nest with a bonus \$1/day provided if the chick(s) successfully fledged. The value of a nest thus increases with time, since after two months



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guarding a nest a protector stands to lose \$60 if the chicks do not fledge.

The monitoring system for this project is quite rigorous, involving regular visits of protection teams by Wildlife Sanctuary or Protected Forest staff to check on the status of the nests (and to collect research data), and monthly visits by WCS monitoring staff members. In addition local rangers (6 at each site) locate the nests and are responsible for weekly monitoring of the nest protectors in their immediate vicinity.

The total cost of the program was US \$25,000 for the 2005-6 period, of which 80% was direct payments to 115 local people. The average income of a typical household in the target population is \$300-400/household annually, while the average amount paid to nest protectors annually can reach \$400 per individual. Funding is coming from WCS funds and a UNDP/GEF project that will run until 2013.

The scheme has been very successful, protecting 74 and 170 nests of globally threatened species in 2003 and 2004 respectively. The payment scheme fulfills other functions as well. It is a good demonstration to villagers and authorities in these remote places that there are benefits from species protection. Wildlife Sanctuary and Protected Forest staff also conduct awareness-raising activities in local villages to inform people about the nest protection scheme and the importance of conserving these key species, as well as enforcing the law against wildlife traders and monitoring local and border markets.

The value of the direct payment was initially set based on knowledge of the local economy (e.g. \$2/

day is a suitable minimum wage; \$100 is the value of a crane chick). WCS Cambodia staff feel that for future projects it would be advisable to use standard economic valuation techniques to determine the correct payment value, i.e. the actual opportunity cost for involvement in the scheme prior to initiating the system.

Lao PDR: Incentive payments for Eld's deer conservation in Savannakhet Province

Case study details provided by: Dr. Renae Stenhouse, WCS Lao PDR, based on inputs from Mr. Souvanny Ounmany, Dr. Arlyne Johnson, Mr. Christopher Hallam, Mr. Dominic Cooper, Ms. Somsanouk Nouansyvong (WCS Laos staff), Mr. Chanthavy Vongkhamheng (WCS Laos staff and PhD student), and Dr. William McShea (Smithsonian Institute)

The rare Eld's deer (*Cervus eldi siamensis*), which was only recently discovered to still inhabit the open dipterocarp forest in Savannakhet Province of Lao PDR are under threat from the activities of villagers living close to a population of this endangered deer species. The species has already vanished from neighboring Thailand, but still persists in very low numbers in Myanmar and southern Laos. Its habitat consists of large expanses of lowland areas of dry forest, patches of evergreens, streams and seasonal pools. This habitat also supports an assemblage of other rare and unusual species such as Asiatic jackal, silver langur, barking deer, wild pig, many of which have been eradicated from other areas of Laos due to overhunting. Villagers were initially unaware of the conservation importance of the deer and the deer habitat, and some engaged in hunting of the deer and clearing of its required habitat, although it has been legally protected since 1995 under a sweeping wildlife conservation law.

WCS, together with the Smithsonian National Zoo's Conservation and Research Center (Smithsonian Institution/SI), initiated a "payments for conservation" scheme in 2003, with the aim of reducing threats to the deer and increasing the size of the deer population. Villagers were asked to: 1) reduce or stop hunting, (2) maintain habitat, and (3) be involved in conservation of Eld's deer. Under this project, WCS Laos paid an annual cash incentive (initially US\$300, increased to US\$450 in the second and third years) to each of three villages located close to a population of the endangered Eld's Deer

in central-southern Laos.

The original agreement was a verbal one: WCS/SI would pay the incentives fund in return for a reduction in threats to deer (i.e., the villagers and WCS did a threats analysis and it was agreed that if these threats did not decline, then the full incentives fund may not be paid out) – but no criteria for how performance would be measured were set.

Villagers decided that the money would be divided into two uses, 1. a village development fund to benefit the entire village; and 2. costs (*per diems*, amounting to around US\$2/person/day of activity) for meetings, monthly patrolling, and education extension work by the Village Conservation Team (VCT), towards deer conservation patrols and conduct of some educational activities. Thus payment is split between communal benefits and individual benefits. Additional *per diems* are paid to the team to assist WCS and the Government in setting up biannual line transects for monitoring deer presence. All village participants are involved by filling out records whenever they sight the deer, allowing WCS to build up population data over time. The WCS project complemented the payments with education, protection/enforcement and govern-



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ment capacity building. In 2004 the Eld's Deer Sanctuary was designated as a provincial protected area, and the three target villages developed rules and regulations for the Sanctuary together with the district authorities.

The Village Conservation Team (VCT) is made up of 15 people per target village. The composition of the VCT was decided by the villagers themselves, resulting in representation from the Youth Union, militia, police, agriculture and the headman. The remaining members were chosen by the villages' headmen, who favored friends and family members. There was some effort made to ensure inclusion of some poorer families, but no women are included.

Monitoring of the deer population is undertaken through formal surveys and reported sightings. WCS-SI-government staff and villagers) monitor the deer population size by transect lines twice per year, to indicate whether the number of deer signs per transect is increasing with time or decreasing/staying the same. WCS also ask the villagers in the three villages to report all sightings of the deer to one literate person in their village, who then record the vital data needed by WCS. Shortage of funds and WCS staff resources did not allow for a more rigorous methodology that would be required to accurately measure yearly conservation performance.

Pricing of the payment was not the result of an analysis of potential costs, but rather determined by the limited funds available to WCS for this project. The amount paid was increased after the first year so that villagers could finance complete village development projects, such as building a meeting house or fixing a bridge, and be able to say "that came from the Eld's deer incentives money."

Overall the project has had some successes. The deer population appears to be stable and possibly slightly increasing, village-level awareness on the importance of the deer has increased, and the villagers have contributed valuable data on deer demography.

However, the WCS team also reported some weaknesses relating to inequity of villager partici-

pation (especially gender inequity). Another problem was that the payment was not conditional on performance. Although outcomes are monitored, the full cash payments were still made in a year (2005) when WCS learned of two deer killings. The WCS team feared that reducing the cash payment would lead to villagers no longer reporting to WCS if deer were poached.

In addition, and perhaps most significantly, the government counterparts (the Department of Forestry) asked that WCS pay the full amount even though deer were poached, as it would be unfair to penalize the entire village for one person's transgression, and because reducing the payments would lead to reduced cooperation from villagers in the future. WCS agreed to follow the government's advice. Thus in this situation, payments are in fact made for services rendered (the villagers' patrols and education activities), and not really for performance. Rather than linking reduced populations to reduced payments (a disincentive), it might have been better to link payments to an increase in deer number. But even then, there would be opportunity for data to be falsified.

Long term sustainability is also in question, as funding is no longer available to continue the cash payments, and it is uncertain whether hunting will resume if funding stops, or whether local 'ownership' of the deer can be expected to develop to such an extent that direct incentives are no longer needed to ensure its protection. It has been hard to measure success, and also cost effectiveness of the incentives project.

Results cannot be clearly attributed to the cash payments, because WCS also conduct education and awareness raising, and there is a law against poaching deer, so that any desired conservation outcome may be due to a number of factors. The main successes in the overall project have been only indirectly related to the incentives payments, in particular the creation of the Eld's Deer Sanctuary, which was agreed to and then formally requested of the provincial authorities by the villages involved in the project. The request from villages was the most powerful tool leading to set up this site as Eld's deer sanctuary. The project has also received very good government support, including a pledge of co-financing for the future.



Tanzania: Paying local communities not to convert grasslands to crops

Case study details provided by Charles Foley, WCS, 2007

An interesting case of a direct incentive comes from Tanzania, where villages are receiving communal economic benefits for maintaining traditional pastoral activities on grazing lands rather than converting these grasslands to arable agriculture.

The Tarangire ecosystem supports one of the highest densities of large ungulates in East Africa, including the largest population of elephants in northern Tanzania, now numbering close to 2500 individuals. The Simanjiro Plains are the calving grounds for the majority of large ungulate species in this ecosystem, including wildebeest, zebra, eland and hartebeest. The wildlife in Tarangire migrates on a seasonal basis. Because the soil in the park is deficient in phosphorus, the wildlife must leave the safety of the national park and disperse onto neighboring village lands in search of mineral-rich forage. The majority of the land in these dispersal areas belongs to the pastoral Maasai communities, who do not tradition-

ally hunt wild animals and have therefore coexisted with the migrating herds. The continued tolerance of the local communities towards wildlife on their land is therefore essential for the long term conservation of the ecosystem.

During the past two decades there has also been a steady change in land use outside the park. Rapid immigration and a growing human population have placed increasing strain on traditional pastoral activities and encouraged a shift to agriculture. Four of the nine main migration routes from Tarangire have disappeared entirely, and those remaining are all threatened to some degree.

The Tarangire Elephant Project is working with local communities and tour operators to protect the main dispersal area of the northern subpopulation of elephants. Under an agreement with the local villagers, the area is to be used for livestock grazing, thus protecting both wildlife habitat and traditional grazing areas while supplying revenue to the village.

A direct payment scheme was set up, by which

the village council of one village (representing 2500 to 3000 people) of three villages present in the Plains receives an annual cash payment, conditional on the easement area remaining free of agriculture. The program was established through a long and elaborate buy-in process that involved input from the majority of villagers via village meetings.

The payment, supplied by photo-tourism companies, amounts to \$5000 for the year for a land easement of approximately 120 sq km. In addition WCS provides salaries and equipment for 4 game scouts (from a local village), amounting to another \$3000 per year. The rules and conditions were negotiated between the business coalition and the village council and written up as a contract agreement between the two.

The money is paid through a local NGO set up by one of the tour operators, rather than directly by WCS, because it was felt important that the scheme be seen as a business endeavour and not a charitable donation from a wildlife conservation organization. There has been considerable suspicion of the motives of wildlife NGO's in past years, with local people believing they are seeking to expand the National Park. They are therefore more willing to enter into agreements with businesses, who they feel have a more open agenda. WCS provides technical support, such as training the game scouts, and finance for the game scouts. The villagers are also eager to reduce illegal hunting in the area (for safety and other reasons) and have therefore welcomed the activities of the game scouts.

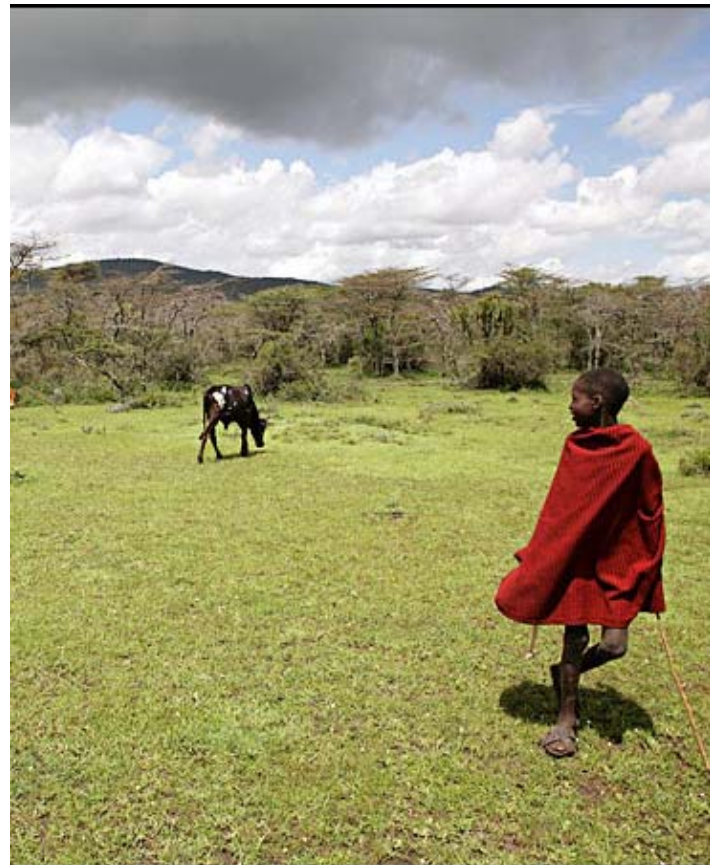
Payment is stipulated to continue as long as there is no agricultural activity within the easement area. It is expected that the contracts will not be broken, as it is in the villagers' interest to maintain the area for cattle grazing. The short grass plains are the most productive cattle land in the village. The easement therefore mostly represents added value to their cattle grazing activities.

In its first year of operation the program has been well received by the village who see the payment as good added value to their traditional pastoral activities. Protecting the land from agri-

cultural activity is good both for their cattle and for wildlife, and therefore a powerful incentive to protect the area. Other areas within the village less suitable for pastoralism have been zoned for agriculture instead.

Funding for the scheme comes from photo-tourism companies that operate in the Tarangire ecosystem. None of these companies actually operate in the easement area *per se*, they are paying for it because of the value it has to the wider ecosystem. WCS only provides the game scout salaries (from donor funding). Currently funding is committed for a period of five years at \$5000 annually (plus \$3000 a year for game scouts). However, tourism revenues fluctuate and can be negatively impacted by any drop in visitors. A desired expansion of the scheme to include two other villages would require additional sources of finance. WCS staff expect that a trust fund will ultimately have to be set up for the area

Problems, other than financial sustainability, could arise if a significant number of villagers decided that they could not make a living from pastoralism and wanted to cultivate instead. Therefore, WCS feel that improving profits from pastoralism should also be a long term goal of the project.



Zambia: Community Markets for Conservation (COMACO)

Case study author: Dale Lewis, WCS, 2006

In Zambia's Luanga Valley, WCS is encouraging farmers to use wildlife-friendly practices through a rural development model called **Community Markets for Conservation (COMACO)**. This is not really a very direct incentive scheme, as again it does not pay for conservation results, but merely for biodiversity-friendly activities. It is reported here, however, because it is an example of economic incentives that clearly tie wildlife conservation to improved livelihoods.

The Luangwa Valley with its surrounding watersheds represent a critical ecosystem for tourism in Zambia, attracting great international interest for its large mammal populations and sprawling wildlands. Surrounding its two main parks, North and South Luangwa National Parks, which provide a relatively safe environment for over 20 large mammal species, are community lands. Here human densities vary from 3 to well over 50 people per km², stretching from the valley floor to surrounding plateau areas that constitute the Valley's watershed. Average household annual income for these communities is below \$200, and a significant portion suffers from chronic food shortages. Wildlife is often killed with wire snares or locally made firearms so that poor farmers can exchange meat with starch-based foods they failed to grow.

Combined with reoccurring annual fires that spread across much of this landscape, continued farming pressure and land clearing, particularly for commer-



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cial cotton and tobacco crops, have exposed top soils to excessive run-off with an increasing incidence of flooding on selected drainages. Despite this intensification of cotton and tobacco, average household annual incomes have remained low. Tourism provides employment to only a small fraction of the total population. Rural communities, despite their traditional ownership of the land, have had essentially little or no influence on the way markets are designed, shaped or benefit their own constituents or impact on their natural resources.

WCS designed COMACO as a business approach for engaging communities to plan and implement practical solutions for the management of natural resources across large, environmentally important landscapes. The approach operates around a shareholder-owned company, which offers communities ownership in a large-scale trading enterprise designed to build market volume around selected commodities and production technologies that help improve food security, income opportunities and natural resource conservation. A key feature of the COMACO model is that producers earn substantial price incentives in exchange for adopting land use practices that reduce threats to natural resources (K1000/kg of rice compared to K850/kg farm-gate price).

Households who agree to take up improved farming and land use practices (e.g. zero-tillage and other soil-enhancing practices and prohibition from such acts as snaring of wildlife, poisoning fish, or burning crop residues), become eligible for the higher commodity prices COMACO offers. In 2006 of 7375 farms surveyed 74% were found compliant. Non-compliant producer groups are prohibited from using the COMACO trading centers and "It's Wild" brand.

COMACO has undergone an initial pilot phase of three years for training extension staff and setting up management systems for accounting procedures, depot transactions, transport, inventory, product processing and product distribution and marketing. Collectively these trading centres have targeted 229 known poachers with alternative skills and income options and have promoted trade opportunities for over 25,000



farmers.

Producer group members have maintained a high percentage of improved farming practices and have voluntarily surrendered 768 illegal firearms and over 38,000 wire snares, contributing to an annual saving of over 4000 wild animals in Luangwa Valley. The on-going development and experimentation of the COMACO model in Luangwa Valley has revealed how quickly communities will shift land use practices when attracted to market incentives that motivate people to adopt improved ways of managing their land and resources.

Russia: Linking community development and biodiversity conservation in the Russian Far East

Case study data provided by Dale Miquelle and Nikolai Kazakov, WCS

An example from the WCS Russia office also uses a relatively indirect, but also market-based, incentive strategy to achieve conservation goals, by developing a certification scheme for tiger-friendly non-timber forest products.

The Russian Far East provides habitat for the only viable population of Siberian, or Amur tigers (*Panthera tigris altaica*) in the world. Approximately 330-370 adult Siberian or Amur tigers are left in the wild, with 95% of these animals in the Russian Far East. The area has a unique assemblage of large carnivores, which includes tigers, brown bears, Asiatic black bears, wolves, wolver-

ine, and Eurasian lynx. Living in northern temperate forests of low productivity, and hence low prey density, these tigers require large tracts of land to survive. Even under the most optimistic scenarios for habitat protection, it is unlikely that sufficient area will be protected to ensure conservation of Amur tigers in the long term. Therefore, managing habitat outside protected areas (in multiple-use areas) is a key issue in Amur tiger conservation efforts.

Primary threats to tigers are: 1) habitat loss from intensive logging and development; 2) depletion of the prey base; and, 3) poaching of tigers. Tigers are most commonly poached for their fur and for their body parts that are used in Traditional Chinese Medicine, but they are also perceived as a threat to domestic livestock and dogs and as competitors to hunters. Human-caused deaths are by far the largest mortality factor for Amur tigers, and poaching by hunters is by far the most common form of human-caused mortality.

The WCS team in Russia felt that the key to effective natural resource management and conservation on unprotected lands would be effective partnerships with local stakeholders. One of the potentially most influential and effective means of managing wildlife on unprotected lands in the region is working with hunters and the hunting management structure, since beginning in 1995 new legislature provided opportunities for local people to create non-governmental "societies" (NGO's) that could obtain hunting lands. In lieu of the former large state-controlled hunting operations, today 67 percent of all leases are managed by non-governmental organizations. In Primorskyi Krai 80 percent of hunting leases are on unprotected lands. This im-



plies that local people are now for the first time allowed to manage wildlife populations and have a vested interest in proper natural resource management.

Hunters have also traditionally been involved in other extractive activities in the forest, often working for the former GosPromKhoz in the collection of non-timber forest products.

WCS began working with hunting associations and hunting leases throughout Primorskiy and southern Khabarovskiy Krai in the Russian Far East to develop effective management regimes on unprotected lands. Key to success is resolving the perceived conflict between tigers and hunters for prey resources; and establishing direct links between tiger conservation and economic improvement in local economies. The intent of this project therefore is to protect tiger habitat by supporting newly established hunting

leases (to increase the hunting associations' capacity for self-management and financial independence and to undertake anti-poaching activities and habitat and population management for tiger prey species).

One of the key interventions within this framework is the increase of harvesting and sales of certified "tiger friendly" non-timber forest products (NTFPs), with a focus on increasing capacity of forest communities and hunting associations to produce products marketable at either the national or international level. The "tiger friendly" certification provides value-added for NTFPs linked to tiger conservation, in particular by the hunting associations who market the NTFPs.

Although the sale of NTFPs is, by itself, not a direct conservation incentive, by creating a "tiger friendly" certification process direct linkages between income from NTFPs and land and wildlife management regimes are established. Income from these NTFPs is conditional in the sense that certification will only be granted by WCS if monitoring shows that the requirements for certification have been met. Thus, by making this direct linkage, conservation objectives and improved livelihood objectives can be achieved through a market-based mechanism.

There are several problems that are prohibiting more rapid development of the NTFP business in the Russian Far East. They include, but are not limited to, multiple taxations on small businesses and on exports; illegal NTFP trading by Chinese merchants; massive smuggling of NTFP goods across the border to China; and a strong logging lobby. Data are not available on the costs of setting up a certification scheme, including the required monitoring, and how this would compare to setting up a more direct performance-based direct payment scheme.

Discussion

Although the initiatives reported on are still young, several have shown promising preliminary results and indeed appear to support the view that direct incentives, in addition to other market-based approaches, can be a good tool to



achieve wildlife conservation results. As all of these activities were part of larger conservation programs, it is not entirely clear, however, how much of the early successes in these projects is attributable to the direct payments per se (except perhaps in the Cambodian nest protection case), and how much is due to other activities simultaneously undertaken by the projects.

Critics of the direct incentive approach argue that uncertain or inequitable land tenure, limited experience with legal contracts and their enforcement, and limited prospects for investment or employment outside the agriculture sector, make such approaches difficult to implement in developing countries (Ferraro & Kiss, 2002). These concerns are valid, but apply also to indirect approaches. More important, perhaps, may be political or cultural barriers to performance-based payments, particularly to withholding payments in response to poor performance. Such barriers need not always be rigid, but in some cases can be.

In the Cambodia case, an unforeseen cultural issue that arose was that Cambodians had trouble with the concept of payments for results rather than time worked. Another issue of philosophical dimensions is whether it is actually morally justifiable, in the case where a destructive activity is actually illegal (like crane egg collection in Cambodia), to pay people not to do it. Pragmatically, however, where law enforcement is not effective enough to prevent illegal acts, it may still be the simplest way to achieve the desired results.

Since economic efficiency is one of the arguments used to advocate for the direct payments approach, an important question is **how much to pay, when to pay and to whom**. Services to be provided and results to be achieved need to be well defined and, theoretically, a price should be negotiated based on an assessment of their true value based on local market conditions. Economic valuation of ecosystem services is notoriously difficult, but various methodologies have been tried. The key here is that, for people to choose conservation over alternative land uses, the benefits of conservation have to be at least marginally greater than those which

they feel they could derive from other (more destructive) land uses. In practice, all of the WCS experiments with direct payments, relied on subjective estimates of the “right price”, based on factors such as availability of funds and willingness to accept the payment.

Conditions and timing of payments are also important considerations. In the Cambodia nest protection example, initially the scheme was based upon ‘payments for work’ (i.e. \$2/day) rather than ‘payments for success’. This led to perverse situations where WCS was perceived as an employer with responsibility for protectors’ well-being, whilst the protectors shared little of the risk. In addition, the loss of benefit to a protector for collecting a mature chick (a few days @ \$2/day) was less than the trade value, although no cases of a protector actually selling chicks were reported. Subsequently WCS decided to increase the risk shared by the protectors by paying them \$1/day for their work and \$1/day for results upon successful fledging. This reinforces the point that it is essential to establish a link in people’s minds between benefits and conservation outcomes. In the case of the less direct payment for services rendered, it is possible that people may not assume responsibility for conservation results, whereas linking payment directly to conservation success ensures that this is the case.

The issue of timing of payments is also exemplified by the Cambodia cases. Cambodians value immediate benefits much higher than long-term benefits, and local discount rates may be very high. In such situations an up-front or regular payment scheme will probably be more effective than those that promise future benefits. Similarly, long-term sanctions, if they are at all desirable, may not be effective.

Whom to pay can be a dilemma fraught with difficulties. It is relatively easy to determine in the case of well-defined individual **property rights**. However, where **land tenure** is insecure or lands are held in common (as is often the case in indigenous territories) or state-owned (for example in Laos), the payee may have to be a community organization or another body designated by the State. In the example from Cambodia above, control of land lies with the state and marginalised rural communities living in close proximity to significant biodiversity have

limited capacity to assert or achieve recognition of land rights. Securing their land rights, and empowering local enforcement to protect these rights, are crucial to any incentive scheme that seeks to affect land use decisions and are therefore one of the primary focuses of the WCS conservation program. Whether communal payments or individual payments are more appropriate can also be an issue of culture and local perceptions. In Cambodia, for example, individual benefits seem to be valued much higher than communal ones, perhaps because of its conflictive history, which suggests that individual payments should be pursued where possible. In Laos, on the other hand, a mix of payments to individual members of the VCT for actual services rendered, and to the village at large as a communal benefit was chosen. One problem that emerged from the communal payment approach was that withholding payment because of non-performance by one person (e.g. a poacher) would penalize an entire village, even if all other villagers hold up their end of the bargain.

Equity issues may arise, particularly when target communities are stratified along a gradient of income ranges and land ownership patterns from very poor and landless to relatively well off land owners. The Laos case shows how resentment can arise when certain members of a village are selected over others to receive benefits, or even when certain villages are selected as target villages over others. Another flaw of the Laos initiative was that gender issues were not dealt with in that decisions on whom to include on the VCTs were left entirely up to the villages. WCS might have had an opportunity to involve women in the project and thereby promote objectives beyond wildlife conservation. In general, care should be taken in such situations that inequitable power structures are not inadvertently exacerbated through direct payment schemes, if not for equity reasons, then at least because the wealthier individuals will also tend to be those with the power to make land use decisions. A stakeholder analysis that considers who owns or has access to biodiversity, and who has the potential to protect or harm it, should be a necessary prerequisite to such schemes.

Another question is what form payments should take. Compensation does not always have to be in **cash**, it may be in **kind** (e.g. help to increase land

tenure security or help to strengthen internal organization of community groups), or a combination of the two, depending on local preference. On the other hand, the more in kind assistance has to be provided, the more the initiative begins to resemble traditional ICDPs, and the more transaction costs will tend to increase, because of the likely need for consultants, community development specialists, lawyers, etc. (although some of these may also be needed for the establishment of any direct payment scheme).

For projects to work, building up a **relationship of trust** with a potential community of service providers is an important first step in all cases. For example, COMACO's development and relatively quick start-up benefited in various ways from more than 20 years of community-based experiences by its main implementing partner, WCS, in the areas where COMACO was launched.

Lastly, as in all conservation and development projects, **sustainability** is a key issue. If conservation outcomes are to last, a constant source of financing for payments will most likely be necessary. In that sense, market-based approaches, such as the COMACO model or the Amur tiger NTFP scheme, may offer some advantage, as they can become self-sustaining if the business model is successful. Direct payment approaches will need a constant source of funding if payments are to be maintained in the long term. When payments stop, as is currently the case in Lao PDR, there is a risk that previous activities that harmed biodiversity may resume, although it is too early to judge whether other activities such as awareness raising and a sense of ownership over the natural resources in question by the community may mitigate the threats.

Conclusion

There is cause for cautious optimism from the preliminary findings by WCS field staff that support the utility of direct incentives and, more generally, market-based mechanisms. Hope for conservation results does indeed spring from making the link between conservation and liveli-

hoods as explicit as possible. If a direct approach based on economic incentives is felt to be appropriate in a given context, the implementation details (such as whom to pay, when, and how much, from what funds and through what mechanism) depend on factors such as local laws, preferences, capacities and infrastructure, as well as the availability of funding. A direct payment to individuals (e.g. nest protectors) or groups (e.g. the village council) may be the best way to proceed, where external factors such as political, legal and cultural frameworks favor this kind of approach.

The most important advantage of direct incentives is, however, the conditionality of benefits. Even if direct cash payments prove too difficult to implement in a given situation, receipt of any type of benefit by a community could be made contingent on “biodiversity-friendly” behavior, thus increasing the likelihood of positive outcomes for biodiversity.

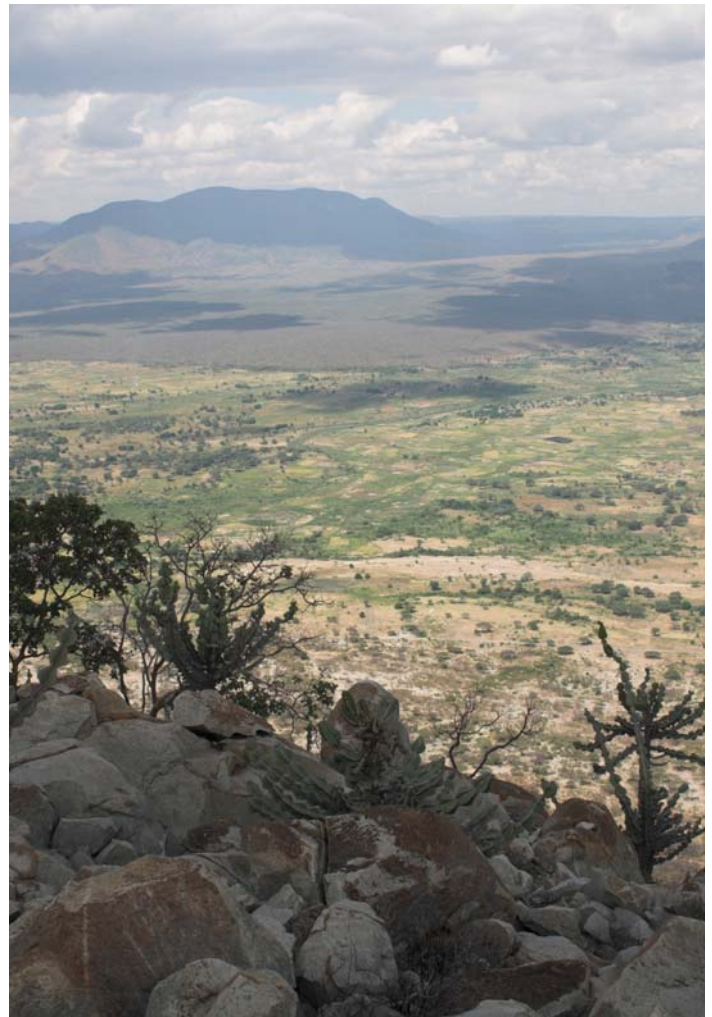
Furthermore, although the principal advantage of using direct incentives pointed out by economists is cost-efficiency, it may be worthwhile for conservation organizations working in developing countries that lack the requisite structures, to help set these up or strengthen them, so as to be able to implement elements of direct payment schemes. In such cases they can be implemented as components of more traditional conservation projects (whether community-based or not). This of course increases the transaction costs of the scheme, but it serves the vital purpose of introducing conditionality as a motivator for conservation, and thereby leads people to better understand the links between conservation and their livelihoods.

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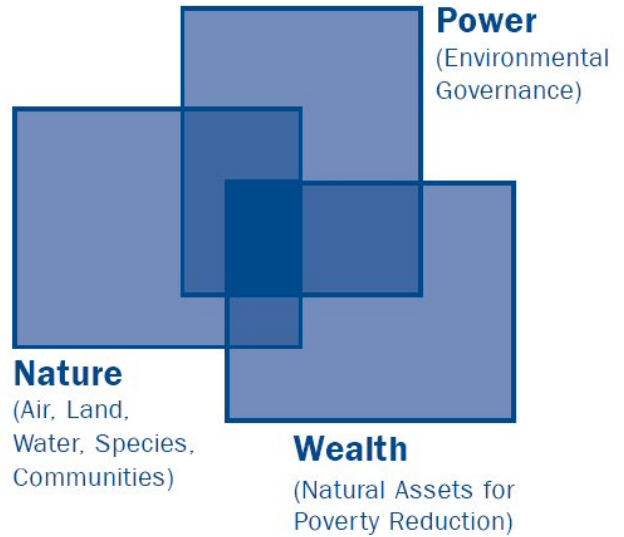
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