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IUCN PROTECTED AREA DEFINITION, MANAGEMENT CATEGORIES AND GOVERNANCE TYPES

IUCN DEFINES A PROTECTED AREA AS:

A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values.

The definition is expanded by six management categories (one with a sub-division), summarized below.

Ia Strict nature reserve: Strictly protected for biodiversity and also possibly geological/ geomorphological features, where human visitation, use and impacts are controlled and limited to ensure protection of the conservation values.

Ib Wilderness area: Usually large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, protected and managed to preserve their natural condition.

II National park: Large natural or near-natural areas protecting large-scale ecological processes with characteristic species and ecosystems, which also have environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.

III Natural monument or feature: Areas set aside to protect a specific natural monument, which can be a landform, sea mount, marine cavern, geological feature such as a cave, or a living feature such as an ancient grove.

IV Habitat/species management area: Areas to protect particular species or habitats, where management reflects this priority. Many will need regular, active interventions to meet the needs of particular species or habitats, but this is not a requirement of the category.

V Protected landscape or seascape: Where the interaction of people and nature over time has produced a distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.

VI Protected areas with sustainable use of natural resources: Areas which conserve ecosystems, together with associated cultural values and traditional natural resource management systems. Generally large, mainly in a natural condition, with a proportion under sustainable natural resource management and where low-level non-industrial natural resource use compatible with nature conservation is seen as one of the main aims.

The category should be based around the primary management objective(s), which should apply to at least three-quarters of the protected area – the 75 per cent rule.

The management categories are applied with a typology of governance types – a description of who holds authority and responsibility for the protected area.

IUCN defines four governance types.

Governance by government: Federal or national ministry/ agency in charge; sub-national ministry/agency in charge; government-delegated management (e.g. to NGO)

Shared governance: Collaborative management (various degrees of influence); joint management (pluralist management board; transboundary management (various levels across international borders)

Private governance: By individual owner; by non-profit organisations (NGOs, universities, cooperatives); by for-profit organisations (individuals or corporate)

Governance by indigenous peoples and local communities: Indigenous peoples' conserved areas and territories; community conserved areas – declared and run by local communities

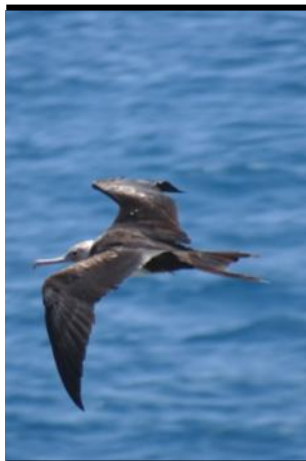
For more information on the IUCN definition, categories and governance type see the 2008 *Guidelines for applying protected area management categories* which can be downloaded at: www.iucn.org/pa_categories

IUCN WCPA'S BEST PRACTICE PROTECTED AREA GUIDELINES SERIES

IUCN-WCPA's Best Practice Protected Area Guidelines are the world's authoritative resource for protected area managers. Involving collaboration among specialist practitioners dedicated to supporting better implementation in the field, they distil learning and advice drawn from across IUCN. Applied in the field, they are building institutional and individual capacity to manage protected area systems effectively, equitably and sustainably, and to cope with the myriad of challenges faced in practice. They also assist national governments, protected area agencies, nongovernmental organisations, communities and private sector partners to meet their commitments and goals, and especially the Convention on Biological Diversity's Programme of Work on Protected Areas.

A full set of guidelines is available at: www.iucn.org/pa_guidelines

Complementary resources are available at: www.cbd.int/protected/tools/



PARKS: THE INTERNATIONAL JOURNAL OF PROTECTED AREAS AND CONSERVATION

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PARKS is published to strengthen international collaboration in protected area development and management by:

- exchanging information on practical management issues, especially learning from case studies of applied ideas;
- serving as a global forum for discussing new and emerging issues that relate to protected areas;
- promoting understanding of the values and benefits derived from protected areas to communities, visitors, business etc;
- ensuring that protected areas fulfill their primary role in nature conservation while addressing critical issues such as ecologically sustainable development, social justice and climate change adaptation and mitigation;
- changing and improving protected area support and behaviour through use of information provided in the journal; and
- promoting IUCN's work on protected areas.

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EDITORIAL: DELIVERING THE PROMISE OF SYDNEY: FROM SYDNEY TO HAWAI'I

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In September, many of us participated in the World Conservation Congress (WCC), themed as *Planet at the Crossroads*, in Hawai'i. The congress was attended by more than 10,000 participants and concluded with the Hawai'i commitments¹. The WCC was a great success with some exciting and inspirational events, and a strong focus on the importance of protected areas. WCC highlighted critical issues for conservation in the coming decades: the threats to biodiversity from habitat loss, climate change, invasive alien species, unsustainable exploitation, and pollution; the significance of the world's oceans for biodiversity conservation and sustainable livelihoods; the role of protected areas and other ecosystem-based approaches in providing natural solutions for global challenges; solutions for conservation and sustainability that require a combination of traditional wisdom and modern knowledge; and the need to engage a broader spectrum of stakeholders in conservation action.

The WCC was the first big event in the conservation calendar since the World Parks Congress (WPC) in Sydney in 2014. It reiterated and reinforced many of the key messages, themes, recommendations and commitments embodied in the Promise of Sydney². The WPC occurs only once every ten years and helps to set the agenda for the coming decade. Sydney emphasized the relevance and value of protected areas both as cornerstones for conserving nature, and as natural solutions to global challenges, providing benefits to human health, livelihoods and well-being. Much has happened in the two years since. Countries have adopted the Paris Agreement on Climate Change as well as the United Nations Sustainable Development Goals (SDGs). Protected areas have a clear role in delivering both. WCC was an opportunity to take stock on the Promise of Sydney and we have much to celebrate.

RIDING THE WAVE: MARINE CONSERVATION

The WPC recommended that at least 30 per cent of our oceans should be fully protected areas, where extraction activities cease. A motion to this effect was approved by IUCN members at WCC in Hawai'i, and already we have seen progress, with many nations declaring very large marine protected areas (MPAs). These large-scale conservation efforts are exciting news and recognise that marine habitats and species throughout the ocean, including coral reefs, are coming under increasing pressure from overfishing, ocean warming and acidification.

Immediately prior to the WCC, President Obama expanded the Papahānaumokuākea Marine National Monument in Hawai'ian waters, making it one of the largest protected areas on the planet at 1,508,670 km², protecting more than 7,000 marine species. Just two weeks after President Obama's declaration, the presidents of Ecuador, Colombia and Costa Rica agreed jointly to create a new marine reserve, including expanded protection of three UNESCO World Heritage sites: Malpelo, Cocos and the Galápagos. These declarations followed previous delivery of commitments made at WPC through designations of large-scale marine protected areas by the governments of French Polynesia (the approximately 5,000,000 km² Taini Atea marine managed area) and Palau (National Marine Sanctuary) covering their entire economic exclusive zones. The UK (Ascension and Pitcairn Islands), Chile (Easter Island and Nazca-Desventuradas Marine Parks) and New Zealand (Kermadec Ocean Sanctuary) have all also made significant declarations to declare large MPAs in the Pacific. And just last month the countries of the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) agreed to protect 1.5 million



The IUCN Members' Assembly at the World Conservation Congress (WCC) in Hawai'i © IUCN/Eric McNatt

km² of the Ross Sea, one of the most biologically diverse and untouched marine ecosystems in the world, for conservation including 1,117,000 km² of fully protected marine reserve.

Whilst this scale up in effort to protect large remote marine areas is very welcome, equal effort still needs to be expended in more inshore areas to protect ecosystems under immediate threat, and to restore degraded areas already damaged but using MPAs to given them space to recover. Above and beyond percentage targets more actions will be needed to make sure all these efforts form connected and well managed networks linked to sympathetic and truly sustainable management of the wider ocean.

DELIVERING AICHI TARGET 11

Aichi Biodiversity Target 11, which focuses specifically on protected areas, states that: *By 2020, at least 17 per cent of terrestrial and inland water areas, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.*

According to the latest *Protected Planet* report (IUCN & UNEP-WCMC, 2016), we are making good progress in protected area coverage, with 15 per cent of terrestrial habitats, 10 per cent of the coastal and marine areas within national jurisdiction, and approximately 4 per cent of the global ocean covered by MPAs, but there is still much to do on improving ecological representation and connectivity. Protected areas alone will not be sufficient to achieve full representation; instead we will need a mosaic of land and water uses that include interconnected protected areas and other effective area-based conservation measures (OECMs), which together contribute to Target 11. The CBD is focusing on better definition and guidance on OECMs, with support from a WCPA task force. Additionally, we will need to promote more sustainable and biodiversity-friendly management of production landscapes and seascapes, which will contribute to better protection and management of biodiversity, including for example more sustainable fisheries and coastal zone management, which can contribute to achieving Aichi Target 6.

Even though we are making good progress on establishing, expanding and improving management of protected areas, the conservation agenda is often challenged by competing and conflicting development plans. This was a key concern at WPC so it is heartening

that IUCN members approved the ‘no-go’ motion 26 in Hawai‘i. This calls on governments to prohibit environmentally damaging industrial activities and infrastructure development in all IUCN categories of protected areas and not to de-gazette, downgrade or alter the boundaries of protected areas to facilitate environmentally damaging industrial activities and infrastructure development. In this regard, it is encouraging to learn that the Queensland Government in Australia is planning to create a new category of environmental protection for private land with high biodiversity value, which would allow landowners the opportunity to have equal environmental protection to that of national parks, to guard against mining and coal seam gas.

PROTECTED AREAS AS NATURAL SOLUTIONS TO GLOBAL CHALLENGES

Justifying further expansion and support for protected areas requires much greater understanding and appreciation of the socioeconomic benefits that they can provide. There is an expanding literature on the contributions that protected areas can make as natural solutions to global challenges such as water security, disaster risk reduction, food security and human health and wellbeing, all themes discussed at WPC (Dudley et al., 2010; Dudley, 2015). Climate change, for example, remains one of the most pressing global challenges confronting human societies today. Healthy ecosystems – terrestrial, freshwater, marine and coastal – can act as powerful carbon sinks and stores, and provide the basis for resilience to climate change impacts. Nature-based solutions, such as protected areas, have become widely recognized as an essential component of a comprehensive approach to climate change mitigation and adaptation. Protected areas can sequester carbon and help communities adapt to climate change, reduce the risk and impact of natural disasters, and support sustainable livelihoods. Connected systems of protected areas, when effectively managed and governed, deliver biodiversity conservation as well as a wide range of ecosystem services that contribute to human welfare and livelihoods.

As follow up to the WPC, the protected area leadership in South America collaborated through REDPARQUES to adopt a declaration by 18 Latin American countries in August 2015 to integrate protected areas into national climate change strategies (Miranda Londoño et al., 2016). This declaration was followed up at UNFCCC 21 in Paris where several countries committed to the expansion and strengthening of protected areas as part of their national plans. Colombia, for instance, committed

to add 2.5 million hectares of new terrestrial and marine protected areas as part of Colombia’s Intended National Contribution. This exciting South American initiative has great potential for replication in other regions.

Protected areas as natural solutions will also be key tools in delivering the SDGs agreed in 2015. Protected areas are not just key to achieving those SDGs that deal specifically with conservation and wise use of oceans (SDG14) and terrestrial ecosystems (SDG15), but are also central to the goals that relate to access to clean water (SDG6), health (SDG3), food security (SDG2) and climate action (SDG13). They can also contribute to peace and security (SDG16) and poverty eradication (SDG1). Strengthening and disseminating the arguments about the socioeconomic benefits of protected areas and their contribution to the SDGs will be critical in promoting further conservation efforts post 2020.

LOOKING FORWARD: THE ROLE OF THE WORLD COMMISSION ON PROTECTED AREAS (WCPA)

Reflecting on progress since WPC, it is clear that much has been achieved. But there is still much more to do to fully realize all the commitments of the Promise of Sydney. We are now only four years away from 2020 when we need to report on the Aichi Targets in the Biodiversity Strategic Plan agreed in 2010.

During the next four years, WCPA will focus on:

- Increasing the number and quality of protected areas (terrestrial, freshwater and marine) to achieve the Aichi Targets for halting biodiversity loss, in particular through meeting Aichi Target 11.
- Strengthening our work on governance across all categories of protected areas.
- Mainstreaming protected areas as natural solutions to existing and emerging global challenges such as climate change, disaster risk reduction, food and water security, and exploring and promoting linkages between protected areas and spiritual, physical and mental health.
- Helping to define post-2020 biodiversity targets and promoting protected areas as a valuable tool to achieve the Sustainable Development Goals.

All of these goals, embodied in the WCPA mandate, are closely aligned with IUCN’s Programme 2017-2020 adopted by the Congress. WCPA will underpin these efforts with a strong emphasis on developing capacity and improving professional standards for protected area managers, including capacity development for indigenous and community managers. Building on the



Kathy MacKinnon (left) and Julia Miranda Londoño (right)
© Valérie Batselaere

WPC there has been a recognition that much greater effort must be concentrated on outreach and communication to reconnect people with nature and engage a broader constituency in conservation, by encouraging youth, urban populations, new migrants, political leaders and disadvantaged sectors of society to engage with protected areas. Already we are reaching out to new partners and sectors through the #NatureforAll programme³ launched in Hawai'i and new initiatives that are exploring the nexus between nature, health and urban communities⁴.

Hawai'i was a great congress, but it was just one stop on the journey from Sydney and delivery of the promises and commitments made there in 2014. The next four years will be critical to delivering progress on the Aichi Targets and defining the conservation and protected area agenda beyond 2020. As we move forward from the Planet at the Crossroads congress, the Promise of Sydney continues to provide a useful roadmap.

ENDNOTES

¹ portals.iucn.org/congress/hawaii-commitments

² worldparkscongress.org/about/promise_of_sydney_commitments.html

³ www.natureforall.global/

⁴ www.iucn.org/sites/dev/files/import/downloads/salzburg_challenge_558_nature_health_and_a_new_urban_generation_v7.pdf

ABOUT THE AUTHORS

Kathy MacKinnon was elected chair of WCPA for the next four years at IUCN's World Conservation Congress in September 2016. She was formerly Lead Biodiversity Specialist at the World Bank and has considerable experience in planning and managing protected areas in developing countries, especially in Asia.

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UNPACKING EQUITY FOR PROTECTED AREA CONSERVATION

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ABSTRACT

There have been numerous calls to ensure that protected areas are governed and managed in an equitable manner. While there has been progress on assessing management effectiveness, there has been less headway on defining the equitable part of the equation. Here we propose a framework for advancing equity in the context of protected area conservation that was developed through a process of expert workshops and consultation and then validated at three sites in East Africa. The framework comprises three key dimensions (recognition, procedure and distribution) and 16 principles embedded in a set of enabling conditions, which we illustrate with reference to case studies. We go on to present the case for shifting the framing of protected area conservation from a livelihoods framing to an equity framing, justifying this from both a moral (normative) and instrumental perspective. Finally, we show how equity relates to a number of other key concepts (management effectiveness, governance and social impact) and related assessment tools in protected area conservation, before outlining a step-wise process for using the framework to advance equity in protected area conservation.

Key words: Protected areas, Equity, Recognition, Procedure, Distribution, Environmental justice, Governance,

INTRODUCTION

The global protected area estate has increased massively over the last few decades, reaching 14.7 per cent of terrestrial and inland water areas and 4.12 per cent of marine areas (UNEP-WCMC & IUCN, 2016). Protected areas provide important global, national and local benefits by conserving biodiversity and maintaining ecosystem services. Yet such benefits may come at a cost to indigenous and local communities. The requirement for protected areas to be equitably governed and managed was introduced in the Convention on Biological Diversity's 2004 Programme of Work on Protected Areas (in which goal 2.1 calls for the promotion of "equity and benefit sharing" and goal 2.2 calls for enhancing "involvement of indigenous and local communities and relevant stakeholders") and then in Aichi Biodiversity Target 11 in 2010, which required that protected areas should be "effectively and equitably managed" (CBD, 2010). In 2014, the IUCN World Parks Congress pressed for greater progress on enhancing the governance of protected areas, adopting rights-based approaches and

addressing the "equitable management" dimension of Aichi Target 11 (WPC, 2014).¹ The expression of these goals has coincided with increased emphasis within sustainable development policy discourse more generally (e.g. in the United Nations Sustainable Development Goals) on addressing inequality and promoting equity.

In addition to the normative (or moral) argument for equitable conservation, there is growing acknowledgement that resentment and a sense of injustice among those affected by protected areas can drive threats to protected area conservation. Ignoring the rights and needs of these groups has led to significant conflict (Lele et al., 2010). Conversely, the success of many areas conserved by Indigenous peoples and local communities makes a compelling case for the stronger engagement of local rights-holders and stakeholders in protected areas (Tauli Corpuz, 2016). A growing body of research provides evidence that empowerment of local people and more equitable sharing of benefits increase the likelihood of effective conservation (Oldekop et al., 2015).

Table 1. Brief description of the three validation cases

	Loita Community Forest, Kenya	Amani Nature Reserve, Tanzania	Bwindi Impenetrable National Park, Uganda
Research partners	University of Southampton and Kenya Forestry Research Institute	University of East Anglia and Tanzania Forest Conservation Group	International Institute for Environment and Development and Mbarara University
Governance type	Community (formerly Trust) land; recognition by all stakeholders that long-term stewardship by the Maasai community has conserved this forest area	Government, with areas of joint forest management	Government
Size and ecosystem type	33,000 ha of dry upland forest with central third of dense forest surrounded by lighter woodlands	8,400 ha of submontane and lowland forest. Part of the Eastern Arc mountains, prized for high numbers of endemic species	33,000 ha of montane tropical forest
Population	About 25,000 Loita Maasai live in and around the forest	No people in the forest; about 20 neighbouring villages	No people in the forest, but very high density (up to 320 people per km ²) around the edge
Key ecosystem services	Emergency grazing resource for livestock during droughts; timber and poles for subsistence use by community; water for downstream users; increasingly a land reserve for settlement	Species harvesting for butterfly farming and <i>Allanblackia</i> plantations; water for downstream users in Tanga; harvesting of firewood and medicinal plants	Tourism (mountain gorillas); Multiple Use Programme allows local people limited access to harvest medicinal plants, basketry resources and place beehives
Main equity issues	Lack of clarity over community rights; pressure on land (encroachment) and timber resources	Distribution of tourism revenues and water benefits; compensation for land	Distribution of tourism revenue; recognition of Batwa pygmies; restrictions of the Multiple Use Programme; human-wildlife conflict

In spite of the increasing policy importance afforded to achieving equitable governance and management of protected areas, in practice progress is often constrained by differing understandings of what equity means, different ideas of how to advance it, and because various aspects of equity are addressed by a range of protected area assessment methods (Burgess et al., 2014). This lack of clarity is a recipe for weak political and financial support, poorly constructed strategies, the inefficient use of resources, and a lack of accountability for action to advance equity.

The aim of this paper, therefore, is to contribute to a greater understanding of what equity means in a protected area context. We propose an equity framework that should help rights-holders and stakeholders² in protected areas of all governance types to operationalize

‘equitable protected area conservation’ on the ground, and, in broad terms, to assess progress.

We begin by outlining the process by which the proposed framework was developed and then present the framework itself, illustrating its different dimensions with case study examples. We then review why an equity framing is important for protected area conservation and, in broad terms, how a shift from a livelihoods framing to an equity framing might be achieved. We go on to explain how the concept (and assessment) of equitable protected area conservation relates to other important concepts (management effectiveness, governance, and social impact). Finally, we outline some steps to support policymakers, protected area managers, Indigenous peoples, local communities and other local stakeholders in advancing equitable conservation of protected areas at site, country and international level.



Resource Mapping by Manobo IP Community, Agusan Marsh Wildlife Sanctuary, Philippines © GIZ-COSERAM

METHODOLOGY – DEVELOPING THE PROPOSED EQUITY FRAMEWORK

The proposed framework was developed in four steps. First, we reviewed a number of parallel streams of work including research on equity in the context of payments for ecosystem services (McDermott et al., 2013) and on environmental justice (Sikor, 2013), guidance developed for the good governance of protected areas (Borrini-Feyerabend et al., 2013), and work promoting social assessment of protected areas (Franks & Small, 2016). In May 2015, a workshop of around 30 academics, policy-makers and practitioners (with a wide range of perspectives on equity, justice and conservation including NGOs engaged in advocacy for the rights of Indigenous peoples and local communities) gave rise to a basic equity framework consisting of three main dimensions. Although the framework draws on both the equity and the environmental justice literature, policy and practice, we use the term ‘equity’ here in response to language used in the context of the Convention on Biological Diversity and the Sustainable Development Goals.

Second, a smaller workshop in November 2015 elaborated the equity framework with a set of principles. Following consultation with a wider group of

stakeholders, a draft version of the framework was published in January 2016 (Franks & Schreckenber, 2016).

Third, we undertook field validation of the draft framework in three sites in East Africa (see Table 1), selected to represent a range of ecosystems, governance types and equity issues. At each site, one of the authors of this paper worked with a national partner to validate the equity framework through a series of semi-structured key informant interviews (with community representatives, government and non-government staff, and tourism operators) and focus group discussions (held separately with men and women and with people of different ethnic background). In most cases, we took a ‘bottom-up’ approach, asking respondents to identify the most important equity issues in the area, what they felt was fair or not fair about them, and how they could be made fairer. With some key informants, we took a ‘top-down’ approach and specifically asked about the different elements of the framework. In this way, it was possible to determine whether the concepts in the framework were understood and considered relevant at site level and whether they were sufficient to capture what local stakeholders considered to be the key equity concerns at their sites.

The validation teams came together with government and non-government policy-makers from Kenya, Uganda and Tanzania in Nairobi in July 2016 to revise the framework and discuss its potential application in the context of protected area systems. Whilst each case tended to highlight a sub-set of the equity issues covered in the framework, taken as a whole they illustrated the relevance of the full range of issues, suggesting no redundancy in the principles listed. Furthermore, none of the cases raised substantive new categories of equity concern, suggesting there were no major omissions. There were, however, minor revisions based on the validation process. For example, communities stressed concerns about timeliness that led to revision of principle 11. The workshop also highlighted concepts that needed clearer explanation in the accompanying text, such as the crosscutting nature of gender concerns, the definition of 'relevant' actors, and of 'trade-offs', all of which are elaborated in more detail below.

The fourth step in the process consisted of discussions with participants at the IUCN World Conservation Congress in September 2016 in different formats on how the proposed framework could support and link with existing frameworks and tools for improving protected area management and governance.

THE PROPOSED EQUITY FRAMEWORK

In the proposed framework, equity is considered to have three interlinked dimensions that should apply in any field of conservation or development: 1) recognition; 2) procedure; and 3) distribution (Fig. 1). Within each dimension, the framework identifies a set of priority equity issues for protected area conservation framed as principles or desired outcomes (Table 2). The framework also identifies the enabling conditions in which all three dimensions are embedded. Each of the components of the framework is explained in more detail below, drawing on both the validation case studies and others with which the authors are familiar.

• Recognition

Recognition means acknowledging and accepting the legitimacy of rights, values, interests and priorities of different actors and respecting their human dignity. The duty to recognize a right is usually accompanied by the duty to respect the right – meaning to refrain from directly or indirectly interfering with the individual's enjoyment of their right. The term 'respect' is therefore included in most of the principles in this dimension.

Recognition and respect for human rights (including Indigenous peoples' rights³) are particularly important for marginalized groups who may lack the ability to make

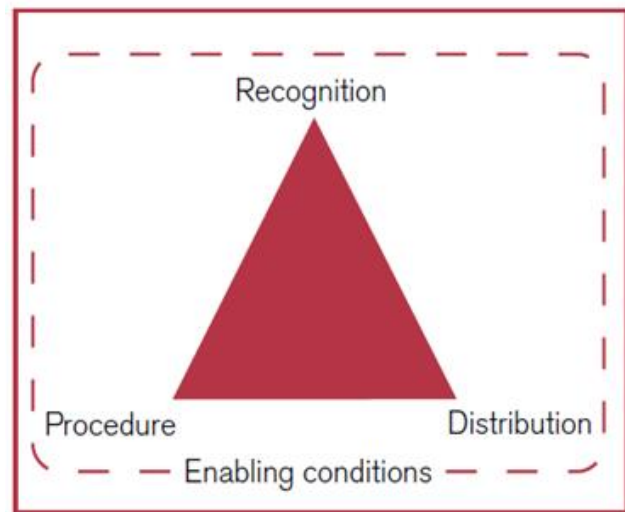


Figure 1. The three dimensions of equity embedded within a set of enabling conditions (Adapted from McDermott et al. (2013) and Pascual et al. (2014))

their voices heard. With about half of protected areas established on lands traditionally occupied and used by Indigenous peoples (Stevens, 2014), there is particular concern about how they have been affected by lack of recognition and respect. In her recent report, the UN's Special Rapporteur of the Human Rights Council on the rights of Indigenous peoples despairs at the continuing "human rights violations that conservation measures have caused indigenous peoples worldwide, notably by the expropriation of land, forced displacement, denial of self-governance, lack of access to livelihoods and loss of culture and spiritual sites, non-recognition of their own authorities and denial of access to justice and reparation, including restitution and compensation" (Tauli Corpuz, 2016, p.6).

An example of the positive impacts of recognizing indigenous rights, institutions and knowledge systems is illustrated by the approach taken by a Philippine-German cooperation project in the Agusan Marsh Wildlife Sanctuary. This Ramsar site and IUCN category IV protected area is one of the most important freshwater wetlands in the Philippines, and has large overlaps with the ancestral domain of the Manobo people. Recognizing and strengthening indigenous institutions played a key role in how research to document indigenous practices for biodiversity conservation was conducted. Indigenous researchers, selected by their elders, worked together with academics to ensure that the documentation followed customary laws and their own oral traditions of knowledge sharing. As a consequence, the process empowered the Manobo to apply their conservation practices more confidently and also encouraged them to use the results for the land use planning process for their ancestral domain (Osterhaus & Hauschnik, 2015).

Table 2. Equity framework for protected areas – equity principles and enabling conditions that apply to prior assessments and the establishment, governance and management of protected areas and to other conservation and development activities directly associated with protected areas (Source: Franks et al., 2016)

RECOGNITION

1. Recognitionⁱ and respectⁱⁱ for human rights
2. Recognition and respect for statutoryⁱⁱⁱ and customary property rights^{iv}
3. Recognition and respect for the rights of Indigenous peoples, women and marginalized groups
4. Recognition of different identities, values, knowledge systems and institutions
5. Recognition of all relevant actors^v and their diverse interests, capacities and powers to influence
6. Non-discrimination by age, ethnic origin, language, gender, class and beliefs

PROCEDURE

7. Full and effective^{vi} participation of all relevant actors in decision-making
8. Clearly defined and agreed responsibilities of actors
9. Accountability^{vii} for actions and inactions
10. Access to justice, including an effective dispute-resolution process
11. Transparency^{viii} supported by timely access to relevant information in appropriate forms
12. Free, prior and informed consent^{ix} for actions that may affect the property rights of Indigenous peoples and local communities

DISTRIBUTION

13. Identification and assessment of costs, benefits^x and risks and their distribution^{xi} and trade-offs^{xii}
14. Effective mitigation^{xiii} of any costs to Indigenous peoples and local communities
15. Benefits shared among relevant actors according to one or more^{xiv} of the following criteria:
 - equally between relevant actors or
 - according to contribution to conservation, costs incurred, recognized rights^{xv} and/or the priorities of the poorest
16. Benefits to present generations do not compromise benefits to future generations

ENABLING CONDITIONS

1. Legal, political and social recognition of all protected area governance types^{xvi}
2. Relevant actors have awareness and capacity to achieve recognition and participate effectively
3. Alignment of statutory and customary laws and norms
4. An adaptive, learning approach

Notes:

i) Recognition means acknowledging, and accepting the legitimacy of, a particular issue, right or interest, etc. ii) Respect means not interfering with the enjoyment of the right. iii) Recognized within the country's legal framework. iv) In a protected area context, resource rights include rights to own or use resources. v) Relevant actors include rights-holders and stakeholders. These are organizations (including the protected area authority itself), groups and individuals with interests in, statutory or customary rights or influence over the protected area and its resources. vi) 'Full and effective participation' means meaningful influence throughout a decision-making process. vii) Accountability incorporates social, political and financial accountability. viii) Transparency relates particularly to decision-making processes, responsibilities and actions, and financial flows. ix) Free, prior and informed consent (FPIC) is a process through which rights-holders are empowered to determine whether an activity that will affect their rights may proceed by giving, or having the right to withhold, their consent. x) The terms 'costs' and 'benefits' are used in the broadest sense to include all types of impacts on human wellbeing, whether or not they have monetary value. xi) Distribution includes: a) *spatial* — between actors at site level and also between site and other levels, and b) *intergenerational* — between youths and adults. xii) 'Trade-off' in this context refers to a situation in which decisions over the distribution of benefits and costs involve compromises between two competing objectives. xiii) Possible mitigation strategies include avoidance, minimization, compensation (cash or in-kind, or support for alternative sources of livelihood), voluntary relocation and restitution, decided through an effective FPIC process. xiv) In many cases, benefit-sharing strategies apply a combination of these criteria. xv) As determined by principle 2. xvi) Protected area governance types identified by IUCN — government, Indigenous peoples and local communities, private, and shared.



Farmer delivering butterfly pupae to co-operative © Adrian Martin

As outlined in principle 5, recognition refers not only to indigenous or marginalized groups, but rather to all 'relevant actors' who have a significant interest in the protected area. This includes the need to recognize (and counteract) the disproportionate influence wielded by some stakeholders, such as individuals keen to make a personal profit, powerful conservation actors or powerful development actors such as mining companies.

- **Procedure**

Procedural equity is built on the inclusive and effective participation of all relevant actors in affairs that concern them. This is not always easy to achieve particularly if there are large disparities in capacity between actors. In some cases, civil society organizations or other 'intermediaries' may have an important role to play in supporting certain stakeholders in putting forward their views. The use of visual tools, like participatory mapping exercises, for example, can also help people to convey how they use and value a particular area (de Koning et al., 2016). Both in the designation of new protected areas and also for management interventions in existing protected areas, special consideration must be given to the right of Indigenous peoples and local communities to free, prior and informed consent (FPIC) and to enabling the participation of marginalized groups. For example, in the Agusan Marsh Wildlife Sanctuary, the FPIC process

allowed the Manobo to co-design project implementation in such a way that their values were respected and their traditional decision-making institutions strengthened. The resulting partnership of trust had positive outcomes for biodiversity conservation as people voluntarily surrendered their illegal electrofishing gear where previous enforcement efforts had often failed (Osterhaus & Hauschnik, 2015).

An important aspect of procedural equity is that responsibilities for action should be clearly agreed with a specified time-frame. Actors should be held accountable for their agreed actions and also for inaction. In the Loita case study, for example, many people raised concerns about the long delays they incurred waiting for compensation for wildlife damage. This led to negative feelings towards the Kenya Wildlife Service (KWS), even though the source of some of the delays was often outside the control of the KWS. At the Amani Nature Reserve, replacement land to compensate for the creation of the Derema conservation corridor has been delayed by as long as ten years, leading to continued conflict with the Reserve authorities. Where actors renege on their commitments, there needs to be easy access to effective dispute-resolution mechanisms (Jonas et al., 2014). These can be locally agreed mechanisms but recourse to formal justice must also be available as a last resort.

Where appropriate, the negotiation of a memorandum of understanding (MoU) with elected institutions can be a good way to document the responsibilities of different stakeholders. Tanzania's Amani Nature Reserve has negotiated MoUs with 20 neighbouring villages. This has enabled villagers to negotiate increased access to the reserve for firewood, medicinal plants and labouring jobs, as well as a 20 per cent share of revenues from tour guiding. However, the proportion of tourism-derived revenue remains very small (less than US\$200 per village per year) relative to the time invested by villagers, and a lack of transparency about the reserve's income means that the baseline for calculating the 20 per cent share is unclear.

• **Distribution**

Distributive equity is about how costs and benefits⁴ are distributed between different actors – such as communities, protected area management, local and national governments, and global stakeholders. Although the distributive dimension of equity is often the one that is most strongly associated with the term equity and receives the most attention in high-level policy statements, in practice the varied ways in which the costs of protected areas can be avoided, minimized or mitigated, and the benefits shared, often receive insufficient consideration. When a protected area imposes use restrictions on households, for example, should it target mitigation efforts (e.g. compensatory livelihood projects) on all households equally or target only those who are most affected? Who receives the diverse range of benefits of conservation, and how these compare with the potential benefits of alternative activities like illegal wildlife trade, for example, are key factors in ensuring the positive engagement of communities in conservation (Cooney et al., 2016). However, preferred distributional norms can vary with particular local contexts. Residents of Nyungwe National Park, Rwanda, for example, did not favour the principles of distribution widely employed in the design of conservation interventions, such as rewarding those most in need or those who have borne the highest costs (Martin et al., 2014). Rather the most common preference was for equal distribution of benefits. Gaining less than others was not desirable but gaining more also came with risks, including concerns about perceived favouritism or corruption.

A critical aspect of distributive equity is the acknowledgement that there are often trade-offs between different kinds of benefits and different benefit-sharing strategies (e.g. wildlife as subsistence food or as a tourist attraction). In the case of Bwindi Impenetrable National

Park in Uganda, there has been discussion over many years on how to distribute the share of tourism revenues that is allocated to local communities. The national revenue sharing guidelines identify two objectives – reducing human-wildlife conflict (HWC) (principally crop damage) and improving the wellbeing of park-adjacent communities. Reducing HWC delivers on the human wellbeing objective but not necessarily vice versa, and there is a trade-off between the two as more funds for HWC interventions with park-adjacent households mean less wellbeing benefits for others. In fact, there has been almost no allocation for HWC in the last three years because providing wellbeing benefits more broadly aligns better with the priorities of the local governments that implement the revenue sharing scheme.

Distributive equity also encompasses trade-offs between people in different places and generations. In the Loita Community Forest, for example, a downstream soda ash mining company, which relies on water from the swamp in the centre of the forest, is negotiating to pay the community to reforest areas near the swamp and prevent further encroachment by farms. The Loitan forest protection committees were very concerned that their growing inability to prevent encroachment and over-exploitation of the forest would affect opportunities for future generations to benefit from the forest.

• **Enabling conditions**

Broadly speaking we define 'enabling conditions' as factors that are beyond the immediate control of the managers and other local stakeholders of a particular protected area. Certain enabling conditions can greatly advance the equity with which protected areas are established, governed and managed at the local scale. One of these is acknowledgement (nationally or sub-nationally) of the full range of protected area governance types identified by the IUCN, thereby encouraging the engagement of diverse groups of actors. Another enabling condition is ensuring that all actors have the capacity and opportunity to be recognized and to participate – as even the most equitable procedures will struggle in the face of entrenched societal discrimination (e.g. by gender, ethnicity, religion or class). Resolving serious conflicts relating to protected areas, such as those arising from the lack of recognition of customary rights to resources, is easier if relevant national laws are aligned with international laws, and if policies on protected areas are aligned with those on other land uses. Thus uncertainty about the status of community land (formerly trust land) in Kenya has, over the years, given rise to numerous court cases relating to the Loita Community Forest, as different groups (NGOs, government and individuals) have variously tried to use



Discussions on the edge of Bwindi Impenetrable National Park, Uganda © Dilys Roe

existing legislation to gazette the area as a forest reserve, protect it for the community, have it adjudicated into individual parcels, and establish group ranches – all in the face of strong opposition from other groups.

A final enabling condition is that the process of advancing equitable protected area governance and management is more likely to succeed if it is understood as part of an adaptive learning process that responds to evolving local perceptions of equity and enables forms of governance that are dynamic enough to address new challenges as they arise. For example, the conflict over the Derema corridor at Amani has partly arisen because negotiation over compensation has been institutionalized as a one-off procedure. But the experience here and elsewhere is that local ideas about what is fair evolve over time, for example changing as more information comes to light or as the realities of giving up land begin to bite.

- **Interactions between principles and enabling conditions**

The three dimensions with their 16 principles of equity should be considered as parts of a whole rather than in isolation of each other. The way in which they may be interlinked is illustrated well by the particular costs protected areas may impose on women. In Tanzania, for example, customary inheritance law does not allow a widow to inherit the estate of her late husband – an issue of enabling conditions – which can lead to her being ousted from her home by her in-laws (CEDAW, 2015). Cultural norms may also affect procedural equity, leading to women being less well represented or holding less powerful positions in decision-making fora. Ultimately this combination of discriminatory factors can result in situations such as in the Derema Corridor in Tanzania where, in spite of efforts to ‘do no harm’, women received less compensation than men for vacating land in a newly

established conservation corridor (Hall et al., 2014). This example also illustrates why it is important that gender is mainstreamed in the whole equity and conservation discourse. Rather than have one principle on gender, we argue that integrating gender throughout the equity framework, and the processes within which it is used, is more likely to deliver the desired gender outcomes. This includes gender equality, which is understood to mean that women and men, girls and boys should have equal opportunities (e.g. to participate in decision-making, education), as well as gender equity, which refers to the fairness of outcomes. In relation to some equity principles, fair will mean equal, but not in all cases. For example, in the case of human-wildlife conflict (HWC) in Uganda, it might be fairer to have affirmative action in favour of women as they are the ones who do most farming and thus are disproportionately negatively impacted by HWC.

WHY IS EQUITY IMPORTANT FOR PROTECTED AREA CONSERVATION?

In this section, we discuss the need to shift from a livelihood framing to an equity framing for protected area conservation. In a classic paper about the core values of conservation biology, Michael Soulé (1985) argued that both scientific understanding and societal norms should guide the goals of conservation. We would add that we should also be guided by evidence of what works. Each of these three sources of guidance – science, norms and evidence of effectiveness – changes over time. This is one reason why dominant narratives of conservation undergo periodic change, such as the shift from ‘fortress conservation’ to ‘integrated conservation and development’ in the 1980s and to ‘market based conservation’ in the 2000s (e.g. see Hutton et al., 2005). Thinking on the social dimension of conservation has changed relatively little in the last 30 years: the general understanding is that conservation should at least ‘do no harm’, defined as a negative impact on livelihoods, and where possible it should have a positive social impact.

When a conservation initiative is considered to impose costs on local people, therefore, the most common response has been to provide support for their livelihoods, usually in the form of ‘alternative livelihoods’ that are also designed to reduce demand for protected area resources. In some situations this approach has been successful but in many others it has performed poorly (Roe et al., 2015). Focusing too narrowly on livelihoods has become part of the problem rather than the solution (as explained below), and a refocus on equity is overdue. The science, norms and understanding of what works have all shifted to support this recommendation. We now summarize this shift in two

arguments: 1) the moral argument for how equity can make conservation more legitimate and 2) the instrumental argument for how equity can make conservation more effective.

• **Moral argument**

Also known as the normative argument, this argument flows from the need for protected area policy to align with national and global commitments on human rights. The right to development is now seen as an inalienable human right, and conservation must attend to this. A key shift is evident in the evolution from the Millennium Development Goals established in 2000, which included a headline target of increasing income to more than a dollar a day, to the SDGs agreed in 2015, which widen the commitment to addressing “poverty in all its forms.” The SDGs emphasize the importance of equity in rights, opportunities, access to resources and outcomes, and strongly emphasize gender equality. In the context of protected areas, we see a similar shift from an ‘old’ normative argument stated at the IUCN World Parks Congress of 2003, that “protected areas should strive to contribute to poverty reduction at the local level, and at the very minimum must not contribute to or exacerbate poverty” to a ‘new’ normative argument which asserts a responsibility to recognize and respect, and in some cases help to fulfil, a broader set of rights that underpin human wellbeing and dignity. The international conservation community has made significant moves to respond to this new normative agenda, for example through the Conservation Initiative on Human Rights.⁵

• **Instrumentalist argument**

This argument holds that equity is necessary for achieving and sustaining effective conservation. Again, there is a distinction between new and old arguments. The old instrumentalism argued that a lack of income forced local people into behaviours that conflicted with conservation. This powerful narrative was popularized in the 1987 Brundtland report, which stated that: “*Those who are poor and hungry will often destroy their immediate environment in order to survive...*” World Commission on Environment and Development (1987, p.28).

This implied that what was needed, then, was a means of raising incomes through livelihood support. But the approach was based on weak assumptions. For example, although the poorest in a community are often the most dependent on natural resources, their wealthier neighbours (as well as the global elite) often exert greater resource pressure (Cavendish, 2000). This is one reason why evidence soon emerged that simply providing income-earning opportunities (however desirable this

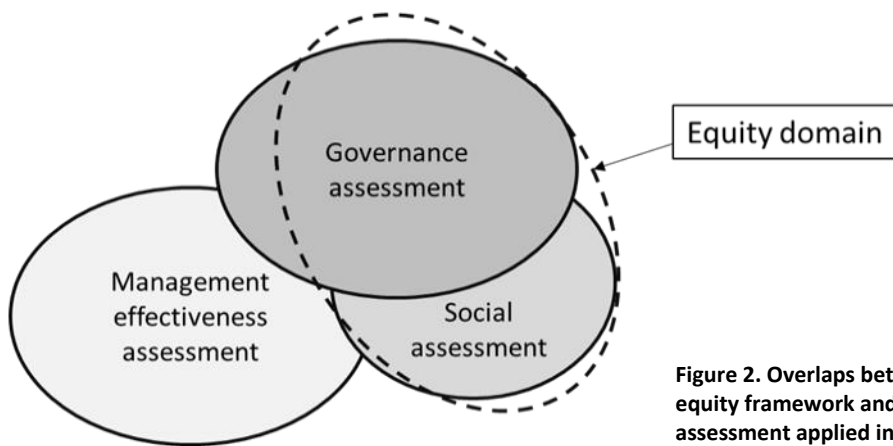


Figure 2. Overlaps between the issues considered within the equity framework and those captured in three main types of assessment applied in the protected area context

might be on its own merits) does not in itself bring about improvements in conservation performance (Salafsky & Wollenberg, 2000).

We now envisage a ‘new instrumentalism’ based on equity rather than poverty and livelihoods; it has a more compelling theory of change and increasingly strong evidence to support it. For example, research in Nyungwe National Park, Rwanda, found that where management interventions are viewed as inequitable, managers must rely on enforcement to ensure results, while they can expect more active support for interventions seen as equitable (Martin et al., 2014). In Bwindi Impenetrable National Park, local feelings of injustice over national park conservation were found to be as important a driver as rural poverty for illegal resource use. The more involved in decision-making people felt, the more benefit they reported from integrated conservation and development activities (Twinamatsiko et al., 2014). An equity-based instrumentalism still holds that economic benefits can increase conservation effectiveness, but this is not achieved with a scattergun approach to livelihood support. Evidence of effectiveness is strongest where economic benefits arise from the use of a protected area or related resources, thus underpinning the legitimacy of the protected area in the eyes of local communities (Blomley et al., 2010). In an equity approach, the distribution of benefits within communities is also crucial (de Koning et al., 2011), for example to avoid the elite or male capture of benefits.

Recognition and procedural equity – the main focus of work on protected area governance – are other essential aspects of the new instrumentalism, to ensure not just more equitable decision-making processes but also better-informed decisions and greater social and political legitimacy for protected areas. The issue of political legitimacy applies at all levels, from communities living in or near protected areas to global policy processes,

where the polarization of views on the equity and justice of protected area conservation has often been a major obstacle to progress.

IMPLEMENTING THE EQUITY FRAMEWORK

A first step in implementing the equity framework is to consider the ways in which elements of the framework are already employed in existing guidelines and tools used in the context of protected area conservation. A second step is to promote the use of the framework to identify gaps and entry-points for action that can be addressed through a step-wise process.

- **Where does equity fit in relation to management effectiveness, governance and social assessments?**

Effectiveness and equity are different but essential and interdependent concepts in protected area conservation (Woodley et al., 2012). Management effectiveness assessment focuses on how well management is carried out and the extent to which it achieves the intended outcomes. The most widely applied assessment tools in protected areas are the Management Effectiveness Tracking Tool (METT), which has been adapted by many organizations and countries, and the Rapid Assessment and Prioritization of Protected Area Management Methodology (RAPPAM). Although the recently updated METT (Stolton & Dudley, 2016) includes some governance questions and emphasizes the need to include rights- and stake-holders in the assessment, neither tool addresses many of the equity principles (Fig. 2). Conversely, there are elements of management effectiveness, such as financial stability, that are not necessarily captured in the equity framework.

In contrast, there is a great deal of overlap between the equity principles and the content of governance assessments. Governance is sometimes defined primarily in procedural terms (e.g. Lockwood, 2010) and, where equity does appear, it has often been in terms of equal



Agusan Marsh Wildlife Sanctuary, Philippines © GIZ-COSERAM

opportunities, as is the case, for example, in the UNDP framework of governance principles (Graham et al., 2003). However, for the context of protected areas, IUCN and its partners have adapted and expanded the scope of these principles to include: legitimacy & voice, direction, performance, accountability, and fairness & rights (Borrini-Feyerabend et al., 2013). Although a wide range of governance assessment tools exists, none has yet been applied as widely in the protected area context as the management effectiveness tools. A relatively new addition to the toolkit is the Whakatane Mechanism, which has a particularly strong focus on situations of rights violations (Freudenthal et al., 2012).

Figure 2 shows that there is also a large degree of overlap between the equity framework, particularly its distributive dimension, and issues considered by tools that assess the social impacts of protected areas. The Protected Area Benefits Assessment Tool (PABAT) (Dudley & Stolton, 2009) supports protected area managers in identifying the legally permissible benefits provided by a specific site to different beneficiary groups. The Social Assessment for Protected Areas (SAPA) methodology and toolkit (Franks & Small, 2016) promotes a more participatory approach to assess how

costs and benefits are distributed at a particular site. SAPA also asks some basic procedural questions (e.g. the extent of community participation in decision-making) as these have a large impact on distributive outcomes.

Between the governance and social assessment tools available, protected area decision-makers, managers and stakeholders already have a number of tools at their disposal to assess and act on the “equitably managed” element of Aichi Target 11. We argue that the equity framework adds value to this existing body of work in three main ways:

- Organization of the equity principles into three dimensions means that it can be used as an easy checklist to ensure that none of these three key areas has been missed;
- Condensation of key issues into 16 principles allows for the framework to be used as a quick reference, before referring – as appropriate – to the more detailed governance guidelines and/or social assessments;
- Wording of the equity principles as desired outcomes gives them a normative flavour that can be more easily translated into a minimum standard.



Entasekera Forest Protection Committee in Loita, Kenya © Kate Schreckenberg

We hope the equity framework will be used in conjunction with existing tools to identify and address gaps as necessary and to develop modular approaches tailored to specific needs and contexts. That said, if resources are not sufficient to conduct social and governance assessments in full, a more focused “equity assessment” methodology – yet to be developed – could fill the gap.

- **A step-wise process to advance equity in the context of protected areas**

There will always be a range of perspectives on what an equitable state looks like, and perceptions of equity will change over time (for example as people’s rights are more widely recognized, protected and fulfilled, and people become wealthier). Achieving equity may be a problematic ambition, therefore, but it is perfectly possible to achieve a consensus on practical steps to advance equity (Franks & Small, 2016). We envisage the framework as a flexible tool (and one that is itself likely to continue to be adapted) that should support enhanced protected area governance and management at both site and system level. To ensure widespread relevance, it would be useful to validate the framework in a wider range of protected areas, including coastal and marine protected areas, and at the level of a whole protected area system.

A first step in achieving wider implementation of the equity framework would be to undertake a more rigorous mapping, building on the rough outline provided above, of assessment of equity principles within existing toolkits. The framework could then be used to identify gaps and integrate existing efforts. At system level, for example, the framework can be used to review how well the various equity principles are captured in existing policies and practice. Depending on the gaps or areas of weakness identified, it would then be possible to look for the appropriate tools for further action (e.g. SAPA for distributive issues or governance assessments for procedural issues). By elaborating and adapting the framework at national level (e.g. through the addition of location-specific indicators), it could also be used to frame assessments, and support monitoring and evaluation exercises.

Where national enabling conditions are not favourable, progress could still be made at site level. Here, the framework could be used in discussions or reflections about project approaches, for example, to identify which equity dimensions might need greater attention, including as a basis for multi-stakeholder dialogue. Rather than applying an equity lens to the entire range of activities associated with a protected area, it might be more practical – and better for building stakeholder buy-



Encroachment in Loita Community Forest, Kenya © Kate Schreckenberg

in – to start with certain key elements, such as participation in decision-making, provisions for resource access, and other benefit-sharing arrangements.

There is also a need to develop a few high-level indicators to allow for reporting on Aichi Target 11. These must be sufficient to give a basic picture of the extent to which protected area conservation is addressing all three dimensions of equity (but not all principles within each dimension).

Ultimately we hope that the equity dimensions and principles can be integrated into existing implementation instruments (e.g. GEF funding). A first step in this direction has already been taken with the IUCN's Green List of Protected and Conserved Areas (GLCPA) Programme, which aims to “promote effective, equitable and successful protected areas” (IUCN, 2016, p.3). The GLPCA global standard (Version Sept 2016) has four components (Good governance, Sound design and planning, Effective management, Successful conservation outcomes), each of which has subsidiary criteria and indicators. Equity considerations are strongly embedded throughout the standard. Thus achieving the GLPCA standard will contribute to advancing equity just as applying the equity framework will help to strengthen an application to the Green List.

CONCLUSIONS

In response to calls from various CBD decisions and the World Parks Congresses, specifically expressed in Aichi Target 11, there has been rapid progress in developing tools for assessing the effectiveness of protected areas management. The framework we propose is intended to help address the other side of the equation, namely assessing the equity of protected area governance and management. The three dimensions of the framework – recognition, procedure and distribution – together with a set of enabling conditions are intended to help policy-makers, protected area managers, Indigenous peoples, local communities and other key stakeholders to promote equity in protected area conservation at both site and system level. We argue that this will support a much needed shift of the conservation narrative from an overly narrow focus on livelihoods to a broader focus on equity that fully integrates the issue of protected area costs and benefits with protected area governance.

ENDNOTES

¹ ‘Protected area conservation’ is assumed to be a product of both governance and management. Although Aichi Target 11 only mentions protected area management, it is widely understood that it also refers to protected area governance (Borrini-Feyerabend et al., 2013).

² From here on, unless otherwise stated, we use the term ‘actors’ to encompass both rights-holders and stakeholders.

³ The UN Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) lays down specifically how human rights apply to indigenous peoples.

⁴ The terms ‘costs’ and ‘benefits’ are used in the broadest sense to include all types of impacts on human wellbeing, whether or not they have monetary value.

⁵ See www.iucn.org/content/iucn-and-members-form-conservation-initiative-human-rights

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more than 15 years of experience in German development cooperation in the area of natural resource management.

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RESUMEN

Numerosas exhortaciones han sido formuladas para que las áreas protegidas sean gobernadas y gestionadas de manera equitativa. Aunque se ha avanzado en la evaluación de la efectividad de la gestión, han sido escasos los avances logrados en torno a la definición de la parte equitativa de la ecuación. Aquí proponemos un marco para promover la equidad en el contexto de la conservación de las áreas protegidas que fue desarrollado a través de un proceso de talleres de expertos y consultas y validado posteriormente en tres sitios en África oriental. El marco incluye tres vertientes fundamentales (reconocimiento, procedimiento y distribución) y 16 principios incorporados en un conjunto de condiciones propicias, que ilustramos mediante referencias a estudios de casos. Luego exponemos las razones para cambiar el marco conceptual de la conservación de áreas protegidas, pasando de una concepción basada en los medios de vida a una basada en la equidad, y justificando esto desde una perspectiva moral (normativa) e instrumental. Por último, mostramos la relación existente entre la equidad y otros conceptos clave (efectividad de la gestión, gobernanza e impacto social) y los instrumentos de evaluación relacionados con la conservación de áreas protegidas, antes de describir un proceso gradual para utilizar el marco para promover la equidad en la conservación de áreas protegidas.

RÉSUMÉ

De nombreux appels ont été lancés pour s'assurer que les aires protégées soient régies et gérées d'une manière équitable. Bien qu'il y ait eu des progrès dans l'évaluation de l'efficacité de leur gestion, ce n'est pas le cas pour en évaluer l'équité. Nous proposons dans ce document un cadre de travail pour l'avancement de la conservation équitable des aires protégées, qui a été mis au point grâce à un processus de consultation et d'ateliers d'experts, et validé ensuite par trois sites pilotes en Afrique de l'est. Ce cadre comprend trois dimensions clés (reconnaissance, procédure et distribution) et 16 principes incorporés dans une série de conditions propices, que nous illustrons à travers des études de cas. Finalement nous soutenons que la conservation dans les aires protégées devrait être moins orientée sur les moyens de subsistance pour plus se focaliser sur l'équité, aussi bien d'un point de vue moral que pratique. Puis nous montrons comment l'équité dans la conservation des aires protégées peut se rattacher à un certain nombre d'autres concepts clés (efficacité de la gestion, gouvernance et impact social) ainsi qu'à des outils d'évaluation associés. Nous détaillons ainsi un processus par étapes qui permet d'utiliser ce cadre de travail pour promouvoir l'équité dans la conservation des aires protégées.



COLLABORATIVE GOVERNANCE IMPROVES MANAGEMENT EFFECTIVENESS OF HIN NAM NO NATIONAL PROTECTED AREA IN CENTRAL LAO PDR

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ABSTRACT

This paper examines the multi-level collaborative governance system in Hin Nam No National Protected Area in central Lao PDR. The paper assesses the governance and management system's potential as an exemplar to protected areas practitioners, and discusses how such a system might be initiated and replicated elsewhere in the country and the region. Five building blocks of an experimental collaborative governance model are described. These comprise: (i) a participatory governance assessment; (ii) establishing a multi-level collaborative management and governance structure; (iii) participatory zonation based on traditional knowledge and customary rights; (iv) drafting collaborative governance agreements and (v) involving local people as additional protected area management manpower. The inter-linkages between these building blocks are also described. The first results of the collaborative governance approach are encouraging as the total management effectiveness score increased by 13 per cent in two years. It shows that the collaborative governance model can deliver positive results for the entire protected area system in Lao PDR, which is often referred to as a 'paper park system'. Further work on adaptive management of the collaborative governance system and sustainable financing of the technical field programmes will be required to sustain this model.

Key words: Multi-level collaborative governance, protected area, governance assessment, participatory zonation, customary rights, village rangers, Lao PDR

INTRODUCTION

Historically, government established and managed protected areas have been the primary mechanism for conserving the world's biodiversity. However, the establishment of new protected areas, and effective management of current protected areas for biodiversity outcomes must take into account local demands for ecosystem goods and services. Consequently, in many regions a transition towards shared governance systems, also called collaborative governance / collaborative management, can be observed in which local communities have more powers and responsibilities for the governance and management of the natural resources on which they are dependent.

Collaborative governance in Lao PDR and in Southeast Asia is still a relatively new approach. Experiences have shown that conflicts between local people and government representatives often arise when centralised efforts are made to impose management regimes on local people living in and adjacent to protected areas (Baird, 2000). Despite increasing consensus that collaborative governance of protected areas may be a better way to achieve biodiversity conservation and natural resource management objectives in an equitable manner, there remain considerable differences between managers, conservationists, governments and local people with regards to the concept, the implementation of this approach and the definition of 'participation' (Baird,

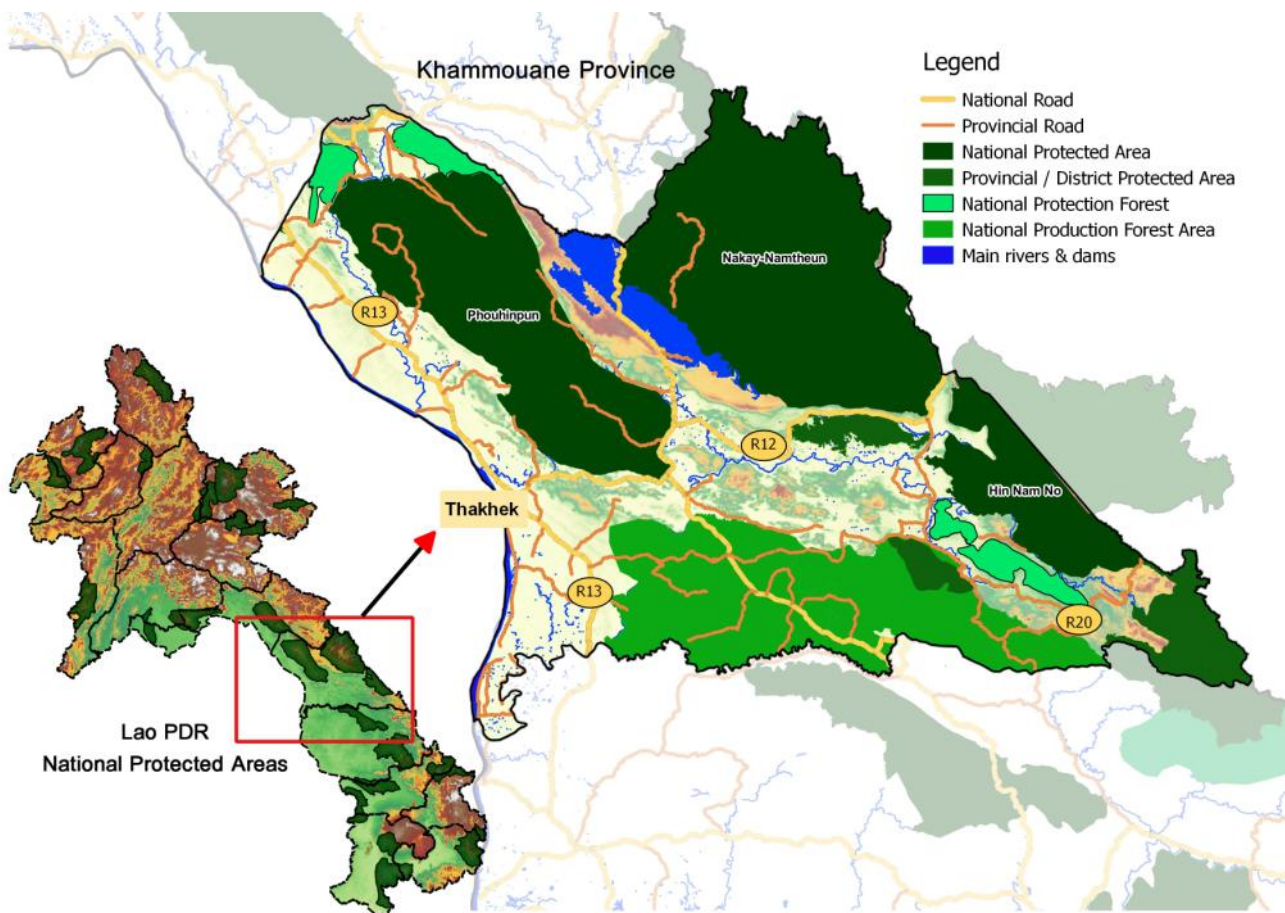


Figure 1: Location of Hin Nam No in Khammouane Province in Lao PDR (map prepared by Ronny Dobbelsteijn)

2000). Parr et al. (2013) recommend that government-designated protected areas establish working groups in the different fields of management, and enable these to create networks and institutional linkages between the grassroots communities and other local stakeholders, which in turn are guided by a protected area collaborative management committee.

Since the early 1990s, Lao Government policy for protected areas has focused on developing a partnership approach, which advocates people's involvement in conservation, especially that of the locals who depend on the natural resources for their daily livelihoods (Southammakoth & Craig, 2000). The development of successful collaborative governance requires that both guardian communities and government take on appropriate and clearly defined roles and responsibilities for conservation and protection. To date, not many of these promising partnerships have been realised – protected area management in Lao PDR largely remains a paper park approach due to insufficient budgets and human resources allocation by the government.

A number of countries in Southeast Asia are facing similar financial and human resource constraints. As a consequence, many protected areas in Lao PDR,

Cambodia and Vietnam are experiencing a net loss, both of biodiversity and of resources for local livelihoods, often at alarming rates. The primary agents of rapid ecological degradation are external traders such as sawmill owners, often assisted by local communities, who illegally extract natural resources for distant markets to maximise short-term profits. An analysis by Corbett (2008) confirms the need to combine state-enforced and community-led conservation approaches with some core elements for success: finding the appropriate division of roles between co-managers; ensuring that the transfer of responsibilities goes to the locals with customary rights; ensuring capacity development; and promoting good governance at all levels (especially if the poor are to benefit).

This paper examines the recently established multi-level collaborative governance system in Hin Nam No National Protected Area in central Lao PDR, which is the only site in Lao PDR to be officially under collaborative governance (DFRM/MoNRE, 2015). The paper assesses the governance and management system's potential as an exemplar to protected areas practitioners elsewhere in the country and the region, and discusses how such a system might be initiated and replicated. The description of this case study follows the 'Panorama solutioning



Xe Bang Fai River Cave in Hin Nam No National Protected Area © Dave Bunnell

approach' initiated by IUCN in 2014. Five so-called 'building blocks' of the experimental collaborative governance model in Hin Nam No were identified (de Koning, 2015).

HIN NAM NO NATIONAL PROTECTED AREA (NPA)

Hin Nam No National Protected Area, in brief Hin Nam No, is located in Boualapha District, Khammouane Province. It constitutes a sizable proportion (88,500 ha) of one of the largest karst landscapes in Southeast Asia, being contiguous with Phong Nha–Ke Bang National Park in Central Vietnam (see Figure 1). It is one of the original 18 National Biodiversity Conservation Areas (now called NPAs) of Lao PDR established on 29 October 1993 by Prime Minister's Decree 164. A total of 18 villages lie in immediate proximity to Hin Nam No, with a total population of about 8,000 people, many of whom are ethnic minorities. Like other national protected areas in Lao PDR, Hin Nam No has a fragmented management authority with a part-time director and no full-time staff on site. As a result of these limited human resources, as well as limited financial resources allocated by the government, there is a lack of capacity, skills, information and law enforcement to effectively manage and monitor the protected area.

Since 2010, the German Government provided technical support to Hin Nam No through the Lao-German Project 'Integrated Nature Conservation and Sustainable Resource Management in the Hin Nam No Region', implemented by the Lao Department of Forest Resource Management (DFRM) with support from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

This has facilitated high levels of external technical support, both at the management level and in the different specialised fields, including biodiversity monitoring, community outreach, livelihoods and tourism. Experts have provided on-going support to the establishment and maintenance of the collaborative governance system.

IDENTIFIED BUILDING BLOCKS USING THE 'SOLUTIONING APPROACH'

The 'solutioning approach' enables the sharing of new approaches and best practices related to all aspects and levels of protected area management and governance. Solutions should be replicable, topic relevant and impacting. The initial portfolio of solutions was launched at the IUCN World Parks Congress 2014, together with the first prototype of the online Panorama platform (www.panorama.solutions). Distilling and sharing these solutions and their components supports knowledge transfer and enables mutual learning. The aim is to inspire others through the identified tools, methods, processes and approaches in replicating what has been used before in and for protected areas.

As part of the solution for the identified challenge for Hin Nam No, five so-called building blocks were distilled. Achievements and lessons learned per building block are described in more detail in the following sections including the inter-linkages between the building blocks. It should be noted that the participatory processes described in building blocks two to four were parallel processes running at the same time and involving the same stakeholders. The identified building blocks are:

Table 1: Governance assessment results and subsequent interventions

Outcome governance assessment (February 2014)	Proposed intervention, progress so far (February 2016)
No clear delegation of decision making or implementation authority to guardian villages (see building blocks 2 and 3)	Hin Nam No Management Authority identified tasks to be delegated to villagers
Governance system is ad hoc and top-down, with lack of systematic benefit sharing (see building blocks 2 and 4)	Participatory reporting/planning system was developed at village (18), village cluster (5) and NPA level. Participatory co-management agreement, including benefit sharing mechanism, was developed and approved.
Lack of skills and capacity; lack of involvement by women (see building block 2)	Capacity development plan has been elaborated; recruitment of five female Lao Government volunteers (trainees)
Unclear zonation of Hin Nam No into manageable units per guardian village. A guardian village is actively involved in the protection of the protected area based on their customary rights (see building block 3)	Participatory zonation and trail mapping carried out in 18 priority guardian villages
Local rules exist but are unknown or not implemented by outsiders (see building block 4)	Establish general rules for the different zones in each guardian village and disseminate the information broadly
Willingness of guardian villages/village rangers to be involved in Hin Nam No management (see building blocks 4 and 5)	Monthly participatory biodiversity monitoring and patrolling system established using motivated village rangers who are compensated based on performance
Law enforcement system is unclear, slow and ineffective (see building blocks 4 and 5)	Some delegation of law enforcement to villagers ensures a more rapid and effective response

1. Governance assessment through participatory consultation
2. Setting up a multi-level collaborative management and governance structure
3. Participatory zonation based on traditional knowledge and customary rights
4. Collaborative governance agreements
5. Local people as additional protected area management manpower

1. Governance assessment through participatory consultation

A governance baseline assessment was implemented in February 2014 at various levels: village, village cluster, district and province. The intention was to document the current status on the governance and management, and collect data on Hin Nam No. The results of the assessment and the subsequent agreed interventions are presented in Table 1.

This participatory assessment generated ideas on the direction and strategic vision of Hin Nam No by bringing stake- and rights-holders from various levels together. The governance baseline assessment also included a Management Effectiveness Tracking Tool (METT) developed by the ASEAN Centre for Biodiversity

(Mardiastuti et al., 2013), which is similar to the conventionally used METT (Stolton et al., 2007) but with an additional focus on governance. A more detailed questionnaire was used to assess good governance which was adapted from annex 3 of the IUCN publication on protected areas governance (Borrini-Feyerabend et al., 2013). In February 2016 the results showed that the management effectiveness score had increased by 13 per cent since 2014 and good governance by 15 per cent.

2. Setting up a multi-level collaborative management and governance structure

• Protected area authority

The Ministry of Natural Resources and Environment (MoNRE) is responsible for establishing a legal and institutional framework for protected areas. Based on this, the provincial protected area authorities plan and coordinate activities and provide technical support to the District Office of Natural Resources and Environment (DONRE). The district authorities implement and monitor the daily activities together with the villagers who have a mandate to manage and protect certain portions of Hin Nam No.

Aspirations to have a more effective management model and better understanding of the tasks, led the protected

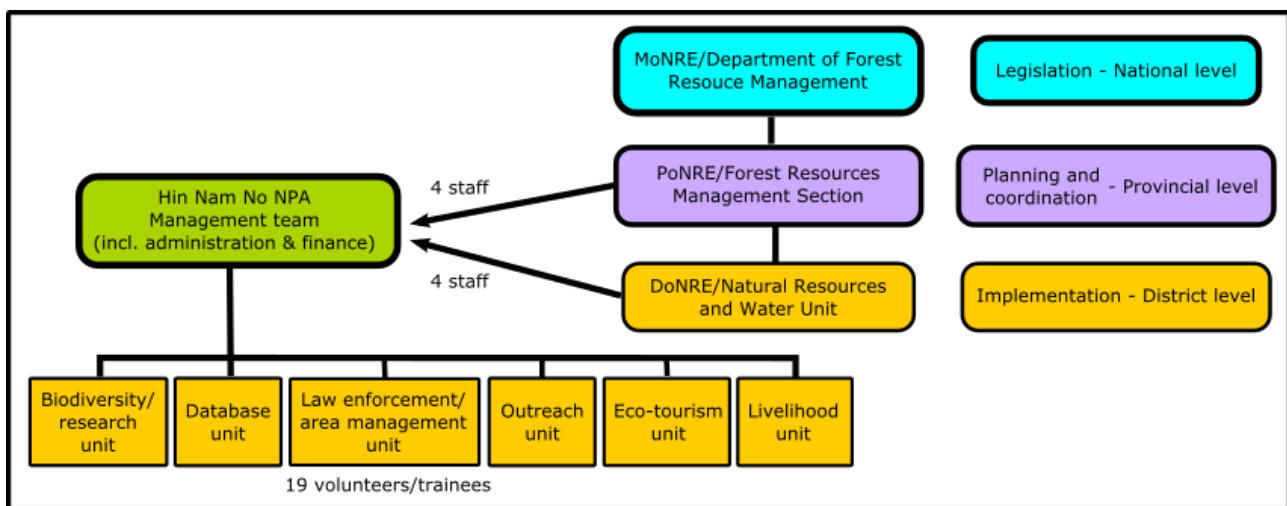


Figure 2: Institutional arrangements of the Hin Nam No Management Authority and its six technical units

area authorities to establish a new management structure for Hin Nam No, with six technical units in 2013 and early 2014. This process, which was supported by GIZ and the National University of Laos, started before the governance assessment, since a need for establishing more specialised units was already clear. Draft terms of reference were developed for each technical unit, and tasks were identified to be delegated to the villagers.

In August 2016, the newly established Hin Nam No management structure and its six technical units had a total of 27 staff to manage the protected area. The Hin Nam No Director is based in Thakhek, 200 km to the west. There are only eight part-time government staff and 19 volunteers. None of the part-time staff currently have sufficient capacity / professional preparation to show leadership in any of the specialized fields of management; this predicament may undermine the collaborative governance system in the future. Figure 2 shows the institutional arrangements of the management authority of Hin Nam No. The implementation of the protected area management tasks was decentralised to the district level.

• Collaborative system and stakeholders

A variety of stakeholders need to be involved to ensure effective collaborative governance. Primary stake- and rights-holders are the villagers and protected area management authorities that both ideally fulfil interlinked tasks. Successful collaborative governance also depends on the participation of secondary stakeholders. These comprise representatives from other government agencies such as the District Governor's Office, the Lao Women's Union, the Lao Tourism Office, Planning, Rural District Office, agriculture staff, forest inspection staff, as well as police and military. It is anticipated that these secondary stakeholders will

participate in strategic and operational steering (coordination; enforcement of laws). This will help to deal with threats such as illegal logging and poaching from opposing stakeholders who are only interested in quick profits and cause unsustainable use. Furthermore, strategic alliances with assisting partners are necessary for capacity development, institutional support and funding. To make sure that all stakeholders can work together towards the common goal, an effective institutional set-up is essential.

• Hin Nam No National Protected Area Collaborative Management Committee

Hin Nam No and its entire buffer zone are all situated within Boualapha district. Consequently, a multi-stakeholder committee was established at the district level – as the Hin Nam No NPA Collaborative Management Committee or District Co-Management Committee (DCMC). This landscape-scale body comprises the District Vice-Governor (chairperson), a secretariat and representatives from each of the five Village Cluster Committees (VCCMC) and secondary stakeholders from concerned district agencies. The DCMC currently meets quarterly and is a key structure for steering the management of Hin Nam No.

• Protected area working groups

Under the DCMC, five working groups were established in different fields of protected area management, with varying degrees of capacity and expertise.

These specialized fields comprise:

- i. Biodiversity monitoring, research and database
- ii. Law enforcement and area management
- iii. Outreach
- iv. Eco-tourism
- v. Livelihoods



Governance assessment on village cluster level © Mirjam de Koning

These working groups involve concerned district level government agencies, villagers and other stakeholders such as the private sector. They are organised by the heads of the relevant technical units and are the main engines of implementing management. Consequently, these five working groups played a major role in developing the relevant sections of the co-management plan, covering their respective specialized fields of management.

- **Village-level institutional bodies**

At the local level (in the 18 guardian villages), inhabitants form democratically elected village co-management committees (VCMC). Together with the five village cluster co-management committees they are mandated officially to protect and manage natural resources via official agreements. These village bodies provide management oversight to the village rangers and the eco-tourism service groups established within their respective villages. They also coordinate with the five village cluster committees and the five protected area working groups supporting the management of Hin Nam No.

- **Multi-level collaborative governance system**

As indicated above, at the district level the DCMC was established bringing together 13 appointed government officials from district level as well as village representatives from village cluster level (DFRM/MoNRE, 2015). The collaboration of the established co-

management committees at the village, village cluster and district level and the five established technical working groups can be described as a blending of technical agendas with administrative agendas (socializing protected areas), and represents a two-way process in line with the Law on Local Administration, 2003 and the 'Sam Sang' (Three Builds) system as stated in Prime Minister's Order No.16 dated 15 June 2012. This mixing of technical and administrative agendas increases the political support for collaborative governance and is different from previous tested approaches in Lao PDR. Villages report to village cluster level, which thereon report to the higher levels. The functioning of this bottom-up process is monitored via the annual good governance self-assessment in which villagers are involved, as well as joint participation of government staff on monitoring, and patrolling trips by village rangers. Top-down, strategic decisions made at higher levels take the inputs and needs of village levels into account, and specific measures and activities to be implemented are communicated back to the operational levels of village cluster and village.

This process ensures that all stake- and rights-holders are able to articulate their needs and participate in decision-making processes. A transparent sharing of information, experience and knowledge enhances the capacity for natural resource management among all parties to achieve the common goal of biodiversity conservation and poverty alleviation in and around Hin

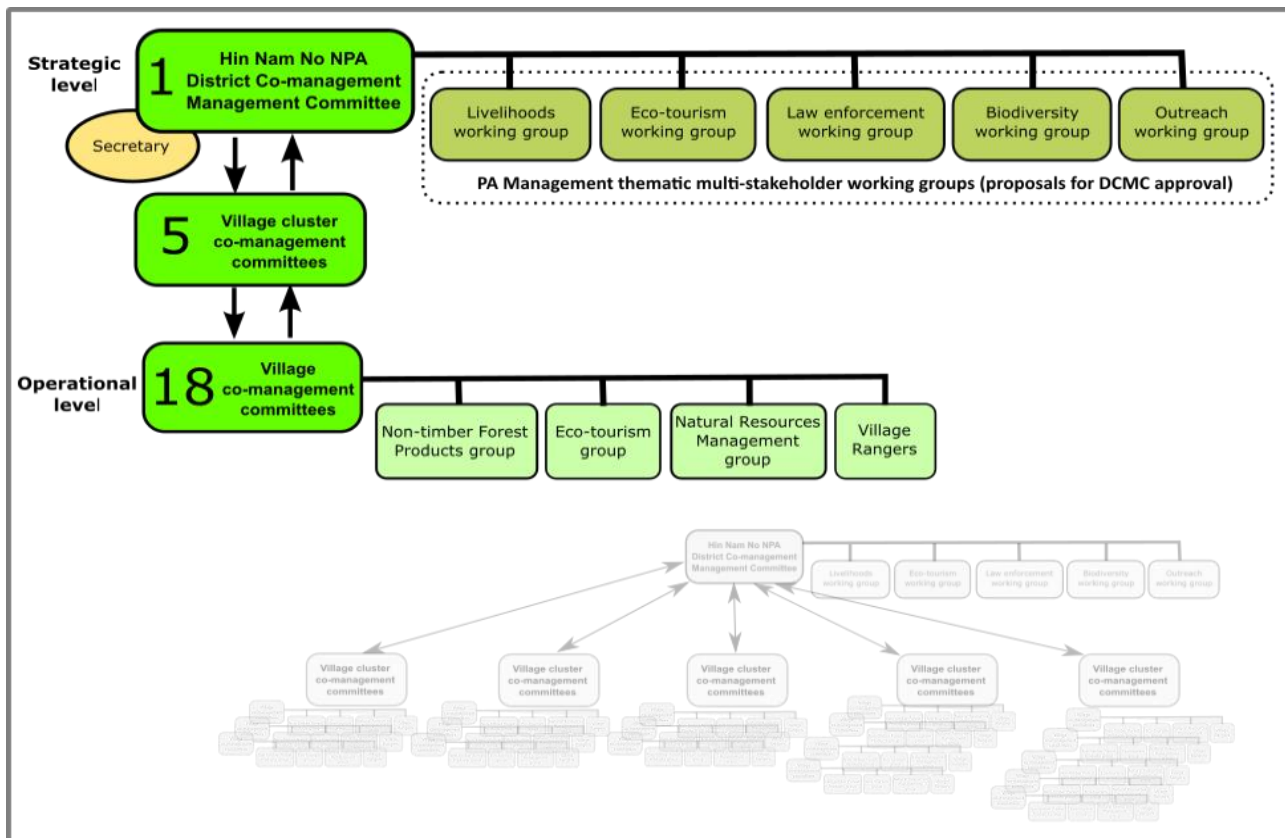


Figure 3: Multi-level collaborative governance arrangements in Hin Nam No National Protected Area

Nam No. A balance needs to be found between the need to involve people who are doing the work in the forest (village rangers) and the need to involve people who can validate decisions (village authorities and high level officials). The multi-level collaborative governance system for Hin Nam No National Protected Area is illustrated in Figure 3.

3. Participatory zonation based on traditional knowledge, customary rights and biodiversity values

The Lao law requires zonation inside National Protected Areas, to identify:

1. Total Protected Zones (TPZ) for the preservation of biodiversity, and
2. Controlled Use Zones (CUZ) for the regulation of resource use and definition of limited access.

Participatory zonation is an essential tool for local communities to engage in collaborative governance – especially when the process takes into account local knowledge and respects existing customary rights. The Hin Nam No protected area authorities started the participatory zonation process in 2014, based on the agreed interventions of the governance assessment. In order to divide the work between the 18 villages surrounding Hin Nam No, it was necessary to clarify areas and responsibilities:

- Which areas will be monitored?
- By whom? (Related to the question: Who has the right to use which resources?)

As a first step, the 18 guardian villages determined the boundaries, based on used trails and customary rights of villages. Then the village rangers mapped trails and collected data on important features, biodiversity and threats. Based on the trail maps produced, villagers were asked to define areas they need for collecting Non Timber Forest Products (NTFPs), aquatic products, and other natural resources. The villagers were also asked to define areas that are inaccessible due to the rugged terrain, and areas that should be left alone to protect wildlife for breeding purposes.

Based on the proposals by the guardian villages, the Hin Nam No management authorities geographically divided the Hin Nam No region into areas to be managed by the 18 guardian villages, which are grouped into five village clusters. All eighteen guardian villages are located outside of the Hin Nam No, but some of their village lands fall partially within Hin Nam No.

All land inside Hin Nam No consists of conservation forests and there is no agricultural land or production forest inside Hin Nam No. Consequently, the zonation process focused on jointly identifying the Controlled Use

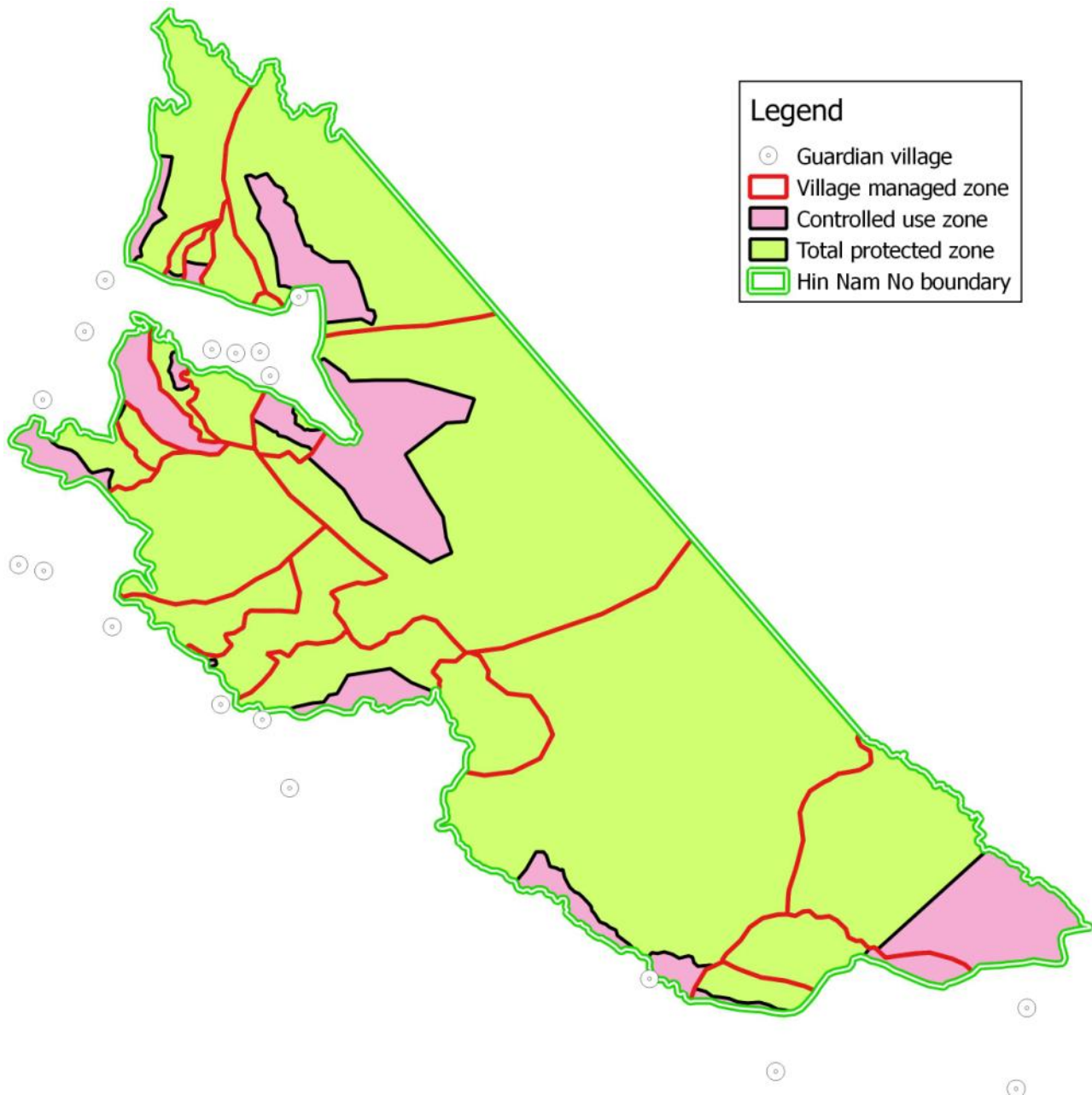


Figure 4: Preliminary zonation of Hin Nam No into Total Protected Zones and Controlled Use Zones based on proposals and existing usage by guardian villages (map prepared by Ronny Dobbelsteijn)

Zones (CUZ), which prescribes the traditional village lands of these 18 guardian villages. In a second step, management rules for the CUZs were formulated, based on the customary rights of the villagers. The Total Protected Zones (TPZ) comprise all parts of Hin Nam No beyond the CUZ. They can be divided into inaccessible parts, and areas considered of high biodiversity value (DFRM/MoNRE, 2015). More information is needed on the areas considered of high biodiversity value, to subdivide them further. The process of participatory mapping of trails and the subsequent selection of key trails for regular monitoring led to a clear agreement on which area should be monitored by which village. This led to a de-facto delineation of village areas of responsibility within Hin Nam No. In total, 75,911 ha (86

per cent) were proposed by the villagers as TPZ and 12,625 ha (14 per cent) as CUZ (de Koning & Dobbelsteijn, 2015) (see Figure 4).

The basic rules and regulations governing the access and use of the proposed TPZ and CUZ are stipulated in the Forestry Law (2007) and in the collaborative governance agreements that have been approved by the District Governor of Boualapha. The DCMC agreed that further meetings with the villagers are required via the VCCMC and the VCMC to discuss and agree upon more detailed resource use rules for the CUZ to prevent unsustainable use by villagers and outsiders. The final zonation system has to be approved by the District Co-management Committee.

4. Collaborative governance agreements

The collaborative governance agreements were drafted in village meetings with the help of a neutral facilitator by the first nine villages which were setting up village co-management committees. Based on the first participatory draft agreements the local authorities decided to generate one uniform collaborative governance agreement in the form of a district by-law, including benefit-sharing arrangements with regard to an agreed set of fines to be paid by offenders and the use of resources based on customary rights. As differences between the nine proposed agreements were small, a compromise for one generic agreement was found during a workshop held in July 2014 chaired by the vice-district governor. The proposed consensus document coming out of this meeting was also presented to the nine villages that created their village co-management committees later in 2014. Upon request by the local authorities the document went through several meetings and due diligence processes involving legal government offices before it was officially approved by the Boualapha District Governor. The final version was disseminated to all 18 villages and also over the border in Vietnam to the protected area authorities and rangers of Phong Nha-Ke Bang National Park.

5. Local people as additional protected area management manpower

The approach aims at involving local villagers actively in the management of the protected area. This is driven on the one hand by the connectivity and dependence on the area by local people and their time availability to participate, and on the other hand by the limitation of resources provided by the government. In total there are 87 democratically elected co-management committee members spread over 18 villages and five village clusters involved in participatory planning and reporting. In the guardian villages, village rangers are compensated for making regular trips into the protected area to record wildlife sightings and threats and to become involved in patrolling for law enforcement. Payment fees for biodiversity monitoring and patrolling were agreed through negotiations and based upon fair compensation for the hard and dangerous work of climbing in the mountains. Up until August 2016 the money for the village rangers was provided by GIZ to the Hin Nam No management team that pays the rangers.

A total of 110 villager rangers were trained in the use of GPS equipment and in recording sightings in coded booklets. All data and information from the field are inserted into the Spatial Monitoring and Reporting Tool (SMART) system. The data collected by the village rangers is verified and entered into the SMART database

every three months by the database unit. The database unit analyses the data and presents the main wildlife sightings and threats to the DCMC and the Hin Nam No NPA Director in the quarterly reporting and planning meetings via maps. In these meetings, decisions are made for the plan for the next three months and on where the village rangers will go. From the SMART system it becomes clear that the threats to Hin Nam No are similar to other NPAs in Lao PDR, namely uncontrolled logging and poaching. Over recent years these threats remained constant or even increased in certain places, in spite of the collaborative governance system. On a more positive note the wildlife sightings of selected key indicator species also remained constant (results of bi-annual scientific biodiversity monitoring and the village rangers). Vegetation surveys combined with satellite image interpretation showed a negligible deforestation rate.

There are a further 35 households in four villages involved in the provision of eco-tourism services such as guiding and boating services, as well as guesthouse and home-stays. Village service providers were trained to provide a certain quality of services. The eco-tourism activities have been developed in a way that they conserve the environment and at the same time benefit the local people. In one village this link between conservation and tourism has been elaborated via a so-called conservation agreement under the umbrella of the existing collaborative governance structure and agreements.

DISCUSSION

Governance assessment: According to IUCN's instructions, the described 'building blocks' were formulated to try to follow a logical sequence and make parts of the 'solution' replicable. The governance assessment constituted a vital first step 'building block'. It laid out a collective vision as to how the governance and management system may be modified, and identified the sequence of steps that should be followed to attain a more effective and equitable system. The fact that the governance assessment involved representatives from all the different levels of management facilitated a collaborative visioning of governance and management.

Multi-level collaborative governance system: The governance assessment provided the orientation and stimuli for the development of the governance system. The establishment of the multi-level collaborative governance system is heavily dependent upon the recognition of the different specialized fields of protected area management (Parr et al., 2013; Parr, 2015). The



Village rangers in action © GIZ Hin Nam No

organization of the NPA Management Authority, as illustrated in Figure 2, and the drafting of terms of references for the six technical units helped in the description of the tasks to be undertaken to effectively manage the Hin Nam No. However, the management authority could only allocate 2-3 district government volunteers per unit. This was acknowledged by the management authority and therefore some management tasks were delegated to the villagers. Capacity development of the Hin Nam No Management Authority and villagers enabled them to better execute their tasks. The official endorsement of the collaborative governance structures by the district governor legitimized the approach.

The increase in management effectiveness and good governance self-assessment results convinced the stakeholders to continue with this partnership. However, this multi-level collaborative governance system is continuously evolving. Recent thinking suggests that the membership of the DCMC should be modified to include provincial representatives to link the provincial policy-makers to the district administration and the five operating district-level working groups, which are gaining momentum as the main engines for implementing technical sub-programme activities within the villages.

Zoning and collaborative governance agreements: The 18 VCMCs were key institutional bodies in leading the zonation process and the development of collaborative governance agreements within the guardian villages. These two building block steps built on the existing traditional systems of natural resource management, and seem to be a particularly strong component to the multi-level collaborative governance system – building upon the existing traditional resource management system rather than creating a new management system which undermines traditional customary approaches, inadvertently generating conflict. This homogeneity with customary management systems encourages village participation, which is vital in sites with low government capacity and budgets. This conflict aversion in itself is particularly appealing and brings added interest at the administrative district, provincial and national levels.

As Hin Nam No is located in only one district, the process to approve the agreements went relatively fast as it is easier to approve a district by-law compared to higher level agreements. Another enabling factor is that Boualapha is a pilot district in the province to develop a ‘three-built’ district (sam-sang), implying that the ownership and implementation of the activities has to be decentralised to the local level. The due diligence process

initiated by the district governor to approve the collaborative governance structure and agreements led to clear leadership and ownership from the local authority. This provides noticeable encouragement for local villagers to implement the agreements, as fines for poachers and benefit sharing mechanisms are in place. Initially, the implementation of law enforcement without endorsed agreements generated problems as the village rangers felt insecure in doing their job. From each village the very clear and strong request was made that each village respects the boundaries between the villages in the Hin Nam No and that the village rangers survey their own village lands; otherwise there would be confusion as to who has the right to be inside Hin Nam No.

Additional manpower: In Hin Nam No, 110 village rangers were trained in the basics of biodiversity monitoring and the use of the necessary equipment, as a basis to support the identification of areas of high biodiversity value. Basic activities are being implemented reasonably satisfactorily. Most of these village rangers are police or village militia who patrol Hin Nam No on a part-time basis. They can also tackle minor legal infringements. As Hin Nam No is mainly a limestone/karst region, large areas are very difficult to access and the number of trails is minimal. Local part-time village rangers seem to be more effective compared to full-time government rangers. This was demonstrated by an increase in the area covered for patrolling and biodiversity monitoring and some successful law enforcement interventions in which village militia arrested poachers and fines were settled locally with benefit sharing for the village rangers involved. Furthermore, they are more effective and cost efficient as the village rangers rely on their own food supply and are located close to the area and can act quickly, so there is no need to establish separate ranger stations. Furthermore, they know if there are trespassers as they live next to the area they manage.

In 2015 a total of 110 trained village rangers walked 1,523 km on patrol covering 60 per cent of the reserve. For this a cost-effective total of US\$ 12,000 was paid to the village rangers. The system of making use of local tourism service guides also works well as it is an additional income for the people living next to the area which they know very well. Given the limited number of tourists, it is important that the village tourism service providers don't rely solely on tourism income for their livelihoods. The service providers involved in eco-tourism had an 8.8 per cent (37 per cent for women) additional monthly household income from eco-tourism services. There was an increase from 465 visitors in 2014 to 2,520 in April 2016.

Challenges and opportunities for Hin Nam No:

Up until August 2016 the collaborative governance set-up has resulted in an increase in participation in protected area planning and reporting at village, village cluster and district level. Through this increased sharing of information between various stakeholders more practical solutions are being proposed and tested. The model also resulted in an increased authority and voice by the district governor in the protected area management, which has had an impact on the implementation of proposals and their effectiveness as the district governor is the highest authority in the district.

On a more critical note it is clear that the coordination of law enforcement around Hin Nam No cannot be handled by the management authorities and guardian villages alone. This activity requires the collaboration of many agencies, which would best be handled by the district working group on law enforcement headed by the district vice-governor. Discussions on the need for sharing management tasks are more easily understood by government officials than tackling the issues of shared power and decision making. With still valuable timber and NTFPs remaining in and around Hin Nam No it is questionable whether there is real political will to engage in governance and power issues in Hin Nam No. To date no sustained law enforcement programme has been implemented. As a consequence, illegal activities continue both within the protected area and in the forested portions around the Hin Nam No. The latter remains the biggest challenge to tackle. The law enforcement working group is currently elaborating a strategy, to be approved by the DCMC, to make law enforcement more transparent and effective. This is in line with new policies that came into place with the newly elected government.

The village rangers system is a relatively cost-efficient system but payments need to be sustained once the GIZ project is terminated. It has to be seen if the entire system of 110 village rangers can be sustained or whether it should be down-scaled to a leaner system operating from a village cluster level while networking with village rangers at the village level. One option for future financing of the village ranger system could be via a Trust Fund involving the Environmental Protection Fund or corporate responsibility financing. The mobilisation of private sector partners for tourism development and public funds are also important to sustain the collaborative governance arrangements.

To sustain the collaborative governance system it is important to create a direct linkage between roles, responsibilities and rights, benefits as agreed upon in the



Local people depending on the resources of Hin Nam No National Protected area © Lucas Wahl

collaborative governance agreement for Hin Nam No as a whole and the envisaged conservation agreement which will focus on specific zones, activities or resources. This should also include the link to improved livelihood activities as a potential benefit. The Hin Nam No management is not a development organization and cannot hope to provide for all the needs of the villagers. However, an important aspect of developing agreements involves partnering with other development partners in the immediate vicinity of Hin Nam No.

Challenges and opportunities for replication:

Representatives of MoNRE requested for this innovative model to be piloted with the possibility of extending it to other areas in Lao PDR. To date, the building block with regard to the establishment of the governance structure is already partially copied in Phou Dendin NPA in Phongsaly Province with the support of the local Lao Biodiversity Association. In Xe Pian NPA in southern Lao PDR, the idea exists to do a governance assessment as a starting point and to elaborate a co-management plan similar to the one in Hin Nam No. Based on the interest shown by other management authorities in Lao PDR, the GIZ project has organised study tours to Hin Nam No and provided a 'training of trainers' in the capital Vientiane. The 'training of trainers' manual follows the different building blocks.

Hin Nam No has some unique management characteristics. Not only is the site completely located within a single district, but the protected area is a limestone massif, and is a geological formation. It has no communities living inside, has extremely limited access,

limited alternative land uses and limited high value resources. Furthermore, the site has been tentatively identified as the nation's first natural world heritage site, increasingly gaining political support. Thus, the establishment of this multi-level collaborative governance within this reserve has been one of the easiest sites in Lao PDR to set up. It remains unclear how easy it will prove to set up multi-level collaborative system arrangements in sites covering several provinces and 5-10 districts. It also remains unclear as to how the working groups will remain effective in engagement in more complex management scenarios, with influential investors deliberately undermining the collaborative governance system for personal gain.

CONCLUSIONS AND RECOMMENDATIONS

At the present time (August 2016), Hin Nam No staffing levels and allocated budgets by the Lao government are extremely low and therefore effective management still needs to be improved. On a positive note, the Hin Nam No authorities and GIZ have developed an innovative collaborative governance system in which technical and administrative agendas are mixed (socializing protected areas), in line with relevant legislation on decentralisation and based on customary rights. This has increased the political and local support for collaborative governance and is different from previous tested approaches in Lao PDR.

The description of the building blocks and their interlinkages enabled a relatively simple and structured write-up of the three year process that was followed to set up the multi-level collaborative governance system.

The increase in management effectiveness shows that the collaborative governance model brings positive results with opportunities to the entire system of NPAs in Lao PDR, up to now often referred to as a 'paper park' system. As future building blocks, more work on 'sustainable financing' and 'adaptive management' through actual implementation is required to sustain this model. Implementation of the collaborative governance approach in Hin Nam No can begin in earnest in the coming five-year period.

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RESUMEN

Este artículo examina el sistema de gobernanza basada en la colaboración en el Área Protegida Hin Nam No en el centro de la RDP Lao. El artículo evalúa el potencial del sistema de gobernanza y gestión como modelo para los profesionales encargados de las áreas protegidas, y examina cómo se podría iniciar y replicar un sistema de este tipo en otras partes del país y de la región. Se describen cinco elementos esenciales de un modelo experimental de gobernanza basada en la colaboración. Estos comprenden: (i) una evaluación sobre la gobernanza participativa; (ii) el establecimiento de una estructura de gestión y gobernanza basada en la colaboración en distintos niveles; (iii) la zonificación participativa basada en el conocimiento tradicional y los derechos consuetudinarios; (iv) la elaboración de convenios sobre la gobernanza basada en la colaboración; y (v) la participación de la población local como mano de obra adicional para la gestión del área protegida. También se describen las interrelaciones entre estos elementos esenciales. Los primeros resultados del enfoque basado en la gobernanza participativa son alentadores habida cuenta de que la puntuación total de la efectividad de gestión aumentó en un 13 por ciento en dos años. Ello demuestra que el modelo de gobernanza basada en la colaboración puede ofrecer resultados positivos para todo el sistema de áreas protegidas en la República Democrática Popular Lao, al que a menudo se denomina "sistema de parques de papel". Será necesario seguir trabajando en la gestión adaptable del sistema de gobernanza basada en la colaboración y la financiación sostenible de los programas técnicos para sustentar este modelo.

RÉSUMÉ

Cette étude examine un système de gestion participative multi-niveaux dans l'aire protégée nationale de Hin Nam No au Laos central. L'article évalue le potentiel de ce système de gouvernance pour servir d'exemple au management d'autres zones protégées, et examine comment un tel système pourrait être lancé et reproduit ailleurs dans le pays et la région. Nous décrivons les cinq étapes pour la construction d'un modèle de gestion participative expérimentale. Celles-ci consistent en : (i) une évaluation de la gestion participative ; (ii) l'établissement d'une structure de gestion et de gouvernance multi-niveaux coordonnée et collaborative ; (iii) un plan de zonage participatif basé sur la connaissance des traditions et droits coutumiers ; (iv) l'élaboration d'accords de gestion participative, et (v) la participation des populations locales à la gestion du parc. Nous mettons également en lumière les liens qui existent entre ces étapes. Les premiers résultats de cette approche de gestion participative sont encourageants puisque la note d'efficacité de gestion globale a augmenté de 13 % en deux ans. Cela indique que ce modèle de gestion participative pourrait fournir des résultats positifs pour l'ensemble des aires protégées au Laos, souvent appelé un 'système de parcs de papier'. Les travaux d'adaptation du système de gestion participative et du financement durable des programmes d'assistance technique sur le terrain vont continuer afin d'entretenir et de valider ce modèle.

FROM “PAPER PARK” TO MODEL PROTECTED AREA: THE TRANSFORMATION OF IKH NART NATURE RESERVE, MONGOLIA

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ABSTRACT

Protected areas represent the most effective form of biodiversity conservation; however, many remain poorly managed and some exist only on paper without management – called “paper parks”. We describe our collective efforts to transform Ikh Nart Nature Reserve (Ikh Nart) in Mongolia from a paper park into a model protected area. Resource constraints and lack of capacity precluded active management prior to our project. This paper outlines the process that ultimately led the United Nations Development Programme to designate Ikh Nart as a model protected area. Five overlapping and complementary aspects of our work included: 1) rigorous research; 2) a management structure, plan and process; 3) building local capacity; 4) cultivating local support; and 5) creating sustainable administrative policies and funding. Our efforts resulted in several successes, including reserve expansion, increases in wildlife populations, and strong local support. The lessons learned in Ikh Nart may offer guidance for protected area development in other areas.

Key words: Capacity building, community-based conservation, Gobi, paper park, park management, steppe, wildlife

INTRODUCTION

Protected areas represent the most effective form of biodiversity conservation (Bruner et al., 2001; Dudley et al., 2014; Kellett, 2015; Taylor, 2015). Yet, many protected areas become established prior to acquiring adequate knowledge of the ecology of the natural communities they hope to conserve (Wuerthner, 2015). In addition, park boundaries usually result from a compromise between human desires to use natural resources, such as timber, minerals and forage for livestock, and to protect natural heritage. As a result, protected areas often fail to protect key habitats (Terborgh, 2015). Some countries, and not only developing countries, also often establish protected areas before they acquire the capacity to adequately manage

those areas, resulting in so-called “paper parks” that exist only in government documents (Reading et al., 1999, 2015; Taylor, 2015). Paper parks receive little to no active management and are usually unknown to local people. Effective conservation requires transforming such paper parks into actual reserves characterized by active law enforcement, the presence of a management plan and staff to implement the plan, and a supportive local population (Taylor, 2015).

This paper describes our approach and efforts to transform Ikh Nart Nature Reserve in Mongolia from a paper park into a model protected area that can be used as a case study to improve management of other protected areas in Mongolia and elsewhere.



Rocky outcrops of Ikh Nart Nature Reserve, Mongolia © Richard Reading

BACKGROUND

Mongolia rapidly transitioned from a communist country with a command-control economy to a democracy with a capitalist economy following the collapse of the Soviet Union in the early 1990s. During the transition, Mongolia adopted an ambitious goal of placing 30 per cent of its land area under state protection (Reading et al., 1999). In the mid-1990s, Mongolia moved aggressively to establish protected areas, going from protection of about 3.5 to 12 per cent of its land area within just a few years (Reading et al., 1999). These areas included Strictly Protected Areas, National Conservation Parks, Nature Reserves and National Monuments (Reading et al., 2015). Since then, expansion has slowed as natural resource extraction interests began to dominate the national economy, resulting in land use policies driven by exploration and extraction of minerals such as copper and gold. As of 2012, mining and drilling companies had leased, applied for leases, or were open to lease about 45 per cent of Mongolia, with tender bids (areas open for a lease bid) accounting for about half of the 45 per cent (Reading et al., 2015). Still, by 2012, the national government had protected over 17 per cent of Mongolia, with provincial (*aimag*) and county (*soum*) local governments protecting an additional 10 per cent or so countrywide (Reading et al., 2015).

Resource constraints and lack of capacity precluded active management of many protected areas in Mongolia immediately following creation. As management began and ecologists initiated research, gaps in protection have become evident. Our project began in Ikh Nart Nature Reserve (hereafter Ikh Nart) in 2000, four years after its establishment and prior to active management (Reading et al., 2011). Since then, studies have examined Ikh

Nart's biota, and human attitudes and values, land use practices, and culture to serve as a knowledge base for management (e.g., Jackson et al., 2006; Reading et al., 2003, 2011; Davie et al., 2014a). Simultaneously, management activities started, including funding law enforcement officers, education and outreach, livelihood enhancement, cultural resource protection, and nature-based tourism development working closely with local people and governments responsible for Ikh Nart. Under Mongolian law, local governments have management authority over nature reserves and national monuments, yet the relationship between those governments and the national government with respect to protected areas remains unclear in the law (Wingard & Odgerel, 2001). The lack of legal clarity over management complicates conservation efforts.

Our research results indicated that a substantial amount of important habitat used by Ikh Nart's wildlife occurred outside the reserve's boundaries (e.g., Reading et al., 2003, 2005a, 2005b, 2010b; Murdoch et al., 2013, 2016; Lkhagvasuren et al., 2016). To their credit, when presented with these data, Dalanjargalan and Airag soums established local protected areas contiguous with Ikh Nart to protect these habitats, effectively expanding the reserve (S. Amgalanbaatar, pers. commun.). This paper discusses the process that resulted in Ikh Nart's expansion and effective management, which ultimately culminated in the United Nations Development Programme (UNDP) designating Ikh Nart as a model protected area under its Strengthening Protected Areas Network (SPAN) project funded by the Global Environment Facility (GEF). The authors hope this approach may offer guidance for protected area development in other parts of Mongolia and the world.

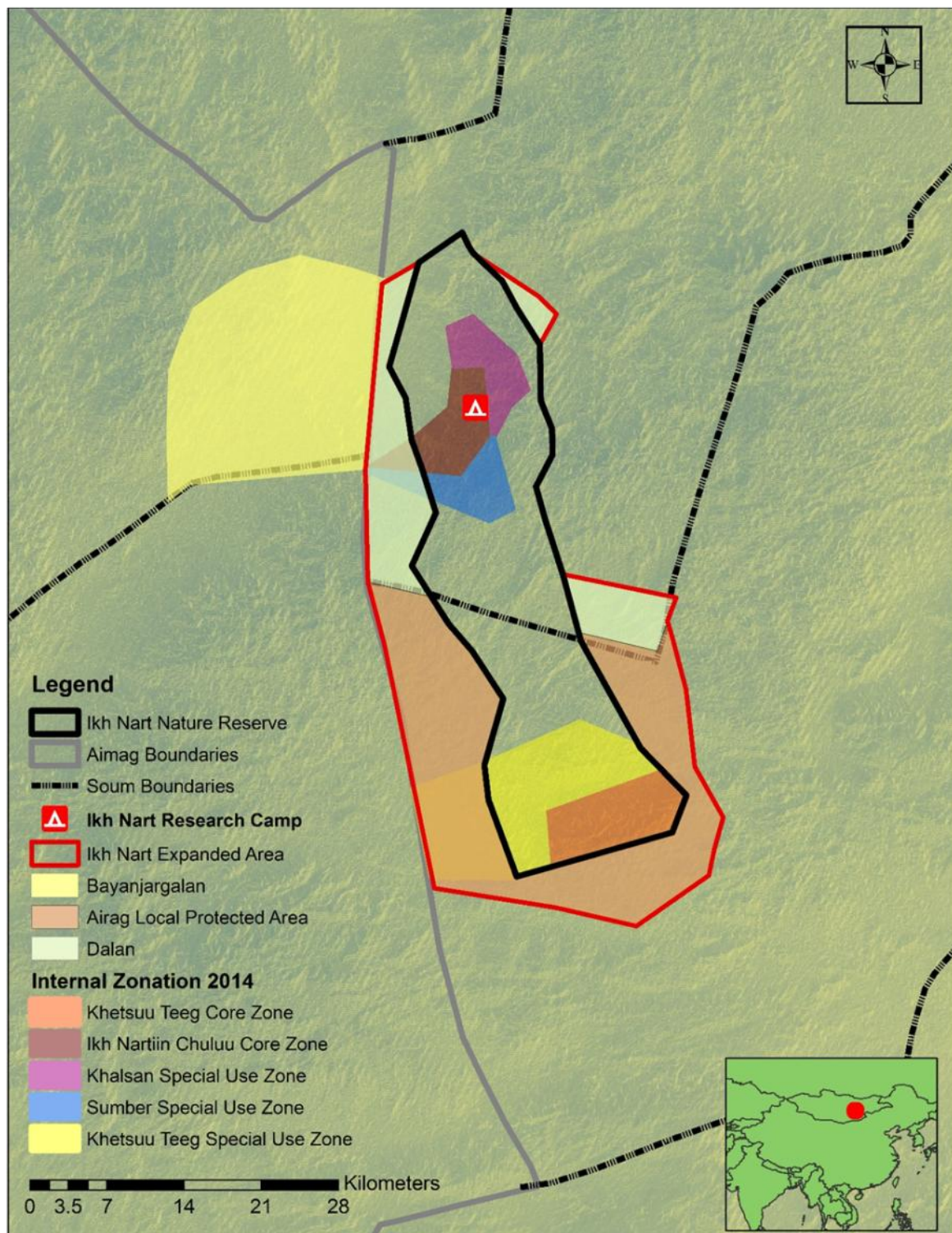


Figure 1. Location of Ikh Nart Nature Reserve, Dornogobi Aimag, Mongolia relative to *soum* and aimag boundaries showing the distribution of major habitat types and roads.

STUDY AREA

Ikh Nart Nature Reserve lies in north-eastern Dornogobi Aimag (centred about 45°43' N, 108°39' E), on the northern edge of the Gobi Desert ecosystem at the transition between steppe and desert habitats (Figure 1; Reading et al., 2011). Established in 1996 to protect approximately 666 km² of rocky outcrops and native wildlife, especially argali sheep (*Ovis ammon*), Ikh Nart contains sparse vegetation at the interface of dry steppe

and semi-desert steppe ecotypes. Vegetation types include shrublands, tall grasslands, and open plains of short grasses, forbs and semi-shrubs (Jackson et al., 2006). Given Ikh Nart's location at the transition between ecotypes, a relatively wide variety of species inhabit the reserve (Reading et al., 2011). Topography ranges from gently rolling plains to areas with rugged rocky outcrops and steep drainages, some with ephemeral or permanent cold water springs. Ikh Nart has

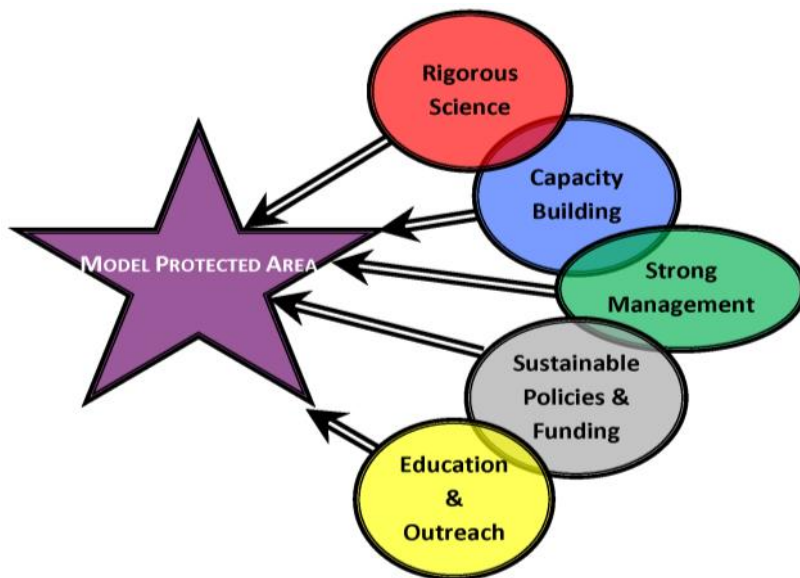


Figure 2. Five intersecting components to the development of a model protected area

an arid, continental climate characterized by relatively wet, hot summers (to 43°C), cold winters (to -40°C), and dry and windy springs with extremely low humidity. Most of the limited precipitation (~ 60 cm/yr) falls in summer as rain (Reading et al., 2011).

Ikh Nart, like other nature reserves in Mongolia, is a multi-use landscape. Approximately 110 families live as transhumant pastoralists in and around the immediate vicinity of the reserve, raising livestock (mostly sheep, goats and horses) (Reading et al., 2011; Davie et al., 2014a). These families move about 5 to >50 km between winter and summer *ger* (or yurt) sites. A network of 2-track dirt roads connects *ger* sites and some lead to *aimag* and *soum* governance centres (Davie et al., 2014a). Humans have inhabited the region for millennia and numerous archaeological sites occur in the landscape (Tserendagva et al., 2014, 2015; Schneider et al. In press). Intensive livestock grazing represents a conservation threat, especially given the dry and fragile nature of the ecosystem (Reading et al., 2010c, 2015). Mining represents another threat (Reading et al., 2015). Seams of amethyst quartz and fluorite run through the reserve and have been illegally exploited by local miners and larger commercial operations. The reserve is also surrounded by dozens of mining concessions.

DEVELOPING A MODEL PROTECTED AREA

Effectively managing protected areas for biodiversity conservation requires several components. Five main aspects characterize our work, overlapping and complementing each other. These components include 1) conducting rigorous scientific research to obtain reliable data upon which to base management; 2) developing better management; 3) building local capacity; 4) conservation education and outreach activities, including

livelihood enhancement; and 5) creating sustainable administrative policies and funding mechanisms (Figure 2).

1. Gathering a foundation of scientific data

Effective biodiversity conservation requires understanding the biological and social context, including the flora, fauna, ecology, local culture, politics and socio-economics. The first step towards transforming Ikh Nart, involved acquiring scientific knowledge. Little information existed about the reserve, and several studies gathered data for use in managing the region. This information included descriptive data (e.g., habitat types, species richness, abundance and distribution), more complex ecological studies, predictive models and experimental results. A research station gradually developed from a single *ger* that eventually expanded to include multiple *gers*, outbuildings, specialized equipment and sustainable energy (solar) that can accommodate about 40 people.

Ecological research initially focused on key species and over time expanded to include other species. As Ikh Nart was originally established specifically to conserve argali sheep (Reading et al., 2011), the first research project, beginning in 2000, focused on this species (Reading et al., 2003, 2005a, 2009; Tserenbataa et al., 2004; Kenny et al., 2008; Singh et al., 2010a; Young et al., 2011; Amgalanbaatar et al., 2014). Argali function as a flagship species for our work. Other research projects soon followed. Studies of Siberian ibex (*Capra sibirica*; Reading et al., 2007; Singh et al., 2010b; Wingard et al., 2011a) led to exploring potential competition between argali, ibex and livestock (Wingard et al., 2011b). This mountain ungulate research resulted in annual monitoring of vegetation in the reserve (Mandakh et al., 2005).



Argali (*Ovis ammon*) rams, Ikh Nart Nature Reserve, Mongolia © Richard Reading

Large numbers of breeding raptors are attracted to Ikh Nart because of its trees and rocky outcrops, particularly Cinereous Vultures (*Aegypius monachus*) and Lesser Kestrels (*Falco naumanni*), both species of conservation concern (Gombobaatar & Monks, 2011). Some of us, therefore, began more in-depth research into the nesting ecology, movement and migration patterns of these species (Reading et al., 2005b, 2010a; Batbayar et al., 2008; Kenny et al., 2013, 2015), as well as gathered data on other breeding raptors.

In the mid-2000s, research expanded further to include meso-carnivores and their prey that focused primarily on the ecology of red (*Vulpes vulpes*) and corsac foxes (*V. corsac*; Murdoch et al., 2010a, 2010b, 2016; Lkhagvasuren et al., 2016), but also gathered data on Pallas' cats (*Otocolobus manul*) and Asian badgers (*Meles leucurus*) (Murdoch et al., 2006a; Murdoch & Buyandelger, 2010). The meso-carnivore project also initiated annual monitoring of small mammal and lizard populations (Murdoch et al., 2010c, 2010c). The project further led to research on resource partitioning by two species of hedgehogs (Murdoch et al., 2006b; Reading et al., 2010b; Zapletal et al., 2012, 2015), the role of Siberian marmots (*Marmota sibirica*) as a keystone species (Murdoch et al., 2009, 2013), insect fauna, wolf

(*Canis lupus*) ecology and conservation (Davie et al., 2014a, 2014b), and ecological impacts of landscape change (Lkhagvasuren et al., 2016). Herpetological work expanded from population surveys to ecological and disease studies. Finally, the most recent research project focuses on bats (Davie et al., 2012).

The social and cultural context of Ikh Nart was assessed informally and formally. More formal social science research included a major archaeological project (Tserendagva et al., 2014, 2015; Schneider et al., In press), studies focused on local people's values and attitudes towards Ikh Nart, its species and conservation (Davie et al., 2014a; Sarmiento & Reading 2016), and work to assess the effectiveness of our education and outreach programmes (see below). Informally, the project team evaluated the structures of local communities; power and authority relationships between key stakeholders and different levels of government (*bag*¹, *soum*, *aimag* and national); and the distribution of resources, including wealth, knowledge and expertise.

This broad range of research topics helped us better understand much of the ecological and social context. In turn, data from the research helped inform science-based management. The wide range of research targets also enabled the training of students from several disciplines.



Signing of the sister park agreement between Ikh Nart Nature Reserve, Mongolia and Anza-Borrego Desert State Park, California, USA © Richard Reading

2. Active conservation management

Shortly after initiating the argali research, project team leaders worked with the local Dalanjargalan Soum Administration to hire a local pastoralist as a ranger for Ikh Nart, tasked mainly with reducing wildlife poaching. The ranger arrested two poachers within the first few months and additional poachers and illegal miners in subsequent years at a decreasing rate; successfully reducing illegal activities in Ikh Nart. Over time, the ranger programme grew to include six full time rangers, with expanded roles like ecosystem monitoring and building community relationships.

In the mid-2000s, management planning began (Figure 1). Workshops and study tours of better managed parks in Mongolia helped inform Ikh Nart administration staff. The workshops resulted in Ikh Nart's first five-year management plan (2007 – 2012) that specified objectives, goals, actions and activities, and outlined a formal structure for authority. The plan also included a process for decision-making and steps to monitor and adapt management over time. Simultaneously, the first author solicited the support of Anza-Borrego Desert State Park in southern California. The largest state-managed protected area in the contiguous United States, Anza-Borrego was a good match for Ikh Nart because it is also run by a local (state) government, protects a similar desert ecosystem with an endangered population of desert bighorn sheep (*Ovis canadensis*) (like argali), and includes numerous cultural sites. The state park, along with the Anza-Borrego Foundation (ABF; established to support the state park), became actively involved in Ikh Nart management by providing funds, training,

equipment, and expertise in law enforcement and regulation. In 2008, the California State Park Commission formerly recognized a sister park relationship between Ikh Nart and Anza-Borrego.²

Ikh Nart's relationship with Anza-Borrego yielded significant benefits immediately. California State Park staff visited Ikh Nart each year to assist with training, management plan implementation and park infrastructure development, such as creating and erecting boundary and entrance signs. Rangers received uniforms, equipment and training in law enforcement, first aid, data collection and guest relations. This helped improve the knowledge, skills and capacities of rangers and built a sense of professionalism and pride around the importance of protecting Ikh Nart. ABF provided funding for motorcycles and a ranger salary. Several Mongolian partners visited Anza-Borrego as well. Finally, archaeology experts joined the team to document, study, conserve and protect the large number and breadth of cultural sites that span from the Neolithic to the Buddhist purges of the 1930s.

In 2012, the UNDP initiated planning for a GEF-supported SPAN project. Their assessment of most of Mongolia's protected areas ranked Ikh Nart at the top and its inclusion in the project as one of two model protected areas. SPAN support provided funding to develop Ikh Nart's second five-year management plan (2013 – 2017), which led to establishing 1) a reserve administration, 2) an Ikh Nart management team, comprised of local government officials, local nomadic pastoralists and protected area staff, and 3) an Ikh Nart

advisory team, comprised of international experts. Discussions at the national and local governmental levels resulted in awarding management of the reserve to the Argali Wildlife Research Center (AWRC); the first time a non-governmental organization acquired the authority to manage a nature reserve in Mongolia. Established over a decade earlier, AWRC had established itself as a small, but relatively strong, science-based non-profit organization. In addition to developing sustainable funding for Ikh Nart (see below), AWRC continues to improve management. Dornogobi *Aimags* donated funding to construct a park headquarters and provide modest financial support for three staff salaries. The SPAN project provided support to purchase office equipment and supplies, additional motorcycles for rangers, and a vehicle for the park administration.

3. Capacity development

All of the work at Ikh Nart was based on the premise that local people, provisioned with knowledge, skills, salaries and equipment, will far surpass foreign experts in their ability to devise and implement successful conservation solutions. As such, all team members collaborated closely and engaged in reciprocal capacity building in every aspect of our work. Everyone involved benefitted greatly from these relationships.

Since 2001, dozens of undergraduate and graduate students from Mongolia (primarily), the U.S., China, Sweden, Russia and the United Kingdom have trained in Ikh Nart. Students have gone on to assume positions with universities, elementary and secondary schools, government agencies, non-governmental organizations (NGOs), and the Mongolian Academy of Sciences. Many former students now mentor their own students, some of whom study in Ikh Nart, developing a legacy of conservationists that will hopefully continue.

In addition to students, capacity development proceeded both formally, through workshops and training courses, and informally, by working together closely in the field, with conservation professionals to provide state-of-the-art knowledge in theories and techniques. For example, American and Mongolian experts provided a series of formal training courses for local rangers. These experts also accompanied rangers in the field to assist in patrols and provide guidance and best management practices. Other Ikh Nart professionals received similar training, including social and ecological research methods, park management, wildlife veterinary medicine, archaeology, and education and outreach programming. Today, AWRC, an NGO our project helped create and train, manages Ikh Nart. Project staff also assisted the SPAN project team.

4. Community education and outreach

Local communities can make or break conservation efforts. People create conservation problems and thus must help to develop effective, long-term solutions (Dudley et al., 2014). Education and outreach work included programmes to supplement in-school education, building local capacity, engaging communities in conservation, promoting positive attitudes towards wildlife, and empowering local students to become conservation leaders. This work looked to connect and empower local people in conservation through environmental exploration, providing hands-on experience, and promoting positive attitudes and behaviours towards wildlife. A backwards design process and logic model helped determine appropriate programmes (McLaughlin & Jordan, 2004), leading to three key programmes: 1) conservation clubs, 2) conservation exchange programme, and 3) community engagement. Examples of the work included teacher trainings for conservation education; developing educational materials for teachers, such as Nomadic Nature Trunks; and, a school exchange programme for schools near Ikh Nart and Denver, Colorado, USA.

Creating conservation clubs helped increase knowledge of environmental issues and develop experiences through focused participation (Rickinson, 2001; Jacobson et al. 2006). Service learning, a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities, formed a critical component. Conservation club members designed and implemented projects that engaged school groups and community members, encouraging them to take conservation action (Morgan & Streb, 2001). Through an exchange programme, students and teachers travelled between Denver and Mongolia. Participants engaged in wildlife research in both countries to help build skills, knowledge and significant life experiences (Tanner, 1980; Gmelch, 1997).

In 2010, some of the authors helped establish Nomadic Nature Conservation (NNC), a Mongolian non-profit organization dedicated to conservation education through a Nomadic Nature Trunk programme. Nomadic Nature Trunks provide culturally appropriate natural science and conservation education materials and curricula to rural communities throughout Mongolia in a design that encourages creative learning and total community engagement.

Lastly, outreach methods included our annual Community Day. School exchange students participated in and helped implement a fun day that included

educational games, presentations by Mongolian graduate students, contests (e.g., poetry, art), and a traditional Mongolian-style barbecue. Participants left with a greater understanding of our work, the importance of conserving nature, and how Ikh Nart benefits them and wildlife.

At higher education levels, training programmes focused on undergraduate and graduate students, as well as researchers from the Mongolian Academy of Sciences. Training included mentoring students in the field and providing courses in research methods, statistics and other forms of data analysis, proposal writing and drafting scientific manuscripts. Some of us also served on university committees. Thus far, research at Ikh Nart has resulted in 125 peer-reviewed papers and book chapters. More importantly, former students have assumed positions in academia, government, and other non-profit organizations and now contribute to conservation in Mongolia

Enhancing local livelihoods helps build support from people and communities living in and near protected areas (Dudley et al., 2014). Although the project provided only modest financial benefits to local people, its actions helped increase local support (Sarmiento & Reading, 2016). More formal management of Ikh Nart led to job openings for local people, including positions as rangers and other protected area staff, work in the research station, and part-time work assisting with conservation and research activities. For example, every year, researchers hired over a dozen pastoralists on horseback and motorcycles to help capture argali sheep and ibex for radio-collaring. The project purchased supplies from local people (such as goats for meat) and helped start a new and improve an existing, locally-managed tourism camp, respectively. These camps provided additional employment and income generating opportunities.

The project helped form a women's cooperative that creates small handicrafts (e.g., carvings and felt products) for sale to tourists and in the U.S. A modest microloan allowed women to purchase a felt press, hand-tools, supplies and marketing, including brochures. Investing in women makes good conservation policy. Women typically have little opportunity to earn cash in developing world economies, yet they form the backbone of the family unit. In our experience, while men often focus on the short-term (i.e., feeding their families tomorrow), women tend to focus more on the long-term (i.e., a healthy, sustainable environment for their children and grandchildren), and empowering women helps them make better reproductive decisions. Named "Ikh Nart is Our Future", these women realized the link between their new enterprise and successful conservation of the reserve.

Arguably more important, local people have begun to understand how protecting Ikh Nart helps them by providing things like a better and more consistent water supply, improved forage, a healthier environment for their families, and the joy of being able to observe wildlife (Sarmiento & Reading, 2016). For example, some pastoralists initially opposed our efforts to protect the heads of springs in the reserve, as they believed it reduced access to water for their livestock, but today they understand how our efforts helped maintain a more consistent supply of water, benefitting both wildlife and livestock.

5. Creating sustainable policies and funding mechanisms

Following years of working with the local *soums* and national-level Protected Areas Bureau, some of the authors developed a new model for managing nature reserves that relied on a non-governmental organization (NGO). In Mongolia local governments lack the capacity or expertise to effectively manage protected areas, so involving a Mongolian NGO made sense. That NGO, AWRC, worked effectively with the two *soum* and one *aimag* governments responsible for Ikh Nart, resulting in significant conservation advances. AWRC also worked with us to develop creative mechanisms for developing sustainable income.

Strong ecological and social underpinnings helped AWRC realize tangible changes. For example, *soum* governments created local protected areas covering 55,621 ha that nearly surround Ikh Nart. At the time of writing, AWRC and a third *soum*, Bayanjargalan, were planning an additional 34,175 ha local protected area. These local protected areas create a buffer zone around Ikh Nart and AWRC hopes to eventually merge them with Ikh Nart proper at the national level. The authors believe that the trust we have developed with the local governments and communities and our admittedly modest livelihood enhancement projects combined with ecological information and Mongolia's culture of respect for nature helped make these protected areas possible.

Sustainable conservation of Ikh Nart also required working to change government laws, regulations and policies to benefit protected areas management throughout Mongolia. For example, under Mongolian law, protected areas rangers cannot carry firearms and lack the authority to arrest people; they can only issue ticket citations. Instead, unarmed rangers must approach armed men and travel to the nearest community – often dozens of kilometres away – to find a police officer to make the actual arrests. Poachers have killed rangers in other protected areas in Mongolia. To us, such laws



Cinereous Vultures (*Aegypius monachus*): Clockwise from bottom: Wing tagged fledgling, adult flying, and young chick
© Richard Reading

needlessly endanger rangers and impede law enforcement, so we continue working to change this and other laws that the authors believe would improve protected area management.

Managing livestock grazing within Ikh Nart would likely also improve sustainable conservation. Mongolian law permits pastoralists to graze livestock in nature reserves (Wingard & Odgerel, 2001). Yet, huge increases in livestock numbers threaten conservation (Reading et al., 2010c, 2015). Already, Ikh Nart limits livestock grazing within its Core Zone, the boundaries of which we created with local input. Additional work with local pastoralists will focus on placing limits on livestock numbers throughout the rest of the reserve, but will likely prove controversial.

Perhaps most importantly, the project continues working to develop long-term, sustainable funding. AWRC helped establish entrance fees for people, vehicles and cameras as called for under the Mongolian protected area law (Wingard & Odgerel, 2001). Closely related to entrance fees, the Ikh Nart administration also charges a bed tax for visitors staying at Ikh Nart's two tourism facilities

and an exclusivity fee for a high-end camp catering to foreign tourists.

Perhaps the greatest potential source of income comes from a new law that requires mining companies to pay offset fees of \$50/ha/yr for land they disturb. These offset fees must go towards environmental mitigation, including protected areas management. With much of Mongolia leased or available for lease for mining or exploration (Reading et al., 2015), these fees represent a potentially significant source of income. AWRC is currently working with Dornogobi *Aimag* (responsible for imposing these fees within its own province) and several mining companies to draft long-term contracts to support Ikh Nart.

In 2015, the Ikh Nart administration created a trust fund to help provide support. Yet, donations to the fund remain difficult to obtain. Other modest sources of income include a small fee imposed on Ikh Nart's research station; a proposal to impose crossing fees on mining trucks that traverse the reserve; and sales of merchandise to tourists, including t-shirts, hats and guidebooks.



Research Station in Ikh Nart Nature Reserve, Mongolia © Richard Reading

DISCUSSION

In 2012, the UNDP's SPAN project named Ikh Nart a Model Protected Area, a goal the project had long sought. However, from our perspective, Ikh Nart is just now reaching the level of effectiveness the authors hope to achieve. Expanding and diversifying its income base should help. In addition to recognition by UNDP, the project has received awards from several organizations, including the local *soums*, Dornogobi *Aimag*, the Mongolian Academy of Sciences, Mongolian Ministries for Environment and Green Development and Science and Education, the Mongolian National Education University, the US Embassy in Mongolia, and the Association of Zoos and Aquariums.

While awards are positive and appreciated, true measures of success lie in biological and social indicators. Although argali and ibex population estimates include large confidence intervals, these populations have increased by an estimated 200-300 per cent (Wingard et al., 2011a, unpubl. data). Ikh Nart has become a "source" population for argali, resulting in dispersal and re-establishment of small populations nearby (unpubl. data). Cinereous Vultures fledgling numbers have increased by about 35 per cent (unpubl. data). Equally, or perhaps more, importantly, local

people who once did not know that Ikh Nart was protected increasingly support the reserve (Sarmiento & Reading, 2016). Local people now organize periodic litter clean-up days. Perhaps more telling, a local pastoralist requested the project's assistance in writing a proposal to restore damage from decades' old mining exploration sites. Some of the authors helped. The local pastoralist received the grant and local people began restoration. Several governmental and non-governmental organizations have requested our assistance to replicate the Ikh Nart model in other Mongolian protected areas, representing another measure of success. In response, some of the authors have begun working in Toson Hulstai Nature Reserve and Suikhent National Monument to adapt the Ikh Nart model to those protected areas.

All protected areas are unique, but the authors believe that the Ikh Nart approach offers a useful model that managers can adapt to their circumstances. Specifically, combining rigorous research, active conservation management, capacity development, community education and outreach with a livelihood enhancement component, and sustainable financing and policies promises to improve how any protected area functions. In addition, our experiences at Ikh Nart offer valuable lessons to other protected areas.

The long-term and consistent presence of researchers has resulted in wildlife populations habituated to people. This provides eco-tourism opportunities not found in most of Mongolia. For example, argali sheep exhibit flight distances (the distance at which they will run from people; a measure of fear) of three to five kilometres. Today, in Ikh Nart, argali flight distances have dropped to < 100 m in some areas. The vast majority of tourism in Mongolia focuses on culture and stunning landscapes. Many tour operators believe that wildlife-based trips can extend stays. Yet, tourism requires careful management to ensure that it does not negatively impact the wildlife, scenery and local culture tourists hope to experience. The authors believe that responsible tourism focused on manageable numbers can accomplish this goal and envision both low numbers of relatively high-end (i.e., expensive), mostly international tourists at the more exclusive, privately run camp and larger numbers of lower-end tourists at the *aimag* operated tourist camp that caters primarily to Mongolian tourists.

A number of challenges faced the Ikh Nart project. Conducting research in remote locations proved challenging, especially prior to establishing the research station. Garnering sufficient funding for research in a temperate (as opposed to a tropical) location continues to be a challenge. Attracting sufficient tourists has proven elusive, but better advertising and publicity will hopefully help address this deficit.

The authors learned several lessons that may help other protected areas. First, strong, collaborative partnerships are essential. Success in Mongolia required incorporating diverse perspectives, so some of us established a core group of key stakeholders from academic institutions, non-profit organizations, government agencies and the local community. That partnership has persisted and expanded as the work grew and evolved. The inclusive atmosphere fostered new, diverse and creative perspectives on how best to manage and conserve the region.

Second, the initial focus on flagship and umbrella species (e.g., argali sheep, Cinereous Vultures) proved effective. Centring work on these species helped generate support among local herders, communities, politicians and decision-makers. Although the use of surrogate species has resulted in mixed success elsewhere (Caro & O'Doherty, 1999; Andelman & Fagan, 2000), at Ikh Nart promoting flagship species led to increased commitment. Wildlife plays an important role in traditional Mongolian culture, with reverence for animals and nature remaining important, especially among rural communities (Reading et al., 2010, 2015).

Third, the sister-park agreement between Ikh Nart and Anza-Borrego Desert State Park brought new, positive dimensions to the project and quickly strengthened management. Anza-Borrego and ABF provided management approaches and perspectives, training, funding and international exposure to Ikh Nart. The strong, on-going sister-park relationship provides a sense of 'global' connection and pride to the local community.

Finally, the authors attribute much of our success to our partners' long-term commitment. Conservation success rarely occurs rapidly. It took approximately 10 years to move Ikh Nart from 'paper park' to functioning reserve, despite various challenges, such as periods of lean funding and government turn-over. Over 16 years later, that commitment to Ikh Nart continues. Long-term data provide new insights and new management approaches.

Looking ahead, the authors envision Ikh Nart entering a new phase of management focused on fundraising and developing tools to help inform decision-making. Ikh Nart faces increasingly complex management challenges (e.g., mitigating climate change impacts) that require efficacious decisions resulting in maximum benefits to the biological and cultural resources of the reserve in ways that ensure enduring support from the local community.

ENDNOTES

¹ A *bag* is a formal community of herders below the *soum* level; a *soum* is similar to a county; and an *aimag* is a state or province.

² http://www.parks.ca.gov/pages/712/files/Ano_Mongolia_Sisterpark_ResolutionMay2008.pdf and http://www.ikhkart.com/AB_IN_Sister_Park_Governors_Communication_2008.pdf viewed 11.29.2015

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RESUMEN

Las áreas protegidas representan la forma más eficaz de conservación de la biodiversidad; sin embargo, muchas siguen siendo gestionadas de manera deficiente y otras existen solo en el papel – son los llamados "parques de papel". Describimos nuestros esfuerzos colectivos para transformar la Reserva Natural Ikh Nart (Ikh Nart) en Mongolia de un parque de papel en área protegida modelo. Las limitaciones de recursos y la falta de capacidad impidieron la gestión activa antes de nuestro proyecto. Este artículo describe el proceso que finalmente llevó al Programa de Naciones Unidas para el Desarrollo a designar Ikh Nart como área protegida modelo. Nuestro trabajo incluyó los siguientes cinco aspectos coincidentes y complementarios: 1) una investigación rigurosa; 2) una estructura de gestión con su respectivo plan y proceso; 3) el desarrollo de capacidades locales; 4) la creación de apoyo local; y 5) la creación de políticas de administración y financiación sostenibles. Nuestros esfuerzos propiciaron resultados exitosos, incluyendo la expansión de la reserva, el aumento de las poblaciones de vida silvestre, y un fuerte apoyo local. Las enseñanzas extraídas en el contexto de Ikh Nart pueden ofrecer perspectivas valiosas para el desarrollo de áreas protegidas en otras zonas.

RÉSUMÉ

Les zones protégées représentent la forme la plus efficace de conservation de la biodiversité; cependant beaucoup restent mal gérées, et certaines, ne bénéficiant d'aucun management, n'existent que sur le papier – d'où l'appellation 'parcs de papier'. Nous décrivons nos efforts collectifs visant à transformer la réserve naturelle de Ikh Nart (Ikh Nart) en Mongolie de 'parc de papier' en aire protégée modèle. Les contraintes de ressources et de capacité ont empêché une gestion active avant notre projet. Le présent document décrit le processus qui a finalement conduit le Programme des Nations Unies pour le Développement à désigner Ikh Nart comme une aire protégée modèle. Notre travail comprend cinq étapes simultanées et complémentaires : 1) lancer un programme de recherche rigoureux ; 2) établir une structure, un plan et un processus de gestion ; 3) renforcer les capacités locales ; 4) cultiver le soutien local ; et 5) créer des politiques durables d'administration et de financement. Nos efforts ont abouti à plusieurs réussites, dont notamment l'expansion de la réserve, l'augmentation des populations d'espèces sauvages, et un fort appui local. Les enseignements tirés du cas Ikh Nart pourront fournir des lignes directrices pour le développement des aires protégées dans d'autres parties du monde.



DOCUMENTING LOCAL CONTRIBUTIONS TO EARTH'S BIODIVERSITY HERITAGE: THE GLOBAL REGISTRY

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ABSTRACT

Despite global environmental policies calling for expanded representative, well-connected and effective protected areas, a significant proportion of areas governed and managed by local communities and indigenous peoples is largely under-documented by formal mechanisms and therefore not counted. International processes to inventory protected areas have been underway for decades, but only recently have diverse governance types been included in global databases. We outline the history and context of the development of the Global Registry of indigenous peoples' and community conserved territories and areas, abbreviated as ICCAs. This registry was developed through a long-term consultation process and an international partnership. The Registry adheres to principles of Free, Prior Informed Consent and uses the same technical infrastructure and data standard as the World Database on Protected Areas (WDPA). We describe the local benefits of global registration for those who have participated, such as reduced conflict around mining prospects and increased revenue from community-based tourism. We also highlight globally relevant findings from the Registry: over 70 per cent of registered ICCAs have biodiversity conservation as a core objective, and registered ICCAs represent all IUCN management categories. We discuss the increasing alignment of the ICCA Registry with the WDPA, and describe the importance of both databases for documenting and analysing ICCAs. Lastly, we argue that careful documentation of these areas can enhance their value for effective biodiversity protection, and for the achievement of global conservation and development targets.

Key words: Protected areas, conserved areas, governance diversity, community conservation, indigenous peoples, biocultural protection, global targets, ICCAs, World Database on Protected Areas

INTRODUCTION

The role of indigenous peoples and local communities to provide leadership in biodiversity conservation has been largely overlooked, and protected area jurisdiction has mostly been documented as managed by governments (Bertzky et al., 2012). As formal protected areas are unlikely to meet all elements of global conservation targets set for the year 2020, a need is arising to look to "alternative approaches" including community-led conservation measures (Butchart et al., 2015).

The territories and areas conserved by indigenous peoples and local communities (collectively referred to as ICCAs) are "natural and modified ecosystems, including significant biodiversity, ecological services and cultural

values, voluntarily conserved by indigenous peoples and local and mobile communities through customary laws or other effective means" (Borrini-Feyerabend et al., 2004b). Examples of the values, motivations and diversity of ICCAs are documented in various publications (see Borrini-Feyerabend et al., 2010; Kothari et al., 2012; Smyth, 2015). Despite increasing attention, the number, spatial extent, distribution and biodiversity impact of ICCAs are not well understood on a scale that matches current knowledge of protected areas under the governance and management of state authorities. In response to the need for international documentation of ICCAs, a global registry was developed in 2008 to record in one place the spatial, biodiversity and cultural values of community-led conservation.



Young and old Mansaka converge at the blank 3-dimensional map of their ancestral domain to translate crude sketches into understandable land use information that will be used for purposes including conservation planning © Glaiza Tabanao

The Global ICCA Registry (referred to as the “Registry”) is an online information platform¹, which allows for registration of ICCA sites. It was created to help document, recognize and protect the vital contributions that indigenous peoples and local communities have made to conservation in the past and present. The Registry consists of a secure, offline database containing core descriptive data of ICCAs collected via a questionnaire; the data and platform used follow the same standards as the World Database on Protected Areas². The Registry website also features a number of in-depth case studies that provide comprehensive details about a site’s history, development and bio-cultural features. The Registry facilitates the documentation of ICCAs regardless of whether the site is formally recognized as a protected area or meets the IUCN definition (see Dudley, 2008). Because the Registry adopts a peer-review and quality control process in line with other global conservation databases, it offers an unprecedented opportunity to consolidate knowledge on ICCAs.

Over 170 ICCAs from nearly 50 countries have been registered since 2008. Through the Registry, communities themselves, or organizations working with them (with the free, prior, and informed consent of the

concerned communities), provide data, case studies, maps, photos and stories. The optional process of providing a case study goes beyond mapping to allow communities to share experiences, photographs and relevant documents online. Contributions to the Registry are voluntary, a feature that supports self-determination principles. It is currently managed by the UNEP World Conservation Monitoring Centre with support from the member-based ICCA Consortium³.

The decision to establish the Registry rested on two key objectives: (1) the need for multi-level recognition of ICCAs that follows Free, Prior and Informed Consent (FPIC) principles as included in the UN Declaration on the Rights of Indigenous Peoples (UNDRIP) (UNGA, 2007) and (2) adopting a rigour of documentation that is robust, accessible and global, and which highlights approaches to conservation of biological and cultural diversity other than government-designated protected areas. The background of its development is described further in this paper. Lastly, to manage a global documentation process that supports and recognizes the conservation value and autonomy of ICCAs, it is important to use some degree of standardised language. For the purposes of this paper, we refer to “ICCAs” as an all-inclusive term which fits many diverse local realities.

It is for the custodians of ICCAs — in all cases — to decide whether the term speaks to them and can be used for their needs and circumstances.

INTERNATIONAL POLICIES RECOGNIZING DIVERSITY

Advances made in international policies over the last two decades have opened the door for recognition of community-led conservation practices. The 2003 World Parks Congress created a pivotal global opportunity to recognize a diversity of conservation approaches in the context of protected areas (Phillips, 2003; Borrini-Feyerabend et al., 2004b; Roe, 2008). Prior to that, examples of innovation at national and local levels played a significant role for these developments; for example, the first co-governed Aboriginal-owned national park, Garig Gunak Barlu National Park, was established in Australia in 1981 (Smyth, 2001), offering lessons for how such a process can be supported more broadly. While the 1990s was the decade for indigenous peoples' and community-based conservation issues to receive widespread attention, it was the first decade of the new millennium that spawned opportunities for years of local-level community practice and research to inform international policy. The issues of co-management, or shared power (Borrini-Feyerabend et al., 2004a), emerged alongside the significance of governance (Graham et al., 2003) and the need for increased recognition of governance diversity, vitality and quality (Borrini-Feyerabend & Hill, 2015). Furthermore, the 2007 UNDRIP, a landmark universal pronouncement, generated standards to safeguard and protect indigenous communities (UNGA, 2007; Charters, 2006). Another key international agreement, the Convention on Biological Diversity (CBD) generated a Strategic Plan with language throughout its Programmes of Work dedicated to recognition and support of indigenous peoples and local communities (CBD, 2010). More recently, the 2014 World Parks Congress produced the Promise of Sydney (IUCN, 2014), a vision statement that uses the phrase "protected and conserved areas" to encompass an expanding recognition of the diversity of governance mechanisms that contribute to biodiversity conservation.

As national and global policies create space for acknowledging community governance and management of protected and conserved areas, a deeper understanding of what is required to support the mechanisms that underpin effective conservation is critical for biodiversity conservation and its interrelated social components. Furthermore, the global environmental protection effort is potentially missing out on the conservation benefits that can be achieved by

supporting the re-emergence of indigenous authority over their traditional estates; for example, Indigenous Protected Areas in Australia provide a model for "country-based" collaborative planning and co-governance (Smyth, 2015). Social issues in conservation have evolved (Kareiva, 2014) and the need for acknowledgement of a diversity of governance types in protected areas is gaining important attention (see Dudley, 2008; Borrini-Feyerabend et al., 2013).

CHALLENGES IN DOCUMENTING ICCAS

The Registry serves as a single and comprehensive database with standardized information about ICCAs. It was born out of increasing awareness of the challenges associated with documenting ICCAs. In addition to country-specific historical and political issues, these reasons include for example: (1) inadequate documentation, (2) insufficient visibility of already existing documentation usually available only as grey literature, (3) low levels of awareness and recognition by national governments, (4) complexities and overlaps in tenure systems, and (5) a lack of demarcated boundaries or recognition of traditional/customary boundaries. There is also a significant mismatch between the area where communities hold customary rights and the much smaller area recognized by law (RRI, 2015). Further, scientific publications mapping and properly attributing efforts to communities are patchy (Brook & McLachlan, 2008), especially in a format accessible to decision-makers.

Contemporary documentation practices require innovative ways to capture diversity of knowledge types and guard against risks at the local level. For example, many ICCAs are remotely located and have no financial or technical support to carry out or sustainably manage documentation. A lack of electricity often prevents electronic records from being kept, and, in humid environments, the degradation of paper products can hamper efforts to keep written records. In other cases, some cultures use oral history or other mechanisms to pass knowledge through generations; for example, the Maori of New Zealand use stories, songs, carvings and weavings as evidence of knowledge alongside written documents (Wareham, 2001). In situations where intergenerational transfer of local and/or traditional knowledge is interrupted, the knowledge risks being lost if not documented in some form. This documentation needs to be protected through legal and other effective means against theft, misappropriation and misuse. In some situations, greater visibility of ICCAs — including their associated knowledge systems, sacred spaces and communities' way of being — could increase threats from authoritarian governments or other actors. There has

Table 1. Key questions that guided the design and process of the global ICCA Registry (from Corrigan and Granziera, 2010).

Topic area	Key questions
Core features	Where are ICCAs located? How many are there? How large an area do they cover?
Community characteristics	What are the main benefits and opportunities available to ICCAs that find value in a registry process and expected outputs? What are the key issues that ICCAs are encountering?
Socio-economic aspects	What is the value of ICCAs in social, cultural and economic terms? How are the impacts on livelihoods best assessed? What indicators are most appropriate and useful?
Ecosystem/nature conservation	What is the value and contribution of ICCAs with respect to biodiversity significance, ecological processes and connectivity?
Governance/Management	How do the governance and management of an ICCA relate to its conservation value?
Policy and legal aspects	How and to what extent do national governments and other entities recognize ICCAs?

been an associated concern that recognition of ICCAs by national governments could simply be a way to meet states' international commitments; if not done appropriately, such recognition could in fact lead to the undermining or appropriation of ICCAs.

One of the major objectives of documentation is to help gain appropriate recognition at all levels. Although the term "ICCA" is largely used at the global level for the sake of convenience and consistency, there is a diversity of local designations that exist, including vernacular place names in local languages; for example, "kaya" in Kenya, "adat land" in Indonesia, and "community owned conservation area" in Guyana (see Corrigan and Hay-Edie, 2013 for examples). The terminology that has been adopted at the international level has changed over time (Smyth, 2015), and will likely continue to evolve as global policies increasingly recognize and support diversity of governance.

Despite the above concerns, it has been generally agreed that increased efforts to research and document ICCAs, especially where they may be directly threatened by land use changes, extractive industry, or misguided conservation policies, can lead to greater support and recognition (Kothari et al., 2012). Two critical considerations that the Registry adheres to are that:

1. any such documentation is produced by the communities or peoples who own or manage the area or, at least, with their full and prior knowledge, input and consent; and
2. information considered sensitive by the communities is either not documented or provided with adequate protection.

HISTORY OF THE ICCA REGISTRY DEVELOPMENT

Given the challenges of documenting ICCAs and the important value of this information, a partnership was formed in 2008 to establish and jointly govern a global registry of ICCAs. Partners included the ICCA Consortium (whose membership encompasses indigenous peoples' and local community organizations, their networks and federations, and others); the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC); the United Nations Development Programme (UNDP) GEF Small Grants Programme; and the International Union for the Conservation of Nature (IUCN). The idea for a registry process emerged within the ICCA Consortium, and evolved through discussions with its members and partners as one of the mechanisms to create possibilities for recognition of ICCAs in international policies. This involved in-depth discussions exploring mechanisms by which the documentation would happen in a fair, just and rigorous manner, following FPIC requirements. In addition, this process led the Registry to include important characteristics of ICCAs, such as cultural and conservation benefits. UNEP-WCMC undertook responsibility for building and hosting the Registry, using decades of experience in managing decision-making knowledge systems for science and policy, including the World Database on Protected Areas (WDPA), the most comprehensive global database of marine and terrestrial protected areas.

The design of the Global ICCA Registry

The Registry was designed with a broad audience in mind to increase available information about ICCAs, their diverse biological, ecological and cultural values, and their geographical extent (Corrigan & Granziera,



Mamanwa-Manobo elders delineate the boundaries of their ICCA on the 3-dimensional map using strings and nails
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2010). The partnership governing the Registry worked together through in-person and other mechanisms over the course of several months to identify critical questions that the Registry could address (Table 1). The Registry's design was informed by the robust platform of the WDPA so it comprises spatial data (i.e. boundaries and points) with associated attribute (or descriptive) data. While it was important that the Registry adhere to the same quality and data standards as the WDPA, it was designed to contain additional, in-depth information, in particular on ICCA governance and community characteristics. Thus, the Registry includes the same core data fields as the WDPA, with up to 30 optional data fields that help answer these questions.

Taking account of sensitive issues for ICCAs

From the early stages of the Registry's development, partners and community advisors were aware of the inherent sensitivities of managing spatial and other types of data on ICCAs. For example, where sacred sites or highly endangered/valuable resources are managed, increased attention may not be wanted. At the same time, it was clearly noted that many communities were and continue to be under immediate and long-term threat

from a number of forces, such as conflicts over land, water and natural resource tenure and control (see Watts, 2016, for example). Sensitive situations regarding authority and livelihoods are also created in places where ICCAs and protected areas overlap, an occurrence common in various countries (Stevens et al., 2016). In some cases, increased visibility and public awareness could be a tool to mitigate these threats. As a result, the Registry was designed to include a consent process allowing contributors to decide if their information is kept secure or made available to the public.

Since its inception, the Registry case studies have been fully accessible on the website; conversely, the database has been offline. This helped enable lessons about how to best gather and store potentially sensitive information. It is intended that some element of the Registry database will be publicly available in the future, subject to the levels of data dissemination permitted by the communities that provided their information. Some data will remain permanently offline, in accordance with the providers' expressed wishes. All other core data not currently found on the website would be searchable by public users and/or linked to the WDPA.

Table 2. Examples of ICCAs in the Registry and their custodians' motivations for, and benefits received from, participation. Details on other potential benefits and considerations can be found at www.iccaregistry.org.

ICCA name	Country	Year reported to Registry	Motivation/Benefits of Registry
San Crisanto, Unidad de Manejo Ambiental (UMA)	Mexico	2009	Led to increased support of ICCAs through being awarded the Equator Prize after registration; raised profile on global Registry website which enhanced sustainable ecotourism to benefit the community; provided platform to share experience and support with other communities
The Portulin Talaandig and Balmar Menuvu communities, Pangantucan, Bukidnon	Philippines	2012	Both communities were prioritized for livelihood support (for sustainable coffee-farming and furniture making) because they are included in the ICCA Registry
Mamanwa-Manobo community in Agusan del Norte	Philippines	2012	International recognition raises awareness of those who might be pursuing exploitative activities; small-scale mining activity managers voluntarily moved their operations further from the boundaries of the ICCA
Bolongfenyo Reserve	The Gambia	2012	Documentation at global level complements national recognition of the ICCA in the protected area network
Dongwa Village Protection Forest	China	2014	Potential increase in local ecotourism through use of signage and registered status
Daweishan ICCA	China	2014	Enhanced the relationship and collaboration between three communities by registering collectively as an ICCA.

USE OF THE GLOBAL ICCA REGISTRY AT MULTIPLE SCALES

The Registry has been used in a range of processes at various scales. Now that ICCAs are increasingly being recognized at multiple levels, there is enhanced opportunity to expand participation in and use of the Registry, and added value in doing so.

The Registry at local scale

Given the structure of the Registry, its purpose and its process-oriented character, it largely operates at the level of individual areas or sites that are managed and governed by local communities and indigenous peoples. At the local scale, the Registry offers value to communities for a variety of reasons, including as an opportunity to discuss raising awareness of ICCAs at the global level. For example, members of the vhaVenda peoples in northern South Africa have used the Registry process to facilitate multiple discussions about the values and risks of global registration. Informed by this dialogue, they subsequently submitted a case study to initiate their registration process⁴. This was a community-driven effort supported by local NGO staff.

Another example of value felt on the ground can be drawn from the Mamanwa-Manobo community in the Philippines. Their ICCA has great spiritual significance to the community as the birthplace of their ancestors, while also providing water, food, medicines and shelter. The community describes conservation of their forests as synonymous with protection of their cultural identity. Upon registering with the global Registry, the Mamanwa-Manobo identified extractive activities as a key threat to their ICCA. Their registration served to raise awareness among the broader local community, resulting in the voluntary movement of small-scale miners to locations further from the ICCA's borders. Further examples of benefits experienced by ICCA custodians are described in table 2.

ICCAs in the Philippines: In-country partners play an important role in the on-the-ground registration process alongside and working with the ICCA Consortium. For example, since the Registry's inception, members of the national Filipino NGO Philippine Association for Intercultural Development (PAFID) have been providing invaluable support to indigenous peoples' communities

across the Philippines to map and document the cultural and biodiversity values of areas within Ancestral Domains. To date, PAFID has translated the Registry questionnaire into local languages and has contributed in-depth case studies to the Registry website.

The organization has also helped gather insights from local communities in the Philippines to explain the benefits realized from international documentation and support through the Registry (Table 2). Benefits were perceived not only in being part of the Registry but also in the entire process of registering – by generating internal discussions, debates and awareness while seeking consent, documenting and actual registration. Additionally, the communities in the Philippines are particularly hopeful about the technical and financial support for conservation activities and socio-economic development that their registration could attract. They aspire that the ICCA Registry could be a platform that encourages this kind of support to reach communities. The Registry so far has been used by many as a way to strengthen their efforts to resist unwanted extractive activities and development initiatives in their ICCAs.

The value of Registry information at national scale

While the Registry and other platforms hold an abundance of site-level case studies, there is growing evidence demonstrating the spatial value of conservation by indigenous peoples and local communities at national and regional levels. ICCAs can create linkages between government-managed protected areas, contributing to connectivity, and also serve as important ecological spaces in their own right. For example, thirty-five per cent of the Amazon biome, extending through eight countries, is contained within 3,000 indigenous peoples' territories and is thus under their governance (Maretti et al., 2014). Indigenous territories also provide important

corridors between critical habitat and core areas of carbon stocks (Jantz et al., 2014). Community managed forests contribute species richness and distinctiveness that complements protected areas and state managed forests, such as in the lowlands of Nepal (Dahal et al., 2014). The ICCA Registry increasingly relies on, and encourages the development of, national-level networks of ICCAs. By building from the ground up, these networks have the potential to increase understanding of the value of ICCAs within national contexts.

Most countries currently do not include ICCAs within their national reports or protected area datasets. The omission of ICCAs from countries' national datasets and conservation strategies means that opportunities to recognize, and appropriately support, community-level conservation may be missed. The documentation of ICCAs in UNEP-WCMC's databases, e.g. the Registry or the WDPA, is an opportunity for governments to take stock of the contributions made by communities and indigenous peoples to the coverage, connectivity, representativeness and equity of their protected area systems. The Philippines is already active with regard to ICCAs at national scale. For example, representatives have signed a Manila Declaration in 2012, which includes the planned development of a national registry of ICCAs that aligns with and was informed by the global Registry (Estifania et al., 2012). By recognizing these areas, countries may be better able to honour their international commitments, and also meet internally set national targets for biodiversity conservation.

The Registry at global scale

The value of information from the Registry can be significant when synthesized at the global scale. Table 3 shows the percentage of 167 ICCAs in the Registry that self-reported the main objectives for their site (more

Table 3. Main objectives of 167 globally registered ICCAs

Main Objective for ICCA	Number of ICCAs including as a main objective	% of ICCAs including as a main objective
Biodiversity/species conservation	118	71%
Maintaining and enhancing natural resources	92	55%
Supporting traditional livelihoods	83	50%
Cultural/traditional preservation	66	40%
Spiritual/sacred sites protection	35	21%
Territorial security (control of access to land and resources)	31	19%
Increasing rights for self-rule and empowerment	23	14%
Land ownership security	22	13%

Table 4. Reported IUCN management categories for 91 globally registered ICCAs.

IUCN Management Category	Number of ICCAs	% of ICCAs
Ia	2	2%
Ib	4	4%
II	10	11%
III	7	8%
IV	21	23%
V	5	5%
VI	42	46%

than one objective can be selected as long as it's a central objective). The highest ranking main objective is biodiversity conservation, a finding which coincides with the characteristics of ICCAs (see Borrini-Feyerabend et al., 2010) and which reflects the importance of these areas for contributing to local values and global targets simultaneously.

Table 4 shows the primary IUCN management category associated with 91 ICCAs in the Registry that reported this trait. While almost half of ICCAs fall within category VI (Protected Area with Sustainable Use), nearly a quarter are in Category IV (Habitat and Species Management Area) and around ten percent each in Categories II (National Park) and III (Natural Monument), among others. These findings demonstrate that, while ICCAs may share a broad governance type, the management approaches through which they achieve conservation are diverse. IUCN guidance maintains that management categories and governance types are independent of each other, and that any combination of the two is possible (Dudley, 2008). These findings provide evidence that this assertion is true in practice as well as theory for ICCAs, and reinforce the importance of distinguishing between governance and management.

Following the development of the Registry, a number of decisions in global policies and processes recognized and supported its use, demonstrating its potential value for contributions at the international level and measures of policy implementation. For example, since 2010, the Registry has been mentioned in the text of CBD CoP decisions three times (Box 1), with specific relevance to the Aichi Targets. Figure 1 shows the increasing proportion of CBD CoP decisions that mention local communities and/or indigenous peoples with respect to biodiversity management; this signifies the ongoing importance attributed to recognizing these areas at the global level.

Further decisions also committed to expanding coverage of biodiversity by protected areas and “other effective area-based conservation measures” (OECMs; see Jonas et al., 2014). While there is no current definition of OECM, an IUCN World Commission on Protected Areas (WCPA) Task Force was established in 2015 to develop guidance. This may be significant for ICCAs that do not meet the IUCN definition of a protected area or do not wish to be recognized within a national protected area system. Depending on the guidance provided by the task force, the term “OECM” could be applied to ICCAs that are not designated as protected areas but do achieve conservation. This would ensure that these sites are counted alongside protected areas as part of the global conservation estate.

BOX 1. CONVENTION ON BIOLOGICAL DIVERSITY CONFERENCE OF PARTIES (CBD COP) DECISIONS AND THE GLOBAL ICCA REGISTRY

COP 10 Decision X/31, Invites Parties to:

(c) Consider voluntary in-depth reporting using standardized indexes and taxonomies including the proposed **global registry of indigenous and community conserved areas**, where applicable [emphasis added].

COP 11 Decision XI/24, Invites Parties to:

(e) Strengthen recognition of and support for community-based approaches to conservation and sustainable use of biodiversity in situ, including indigenous and local community conserved areas, other areas within IUCN governance types and initiatives led by indigenous and local communities that fulfil the objectives of Aichi Biodiversity Target 11 and support the voluntary use of the **Indigenous and Community Conserved Areas Registry** managed by the United Nations Environment Programme World Conservation Monitoring Centre [emphasis added].

COP 11 Decision XI/24

Requests the Executive Secretary, in partnership with relevant organizations, subject to the availability of funding, to continue supporting implementation of national action plans for the programme of work and progress towards achieving Aichi Biodiversity Target 11 and other related targets at the national, subregional and regional levels. These activities include...making available tools and technical guidance on those areas where progress is lacking, such as mainstreaming protected areas and defining area-based conservation measures; fostering relevant capacity-building for indigenous and local communities; and supporting the further development of local registries of indigenous and community conserved areas and the **Indigenous and Community Conserved Areas Registry** maintained by the World Conservation Monitoring Centre [emphasis added].

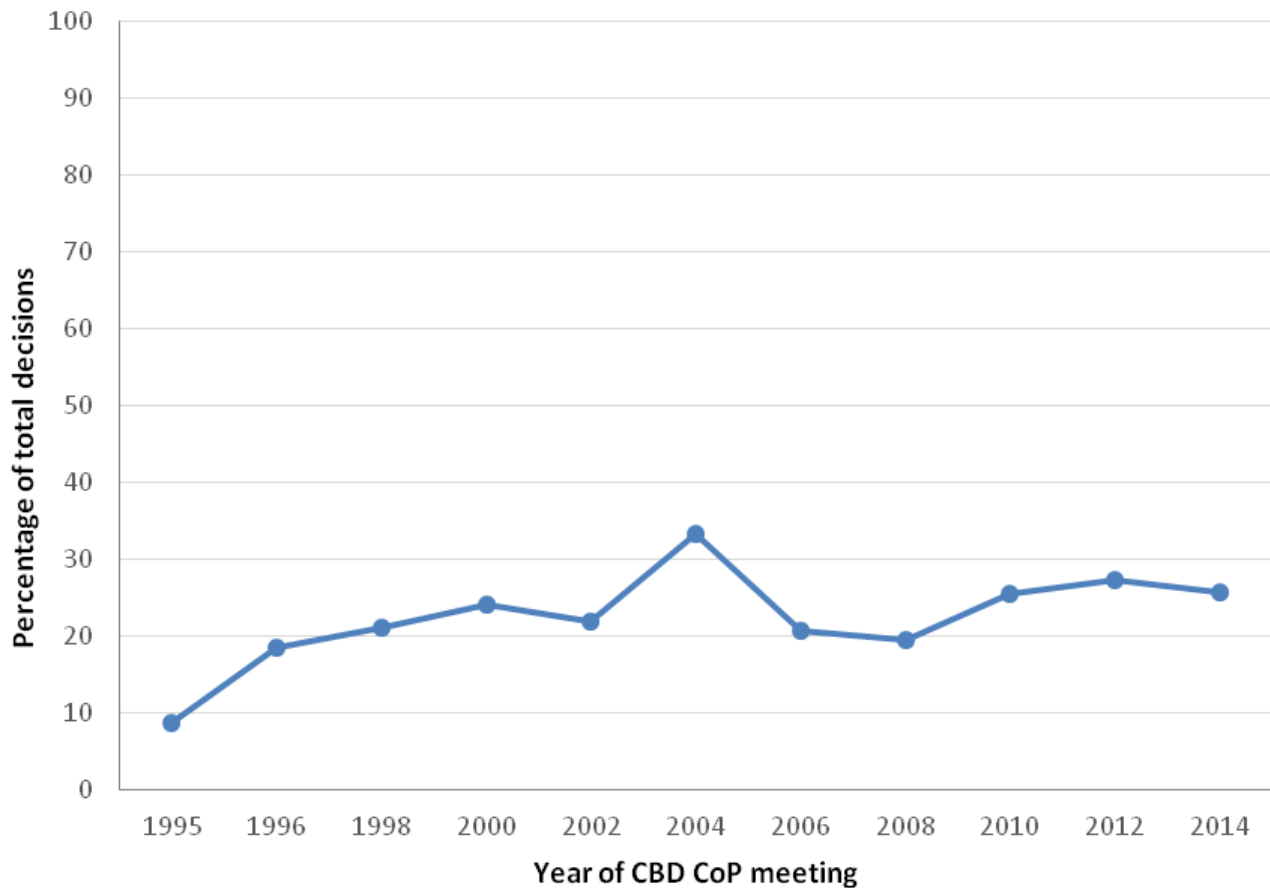


Figure 1. Growth over time in proportion of total CBD COP decisions mentioning local communities and indigenous peoples with respect to biodiversity management.

LINKING THE GLOBAL ICCA REGISTRY WITH THE WDPA

The key difference between the Registry and the WDPA regards the scale at which they function. The largely site-specific Registry is in contrast to the WDPA that traditionally has compiled national datasets into a global database. The Registry holds a wealth of information on specific ICCAs, but its growth has been slow in order to accommodate complex processes such as the ongoing mechanism of acquiring consent. While site-specific insights can be drawn from the Registry's data, it has yet to answer broad questions at the global level about the collective role of ICCAs because it does not yet have complete information about ICCAs for any one nation. For this reason, the Registry is being increasingly aligned with the WDPA while maintaining the robust principles on which the Registry was built. This alignment means that the Registry can continue to store in-depth information, while the national-level focus of data compilation by the WDPA simultaneously helps to answer questions around coverage, connectivity and ecosystem-representativeness of ICCAs. So far, only a few country datasets in the WDPA, such as Brazil and Namibia, have complete inclusion of ICCAs.

The WDPA has historically underestimated the extent of ICCAs, due in large part to a lack of recognition and/or reporting by governments, the WDPA's principal data-providers. The WDPA includes protected areas under all IUCN governance types, such as protected areas governed by indigenous peoples and local communities, and is used to measure progress towards international conservation targets, especially Aichi Target 11⁵. However, the predominance of government-reported data means that ICCAs are only reported by those countries with strong legislative and policy support for recognizing ICCAs as protected areas. This uneven reporting has meant that measuring progress towards the quantitative and qualitative aspects of Target 11 is limited. Furthermore, academic analyses using the WDPA cannot take full account of ICCAs, and conservation and other land-use planning initiatives may lack accurate data on existing conservation land-uses. While inclusion of diverse protected area governance types, including privately protected areas, is still lagging in the WDPA, progress is being made (UNEP-WCMC & IUCN, 2016). The ICCA Registry was created initially to complement the WDPA and help fill this gap. UNEP-WCMC is working in partnership with the ICCA

Global ICCA Registry	WDPA
Indigenous peoples' and community governed sites Compiled at site-scale, but building global picture	All protected area governance types Functions as a repository for national datasets collated to global scale
Detailed information c. 100s sites	Limited information c. 220,000 sites
Website has in-depth case studies and supporting information	Website has coverage maps and statistics
Features in common	
Data standard and review processes Both managed by UNEP-WCMC	
ICCA sites can be in either one or both	

Figure 2. Complementarities of the ICCA Registry and the World Database on Protected Areas.

Table 5. Comparison of current ICCA data held in the Registry and the WDPA.

	ICCA Registry	WDPA
Number of ICCAs in database	174	1,477
Number of countries with ICCAs	48	30
Percentage of total data holdings	NA (100%)	0.67%

Consortium, relevant national agencies, UNDP and IUCN to improve the representation of ICCAs in the WDPA, and to align data submission in the WDPA and Registry. The data submission process in the WDPA now allows for inclusion of ICCAs that may not be part of official nationally reported protected area systems. A user manual has been published (UNEP-WCMC, 2016) to facilitate provision of data by ICCA custodians and those working with them. In addition, a simplified process for providing data to both the WDPA and Registry has been introduced. The decision as to whether the site is submitted to the Registry, the WDPA, or both, is made by the data provider. This decision is likely to be informed by the level of sensitivity or threat that the ICCA may be facing. Figure 2 shows the essential differences between the complementary databases.

The Registry continues to be a repository for in-depth information on ICCAs, regardless of whether they are or are not included in the WDPA, such as those that do not meet the IUCN definition of a protected area or whose custodians do not wish them to be included or sites that do not have complete spatial data. In this way, the Registry now acts as a supplementary database to the WDPA by using the same core data fields, but providing valuable additional and in-depth information that can help build our collective knowledge of community-driven spatial conservation efforts. A comparison of current ICCA data held in the Registry and the WDPA (IUCN & UNEP-WCMC, 2016)⁶ is given in table 5.

As part of the effort to increase accounting of diverse governance types of protected areas, both databases are now subject to a peer-review and verification process for non-government data and both can accept data with restrictions on certain uses. The peer-review/verification process means that the WDPA can accept data from a wider pool of data providers, without compromising quality. The process also provides an opportunity for the reviewer to raise any concerns regarding whether an appropriate FPIC process has taken place. Depending on the wishes of the data provider, the process can either be carried out by the national government (verification), or by national networks of ICCAs or similar mechanisms (peer-review process). A new field in the WDPA allows users to identify which process has been used. The peer-review process is country-specific, and the ICCA Consortium is assisting several national ICCA networks (for example, in Spain and Iran) to develop the procedures that appear most appropriate to their national contexts (see UNEP-WCMC, 2016 for further information).

As the WDPA and Registry become more aligned, ICCA case studies will be linked to the relevant record on www.protectedplanet.net. Linking the databases in this way means that the WDPA can optimally represent ICCAs as part of the global protected area network, while the Registry emphasizes their multiple values, including biodiversity, traditional knowledge and cultural elements.

CONCLUSION

Both the Global ICCA Registry and the World Database on Protected Areas serve as important sources of information, and encourage processes for building knowledge on protected and conserved territories and areas governed by indigenous peoples and local communities. Though the number of ICCAs in the Registry is currently limited in scope, progress is being made and we welcome participation to help expand global documentation of ICCAs. The benefit of understanding how community-driven spatial conservation efforts contribute to protecting biodiversity and ecosystem functioning is as important as ever. By undertaking collaborative efforts to appropriately document and manage high-quality information and knowledge about ICCAs, the Registry attempts to increase awareness of these important conservation mechanisms. It is hoped that the continued development of these databases will support the cultures, livelihoods, knowledge systems and ways of being of the communities that live and interact with habitats, species and environments of local and global conservation significance.

ENDNOTES

¹ The Global ICCA Registry can be explored at www.iccaregistry.org. Anyone interested in participating in the Registry can contact iccaregistry@unep-wcmc.org for further guidance.

² The World Database on Protected Areas is available online, www.protectedplanet.net, where the data is both viewable and downloadable.

³ Further details about the ICCA Consortium and its activities can be found at www.iccaconsortium.org

⁴ See www.iccaregistry.org/explore

⁵ By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape.

⁶ The ICCAs currently in the WDPA were identified using the WDPA's governance type field: "Indigenous peoples" or "Local communities". Most were included in the WDPA prior to, or during early stages, of the Registry's development.



A Mamanwa woman takes a break from harvesting grass blades for mat-weaving © Glaiza Tabanao

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RESUMEN

Pese a que las políticas ambientales a escala mundial exigen que las áreas protegidas sean representativas y efectivas y que estén bien conectadas, gran cantidad de áreas gobernadas y manejadas por los pueblos indígenas y las comunidades locales no han sido adecuadamente documentadas por los mecanismos formales y, por lo tanto, no son tomadas en cuenta. Si bien los procesos internacionales asociados con el inventario de áreas protegidas han estado en ejecución por décadas, no es sino hasta hace poco que se han empezado a incluir los distintos tipos de gobernanza en las bases de datos mundiales. Describimos la historia y el contexto del desarrollo del Registro mundial de los territorios y áreas conservados por pueblos indígenas y comunidades locales (ICCA, por sus siglas en inglés). Este Registro fue desarrollado a través de un extenso proceso de consulta y una alianza internacional. El Registro se adhiere a los principios del consentimiento libre, previo e informado y utiliza los mismos estándares de datos e infraestructura técnica de la Base Mundial de Datos sobre Áreas Protegidas (WDPA, por sus siglas en inglés). Describimos los beneficios locales que el registro mundial conlleva para los que han participado, entre los que cabe destacar la reducción de conflictos relacionados con prospectos mineros y el aumento de los ingresos del turismo de base comunitaria. También destacamos algunas conclusiones de importancia mundial que se desprenden del Registro: más del 70 por ciento de las ICCA registradas tienen la conservación de la biodiversidad como objetivo fundamental, y la totalidad de ICCA registradas incluyen todas las categorías de manejo de la UICN. Examinamos la creciente armonización del Registro de ICCA con la WDPA, y describimos la importancia de ambas bases de datos para la documentación y el análisis de ICCA. Por último, sostenemos que la documentación cuidadosa de estas áreas puede aumentar su valor para la protección efectiva de la biodiversidad, y para el logro de los objetivos mundiales en materia de conservación y desarrollo.

RÉSUMÉ

Malgré les nombreuses politiques environnementales mondiales qui encouragent l'expansion d'aires protégées gérées de façon efficace et représentative, une grande partie des régions gérées par les communautés locales et les peuples autochtones reste largement sous-documentée et n'est donc officiellement pas répertoriée. Des protocoles d'inventaire spécifiques existent depuis des décennies, mais ce n'est que récemment que les nouveaux types de gouvernance ont commencé à être inclus dans les bases de données officielles internationales. Nous fournissons un aperçu de la genèse et du contexte de l'élaboration du registre mondial des Aires et territoires du Patrimoine Autochtone et Communautaire (APAC). Ce registre a été élaboré grâce à un processus international consultatif et collaboratif. Le registre est conforme aux principes de consentement libre, préalable et informé, et utilise la même norme de données et la même infrastructure technique que la base de données mondiale des aires protégées (WDPA). Nous décrivons les avantages d'un enregistrement centralisé pour les communautés locales participantes, tels que la réduction des conflits autour de la prospection minière et l'augmentation des recettes provenant des initiatives touristiques. Nous soulignons également les avantages du Registre au niveau des normes internationales : plus de 70 pour-cent des APAC enregistrés ont inscrit la conservation de la biodiversité comme l'un de leurs objectifs essentiels, et les APAC enregistrés sont en ligne avec toutes les catégories de gestion de l'UICN. Nous examinons la convergence croissante entre le registre des APAC et le WDPA, et soulignons l'importance de ces deux bases de données pour la documentation et l'analyse des APAC. Enfin, nous soutenons qu'une documentation rigoureuse peut accroître l'efficacité de ces régions dans leurs initiatives de protection de la biodiversité, et contribuer à la l'atteinte des objectifs de développement et de conservation à l'échelle mondiale.



BALANCING CONSERVATION AND DEVELOPMENT IN NEPAL'S PROTECTED AREA BUFFER ZONES

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ABSTRACT

The question of how to balance conservation and development for communities living adjacent to protected areas is difficult. Win-win solutions that meet the needs of people and the needs of conservation seem difficult to find. Nepal is one of the poorest countries in the world and yet it is also a model for successful biodiversity conservation. A large percentage of its land is protected and populations of endangered species such as tiger and rhinoceros have been increasing for the past five decades. It has achieved this conservation success to some extent because of its globally renowned community forestry and protected area buffer zone policies. The objective of this paper is to explore how Nepal's national protected area policies address conservation and development issues and how those policies translate into conservation and development activities in protected area buffer zones. We find that one of the strengths of Nepal's approach, in policy and practice, is that it allows for a mix of activities to address both conservation and development without defining outcomes or framing conservation and development as polarized goals. Comparison of four protected areas highlights the need to balance conservation and development in terms of the larger context and opportunities and constraints on people's livelihoods and opportunities.

Key words: protected areas; budget; Bardia National Park; Chitwan National Park; Rara National Park; Shey Phoksundo National Park

INTRODUCTION

The question of how to balance conservation and development for communities living adjacent to protected areas is difficult. Win-win solutions appear difficult to find and many critiques have been made concerning the various approaches, such as integrated conservation and development projects (ICDPs). Numerous studies have concluded that there are very few examples of protected area projects that meet the needs of people and the needs of conservation (Tallis et al., 2009; Wells & McShane, 2004).

Nepal is a country with success in balancing conservation and development on a national scale. Forty years ago, Nepal was used as an example of the environmental crisis that people believed was caused by poverty, increasing population, and resource degradation (Guthman, 1997). Worst case scenarios predicted that Nepal would lose all of its forests and topsoil by 2000 (Ives, 1987). Large mammal populations such as tiger,

elephants and rhinoceros were declining. Rhinoceros populations had plummeted from 800 in the 1950s to 120 by the early 1970s and it was predicted they would disappear in only a few years (Blower, 1973).

Although Nepal remains one of the poorest countries in the world (Malik, 2013), it is now a model for successful biodiversity conservation (Heinen & Kattel, 1992; Heinen & Shrestha, 2006; Heinen & Yonzon, 1994). Over 20 per cent of its land is protected and some endangered species, such as tigers and rhinos, have increased since conservation programmes began in the 1970s (Seidensticker et al., 2010). These species have increased despite the fact that the protected areas they live in are surrounded by areas with high human population densities.

Nepal's success is attributed to an approach that combines community support with strong government policies (Dinerstein et al., 1999). Since the 1970s, Nepal has experimented with policies and practices to provide

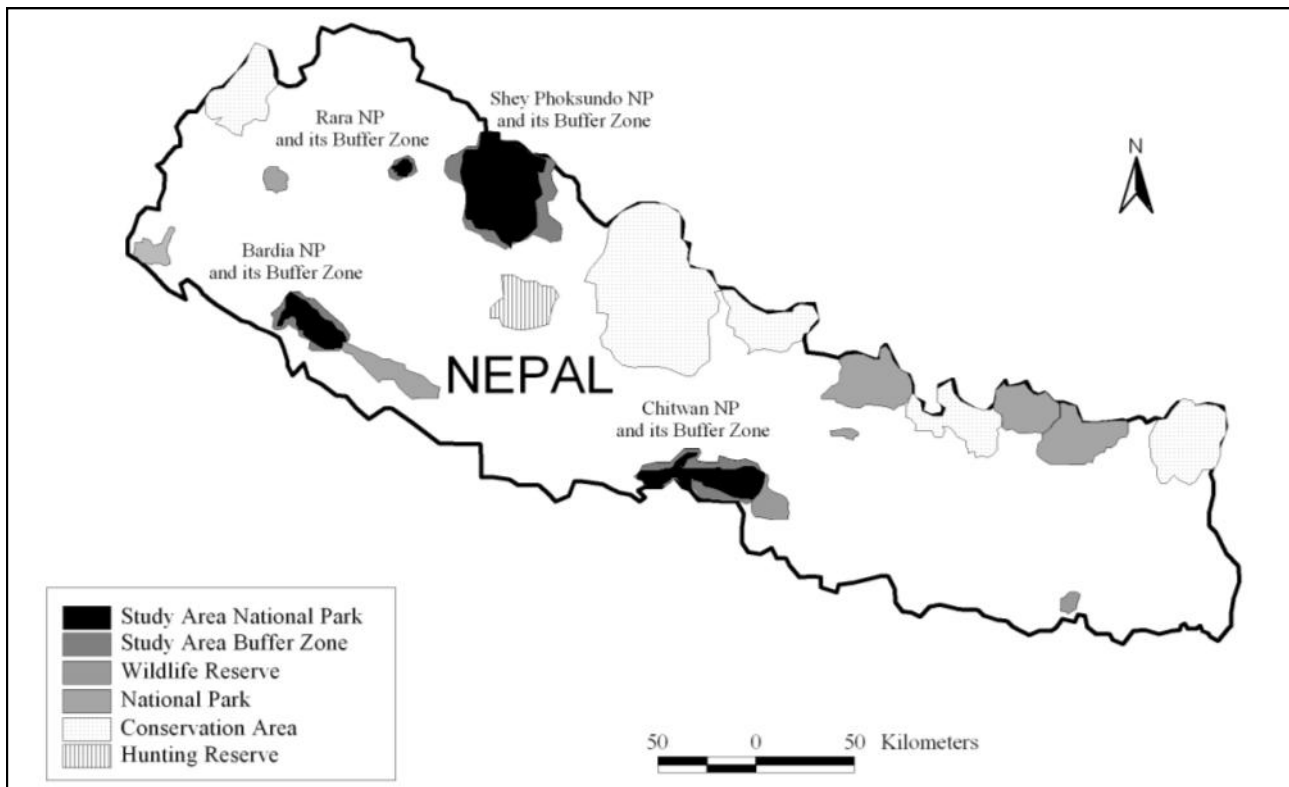


Figure 1. Protected areas in Nepal with four study areas.

benefits to communities, such as allowing limited resource extraction from protected areas in the lowlands and co-management in the mountain areas. While Nepal's policies have had their limitations and are not without flaws, they have provided a vision for the way that communities can participate in and benefit from protected areas (Budhathoki, 2004; Heinen & Kattel, 1992; Heinen & Mehta, 2000). One indicator of Nepal's success is that while there continue to be conflict issues around protected areas in Nepal, people are generally supportive of conservation and of neighbouring protected areas (Allendorf, 2007; Allendorf & Allendorf, 2012; Mehta & Heinen, 2001; Nepal & Spiteri, 2011; Nepal & Weber, 1995; Sah & Heinen, 2001).

One of Nepal's key conservation policies is its buffer zone legislation, which was created in 1994 (Paudel et al., 2007; Wells & Sharma, 1998). This legislation was based on Nepal's experience developing ways to link conservation and community development (Keiter, 1993). The legislation's key components are community forests within buffer zones and the re-distribution of funds back to communities in the buffer zones through a participatory process for deciding how to allocate the funds within set guidelines. Under these policies, large investments have been made in buffer zone communities. Since 1998, more than US\$4.6 million has been distributed to buffer zones of protected areas in Nepal, benefiting more than 700,000 people (Khatri, 2010).

Given Nepal's relatively successful protected area policies, the objective of this paper is to understand how Nepal has balanced development and conservation. In order to do this, we address the following questions: 1) How do Nepal's protected area policies address and balance conservation and development?; and 2) How do these policies translate into activities in protected area buffer zones?

METHODS

Within the past few years, management plans have been developed for some of Nepal's protected areas with others in the process of being developed (Paudel et al., 2007). These plans are based on the requirements outlined in the Buffer Zone Management Regulations (1996) and the Guidelines (1999) and they include detailed budgets that delineate the buffer zone plans, including the specific activities and budget assigned to them. These plans provide a window to understand how conservation and development are being taken into consideration and balanced in protected areas. This study has taken the most current available management plans for four protected areas: Chitwan National Park (2006-11), Bardia National Park (2007-11), Rara National Park (2010-14) and Shey Phoksundo National Park (2006-11).

These four protected areas were chosen because they are located in districts that cover the spectrum of development, from some of the most developed to the

Table 1. Description of protected areas

	Terai		Mountain	
	Chitwan	Bardia	Shey	Rara
Year protected area established	1973	1989	1984	1976
Year buffer zone established	1996	1996	1998	2006
Protected area size (sq. km)	932	968	3,555	106
Buffer zone size (sq. km)	766	327	1,349	198
Population in buffer zone ¹	223,260	103,806	11,598	11,685
No. of households ¹	36,193	15,290	2,263	1,898
No. of buffer zone user committees	22	15	17	10
Development rank of surrounding districts ²	Chitwan 2 Makawanpur 26 Nawalparasi 37 Parsa 52	Surkhet 28 Banke 30 Bardia 34 Kailali 40 Salyan 45	Dolpa 67 Mugu 75	Jumla 69 Mugu 75

¹Department of National Parks and Wildlife Annual Report 2009/10.

²CBS and ICIMOD (2003): Ranks for the 75 districts of Nepal are based on 29 indicators divided into three groups: poverty and deprivation; socio-economic and infrastructural development; and women's empowerment.

least (see development rankings in Table 1). Two of the national parks are in the lowlands, Chitwan National Park (NP) and Bardia NP, and two are in the mountains, Rara NP and Shey Phoksundo NP (Figure 1). Rara and Chitwan are two of the oldest national parks in Nepal, having been established in the 1970s. Shey Phoksundo NP and Bardia NP were established in the 1980s.

Chitwan NP and Bardia NP are two of the premier parks in Nepal and they are the largest parks in the terai lowlands. They protect some of the most charismatic megafauna, such as rhinoceros, tigers, crocodiles and sloth bears. Rara National Park is in northwestern Nepal in the districts of Mugu and Jumla. It is the smallest park in Nepal. It contains the country's biggest lake, Rara Lake, which is 10.8 square kilometres. The lake is an important staging point for migratory birds and has endemic species of snowtrout (*Schizothorax hodgsoni* and *S. progastus*). Shey Phoksundo NP is the largest national park in Nepal and the second largest protected area (after Annapurna Conservation Area) in Nepal. It is in Dolpa district in the mid-western development region of Nepal. Its habitat protects snow leopard, Tibetan wolf, musk deer, blue sheep and several other endangered wildlife species. It also contains Nepal's deepest and the second largest Phoksundo Lake. It is a very remote area and has one of the lowest population densities in Nepal (Ministry of Health and Population, 2011).

To answer the first question about how protected area policies address and balance conservation and development, there follows a review of the Buffer Zone Management Regulations (1996) and the Guidelines (1999). We describe the policy guidelines that are specific to the types of activities that the buffer zone funds are intended to support and how local communities participate in making decisions concerning the activities.

For the second question, concerning how these policies translate into activities in protected area buffer zones, the five-year management plans and budgets of the four protected areas are reviewed to answer three questions: 1) For each protected area, how much money is budgeted to communities through buffer zone projects relative to the overall protected area budget?; 2) Within the buffer zones of each area, do the budgets follow the policy guidelines for buffer zone projects? If not, how are they different?; and 3) What activities are planned with buffer zone funds?

To answer the first question, it is necessary to determine how much money is budgeted to communities within a protected area through buffer zone projects, relative to the overall protected area budget, and to compare the total budgets for the protected areas and the buffer zones. We then compare the size of the budget relative to protected area size and buffer zone population size. For



Chitwan National Park grassland maintenance © Bhim Gurung

the second question, to determine if the budgets follow the policy guidelines for buffer zone projects, the budgets in the plans are compared to the provisions in the legislation. For Rara NP and Shey Phoksundo NP, the budget summaries provided in the management plans for each activity category are used. For Bardia NP and Chitwan NP, the management plans did not provide summaries by budget categories, so we estimated total budgets for each activity category by compiling activity lists from the detailed budgets for each buffer zone. To answer the third question, we describe the activities in each management plan.

RESULTS

How does policy address and balance conservation and development?

The Buffer Zone Management Regulation of 1996 established buffer zones around protected areas. The Buffer Zone Management Guidelines of 1999 provided further clarification on the 1996 regulations. For a summary of these pieces of legislation, please see Heinen and Mehta (2000). This study focuses specifically on parts of the legislation that address conservation and development activities within the buffer zones.

In these two pieces of legislation, buffer zone activities are described four different times: once in the regulations and three times in the guidelines (Table 2).

However, the descriptions are different each time. The 1996 regulations state that the activities should meet the needs of local people and conserve natural resources and they list three types of activities: community development, environmental conservation and forest resource use (Table 2, column 1).

the 1999 guidelines, three sections of text provide additional categories of activities that should be supported. The first section outlines the percentage of funding that should be given to each of five categories of activities: conservation, conservation education, development, income generation and skill development, and administration (Table 2, column 2). In terms of budget priorities, development appears to be emphasized, but only slightly, relative to conservation as the guidelines recommend a total of 50 per cent of the budget should be apportioned to development and income generation and skill development and 40 per cent is recommended for conservation and conservation education activities. It is not clear where forest use from the 1996 regulations is placed in these guidelines.

The second section that mentions activities in the 1999 guidelines outlines five categories of activities that should be prioritized and also provides specific examples within each category (Table 2, column 2). While these five types have some overlap with the previous five categories, they also include one entirely new category,

Table 2. Summary of conservation and development activity categories mentioned in regulations and guidelines.

1996 Regulations	1999 Guidelines	1999 Guidelines Appendix*:
<p>Preparation of Management Work Plan: (1) The warden shall prepare and submit buffer zone management work plan to the Department for community development, environmental conservation and the balance [sic] utilization of forest resources of the buffer zones. (From Part 3 Management of Buffer Zones, point 5)</p> <p>While selecting projects, the users' committee shall have to give priority to those projects that meet the requirement of local people and conserve natural resources. (From Part 7 Community Development, point/rule 29)</p>	<p>While preparing the work plan by the user group for their respective area on conservation of natural resources, community development and utilization of forest products, the Work Plan should be prepared to have separate programs and budget as follows:</p> <ul style="list-style-type: none"> • Conservation Program 30 per cent • Community Development Program 30 per cent • Income generating and Skill Development Program 20 per cent • Conservation Education Program 10 per cent • Administrative Expenses 10 per cent <p>“in accordance [with] Rule 29, the following should be given a priority:</p> <p>(a) Conservation and management of forest, wildlife and cultural heritage.</p> <p>(b) Conservation of other natural resources and cultural heritage.</p> <p>(c) Alternate energy development.</p> <p>(d) Community development</p> <ol style="list-style-type: none"> (1) Small-scale and productive development programs at village level (2) Income generating programs (3) Others <p>(e) Conservation Education</p> <ol style="list-style-type: none"> (1) Audio-visual (2) Poster, pamphlets and newspapers (3) Training, Symposium and study tours (4) Non-formal education (5) Programs on promotion for local culture conservation 	<p>Activities designed for institutional development</p> <ul style="list-style-type: none"> - Training for capacity growth and development - Community saving and its mobilization - Group's record keeping and report - Registration of the group - Co-ordination between group/committees - Relationship with other government and non-governmental organizations - Auditing <p>Natural resource conservation and management activities</p> <ul style="list-style-type: none"> - Wildlife conservation - Natural forestry management - Buffer zone community forest program - Community and privately undertaken afforestation - Agriculture, agro-crop/ diversification of crops - Multipurpose nursery - Water and soil conservation - Pasture management - Alternative energy program - Others <p>Management of forest products collection and its sale</p> <p>Community and Economic Development Program</p> <ul style="list-style-type: none"> - Physical infrastructures that are productive which promote conservation - Programs that mitigate crop damage by wildlife - Skill development training and appropriate technologies - Women development programs - Enterprising oriented programs <p>Conservation Education Programs</p> <ul style="list-style-type: none"> - Community Conservation Education Program - School Conservation Education Program - Development and distribution of awareness oriented conservation education materials - Study tours - Cultural and conservation activities - Non-formal education

***From Appendix 1 relating to section 5(7) of the Buffer Zone Management Guidelines 1999: template for user group/ committee work plan, sections 8-12.**

alternative energy development. The first two categories are conservation-related but, surprisingly, include not only natural resources but also cultural heritage conservation. The appearance of cultural heritage is surprising because it is not referenced elsewhere and it is not clear why it is linked with natural resource conservation. It is also not clear how the two conservation categories are different from each other except that the second, “(b) Conservation of other natural resources and cultural heritage,” appears to be a catch-all category. Development is one category that includes development programmes, income generating programmes and also the catch-all “other”. Conservation education lists a broad range of educational activities, including promotion of cultural conservation.

The third section occurs in the appendix to the guidelines, which provides a format for detailed work plans (Table 2, column 3). The activity categories do not exactly correspond to the previously mentioned categories of activities and add yet one more type of activity, institutional development. In this section, the development category is called “Community and Economic Development Program” and conservation is called “Natural resource conservation and management activities”. Forest use from the 1996 Regulations reappears here as a category called “Management of forest products collection and their sale”. It is interesting that listed as examples within the conservation category are activities that might seem more appropriate in the development category and vice versa. For example,



Homestay in buffer zone of Chitwan National Park © Teri Allendorf.

agriculture and alternative energy are in the conservation category while wildlife damage mitigation is listed in development.

In terms of the process to choose activities, the guidelines include a description of the roles of the user committee and groups and requirements for the work plans that they develop. These guidelines are important because it is from these groups and their work plans that the overall buffer zone management plan is developed. Budgets are created in a bottom-up process whereby community committees representing separate men's and women's buffer zone user groups (BZUGs) at the ward level propose projects to their buffer zone user committee (BZUC). The BZUCs choose projects from those suggested to forward to the buffer zone management council (BZMC). The BZMC, chaired by the warden of the park, then allocates the budget accordingly. A detailed description of this process can be found in Budhathoki (2004).

The guidelines describe this process in terms of collecting "opinions and suggestions" from the user groups and selecting activities to the extent possible based on unanimous decisions within the group (p.3): "5. Users' Group Work Plan: (2) While preparing the work plan by the users' group in accordance with sub-section (1), the group should prepare the work plan by calling a meeting of the members of the groups on matters relating to community development and conservation oriented

programmes to be conducted in their area, and collecting opinions and suggestions so as the programs and projects be selected and prepared on the basis of unanimous decision as far as possible."

The guidelines describe the role of the user committee, which is to mediate between the user groups and the management council, in terms of the three areas laid out initially in the 1996 regulations: conservation, development, forest use (p. 5): "8. Arrangement Related to the Users' Committee. (1) The users' committee will function as a mediator between the users' group and the council to conduct programs through the users' groups formed in their respective areas for natural resources conservation, community development along with utilization of forest products in accordance with the Regulation and this Guideline."

The next piece of text emphasizes that development and conservation should be included in the BZUC work plans and that the work plans should reflect the work plans developed by the community forest user groups (CFUGs) (p. 6): "9. Users' Committee Work Plan. (1) While developing the work plan, it should clearly reflect community development and conservation programs of the respective area with a five-year plan. They should be prepared with separate programs for each fiscal year to be implemented on an annual basis. The work plan of the committee shall be integrated with the work plan of the groups."

Table 3. Summary of budget information from five-year management plans for protected area management and buffer zone management in four protected areas in Nepal (in US\$ using approximate exchange rate from that time period of 75 Nepali rupees per dollar)

Region	Terai				Mountain			
	Chitwan (2006-11)		Bardia (2007-11)		Shey (2010-14)		Rara (2006-11)	
Protected area	US\$	%	US\$	%	US\$	%	US\$	%
Total budget	7,610,887	96 ¹	5,640,360	100	931,893	100	3,876,293	98 ²
PA budget	5,697,667	75	2,780,640	49	537,533	58	863,866	22
BZ budget	1,631,780	21	2,859,720	51	394,360	42	2,954,427	76
PA budget/PA size (US\$/sq. km)	6,113		2,873		151		8,150	
Total budget/PA size (US\$/sq. km)	8,166		5,827		262		36,569	
BZ budget/population (US\$/person)	7.31		27.55		34.00		252.84	

¹Does not equal 100% because 4% of the budget was committed to the Barandabhar Forest Corridor Management Plan, a forest corridor connected to Chitwan National Park that is managed by the park authorities; ²Does not equal 100% because a small amount (0.01%) was in a separate tourism fund. The rest is unexplained as numbers provided in management plan do not equal 100%.

How much money is going to communities through buffer zone projects relative to the overall protected area budget?

The budgets were quite different for these four protected areas. Chitwan NP and Bardia NP, two of Nepal's premier parks, had budgets that were substantially larger than the other two areas (Table 3). Shey Phoksundo NP, although it is the largest protected area, had by far the smallest budget. In contrast, Rara NP, the smallest protected area of the four, had a relatively large budget.

To understand the relative amounts budgeted for management of the protected area versus buffer zone programmes, we compared the size of the protected area budgets to the buffer zone budgets (Table 3). Chitwan NP had the smallest percentage of its total budget designated for the buffer zone at 21 per cent. The other PAs designated between two and four times as much of their budget, as a percentage of the total, to buffer zone management. Rara NP allocated almost four times as much for buffer zone activities as for park management. Shey Phoksundo NP and Bardia NP allocated almost an equal amount for both park management and the buffer zone.

Next, a comparison was made of the budgets per unit for each area by comparing the amount allocated for protected area management per square kilometre and the amount allocated for the buffer zone per person (Table 3). These units were adopted because the protected area budget is intended to manage a landscape (the unit of which is sq. km), while the buffer zone budget is intended to benefit people (the unit of which is individual people).

For the amount spent per square kilometre for protected area management, Rara NP, which is relatively small in size but had a relatively large budget, allocated more per square kilometre on protected area management than the other areas. At the other extreme, Shey Phoksundo NP, which is quite large, allocated relatively little. Chitwan NP and Bardia NP lie in the middle.

For the amount spent per person in the buffer zones, Rara NP's budget was disproportionately large, spending nine times as much as Shey Phoksundo NP and Bardia NP. Chitwan NP allocated the least, about one quarter as much as Shey NP and Bardia NP.

Do the buffer zone budgets follow the policy guidelines for BZ projects? If not, how are they different?

We compared the budgets in the plans to the guidance provided in the legislation for each category of activity: community development, conservation, income generation and skill development, conservation education, and administration (Table 4). For Rara NP and Shey NP, we used the budget summaries provided in the management plans for each activity category. For Bardia NP and Chitwan NP, the management plans did not provide summaries by budget categories, so it was necessary to estimate total budgets for each activity category by compiling activity lists from the detailed budgets given for each buffer zone user committee in the protected areas.

Bardia NP followed the guidelines most closely while Rara NP was most different. Rara NP spent nearly twice as much as recommended on community development

Table 4. Comparison of percentage of buffer zone budget allotted for each category of activity.

	Terai		Mountain	
	Chitwan	Bardia	Shey	Rara
	%	%	%	%
Community development programme (30%)	37	30	37	56
Conservation programme (30%)	36	30	34	17
Income generation and skill development (20%)	15	21	10	21
Conservation education (10%)	7	10	9	5
Administration (10%)	4	9	10	2

programmes and half as much on conservation and conservation education programmes. Shey Phoksundo NP and Chitwan NP were slightly over on community development and conservation programmes, and were under on both income generation and conservation education. Rara NP and Chitwan NP allocated much less than the suggested 10 per cent on administration.

What activities are planned with buffer zone funds?

Looking across all four protected areas, the categories of conservation and development included relatively diverse sets of activities, while the categories of conservation education and income generation and skill development included more limited sets of activities.

Conservation activities

For Rara NP, conservation activities included only community forestry activities, such as building nurseries, hiring forest guards, making plantations and fire lines, putting up fencing, demarcating forest boundaries, and buying non-timber forest product (NTFP) seeds. All the other areas had a mix of types of activities in the conservation category, including community forestry, mitigation of wildlife conflict, alternative energy and capacity-building. Shey Phoksundo NP was the only area to include information and research activities in its conservation activities, including identification of biodiversity hotspots and land use classification. It also included what might be considered a development activity: low-cost latrines. Bardia NP, unlike the other areas, included activities called “conservation of indigenous cultures” in this category, but did not describe specific activities.

Community development

The vast majority of community development activities in the buffer zone areas were infrastructure. They included the construction of buildings, roads, communication (telephone installation), irrigation and water infrastructure, and toilets. Buildings included schools, health posts, temples, community meeting

places, birthing houses and some tourism infrastructure. Roads included roads, foot trails and bridges. In Bardia NP and Chitwan NP, all activities were infrastructure except for one “river training” in Chitwan NP. In Shey Phoksundo NP and Rara NP, in addition to infrastructure activities, community development activities included energy, health and capacity-building activities. Rara NP also included trainings in sewing and literacy in this category, which we might expect to be in the income generation category.

Income generation and skill development

Most activities in this category were trainings that develop skills, such as vegetable farming or motorcycle repair, which might generate income. Shey Phoksundo’s activities in this category also included pasture identification and rotational grazing plan preparation and agricultural nursery establishment as well as some capacity-building of the user groups. Two areas, Rara NP and Chitwan NP, also had water-related infrastructure activities.

Conservation education

Conservation education activities were very general awareness-raising activities, such as study tours, school programmes and educational materials. Some activities were literacy classes. Shey Phoksundo NP had two specific activities focused on conservation: an agroforestry demonstration plot and preparation of a wildlife checklist. Bardia NP included an anti-poaching programme.

Primary activities in Shey Phoksundo NP and Rara NP

In Shey Phoksundo NP and Rara NP, it was possible to figure out specific activities across all BZUCs and how the budget is distributed across specific activities, rather than just broad categories. The Shey Phoksundo NP management plan included a summary across all of the buffer zone user committee activities that listed the amounts allocated to each activity. For Rara NP, activities were listed by buffer user committees and used



Community forest guards near Chitwan National Park © Teri Allendorf.

similar activity titles, which made it possible to sum the amount spent on specific activities across all of the committees to find total amounts allocated to each type of activity.

Shey Phoksundo NP's activities focused primarily on energy issues. Out of its total buffer zone budget, 45 per cent was allocated for alternative energy activities. Of the 45 per cent, 20 per cent was allocated for micro hydropower systems, which was categorized as conservation, and 13 per cent was allocated for solar set distribution and 12 per cent was for improved cook stoves, both of which were categorized as development. These percentages were relatively large amounts of the buffer zone budget overall, as the next largest specific activity in the budget was nursery/plantation work at 4 per cent.

Rara NP's activities were more evenly distributed across different types of activities. Drinking water activities received the largest amount at 14 per cent. The next largest amount of the budget was for solar energy at 6 per cent. Both of these activities were categorized as community development. They were followed closely by goat and vegetable farming in the income generation category, each at a little more than 5 per cent.

It was not possible to summarize activities for Bardia NP and Chitwan NP because the management plans did not include activity descriptions that were similar enough across the user committees to understand what the activity entailed. A more detailed understanding of each activity would be needed in order to summarize into broader categories of activities.



Shey Phoksundo National Park © Laurie Vasily

DISCUSSION

How do protected area policies of Nepal address and balance conservation and development?

Nepal's policies emphasize the importance of implementing a process that allows communities to choose activities according to their priorities rather than defining outcomes. While the policy recognizes different types of activities and allocates a certain percentage of the budget to them, the more important aspect of the policy is probably its participatory nature (Paudel et al., 2007), which is a critical component of positive park-people relationships (Andrade & Rhodes, 2012) and also builds trust between protected area management and local communities (Stern, 2010). For example, in Chitwan NP, people's attitudes toward park management are generally positive, with the majority feeling that park management treats them as partners and supports their participation in conservation and development programmes (Nepal & Spiteri, 2011).

Another advantage to Nepal's approach is that the buffer zone policies are clearly the government's, rather than sponsored by non-governmental organizations (NGOs). People know that buffer zone programmes are part of government policy and they link the benefits of the programme to the protected areas (Nepal & Spiteri, 2011). When programmes are not government-sponsored and implemented, and instead are implemented by NGOs, then people can be less likely to see the link between the programme and the protected area (Allendorf et al., 2007). Nepal's policies also allow for a mix of activities to address both conservation and development without framing conservation and



Bardia National Park © Sue Stolton

development as polarized goals. They have avoided the difficult, if not impossible, task of categorizing activities into discrete categories that reflect some set of perceived conceptual relationships between conservation and development (Kepe et al., 2004; Walpole & Wilder, 2008). These relationships are often conceptualized as categories that reflect some permutation of conservation as helping or hindering development and development as helping or hindering conservation (Salafsky, 2011; Adams et al., 2004). At the national level, the inconsistency of categories and activities in the regulations and guidelines reflects, at least to some extent, the difficulty of clearly differentiating distinct categories. At the protected area level, the inconsistency of activities within the different categories is also probably an indication of the difficulty in practice of defining activities in terms of conservation versus development.

Three very different examples demonstrate the difficulty of categorizing activities: community forestry, alternative energy and latrines. All of these activities can contribute to conservation and development. Community forests contribute to both in many ways. For example,

community forests buffer protected areas against human activities, provide more habitat for wildlife and provide communities with forest resources. Alternative energy decreases extraction from protected areas and community forests, which helps to conserve forest, and also decreases the odds that people come into contact with wildlife because they enter the protected areas and forests less frequently to extract. Latrine construction, which is clearly a development activity, can also contribute to conservation by decreasing the odds that people come into contact with wildlife when they go to the forest or fields to urinate and defecate.

A more complicated example is infrastructure. In Nepal, buffer zone management has been criticized for investing too much in infrastructure and not contributing enough to conservation or livelihoods (Paudel et al., 2007). However, while there are many issues associated with infrastructure that can have negative impacts on protected areas, infrastructure projects can bring benefits to both people and protected areas. Many livelihood activities depend on infrastructure for success: roads facilitate the sale of local products and increasing tourism in protected areas. Water infrastructure can help

people and protected areas and wildlife. For drinking or irrigation, it can help provide water for wildlife (pond-building for wildlife is increasingly common in Nepal) and, for flood control, it can help protect people's agricultural fields and maintain boundaries between protected areas and settlements. Building schools increases people's access to education, which has direct impacts on livelihoods and can increase support for conservation. The impacts of infrastructure can also be indirect and quite subtle. For example, if a woman lives near a school as a child, even if she does not attend it, she is more likely to send her own children to school, which, in turn, is correlated to her having fewer children (Axinn & Barber, 2001).

How do these policies translate into activities in protected area buffer zones?

These four protected areas highlight the importance for conservation and development of the larger context and the opportunities and constraints on people's livelihoods and opportunities in that context (Naughton-Treves et al., 2005). When we compare across the four protected areas in this study, we see that different proportions of protected area funding are being allocated to protected area management versus the communities and that, within the buffer zones, communities are emphasizing different types of activities. These differences seem to be linked to the different socio-economic contexts of the protected areas.

In Nepal, most residents living adjacent to protected areas in the terai have much greater access to a range of livelihood, health and educational opportunities, such as markets, roads, hospitals and schools. Protected areas in the hill and mountain regions have much less access to infrastructure and government support. These broader socio-economic contexts are reflected in each protected area's management plan. For example, Chitwan NP is located in one of the most developed districts in Nepal, so people are not as poor and a range of economic opportunities, as well as health and educational facilities, are more available than in the other areas. Chitwan NP also generates more tourism revenue than any other national park in Nepal, but spends much less relative to the other areas on the buffer zone. It makes sense that Chitwan NP would spend less on buffer zone development activities because they are already more developed relative to other areas. In line with this hypothesis is the fact that Rara NP, which is located in one of the poorest areas in Nepal, spends disproportionately more on development in its buffer zone. This finding suggests that the appropriate balance of conservation and development activities for a protected area will differ for different protected areas,

highlighting that the socio-economic context surrounding protected areas matters.

An important, and related, aspect to the idea that different activities are appropriate in different places is that they can also be appropriate at different points in time. The appropriate balance of conservation and development activities may change over time as community needs change and as their understanding of and experience with conservation and development increases. One important aspect of balancing conservation and development may be to recognize the need to give people time to meet their immediate needs and grow into the process of balancing conservation and development. For example, in the Annapurna Conservation Area in the mountain region of Nepal, over the period of a decade, communities decreased the development activities they chose to do and increased conservation activities (Baral et al., 2007).

Next generation issues: prioritize and evaluate activities

While innovative and progressive, Nepal's buffer zone programme also has plenty of room for improvement. It has been criticized for being too top-down because the protected area warden holds ultimate authority over all activities in the buffer zone (Budhathoki, 2004; Heinen & Mehta, 2000). It is also criticized for failing to adequately address empowerment and equity in benefit sharing and gender issues (Budhathoki, 2004). Often these shortcomings are referred to as second generation issues that have arisen as policies have become established on the ground and initial obstacles have been resolved (Kanel & Dahal, 2008).

Our review of the management plans of these four protected areas highlights an additional second generation issue: how can activities be prioritized to best meet the needs of people and the protected areas? While the flexibility of the categories allows communities and protected areas managers to have flexibility in developing buffer zone management plans, it also means there is no clear process for prioritizing activities that "meet the requirement of local people and conserve natural resources" as described in the original 1996 regulations. Thus, while Nepal has avoided talking about trade-offs, their approach is also not necessarily maximizing the benefits to either protected areas or people. Explicit strategizing with communities about how to maximize benefits is the next step in improving park-people relationships.

In the course of our own work with communities in Nepal, we have had people articulate that they would like



Rara Lake © Mina Rana

better prioritization and support of certain activities, especially those that directly mitigate conflicts with wildlife. For example, in Chitwan NP, people felt mitigation of these problems was one of the most urgent community needs (Spiteri & Nepal, 2008). People wonder why, for example, the construction and maintenance of electric fences and other mitigation measures are not prioritized. While the construction of electric and non-electric fences has been funded over the past few decades, through both buffer zone funds and NGO projects, construction has been piecemeal with no plan for funding of renovation or maintenance.

In addition to prioritizing activities that better integrate and address the needs of the people and protected areas, there is also a need to reflect on what works and what does not. At this point in Nepal, there is no evaluation component for the buffer zone activities. Evaluation of activities would help communities to improve the quality of activities and provide a basis for sharing activity ideas and outcomes with each other within and among protected areas. For example, the specific activities as they are listed in the budget are very broad and generic and fairly consistent across protected areas. This lack of specificity might be a reflection of the need to simplify for the budgeting process, but based on our experiences in the field, we think it also indicates a limited set of interventions that are being considered as options. For example, livelihood and income generation are limited mainly to skills training and livestock rearing, and the impacts of these activities have not been evaluated. For example, in one village in Chitwan, people questioned the usefulness of noodle-making training in which some residents had participated. Conservation education

activities are also very broad and appear to have the goal of creating the conditions for conservation rather than targeting any particular behaviour changes. A more systematic approach to choosing and evaluating across protected areas would be a logical next step to the development of positive park-people relationships in Nepal.

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RESUMEN

La búsqueda del equilibrio entre la conservación y el desarrollo de las comunidades adyacentes a las áreas protegidas no es tarea fácil. La posibilidad de encontrar soluciones que satisfagan las necesidades de las personas y de la conservación parece difícil. Nepal es uno de los países más pobres del mundo y, sin embargo, también es un modelo de éxito en términos de conservación de la biodiversidad. Un gran porcentaje de su territorio está protegido y las poblaciones de especies en peligro de extinción como el tigre y el rinoceronte han ido en aumento durante las últimas cinco décadas. Este éxito de conservación se debe en buena medida a sus políticas mundialmente reconocidas en materia de manejo forestal comunitario y zonas de amortiguamiento de áreas protegidas. El objetivo del artículo es explorar cómo abordan las políticas nacionales sobre áreas protegidas de Nepal lo relativo a la conservación y el desarrollo, y cómo se traducen dichas políticas en actividades de conservación y desarrollo en las zonas de amortiguamiento de las áreas protegidas. Descubrimos que uno de los puntos fuertes del enfoque de Nepal, tanto en lo que respecta a la política como a la práctica, es que permite una amalgama de actividades que apoyan la conservación y el desarrollo sin definir resultados ni enmarcar la conservación y el desarrollo como metas polarizadas. La comparación de cuatro áreas protegidas pone de relieve la necesidad de equilibrar la conservación y el desarrollo en función de un contexto más amplio, incluyendo las oportunidades y restricciones impuestas a los medios de vida y las oportunidades de las personas.

RÉSUMÉ

La question de comment concilier conservation environnementale et développement économique pour les communautés vivant à proximité des zones protégées s'avère compliquée. Des solutions répondant simultanément aux deux objectifs semblent difficiles à trouver. Le Népal est l'un des pays les plus pauvres du monde et pourtant il est aussi un modèle de réussite pour la conservation de la biodiversité. Une large proportion du territoire est protégée et des populations d'espèces menacées comme le tigre et le rhinocéros ont augmenté au cours des cinq dernières décennies. Ce bilan positif a été atteint en partie grâce à son programme mondialement réputé de foresterie communautaire et à sa politique de zones tampon entourant les aires protégées. L'objectif de cet article est d'explorer comment les politiques de gestion des aires protégées au Népal abordent les enjeux de la conservation et du développement, et la façon dont ces politiques se traduisent par des activités de conservation et de développement dans les zones tampons. Nous constatons que l'un des points forts de l'approche du Népal, tant dans les directives que dans leur application, est la présence d'activités adressant tant la conservation que le développement sans tenter de les mettre en opposition. La comparaison de quatre aires protégées met en évidence la nécessité d'une approche équilibrée entre la conservation et le développement, prenant en compte les opportunités et impacts sur les moyens de subsistance des populations.



ARE RANGERS ADEQUATELY PROTECTED BY INSURANCE SCHEMES?

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ABSTRACT

Rangers are charged with preventing biodiversity loss and ecosystem degradation. They work under a diversity of environmental conditions spanning the climates, ecosystems and landscapes of our planet. Rangers also work under a range of man-made working conditions – salary, training, healthcare, job stress, etc – that are unique to each context and either promote or inhibit the welfare of these men and women. A ranger's work can be dangerous; disease, injury and even death occur, so we investigated the protections provided by insurance schemes afforded to government rangers in order to assess their adequacy in protecting rangers and their families. A survey of 40 countries was conducted, with data being analysed by continent – Africa, Asia, and Latin America, plus a grouping of countries from North America, Europe, Oceania and the Middle East. Of the countries surveyed, 18 per cent did not provide access to health insurance, 35 per cent to life insurance and 53 per cent to long-term disability insurance. Access to insurances varied geographically, with countries in Africa and Asia providing much lower access than elsewhere. This survey is believed to be the first to examine insurance schemes available to government rangers.

Key words: ranger, working conditions, health insurance, life insurance, long-term disability, cost of insurance

INTRODUCTION

The world is in the midst of the sixth mass extinction (Ceballos et al., 2010; Barnosky et al., 2011; Ceballos et al., 2015), with species showing an average 25 per cent decline in abundance (Dirzo et al., 2014) and the IUCN Red List Index demonstrating that extinction risks are increasing (Hilton-Taylor et al., 2009). This loss of biodiversity harms human wellbeing (Diaz et al., 2006) and degrades the ecosystem (Hooper et al., 2012). Humans are also directly degrading the Earth's ecosystems (Halpern et al., 2008; Haddad et al., 2015), despite the goods and services these ecosystems provide to human society (Daily, 1997; Cardinale et al., 2012).

Rangers are put in charge of preventing this loss of biodiversity and degradation of ecosystems. This is a significant task where success would secure unquantifiable benefits to human society, and failure would be catastrophic for both humans and the Earth that we call home. Given the importance of their job and the enormity of the consequences of success or failure,

logic would dictate that rangers are well-supported by governments and the wider society which they work to protect.

Anecdotal evidence suggests that rangers face difficult and dangerous field conditions. Unfortunately, little empirical research has been performed to substantiate these conditions. Threats to rangers have been demonstrated to come from encounters with wildlife (Warchol & Kapla, 2012; Moreto, 2015; WWF, 2016; WWF & RFA, 2016), poachers (Warchol & Kapla, 2012; Moreto, 2015; WWF, 2016; WWF & RFA, 2016), common criminals (Tynon et al., 2010; Warchol & Kapla, 2012), rebels (Moreto, 2015), community backlash (Moreto, 2015; Moreto et al., 2016; WWF, 2016; WWF & RFA, 2016), harsh environmental conditions (Moreto, 2015) and disease (Ogunjinmi et al., 2008).

Difficult working conditions amongst rangers impact their morale (Leaky & Morrell, 2001). Moreto (2015) identified a range of work stressors that impacted the



Rangers carry a motorbike across a flooded river in Cambodia © Rohit Singh/WWF

morale and wellbeing of rangers in Uganda. In one example from Nigeria, 100 per cent of respondents expressed lack of adequate healthcare support, and this, along with other stressors, meant that 87.5 per cent of rangers interviewed were very dissatisfied with their job (Ogunjinmi et al., 2008). Even simple-to-address issues such as access to equipment and training can have an impact on the profession. Across Asia, 74 per cent of rangers perceived they lacked access to proper equipment, and 48 per cent felt they were inadequately trained. It should be no surprise therefore that 48 per cent of rangers stated they would not want their children to become a ranger (WWF & RFA, 2016). Similarly, in Africa, 59 per cent of rangers perceived they lacked access to proper equipment, and 42 per cent felt they were inadequately trained, with 54 per cent of rangers not wanting their children to become a ranger (WWF, 2016).

The International Ranger Federation and the Thin Green Line Foundation continually track the number of rangers killed in the line of duty. Their statistics show that between 2009 and 2016, at least 595 rangers have been killed in the line of duty (IRF, 2016). This represents only the cases reported to The International Ranger Federation and are likely to be an underestimate. This statistic, which does not include rangers that have been severely injured or incapacitated by injury or disease,

demonstrates the real risks of being a ranger. A massive 72.5 per cent of rangers in studies across Africa and Asia said that they had faced a life-threatening situation (data combined from WWF, 2016 and WWF & RFA, 2016), a fact corroborated by IRF (2016) where nearly 90 per cent of 107 ranger deaths reported between July 2015 and June 2016 were from Asia and Africa. Clearly, being a ranger can be dangerous.

Two important parts of occupational welfare are the ability to afford short-term and long-term healthcare and the ability to ensure that one's family will be taken care of should unfortunate events occur. These benefits – generally provided through health and life insurance – are particularly important for rangers. Additionally, the method of pay-out and the time it takes to make insurance pay-outs can be significant factors in the level of support insurance schemes provide to rangers and their families. This study aimed to provide a broad overview of the insurance schemes offered to frontline rangers around the world. It is believed to be the first study to look at insurance available to rangers and how rangers perceive their coverage.

For the purpose of this survey, a ranger was defined as a government employee entrusted with protecting and preserving parklands, including officers, rangers, wildlife wardens, forest guards, foresters, scouts, watchers and



Figure 1: Map of countries from where data was sourced

other frontline field staff. It should be noted that this study focused only on rangers hired either on permanent or temporary contracts by governments. We fully acknowledge that other types of frontline protection staff, such as indigenous rangers, community game scouts, private landowners and private security, are widespread, numerous and deserve the same sort of analyses.

METHODS

Data collection took place between March and May 2016 using a survey in English, Spanish and Chinese. Surveys were sent via email or delivered in person to sources in each country who would be knowledgeable about the insurance benefits available to rangers. Where possible, data was sourced directly from government sources, but data collection also included ranger associations and conservation organization staff who work closely with rangers and so had access to accurate information. Surveys were also conducted in-person during the World Ranger Congress in May 2016.

Data were collected from 40 countries including Africa (n=10), Asia (n=15), Latin America (n=7), North America (n=2), Oceania (n=2), Europe (n=3) and the Middle East (n=1); see Figure 1. Data were analysed by region: Africa, Asia, Latin America and 'Other', which was an amalgamation of the last four regions above.

Within the survey, quantitative data were collected through closed-ended questions to facilitate measurement and comparison with future surveys. The

survey focused on answering the following research questions:

1. Do rangers receive financial support for healthcare, either through universal healthcare systems, health insurance or a combination of both?
2. Do rangers receive financial support for their families in case of an accident?
3. Do rangers on temporary contracts have equal access to insurance schemes?
4. Who are the main providers of insurance schemes to rangers?
5. How do rangers perceive their insurance coverage?
6. What is the cost of insurance to rangers?
7. How are insurance payments made to rangers?

Insurance is a complex subject and varies significantly from country to country. Creating a broad, simple-to-understand overview of the subject was challenging. The survey made all possible attempts to collect and represent data on this complex subject accurately, balancing complexity with usability. A set of key definitions (Table 1, overleaf) was provided to survey participants to standardize terms.

The survey focused on ranger insurance benefits by country, and on coverage provided to an entry level ranger. No questions specific to any individual's insurance, health or employment status were asked. The survey looked at the availability of insurance support and was not designed to evaluate whether provided insurance support was adequate or not. One limitation was a lack of

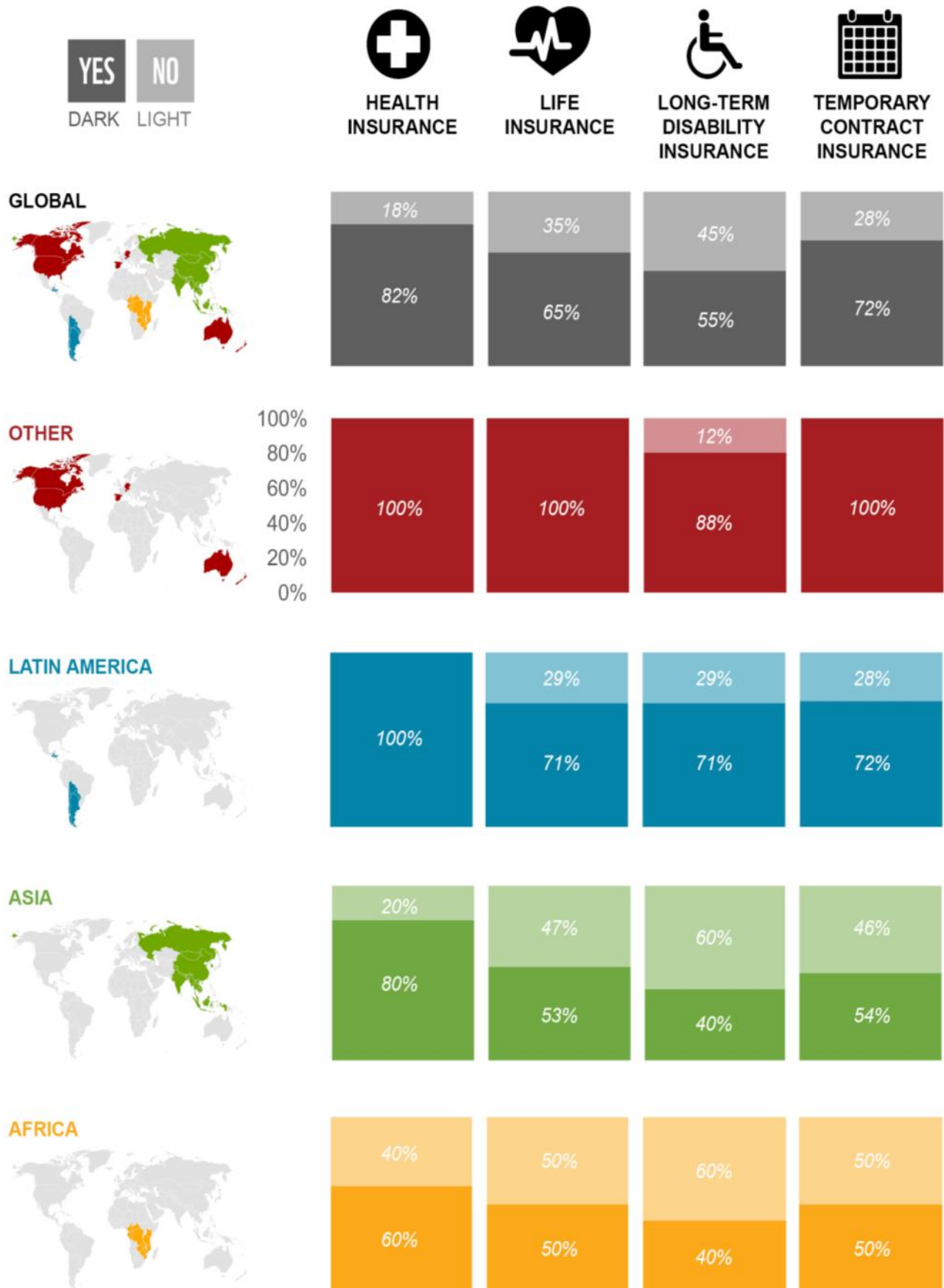


Figure 2: Summary of the percentage of countries where rangers receive health, life and long-term disability insurance coverage by region and contract type

Table 1: Key definitions used throughout the study

Term	Definition
Ranger	A government employee entrusted with protecting and preserving parklands, including range officers, wildlife wardens, forest guards, foresters, scouts, watchers and other frontline field staff
Permanent	Working under a contract without a fixed end date
Temporary	Working under a contract with a fixed end date
Universal Healthcare	A system used by some countries in which the government provides healthcare to all citizens of that country
Life Insurance	A contractual agreement that pays out a sum of money either on the death of the insured person or after a set period
Health Insurance	A contractual agreement that pays for medical and surgical expenses that are incurred by a person covered by health insurance. Health insurance can either reimburse the insured person for expenses incurred from illness or injury or pay the healthcare provider directly
Long-term Disability Insurance	A contractual agreement that pays the insured person in the event that he or she is unable to work due to illness, injury, or accident for a long period of time
Deductible	A specified amount of money that a person covered by insurance must pay before an insurance company will pay a claim

local third-party experts in all countries with whom to substantiate survey responses. The survey, therefore, relied on national government representatives, conservation experts and rangers themselves, who could have introduced potential bias to the data or reporting. Survey respondents were guaranteed anonymity and the analysis was conducted by region so as not to highlight the strengths or weaknesses of any specific country.

When comparing insurance pay-outs or costs, amounts were converted into US Dollars (USD) (based on exchange rates on 1 August 2016), and the pay-out or cost was divided by a ranger's starting salary in that country to provide a figure presented in number of month's salary as a crude measure of purchasing power parity.

RESULTS

Do rangers receive financial support for healthcare?

A total of 17 countries (Africa n=2; Asia n=5; Latin America n=4; Other n=6) have a system of universal healthcare. Rangers on a permanent contract in 16 countries (Africa n=4; Asia n=7; Latin America n=3; Other n=2) receive some sort of health insurance specifically as a benefit of their employment as a ranger. Rangers in five countries receive insurance from a non-government organization (NGO) or purchase it themselves in addition to universal healthcare or a government provided insurance scheme through their employment contract. Consequently, rangers from seven (18 per cent) of the countries surveyed (Africa 40 per

cent; Asia 20 per cent; Latin America 0 per cent; Other 0 per cent) have no access to health insurance (Figure 2).

In countries where rangers receive health insurance coverage either through universal healthcare or as a benefit of employment, the government provides this benefit in 58 per cent (n=19) of countries (Africa 50 per cent; Asia 84 per cent; Latin America 43 per cent; Other 38 per cent). Private companies on behalf of the government provide this benefit in 30 per cent (n=10) of countries (Africa 33 per cent; Asia 8 per cent; Latin America 43 per cent; Other 50 per cent), and NGOs provide it in 6 per cent (n=2) of countries (Africa 17 per cent; Asia 8 per cent; Latin America 0 per cent; Other 0 per cent). Health insurance is purchased directly by the ranger in 6 per cent (n=2) of countries (Africa 0 per cent; Asia 0 per cent; Latin America 14 per cent; Other 12 per cent). In three countries, rangers are provided additional insurance through NGOs, and in four countries rangers purchase additional insurance on top of government provided insurance.

Do rangers receive financial support for their families in case of an accident?

Rangers on a permanent contract were found to receive life insurance as a benefit of their employment in 65 per cent (n=26) of countries (Africa 50 per cent; Asia 53 per cent; Latin America 71 per cent; Other 100 per cent). Consequently, rangers from 35 per cent of countries surveyed (Africa 50 per cent; Asia 47 per cent; Latin America 29 per cent; Other 0 per cent) have no access to life insurance (Figure 2).

Table 2: Provider of insurance by percentage of countries surveyed

	Government insurance	Private company on behalf of government	Nonprofit / NGO insurance	Insurance purchased by ranger
Health insurance	58	30	6	6
Life insurance	58	31	4	7
Long-term disability insurance	64	32	5	0
Average	60	31	5	4

In countries where rangers receive life insurance coverage as a benefit of employment, the government provides this benefit in 58 per cent (n=15) of countries (Africa 80 per cent; Asia 88 per cent; Latin America 20 per cent; Other 38 per cent). Private companies on behalf of the government provide this benefit in 31 per cent (n=8) of countries (Africa 0 per cent; Asia 13 per cent; Latin America 80 per cent; Other 38 per cent), and NGOs provide it in 4 per cent (n=1) of countries (Africa 20 per cent; Asia 0 per cent; Latin America 0 per cent; Other 0 per cent). Life insurance is purchased directly by the ranger in 7 per cent (n=2) of countries (Africa 0 per cent; Asia 0 per cent; Latin America 0 per cent; Other 25 per cent). In one country, additional life insurance was provided through an NGO, and in four countries rangers purchased additional life insurance in addition to the insurance provided by the government through their employment contract. The average life insurance pay-out was equivalent to 22 months salary (Africa 13 months; Asia 23 months; Latin America 29 months). It was not possible to calculate an average for the ‘Other’ category due to the wide variation and incompatibility in the way a pay-out was calculated across the countries.

Rangers on a permanent contract receive long-term disability insurance as a benefit of their employment in 53 per cent (n=21) of countries (Africa 40 per cent; Asia 40 per cent; Latin America 71 per cent; Other 88 per cent). Consequently, rangers from 45 per cent of countries surveyed (Africa 60 per cent; Asia 60 per cent; Latin America 29 per cent; Other 0 per cent) have no access to long-term disability insurance (Figure 2).

In countries where rangers receive long-term disability insurance coverage as a benefit of employment, the

government provides this benefit in 64 per cent (n=14) of countries (Africa 75 per cent; Asia 100 per cent; Latin America 40 per cent; Other 43 per cent). Private companies on behalf of the government provide this benefit in 32 per cent (n=7) of countries (Africa 0 per cent; Asia 0 per cent; Latin America 60 per cent; Other 57 per cent), and NGOs provide it in 5 per cent (n=1) of countries (Africa 25 per cent; Asia 0 per cent; Latin America 0 per cent; Other 0 per cent). Additional long-term disability insurance was provided through an NGO in one country, and in two countries additional long-term disability insurance was purchased by rangers in addition to the insurance provided by the government through their employment contract.

Do rangers on temporary contracts have equal access to insurance schemes?

Of the 40 countries surveyed, 32 employ some rangers on temporary contracts of which 41 per cent (n=13) provide health insurance coverage as part of a temporary contract and a further ten countries (31 per cent) provide universal healthcare coverage. Rangers on temporary contracts therefore receive health insurance in 72 per cent of countries (Africa 50 per cent; Asia 54 per cent; Latin America 72 per cent; Other 100 per cent). However, four countries indicated that temporary workers receive less insurance benefits than rangers on permanent contract. Therefore, 28 per cent of countries that provide temporary contracts to rangers do not provide health insurance (Figure 2) and 13 per cent provide lower levels of insurance coverage than permanent staff.

Who are the main providers of insurance schemes to rangers?

Insurance provision was heavily weighted towards government provision with the government providing insurance in an average of 60 per cent of countries and companies on behalf of the government in an average of 31 per cent of countries (Table 2). Note that this is 91 per cent of countries where rangers receive insurance and does not capture the seven countries (18 per cent) where rangers do not have any access to insurance support.

How do rangers perceive their insurance coverage?

Representatives from 37 countries responded to questions on perceptions of coverage. Fifty-nine per cent of respondents (Africa 63 per cent; Asia 60 per cent; Latin America 67 per cent; Other 50 per cent) perceived that insurance coverage, of all types, for rangers in their country was less than that available to those with similar jobs such as police, military, coast guard and fire brigade.



Figure 3: Average monthly premium paid for insurance in a) US Dollars, and b) as a percentage of monthly salary, and average deductible in c) US Dollars, and d) as a percentage of monthly salary

What is the cost of insurance to rangers?

The average cost of entire insurance packages per ranger per month globally was \$117 (Figure 3a), which as a percentage of a ranger's salary equates to 9 per cent globally (Figure 3b). The average deductible globally was \$84 (Figure 3c), which as a percentage of a ranger's salary equates to 10 per cent globally (Figure 3d).

How are insurance payments made to rangers?

Representatives from 36 countries responded to questions on insurance payment options. Three countries indicated multiple payment options occurred within their country (cash, cheque or wire transfer). Globally, it was found that countries provided payments by cash (17 per cent), cheque (39 per cent), direct deposit (42 per cent)

and direct payment to service provider (8 per cent). The percentages varied by region: Africa (cash 33 per cent; cheque 33 per cent; direct deposit 22 per cent; and others 22 per cent), Asia (cash 25 per cent; cheque 50 per cent; direct deposit 25 per cent; and direct payment to service provider 13 per cent), Latin America (cash 0 per cent; cheque 57 per cent; direct deposit 43 per cent; and direct payment to service provider 0 per cent), and Other (cash 0 per cent; cheque 12 per cent; direct deposit 88 per cent; and direct payment to service provider 0 per cent). The average time estimated to process insurance payments was 3.25 months, with wide variation between regions: Africa (5 months), Asia (4 months), Latin America (3 months) and Other (1 month).



A ranger and soldiers collaborate to collect patrol data in Nepal © Barney Long / WWF US (left) and rangers survey deep in a Bhutanese park © Rohit Singh / WWF (right)

DISCUSSION

Of the countries surveyed, 18 per cent did not provide access to health insurance, 35 per cent to life insurance, and 53 per cent to long-term disability insurance. Access to insurances varied geographically, with countries in Africa and Asia providing much lower access than elsewhere.

Despite the inherent dangers of the job, rangers in 18 per cent of countries surveyed (40 per cent in Africa, and 20 per cent in Asia) do not receive access to any health insurance. Responses on the maximum amount paid by health insurance to cover illness, injury, or inability to work was impossible to collate into global or regional averages due to the variation and complexity of insurance schemes.

With at least 595 rangers having been killed in the line of duty between 2009 and 2016 (IRF, 2016), the risks of being a ranger are clear. Despite these risks, this study showed that rangers in 35 per cent of countries surveyed had no access to life insurance. The imbalance is greater at the regional level, where 52 per cent of known ranger deaths occurred in Asia, and 32 per cent in Africa, yet within these regions, rangers in only 53 per cent of

countries in Asia and 50 per cent of countries in Africa had access to life insurance. Where life insurance is provided, the families of a fallen ranger receive, on average, less than two years' salary.

The situation with long-term disability insurance is even worse than basic health and life insurances, with rangers in only 53 per cent of countries having access. Similarly, for rangers on short-term contracts, 72 per cent of countries provide insurance coverage with some of these providing reduced coverage. Anecdotal observations from across Asia by the first and last authors suggest that contract rangers are often given the most dangerous tasks, further highlighting the lack of equity within this situation.

The various work stressors facing rangers challenge their motivation and performance on a daily basis. It has been shown in other high-stress professions such as police (Richardson et al., 2006), ambulance personnel (van der Ploeg & Kleber, 2003), and nurses (Van Yperen & Hagedoorn, 2003), that a high level of institutional support is the main driver of intrinsic motivation and the key factor for avoiding health issues derived from work-related stressors. Due to the risk and high-stress nature

of the profession, rangers should be provided the highest levels of institutional support. The most critical components of institutional support should be providing a safe working environment to prevent injury or death, and securing the health and livelihood options of a ranger's family in the case of death. This study found weak levels of institutional support in terms of health, life and long-term disability insurance provided to rangers on a global scale, and especially so in Africa and Asia.

At this point, very little can be deduced from the perceived disparity between the level of insurance provided to rangers and those of other high-risk, high-stress government occupations. Further studies are needed to quantify whether these perceptions are grounded in reality or not.

The majority of countries dispersed insurance payments using cheques or direct deposit, however six countries (Africa n=3; Asia n=3) used cash payments. The use of cash payments provides a corruption pathway and so should be replaced to ensure rangers are fully protected. The length of time prior to payment is a critical factor in the day-to-day management of a family's finances. An average wait time of four months could put families of rangers in debt with long-lasting livelihood impacts.

This initial study has highlighted many weaknesses in the insurance schemes provided to government rangers across the world. It is hoped that this initial study will precipitate further studies on all other types of rangers that defend, manage and educate us about the world's natural environments.

While the situation for rangers in Africa and Asia is worse than in other regions of the world, improvements in coverage and quality of insurance appear to be required everywhere. It is the responsibility of governments to adequately protect and support their employees and this study showed that governments do provide insurance coverage either directly or through companies in 91 per cent of countries. However, all governments must ensure that their rangers have access to suitable and equitable insurance coverage, in accordance with the level of risk rangers face in their country. This should include rangers on temporary contracts.

This study was limited in its scope, and focused primarily on the provision of insurance and not the quality of the insurance provided. Comparisons of the insurance coverage provided to rangers were not able to be made with that of other professions and the nuances of

insurance coverage and other benefits were not able to be gathered. The study was, however, designed as an initial investigation to understand the global picture of insurance schemes provided to rangers and subsequent and deeper studies are required to better understand the situation, both at the global, regional and national levels.

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An armed ranger on patrol at sunset © WWF UK

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RESUMEN

Los guardabosques tienen la responsabilidad de evitar la pérdida de biodiversidad y la degradación de los ecosistemas. Trabajan bajo una diversidad de condiciones ambientales que abarcan los climas, los ecosistemas y los paisajes de nuestro planeta. También trabajan bajo una serie de condiciones laborales provocadas por el hombre –salario, formación, atención médica, estrés laboral, etc.– que son propias de cada contexto y que promueven o impiden el bienestar de estos hombres y mujeres. El trabajo de un guardabosques puede ser peligroso; están expuestos a enfermedades, lesiones e incluso la muerte, por lo que investigamos las protecciones previstas en los planes de seguro que se ofrecen a los guardabosques estatales, con el fin de examinar si su protección y la de sus familias era apropiada. Se realizó un estudio en 40 países y se analizaron los datos por continente –África, Asia y América Latina, además de un grupo de países de América del Norte, Europa, Oceanía y Oriente Medio. De los países examinados, el 18 por ciento no proporcionaba acceso a seguro médico, el 35 por ciento a seguro de vida, y el 53 por ciento a seguro contra incapacidad a largo plazo. El acceso a los seguros varía geográficamente, siendo el acceso que proporcionan los países de África y Asia mucho más limitado que en otros lugares. Se cree que este estudio es el primero en examinar los planes de seguro disponibles para los guardabosques estatales.

RÉSUMÉ

Les rangers sont chargés de prévenir la perte de la biodiversité et la dégradation des écosystèmes. Ils travaillent dans des conditions environnementales variées recoupant tous les climats, les écosystèmes et les paysages de notre planète. Les rangers connaissent également un large éventail de conditions de travail – que ce soit salaire, formation, protection de la santé, ou stress au travail, etc. – qui sont propres à chaque situation et peuvent promouvoir ou inhiber leur bien-être. Le travail d'un ranger peut être dangereux; il arrive en effet que la maladie, des blessures et même la mort surviennent, et nous avons donc examiné si les mesures de protection des régimes d'assurance qui leur sont accordés par le gouvernement sont adaptées à leur besoins de protection et à celui de leurs familles. Nous avons mené une enquête dans 40 pays, et analysé les données par continent - l'Afrique, l'Asie, et l'Amérique latine, plus un groupe de pays en Amérique du Nord, en Europe, en Océanie et au Moyen-Orient. Parmi les pays étudiés, 18 pour-cent ne proposent pas d'assurance maladie, 35 pour-cent ne proposent pas d'assurance-vie et 53 pour-cent ne proposent pas d'assurance-invalidité à long terme. L'accès aux assurances est variable géographiquement, les pays d'Afrique et d'Asie offrant une couverture beaucoup plus faible qu'ailleurs. Cette enquête est la première à examiner les régimes d'assurance disponibles pour les rangers gouvernementaux.