

# Government Commitments for Protected Areas: Status of Implementation and Sources of Leverage to Enhance Ambition

*L. Krueger*

The Nature Conservancy, Arlington, VA, USA

## Introduction

The past 20 years has seen a dramatic increase in the number and extent of protected areas worldwide. Although the legal creation of a park does not guarantee the conservation of the biodiversity within it, it is usually an essential first step for securing natural values in a place, particularly as global population and development pressures leave few landscapes and seascapes untouched by humanity. As such, the ongoing creation of protected areas and expansion of the protected area portfolio are often cited as some of the greatest successes of conservation. While the establishment of protected areas clearly recognizes the value of protection as a way to mitigate human impacts on biodiversity, it is appropriate to review the political mechanisms that have driven these achievements: What is the role of formal political commitments, and what are the potentials and limitations as we seek more comprehensive and effective conservation outcomes moving forward?

Governments at many levels have long recognized the value of protected areas, and indeed, the very concept of conservation or reserve areas has an ancient provenance. But since the 1992 Rio Summit, the global protected area estate has dramatically expanded largely in response to explicit commitments made by governments in the international fora. International treaties have contributed to a process of changing global norms and have encouraged governments to make deeper commitments to protected areas; among them are the World Heritage Convention, Convention on Biological Diversity (CBD), and the Ramsar Convention on Wetlands of International Importance. In addition, the

International Union for the Conservation of Nature (IUCN) World Commission on Protected Areas (WCPA), while not a formal intergovernmental agreement, has done much to promote a global community of practice in support of protected areas. Most recently, in 2010, 193 nations in the world committed to the CBD's Aichi Biodiversity Target 11 to increase "effectively and equitably managed, ecologically representative and well connected systems of protected areas" to at least 17% of the terrestrial and inland water and 10% of the coastal and marine areas by 2020 (CBD, 2010a).

This chapter reviews the role and status of legal frameworks and other commitments for protected areas, and it explores the relationship between scientific evidence and political practicality in implementing current targets and achieving the more ambitious ones. The rationale for these targets is contested. On the one hand, they are seen as underambitious, as biodiversity research has demonstrated that even successful implementation of current targets is unlikely to prevent unprecedented levels of biodiversity loss. On the other hand, the very concept of protected areas is challenged in some quarters as outmoded, and their expansion is seen as a hindrance to more economically profitable land uses. Under these circumstances, the international policy debates around protected areas become crucial arenas for reconciling multiple societal goals and can help the world achieve a rational and effective level of protection given our best understanding of the science and the costs and benefits of alternatives. Although the link between international political commitment and action is not always direct, it can establish channels to promote deeper and more sustainable public support for conservation.

## **Emergence and evolution of government commitments on protected areas**

Protected areas are not a new concept. Rulers have made formal or informal declarations to protect areas for centuries, usually to protect royal hunting grounds or sacred sites. Probably the oldest continuously protected area still managed as such today is the Bogd Khan Uul park in Mongolia, established by Buddhist and Manchu authorities in 1778 and currently managed as a strictly protected area and a UNESCO Biosphere Reserve (UNESCO, 2013). The creation of Yellowstone by the United States Congress in 1872 is often recognized as the inception of the modern era of formally designated protected areas, but it hardly represented a watershed event: National park creation continued to be sporadic and modest for most of the next hundred years after Yellowstone.

One of the earliest efforts to build an international consensus around protected areas was the International Conference for the Protection of Fauna and Flora, held in London in 1933. The conference led to the first attempts to categorize types of protected areas (Phillips, 2004). It was not until 1962, however, that the international community assembled its first UN list of parks for the First World Conference on

National Parks, held in Seattle. The Seattle conference was bedeviled by debates over terminology and nomenclature in deciding what could and could not be included on the United Nations list. These debates stimulated further attempts to define management categories through the International Commission on National Parks (later the WCPA, a voluntary commission of the IUCN).

Though IUCN is not a legally binding treaty mechanism, its voluntary approaches have been essential in building a community of practice around protected areas and spurring their use as a tool by governments. WCPA's continuing efforts to update and refine the protected area management categories (in 1978, 1994, and 2012) contributed to enhanced national efforts to build national systems by providing a template that allowed the categorization of national laws and helping standardize nomenclature (Dillon, 2004). The CBD further promoted this effort in 2004 by formally endorsing the IUCN categories and encouraging governments to assign categories consistent with those developed by IUCN (CBD, 2004).

These efforts by IUCN and national protected area managers established a consistent definition of protected areas, advanced the understanding of protected area characteristics, and addressed the need for consistent international standards. However, none of these works bound governments to specific commitments or obligations. A series of more formal international agreements starting in the 1970s helped disseminate emerging scientific consensus about environmental problems among policy makers and began to create a web of obligations on nations that have steadily grown in scope and specificity (Table 1.1).

The Man and Biosphere Conference held in Paris in 1968 was credited as being the first intergovernmental meeting to recognize the transboundary nature of many environmental problems. Organized by UNESCO in collaboration with Food and Agricultural Organization (FAO) of the United States and the World Health Organization (WHO), and in cooperation with the International Biological Programme (IBP) and IUCN, this event, attended by representatives from 60 countries, was the first worldwide meeting on global environmental issues. The Man and the Biosphere Programme (MAB) and the concept of biosphere reserves were created in part to encourage the creation of a global network of protected areas (Dyer & Holland, 1988).

A few years later, the UN Conference on the Human Environment (the Stockholm Conference) represented the first attempt to forge a global agenda to address global environmental problems. Though the documentary products of this conference largely contained broad policy goals rather than specific objectives, it had a profound impact in drawing political and public attention to the natural environment and led directly to subsequent agreements that consolidated the role of protected areas as a tool for conservation. Both the World Heritage Convention and the Ramsar Convention on Wetlands of International Importance, negotiated around the same time as Stockholm, required signatories to designate sites for protection and further catalyzed the normative development of protected areas as a focus of conservation efforts even beyond what was legally called for

**Table 1.1 Some international milestones in the evolution of global protected area commitments**

<b>Year</b>	<b>Event</b>	<b>Outcome/target related to protected areas</b>
1968	Biosphere Conference	Led to creation of Man and Biosphere Programme (in 1971) and UNESCO Biosphere Reserves (1974)
1972	World Heritage Convention	Conserve “precisely delineated areas which constitute the habitat of threatened species of animals and plants of outstanding universal value from the point of view of science or conservation...”
1972	UN Conference on the Human Environment	Stockholm declaration calls for safeguarding “representative samples of natural ecosystems...”
1975	Ramsar Convention enters into force	Parties must designate suitable wetlands for the List of Wetlands of International Importance (“Ramsar List”) and ensure their effective management
1982	3rd World Parks Congress	Objective to protect 10% of the terrestrial ecosystems
1987	Brundtland Commission	Called on countries to “triple” extent of protected areas (to ~12%)
1992	4th World Parks Congress	>10% of each major biome (by 2000)
1992	CBD	Calls for establishment of national systems of protected areas
2002	CBD COP 6	10% of the world’s ecological regions protected (Decision VI/9)
2002	World Summit on Sustainable Development	First Marine Protected Areas target: MPA networks established by 2012
2004	CBD COP 7	10% (+ effective, comprehensive, representative qualifiers) with time-bound milestones (Decision VII/28)
2010	CBD COP 10	Strategic Plan/Aichi Target 11: 17% terrestrial/10% marine ecosystems protected by 2020

in either convention. Indeed, protected areas have become so ingrained as a conservation tool that they have been frequently used as a proxy for biodiversity conservation effort overall (Chape et al., 2005).

This timeline of increasing political action and commitment parallels the dramatic surge in the number and extent of protected areas declared from the 1970s onward (Figure 1.1). While it is difficult to assign causality to the complex societal decisions that lead to protected area creation, the very fact that protected area extent can be easily measured and reported would make it more likely to be

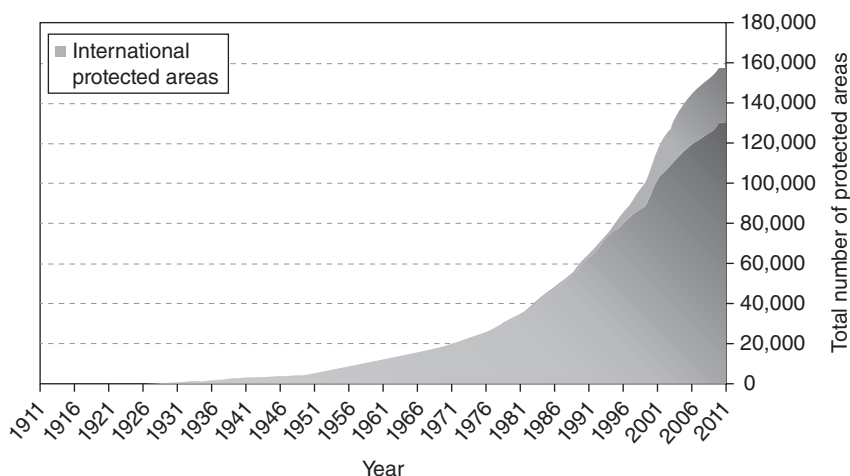


Figure 1.1 **Growth in number of nationally and internationally designated protected areas (1911–2011).** Source: Data from WDPa (2010)

implemented. As discussed below in relation to the CBD's increasing specificity of targets on protected areas, the successful implementation of any international commitment typically requires clear definition of requirements, targets, and milestones. Indeed, the past four decades of international discourse on protected areas has provided the tools that have led to the important achievements thus far.

The creation and ongoing expansion of protected areas in virtually all countries over the past 40 years have arguably been some of the greatest success stories in conservation. Overall, protected areas have become one of the most predominant land use categories on Earth (Chape et al., 2005). As of 2013, the World Database on Protected Areas (WDPA) listed over 205,000 designated protected areas, covering 12.7% of the global land area (outside Antarctica) and 7.2% of the coastal waters (0–12 nautical miles) (WDPA, 2010). Prompted by increasingly urgent scientific warnings on biodiversity loss and supported by an emerging international community of practice around protected areas, governments have been commendably responsive both through commitment and action in developing national protected area networks.

## **Role of the CBD and its Programme of Work on Protected Areas (2004)**

The CBD, signed at the Rio Earth Summit in 1992, has gradually emerged as the most comprehensive legal framework for protected areas. With 193 national parties, the CBD has near-universal global membership.<sup>1</sup> Article 8 of the Convention recognizes protected areas as a key strategy for biodiversity conservation, but it

originally provided little guidance or specificity for parties, beyond requiring each country to:

- Establish a national system of protected areas.
- Develop guidelines for their establishment and management.

This rather vague obligation, which in any case had been nominally met by most parties prior to their accession to the Convention, compelled little direct activity by countries in the initial years after the treaty's entry into force.

In fact, the CBD's weakness is that it was designed as a framework convention, much like the UN Framework Convention on Climate Change (which led to the Kyoto Protocol) or the Vienna Convention for the Protection of the Ozone Layer (which led to the Montreal Protocol). As such, it set out broad principles and did not impose true obligations on parties but rather was intended to be a springboard for subsequent protocols that would provide measurable targets and objectives obliging states to act. The CBD's work on protected areas has not yet resulted in a formal protocol, but an evolving series of negotiated decisions and reporting requirements related to protected areas increasingly bear many of the hallmarks of such a binding international agreement.

In 2004, at the 7th Conference of the Parties (COP 7) of the CBD, the first major decision on protected areas was adopted that substantially raised the bar on national commitments regarding protected areas. The decision, called the Programme of Work on Protected Areas (PoWPA), was an important attempt to create an implementation system by increasing the level of specificity of requirements, with implied obligations and responsibilities for parties to the Convention, including the adoption of time-bound interim targets for the achievement of a comprehensive and integrated system of protected areas. There are four elements of the PoWPA:

1. Establishing, strengthening, and managing protected area systems.
2. Strengthening governance, participation, equity, and benefit sharing.
3. Enabling activities/policy.
4. Fostering standards, assessment, and monitoring remain the building blocks of implementing national protected areas systems and reporting to the CBD on progress.

Notably, the PoWPA included a quantitative target that at least 10% of each country's terrestrial ecosystems be protected by 2010. The agreement to measurable time-bound goals was a significant achievement for a treaty that had few tools to encourage compliance at the time.

In truth, parties to the agreement have missed many of the PoWPA deadlines, but in the decade following COP 7, there has been a continuous effort to build on successes and strengthen protected area commitments through training,

development assistance and cooperation, and exchange. PoWPA remains the framework for implementing protected area goals, although it has been supplemented by the Strategic Plan Targets, the Aichi Targets, adopted at the CBD's 10th Conference of the Parties (COP 10).

## The CBD 2020 Strategic Plan and Aichi Target 11

The difficulties of measuring (much less achieving) progress toward the Convention's overall 2010 target<sup>2</sup> and the perceived success of the PoWPA model of cooperative progress toward specific goals led to a determination among many negotiators at the COP 10 (in 2010) to push for more measurable targets as part of the CBD's new strategy for the decade 2011–2020. The NGO community and many negotiators made frequent demands for targets that were Specific, Measurable, Attainable, Relevant, and Time sensitive (SMART). The resulting targets, called the Aichi Targets after the prefecture in Japan in which they were negotiated, included, among other numerical goals, a sizable increase in the extent of terrestrial protected areas to be achieved by 2020. Target 11 calls for at least 17% of the terrestrial and 10% of the marine ecosystems to be protected. It also includes important modifiers for these numerical targets, such as the requirements that protected areas cover key biodiversity areas and that they be areas important for ecosystem services, representative of ecosystems, well connected and linked to other area-based conservation measures, and integrated into wider landscapes and seascapes.<sup>3</sup>

How did negotiators arrive at these numerical targets and what was the comparative influence of science versus politics in motivating them? As can be seen from some of the other chapters in this volume, the science is not clear on how much protection is necessary, and the answer varies considerably by site. The scientifically derived, qualitative goals of Target 11 (related to representativeness, ecosystem services, and connectivity, among others) are overlapping and provide wide latitude for conservation planning that either maximizes or minimizes the land needed for protection. Unsurprisingly, the target percentages proposed in the negotiations varied widely. Prior to the COP, the draft text prepared by the CBD Secretariat included both 15 and 20% terrestrial targets in brackets (CBD, 2010b). Some countries suggested over 30%, and others held fast to the 10% target from the 2004 PoWPA decision or would have preferred no target at all. Some felt the number was not important, except for the fact that there needed to be a number against which to measure progress, adhering to the maxim that specificity of goals improves implementation. The marine target of 10% was retained from the 2004 PoWPA agreement, after considerable debate at the COP 10 (Spalding et al., 2013). This reflected the considerable remaining distance between current marine protected area (MPA) coverage, 1.31% in 2010, when the Aichi Targets and 2004 targets were being negotiated.

With no clear scientific prescription and nations suggesting a wide range of targets and goals, it was largely up to negotiators to come up with numbers that were at least scientifically plausible, achievable in the eyes of most governments, and preferably more extensive than what had been proposed in the 2004 PoWPA decision. The 17% target was ultimately a split-the-difference compromise based on the figures that had predominated in the lead-up discussions to the COP. It was determined neither by science nor politics but with deference to both and with the very practical aim of spurring countries to greater action by setting an ambitious yet attainable target. Yet how meaningful was the adoption of this target?

## **The importance of national implementation in the context of the global target**

Implementation of treaty obligations is important at multiple jurisdictions but no more so than at the national level. Only national governments can be accountable both to their international commitments and their own publics, be responsive to reporting requirements and international norms, and have the authority and legitimacy to make enforceable policy changes domestically.

Despite the specificity of many of its targets, the CBD Strategic Plan was designed to be a flexible framework that would allow nations considerable leeway in their own implementation actions. The global protected area target was relatively easy for countries to accept at the COP 10, because in doing so they were not actually taking a position on what they would do domestically. Each country is allowed to designate its own percentage of protection or need not establish a national numerical target at all (but all are urged to do so). While this legal loophole is important to countries to not jeopardize their formal compliance with the Convention, the target has nonetheless served as a benchmark against which both global and national performances are being evaluated.

For example, the 2012 Protected Planet Report provides a global analysis of current performance against the current global commitments (Bertzky et al., 2012). As the report notes, in terms of gross coverage, the world has already exceeded the previous target of 10% for terrestrial protected areas. The remaining gap to attain 17% of the terrestrial coverage requires an additional 5.5 million km<sup>2</sup>. When compared with the approximately 17 million km<sup>2</sup> already under terrestrial protection, this goal seems well within reach. The 10% marine target is somewhat more challenging, with a need for an additional 9.7 million km<sup>2</sup>, but is still numerically attainable (Spalding et al., 2013).

However, the situation looks more complex when one starts to incorporate the qualifiers in Aichi Target 11. Fewer than 50% of the world's 823 terrestrial ecoregions have close to adequate representation within the protected area network. In order to meet the target in terms of representativeness, an additional 10.8 million km<sup>2</sup> is required to fill the gap. Effective management also remains



elusive. According to a recent study, less than 30% of the protected areas have a management plan, and the actual level of effective management is likely to be less than 25% of all protected areas (Leverington et al., 2010). Quantitative assessments of the other components of Target 11—equity, connectivity, and landscape integration—are scarce, but the Protected Planet Report points to signs of progress in these areas (Bertzky et al., 2012) (Figure 1.2).

This global and ecoregional assessment is certainly helpful for seeing the big picture, but any appraisal of whether CBD target setting is useful for spurring action must examine progress at the country level. In addition to its work on the Strategic Plan and Aichi Targets, COP 10 adopted a protected area decision that called parties to develop protected area action plans that would provide a road map for the completion of their national systems (COP 10, Decision 31). Overall, the proposed national implementation goals identified in these plans are impressively in line with the 17% terrestrial target, indicating that countries are using the global targets as a benchmark. It is important to note that in many cases, the action plans themselves do not carry legal force at the national level and often do not fully address the means to achieve the quality and effectiveness goals called for by both the PoWPA and Aichi Target 11. However, of the parties identifying quantifiable targets in their protected area action plans, 70 countries stated goals of 10–30%, with 46 parties setting their target at or above 17%. These new national targets will presumably address many of the shortcomings in ecological representativeness identified in earlier studies. National expansion plans and targets for protected areas are largely based on the scientific gap analyses that were conducted under the original PoWPA commitments (and supported with Global Environment Facility (GEF) funding) in 2005–2009 and are likely to adhere to that scientific guidance (Figure 1.3).

In the marine realm, the Aichi Target is unclear as to whether the target pertains to territorial waters (up to 12 nautical miles from the shore) or countries' exclusive economic zones (EEZs), the 200 nautical mile area within which governments have more limited jurisdiction but can control fishing and other economic activities that are the most immediate threat to marine biodiversity. Forty-four countries have specified protected area targets ranging from 3 to 15%. Seventy parties whose combined waters add up to nearly half of the world's territorial waters have proposed marine targets which would amount to over 11% of their combined territorial waters being protected. This would surpass the global marine and coastal target of 10% protection without taking ecological representativeness into account. Twenty-eight countries and territories have over 10% MPA coverage in place already (Spalding et al., 2013). Interestingly, several small island developing states have set ambitious MPA targets of 25% or more although collectively they currently only have 2.8% MPAs. These large gaps between proposed national targets and current MPA coverage may raise doubts about the feasibility of implementation and effective management for those areas. Particularly for protection in the EEZs, the challenges of governance and enforcement of restrictions

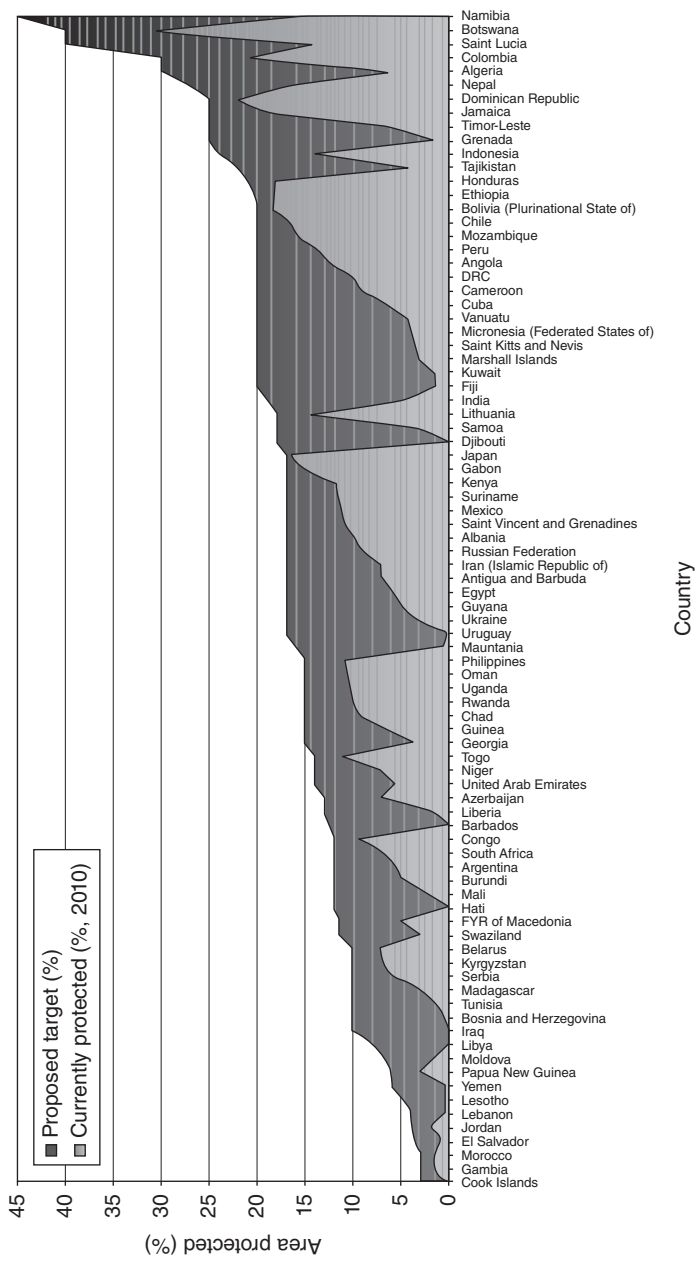


Figure 1.2 Current and targeted percent of terrestrial area under protection for 86 countries. Source: Data from CBD (2012)



Figure 1.3 Marine areas under protection and national MPA targets for 70 countries. Source: Data from CBD (2012)

over such large areas are daunting for small countries with limited personnel and other resources.

Many of these national commitments are still unaccompanied by the necessary implementation, budgets, or legislation, and they are sometimes based on the expert views of a country's CBD focal points, reflecting that experts' best understanding of what is scientifically appropriate and politically attainable at the national level. Nonetheless, the progress and intentions outlined in countries' reports to the CBD demonstrate a strong interest to conform to the international standard established by Aichi Target 11 for both terrestrial and marine areas.

One gap that cannot be addressed by specific national commitments is the need for MPAs in areas beyond national jurisdiction (High Seas). The Aichi Marine Target is not explicitly limited to territorial waters, but as agreement on the High Seas involves all nations, it is generally recognized that any formal commitment to establish protected areas in these zones must be made by the UN Convention on the Law of the Sea (UNCLOS).<sup>4</sup> However, both the CBD, through its work on ecologically and biologically significant areas (EBSAs), and IUCN's Global Ocean Biodiversity Initiative (GOBI) have contributed a large body of scientific and technical input to identify areas that might be designated and, in doing so, have helped raise the political salience of the issue and increased the probability of further action. At the UN Conference on Sustainable Development or Rio +20 in 2012, global leaders committed to "address, on an urgent basis, the issue of the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, including by taking a decision on the development of an international instrument under the United Nations Convention on the Law of the Sea" (United Nations, 2012). Although the task of achieving this vague global commitment will be exceptionally complex and time consuming for negotiators, it is being driven by a growing scientific consensus and technical support on the design of a High Seas protected area network.

## Sources of progress toward Target 11

Progress toward developing a truly global network of protected areas has been aided by a number of institutional factors in the past decade:

- **Increasing specificity of requirements:** Part of what increases the effectiveness of political commitments is perceived precision of the obligations and the focus on monitoring and reporting of those obligations (Mitchell, 2011). The protected area action plans called for at the COP 10 (in decision X/31), combined with the more ambitious protected area targets in the new Strategic Plan, have given countries clear guidance on expectations. Within 15 months after the adoption of the action plan reporting requirement, over 105 governments had submitted plans, a remarkable level of compliance.

- **Increased alignment of donor funding:** Clearer goals have also provided donors with increased confidence that their support for protected areas meets well-defined priorities and contributes to global environmental goals. International support for implementation has been critical to raise the level of ambition and change norms defining what is desirable or achievable in terms of protection. Most significantly, Germany's initiation and funding of the LifeWeb initiative in support of expansion of the global protected area network has galvanized action in dozens of countries.
- **Capacity building:** The CBD Secretariat organized eight regional workshops between May 2011 and June 2012, designed to help countries share experiences and, in many cases, help draft the PoWPA action plans over the course of the workshops. A GEF umbrella grant directly supported national workshops to kick-start development and implementation of the PoWPA in over 40 countries.
- **Sustained focus:** The 2004 PoWPA still forms operative basis for protected area implementation globally, even though the targets from 2004 have been superseded by the targets under the new Strategic Plan adopted in 2010. The PoWPA continues to address all the conditional elements of Target 11 and more. Its specifications have stood the test of time, even as some of the deadlines have been missed, and it continues to provide guidance for the development of National Biodiversity Strategies and Action Plans (NBSAPs) and other implementation arrangements.

As the CBD Secretariat stated, "Simply put, focused action (emanating from goals and decisions) linked with available funding and structure capacity development leads to implementation on the ground" (CBD, 2012).

## Strengthening the link between political commitment and action

International agreements, particularly environmental agreements, are difficult to enforce. They succeed largely by setting norms, creating a global community of practice, and requiring reporting and review systems that increase international scrutiny and hopefully encourage compliance. Nations are often viewed as complying with international environmental agreements out of a combination of self-interest (i.e., they implement what they would have implemented anyway in the absence of an agreement) and concern about potential reproach from the international community for lack of compliance (Chayes & Chayes, 1993; Downs et al., 1996). Assessing the value of international protected area instruments for driving change on the ground is particularly difficult in view of the fact that have almost universal adherence, which excludes the possibility of comparing the behaviors of signatories versus nonsignatories. In the near future, we may be able

to use the action plans to evaluate the success of countries in achieving the targets they have set for themselves and determine whether target setting has an impact on outcomes, as other studies have suggested (Baettig et al., 2008). At present, these national-level commitments are too recent to be reflected in outcomes discussed in the fifth national reports to the CBD (due March 31, 2014); it will take several more years before their full merit can be judged.

What can be said now is that the activity promoted by PoWPA has achieved many less quantifiable objectives that are clearly important to building long-term political support for protected areas. Though initially just a negotiated CBD decision, the PoWPA evolved into a multistakeholder partnership, which helped strengthen the community of practice around protected areas in many countries, encouraged South–South cooperation, and spurred donor interest that elevated the cause of protected areas within government bureaucracies. Transnational activities organized under the PoWPA umbrella kept the focus on implementation through a bottom-up approach of building capacity and knowledge among those directly responsible for implementation at the national level. These activities created a vital bridge between the high-level commitments negotiated in an international forum (i.e., the CBD COP) and the real work that was taking place on the ground. Strengthening domestic constituencies around protected areas further helps governments clarify their interests and thus participate with greater confidence in subsequent cooperative efforts and discussions. These all provide important foundations for improving implementation of commitments made thus far.

Still, significant opportunities to reinforce progress and incentivize further action exist. As a first step, the protected area targets and subtargets must be well incorporated and justified as part of the new cross-sectoral NBSAPs that are required by the new CBD strategy. The CBD Strategic Plan decision requires all countries to revise their NBSAPs to improve alignment with the Aichi Targets and develop national targets (including protected area targets) that constitute their contribution to the CBD's strategy, revising their NBSAPs accordingly. The subsequent protected area decision from the COP 11 (2012) in Hyderabad also called on parties to integrate national action plans for various work programs (such as the action plans developed under PoWPA) into updated NBSAPs; to undertake major efforts, with appropriate support to achieve all elements of Aichi Target 11 to improve specifically MPAs in areas within their jurisdiction; and to attain those goals of the PoWPA that are lagging behind (UNEP/CBD/COP/11/L.9).

Integration of the protected area action plans into NBSAPs is not a straightforward matter of inserting protected areas into an NBSAP framework, as the NBSAPs will have to respond to an interlocking set of Aichi Targets. Protected areas may be a strategy to deal with several of the targets, but evaluating the relative value of protection as opposed to other sectoral mainstreaming or policy approaches may involve a complex cost–benefit calculation, not to mention a heavy dose of politics.

While the previous set of NBSAPs drafted in 2002–2003 rarely were applied as effective policy setting documents, the new NBSAPs are intended to drive what needs to be done on a number of fronts and serve as the primary framework of action for implementation and the basis for accessing national budgets, as well as bilateral, multilateral, and other financial supports from donors. Continued capacity building and transnational engagement will also be vital: The NBSAP Forum launched in 2013 is designed to bring together a large community of stakeholders, donors, subject matter experts, and practitioners to support ongoing NBSAP development and assist the GEF-financed NBSAP revisions being managed in approximately 120 countries by the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP). This will be way of integrating protected areas into the conservation blueprint and should also form the basis for future funding.

## **Overcoming funding and policy barriers to implementation of protected area commitments**

Successful implementation of protected area commitments is not just a matter of political will: It also requires that real resource needs and policy gaps be addressed. The Aichi Targets and even the protected area targets specified in national plans were devised without a clear plan for paying for them. The numbers are indeed daunting: A recent analysis of the total cost of achieving Aichi Target 11 was estimated at US\$270 billion, or US\$33.75 billion per year between 2013 and 2020 (Ervin & Gidda, 2012). While the CBD is now working on its strategy for resource mobilization (itself the subject of a separate Aichi Target), there is widespread acknowledgment that few additional resources for protected areas are likely to come from direct budget allocations or traditional development assistance. This has spurred the search for more innovative finance mechanisms, such as payments for ecosystem services, compensation schemes that require investment in protection to offset biodiversity losses elsewhere, and addressing perverse incentives that harm protected areas and increase the cost of their establishment and maintenance. Targeted research is needed to measure the impacts of perverse subsidies on protected areas to shift the balance in government spending priorities that favor subsidies over meeting the comparatively modest funding requirements for effective conservation.

Addressing the finance gap is not just a budgeting problem. Scientific efforts must acknowledge and help resolve resource needs through better information about the cumulative impacts of human activities on biodiversity across the landscape. Information about the costs and benefits of various policy alternatives are often the most egregious of information gaps and the most significant barriers to conservation action. Assessing these trade-offs will require large landscape scale planning that integrates ecological values with competing production values that

may exist in the landscape. While the decisions about land use will ultimately be political, more science is needed to characterize and quantify the costs and benefits.

Specific policy advances would also help countries gain support for protected areas and help them achieve targets in a more flexible and cost-effective manner. As described by Rao et al. (in this volume, Chapter 10), incorporating the recognition of other area-based conservation measures (such as indigenous and community conserved areas (ICCAs) and private protected areas (PPAs)) into the protected system could be a relatively quick route for many countries to achieving the numerical goals of the target. Indigenous groups have been protected sacred areas and species for centuries and continue to do so even without formal protected area status. ICCAs are recognized in the PoWPA as providing an important part of achieving protected area goals. Estimates range widely about the extent of areas under community management and the extent to which these areas contribute to biodiversity, but the 2011 WDPA includes over 1.1 million km<sup>2</sup> of ICCAs at 700 sites, which represents only a small fraction of the more than 300 million km<sup>2</sup> estimated to be owned and administered by communities globally (WDPA, 2010). As was discussed by governments at the COP 11 in Hyderabad, India, in 2012, if the effectiveness of ICCAs can be better assessed and attributed, their recognition and inclusion in the protected area estate could help double the extent of the area effectively conserved.

Similarly, a huge share of biodiversity exists on private lands, such as those managed by individual landowners, nonprofits, or corporations. What are the opportunities to increase coverage, connectivity, and overall effectiveness of protected areas through PPAs? Few countries have laws on the books that allow for PPAs, and the challenges to designing effective systems of private governance are even more complex than for ICCAs. How do we ensure accountability for management by private owners, and how can permanence of the protected status of that property be guaranteed for the long term? Can these areas even be considered as protected areas? These are legal and policy questions, but the ultimate success of any approach relying on alternative forms of governance to enhance protected area networks will depend on a scientifically robust monitoring and indicator framework that can demonstrate the effectiveness of alternative approaches.

Private lands have an especially important role as countries put in place mainstreaming approaches that include mitigation and compensation requirements for major production sectors, such as energy, mining, and infrastructure. There are now 27 state programs globally that require implementation of the mitigation hierarchy (avoid impacts, minimize impacts, offset/compensate for residual impacts) implying a target of no net loss of biodiversity of natural habitat as a result of these development activities. Many of these either allow for or explicitly call for investment in new protected areas as a possible compensation mechanism for unmitigated impacts. For example, the government of Colombia in 2012 approved a regulation requiring mandatory offsets for all projects subject to



environmental licensing in the country. The license applicant will have to develop and maintain government-determined priority areas for conservation that are intended to compensate for the inevitable losses from development. These offset sites are explicitly planned to contribute to the creation and consolidation of areas in the National System of Protected Areas (SINAP) (Ministry of Environment and Sustainable Development, 2012). Though not without controversy, biodiversity offset mechanisms can be an efficient tool for increasing the connectivity and extent of land under conservation management and, ultimately, balancing conservation and development (McKenney & Kiesecker, 2009; BBOP, 2012).

## **Scaling up ambition and achieving sustained public support**

The world's governments have formally agreed to a set of global protected area targets that appear to be realistic and attainable. The record on national-level commitments and implementation thus far indicates both action and intent to follow through on these commitments. However, this commendable record falls short on at least two fronts: The momentum generated thus far may not be self-sustaining in an era of increasing pressures on the land and waters and declining state budgets; and more importantly, the targets specified may be insufficient to halt biodiversity loss even if fully implemented (Brooks et al., 2004; Rodrigues et al., 2004). Keeping the momentum for action going and spurring the still deeper commitments that many believe are necessary will paradoxically require that protected areas not be viewed in isolation but as a vehicle to achieve a broad range of conservation and other societal goals.

Scaling up the targets themselves should not just be a numbers game; it must have a purpose. It must include efforts such as improving the functionality of protected areas at a landscape level or increasing connectivity among sites. Protected areas can be a cost-effective means of achieving many other Aichi Targets, including habitat loss (Target 5), anthropogenic pressures on coral reefs (Target 10), species status (Target 12), genetic diversity of crops (Target 13), restoration of ecosystem services (Target 14), and climate resilience (Target 15). To strengthen support for protected areas, policy makers should not place them in a box as an isolated strategy but explicitly integrate them as an efficient and cost-effective method for achieving a broad set of conservation objectives.

Linkages to the climate change agenda can also support expanding protected area networks. Protected areas can be an important climate change response strategy by helping buffer local climate variability; reducing the impacts of droughts, storms, and flooding; and maintaining ecosystem integrity and ecosystem services. The reality of climate change further calls for increasing the size and connectivity of protected areas to provide opportunities for species mobility (Dudley et al., 2010).

Perhaps the most significant qualifier for Aichi Target 11 is that protected areas should cover zones important for their ecosystem services. Ecosystem services define nature in relation to the benefits that people derive from it, such as water, food, storm protection, and cultural values. Ecosystem services are becoming an increasingly important framing device for discussing conservation and the value of nature (MEA, 2005; CBD, 2010c; TEEB, 2010). The use of protected areas to provide coastal protection against storms and sea-level rise and their role in providing food security (particularly fish) or for carbon storage provides a new way of thinking about protected areas as natural infrastructure and a viable alternative to building infrastructure. It also provides potential means to build new constituencies for protected areas based on the communities that benefit from those services.

While protected areas clearly support many environmental treaties and targets, more significantly, they need to be seen as a core *development* strategy. After the Rio +20 Summit in 2012, governments embarked on the negotiation of the Sustainable Development Goals (SDGs), adopted by the UN General Assembly in late 2015. Unlike the earlier Millennium Development Goals, the SDGs are intended to apply to developed and developing countries alike, providing a universal foundation for action. Protected areas are an obvious tool for achieving SDG 14 “Conserve and sustainably use the oceans, seas and marine resources” and SDG 15 “Protect, restore and promote sustainable use of terrestrial ecosystems”, but they can also contribute to a number of other goals and targets:

<b>Sustainable Development Goal</b>	<b>Protected areas contribution</b>
Goal 1. End Poverty	Indigenous and community-managed protected areas support targets 1.4 and 1.5
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	PAs support target 2.4, on maintenance of ecosystems, and 2.5, on plant genetic diversity
Goal 3. Ensure healthy lives and promote well-being	PAs provide recreational benefits and support mental health and wellbeing (target 3.4)
Goal 6. Ensure availability and sustainable management of water and sanitation	PAs can protect watersheds and water-related ecosystems (target 6.6) and support integrated water resource management
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	PA contribute to targets 11.4 on the safeguarding natural heritage, 11.5 on disaster risk reduction, 11.7 public green space

Goal 12. Ensure sustainable consumption and production patterns	Protection supports target 12.2 on sustainable management of natural resources
Goal 13. Take urgent action to combat climate change and its impacts	Protected areas provide carbon sequestration and are a resilience/adaptation strategy

Protected areas can serve as mechanisms to help meet many of the SDGs, but this knowledge is not well understood by many outside of the conservation community. Conservation scientists must be prepared to engage with human development initiatives in a measured and sustained fashion and demonstrate the advantage of this approach to policy makers who may view it as a distraction at best and antagonistic to development goals at worst. Conservationists must reframe the costs versus benefits debate and move away from the notion that protected areas are a developed country construct and somehow inimical to local values and needs in other parts of the world. Developing the case for protection as a cross-cutting element in the SDGs will require data as well as reasoned argument; acquiring this hard evidence should be on the core agenda of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).

As much as ecological precepts have largely defined the scope of protected areas to date, demonstrating the centrality of ecosystems to human health and prosperity will be the urgent task to retain and build on past success. The value of protected areas will be enhanced if their application is embedded across a web of interrelated policy agendas, goals, and obligations. Scaling up effectively means integrating protected areas into the development agenda and protected areas must not be seen as a residual strategy but rather as a core strategy for development.

## Notes

1. The United States signed but has not ratified the CBD. It participates as an observer.
2. The 2010 overall target was “To achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on earth,” adopted in 2002 at the COP 6 in the Hague.
3. The full text of Target 11 reads: By 2020, at least 17% of terrestrial and inland water and 10% 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 landscapes and seascapes.
4. Regional Fisheries Management Organisations (RFMOs) may also in some cases designate MPAs on the High Seas, but these are only binding on parties to the given RFMO; they cannot restrict third-party behavior.

## References

- Baettig, M. B., Brander, S., & Imboden, D. M., 2008. Measuring countries' cooperation within the international climate change regime. *Environmental Science and Policy*, 11(6), p. 478–489.
- BBOP, 2012. *Standard on biodiversity offsets*, Washington, DC: BBOP.
- Bertzky, B. et al., 2012. *Protected planet report 2012: Tracking progress towards global targets for protected areas*, Gland & Cambridge: IUCN & UNEP-WCMC.
- Brooks, T. M. et al., 2004. Coverage provided by the global protected area system: Is it enough. *BioScience*, 54(12), p. 1081–1091.
- CBD, 2004. *Decisions adopted by the CoP to the CBD at its 7th meeting (UNEP/CBD/COP/7/21)*, Montreal: Secretariat of the CBD.
- CBD, 2010a. *Decisions adopted by the CoP to the CBD at its 10th meeting (UNEP/CBD/COP/DEC/X/2)*, Montreal: Secretariat of the CBD.
- CBD, 2010b. *Global biodiversity outlook 3*, Montreal: Secretariat of the CBD.
- CBD, 2010c. *Recommendations adopted by the WGRI at its 3rd meeting (3/5)*, Montreal: Secretariat of the CBD.
- CBD, 2012. *Protected areas: Progress in the implementation of the programme of work and achievement of Aichi biodiversity target 11 (UNEP/CBD/COP/11/26)*, Montreal: Secretariat of the CBD.
- Chape, S., Harrison, J., Spalding, M., & Lysenko, I., 2005. Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets. *Philosophical Transactions of the Royal Society of London Series B*, 360(1454), p. 443–455.
- Chayes, A. & Chayes, A. H., 1993. On compliance. *International Organization*, 47(2), p. 175–205.
- Dillon, B., 2004. The use of the categories in national and international legislation and policy. *PARKS*, 14(3), p. 15–22.
- Downs, G. W., Rocke, D. M. & Barsoom, P. N., 1996. Is the good news about compliance good news about cooperation. *International Organization*, 50(3), p. 379–406.
- Dudley, N. et al., 2010. *Natural solutions: Protected areas helping people cope with climate change*, Gland/Washington, DC & New York: IUCN-WCPA, TNC, UNDP, WCS, World Bank & WWF.
- Dyer, M. I. & Holland, M. M., 1988. UNESCO's man and the biosphere programme. *BioScience*, 38(9), p. 635–641.
- Ervin, J. & Gidda, S., 2012. *Input to the report of the high level panel on global assessment of resources for implementing the strategic plan for biodiversity 2011–2020: Target 11*, Hyderabad: UNDP & CBD.
- Leverington, F. et al., 2010. A global analysis of protected area management effectiveness. *Environmental Management*, 46(5), p. 685–698.
- Ministry of Environment and Sustainable Development, 2012. *Manual for allocating offsets for loss of biodiversity*, Bogota, Republic of Colombia.
- McKenney, B. A. & Kiesecker, J. M., 2009. Policy development for biodiversity offsets: A review of offset frameworks. *Environmental Management*, 45(1), p. 165–176.
- MEA, 2005. *Ecosystems and human well being: Biodiversity synthesis*, Washington, DC: World Resources Institute.

- Mitchell, R. B., 2011. Transparency for governance: The mechanisms and effectiveness of disclosure based and education based transparency policies. *Ecological Economics*, 70(11), p. 1882–1890.
- Phillips, A., 2004. The history of the international system of protected area management categories. *PARKS*, 14(3), p. 4–14.
- Rodrigues, A. S. L. et al., 2004. Effectiveness of the global protected area network in representing species diversity. *Nature*, 428, p. 640–643.
- Spalding, M. D. et al., 2013. Protecting marine spaces: Global targets and changing approaches. *Ocean Yearbook*, 27, p. 213–248.
- TEEB, 2010. *The economics of ecosystems and biodiversity: Mainstreaming the economics of nature—A synthesis of the approach, conclusions and recommendations of TEEB*, Malta: Progress Press.
- UNESCO, 2013. Mongolia Sacred Mountains: Bogd Khan, Burkhan Khaldun Khaldun, Otgon Tenger. [Online] Available at: <http://whc.unesco.org/en/tentativelists/936/> [Accessed March 26, 2013].
- United Nations, 2012. *Resolution adopted by the general assembly: 66/228 The future we want*, New York: United Nations.
- WDPA, 2010. *The World Database on Protected Areas (WDPA)*, Gland & Cambridge: IUCN, UNEP-WCMC.