

How Much Will Effective Protected Area Systems Cost?

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BACKGROUND

Protected areas are the cornerstone of conservation efforts worldwide. Still, thousands of protected areas (PAs), most dramatically those in the developing world, suffer from an extreme shortage of funding, resulting in inadequate staff, vehicles, fuel, and other basic management necessities (James *et al.* 1999, Wilkie *et al.* 2001). Many areas have no budget at all (IUCN 1999). At the same time, there is a clear need to expand the world's PA systems to include unprotected areas of irreplaceable biological importance that will be lost if we do not act soon (Rodrigues *et al.* 2003, Pimm *et al.* 1995). Such an expansion will further increase financial needs.

Even though basic management has allowed parks to achieve impressive conservation successes (Bruner *et al.* 2001), persistent budget shortfalls have resulted in serious degradation in PAs around the world. Examples include Ghana's "empty forest" parks (Oates 1999), oil spills in protected areas in Ecuador (van Schaik 1997), and illegal logging and clearing of parks in Indonesia (EIA/Telepak Indonesia 1999). This degradation threatens both biodiversity and the numerous market and non-market benefits that PAs provide to local and global communities (Balmford *et al.* 2002).

existing PAs in all developing countries. In 1999, James *et al.* published a study suggesting that this cost is approximately \$2.5 billion annually². Their estimate was based on assessments by over 600 PA agencies of their own needs. Recent work to model protected areas costs in developing countries supports this estimate. Vreugdenhil (2003) developed a model of core PA operations that estimates the cost of 50 basic management components according to national prices, PA size, and level of threat. An application of this model to all PAs in developing countries and countries with economies in transition suggests total costs of \$1.1 billion per year to cover basic expenses, as the foundation to which other management costs must be added. Balmford *et al.* (2003) collected expert estimates of management cost for over 150 individual sites worldwide, and used this information to derive a model of how PA costs vary across the world. This model was able to explain over 80 percent of the variation in costs based on PA size, gross national product, and purchasing power parity. An updated version of this model, using information from an additional 140 PAs and adding a term for Human Development Index category, suggests that costs across the developing countries total \$1.7 billion annually (Bruner *et al.* in progress).

These estimates place a workable bound on total annual costs at between \$1.1 billion to cover core operations (e.g., staff salaries, vehicles, and fuel) and \$2.5 billion to cover the broader range of actions necessary to ensure management is effective in the long term (e.g., capacity

PROTECTED AREA MANAGEMENT COSTS IN DEVELOPING COUNTRIES

Total needs for existing protected area systems¹

Independent studies are now arriving at similar conclusions about the magnitude of the total cost of effectively managing

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building, broader community involvement, and planning). This bound is made more credible by the fact that the three studies cited above used entirely different methodologies. Further, the higher estimates include more cost components: the low estimate focused exclusively on core operations costs, the middle estimate covered all costs at the site level, and the high estimate covered all costs necessary across entire national PA systems.

Current spending and the funding deficit for existing protected areas

These costs significantly exceed estimated current spending in developing countries of \$0.8 billion per year (James *et al.* 1999, adjusted for inflation). It is inaccurate to compare this \$0.8 billion to the estimated cost of \$1.1 billion, since the latter covers core costs alone, and core costs constitute only a fraction of current spending. The total shortfall in annual funding in developing countries is therefore likely to be greater than \$1 billion, with significant shortfalls in both core operations costs as well as overall management needs.

Costs of protected area system expansion

Funding needs go beyond ensuring effective management of existing areas – additional funding is also needed to expand the world’s PA systems into unprotected areas of irreplaceable biological value. A PA expansion to the most immediate terrestrial priority areas in developing countries (Rodrigues *et al.* 2003), cumulatively covering an area of approximately 3.5 million km² (a 30% increase) would increase annual management needs by an estimated \$1.8 billion per year, bringing total cost to \$3-4 billion. Costs of placing new areas under protection, in terms of land purchases, compensation payments, and start-up costs, will also be significant. A rough estimate suggests that these could total, at the outside, as much as \$9 billion per year for the next 10 years, bringing the total need for expanding and managing PA systems in

developing countries to \$12-13 billion per year over the next decade (Bruner *et al.* 2003).

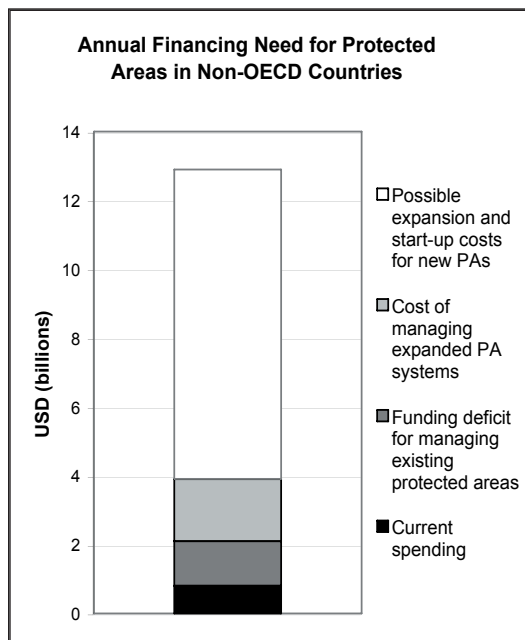
MEETING THE FINANCIAL NEED: RECOMMENDATIONS TO COP-7

It is useful to put these figures in perspective. The total cost of effective protected area management in developing countries, whether \$3 or \$4 billion per year, is considerable, but is also less than 10 percent of what Americans spend each year on soft drinks (CSPI 2003), and less than half of one percent of what governments spend globally each year on environmentally harmful subsidies (James *et al.* 1999a, Myers 1998, van Beers *et al.* 1999). It is also important to take into account that in many cases the protection of biologically important areas

provides direct economic benefits greater than the costs of PA establishment and management, both globally and locally (Balmford *et al.* 2002). For example, Carret and Loyer (2003) show that effective management of the existing PA network in Madagascar would cost around \$95 million in management and lost agricultural production, but would generate over \$145 million in local benefits from watershed protection and other sources.

In recognition of the importance of protected areas, the draft CBD programme of work on protected areas to be adopted at COP-7 con-

tains a worthy target to address the funding gap: “to secure by 2008 sufficient resources to meet the costs to effectively implement and manage national and regional systems of protected areas” (UNEP/CBD/COP/7/15, Annex). Given the scope of the shortfall, meeting this goal will require that all appropriate mechanisms be used to significantly increase the scale of support for PA management. At local levels, tools like ecotourism and policies to promote payment for ecosystem services may have significant potential. At the national level, important mechanisms include environmental exit taxes on visitors and increased long-term domestic funding. At the international level, it is critical to note that the benefits of



protected areas are enjoyed around the world, at least in equal share by developed countries. Significantly increased direct financial support from developed countries to PA systems in developing countries is therefore also justified, even on strict economic grounds. Indeed, while the local and national level tools mentioned above have considerable potential, given both the scale and urgency of the need, greatly increased direct financial support from developed countries will be central to the success of PAs world wide, at least in the near future (Balmford & Whitten 2003, Lele 2002, Nasi *et al.* 2002, Wilkie *et al.* 2001). Finally, it is critical to ensure that increased funding actually reaches PA managers, to be used for on-the-ground management.

While further study may be necessary to determine which mechanisms will be most useful and how to use new funds most efficiently, broad knowledge of the total scope of the need affords a major opportunity for the Parties to the CBD to make concrete commitments against a clear target at COP-7. Global cooperation in supporting the financial security of protected areas will make a critical contribution to reducing biodiversity loss and to promoting a future where healthy, natural areas are an integral part of sustainable development.

Footnotes

¹ All studies cited here refer only to terrestrial areas. Work on marine costs is in progress, and will likely add significantly to total needs.

² After adjustment for inflation. There has been significant growth in the global PA system since these calculations were made, suggesting that total costs are now higher than the reported \$2.5 billion.

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