

Sustainable Financing of Protected Areas

A global review of challenges and options

Lucy Emerton, Joshua Bishop and Lee Thomas



Sustainable Financing of Protected Areas: A global review of challenges and options



Rue Mauverney 28
1196 Gland
Switzerland

Tel +41 22 999 0000
Fax +41 22 999 0002
mail@iucn.org
www.iucn.org

Best Practice Protected Area Guidelines Series No. 13

These Guidelines are one of the Best Practice Protected Area Guidelines series.

The Series Editor for Nos 1–12 was Prof. Adrian Phillips. The current Series Editor is Prof. Peter Valentine.

Other publications in the series are as follows:

National System Planning for Protected Areas. No. 1. Adrian G. Davey, 1998, x + 71pp. Also available in Chinese.

Economic Values of Protected Areas: Guidelines for Protected Area Managers. No. 2. Task Force on Economic Benefits of Protected Areas of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Service Unit of IUCN, 1998, xii + 52pp. Also available in Russian.

Guidelines for Marine Protected Areas. No. 3. Graeme Kelleher, 1999, xxiv + 107pp.

Indigenous and Traditional Peoples and Protected Areas: Principles, Guidelines and Case Studies. No. 4. Javier Beltrán, (Ed.), IUCN, Gland, Switzerland and Cambridge, UK and WWF International, Gland, Switzerland, 2000, xi + 133pp. Also available in Spanish.

Financing Protected Areas: Guidelines for Protected Area Managers. No. 5. Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Unit of IUCN, 2000, viii + 58pp.

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A global review of challenges and options



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Peter Valentine, Series Editor

World Commission on Protected Areas
Best Practice Protected Area Guidelines Series No. 13

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- Published by: The World Conservation Union (IUCN), Gland, Switzerland
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- Citation: Emerton, L., Bishop, J. and Thomas, L. (2006). *Sustainable Financing of Protected Areas: A global review of challenges and options*. IUCN, Gland, Switzerland and Cambridge, UK. x + 97pp.
- ISBN-10: 2-8317-0881-8
ISBN-13: 978-2-8317-0881-2
- Cover design by: IUCN Publications Services Unit
Cover photos: Front: Tombstone Mountains, Dempster, Yukon Province, Canada, IUCN Photo Library © *Jim Thorsell*
Back: (clockwise from upper left): Volcanoes of Kamchatka, Russian Federation; Children in the Kibale forest, Uganda; Fishermen in Banc d'Arguin National Park, Mauritania; A zebra in Etosha National Park, Namibia
IUCN Photo library © *Jim Thorsell*
- Layout by: IUCN Publications Services Unit
Produced by: IUCN Publications Services Unit
Printed by: Thanet Press Ltd, Margate, UK
Available from: IUCN Publications Services Unit
219c Huntingdon Road, Cambridge CB3 0DL
United Kingdom
Tel: +44 1223 277894
Fax: +44 1223 277175
E-mail: books@iucn.org
www.iucn.org/bookstore
A catalogue of IUCN publications is also available.

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Foreword

Dear Friends and Colleagues

The IUCN/WCPA Best Practice Series commenced in 1998. As with many good ideas, the origins can be traced back to discussions over a bottle (or two) of wine between staff from IUCN's Programme on Protected Areas and the then Chair of WCPA, Adrian Phillips. The original concept was of a guideline series that would draw on knowledge and experience from WCPA members and from protected area managers around the world, and distil this collective knowledge into practical and useful advice for all involved in protected areas. Each Best Practice Guideline has addressed a topical issue for protected area management and has consolidated the thinking of leading protected area thinkers from around the world in relation to the topic under review. They have been widely distributed and, increasingly, translated into many languages, including Chinese and Russian.

The outstanding success of the Best Practice Series is a tribute to the hard work, dedication, competence and incredible editing skills of Adrian Phillips, the Series Editor for the first 12 Guideline Documents. IUCN would like to place on record its enormous appreciation to Adrian for all he has achieved. IUCN would also like to thank Cardiff University in Wales, which has provided financial support and an institutional home for the Guideline Series – without this support the initial idea would never have become a reality.

This document represents Guideline Number 13 in this series and future topics have been “booked up” until 2008. It also represents a period of transition – with Professor Peter Valentine, from James Cook University in Australia (Queensland) taking over the role of Series Editor from Adrian Phillips, and the host of the Guideline Series moving from Cardiff University to James Cook University with support from the Cooperative Research Centre for Tropical Rainforest Ecology and Management (CRC Rainforest Centre). IUCN would like to place on record its most sincere appreciation to James Cook University for the generous support offered.

David Sheppard
Head, Programme on Protected Areas
The World Conservation Union (IUCN)

IUCN's World Commission on Protected Areas (WCPA) prepared Guidelines on Financing Protected Areas in 2000. At that time there was an expectation that by the time of IUCN's World Parks Congress, or shortly thereafter, a new edition might be available. This document is a greatly expanded and quite different study that reflects the increasing sophistication with which financial and funding issues for protected areas are now considered. The changing global and financial environments faced by protected area agencies and managers include the unpalatable reality that competition for government funds has led to greater funding shortfalls for protected area management. This Guideline sets out the background to financing protected areas and identifies a series of approaches towards PA financial sustainability. The Guideline includes many examples and case studies that give protected area managers some familiar stories of funding challenges as well as some excellent indications of the way forward.

It is clear that there remains a crucial task to remind governments of their responsibilities for protected areas as well as to help society appreciate the economic and other benefits of protected areas (the implementation of the money generation model in US National Parks is an example of the latter). However, the authors of these guidelines have drawn together the most recent thinking about practical approaches to financial support for protected areas. Their conclusions are harmonious with the increasing emphasis on ecosystem-based management that IUCN has been developing over the past decade. While the current enthusiasm for returns based on payment for ecosystem services is explored, the authors clarify and illustrate some of the pitfalls and limitations behind this and other approaches.

This volume is a little different from many previous Guidelines in its emphasis on understanding the complex issues of financing protected areas as well as helping managers find solutions from the experience gained in many protected areas across the world. The authors also provide recommendations for a range of readers including governments, NGOs and protected area managers. I commend it to all and invite you to work for the implementation of sustainable financing of protected areas.

Peter Valentine
Series Editor

Acknowledgements

This report was prepared by the World Conservation Union (IUCN) as a contribution to the Programme of Work on Protected Areas of the Convention on Biological Diversity. Support for this work was generously provided by the German Federal Agency for Nature Conservation (BfN) with funding from the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The report was written by Lucy Emerton and Joshua Bishop of IUCN with Lee Thomas of the World Commission on Protected Areas. Helpful comments on early drafts of this report were received from Horst Korn of BfN, David Sheppard of IUCN, Axel Benemann of BMU and many others. Revisions to the report have also been informed by the deliberations of the Expert Meeting in Preparation of the First Meeting of the Ad Hoc Open Ended Working Group on Protected Areas, held 17–22 May 2005 on the Isle of Vilm, at which a draft of this report was presented and discussed. The report does not necessarily reflect the views of IUCN officers, members or the funding organizations. The authors are entirely responsible for any errors or omissions. This publication has been made possible in large part by funding from James Cook University and IUCN.

Acronyms

BEF	Biodiversity enterprise fund
BFN	Bundesamt für Naturschutz (German Federal Agency for Nature Conservation)
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CO ₂	Carbon dioxide
COP	Conference of the Parties
GDP	Gross Domestic Product
GEF	Global Environment Facility
IUCN	The World Conservation Union
MDG	Millennium Development Goals
NBSAP	National Biodiversity Strategies and Action Plan
NGO	Non-governmental organization
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PA	Protected Area
PES	Payments for ecosystem services
PoW	Programme of Work on Protected Areas
Ramsar	Ramsar Convention on Wetlands of International Importance
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WCMC	World Conservation Monitoring Centre
WHC	World Heritage Convention
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature

1. Introduction

Over the past two years, discussions on Protected Area (PA) finance have formed a key agenda item during global deliberations on biodiversity conservation. Both the Vth IUCN World Parks Congress (Durban, September 2003) and the seventh Meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (Kuala Lumpur, February 2004) observed that insufficient investment is being made in biodiversity conservation in general and protected areas in particular. Both meetings called for innovative approaches to generate the additional funding required to ensure that biodiversity of global, national and local significance is conserved. A recent international meeting on biodiversity science and governance, hosted by UNESCO and the government of France (Paris, January 2005), likewise identified finance as one of several critical issues to be addressed if the world is to meet the CBD/WSSD 2010 Biodiversity Target. A particular concern in all of these processes has been the level and types of funding available for PAs, which lie at the core of global efforts to conserve biodiversity.

In the course of the last decade many efforts have been made to increase funding for PAs. A range of innovative financing mechanisms have been developed and implemented. However, the extent to which these mechanisms have improved the financial sustainability of PAs or have made an appreciable contribution to biodiversity conservation remains less clear.

Reflecting these concerns, this document aims to review and assess the status of various PA finance mechanisms, the major obstacles and opportunities for their implementation, and the potential for improvement. The specific objectives of the study on which this report is based were to:

- Review and assess the effectiveness of financial instruments for protected areas, including barriers to their use;
- Recommend how to improve and promote the implementation of financial instruments; and
- Identify the way forward in the context of the CBD Programme of Work on PAs.

This report is based on a review of available literature and consultation with protected area experts around the world. It seeks to identify lessons from recent experience on the key factors which influence the success of different financing mechanisms, and to provide recommendations for improving the future sustainability, efficiency and effectiveness of PA financing. The analysis is supported by 29 case studies – summarised in boxes throughout the text – which provide concrete examples of how specific financing mechanisms are being used in a range of contexts. The case studies are extracted mainly from recent publications. They were selected as typical illustrations of particular financing issues and are not intended as illustrations of “best practice” in PA financing.

The document is targeted primarily at government and non-government agencies responsible for funding and managing PAs, although some findings may also be relevant to private companies involved in PA management. The structure of the report is as follows:

Part I presents the background and conceptual framework within which we investigate PA financing:

- **Chapter 2** assesses the recent status of and trends in PA financing. It describes why financial resources are required to manage PAs, identifies the factors that influence the amount of funding reaching PAs, and considers whether current financial flows to PAs are adequate.
- **Chapter 3** examines the concept of PA financial sustainability in more detail. It elaborates how financial constraints act as obstacles to effective biodiversity conservation in PAs, and establishes a conceptual framework against which PA financing mechanisms can be judged.

Part II defines and describes different mechanisms for financing PAs, and reviews their strengths and weaknesses in light of real-world experiences:

- **Chapter 4** offers a typology of financing mechanisms, reviews examples of their application in different countries, ecosystems and PAs, and identifies lessons learned about the factors which influence their success.

- **Chapter 5** considers mechanisms for attracting and administering external flows of funds to PAs, including government budgets, bilateral, multilateral and non-governmental organization (NGO) funds, environmental funds and debt-for-nature swaps.
- **Chapter 6** considers mechanisms for generating funding to encourage conservation activities, including fiscal instruments, benefit sharing and revenue sharing, cost-sharing, investment, credit and enterprise funds.
- **Chapter 7** considers mechanisms for making market-based charges for PA goods and services, including tourist charges, bio-prospecting, resource extraction fees and payments for ecosystem services.

Part III identifies lessons learned and points the way forward in improving the sustainability, efficiency and effectiveness of PA financing:

- **Chapter 8** draws conclusions about the factors which influence how financing mechanisms contribute to PA financial sustainability and management effectiveness.
- **Chapter 9** offers recommendations for improving the sustainability, efficiency and effectiveness of PA financing.

Part I:

Background and conceptual
framework

2. Protected area finance: status and trends

Key messages in this chapter:

- While protected areas (PAs) operate under a range of different objectives, regimes and authorities, most share a common goal – effective biodiversity conservation.
- Financial resources are required to cover the direct and indirect costs associated with PAs, but the overarching aim of raising and allocating financial resources for PAs is to contribute towards effective biodiversity conservation.
- Governments are committed to fund PAs through their endorsement of various environment and development-related agreements, policies and strategies, all of which require or call for funds to be made available for biodiversity conservation.
- Although there is currently substantial funding for PAs, mainly from international donors and national governments, these sources have failed to keep up with the expansion of PAs in recent years, reflecting both changing national and international development priorities and growing public sector budget constraints.
- Funds allocated to PAs have not always resulted in long-term sustainable conservation outcomes, as much PA finance has been short term and focused on capital investment, with very limited support for sustaining PA structures and institutions over time.
- Concern remains that current financial flows are inadequate to sustain let alone to expand PA networks, particularly in under-represented marine environments. Hence conventional sources of PA funding will need to be supplemented by other means.

2.1 Funding protected areas for biodiversity conservation

Defining protected areas

IUCN defines a protected area as “an area of land and/or sea especially dedicated to the protection and maintenance of biodiversity, and of natural and associated cultural resources, and managed through legal or other effective means”.¹ Protected areas form the core of conservation efforts around the world.² Over the past four decades there has been a ten-fold increase in the number of protected areas listed by the UN, with over 104,000 sites reported in a recent assessment (Figure 1). The area under protection has likewise expanded, from 2.4 million km² in 1962 to over 20 million km² in 2004.³ Roughly 12% of the global land surface is now defined as protected area.

To this must be added an unknown area of land that private owners and local communities have set aside for a variety of reasons including recreation, speculation or simple preservation. At the limit, protected areas also include some agricultural, timber and other “productive” lands that are managed in ways that conserve biodiversity or particular landscape features, through the maintenance of field boundaries, native vegetation, limited use of pesticides and other measures. Biodiversity conservation is thus increasingly recognised as a range of activities undertaken across an entire landscape or seascape, including but not restricted to PAs registered on the UN list.⁴ This report focuses on the special challenge of financing publicly-owned PAs, but also draws lessons from recent innovations in funding conservation on private land and/or land mainly used to produce commodities.

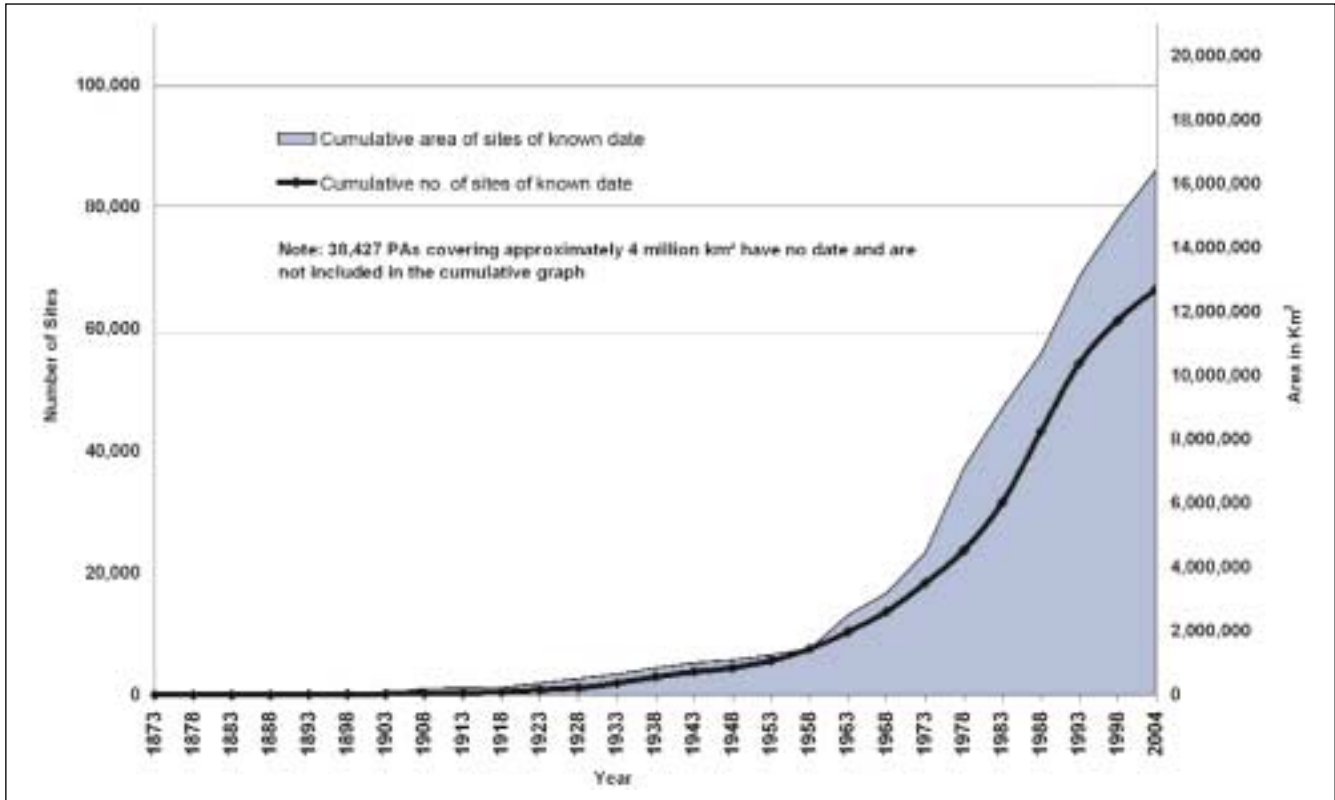
¹ Chape *et al.*, 2003.

² The case for protected areas as a means of conserving biodiversity is made by, for example: Bruner *et al.*, 2001; Mace *et al.*, 1998; WWF, 2004.

³ Chape *et al.*, 2005.

⁴ McNeely and Scherr, 2003; Hunter, 1999; Pagiola *et al.*, 2002.

Figure 1. Cumulative growth of global protected areas over time



Source: Chape *et al.*, 2005.

Protected area management

PAs can be grouped into categories according to their management objectives (Box 1). These include a range of different regimes ranging from strict protection, through non-consumptive use, to extractive resource utilization. In practice, most PAs combine several different management objectives. There are also many different legal and customary arrangements under which the lands and species that comprise PAs are owned or managed. PA management authorities include government agencies, private businesses, non-governmental organizations, private individuals and local communities. In recent years there has been substantial growth in the number of PAs managed by agencies other than governments. Most privately-owned and community-conserved areas are not included in the UN list of PAs, however, in spite of their potentially significant contribution to biodiversity conservation.⁵

Box 1. IUCN Protected Area Categories	
Category I	PA managed mainly for science or wilderness protection (Strict Nature Reserves and Wilderness Areas).
Category II	PA managed mainly for ecosystem protection and recreation (National Park).
Category III	PA managed mainly for conservation of specific natural features (Natural Monument).
Category IV	PA managed mainly for conservation through management intervention.
Category V	PA managed mainly for landscape/seascape conservation and recreation (Protected Landscape/Seascape).
Category VI	PA managed mainly for the sustainable use of natural ecosystems (Managed Resource Protected Area).

⁵ Chape *et al.*, 2003.

Using financial resources to strengthen biodiversity conservation

Regardless of their different objectives, management regimes or authorities, all categories of PA share a common rationale and overarching goal – effective biodiversity conservation, including natural, cultural, historical and socio-economic aspects. Different categories of PA reflect different means of achieving this end, as well as the extent to which other objectives are accommodated. Likewise, a key goal, and need, in raising funds for PAs is to contribute towards more effective biodiversity conservation.

Many arguments have been advanced over the years to support the case for conserving biodiversity, and thus for PAs. These include utilitarian justifications based on the contributions of PAs to human well-being, as well as appeals to moral concepts of a duty of care (or “stewardship”), spiritual and cultural values, or the inherent “rights” of non-human species and ecosystems. The adoption of the Millennium Development Goals by the United Nations General Assembly in 2000, as well as the re-framing of conservation in terms of “ecosystem services” in the recently published Millennium Ecosystem Assessment, both have profound implications for PAs, especially in the developing world. Increasingly, international discussions of PA finance are couched in terms of the actual or potential contribution of PAs to poverty reduction and sustainable development, as well as the more traditional goals of conservation and sustainable use of natural resources.⁶

2.2 International and national decisions calling for PA funding

Various policies, strategies and agreements are in place, at global, regional and national levels, which underline the need for and importance of funding PAs. Many countries have ratified international conventions which set the basis for protected areas and biodiversity conservation, and as such are obliged to abide by their provisions. Almost all of these conventions call in some way for Contracting Parties to allocate funds to biodiversity.

Conservation-related global conventions

Articles 4 and 5 of the World Heritage Convention require Parties to secure sufficient financial resources to ensure the identification, protection, conservation, presentation and transmission to future generations of sites of cultural and natural heritage. Article 15 of the Convention also establishes a World Heritage Fund for the conservation of the cultural and natural sites on the List, to be replenished from both obligatory and voluntary contributions by State Parties.

Although financial resources are not explicitly mentioned by two other key international conventions relating to biodiversity conservation, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Ramsar Convention on Wetlands of International Importance (Ramsar), both have recently taken action in support of PA financing. A Small Grants Fund was established in 1990 under the auspices of the Ramsar Convention, to act as a mechanism to assist developing countries and economies in transition in enabling the conservation and wise use of wetland resources. Recently the 12th CITES COP called for a review of “existing and innovative mechanisms to finance the conservation of species of wild fauna and flora”,⁷ while also recognising that PAs form a key part of strategies to implement CITES commitments. COP12 further noted that developing countries may require international financial assistance to supplement domestic budgetary allocations for costs incurred at national level.

At a global level, the 1993 Convention on Biological Diversity (CBD) provides perhaps the strongest mandate for countries to generate and allocate resources to biodiversity conservation and PAs. The CBD has been influential in shaping donor agendas, regional calls to action and national biodiversity strategies and plans (Box 2). Article 20 of the CBD calls upon all contracting parties to provide financial support to activities intended to achieve the objectives of the Convention, including new and additional financial resources to be provided from developed countries to developing country parties. Article 21 establishes the Global Environment Facility (GEF) as the interim financing mechanism for the Convention. Financial resources and financing mechanisms have since been a recurrent subject of decisions made by the Conference of the Parties to the CBD, and the recommendations of its Subsidiary Body on

⁶ Scherl *et al.*, 2004.

⁷ CITES COP Decision 12.26.

Scientific, Technical and Technological Advice (SBSTTA). The Forum on Financing for Biological Diversity, established under the CBD, provides an opportunity for Parties and Governments, financial mechanisms, funding institutions and development agencies, as well as relevant stakeholders, to exchange views, share experience and information, discuss issues and present outcomes of any research or study on financing for biological diversity.

Box 2. National and regional calls for governments to fund biodiversity and PAs in South Asia⁸

Reflecting the provisions of the Convention on Biological Diversity, most countries in South Asia have prepared, or are in the process of preparing, National Biodiversity Strategies and Action Plans (NBSAPs). These recognise the need for financial and economic actions to conserve biodiversity. Nepal's 1999 Biodiversity Country Study, for instance, notes that "the main challenge to conserving the biological diversity of Nepal lies in finding ways and means to bring substantial economic returns from the use of biodiversity". Likewise, Sri Lanka's 1998 National Framework for Action for Biodiversity Conservation notes that "the best long-term economic use of biodiversity is that which will maintain the ecological and cultural value of ecosystems". The 2002 Biodiversity Strategy of Nepal proposes the use of economic valuation for natural resources to be integrated into national income accounting and to justify increased budget allocations to conservation programmes. It also promotes sustainable financing and refers to the use of economic incentives for biodiversity conservation. Pakistan's 2000 NBSAP includes the use of financial and fiscal instruments to promote biodiversity conservation and sustainable use and recommends frequent review of economic policies to identify perverse incentives and suggest measures to overcome them.

Regional efforts to conserve biodiversity and protected areas in South Asia also include financial and economic measures. The Third Meeting of Environment Ministers of the South Asian Association for Regional Cooperation (Male, 1997) adopted a Plan of Action on Environment which requires member states to mobilize financial resources for the environment from domestic and international sources. Calls for improved funding for conservation have been consistently echoed in other regional fora dealing with biodiversity conservation. The 1999 South and South East Asia Regional Session of the Global Biodiversity Forum highlighted financing mechanisms as a priority issue in the development and implementation of National Biodiversity Strategies and Action Plans. It recommended that "greater attention be given to valuation of biodiversity resources in economic terms so that they are given greater weight in development planning by decision makers". A follow-up workshop held in 2000 for the South Asia region considered the use of economic and financial tools for biodiversity conservation as one of ten key thematic areas.

International declarations on sustainable development

Although rarely stated explicitly, the need to allocate funds to PA management is also central to the provisions of recent development-related declarations and agreements. At the UN Millennium Summit of 2000, world leaders agreed to work together to achieve the Millennium Development Goals, a set of eight objectives aimed at "reducing poverty in all its forms". Goal 7 deals explicitly with environmental sustainability and includes as a target to "integrate the principles of sustainable development into country policies and programs and reverse the loss of environmental resources." Specific indicators of success toward achieving Goal 7 include the ratio of land area protected to maintain biological diversity to total surface area, and the proportion of land area covered by forest. The 2002 World Summit on Sustainable Development (WSSD) declared that "a more efficient and coherent implementation of the three objectives of the Convention (on Biological Diversity) and the achievement by 2010 of a significant reduction in the current rate of loss of biological diversity will require the provision of new and additional financial and technical resources to developing countries".

Recent targets and decisions on biodiversity finance

Decisions reached at the 6th Conference of the Parties to the CBD, subsequently endorsed at the WSSD, resulted in the adoption of a series of targets to achieve a significant reduction in the rate of biodiversity loss at global, regional

⁸ Emerton, 2002.

and national levels by 2010. One target states that “new and additional financial resources are transferred to developing country Parties, to allow for the effective implementation of their commitments under the Convention, in accordance with Article 20”. Seven trial indicators were agreed to assess progress towards the 2010 target at the global level, including mobilizing financial and technical resources, especially for developing countries, to be measured through Official Development Assistance (ODA) provided in support of the CBD.

The Vth IUCN World Parks Congress (September 2003) made a number of recommendations concerning PA finance to the seventh meeting of the Conference of the Parties to the CBD.⁹ These recommendations are reflected in the Programme of Work on Protected Areas (PoW) adopted by the CBD COP7 (February 2004).¹⁰ With the overall purpose of supporting the establishment and maintenance of comprehensive, effectively managed, and ecologically representative national and regional systems of PAs, the PoW has as one of its goals “to ensure financial sustainability of protected areas and national and regional systems of protected areas”. It specifies that “by 2008, sufficient resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured”.¹¹ Proposed activities include reviewing national-level PA financing needs and options, establishing country sustainable financing plans, multi-country collaboration in developing sustainable financing programmes for regional and international systems of PAs, reporting on PA financing, and mainstreaming PAs into development planning.

In June 2005, the CBD Ad Hoc Open-Ended Working Group on Protected Areas held its first meeting, in Montecatini, Italy. Options for mobilizing financial resources for the PoW was one of the three substantive issues covered (see also Korn *et al.*, 2005). In particular, the need to identify sources of finance for developing countries, particularly the least developed and small island states, was discussed. The group made a number of recommendations (see Annex 2), emphasising the urgency of developing sustainable finance strategies for PAs and designing financial sustainability plans for them, in the context of the Millennium Development Goals, and considering a range of both conventional and innovative financing mechanisms.

2.3 Sources of PA finance

At a global level, there is little up-to-date or reliable information on PA finance. The most recent global survey of PA budgets and shortfalls was published by UNEP-WCMC in 1999, based on data collected in 1993 and 1995.¹² Several recent and influential articles on conservation finance continue to rely on this increasingly outdated database.¹³ While more detailed and recent information is available for some countries, PA systems and sites, it was beyond the scope of this review to compile comprehensive data on PA budgets and finance.

A recent estimate of global expenditure on existing PAs is around US\$6.5 billion per annum, most of it in the developed world.¹⁴ Although non-governmental and private sector funding are becoming an increasingly important component of PA finance,¹⁵ two sources – domestic government budgets and international donor assistance – provide the bulk of PA funding.

Domestic government budgets

Domestic government budgets are the single largest source of PA financing in most countries. In the developing world as a whole, one recent estimate suggests that public national park budgets amount to between US\$1.3 and 2.6 billion per year.¹⁶ As a share of total government spending, the sums involved are relatively small. For example, in Latin

⁹ CBD, 2004a.

¹⁰ CBD, 2004b. Decision VII/28 of the seventh Meeting of the Conference of the Parties to the Convention on Biological Diversity, Kuala Lumpur, 9-20 February 2004.

¹¹ CBD, 2003.

¹² James *et al.*, 1999a.

¹³ See in particular: James *et al.*, 1999b; James *et al.*, 2001; Balmford *et al.*, 2002; Balmford *et al.*, 2003.

¹⁴ James *et al.*, 1999b; James *et al.*, 2001. Unless otherwise stated, all estimates of PA costs, benefits or expenditure in this report are expressed in current US Dollars with the abbreviation “US\$”.

¹⁵ Krug, 2001; Lapham and Livermore, 2003.

¹⁶ Molnar *et al.*, 2004.

American and Caribbean countries, investment in the environment during the 1990s averaged less than 1% of GDP.¹⁷ In Vietnam, government funding to centrally-managed PAs has been maintained at around 0.5% of total public budget allocations over the past decade.¹⁸ Even the United States, where US\$2.5 billion was allocated by the federal government to the National Parks Service in the fiscal year ending 2004, this amounted to just 0.1% of the total federal budget for the year.¹⁹

International assistance

In addition to domestic government budgets, many PAs in the developing world rely on funding from international agencies and other foreign donors. Between 1990 and 1997, for example, multilateral and bilateral donor agencies contributed over US\$3 billion for biodiversity conservation projects in Latin America and Caribbean countries, or about US\$400 million per year on average.²⁰ Roughly one-third of this funding was directly linked to protected areas. In 1995, more than three quarters of Uganda's PA budgets were contributed by foreign donors.²¹ Similarly, during the 1990s, most of the financial support provided for the implementation of actions to conserve biodiversity in South and South East Asian countries was obtained from international sources.²²

Multilateral funds

Multilateral agencies are a key source of funding for PAs in the developing world. It has been reported that about 3% of development assistance provided by the European Union is directly related to biodiversity conservation and sustainable use, amounting to just under US\$200 million annually.²³ In 2002, the World Bank provided US\$300 million funding for biodiversity projects through its regular portfolio and an additional US\$250 million for biodiversity projects through the International Development Association (for the poorest countries). Among regional development banks, both the Asian Development Bank and the Inter-American Development Bank have significant biodiversity-related project portfolios, providing approximately US\$250 million and US\$500 million respectively in 2002.²⁴ The GEF, a key source of finance for PAs, provided about US\$1.1 billion in grants and leveraged an additional US\$2.5 billion in co-financing for biodiversity projects between 1991 and 2001.²⁵ These funds were spread across more than 1,000 protected sites covering 226 million hectares in 86 countries. In September 2005, the GEF Council adopted a new system for allocating financial resources in the biodiversity and climate change focal areas. The new Resource Allocation Framework (RAF) explicitly links the amount of future grants to recipient countries to: (1) their potential to generate global environmental benefits in line with relevant global environmental conventions, and (2) past performance, based on national capacity, policies and practices, and an enabling environment that facilitates successful implementation of GEF projects, including transparency and good governance. The impact of these changes on future funding for biodiversity conservation in PAs is uncertain, as is the likely amount of the third GEF replenishment, for the period 2003–2006.

Bilateral donors

Estimates of total environmental spending as a share of bilateral aid flows range from 2% to 14%.²⁶ This translates into significant funding channelled to developing country PAs. For example, between 1998–2000, bilateral aid for biodiversity, sustainable use or “aid targeting the CBD objectives” provided by 19 donor countries averaged some US\$995 million per annum (see Table 1).²⁷ This was equivalent to 2.7% of total bilateral aid flows during the period, for all 19 donors, although some agencies devoted a much larger share of funding to biodiversity. How much of this funding was targeted at PAs is not clear from the data available. However, there is evidence of a slight decline in biodiversity-related aid over the same period, suggesting that development assistance for PAs may also have declined.

¹⁷ Barcena *et al.*, 2002, cited in Castro, 2003.

¹⁸ Emerton *et al.*, 2003.

¹⁹ National Park Service: http://data2.itc.nps.gov/budget2/documents/ten_year_budget_history.pdf;
US Federal Government: www.gpoaccess.gov/usbudget/fy04/pdf/budget/tables.pdf

²⁰ Castro and Locker, 2000.

²¹ Howard, 1995.

²² Ifitkhar, 2002.

²³ Lapham and Livermore, 2003.

²⁴ *Ibid.*

²⁵ Good, personal communication, 2003.

²⁶ Swanson and Lunde, 2003.

²⁷ OECD, 2002.

Private and community funds

Significant funding for PAs comes from private sources, including business and philanthropic foundations as well as non-governmental organizations and local communities. Some highly visible examples include contributions totalling over US\$10 million from the United Nations Foundation for “World Heritage sites recognized as containing the most important habitats for biodiversity conservation”,²⁸ and a grant of up to US\$261 million over 10 years from the Gordon and Betty Moore Foundation, to support the activities of Conservation International.²⁹ However, lack of consistent reporting and the absence of a clearing-house of information on private funding of conservation makes it difficult to assess the overall significance of such support.

Table 1. Average annual bilateral biodiversity ODA reported to the OECD 1998–2000 (in US\$ millions)

Country	US\$ million (annual average 1998–2000)	% of total bilateral ODA (annual average 1998–2000)
Australia	21.3	2.7
Austria	2.0	0.5
Belgium	19.5	3.9
Canada	15.3	1.4
Denmark	29.8	4.5
Finland	24.9	12.1
France	44.7	1.7
Germany	275.6	9.0
Ireland	2.2	4.9
Japan	144.1	1.4
Netherlands	146.9	6.9
New Zealand	0.8	0.8
Norway	91.2	10.3
Spain	14.5	1.4
Sweden	38.3	3.9
Switzerland	15.9	2.4
United Kingdom	23.9	0.7
United States	84.2	1.0
Total	995.1	2.7

Source: OECD, 2002.

In addition to gifts from foundations, probably the best documented source of private funding for PAs is non-profit or “charitable” organizations. These include literally thousands of organizations, both large and small, some of them working locally and others internationally. While much of the funding that these organizations devote to PAs and related conservation activities comes from governments or from large foundations, a significant portion of their funding derives from individual contributions by members of the public.

Finally, we must include the myriad investments made by innumerable small businesses, private land owners and local communities that support biodiversity conservation in some way as a real financial contribution to PAs. The scale of such support is difficult to assess. One recent analysis asserts with respect to forests, for example, that the total area under “community conservation” is roughly equivalent to the area conserved in forested public protected areas and that “community” spending on forest management and conservation activities is comparable in value to total annual spending on public protected areas in the developing world.³⁰

²⁸ www.unfoundation.org/programs/environment/priorities.asp

²⁹ www.moore.org/grantees/grant_summaries_content.asp?Grantee=ci

³⁰ Molnar *et al.*, 2004.

2.4 Recent trends in PA funding

Budgetary stagnation

International and domestic funding for PAs has struggled to keep pace with the growth in the number and area of PAs, especially in the tropics. At a global level, investment in rural development and biodiversity conservation by governments, international donors and development banks appears to have declined during the 1990s. By the mid-1990s,³¹ it was estimated that just over US\$3 billion per year was being spent on PAs worldwide, with a global average expenditure of US\$893/km²/year.³² A decade later it was thought that around US\$6.5 billion was being spent every year on PAs, of which the vast majority (all but US\$1 billion) in the developed world.³³ However, during the same period, the total area recognised as being under protection increased by about 50%.³⁴ Inflation accounts for most of the rest of the increase in spending on PAs, suggesting that the “real” value of PA finance has remained constant, on a per hectare per year basis.

This global trend masks significant variation at national and local levels. In the mid-1990s, for example, it was reported that many developing country governments (particularly in Africa) had reduced their budgets for protected areas.³⁵ Governments in East Africa were reported to spend an annual average of less than US\$3 per hectare on managing their PAs.³⁶ In Uganda, in the mid-1990s, government spending on wildlife and forest protected areas amounted to just US\$2/ha/year.³⁷

Multi-year data from selected bilateral donor agencies suggests that funding for biodiversity conservation and PAs has been at best stable and in some cases has declined in recent years.³⁸ For example, both Germany’s and Japan’s annual financial and technical cooperation in support of biodiversity conservation increased steadily over most of the past decade before flattening out more recently. One recent estimate of the total value of global development assistance for public protected areas in the developing world estimates annual flows of between US\$350 million and 420 million, down from US\$700–770 million in the early 1990s.³⁹ On an area basis, this implies average ODA of just US\$150/km²/year (or about US\$600/km²/year in global conservation “hotspots”). Meanwhile private and community funding for PAs appears to have increased in recent years, although as noted above the magnitude of this contribution is unclear.

Broader conditions influencing financial flows to PAs

Recent rapid growth in the number and area of PAs has stretched the capacity of PA management authorities to increase their budgets accordingly. In addition, in most developing countries, as well as many developed countries, progressive economic liberalization, deregulation and decentralization have resulted in tighter public expenditure generally. Protected areas, long seen as a relatively low priority for public spending, have not been spared from budgetary cutbacks. Development assistance spending in general has also been stagnant or declining. At the same time, an institutional shift has occurred in many countries, with PA management authorities in many cases being integrated into broader environmental ministries and portfolios. As a result, funding previously directed specifically to PAs has in some cases been consolidated into budgets addressing a wider range of objectives, sometimes resulting in diminished resources for PA management.

The growing importance of social and poverty reduction goals

Changing global and national priorities and development imperatives have also had major impacts on both the amount and the purpose of funding for PAs and biodiversity conservation. In the 1970s and the 1980s, donor support was often linked to international agreements concerning biodiversity conservation, such as the World Heritage Convention,

³¹ Gutman, 2003.

³² James *et al.*, 1999a.

³³ James *et al.*, 1999b; James *et al.*, 2001.

³⁴ Chape *et al.*, 2003.

³⁵ Dublin *et al.*, 1995.

³⁶ Emerton, 2001a.

³⁷ Howard, 1995.

³⁸ Lapham and Livermore, 2003.

³⁹ Khare, 2003, cited in Molnar *et al.*, 2004.

CITES and Ramsar.⁴⁰ The 1992 Earth Summit and the establishment of the Rio Conventions, especially the Convention on Biological Diversity, prompted a rise in funding for biodiversity conservation.

More generally, however, there has been a shift in official donor and government priorities away from biodiversity conservation and protected areas. Following the Millennium Summit of 2000 and the 2002 World Summit on Sustainable Development, poverty reduction has become the overriding priority guiding both international assistance to developing countries and the allocation of budgets at national levels in the developing world. Most ODA has become closely tied to the implementation of country-level poverty reduction strategies and to investments which are perceived to contribute more directly to achieving the Millennium Development Goals.

Accordingly, international financial assistance for biodiversity conservation has become increasingly driven by social and economic objectives, and especially by its perceived ability to contribute to poverty reduction. For example the World Bank's Environment Strategy of 2001 pledges a "poverty focused" environmental agenda. Similarly, there have been important changes in how the Netherlands delivers its development assistance, with an emphasis on mainstreaming biodiversity into development sectors and a shift from project finance to strengthening government capacity and direct budgetary support. Likewise, funding for biodiversity conservation provided by the UK Department for International Development is driven by poverty reduction goals and sector-wide approaches. The European Commission no longer treats the environment as a separate sector, but as a cross-cutting issue to be incorporated into all aspects of its development assistance.

Diminishing support for PAs

One result of these shifts in donor priorities and the delivery of development assistance appears to be diminishing support for short-term conservation investments, such as strengthening PA facilities and management. This has been confirmed by the CBD Secretariat, which notes that activities reported by donor governments have moved away from a focus on PAs and toward investments across all sectors, especially projects emphasising the sustainable use and equitable benefit-sharing objectives of the CBD.

2.5 The current status of PA finance

PA financing shortfalls

A consensus has emerged that current spending on PAs is grossly inadequate, not only to support the costs of existing sites, but more importantly to ensure the creation and effective management of a representative global system of PAs. One recent, widely-cited estimate suggests that up to US\$45 billion per year (over 30 years) may be required to secure an expanded network of protected areas, covering 15% of terrestrial and 30% of marine ecosystems, mainly in the tropics.⁴¹ Another, more modest estimate suggests that the additional funding required to expand and manage PA systems in developing countries amounts to about US\$12–13 billion per year, over the next decade.⁴²

These findings are supported by a 2004 thematic report on PAs prepared for the seventh Conference of the Parties to the CBD, which states that the majority of reporting countries, including developed countries, found that human, institutional and financial resources are limiting or very limiting for the full implementation of PA networks and the management of individual PAs, and that they are experiencing a shortage of financial resources.⁴³

PA funding shortfalls are experienced across the board, in different countries and ecosystems. For example, a recent survey of the managers of 79 Marine Protected Areas in 34 countries revealed a median funding gap of 15% between current income and the amount required to achieve even minimal conservation objectives.⁴⁴ Interestingly, the study found no significant geographic variation in funding shortfalls: i.e. MPAs in developing countries were just as well (or poorly) funded as their developed country counterparts.

⁴⁰ *Ibid.*

⁴¹ Balmford *et al.*, 2002.

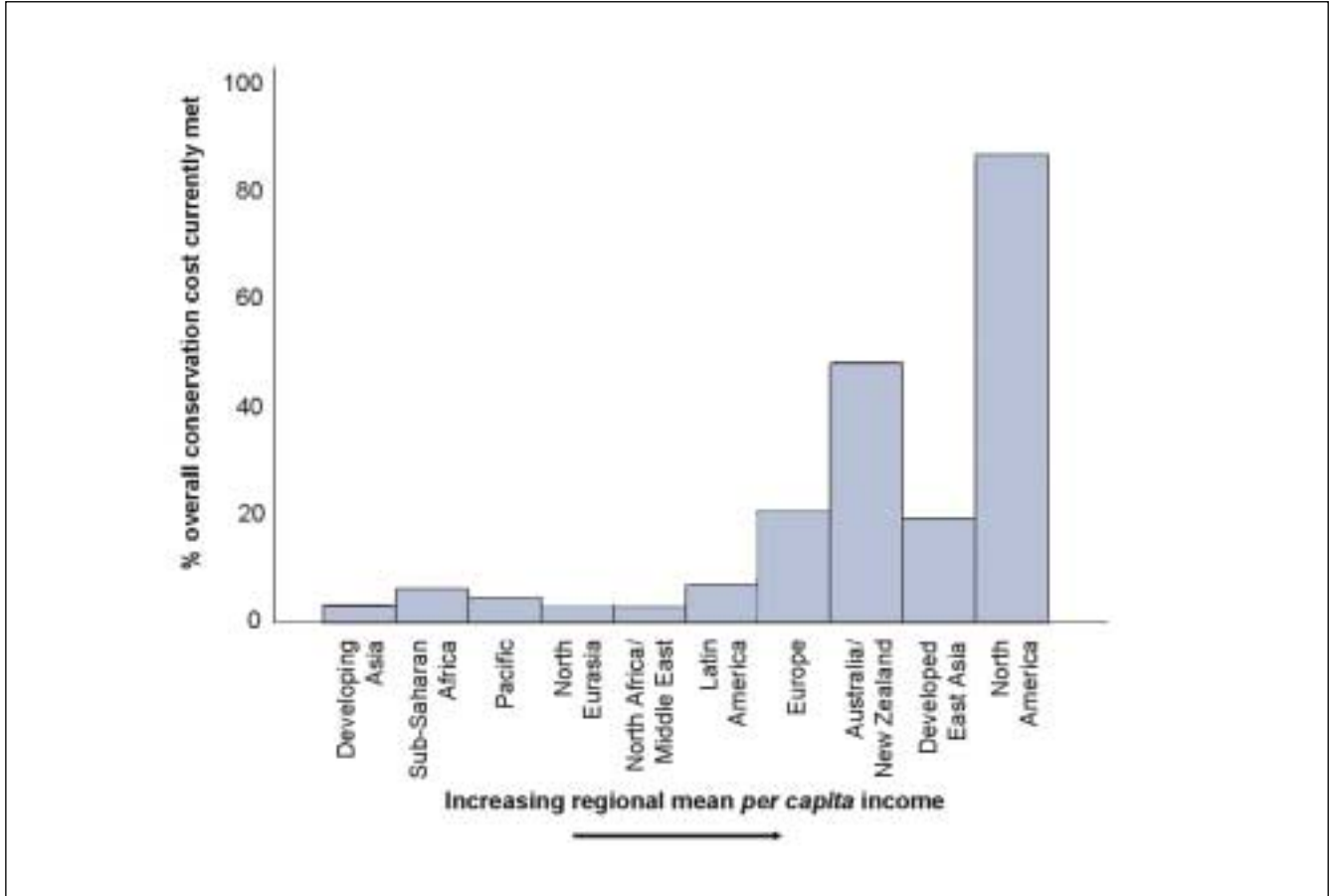
⁴² Bruner *et al.*, 2003.

⁴³ CBD, 2003. *Protected Areas: Synthesis of Information in Thematic Reports on Protected Areas*. Note by the Executive Secretary to the seventh Conference of the Parties to the Convention on Biological Diversity, UNEP/CBD/COP/7/INF/8.

⁴⁴ Gravestock, 2002.

In general, however, PA financing shortfalls are most intense in developing countries (Figure 2). Current financial needs for PAs in developing countries are thought to range between US\$1.1 billion to cover core operations and US\$2.5 billion to cover the very basic range of actions necessary to ensure that management is effective.⁴⁵

Figure 2. The PA financing gap



Source: Balmford *et al.*, 2003.

2.6 Conclusion: is existing PA finance adequate?

A review of current status and recent trends suggests that although there is a widespread commitment by most countries in the world to allocate funds to PAs, existing financing falls far short of the amount required to manage the world’s existing PAs, let alone to expand the system to meet urgent conservation priorities. The PA funding gap is particularly acute in developing countries and for marine protected areas especially in the high seas. There is clearly a need to find new financial resources to supplement existing funding for PAs, as well as greater efforts to place PAs firmly onto the development and poverty reduction agendas. In addition, there is the serious question of how effectively existing funds are being spent, a question addressed further below.

⁴⁵ Bruner *et al.*, 2003.

3. Understanding financial sustainability

Key messages in this chapter:

- Protected area financing is about more than money; it involves mobilizing and managing funds to address a range of challenges associated with biodiversity conservation.
- Securing adequate funds is a necessary but not sufficient condition for PAs to be managed effectively and financed sustainably. It is also necessary to consider the quality, form, timing, targeting, uses and sources of funding.
- Assessing and achieving PA financial sustainability involves considering and addressing a wide range of issues, including:
 - Building a diverse funding portfolio, going beyond conventional mechanisms and including multiple funding sources, is a key element of PA financial stability and sustainability.
 - PA financial sustainability requires that funds are managed and administered in a way that promotes cost efficiency and management effectiveness, allows for long-term planning and security, and provides incentives and opportunities for managers to generate and retain funds at the PA level.
 - Considering indirect and opportunity costs as well as local development benefits as key elements of PA funding needs; targeting cash and in-kind support to groups who incur PA costs, while also securing fair contributions from PA beneficiaries, is critical to PA financial and economic sustainability.
 - Making PAs financially sustainable also means identifying and overcoming the broader market, price, policy and institutional distortions that act as obstacles to PA funding and financial sustainability.
 - Factoring finance into PA planning and management processes, and ensuring that there is sufficient human capacity to use financial tools, is a key strategy for improving PA financial sustainability.
- PA financial sustainability can be defined as *the ability to secure sufficient, stable and long-term financial resources, and to allocate them in a timely manner and in an appropriate form, to cover the full costs of PAs and to ensure that PAs are managed effectively and efficiently with respect to conservation and other objectives*. In short, financial sustainability is not possible without strong and effective institutions for PA management.

3.1 Using PA finance as a tool to improve conservation management

Sustainable finance is more than the amount of funding

The previous chapter has highlighted the widely accepted need for increased funding for PAs. However, while raising funds to cover costs is an important goal in its own right, it is by no means the only issue to be considered. PA managers face multiple financial constraints that create obstacles to effective management. The volume of funds is an important and necessary condition for PAs to be managed effectively, but by itself it is rarely sufficient (Box 3). All too often, other factors intervene and influence PA financial sustainability, over and above the amount of funding itself. Even where more funds are raised, this will not always lead to better conservation outcomes. In some cases, institutional weaknesses may prevent PA agencies from spending the funds allocated by government, much less any additional funds from external sources. For example, in 1993, Sri Lanka's Department of Wildlife Conservation expended only 56% of its approved budget, primarily because the Department was (and still remains) seriously understaffed.⁴⁶

⁴⁶ McNeely, 1999.

Box 3. Financial constraints to PA management: the case of Vietnam⁴⁷

The volume of funding allocated by government to Vietnam's PAs has remained relatively stable in recent years, accounting for an average of 0.13% of GDP, 0.5% of total public budget allocations, or between US\$3.0–3.5 million per year. When considered on an area basis, the financial status of Vietnam's PAs compares well to other parts of Asia and the world. According to one recent analysis, annual government spending on PAs averages just under US\$2,000/km² in developed countries, US\$150/km² in developing countries and US\$500/km² in South and Southeast Asia (James *et al.*, 1999a). At more than US\$1,200/km², Vietnam's state budget allocations to PAs are significantly greater than expenditures in other parts of Asia and are comparable to (or in some cases even greater than) public budget allocations for PA management in Europe and North America.

Given this impressive and stable level of public support, one might question whether and why funding is in fact a problem for Vietnam's national PA network. The answer is that Vietnam's PAs face major financial problems, which in turn translate into serious management constraints. These problems include:

- The bulk of annual budgets are for capital expenditures. Recurrent budgets allow for little more than salaries, and most capital expenditures focus on heavy infrastructure. Little funding is available for routine maintenance or conservation activities.
- Public sector budgeting procedures are subject to long delays and frequent re-adjustments. Given these uncertainties, it is hard for PA managers to plan or implement a coherent set of conservation activities.
- Annual budget allocations are tied closely to the investment plan which is prepared when a PA is first established. This makes it difficult to build in flexibility or responsiveness to changing management needs and conservation priorities.
- Vietnam's PAs rely entirely on centralized public budgets (including donor funding, which is channelled through them). There are only limited opportunities to generate or retain surplus income. This translates into an extremely narrow financial base, and little incentive to generate funds at the individual PA level.

The case of Vietnam illustrates the point that PAs face a range of financial issues that in turn translate into management constraints – even where overall levels of PA funding are relatively high and stable.

Elements of PA financial sustainability

Financing mechanisms can provide an important tool for addressing broader obstacles to effective PA management. In addition to raising more funds, there is a need to address the quality, form, timing and duration, targeting and sourcing of financial resources. When we assess PA financial sustainability and review various financing mechanisms, therefore, we must consider a range of elements and issues, including:

- **Building a diverse, stable and secure funding portfolio:** minimizing funding risks and fluctuations.
- **Improving financial administration and effectiveness:** ensuring that funding is allocated and spent in a way that supports PA finance needs and conservation goals.
- **Taking a comprehensive view of costs and benefits:** covering the full range of PA costs, ensuring that those who bear PA costs are recognised and adequately compensated, and that those who benefit from PAs make a fair contribution to their maintenance.
- **Creating an enabling financial and economic framework:** overcoming market, price and policy distortions that undermine PAs or act as obstacles to PA financing.
- **Mainstreaming and building capacity to use financial tools and mechanisms:** factoring financial analysis and mechanisms into PA planning processes.

⁴⁷ Emerton *et al.*, 2003.

3.2 Building a diverse, stable and secure funding portfolio

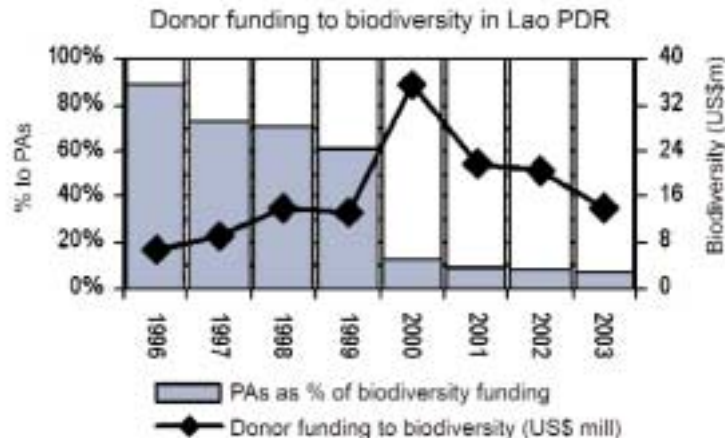
Public PAs around the world rely heavily on central government allocations to cover the bulk of their operating costs. In the developing world, foreign donor grants are another important source of funding, mainly used for capital investment. Some but not all PAs are able to supplement their budgets by earnings from tourism and other resource use charges. In general, however, few PAs have the luxury of a diversified funding base.

Relying on just one or a small number of funding sources is risky. PAs compete against many other demands for government and donor funding, and they are rarely considered a high priority when difficult budget decisions must be made. In the face of public sector cutbacks and budget constraints, and in the context of an overall trend of declining development spending on the environment, funding for PAs has sometimes declined dramatically (Box 4).

Box 4. Declining donor funding for PAs: the case of Lao PDR⁴⁸

The national Protected Area network in Lao People's Democratic Republic (PDR) was established in 1993 and currently covers between 12–14% of the country. As is the case with many public sector budgets in the country, external donors contribute the major proportion of PA funding. In recent years, however, there has been a sharp downturn in donor funding for biodiversity generally, and for PAs in particular.

After rising over much of the 1990s to a peak in 2000, donor commitments to biodiversity conservation in Lao PDR declined dramatically. Between 2000 and 2003, total donor commitments to biodiversity-related activities fell from US\$36 million to US\$14 million. Between 1996 and 2003, the share of PA expenditures in total donor funding for biodiversity had dropped from 89% or US\$6 million to just 7% or about US\$1 million. Today, little foreign or domestic funding is available for biodiversity conservation in Lao PDR. As a result both the financing and the management status of PAs has deteriorated significantly.



Earnings from tourist visits, a staple element of PA funding in many countries, can also be insecure and subject to fluctuations. Visits to National Parks in Kenya, Uganda and Zimbabwe, for example, declined markedly as a result of civil unrest during the 1990s. More recently, ecotourism revenues in both Asia and Latin America have seen a dramatic downturn, as global security concerns have hit the travel and tourism industry.⁴⁹

For these reasons, combining different sources of funding is a key element of long-term PA financial sustainability. A diversified financial portfolio can better enable PA managers to cope with risk and uncertainty, and provide a measure of security should any single source of funding decline or fail.

⁴⁸ Bouttavong *et al.*, 2002.

⁴⁹ "Effects of Sept 11, 2001 events on ecotourism," *Partners in Responsible Tourism Newsletter* 5(1).

3.3 Improving financial administration, effectiveness and efficiency

Financial flows are not always managed effectively, either in relation to PA financing needs or conservation priorities. In many cases, PA funding is skewed towards recurrent costs, especially staffing, while critical investment needs remain under-funded.⁵⁰ In Uganda, for example, recurrent expenditures (40% of which were salary costs) accounted for over two-thirds of government spending on PAs from 1989–1994.⁵¹ In many instances, the priority given to recurrent costs means that few funds are available for core conservation investments, such as buildings and infrastructure, the purchase of vehicles and other equipment, wildlife inventories, etc.

Changes in overall patterns of public expenditure can likewise affect both recurrent and capital spending by PAs. In Sri Lanka, for example, financial support from USAID to establish five new national parks in the early 1980s came at the same moment that severe restrictions were placed on the recruitment of civil servants, under an agreement between the government of the day and the International Monetary Fund. As a result, staff were diverted from existing parks to the new ones, while the additional biologists, education specialists and other staff required could not be recruited on a permanent basis.⁵²

Most PAs operate on an annual budget cycle. Yet cash flow requirements for conservation finance rarely conform neatly to an annual budget or project calendar. Similarly, donor-funded projects may involve very irregular or delayed transfers of funds. When combined with uncertainty about the level of funding that can be expected in the future, this means that it is often difficult to match cash availability to actual needs, or to undertake long-term planning and investment. In many cases the release of funding does not coincide with the timing of PA costs and financial needs.

As well as being dependent on centrally-allocated budgets, many PAs are still subject to a centralized revenue system. In such cases, earnings from gate fees or other local sources are not retained at the level of the individual PA but are transferred to a central agency or the national Treasury. PAs subject to this arrangement rarely have funding reserves that can be drawn upon in times of need or used to support long-term investment planning. Where income is not retained, and budget allocations are not linked to earnings, there are few incentives for PA managers to generate more revenue and little responsibility or accountability for them to do so (Box 5).

PA financial sustainability thus requires funding to be released in a timely manner, and to be administered and allocated in ways which supports long-term conservation goals. Financial sustainability can also be enhanced by increasing PA financial autonomy, i.e. the opportunity to generate and retain funds at the PA level. While fund management has been decentralized in many countries, with more PAs authorized to retain earnings, this policy needs to become more widespread and encouraged as best practice.

Another challenge of PA financing is ensuring that funds are used efficiently. Financial resources will always be limited and it is therefore imperative that funds are allocated strategically and used as efficiently as possible. Some recent studies suggest that conservation funding could be used far more efficiently, both at a global level and within countries, with respect to a range of conservation outcomes.⁵³

3.4 Taking a comprehensive view of PA costs and benefits

PA financing has traditionally focused on meeting direct operational and management costs – in other words funding the salaries, infrastructure, equipment and maintenance required to establish and run PAs. The total cost of a PA, however, is far greater than this, while those bearing the costs of a PA are not limited to the entity charged with managing it. PA costs also include the various benefits or economic opportunities that are diminished or lost due to

⁵⁰ Recurrent (or variable) costs include monthly or annual charges for goods and services provided continuously or on a regular basis, such as salaries and other personnel costs, fuel and energy, office supplies, etc. Capital investments (or fixed costs) are irregular and typically larger charges for long-lived assets such as buildings, vehicles, office equipment, etc.

⁵¹ Howard, 1995.

⁵² McNeely, 1999.

⁵³ Balmford *et al.*, 2003. The authors report conservation costs varying from as little as US\$0.20 per ha per year in the Brazilian Amazon, up to more than US\$1 million/ha/yr in some projects in Europe. Smaller but equally striking differences in the cost of conservation interventions can be seen within countries.

the establishment of the PA, such as the value of foregone output from prohibited resource uses or from potential conversion of the area to an alternative use, as well as possible wildlife damage and congestion effects on other sites and stocks that remain available for extractive uses and alternative developments.

Box 5. Links between PA income and budgets: the case of Kisite Marine National Park, Kenya⁵⁴

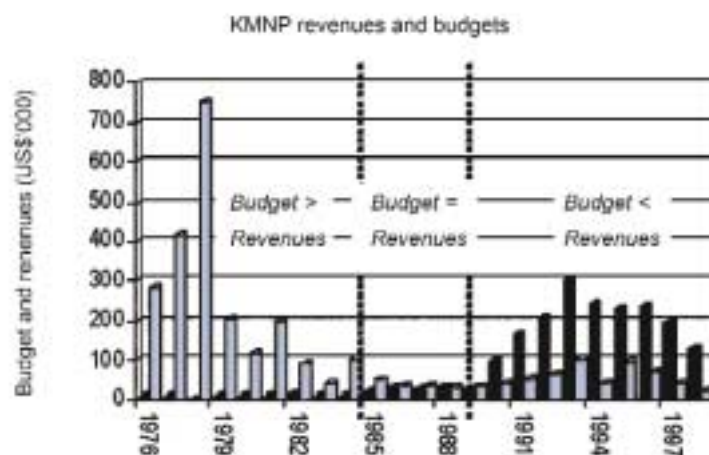
Kisite Marine National Park (KMNP) lies off the South coast of Kenya, close to the Tanzanian border, and covers an area of some 28km². Although KMNP earns income from tourism, this revenue is remitted directly to the Headquarters of the Kenya Wildlife Service (KWS) in Nairobi. KWS also determines and administers KMNP's annual budget allocation centrally.

Over time the relation between KMNP's budget and earnings has undergone three major changes:

- From the establishment of the MPA until the mid 1980s, central budget allocations from the government Wildlife Conservation and Management Department were on average 35 times greater than the revenues earned by the MPA.
- During the latter half of the 1980s, in the face of public sector restructuring and spending cuts, central budget allocations to KMNP declined sharply and were approximately equal to revenues earned.
- In 1990 the parastatal KWS was formed and took over the management of Kenya's PA system. A new emphasis on cost effectiveness and financial sustainability led to large increases in park entry fees. At the same time a progressive centralization of PA management meant that more revenues were retained at Headquarters. Today KMNP earns revenues that are seven times higher than its operating budget.

KMNP currently faces a financial crisis. Estimated budget requirements are almost eight times the annual allocation. Although PA earnings are sufficient to meet these needs, they are for the most part retained centrally. KMNP suffers a severe shortage of funds, resulting in low levels of staffing, poor state of equipment and infrastructure, and inadequate routine park maintenance and patrolling.

The fact that park budgets and revenues are administered centrally, and are de-linked, means that the managers of KMNP cannot predict how much funding they will receive from year to year, making it difficult to develop long-term financial or management plans. The lack of a mechanism to retain income, and the fact that annual budgets are not tied to the revenues earned, acts as a major disincentive to income generation and means that there is little financial accountability or responsibility at the PA level.



⁵⁴ Emerton and Tessema, 2001.

These indirect and opportunity costs are often substantial and are incurred by a wide range of groups, including local landholders and resource users as well as public and private enterprises in a variety of other sectors. For example, the opportunity costs of alternative land and resource uses foregone due to the creation of Khao Yai National Park in Thailand are estimated at some 27 million Baht per year (about US\$675,000), or almost nine times the direct management costs of the PA. In Kenya, the net agricultural opportunity cost of alternative land uses and earnings foregone due to the establishment of PAs has been estimated at more than US\$200 million per year.⁵⁵ At a global level, the opportunity costs of setting land aside to protect ecosystem diversity (measured by the value of market goods and services foregone) has been estimated at between US\$45.5 billion and US\$143.8 billion annually.⁵⁶

Making a PA truly sustainable in economic terms implies covering all of these indirect and opportunity costs, and compensating those who bear them. Failing to consider these costs can translate into a serious under-estimation of PA financing needs. It also runs the risk of undermining PA sustainability and management effectiveness. As long as these broader costs are unmet (and often unacknowledged), the people who bear them are likely to remain unwilling – or economically unable – to support the existence of PAs (Box 6). Note however that cost recovery and sustainable financing does not necessarily require a direct transfer of funds. As not all PA costs accrue in the form of cash expenditures or monetary losses, it is often possible to cover at least some of them through in-kind contributions. This can make both fundraising and cash flow management easier, and provide a cost-effective means of PA financing.

Box 6. Where local PA costs remain unmet: the case of Lake Mburo National Park, Uganda⁵⁷

Lake Mburo National Park (LMNP) is located in south-central Uganda, and covers an area of some 260 km² of open and wooded savannah and wetlands. Although there is a long history of conservation in the area, Lake Mburo was formally gazetted as a National Park in 1983. The area that makes up the LMNP forms an important component of local livelihoods and production systems for 50,000 Bairu cultivators and Bahima pastoralists who live around the PA. Pressure on the park's land and resources is intense. Recognising that the presence of LMNP imposes a significant local opportunity cost in terms of land and resource uses foregone, and that this in turn causes conflicts and problems for park management, in 1991 LMNP became the first PA in Uganda to employ staff specifically designated as community conservation officers, and to pilot a local revenue-sharing scheme. Yet questions remain as to whether these measures have been enough to offset the local costs associated with LMNP, or whether sufficient financial resources can be made available at the local level to act as incentives for conservation.

In the late 1990s the LMNP relied solely on funding generated at site level, with no budget support from central government. In 1997 the park had access to an annual operating budget of some US\$400,000, of which three quarters was contributed by foreign donors and just under a quarter came from tourism revenues and resource user charges. Of this total income, approximately US\$370,000 was used to cover staff salaries and PA operating costs, while US\$30,000 was invested in local community development activities such as educational, water and health projects. In addition to these revenue-sharing arrangements, local communities were permitted to harvest certain park resources at a subsistence-level, worth an estimated US\$200,000 per year.

Meanwhile, the costs of LMNP to local communities totalled more than US\$700,000 in 1998. These costs included crop and livestock damage by wildlife (50%), restrictions on resource utilization (30%), loss of grazing land (20%) and cash and in-kind contributions to community development activities (>1%). These costs are
Cont.

⁵⁵ Norton-Griffiths and Southey, 1995.

⁵⁶ Lewandrowski *et al.*, 1999.

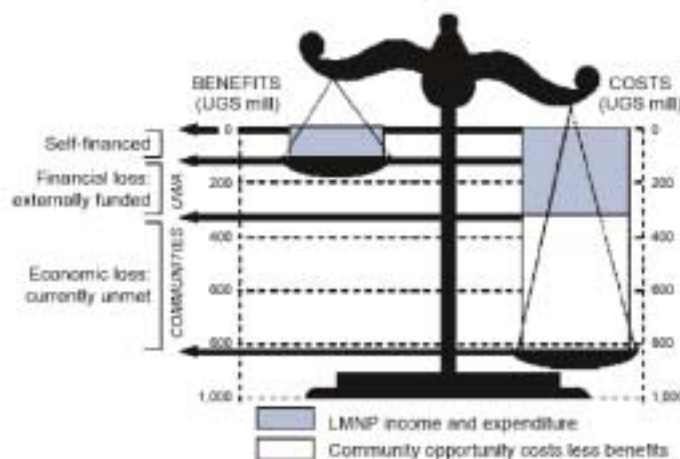
⁵⁷ Emerton, 1998.

Box 6. Where local PA costs remain unmet: the case of Lake Mburo National Park, Uganda (cont.)

significant, and tangible, at the local level. More than 90% of households living next to the park suffer regular crop destruction, livestock kills and transmission of disease from wild animals to domestic stock. The establishment of LMNP took an area of pasture sufficient to support more than 10,000 cattle and smallstock out of production, including critical dry-season grazing land. Park rules and regulations cut by roughly half the total value of local resource use in LMNP.

A situation persists where LMNP imposes a net financial and economic cost on surrounding communities. At US\$230,000 a year, the direct and indirect local benefits generated by the park are less than a third of the value of park-related losses and costs. There remains a financial and economic gap of some half a million dollars a year. In addition, while most of the local costs associated with LMNP are felt as cash costs and financial losses at the individual or household level, the small amount of revenues shared by the park are received in the form of development benefits for the entire community.

Given this mis-match in both the quality and form of LMNP's benefits and costs at the local level it is hardly surprising that human-park conflicts continue. Local communities are largely unwilling – and in many cases economically unable – to bear these uncompensated costs. Park authorities, already over-stretched in both budgetary and human resource terms, find it difficult to control unsustainable and illegal use of LMNP's land and resources. Although community conservation efforts represent a major step forward in improving relations between the park authorities and adjacent residents, they have so far proven inadequate to offset the high and rising local opportunity costs of LMNP.



Note: UGS=Ugandan Shilling

In addition to covering the direct and indirect costs of PAs, financial sustainability requires close attention to the benefits of PAs and their distribution among different stakeholder groups. PA authorities are increasingly expected to justify their budgets in terms of benefits provided to local communities and the national economy. In much of the developing world, this implies a particular focus on the role of PAs in poverty reduction. While some PA benefits are easily measured – such as local employment, stimulation of rural enterprise or foreign exchange earnings from tourism – it is more difficult to assess the intangible benefits that PAs provide, including cultural or “existence” values and ecosystem services. It is even harder to evaluate the social distribution of PA benefits and the impacts of alternative financing mechanisms on the poor. Nevertheless, this is essential information for assessing PA financial sustainability in social terms. Increasingly, PA managers are assessing and articulating the socio-economic benefits of biodiversity conservation, and managing PAs in ways that enhance these benefits. In some cases, the development benefits provided by PAs are the main rationale for conserving biodiversity. Madikwe Game Reserve in South Africa, for example, was established primarily for socio-economic reasons, while also achieving a number of conservation objectives.⁵⁸

⁵⁸ Davies, 2000, in Prins, H., Grootenhuis, J. and Dolan, T. (Eds.) *Wildlife Conservation by Sustainable Use*, Kluwer Publishers: Boston.

3.5 Creating an enabling financial and economic framework

A wide range of external factors influence PA funding opportunities and financial status. These include market, price, policy and institutional conditions in economic sectors that have indirect but often significant impacts on PAs. For example, in many countries the existence of public subsidies can make biodiversity-depleting or environmentally-damaging activities more profitable than those which are compatible with PA conservation. Such policies can also increase the financial opportunity costs of PA conservation, in terms of alternative uses foregone.

One of the most widespread and best documented forms of so-called “perverse” incentives is the role of economic policy in deforestation and land conversion.⁵⁹ Much of this research focuses on the causes of deforestation in the Amazon but the case is by no means unique. In Eastern Africa, for example, a long history of subsidies to crop production has had major impacts on land use in and around PAs, and on the profitability of agriculture relative to the financial returns from biodiversity conservation.⁶⁰ Within the Serengeti-Maasai Mara ecosystem, Maasai landowners can potentially gain between three (on land with poor agricultural potential) and 23 (on land with good agricultural potential) times as much from farming as they can from combined wildlife and ranching.⁶¹

Despite some progress in reducing or removing public subsidies that encourage intensive resource extraction, pollution or conversion of wild lands and marine resources, much remains to be done (see section 6.2). Similarly, much improvement can be achieved by strengthening resource tenure and legal regimes governing environmental damages, or by introducing more comprehensive social and environmental reporting requirements for private companies. Such reforms would go a long way towards relieving pressure on existing PAs, including demands to “de-gazette” existing reserves as well as encroachment and illicit extraction of PA resources. A more level economic playing field would also strengthen arguments for establishing new PAs.

A more fundamental challenge is that many PA goods and services are seriously under-priced, or not priced at all, by the market. At the same time there are often weak incentives provided for investment in PAs. This can have a major impact on the ability of PAs to generate funds. For example, many PAs provide valuable watershed protection services to downstream towns and cities.⁶² In most cases, however, PAs are not able to capitalize on the value of their contribution to secure water supplies. Even where PAs are able to charge for the services they provide, such as gate fees for tourist visits, the prices are often set far lower than what the market would bear (Box 7). In many African PAs, for example, park entry fees fail either to maximize income or to capture tourists’ willingness to pay.⁶³ Similarly, in Komodo National Park, Indonesia, there is substantial potential for increased revenues from park entry fees, which currently cover only 6.9% of park management costs but are set at less than one-tenth of the price that visitors would be willing to pay.⁶⁴ In some countries or for certain PA management categories, PAs are not legally permitted to generate any revenues at all, or are allowed to engage in only a very limited range of income-generating activities.

Overcoming market, price and policy distortions that act as obstacles to funding is a key element of PA financial sustainability. Without taking action at this broader level it is often difficult either to raise sufficient funds for PAs, to ensure that costs are adequately covered, or to foster an economic environment that encourages investment in PAs.

⁵⁹ Andersen *et al.*, 2002; Angelsen and Kaimowitz, 2001; Barbier *et al.*, 1994; Brown and Pearce, 1994; Chomitz and Gray, 1996; Ozório de Almeida and Campari, 1995; Repetto and Gillis, 1988; Vincent and Gillis, 1998; Wunder, 2003.

⁶⁰ Emerton, 1997.

⁶¹ Norton-Griffiths, 1995, in Sinclair and Arcese, 1995.

⁶² Pagiola, 2002, in Pagiola *et al.*, 2002, pp. 37–62.

⁶³ Pearce, 1997.

⁶⁴ Walpole *et al.*, 2001.

Box 7. Enabling policy, price and market conditions for PAs in Indonesia⁶⁵

The Bunaken National Park (BNP) in Sulawesi, Indonesia is a Marine Protected Area of 89,000ha. BNP was established in 1991 and covers five islands, two separate mainland sections and 22 villages with approximately 30,000 villagers. BNP is one of Indonesia's premier tourism destinations and hosts approximately 20 dive operations/resorts. The park receives nearly 10,000 foreign visitors and 15,000 Indonesian visitors per year.

In recent years BNP has received an annual budget averaging US\$75,000 from the national government, covering basic salary and operating costs. Although required by law to charge an entrance fee, BNP had no such system in place during the first decade of its existence. A legal stipulation that all revenues derived from entrance fees should be channelled to the national treasury was one reason why BNP managers had not implemented an entrance fee system.

In late 1999, the park management and local stakeholders agreed to diversify the park's funding sources, partly in order to strengthen patrol efforts and thereby reduce illegal fishing and destruction of the coral reefs. At the same time, a national policy of decentralization provided an opportunity to retain user fees at the local level. BNP successfully secured "pilot project" status to develop a decentralized user fee system on a trial basis. Following discussions with the tourism community, a per capita fee of US\$7.50 was agreed for international users and US\$2 for national visitors. Although visitors' willingness-to-pay was thought to be even higher, the fees were initially set at a low level in order to facilitate acceptance of the "user pays" concept.

Tourism interests and conservationists argued for 100% of the fees collected to be retained for park management. On the other hand, the local city government demanded that all fees should go into their coffers. Eventually an agreement was struck that 80% of funds would be allocated to park management and 20% would be divided among four levels of government with authority over the park.

In its inaugural year the BNP entrance fee generated total receipts of US\$42,000 between March and December 2001, based on a total of 15,055 visitors including 5,183 foreigners. Although foreign visitors comprised only 34% of all visits they represented 95% of total revenue. Half of the revenue collected was used to increase park patrol capacity while another 10% was used for a communication programme with local villagers. The remainder of BNP's share of the fee income was set aside for the following year. In 2002 the entrance fee rates were doubled, yielding total revenue for the year of US\$110,000 from a total of 25,697 visitors.

A key factor in the success of the new arrangements has been the communication strategy employed by the park management. The introduction of visitor fees was widely publicised and well understood prior to commencement. Similarly, substantial efforts were made to engage the tourist industry at all levels to ensure their cooperation and to secure feedback. An important condition for acceptance of the new fee system by the tourism industry has been full transparency regarding revenue and expenditure. One ongoing concern is the creation of unrealistic expectations due to the early success of the fee system. Initial efforts to share the benefits of the visitor entrance fee have led many local communities to request support from BNP for a variety of public works projects that are perhaps more properly the responsibility of local government.

3.6 Building capacity to use financial tools and mechanisms

Just as managers in the private sector are expected to understand financing issues and tools, PA managers are increasingly required to develop the same competency. No private business manager could expect an enterprise to thrive without good information on costs, cash flow, investment strategies and potential sources of funds. PA managers and park system managers need a similarly detailed understanding of the financial implications of managing their site or system.

⁶⁵ Erdmann *et al.*, 2003.

An important tool for the management of PAs is the development of a business and financial plan. This differs from simple budgeting and cost accounting, in that it identifies not only how much money is needed for different activities, but also locates the most appropriate funding sources for short, medium and long-term needs.⁶⁶ A business plan can also form the basis for priority setting, both in collecting revenue and spending it (Box 8).

A PA business plan also has an important communication role. It can indicate PA funding needs to government agencies and other donors. It sets out the implementation schedule to PA staff and helps explain their role within it. Finally, a coherent business plan serves to demonstrate management competence with the benefit that fund-raising may be easier than would otherwise be the case.

Box 8. Business planning for Masoala National Park, Madagascar⁶⁷

Created in 1997, Masoala National Park is the largest protected area in Madagascar, a country that ranks as one of the world's top five "hotspots" for biodiversity. Masoala NP comprises seven different units, including three marine parks. The park is rich in rare and threatened species including a variety of palms, a recently discovered variety of ancient flowering plant, ten lemur species and marine turtles. Since April 2000, the National Park Service (ANGAP) has been involved in a co-management agreement at Masoala with the Wildlife Conservation Society, which has provided both financial and technical support to park staff for the development of a business plan.

Developing a business plan for Masoala National Park was not easy. To begin with, it was difficult to establish a coherent budget history due to high rates of inflation and frequent changes in exchange rates, as well as management changes over time. The adoption of activity-based cost accounting was also a novel concept in Madagascar, where PA staff were more accustomed to plan activities based on the available resources. The business plan determined that US\$555,000 in annual funding would be required to operate the park to the standard set by park management. With operating expenditures of only US\$263,000 in 2002, however, there was a large funding gap. In terms of personnel needs, the business plan identified 90 full-time equivalent (FTE) posts needed to operate Masoala at the agreed standard. In 2002, however, the park employed 72 FTEs, implying a shortage of 18 FTEs. However, the plan also concluded that most of the additional funding was needed to implement systems to protect biodiversity rather than to employ more staff.

The business planning process for Masoala can be seen as a success on several counts: At the level of the park itself, the business plan is useful for fund raising and as a general communication tool, and has helped to identify high standards of operation for planning. More generally, it has stimulated improvements in overall planning approaches at both the park and national levels. Partly as a result of the experience in Masoala, ANGAP has announced its intention to develop business plans for all principal protected areas in Madagascar, as well as a system-wide business plan to guide its operations.

3.7 Conclusion: what are sustainable PA financing mechanisms?

PA funding should be judged not just in terms of its quantity, but also its quality. Financing plans and funding mechanisms can help address a variety of PA management challenges, only one of which is the amount of funds received. In line with this focus on strengthening management effectiveness, this document argues that *PA financial sustainability is the capacity to secure stable and sufficient long-term financial resources, and to allocate them in a timely manner and appropriate form, to cover the full costs of PAs (both direct and indirect) and to ensure that PAs are managed effectively and efficiently with respect to conservation and other objectives*. The adoption of sound business principles and financial plans is an essential part of this process.

⁶⁶ Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Unit of IUCN, 2000.

⁶⁷ Quintela *et al.*, 2004.

Part II:

Review and analysis

4. A typology of PA financing mechanisms

Key messages in this chapter:

- In recent decades a range of innovative PA financing mechanisms have been developed which go beyond conventional funding sources.
- PA funding mechanisms can be categorized on a spectrum from public to private sources, with a further distinction between mechanisms that rely on external funding inflows and self-generated revenues.
- These categories include a range of financing mechanisms which can be grouped according to how funds are primarily raised and used:
 - Mechanisms and approaches which are concerned with attracting and administering external flows, including government and donor budgets, NGO grants and private and voluntary donations, from both international and domestic sources;
 - Mechanisms for generating funding to encourage conservation activities, including cost- and benefit-sharing, investment and enterprise funds, fiscal instruments and arrangements for private or community management of PA resources and facilities;
 - Mechanisms which employ market-based charges for PA goods and services, including resource use fees, tourism charges and payments for ecosystem services.

The development of new PA financing mechanisms

Part I of this report has questioned whether existing financial flows are adequate to ensure that biodiversity is conserved in PAs. In response to both the quantitative and qualitative limitations of conventional funding, recent years have seen the development of a range of new mechanisms for financing PAs.

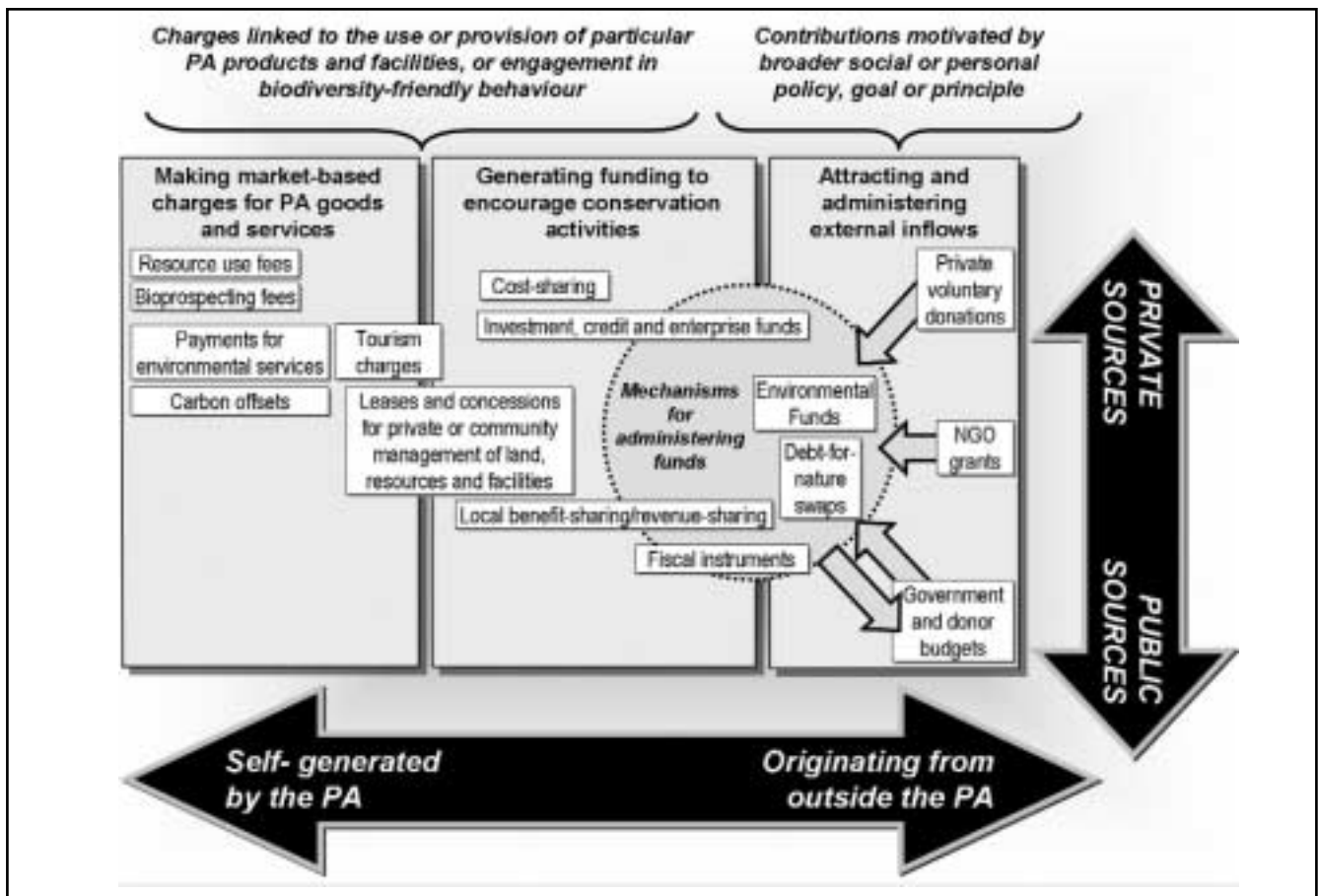
A typology of PA financing mechanisms is outlined below. This is followed by three chapters (5, 6 and 7) which look in turn at each of the three main categories in order to assess their current status, obstacles and opportunities for their use, future potential and challenges to be addressed in order to enhance PA financial sustainability. More detailed descriptions of the different financing mechanisms are provided in a number of other references.⁶⁸

Categorizing PA financing mechanisms according to the source of funds

Broadly speaking, PA financing mechanisms can be ranged on a spectrum (Figure 3) from those which rely on grants to PAs from external sources (which may come with or without conditions) to those which are based on charges for goods and services provided by the PA itself. In general, the provision of grant funds is motivated by broader social or personal policies, goals or principles which place a value on the conservation of PAs – for example for their public good attributes, intrinsic values, development or conservation significance, or as areas of cultural or natural heritage. In contrast, PA revenues derived from fees and charges are linked to the use or provision of particular PA products and services (for example tourist gate fees, resource extraction licences or payments for ecosystem services). Another category of finance relates to incentives for activities that indirectly support the existence of a PA, such as extractive uses by indigenous peoples, certain forms of “green” enterprises, etc. Between these extremes, there are a wide variety of PA financing mechanisms which combine aspects of private and public, grant and commercial funding.

⁶⁸ Key documents and information sources include: Quintela *et al.*, 2004; Conservation Finance Alliance, 2004, Conservation Finance Guide (<http://guide.conservationfinance.org/>); Kloss, 2001; Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaborations with the Economics Unit of IUCN. 2000; Spergel, 2001.

Figure 3. A typology of PA financing mechanisms



Categorizing PA financing mechanisms according to how funds are raised and used

Within this spectrum, it is possible to group PA financing mechanisms into three categories, according to the way in which funds are raised and used:

- Financing mechanisms which are concerned with attracting and administering external flows include government and donor budgets, NGO grants and private and voluntary donations, from both international and domestic sources.
- Cost-sharing and benefit-sharing, investment and enterprise funds, fiscal instruments and arrangements for private or community management of PA land, resources and facilities are primarily mechanisms for generating funding to encourage conservation activities among the groups who use or impact on PAs.
- Resource-use fees, tourism charges and payments for ecosystem services all make market-based charges for PA goods and services, in an attempt to capture some of the willingness-to-pay of PA beneficiaries.

These three categories of financing mechanisms are described more fully in the chapters below, focusing on their current status, obstacles and opportunities for their use, future potential and challenges to be addressed. Case studies are used to illustrate how these mechanisms have been applied to specific PAs and to identify factors critical to their success or failure.

5. Attracting and administering external funds

Key messages in this chapter:

- Although domestic government budgets and foreign aid constitute the cornerstone of PA funding in many countries, they are increasingly difficult to access.
- Gaps in domestic and foreign public sector funding are being filled through new funding from large international NGOs and by private voluntary donations, which account for an increasing share of financial flows to PAs.
- At the same time, a range of new ways of raising and channelling conventional sources of PA finance have emerged in recent years.
- Conservation managers are being forced to become more imaginative in how they conceptualize, justify and use funding for biodiversity conservation in PAs.
- PA managers need to re-think how conventional PA finance is justified and sourced, as well as to increase the amount of funding from private external sources.
- Renewed efforts are needed to market PAs to new donors and to maintain the public profile of PAs in terms of their contribution to broader socio-economic welfare.

5.1 Overview of this category of PA financing mechanisms

This category of financing mechanisms is concerned with mobilizing and using funding that originates from external sources, i.e. outside PAs themselves. A variety of mechanisms exist to attract funding from governments, NGOs, individuals and companies, and to administer and manage these financial resources for biodiversity conservation.

Three ways of attracting and administering external flows of funds are reviewed in this chapter:

- Domestic government budgets and foreign assistance;
- Private voluntary donations; and
- Environmental funds and debt-for-nature swaps.

5.2 Domestic government budgets and foreign assistance

Status

This category of financing mechanism includes domestic government budgets, bilateral, multilateral and NGO funds. Recent trends in government and foreign funding to PAs are described above in Sections 2.3 and 2.4. Such sources are the cornerstone of PA funding in most countries and are likely to remain so over the near future.

There are however indications of shifts in the availability of such conventional funding to PAs. Competition for public funding and for development assistance is increasing. New directions in public spending, and especially a renewed focus on poverty reduction, have inevitably affected the amount of funding available for traditional forms of biodiversity conservation such as PA management, with increasing conditions attached to its use.

At the same time there has been some change in the composition of external funding reaching PAs. There are signs that international funding from non-governmental sources is beginning to account for an increasingly important share of foreign assistance to PAs, especially in key biodiversity “hotspots” and tropical biomes, through funds set up by large international NGOs.

Multilateral funds which combine contributions from various sources, such as the Global Environment Facility (GEF), have over the last decade come to the forefront of international efforts to finance biodiversity conservation, as have funds earmarked for broader sustainable development and poverty reduction. These new opportunities for funding conservation have also tended to be accompanied by a broadening of the purpose of funding beyond “pure” biodiversity goals and government PA agencies. The focus of international aid to PAs, in terms of both goals and target beneficiaries, is diversifying.

Obstacles and opportunities for PA financial sustainability

Shifts in foreign assistance for conservation can be seen both as potential obstacles and opportunities for PA financial sustainability. Governments and donors have become less willing to earmark, and it is becoming more difficult to access, funds targeted at conventional PA management goals and institutions. While this presents a problem for conservation areas and agencies, this gap is to some extent being filled by new funding from large international NGOs.

At the same time PA managers are being forced to be more imaginative in how they conceptualize, justify and use funding for biodiversity conservation in PAs. In particular, the increased focus on sustainable development and poverty reduction presents an opportunity for securing broader local support for PA activities. As described above in Section 3.4, targeting the indirect and opportunity costs of conservation is a key aspect of PA financial sustainability, and the increased potential for channelling funds to communities living in and around PAs may help to strengthen this goal. Placing PAs within a larger sustainable development perspective, and considering the links between biodiversity conservation and other sectors of the economy, may also help to create the broader economic and policy frameworks that are required to enhance the financial sustainability of PAs (see above, Section 3.5). Finally, the need for PA managers to plan and present their funding needs in response to a more competitive funding environment has necessitated the use of business-like financial tools, which can also strengthen PA sustainability (see above, Section 3.6).

Potential for improvement and remaining challenges

The emphasis on sustainable development and poverty reduction by government and donor agencies is likely to continue. While posing a challenge to conservationists, this trend also creates new opportunities for financing PAs, provided that such funding is clearly set with the broader context of sustainable development.

An important priority is to ensure that governments live up to the core PA and biodiversity funding commitments they have already made (see above Section 2.2). The changing focus of public funding should not negate these prior commitments to fund PAs. Here, the primary responsibility lies with governments and with the agencies responsible for PA management, to ensure that these commitments remain high on the agenda of financial decision-makers.

Within the context of sustainable development and poverty reduction, there is considerable room for improvement in how PA funding requests and results are presented. Conservationists must be more explicit about the contribution of PAs to socio-economic development and to other productive sectors, for example via the provision of ecosystem services such as clean water supply. At the same time, greater awareness is needed among finance and development agencies that biodiversity conservation forms an integral component of attempts to reduce poverty and sustain socio-economic development over the long term.

A major obstacle is the continuing low awareness among both conservation and development decision-makers of the role of PAs in achieving sustainable development. Concrete efforts need to be made to raise the priority of biodiversity conservation within the sustainable development agenda, with an explicit focus on how PAs can help achieve local, national and global development goals. A key tool to assist in raising awareness is economic valuation of PA costs and benefits. By determining the economic value of the benefits contributed by PAs, a case can be made for maintaining or even increasing funding. Valuation studies are typically most effective when they focus on specific, policy-relevant questions, such as comparisons of the net benefits of alternative conservation investments, or the design of PA user fees.⁶⁹

⁶⁹ Pagiola *et al.*, 2004.

Despite the continuing importance of government and aid funding, there is a need to diversify PA funding (see above, Section 3.2). Identifying and capturing additional, non-conventional funding presents a major opportunity for improving PA financial sustainability. These additional mechanisms, their status, strengths and opportunities, are presented below.

5.3 Private voluntary donations

Status

Personal donations and philanthropic foundations have long been a mechanism for funding PAs, often through contributions made to the charities and NGOs that fund and undertake PA conservation. There are indications that over recent decades corporate funding and sponsorship of PAs has increased. This probably reflects greater consumer awareness and pressure on companies to invest in the environment, the promotion of ethical and “green” considerations in the business world, and increased opportunities to successfully market products and services through association with conservation.

A range of mechanisms exist through which private voluntary donations are channelled to PAs. These include:

- **Philanthropic foundations:** not-for-profit NGOs, usually with endowment funds established by wealthy individuals or companies. For example the Ford Foundation, Rockefeller Foundation, United Nations Foundation, and Gordon and Betty Moore Foundation all provide substantial funding to PAs.
- **Corporate funding:** this operates at international, national and local levels. Several companies have established special funds or programmes for biodiversity conservation, such as Shell and British Petroleum. Some of these funds are open to competitive application for projects anywhere, while other funds focus on sites, sectors or countries where the parent company operates (Box 9). Similarly, at national and local levels, business advertising or sponsorship can be an important fund-raising mechanism for PAs. In the Seychelles, a national bank has sponsored the purchase of waste bins in PAs. Both the British National Trust and WWF raise funds through credit cards issued by commercial banks. Jaguar, the automobile manufacturer, has contributed funds for the conservation of jaguars, their habitat, and to *ex situ* and *in situ* measures for their preservation over the last 20 years.
- **Personal donations:** reflect the growing interest of many people in the conservation of wild species and natural areas. Such funds originate from a range of sources, including individuals, informal groups and organizations, and are raised and administered in many different ways. Cause-related marketing, for example, involves the sale of products or services with an explicit link to conservation, such as eco-labelled products or special events and auctions held in support of conservation. Adoption and “friends of” programmes have also been widely used to generate funds or in-kind support for specific PAs, species or projects (Box 10). Many opportunities exist for concerned citizens to “sponsor” an elephant or a whale, or to donate funding or their time to conservation causes.⁷⁰ Workplace donation schemes are another effective way for individuals to donate to PAs, enabling employees to agree a regular deduction from their salary, which is channelled via their employer to one or several charities.

⁷⁰ For example, The Nature Conservancy and its partners in Guatemala, Panama, Costa Rica and other countries have raised money for biodiversity conservation by selling “deeds” to parts of PAs. For between US\$35 and US\$120, the donor receives a certificate acknowledging his or her “adoption” of the land and its wildlife. These certificates have proved to be popular gifts and school children have engaged in fund-raising events to buy them. For details see: UNEP, 2000.

Box 9. Corporate donations to national park management in Indonesia⁷¹

Kutai National Park is located in Bontang, East Kalimantan, Indonesia. In 1982 it was one of ten PAs to be formally approved as a National Park. Covering just under 200,000ha, it has immense international significance for the conservation of lowland tropical rainforest and contains a high diversity of wildlife including all five primate species endemic to Borneo. At the same time, Kutai National Park faces many pressures. Over time the bulk of the PA has been de-gazetted to accommodate growth of nearby industrial and urban areas, with the result that the park now covers less than 10% of its original area of 2 million ha. As well as facing pressure from outside the park, at least five settlements are located within the PA. Forest fires, illegal logging, encroachment and hunting also threaten the PA and the species it contains.

Indonesia's National Parks are managed by the Directorate General of Nature Conservation and Protection (PKA) of the Ministry of Forestry and Estate Crops. In an attempt to address a chronic shortfall of funds, PKA has initiated a number of partnerships with PA stakeholders in the country. One such partnership operates in Kutai National Park. At least eight large companies operate within or near the PA, including oil, gas and coal mining, fertilizer production and logging. Since 1996 these companies have contributed funding to support the operations of the PA. An association formed especially for this purpose, the "Friends of Mitra Kutai", has channelled contributions for park management and community development activities. Cash contributions go directly to the PA budget, while non-cash contributions include fire-fighting equipment, trucks, personnel, fuel and food, as well as tree nurseries established by the companies.

A key factor in the success of the Friends of Kutai has been strong support from local companies. With some encouragement from outside facilitators (in this case UNESCO and UNDP), local industries were persuaded to contribute time, funds and other resources to Kutai National Park – even though there was no direct benefit to them from doing so. Between 1996 and 2000, participating companies invested more than US\$300,000 in Kutai National Park. Corporate donations have been used for mapping the park, ecotourism development, forest fire prevention and training, as well as community development activities in four villages located within the PA. At the same time, many challenges remain, including:

- **Limited government support.** The Friends of Kutai was originally developed under a UNESCO-UNDP project. To date there has been little direct involvement of the local government of Bontang. And yet without the active involvement of local government, it is difficult to address many of the threats to the PA, for example encroachment and urban expansion.
- **Autonomy of PA authorities.** Most of the contributions of Friends of Kutai to the PA have involved one-off projects carried out directly by the companies involved. Some suggest that corporate actions have displaced or undermined the authority of the government agency responsible for Kutai National Park. While this can be debated, it is clear that projects supported by the Friends rely upon the continuing commitment of the companies that fund and implement them.
- **Lack of coordination.** When Friends of Kutai was established, UNESCO-UNDP provided a facilitator to organize and oversee activities. When the project ended the facilitator was not retained and there has been a subsequent decline in communication and coordination of effort by group members.

Obstacles and opportunities for PA financial sustainability

Private and corporate voluntary donations present a major opportunity to expand and diversify the financial base of PAs. Although in some cases their use is tied to specific missions, locations or even species, such donations have the potential to be more flexible than many other PA funding sources. On the other hand, private donations can also be relatively fickle, as donors shift their support among various "worthy causes" in response to high-profile environmental "events", media stories and humanitarian disasters.

⁷¹ Suharso, 2000 and Suratri, 2000, both in Galt *et al.*, 2000.

What is less clear is how well private donations can address the severe PA funding gap in developing countries. The bulk of private donations come from individuals resident in developed countries and are often directed at local or national conservation areas in those countries. Moreover, compared to fund raising from governments and aid agencies, securing private donations often requires large investments of time and effort to identify, persuade and satisfy the donor, relative to the amounts raised. In many cases PA authorities or managers do not have the skills or contacts to undertake this kind of fund raising, and therefore rely on others (such as NGOs or social marketing specialists) to secure this funding, thus adding further to overheads.

Box 10. Park Care in Canberra, Australian Capital Territory⁷²

The Park Care programme was established in 1989 in Canberra, Australia, by the Australian Capital Territory government to support the management of urban nature parks. Canberra has an extensive area of bushland that has been protected from development under town planning provisions. Permitted uses of these parks are limited and include walking, equestrian activities, bird watching and picnicking. The areas retain their natural characteristics and are unique in that they have not been developed for recreational uses involving playground equipment, adventure sports and the like.

The aim of Park Care is to mobilize local volunteers to assist park staff in the care of nature parks. Each park has a group which coordinates volunteer work and reports to a Park Care Coordinator employed by the Government. Park Carers (volunteers) are provided with training and equipment to undertake seed collection, plant propagation, tree planting, weed removal, track development and maintenance, erosion control, vegetation mapping and recording, water quality monitoring, raising community awareness, and maintenance and restoration of heritage places.

While the ACT Government provides basic funding to cover the costs of tools and public liability insurance, the volunteer groups are encouraged to provide their own funding or to seek assistance from interested parties such as the Scouts, Greening Australia, Rotary and other service clubs. The main contribution of Park Care groups, however, is the time and effort of the volunteers. Through Park Care tens of thousands of people from local communities and schools have been involved in tree planting, weed control, mapping, surveys of animals, sign posting, track maintenance and promotional campaigns. Park Carers have also been instrumental in preparing the management plan for Canberra Nature Parks and guiding its implementation.

In addition to the physical and technical contribution of volunteers, the Park Care movement represents a powerful instrument for involving the community and building public support for nature conservation. The programme focuses particularly on local school groups, which are involved in tree planting and plant propagation. Not only does this result in an improved natural environment but the educational outreach also appears to reduce vandalism and other detrimental uses.

Key factors in the success of Park Care include:

- an enabling institutional framework provided by government, with core support including personnel and funding;
- a supportive local community sharing the Park Care vision and motivated to make a difference by offering their time;
- partnerships with other sectors of the community that are willing to provide funding and support for specific projects; and
- effective communication with local communities about proposed activities and the progress being achieved.

⁷² www.environment.act.gov.au/yourenvironmenthwp/parkcare.html

Potential for improvement and remaining challenges

Private voluntary donations may never constitute a very large proportion of total financial flows to PAs. Nevertheless, they have the potential to contribute substantially to the conservation of individual PAs or species, or to meeting particular biodiversity-related goals and causes.

Increasing the amount of funding to PAs from individual donations will require the development of more appealing and convenient mechanisms to solicit and capture these funds. A further challenge is to sustain private interest in the environment over the long term, and to capitalize on this interest through donations of funds, goods or services to PAs.

Growing interest within the corporate sector in funding or sponsoring PAs, combined with rising consumer awareness of the importance of environmental issues, presents a major opportunity for increasing PA financial resources, their diversity and sustainability. To meet this potential a key requirement will be for PA managers and agencies to work more closely with the private sector to identify PA funding needs, to justify the benefits of investing in PAs in business terms, and to develop mechanisms for corporate funds to be allocated and used for biodiversity conservation.

5.4 Environmental funds and debt-for-nature swaps

Status

Raising funds for PAs is one challenge; managing financial resources once they have been secured is another. This section describes mechanisms used to facilitate the administration and management of financial resources for PAs. These rely on finance raised from a variety of public and private, international and domestic sources, and provide a means of ensuring that funds are earmarked for specific conservation activities or are targeted at particular sites or groups.

- Debt-for-nature swaps are a mechanism by which public debt is purchased at a discount by an outside agency – often an international NGO – and retired in exchange for government commitments to fund conservation activities, often through the establishment of a trust fund (see below). Over the last two decades such swaps have been used to raise funds for PAs in many developing countries, where government debt to foreign creditors is often heavily discounted (Box 11). Since 1987, over US\$1 billion in environmental funding has been generated through debt-for-nature swaps in nearly 30 countries.⁷³
- Environmental funds have been set up in many countries as a way of managing funding for PAs. Such funds are typically established in conjunction with large, one-off contributions from donor agencies or NGOs. These funds may be supplemented or replenished by private sector contributions, fiscal revenues and earnings from market-based charges for PA goods and services. Three types of trust funds are common: endowment funds spend only income while attempting to maintain or enhance capital; sinking funds liquidate all of their assets over a specified period of time; while revolving funds are designed to receive regular replenishments, often from various sources. Of these, only the first is truly a long-term or revenue-generating financial mechanism (Box 12).

⁷³ Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Unit of IUCN, 2000.

Box 11. The TFCA and debt-for-nature conversions: a mixed success⁷⁴

The Tropical Forest Conservation Act (TFCA) was enacted in the USA in 1998 (and re-authorized in 2004) to offer eligible developing countries an opportunity to relieve their official debt to the US government while at the same time generating funds for tropical forest conservation activities. To be eligible for funding under the TFCA, countries must have a tropical forest of global or regional significance, as well as meeting certain political and economic criteria established in the law.

TFCA agreements can be structured as debt reduction, debt buyback or a debt-for-nature swap. Local currency funds are used for a broad variety of forest conservation activities, including the establishment, restoration, protection and maintenance of parks and protected areas. As well as providing funding to government, finance raised through TFCA agreements has been used to create local foundations to support small grants to NGOs and local communities.

Since the establishment of the TFCA, the US State Department has released over US\$70 million. TFCA agreements have been reached with Bangladesh, El Salvador, Belize, Peru, the Philippines, Panama and Colombia. Several international conservation NGOs (The Nature Conservancy, Worldwide Fund for Nature, Wildlife Conservation Society and Conservation International) have leveraged additional funding on the basis of the US contribution. Reauthorization of the TFCA allows for appropriations of an additional US\$75 million and negotiations on debt conversion are underway with Jamaica, Guatemala, Ecuador, Paraguay, St Vincent, Botswana, Costa Rica, the Dominican Republic, India, Indonesia, Brazil, Kenya and Sri Lanka.

The TFCA has raised funds for biodiversity conservation while also easing countries' foreign debt burden. For example the Belize agreement has set aside almost 10,000ha of forest reserves and provided support for local NGOs to manage more than 112,000ha of existing national reserves. In Peru, funds were used to provide grants for training and capacity building to manage two PAs. In Panama, a TFCA agreement helped preserve the Chagres River Basin, a high biodiversity tropical forest which also provides important watershed functions. In 2003, a debt-for-nature swap was signed with Colombia which will result in an investment of at least US\$10 million over 12 years to protect almost 5 million ha of tropical forests, including the Tuparro National Park.

In contrast to these apparent successes, in some other countries the TFCA has sparked controversy. For example in 2001 the US government approached Sri Lanka with an offer to convert debt worth US\$5 million, suggesting that the local currency raised should be used to establish a Tropical Forest Conservation Fund to finance conservation activities in four areas of the country. The proposal provoked heated debate, with many conservationists in Sri Lanka accusing the US government of using the TFCA to obtain control over forest resources in tropical countries. In particular, some have suggested that the TFCA agreement and the management structure of the fund it proposes to establish would allow US research institutions unchecked access to Sri Lanka's forests, especially for bio-prospecting purposes, as well as undermining Sri Lanka's sovereignty over its national forest estate.

Various factors appear to play a role in the perceived success or failure of the TFCA in different countries:

- **Funding conditionalities.** Successful TFCA agreements reflect the willingness of governments and civil society to accept the principle of converting foreign debt to raise funds for forest conservation, as well as the specific conditions attached to the receipt of funds. The TFCA conditions include the presence of a democratically elected government, cooperation on international narcotics control measures, and having an economic reform programme in place.

Cont.

⁷⁴ Tropical Forest Conservation Act Fact Sheet, 2003; 'Conservation organizations support reauthorization of the Tropical Forest Conservation Act', *Press Release June 29 2004*, CI, TNC, WCS and WWF, Washington DC; 'Ground realities: debt for forests conservation à la USA', *Sri Lanka Daily News 6 July 2003*; EFL, 2003, 'US Tropical Forest Conservation Act and Sri Lanka', Environmental Foundation Ltd, Colombo.

Box 11. The TFCA and debt-for-nature conversions: a mixed success (cont.)

- **Support from international NGOs.** Several international conservation NGOs, including The Nature Conservancy, WWF, Wildlife Conservation Society and Conservation International, have voiced support for the TFCA, helping to raise its credibility in some countries. These NGOs have also raised co-financing to supplement funds provided under the TFCA.
- **Perceived political and economic motivations.** In Sri Lanka, suspicions about the underlying motivations of the TFCA have been an obstacle to its implementation. Little effort has been made to explain the workings of the TFCA and its associated agreements, with the result that this funding is not generally perceived as being in the interests of the country. Contentious issues include questions about the ownership of natural genetic material, intellectual property rights, local access to forests, national sovereignty and the right of Sri Lankan people to manage their own natural resources.
- **Fund management.** In Sri Lanka the proposed mechanism for administering the financial resources released through the TFCA — a Tropical Forest Fund — has proved controversial. Reservations have been expressed over the composition of the Fund's Board and the risk that this would be heavily influenced by foreign interests.
- **Record of donor interventions.** In Sri Lanka, reservations have also been expressed about accepting funds from a country that is not seen as having a good record on global environmental governance. This, combined with more general scepticism about how international funding has been used to finance conservation in the country, has led to questions about the long-term impact of the finance raised.

Obstacles and opportunities for PA financial sustainability

Debt-for-nature swaps and environmental funds offer transparent, accountable and multi-stakeholder mechanisms for mobilizing and administering large amounts of funding. Both can provide long-term and sustainable finance for PAs, as well as ensuring that a degree of control over the allocation of funds remains with PA managers and other local stakeholders. On the other hand, debt-for-nature swaps and environmental funds are complex instruments to negotiate, set up and administer, requiring elaborate legal and institutional structures and strong technical capacities. Moreover, substantial inputs are often required from third parties (usually international NGOs).

Potential for improvement and remaining challenges

Both debt-for-nature swaps and environmental funds have great potential to provide a major source of finance for PA networks in particular countries. They can be used as the main mechanism to establish a financial base and to ensure the long-term financial sustainability of individual PAs.

Perhaps the greatest challenge to using these instruments is persuading donors to provide large sums of money as single grants, while at the same time ensuring that substantial decision-making powers over the use of funds remain with PA managers. Multilateral and bilateral donors often have their own priorities for funding conservation and may be unwilling to commit large sums without corresponding influence over the use of such funds. Recipient governments and PA agencies, too, are often wary of taking a long-term perspective on funding or setting up independent, multi-stakeholder mechanisms for managing funds, preferring to allocate short-term assistance through existing budget channels. Convincing both donors and recipients of the value of setting up separate endowments for PAs, and of involving a range of stakeholders in fund management and allocation, remains a major challenge.

5.5 Conclusion: attracting and administering external funds

Domestic government budgets and foreign assistance have been, and are likely to remain, a core component of PA funding in most countries. Voluntary contributions from both civil society and the private sector provide an important supplement to these sources. Funding raised from corporate and business sources has the potential to account for a much larger proportion of the funding flowing to PAs – especially at the level of individual PAs and through mechanisms such as environmental trust funds and debt-for-nature swaps.

Box 12. The Bhutan Trust Fund for Environmental Conservation⁷⁵

Since its inception in 1991, the Bhutan Trust Fund for Environmental Conservation (BTF) has seen cumulative growth in its endowment from an initial US\$21 million to over US\$36 million. To date the BTF has awarded US\$5 million in 46 grants to various beneficiaries. Grant-making is guided by strategic objectives, focusing on biodiversity conservation and local capacity building.

The overall impact of the BTF on Bhutan's scientific and management capability for conservation has been tremendous. By 2004, a total of 142 individuals had been recruited and trained. Their recurring costs have been incorporated into core budgets (as of July 2003). Non-governmental organizations have also benefited from BTF support. For example, the fund supporting training in the natural sciences for six Bhutanese in the faculty at Sherutbse College. The Royal Society for the Protection of Nature (RSPN) likewise received support from the BTF, which it leveraged to secure additional external project financing. In this case, a US\$1 million endowment was created to cover the RSPN's core recurring costs, which external donors are often reluctant to fund. BTF provided a US\$450,000 challenge grant to match external contributions.

BTF operates under an annual spending limit, which is based on the endowment's valuation at the end of the preceding fiscal year. This enables fund staff to operate within a clear financial target, and permits reinvestment of unspent investment income to hedge against inflation and continuously increase the endowment. The current spending rule of 2.5% of the endowment was revised from a previous limit of 5%, in order to preserve the inflation-adjusted capital.

Key factors underlying the success of the BTF include:

- **Strong local governance.** The BTF is governed by a fully Bhutanese, seven-member management board with ultimate programme and fiduciary responsibility. The board has high-level membership reflecting the importance placed on the fund's objectives, and conferring prestige and credibility to the fund's business.
- **Independent investment advice.** Due to the specialized nature of investment instruments in use today, BTF relies on independent expertise to advise on investment policy and strategy.
- **An integrated approach.** The government of Bhutan is integrating environmental management across all sectors. The BTF is likewise looking beyond a compartmentalized "green" agenda so as to move forward with government.

If the amount of funding reaching PAs from these sources is to be maintained, and even increased, it will be necessary to reorient the ways in which such funding is justified and sourced, particularly in order to tap budgets earmarked for poverty reduction and development. At the same time, it is equally important to ensure that donors and governments fulfil their existing obligations to fund PAs and biodiversity conservation directly. There is also some potential to increase funding for PAs from private donations, particularly from the corporate sector. This will require concerted efforts to maintain the profile of PAs as a cause worth funding, and may also require more imaginative efforts to market PAs to the public and to the private sector (Table 2).

⁷⁵ Tobgay Namgyal, 2003.

Table 2. Attracting and administering external funds: status, potential and needs

	Status	Main potential	Actions required
Domestic government budgets and foreign assistance	<ul style="list-style-type: none"> • The core component of PA funding • Overall amount of funds stagnant or declining • Major reorientation of aid funding to support poverty reduction • Not sufficient at current levels 	<ul style="list-style-type: none"> • Existing flows to be maintained or increased • Direct budget support for PA agencies • New opportunities via development and poverty-reduction funding windows 	<ul style="list-style-type: none"> • Honour commitments to fund PAs • Reorient PA funding in line with development and poverty reduction • Increase awareness among decision makers of PA-development links
Private voluntary donations	<ul style="list-style-type: none"> • Important if rarely major source of PA funding • Can be critical for specific PAs, species or conservation goals • Growing interest in PAs from corporate sector 	<ul style="list-style-type: none"> • Continuing support, especially at local level • Potential for increasing corporate sponsorship 	<ul style="list-style-type: none"> • Sustain and increase public interest in PAs • Increasing interaction with private sector • Develop new/better approaches to 'market' PAs to private donors
Debt-for-nature swaps and environmental funds	<ul style="list-style-type: none"> • Major funding source during 1980s and 1990s • Somewhat less widely used today 	<ul style="list-style-type: none"> • Can provide substantial and secure funding for individual PAs and PA systems • New opportunities for PA funding through development and poverty-reduction funding windows 	<ul style="list-style-type: none"> • Reorient PA funding in line with development and poverty reduction • Convince donors to set up endowments and devolve decision making to local managers • Convince PA agencies to maintain capital by investing funds

6. Generating funds to encourage conservation

Key messages in this chapter:

- A range of non-government actors have the potential to manage PAs but must perceive clear benefits if they are to be persuaded to invest in biodiversity conservation.
- Fiscal mechanisms are increasingly being used as effective mechanisms both to provide incentives for conservation as well as to raise funds for PAs.
- There is increasing recognition that PAs need to involve and benefit local communities, and a range of mechanisms have been developed to share PA benefits locally.
- PA management costs are increasingly shared with users and other beneficiaries, while the responsibility for managing PAs is being devolved to communities and the private sector, helping both to reduce public sector costs and raising funds for PAs.
- A variety of mechanisms are available to stimulate private investment in PAs and biodiversity conservation, through provision of credit and enterprise support.
- There remains a need to increase awareness of the financing needs of PAs and the range of stakeholders with an interest in them, and to develop mechanisms that can channel funds from groups willing to finance conservation to those who bear its costs.
- Both conservation and development decision makers need better information on funding approaches and financial mechanisms used in other sectors that can be applied to PAs.

6.1 Overview of this category of PA financing mechanisms

Although most PAs are managed by public sector authorities, there are a wide range of other actors who affect, or have the potential to influence, the status and integrity of PAs. A range of financial mechanisms exist to encourage individuals, communities and companies to produce and consume in ways that are compatible with PA conservation. There are also various ways of spreading the costs or funding burden associated with PAs among different stakeholder groups.

Generating funding to encourage conservation thus aims both to provide stronger incentives for biodiversity conservation and sustainable use generally, as well as to raise finance for PAs. Four types of funding to encourage conservation activities are reviewed in this chapter:

- Fiscal instruments;
- Benefit sharing and revenue sharing;
- Sharing the costs of managing PAs and their facilities; and
- Investment, credit and enterprise funds.

6.2 Fiscal instruments

Status

Fiscal instruments, i.e. taxes and subsidies, are mechanisms for raising and transferring funds between sectors. Although traditionally focused on “productive” sectors of the economy, in recent years there has been increasing emphasis on the use of fiscal instruments to generate revenues and influence behaviour so as to meet environmental goals. During the last two decades, in particular, many governments have modified their environmental and natural resource tax and subsidy systems to support PAs and biodiversity conservation. Some countries have gone even further, by removing or reducing government support for economic activities that compete with conservation.

International experience has confirmed the potential of environmental fiscal reforms (EFR) to reduce natural resource degradation and pollution. Such reforms may include the introduction of taxes on natural resource extraction, removal of environmentally damaging product subsidies, introduction of new product taxes and user charges, and modifications of other taxes and charges.⁷⁶ Properly designed EFR can: create economic incentives for more efficient resource use and pollution abatement, by driving up the cost of environmentally harmful activities or increasing the returns to sustainable approaches (e.g. environmental taxes and charges); mobilize funds for environmental protection and natural resource management (e.g. via environmental charges and fiscal transfers); and ensure a more equitable distribution of benefits and costs from the management of environmental resources (e.g. improved access to environmental public goods via public investments and pricing reforms).

Fiscal instruments can be used to finance PAs and biodiversity conservation directly or indirectly. Taxes and other charges can generate substantial revenues for PAs. In many cases, revenues generated by the sale of wildlife-related products or services are reinvested in conservation. In other cases, a proportion of general sales taxes or taxes on products unrelated to biodiversity or PAs have been earmarked for conservation (Boxes 13 and 14).

Box 13. Allocating tax revenues to wildlife conservation in the USA⁷⁷

Federal excise taxes on hunting and fishing equipment: The Federal Assistance in Sport Fish and Wildlife Restoration Program is funded from a 10–11% excise tax on hunting and angling equipment, and a 3% tax on sport fish boating supplies. During the 67 years of its existence, the Program has contributed more than US\$9 billion to wildlife conservation, including US\$464 million in 2004 alone. Revenues from the programme are shared with the states according to their relative land area and the number of registered hunters.

California tobacco tax initiative: When the State of California's tax on cigarettes was raised by 25¢ in 1988, 5% of the tax revenue was earmarked for state and local park programmes and wildlife habitat conservation projects. The California Wildlife Protection Act of 1990 (Proposition 117) raised this to 10%, while at the same time a Habitat Conservation Fund was established to manage the resulting revenues. The fund receives US\$30 million annually from the cigarette tax and general budget appropriations, and disburses these funds through a competitive grant programme to local government agencies. Funds must be used to acquire and restore wetlands, streams and riparian habitat, wildlife and endangered species habitat, and unique habitat.

Missouri Conservation sales tax: Since 1976, Missouri has imposed a state-wide tax of 0.05% on all sales of tangible personal property or taxable retail services, with revenues earmarked for wildlife conservation. Funds are administered by the Department of Conservation for the control, management, restoration, conservation and regulation of the state's bird, fish, game, forestry and wildlife resources.

Alternatively, fiscal instruments can be used to encourage producers to adopt biodiversity-friendly technologies or activities (examples include tax relief or direct subsidies for “clean” technologies or “green” products). Such instruments can create incentives for producers and consumers to conserve PAs, or to refrain from activities that undermine PAs, such as extensive agriculture or road building in environmentally sensitive areas. In some cases governments have redeployed or re-focused existing taxes and subsidies, while in other cases they have introduced new fiscal instruments targeted directly at PAs.

⁷⁶ OECD, 2005.

⁷⁷ Koteen, 2004.

Box 14. The ICMS Ecologico in Brazil⁷⁸

Several states in Brazil have experimented with tax revenue sharing as a means of funding PAs. One of the best known schemes is the ICMS Ecologico, based on the Imposto sobre Circulação de Mercadorias e Serviços (a tax on goods and services similar to a value-added tax). The ICMS accounts for over 90% of revenues for State governments in Brazil. Under the Federal Constitution, 75% of ICMS receipts are allocated to state governments and 25% to municipalities. Of the latter share, 75% are distributed in proportion to the economic value-added recorded in each municipality. The remaining 25% are distributed according to criteria defined by each state (e.g. agricultural output, population, number of farms, municipal surface area, etc). It is through these complementary state laws that the “Ecological ICMS” has been introduced.

The main objectives of the ICMS Ecologico are to compensate municipalities that have PAs within their territories for the resulting loss of tax revenue, while at the same time stimulating the creation of new PAs. Other environmental objectives of these schemes include the protection of water sources and encouraging improved sanitation and waste management. The ICMS Ecologico was first adopted by the state of Paraná, in 1992. Similar schemes have since been introduced in ten out of 27 Brazilian states nationwide, covering more than 10% of Brazil’s municipalities.

In the state of Parana alone, over the period 1992 to 2000, the ICMS Ecologico has resulted in contributions of about US\$97 million for biodiversity conservation and an equivalent sum for the protection of natural water sources. During the same period, partly as a result of the financial incentive provided under the scheme, the state has seen a five-fold increase in the total number of PAs and more than a doubling of the area under protection. The largest contribution has come from the establishment by municipal governments of “environmental protection areas”, which are relatively easy to create and do not require strict protection. As of 2000, roughly half of all municipalities in the state had benefited from payments for biodiversity or for the protection of natural water sources. For biodiversity, in particular, the amount received by each municipality depends on the proportion of total land area under protection, with adjustments for the level of protection and management effectiveness. Similar results are seen in other states that have developed variants of the ICMS Ecologico.

At a national level, the ICMS Ecologico has resulted in about US\$100 million per year being distributed to municipalities according to the area of land under protection and other environmental criteria. Proponents of the scheme argue that it has encouraged the creation of new PAs, improved the management of existing PAs, strengthened environmental agencies at state level and improved relations between rural communities and PA staff. At the same time, several challenges remain, including inconsistent emphasis on the quality of PA management, lack of transparency about the flow of funds and, perhaps most importantly, the risk that shifting political priorities may lead to changes in the criteria for revenue-sharing at the expense of PAs.

Both developed and developing country governments have introduced or are considering fiscal instruments to support PAs. In Germany, for example, reform of the local land tax regime to include ecological elements was first proposed in 1998 and is currently under consideration. Pakistan is designing a comprehensive programme of environmental-fiscal reforms. A taskforce of the China Council for Environment and Development has been convened specifically to produce recommendations on the pricing of natural resources and ecosystems, green taxation, environmental investment and instruments to improve poverty and environmental status. Additional examples can be found in many other countries.

Relief on personal income tax or land tax is another effective mechanism, used in many parts of the world, to encourage donations of money or land to biodiversity conservation (Box 15). In the USA, for example, taxpayers are

⁷⁸ May *et al.*, 2003.

allowed to deduct the value of qualified charitable donations from their annual taxable income. The deduction provides a financial incentive to dedicate land for conservation purposes and has stimulated donations of land or easements to land trusts around the country. According to the Land Trust Alliance, over 2 million acres has been protected with such conservation easements.⁷⁹

Box 15. Fiscal incentives for private reserves in Brazil⁸⁰

Brazil's Programme for Private Reserves of Natural Heritage (RPPN) supports the creation and maintenance of private PAs. Under the programme private landowners can voluntarily declare all or any part of their property to be permanently protected. Launched by Federal Decree (1996) and State Decree (1998), the RPPN Programme was revised and incorporated into legislation passed by Congress in 2000. To date, six of Brazil's 26 states have enacted legislation that mirrors the federal law. Landowners must apply for RPPN status with the Brazilian Environmental Institute or, where laws permit, with local officials. If approval is granted, landowners receive breaks on property taxes and priority access to certain public financing programmes, such as the National Environmental Fund. Under the RPPN programme, land use is restricted to research, environmental education, ecotourism and limited resource extraction.

National agencies and international conservation NGOs, including WWF and TNC, have assisted landowners to create RPPNs, especially where land is located near existing PAs. For example, a mosaic of private reserves surrounds the Chapada dos Veadeiros National Park in the central state of Goiás. Similarly, near the Una Biological Reserve in Bahia State, the Socio-Environmental Institute of Southern Bahia (IESB) provides agricultural extension services to farmers, who create RPPNs as a form of "payment". Where ecotourism is viable, IESB provides technical assistance to landholders who establish RPPNs.

The RPPN has resulted in an increase in the national protected area estate in Brazil. It has been particularly useful as a means of consolidating fragments of natural habitat and creating ecological corridors. Approximately half a million hectares of privately-owned land is now protected by state and federal laws in Brazil, representing just under half a percent of total conservation units in the country. Nearly 600 individuals, corporations and activist groups have voluntarily registered private property under the RPPN scheme since 1990. Key factors in the success of the RPPN include:

- **Incentives for private participation.** Although exemption from rural land tax is offered as a fiscal incentive to encourage the creation of private reserves, it is not clear how important this factor has been in landowners' decisions to join the RPPN programme. Lack of profitable alternative uses of lands, combined with landowners' personal wishes to conserve biodiversity, appear to have been more common motives for entering into the RPPN scheme.
- **Enabling legal frameworks.** The presence of a comprehensive legal framework to support the RPPN programme has been essential to its long-term success. Relevant decrees specify clearly the rights and obligations involved in declaring land under the RPPN scheme, and also set clear parameters for its subsequent use and transfer.
- **External support.** Several international NGOs and national government agencies have been involved in advocating, facilitating and providing technical support to the RPPN programme and to landowners who participate in it. This additional support and encouragement, particularly in assisting in the development of biodiversity-based businesses such as ecotourism, has increased awareness and acceptance of the scheme.

⁷⁹ Clark and Downes, 1996.

⁸⁰ Hinchberger, 2004, (www.brazilmax.com); Bernades, undated.

At an international level, there have been several proposals for the introduction of new fiscal mechanisms in order to raise funds for a range of good causes, including biodiversity conservation. In the 1970s, for example, an American economist, James Tobin, proposed a tax on international financial transactions, mainly as a means of dampening exchange rate volatility, but also as a new source of public revenue. More recent discussions of potential international tax mechanisms to finance “global public goods” include a variety of academic, official and advocacy reports.⁸¹ To date, however, there has been little progress towards the introduction of international taxes to finance conservation and other public goods. A major impediment appears to be the reluctance of nations to cede their sovereign power of taxation to a supranational authority.

Obstacles and opportunities for PA financial sustainability

Fiscal instruments have enormous potential both to raise (through taxes) and allocate (through subsidies) funding for biodiversity conservation. A major strength of fiscal instruments is the ability to target specific groups or products. They have the added advantage that, as well as acting as financing mechanisms for both government and PA users/managers, they can help change people’s behaviour in favour of PA conservation and thus contribute to creating the broader economic conditions required for PA financial sustainability (see above, Section 3.5). Another advantage of fiscal instruments is that relatively low rates of tax can generate large flows, due to the size of the tax base. However, although fiscal instruments are one of the main mechanisms for guiding producer and consumer behaviour and raising revenues in other sectors of the economy, they are still under-used for environmental finance and management. In particular, there is great potential to strengthen their use for PA conservation.

One obstacle to greater use of fiscal instruments for PA conservation is lack of awareness of their potential benefits among PA managers, combined with the fact that financial and economic planners have not traditionally included environmental goals when they design and implement fiscal systems. Tax and subsidy systems can also be complex and costly to implement and enforce. Subsidies, in particular, can present a major drain on public funds and budgets unless they are designed as part of a package of revenue-generating instruments that can be used to offset their costs. It is also usually necessary to put in place a system for enforcing the use of fiscal instruments, including supporting legislation and regulations.

Potential for improvement and remaining challenges

Opportunities for using fiscal instruments to finance PAs include generating revenues for government (through taxes), channelling funds to PA users and managers (through budgetary transfers and subsidies), and changing producer and consumer behaviour in favour of biodiversity conservation. Although their use has grown over recent years, such instruments are still not routinely considered part of PA funding strategies in most countries, or as an integral component of countries’ broader fiscal systems. There is great potential to extend and improve their use to fund biodiversity conservation in PAs.

Factoring PAs into the design of fiscal systems (to provide positive and enabling incentives and funding, or to dismantle existing disincentives) remains a major challenge. A key priority is to raise awareness among both conservation and development decision makers about the potential of fiscal instruments as a mechanism for funding PAs and reducing external pressure on biodiversity.

6.3 Benefit sharing and revenue sharing

Status

Since the early 1980s there has been increasing emphasis on involving local communities in, and ensuring that they benefit from, biodiversity conservation. Community-based and collaborative approaches to managing PAs and surrounding areas have become widespread in most parts of the world.⁸² Most PA funding strategies now include mechanisms to raise and allocate funds or generate other benefits for adjacent communities.

⁸¹ Giordano, 2004; Graßl *et al.*, 2002; Landau *et al.*, 2004; Morling, 2004; Sandler, 2001; Sandmo, 2003.

⁸² See for example: Roe *et al.*, 2000; Kothari *et al.*, 1998; Hulme and Murphree, 2001; Hill Rojas *et al.*, 2001.

A variety of financing mechanisms are used to generate funds for communities living in and around PAs (Boxes 16 and 17). Community financing mechanisms have a variety of aims and take various forms. In some cases they aim to enable communities to invest in alternative livelihood options that can replace activities causing harm to biodiversity. In other cases, community financing may involve the transfer of PA management or use rights to local communities.

Box 16. Revenue sharing around the Serengeti National Park, Tanzania⁸³

The Serengeti National Park is internationally renowned for its wildlife. Less well-known is the contribution to both biodiversity conservation and human livelihoods of land lying to the west of the park, which is managed under a range of regimes involving some human use or occupation. While human residence is banned, multiple land and wildlife uses are permitted in the adjacent Grumeti and Ikorongo Game Reserves, which fall under the authority of the District Wildlife Department. The status of Ikoma Open Area, which lies between the two Game Reserves, denotes the presence of large wildlife populations rather than referring to a specific protection regime, and permits land and resource utilization activities within the limits of national law. More than 75,000 people live in 23 villages of Bunda and Serengeti District, where these wildlife areas are located. Engaging the support of these agricultural communities is vital for the conservation of the Serengeti ecosystem and the wildlife populations it contains.

Serengeti National Park, Grumeti and Ikorongo Game reserves all generate substantial revenues for the Tanzania National Parks Authority (TANAPA), the Wildlife Department and Serengeti and Bunda District Councils, as well as for private sector tour operators doing business in the area. Historically, little of this funding has flowed to local communities. As land pressure has grown, however, and reliable sources of income and employment have become harder to access, local communities have become less willing — and in some cases economically unable — to conserve wildlife and other natural resources on their lands. With a strong economic and conservation interest in conserving wildlife, both public agencies and private enterprise have developed a variety of revenue-sharing arrangements to ensure that the benefits of wildlife flow to local communities.

- **TANAPA revenue sharing with local communities.** By 1995 TANAPA had institutionalized a Community Conservation Service and established a fund to support community development projects. The main purpose of these initiatives was to improve people-park relations, rather than to compensate for wildlife costs incurred locally. In theory, 7.5% of National Park revenues are used to fund a programme entitled Support Community Initiated Projects (SCIP). In practice the amount allocated has been considerably less. During the first ten years of its operation, SCIP invested some US\$0.25 million in four districts around the Serengeti NP. In 1999, approximately US\$15,000 was spent in Bunda and Serengeti Districts. These funds contributed up to three quarters of the cost of development projects, mainly the construction, rehabilitation or maintenance of infrastructure such as schools, bridges, roads, dispensaries and water supplies, as well as support for small enterprise development.
- **Wildlife Department revenue sharing with District Councils.** In the mid 1990s the Wildlife Department started to share hunting revenues from Game Reserves with Bunda and Serengeti District Councils, as well as allowing them to retain concession fees, with the aim of increasing the level of funding for development activities in wildlife areas. Wildlife-related revenues, from hotel concessions and hunting fees, presently account for about 80% of the annual development budgets of Bunda and Serengeti Districts. Annual development budgets are spent on a wide range of activities across the District, including infrastructure, education, health, water and agricultural development.
- **Wildlife Department benefit sharing with local villages.** The Wildlife Department, through the Serengeti Regional Conservation Strategy project, has since 1993 operated a community hunting scheme. Under these arrangements a fixed quota of wildlife is assigned to participating villages and harvested by the Wildlife Department. Meat and skins are sold in local markets at prices determined by Village Councils, Cont.

⁸³ Emerton and Mfunda, 1999. *Making Wildlife Economically Viable for Communities Living Around the Western Serengeti, Tanzania*. IUCN – The World Conservation Union, Eastern Africa Regional Office: Nairobi.

Box 16. Revenue sharing around the Serengeti National Park, Tanzania (cont.)

which are deliberately set lower than domestic meat. Income is channelled to a Village Natural Resource Fund. The aim of this scheme is not just to generate income. The sale of wild meat at below-market prices is intended to ensure an affordable source of protein for local households, and also to lower the profitability of illegal hunting. Over the first four years of operation, sales of wild meat generated income worth US\$11,000 for 10 villages in Bunda and Serengeti Districts, of which US\$3,500 in 1999. This money was used by Village Councils for local development activities.

- **Private sector land lease arrangements with local villages.** In 1994 a land lease was negotiated between a private tourist camp and a village in Ikoma Open Area, lying just outside the main gate to Serengeti National Park. The hotel operators sought to safeguard their investment by engaging local support for wildlife conservation and tourism. This agreement included a fixed land rental fee and bed-night levies paid to the Village Council, as well as the installation and maintenance of a village water pump. The arrangement generated US\$30,000 for Robanda Village over five years, in addition to the water pump.
- **Expected benefits of tourist hunting operations.** For one hunting block lying on village lands abutting Ikorongo Game Reserve, the villagers agreed to allow hunting by a private operator at no charge. It was assumed that hunting operations would not disturb traditional production activities, while tourism was expected to generate both income and employment for villagers. Unfortunately, few of the anticipated benefits from safari hunting operations materialized. Having secured the use of the land, the private concessionaire withdrew access from community members. Subsequent interaction between the company and the villagers has been minimal, with little local gain. Most employees of the hunting operation are from outside the region, while the few temporary job opportunities available to villagers are paid well below the national minimum wage.

Local perceptions of wildlife seem to have improved since these mechanisms were introduced in the mid 1990s. Poaching and other forms of illegal resource use have declined. Conflicts between local villagers and wildlife authorities are less frequent and severe. Villages that have negotiated land lease arrangements with private companies have begun to engage more actively in wildlife conservation, and there is greater tolerance and acceptance of wildlife incursions onto village land.

Nevertheless, the funding schemes have had little impact in redressing the overall imbalance of local wildlife costs and benefits. Total wildlife-related costs in the western Serengeti are estimated at over US\$1 million a year, or US\$110 per household, while local revenues and other community benefits generated by the schemes described above are estimated at less than US\$75,000 per year, or US\$8 per household. While community financing arrangements have helped to change local perceptions and improve outcomes for wildlife, it is also clear that much more substantial benefit sharing will be required in order for wildlife conservation to become competitive with alternative (agricultural) land uses. Other lessons from this experience include:

- **The value of multiple funding sources.** The western Serengeti case encompasses a range of community funding mechanisms, from broad benefit sharing to direct income generation and enterprise development, and from government schemes regulated by law to voluntary private sector agreements. Each of these mechanisms generates different benefits and supports different aspects of wildlife conservation. Taken together they have successfully addressed a range of issues, whereas singly they may not have had as much impact. The case illustrates the need for different financing mechanisms to address different aspects of human-wildlife conflict.
- **Differences between public and private funding.** While public sector funding arrangements tend to cover a broad geographic area and generate indirect benefits, private sector schemes have been more focused – both in terms of benefits and location. This has enabled private funding to generate greater and more tangible benefits for local communities. They have also tended to incorporate elements of participation and have often given villagers a direct stake in wildlife conservation. Some private sector arrangements, such as the hotel land lease, have also allowed villagers to set the terms and conditions under which wildlife on their lands is used and managed for economic gain.

In St Lucia, for example, a collaborative agreement has been established between the government and a community institution for managing a marine protected area and administering a fee system. Fees raised from tourism and other uses are placed in a special government fund, which makes quarterly payments to the community institution for the management of the PA.

More commonly, collaborative agreements involve transferring a portion of the revenues raised or benefits generated by government PA agencies, so as to improve relations with local people and provide tangible incentives to support biodiversity conservation. For example, the Kenya Wildlife Service has a revenue-sharing policy, operating in 33 districts of the country, based on a Wildlife Development Fund which allocates 25% of PA gate fees to community-related activities in PA buffer zones, including water, education, health, livestock and enterprise development, as well as the provision of famine relief.⁸⁴

Box 17. Local benefits of wildlife conservation: the Pakistan Trophy Hunting Programme⁸⁵

Pakistan has a rich biodiversity which includes almost 200 mammal species, 20 of which are threatened and four endemic. One of the most pervasive threats to wildlife populations is the loss of habitat arising from human encroachment, as well as over-exploitation of natural resources. Many of these threats originate in local subsistence activities and are exacerbated by the limited opportunities for income and employment available to communities living adjacent to PAs.

The Pakistan Trophy Hunting Programme aims to strengthen local incentives for the conservation of large mammals by generating revenues from hunting that can be shared with local communities. Some foreign hunters are willing to pay relatively large sums for the privilege of hunting trophy animals in Pakistan. Currently, hunting licence fees are fixed by the National Council for the Conservation of Wildlife (NCCW), a federal agency under the Ministry of Wildlife which is responsible for regulating the use of endangered species. The NCCW allocates trophy quotas, while Provincial Governments issue trophy permits. In 2004–5, foreign hunters were charged US\$2,000 for Himalayan Ibex; US\$25,000 for Markhor, US\$8,000–10,000 for Urial, US\$2,000 for Sindh Goat and US\$5,000 for Blue Sheep. The annual allowable quota is very low, due to the small populations of the species concerned, with only 30 permits issued for Ibex, 12 for Markhor, 19 for Urial and four for Blue Sheep in 2003–4. However, even with such low quotas, the high prices of permits can generate significant revenues.

Hunting permits are offered for auction in the national press and by internet. The total hunting fee is divided into two components – a 20% licence fee paid to the Provincial Government, and a 80% trophy fee paid to the community where the hunt took place. Revenues can be significant. The longest-running trophy hunting programme in Pakistan is the Torhgar Conservation Programme, established in 1986 on tribal lands in Balochistan and targeting mainly Markhor and Urial. During its first ten years of operation the programme generated revenues of US\$460,000. The Skoyo-Karbathang-Basingo Conservancy in Pakistan's Northern Areas generated more than US\$60,000 between 1999 and 2003.

Hunting is planned and monitored to ensure minimal impacts on wild populations. Although there is currently a ban on big-game hunting in the rest of Pakistan, this ban is waived in areas where community-based trophy hunting programmes are operational. In the latter areas, there is some evidence that revenues generated by trophy hunting have encouraged rural households to reduce their own hunting as well as other activities that contribute to habitat degradation. A review in 2001 concluded that for North Western Frontier Province and Northern Areas, there is not yet enough quantitative data available to allow a confident ruling on the success of community trophy hunting programmes on caprinae populations, although most indications are positive. However, in Balochistan, the country's longest running such programme started in 1986 has been the object of wildlife population surveys
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⁸⁴ Emerton, 2001b, in Hulme and Murphree, 2001.

⁸⁵ Iftikhar, personal communication, 2004; Khan and Parvaiz, 2001.

Box 17. Local benefits of wildlife conservation: the Pakistan Trophy Hunting Programme (cont.)

showing significant increases in both Markhor and Urial populations. In the Bar Valley of North Western Frontier Province, uncontrolled hunting has been nearly eliminated. Despite the lack of systematic data collection, poaching appears to have declined in most areas with Community Trophy Hunting Programmes, while domestic livestock populations have also declined. There is also evidence that community attitudes to wildlife are more positive and accepting of conservation.

The impacts of revenue sharing on local livelihoods are less well documented. A major challenge is to ensure that income reaches local communities and is sufficient to make a significant contribution to household income. It has been reported that hunting fees in the Skoyo-Karbathang-Basingo Conservancy have been used to fund collective infrastructure projects, and that little revenue has reached local households. Income earned in Balochistan was still being held by the Provincial Government one year after the funds should have been passed on to the community. Similarly, the Tooshi Community Hunting Area has had problems concerning the distribution of revenues within the community. Other lessons from this experience include:

- **The pros and cons of targeting foreign hunters.** Trophy permits are marketed mainly to foreign hunters, which has helped to generate significant revenue compared to the potential income from domestic hunters (lower fees are charged to domestic hunters). However, with the changing security situation the heavy reliance on foreign hunters implies high risk of abrupt income losses, raising concerns about the long-term sustainability of the trophy hunting programmes.
- **Community involvement.** The greatest conservation success has occurred where communities have been able to take the lead and assume more responsibility for operating the programme, with NGOs and government playing a supporting role (e.g. capacity building).

Obstacles and opportunities for PA financial sustainability

Benefit-sharing and revenue-sharing mechanisms have immense potential to offset the local opportunity and other social costs associated with conserving biodiversity in PAs (see above, Section 3.4). They form an essential part of any PA financing strategy.

Many obstacles persist with respect to benefit sharing and funding local-level PA costs. Communities are not always fully considered when funding decisions are made by PA managers or donors, while financing strategies typically focus on the direct costs of conservation to the exclusion of opportunity costs.

Another challenge to linking community-level funding mechanisms with biodiversity conservation concerns the way in which funds are allocated and received. Most benefit-sharing and revenue-sharing mechanisms in operation around PAs focus on generating indirect development benefits at community level, but do not provide direct financial compensation or rewards for activities that support conservation.

Potential for improvement and remaining challenges

There is no doubt that local-level funding mechanisms will continue to be an essential part of PA financing strategies. The main potential for improvement lies in increasing the magnitude of funding to local communities, developing mechanisms to guarantee that funding actually reaches relevant local stakeholders, and ensuring that benefit and revenue sharing not only offsets the social costs of PAs but also rewards positive contributions to conservation.

Meeting this potential will require better awareness among conservation planners and decision makers of the need to consider community funding as part of PA financing strategies. This includes increasing the amount of funding spent at a local level, as well as making revenue- and benefit-sharing mechanisms part of PA budget allocation. In some cases, new mechanisms may be required to ensure that sufficient funding is allocated, in an appropriate form and on a timely basis, to those local stakeholders who bear the direct and indirect costs of biodiversity conservation in PAs.

There is also potential for enhancing local-level funding by increasing the degree to which PAs are incorporated in development financing. There is a strong case for funding of community PAs to be part of rural development and poverty reduction strategies. This requires making a better case for the economic benefits of PAs, as well as raising the priority accorded to PA funding among development planners and decision makers in both host-country governments and donor agencies.

6.4 Sharing the costs of managing PAs and their facilities

Status

There is no reason why the public sector should have sole or direct responsibility for funding and managing PAs, their facilities and services. Sharing PA management costs with, or contracting out the management of a PA to, other groups, companies or individuals can generate significant new funding and/or cost-savings.

Examples of cost sharing include many situations where private entities (including NGOs) have voluntarily assumed certain management responsibilities or funded conservation activities in PAs. In Bonaire, Saba and the British Virgin Islands, for example, commercial dive operators perform basic interpretive, information and surveillance functions on behalf of marine protected area authorities.⁸⁶ Similarly, Bunaken National Park in Indonesia receives in-kind support from the tourism industry, including monitoring and training, provision of dive gear and boat time to rangers, as well as conducting patrol, search and rescue missions.⁸⁷ Such delegation works best when it is consistent with and subordinate to wider PA objectives and policies.

Commercial leases, concessions or franchises are widely used as a means of enlisting outside support for the management of PA facilities. This may involve delegating broad PA management responsibility to a private company (Box 18) or NGO (Box 19). In other cases, companies or NGOs may be enlisted to manage specific PA facilities or to provide particular services on a commercial or cost-recovery basis. For example, the management plan for Komodo National Park in Indonesia establishes an eco-tourism concession to be operated by a private sector-NGO joint venture.⁸⁸ Similarly, the South African National Parks Board grants concessions to private companies to build and operate tourism facilities in national parks.

Box 18. Private sector management of Chumbe Island Coral Park, Zanzibar⁸⁹

Limited public funding and staff capacity make maintaining Zanzibar's network of marine protected areas a major challenge. Since the early 1990s, cost sharing and joint management have helped overcome these constraints. Currently two out of four MPAs in Zanzibar are managed under contracts with private firms, while the rest are under community management.

In 1992 a private company was created to facilitate the conservation of Chumbe, a small coral island of 22ha near Zanzibar Town. After a long process of negotiation involving private investors, government and local villages, Chumbe was established as a PA in 1994, and Chumbe Island Coral Park Ltd (CHICOP) was granted a lease to manage the island and the reef sanctuary. CHICOP holds a 33 year lease over 2.5ha of cleared land on Chumbe Island and 10 year management contracts for the Chumbe Reef Sanctuary and Chumbe Forest Sanctuary. CHICOP has assumed responsibility for financing and managing the island and reef sanctuary, developed nature trails, constructed a visitor education centre and seven tourist bungalows.

All funds required to commence conservation activities and tourism operations on and around Chumbe Island were raised privately. Total investment costs for negotiating and setting up the tourism operation and PA were some US\$1.2 million, of which 60% for conservation, education and research, and 40% for the construction of

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⁸⁶ Geoghegan, 1998.

⁸⁷ Erdmann *et al.*, 2003.

⁸⁸ The Nature Conservancy, *Komodo National Park: Collaborative Management Initiative* (www.tnc.org).

⁸⁹ Riedmiller, 2003; Riedmiller, 1998, in Salm and Tessema, 1998.

Box 18. Private sector management of Chumbe Island Coral Park, Zanzibar (cont.)

tourism facilities. Two thirds of project investment costs were provided from private sources. The remaining third, mainly for non-commercial components such as ecological surveys and educational facilities, was financed through small donor grants available for private initiatives.

Tourism revenues are the main source of funding used to cover the operating costs of the PA and associated ecotourism business. Public donor funds have not contributed to the running costs of the reserve. PA operational expenditures are strictly controlled and funded where possible through cost-sharing or in-kind arrangements. Volunteers are used to provide technical assistance on surveys and monitoring, staff training, information and education materials, installation and maintenance of equipment, marketing, management assistance and financial analysis. Various conservation activities have been carried out in cooperation with international and local NGOs, while research and species monitoring rely heavily on university-supported degree students. PA recurrent costs, currently around US\$150,000 per year, are fully covered by the proceeds from tourism.

CHICOP's operations and funding arrangements for the Chumbe Reef Sanctuary and Chumbe Forest Sanctuary seek to address both the indirect costs of conservation as well as underlying threats to the PA. While funding has focused on establishing and maintaining the PA as a commercially viable operation, CHICOP has also sought to engage community members and to increase local environmental awareness. Former fishermen are employed as park rangers and guides. Wherever possible, foodstuffs and other items are purchased locally. In collaboration with the Harbours Authority, CHICOP maintains the Chumbe Island lighthouse and provides a maritime rescue service in surrounding waters.

Private financing and management of the PA and eco-tourism operations on Chumbe Island have made major contributions to conservation. Before 1994, there was no effective conservation of the area. Today, no extractive uses are permitted in the Sanctuary, although in an emergency fishing boats are allowed to anchor in coral-free areas. Park rangers patrol the island to ensure that regulations prohibiting fishing and anchorage in the protected reef are observed. They report infractions and provide a daily report of the type, number and names of vessels involved, the nature of the infraction and fishers' reactions to their intervention. Rangers also record any major change in the coral reef, such as bleaching. As a result of these activities, Chumbe Reef Sanctuary has become one of the better managed coral reefs in the region.

The project and PA are well-accepted by local communities. Destructive and illegal resource use have declined. Although tourism generated increased demand for marine resources and contributed to over-exploitation, and high prices make fishing an attractive occupation, infractions have fallen from about 45 per month in 1994/5 (when the park was established) to less than five per month today. This is partly due to patrolling and enforcement of regulations on marine resource use. Environmental education has also played a role, with major investments in educating local fishers about the benefits of the sanctuary and growing recognition by them of increased fish catch outside the park's boundaries as a result of the natural restocking of adjacent reefs. Public support has also been boosted by positive feedback from local and international visitors and several international awards won by Chumbe.

Key factors determining (and in some cases limiting) the success of the Chumbe Island case include:

- **Commitment from an individual.** Perhaps the most important reason for the success of CHICOP is the commitment of a visionary individual with good knowledge of the area and local players, who worked to raise funds to set up CHICOP, lobbied government to grant the area protected status, and argued for a private management contract. The project, and the MPA itself, depended on a long process of negotiation and pre-investment before it could start to realise its aims and revenues. Few private investors are prepared to wait so long, under such uncertain conditions, before realizing a return.
- **Combining commercial and non-commercial principles.** CHICOP operates on a commercial basis, although its objectives are non-commercial. The goal is conserving the biodiversity of the island and

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Box 18. Private sector management of Chumbe Island Coral Park, Zanzibar (cont.)

surrounding area, hence cost recovery – rather than profit – is the main financial criterion. Together with donor support for set-up costs, this has reduced pressure on CHICOP to generate revenues. Factoring in the full capital costs of the project, plus a profit margin, would have extended the project's payback period, decreased its financial viability and required much higher tourist occupancy rates and revenues.

- **Policy, legal and institutional conditions.** While environmental law in Zanzibar now allows for PA management authority to be delegated to private entities, this was not the case in the early 1990s when CHICOP was set up. Until 1997, Zanzibar had no policy or legal framework for conservation areas and no agency charged with PA management. Until 1995, it was legally impossible to establish an NGO. For these reasons, CHICOP had to be designed as a private tourism investment project, based on the provisions of the Zanzibar Investment Protection Act of 1986. Policies in both the tourism and conservation sectors continue to present obstacles to private sector engagement in PA management and biodiversity conservation. Although the tourism policy of Zanzibar emphasises ecotourism, this has not been fully translated into a legal and regulatory framework. Investment and building regulations still give preference to multi-million dollar projects and discourage small-scale, low-input projects and building designs. The 1996 Zanzibar Environmental Protection Act offers some incentives for private investment in conservation and environmentally friendly technology, such as tax incentives and the option of entrusting the management of PAs to private entities. However, other provisions of the Act weaken contractual security and increase long-term risks to the private sector. Investment security is also limited by the fact that land tenure in Tanzania and Zanzibar is only available on a leasehold basis. Land leases issued under the 1986 Investment Protection Act can be revoked by the State with relative ease, thus further weakening long-term security of tenure. There are also no special incentives for investment in environment and conservation, such as reduced tax rates or import duties.
- **Bureaucratic obstacles.** The processes of establishing PAs on and around Chumbe Island, and negotiating private management arrangements, has been difficult to implement and uphold. Up to 80% of the Chumbe Island Project Manager's time is devoted to dealing with various government departments. The experience of Chumbe suggests that the viability of private conservation projects is put at serious risk when cumbersome bureaucratic requirements increase the costs of private investment in general, and of innovative projects in particular.
- **Cost efficiency.** Although the investment capital for Chumbe was higher than originally envisaged, the costs of establishing and managing the PA have been a fraction of what is commonly budgeted for in donor-funded conservation projects implemented by government. By necessity and design, cost control and income-generation were more developed for Chumbe Island than would normally be the case in public sector or donor-funded projects. While this has helped to ensure financial sustainability, CHICOP remains handicapped by the fact that most other conservation activities on Zanzibar are funded by donors, with little or no management costs passed on to visiting tourists. As a consequence many other local nature destinations can be visited at very low cost, making it harder for private ventures such as CHICOP to compete.
- **Unconventional marketing.** Innovative publicity and marketing have made an important contribution to the success of the Chumbe Island project. The small donor grants that provided initial funding for several components of the project, although demanding and costly in terms of administration, also helped increase the credibility of CHICOP as a conservation project. Other aggressive marketing techniques also contributed to the project's success. Conventional marketing through media advertising or travel fairs is costly as well as ineffective as a means of reaching the ecotourism niche market. CHICOP opted for a strategy that involved gaining recognition in the international conservation community, winning environmental awards, and using internet-based marketing. Applying for and winning international environmental awards was a powerful promotional tool, attracting media coverage, travel writers and television documentaries. It was only later that the mainstream travel industry started to show interest in Chumbe. Initially most clients booked directly over the internet, while today travel agents and tour operators provide about 50% of bookings.

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Box 18. Private sector management of Chumbe Island Coral Park, Zanzibar (cont.)

- **Stakeholder dialogue and local support.** Recognition of the importance of local dialogue and acceptance, and allocation of funds to address these issues, have been vital to Chumbe Island's success. The project has employed extensive stakeholder consultation at all stages, as well as investing in education and capacity-building at the local level. It has made major efforts to generate tangible local benefits through the PA and associated tourism operations. This has included not only fishermen and community members, but also local politicians and government decision makers. Training and employing local fishermen as park rangers has been particularly cost-effective, both for managing the PA and as a means of improving community relations. Natural restocking of reef areas adjacent to the PA means that local fishers now catch more outside the park. This provides a strong rationale for conservation in the eyes of local fishers, who generally respect PA regulations and boundaries.

Box 19. NGO management of Cousin Island Special Reserve, Seychelles⁹⁰

Cousin Island is one of 115 islands that make up the Republic of Seychelles. In 1968, the island was purchased by the International Council for Bird Preservation, now BirdLife International, with funds raised through an international campaign. In 1979, the Cousin Island Special Reserve Regulations were established, under the 1975 National Parks and Nature Conservancy Act. The regulations provided authority for BirdLife International to manage and protect the island, a role they fulfilled from the UK until 1998, when management responsibility was transferred to Nature Seychelles, a national NGO.

Activities on the island include scientific research, conservation, education and tourism. The island is accessible to visitors on four days each week, and since 1998 tourism operations run by Nature Seychelles have brought between 8,000 and 10,000 visitors to the island each year, despite a lack of overnight accommodation. Foreign tourists pay a landing fee of US\$25 since 2003 (there is no charge for locals) and the island administration also sells soft drinks and t-shirts. Revenues are all ploughed back into staff salaries, transport costs, housing and maintenance, as well as conservation, educational and training programmes.

Monitoring and research programmes have mainly been funded through the UK partner of BirdLife International, the Royal Society for the Protection of Birds, or through university grants. Increased capacity within the Nature Seychelles office, however, suggests that Cousin will soon be able to attract funding from a wider range of national and international sources.

Indicators of conservation success on and around Cousin Island include the re-establishment of native vegetation on a former coconut plantation, a 300% increase in the population of the Seychelles warbler, increased numbers of nesting hawksbill turtles, and significantly higher fish biomass on Cousin reefs, compared to other marine protected areas in the vicinity. Some of the key factors underlying the evolution of Cousin Island include:

- **Good personal relationships.** Agreements have historically been reached through close personal relations between the Seychelles Government and representatives of BirdLife International. More formal arrangements have developed over time.
- **Transition from expatriate to local management.** The creation of a national NGO staffed by Seychellois has enhanced local support. The NGO has established efficient management systems and infrastructure, enabling the island to become a world-class reserve, winning accolades such as the Conde Nast Ecotourism Award for 2004, the Highly Commended Award under the British Airways 'Tourism for Tomorrow' programme, and designation as an ICRAN Demonstration Site.

Cont.

⁹⁰ Shah, personal communication, undated; Shah, 1998, in Salm and Tessema, 1998.

Box 19. NGO management of Cousin Island Special Reserve, Seychelles (cont.)

- **Early losses converted to gains.** Until 1998, the island was operating on a loss-making basis. Infrastructure and equipment were poorly maintained and staff development was non-existent. New management since then has attracted significant tourism with appropriate controls on visitor numbers as well as strict cost control to ensure profitability and sustainability.
- **Revenues from the island assist** in running unique programmes initiated by Nature Seychelles to benefit local people. These include LEAP (Local Environmental Action Program), which supports grass roots environmental groups as well as Environ-Mentor, which engages young Seychellois as interns on Cousin Island.
- **Local development impacts.** Cousin Island is an important source of income for surrounding communities and businesses. Educational tourism is serviced by three large travel agencies, as well as several locally-owned, small to medium sized operators and charter boat businesses on neighbouring Praslin Island. The owners and employees of these businesses are all Seychellois. Cousin Island is also a popular destination for visiting international cruise ships. It is estimated that some US\$600,000 is generated by these activities through direct and indirect revenues, almost all flowing to local businesses.

Increasingly, public PA networks are being supplemented and enriched through the establishment of nature reserves or conservancies on private and communal lands (see above, Box 15). In Chile, for example, private purchases or donations of forest land for protected areas amount to well over 450,000 hectares at a national level.⁹¹ In Namibia, community-managed conservancies cover more than 74,000km² or 9% of the country's land mass.⁹² In Natal Province, South Africa, some 8% of the land area is officially protected, while an additional 14% is under some form of conservation management by private land owners.⁹³

Obstacles and opportunities for PA financial sustainability

Cost-sharing mechanisms have tremendous potential to improve PA financial sustainability. To date this remains an under-utilized opportunity to cover the costs of PA management. Most PA financing strategies tend to focus on raising additional funds, rather than re-distributing the burden of cost to other entities. In many cases, cost sharing offers a practical means of covering direct operating costs, which is a major financial burden for all PAs.

One obstacle to increasing the extent to which PA costs are shared with the private sector and other groups is the traditional assumption, in many countries, that government has sole responsibility for conserving biodiversity and financing PAs. This perception needs to change – among PA planners and managers themselves, but also among groups who could (or should) share the costs of PA management. At the same time, more widespread use of such mechanisms may require new legislation to enable, and enforce, different types of cost sharing.

Potential for improvement and remaining challenges

There is room for improvement in how cost sharing is used to strengthen PA financial sustainability. At the level of individual PAs, such arrangements have the potential to cover a substantial portion of management costs, and to relieve the burden on public PA authorities. Even at the level of entire PA systems, there are often opportunities to share costs with other entities.

A remaining challenge is to convince government PA authorities and other stakeholders to devolve some level of control and responsibility for PA management to other groups. In this regard, there is a need to identify and publicise further examples where such delegation has enhanced PA management effectiveness. Significant effort is also needed to mobilize other groups (notably the private sector and NGOs) to share in costs and responsibility for managing PAs

⁹¹ Corcuera *et al.*, 2002, in Pagiola *et al.*, 2002.

⁹² www.dea.met.gov.na/met/ArchivedNews/030824news.htm

⁹³ McNeely, 1999..

and providing PA services. In many cases there may be a potential to institutionalize such arrangements on a mandatory, not only voluntary, basis. Appropriate levels of cost sharing and reciprocal rights and responsibilities must be clearly defined and if necessary enforced by law.

6.5 Investment, credit and enterprise funds

Status

Biodiversity enterprise funds (BEF) are financing mechanisms that provide long-term capital, typically combined with technical advice, to commercial ventures based on the conservation or sustainable use of biodiversity. The latter are typically small-and-medium-scale enterprises engaged in activities that contribute to biodiversity conservation, such as eco-tourism, sustainable forestry, the collection and processing of wild food products, etc.⁹⁴ A common feature of BEFs is the aim to align economic and social development with biodiversity conservation (although not necessarily in PAs). BEFs may be structured to meet the capital needs (debt or equity) of one or several sectors at various geographic scales. Most BEFs seek to provide financial returns to their investors.

Several BEFs have been set up in recent years (Boxes 20 and 21); some have been wound up, while others remain in operation. One recent inventory identified more than ten BEFs worldwide, with total capitalization of several hundred million US dollars.⁹⁵ However, in this fast-moving field, up-to-date information on the value of private investment in biodiversity enterprise (or PAs) is difficult to obtain. A single US-based environmental investment fund, for example, claims to have “capital available” in excess of US\$300 million, of which an unspecified portion for “environmentally sustainable forestry”.⁹⁶ The latter probably includes a contribution to establishing and maintaining PAs within (or near) timber production forests, but precisely how much is uncertain. The same applies to most other environmental investment funds (whether public or privately-owned), making it difficult to assess the scale of support provided by these funds to PAs generally.

Box 20. The Netherlands Green Investment Directive⁹⁷

Established in 1995, the Green Investment Directive (also known as the Green Project Facility or Green Project Directive) aims to stimulate funding for environmentally responsible projects. The directive exempts from income tax all dividends derived from accredited “green” financial intermediaries (i.e. banks, pensions and other institutions that make loans or investments). This preferential tax treatment allows green investment funds to generate slightly better after-tax returns than most traditional investment vehicles, increasing their attractiveness relative to other funds.

Financial intermediaries are eligible for “green” status if they invest at least 70% of their assets in approved projects in the following categories: nature, woodlands and landscape features; organic agriculture; green label greenhouses; renewable energy; sustainable residential construction and refurbishment; and soil remediation, among others. Several institutions in the Netherlands currently have approved green funds or banks.

⁹⁴ Bovarnick and Gupta, 2003.

⁹⁵ Conservation Finance Alliance, 2004. *Conservation Finance Guide* (<http://guide.conservationfinance.org/>)

⁹⁶ www.globalenvironmentfund.com/

⁹⁷ Koteen, 2004.

Box 21. The Asian Conservation Company

Incorporated in 2001 with an initial capitalization of US\$12.5 million, the Asian Conservation Company (ACC) aims to assemble a portfolio of private equity investments that conserves biodiversity while remaining profitable and competitive in the marketplace. ACC invests only in companies that operate in high priority biodiversity areas and that demonstrate a commitment to mitigate negative environmental impacts.

Part of the originality of ACC's model is the mobilization of private equity in a holding company, in order to leverage long-term financial support for biodiversity conservation through investee companies. ACC claims to be the first investment holding company in Southeast Asia to adopt a Triple Bottom Line Approach, including acceptable financial returns to shareholders; environmental conservation through a sustainable financing model; and enhanced corporate social responsibility through employment and educational opportunities.

The initial concept for ACC was developed by the WWF Center for Conservation Finance, in collaboration with WWF-Philippines and Next Century Partners, an investment management firm in the Philippines. To date, the company has invested in a responsible nature tourism operation and a sustainable blue crab production facility.

Obstacles and opportunities for PA financial sustainability

Private capital and business enterprise support has traditionally targeted non-environmental sectors. Moreover, because biodiversity-based business is often considered high risk and low return, it can be difficult to raise private capital for activities that support PAs or biodiversity conservation generally (Box 22).

Box 22. Terra Capital Biodiversity Enterprise Fund for Latin America⁹⁸

Growing consumer environmental concerns have stimulated markets for products and production practices that protect biodiversity. Demand for organic food, sustainably harvested timber and eco-tourism, for example, are expected to grow at double-digit rates. However, to date there has been only limited financial and technical support for small- and medium-scale enterprises seeking to engage in these activities. Support is piecemeal and has mainly come from non-governmental organizations, foundations and aid agencies. Private equity capital for biodiversity is scarce – most commercial banks are not familiar with the issue, many projects are too small for direct financing, and most venture capital funds have focused on other high-return sectors.

The Terra Capital Biodiversity Enterprise Fund for Latin America (“Terra Capital”) was set up in 1996 with support from the International Finance Corporation (IFC, an arm of the World Bank) and the Global Environment Facility (GEF). Terra Capital was designed as a private equity fund to invest in and catalyse private enterprises that generate conservation benefits through sustainable use of biodiversity in Latin American countries which have ratified the CBD. The underlying premise was that by developing more economic value from the conservation and sustainable use of biodiversity, the users and owners of biodiversity would have stronger incentives to protect these assets in the long run. Terra Capital's commercial objective was to realize long-term capital appreciation through equity or quasi-equity investments in biodiversity-benefiting enterprises and thereby demonstrate to both entrepreneurs and investors that such enterprises present viable business opportunities.

An initial grant of US\$5 million from the GEF was intended to pay the incremental costs associated with the higher-than-average, biodiversity-specific screening and evaluation costs of the fund's investments. Additional contributions were sought from private investors. The fund began operations in late 1999, with core capital of
Cont.

⁹⁸ Adapted from: Ganzi *et al.*, 1998; www.gefweb.org/Outreach/outreach-Publications/06%20Status%20of%20GEF%20Projects.pdf; and www.ifc.org/ifcext/enviro.nsf/Content/TerraCapital

Box 22. Terra Capital Biodiversity Enterprise Fund for Latin America (cont.)

US\$15 million, and undertook investments in a range of commercial biodiversity-related projects throughout Latin America, including organic agriculture, aquaculture, timber and non-timber forest products, and eco-tourism ventures. The fund specifically targeted investments of US\$500,000 to US\$2.2 million, a range which is frequently lacking funding because it is too high for conservation NGOs and too low for the IFC and other institutional financing. Equity transactions were structured so that local entrepreneurs retained a majority of shares and management of the company. Terra Capital provided not only capital but also business and technical advice on biodiversity management.

During its six years of operation, Terra Capital experienced some difficulty in identifying investments that met both financial return criteria and offered biodiversity benefits. Only four investments totalling US\$6 million in commitments were approved by the fund. In early 2003, the investors decided not to renew the management agreement with the fund manager and to stop making new investments after a mid-term review found that most of the existing investments were not performing well. The reasons for this poor performance were: deteriorating macro-economic situation in Latin America resulting in high interest rates, which stifled alternative financing, and (according to GEF) unsatisfactory financial management by the fund manager. Moreover, the review found that investee companies were in financial trouble from the outset, so biodiversity concerns were largely ignored. The IFC subsequently decided to cancel the project.

While BEFs sometimes offer capital on a concessionary basis (for example by allowing a longer payback period, less rigorous assessment criteria, or lower interest rates for debt) or as part of a technical assistance package, a defining and shared characteristic of these funds is their goal of promoting for-profit ventures run on commercial principles. Common uses of such funds include alternative livelihood development, biodiversity-based business as well as the management of PA lands, resources and facilities.

Potential for improvement and remaining challenges

BEFs have so far played a small but catalytic role in financing PAs and related business ventures. As more and larger funds seek to promote biodiversity-related business, however, one can expect PAs to figure more prominently as both targets and partners in investment portfolios. A major challenge to increased PA funding from BEFs is to reduce the costs of establishing commercial biodiversity projects, and/or to increase revenues through better marketing of PA goods and services. In some countries, there may also be a need for certain legislative or regulatory reforms, to enable PA managers to engage in commercial contracts with business investors.

6.6 Conclusion: generating funding to encourage conservation activities

Fiscal instruments, benefit and revenue sharing, cost-sharing, and investment, credit and enterprise funds are all important means of funding PAs. More generally, they are also key tools for strengthening private incentives to conserve biodiversity. Their main role in PA finance is to ensure that financial resources flow to consumers, producers, groups and individuals whose actions affect biodiversity. Over the past two decades these mechanisms have begun to play a more important role in PA funding strategies, and have accounted for an increasing share of financial flows. However, there remain many unexploited opportunities and a substantial need to improve their use and impact on biodiversity conservation.

Future priorities include raising awareness of the financing needed to cover the local opportunity and social costs of PA conservation, and developing mechanisms to ensure that funds are channelled in this direction. In many cases this will involve building capacity and adapting mechanisms already applied in other sectors to strengthen the financial and economic incentives for biodiversity conservation in and around PAs (Table 3).

Table 3. Generating funds to encourage conservation: status, potential and needs

	Status	Main potential	Actions required
Fiscal instruments	<ul style="list-style-type: none"> • Still rarely applied to conservation goals or environmental sectors • Increasing use for PAs both to raise funds and to change consumer and producer behaviour 	<ul style="list-style-type: none"> • Source of revenue and transfer mechanism to producers and consumers • Substantial potential to apply to PAs • Increased use as funding and motivational tools 	<ul style="list-style-type: none"> • Factor PAs into broader fiscal systems • Strengthen priority accorded to PAs by economic planners • Enhance awareness of decision makers about potential to raise funds and change behaviour
Benefit sharing and revenue sharing	<ul style="list-style-type: none"> • Recognised as integral component of PA management and funding • Not usually accorded priority in PA budgets 	<ul style="list-style-type: none"> • Major potential to offset local opportunity and social costs of PAs • Need to balance growing local pressure on PA resources 	<ul style="list-style-type: none"> • Reinforce importance of integrating local funding into PA financing • Increase availability of local funding • Tap development finance sources • Improve the form in which benefits and revenues are shared
Cost sharing	<ul style="list-style-type: none"> • Recent increased use • Traditional focus on government as sole manager/funder of PAs 	<ul style="list-style-type: none"> • Large potential to meet PA finance gaps and relieve burden on government budgets • Untapped potential to solicit voluntary or mandatory cost sharing by private sector and NGOs 	<ul style="list-style-type: none"> • Encourage PA managers to devolve responsibility and funding monopoly • Make cost sharing mandatory where appropriate • Respond to willingness and ability of other groups to share costs • Define reciprocal rights and responsibilities • Develop enabling rules and legislation
Investment, credit and enterprise funds	<ul style="list-style-type: none"> • Still few and small but increasing in number and size • Experience mixed due to poor initial results of some high-profile funds 	<ul style="list-style-type: none"> • Source of capital and technical assistance to eco-tourism enterprise, sustainable harvest of renewable resources and other commercial activities linked to PAs • Wider application of business principles to PA management 	<ul style="list-style-type: none"> • Awareness raising among investors and PA authorities • Enabling legislation to encourage business enterprise linked to PAs • Improved marketing of PA goods and services to consumers

7. Market-based fees for PA goods and services

Key messages in this chapter:

- Although many PA goods and services have economic value, market transactions often fail to reflect their value. Many PA goods and services are enjoyed free, or at low cost, by beneficiaries while other groups bear the (uncompensated) costs of providing them.
- Market-based charges for PA goods and services can create powerful incentives for producers and consumers to support biodiversity conservation and sustainable use, as well as raising funds for PAs.
- Tourism fees are an important financial instrument and can generate significant funding for PAs while also helping to manage tourist demand and avoid congestion.
- The harvesting, processing and sale of PA products can generate substantial profits and livelihood benefits where resource extraction is appropriate.
- Systems of payments for ecosystem services are becoming more common as a means of financing conservation and PAs, and sharing costs and benefits more equitably.
- There is a need to extend the range of products and services for which PAs are managed and marketed, and to improve the link between prices and consumer willingness to pay.
- Partnerships with other sectors and experts, especially in business, can help to identify, develop and promote markets for PA goods and services.

7.1 Overview of this category of PA financing mechanisms

PAs produce many goods and services of high economic value. The costs of producing these benefits are significant. And yet market transactions and economic statistics typically do not reflect or register the full value of PA goods and services. Because so many PA goods and services are under-priced, or not priced at all, both market producers and consumers have weak incentives to conserve biodiversity. Because PA goods and services can be consumed at low or zero cost, they are often over-consumed. Because their provision remains unrewarded and uncompensated, PA goods and services are typically under-provided.

The failure of markets to recognise the value of PAs also means that potential sources of funding are generally not captured. Examples include carbon sequestered in PA biomass, which helps to mitigate climate change, clean water flowing from upland PAs to downstream farmers and residential water users, or commercially valuable fish stocks nurtured in marine protected areas and exploited in nearby capture fisheries.

Charging for PA goods and services can help create or strengthen financial incentives for producers and consumers to support biodiversity conservation and sustainable use, as well as raising new funds for PAs. Well designed charging schemes also stimulate PA managers to invest in improving the quality of goods and services they provide, and encourage them to be more entrepreneurial. Three types of market-based charges for PA goods and services are reviewed in this chapter:

- Tourism charges;
- Resource extraction fees; and
- Payments for ecosystem services.

7.2 Tourist charges

Status

Tourism and recreation are highly valued PA benefits. For example, nature-based tourism is a major component of export income in Australia, Botswana, Costa Rica, Kenya, Nepal, New Zealand and Tanzania.⁹⁹ PAs receive millions of visitors and for some PAs the fees charged for entry or for recreational activities generate significant revenue. In South Africa, for example, approximately 60% of all foreign tourists visit a national park or game reserve; the South African National Parks Board finances up to 80% of its annual budget from tourism receipts (Box 23).¹⁰⁰

Box 23. South Africa National Parks and tourism development¹⁰¹

South African National Parks (SANParks) recently decided that tourism and related commercial ventures in South Africa's PAs should be undertaken by the private sector, charging market prices, within a regulatory framework designed to minimize adverse impacts on biodiversity and ensure a relatively risk-free return to the conservation assets being leveraged. One component of the commercialization strategy was to lease several existing small camps (8–32 beds) in Kruger National Park, along with a number of new concession sites in Kruger and other parks. It was anticipated that such concessions would generate significant revenues for SANParks and also contribute to broader economic development objectives.

Eleven concessions were awarded to private operators, seven in Kruger NP, two in the Addo Elephant NP, and two in the Cape Peninsula NP. In addition, an agreement was reached with a private company to manage the only hotel in SANParks' portfolio – the Brandwag hotel in Golden Gate Highlands NP. The contract is for 20 years with no automatic right of renewal.

The results exceeded expectations. New accommodation in the parks amounted to some 380 beds, with total private investment estimated at over US\$35 million. Total income to SANParks from tourism concessions over 20 years is forecast at more than US\$ 90 million (undiscounted), representing a major contribution to the finances of the organization. Moreover, government tax receipts at maturity are estimated to exceed ZAR60 million per annum, more than the annual subsidy that SANParks currently receives from government. Tourism development linked to South Africa's National Parks likewise makes a significant contribution to export receipts, employment and wider social development goals.

Some of the factors underlying the success of this experience include:

- Good quality sites as a starting point for viable operations.
- Experienced operators capable of quick and responsible delivery of the anticipated financial and empowerment objectives.
- A competitive bidding system requires excess demand for sites.
- Motivated operators able to develop imaginative and far-reaching empowerment schemes.
- “Balanced” contract management to ensure long-term success of the process.
- Managerial flexibility to update environmental rules on issues such as carrying capacity in light of experience.

While visiting PAs is often an important part of tourists' motivation for travel, PAs typically capture little of the economic benefit generated by such visits. Many PAs charge no or very low entry and recreation fees, which cover only a small proportion of the cost of protecting the resource or providing visitor facilities.¹⁰² A global study of Biosphere Reserves, for example, found that only 40% charged visitors an admission fee.¹⁰³ And yet, numerous studies have shown

⁹⁹ Eagles, 2001.

¹⁰⁰ Eagles, 1999.

¹⁰¹ Fearnhead, 2003.

¹⁰² Wells, 1997.

¹⁰³ Tye and Gordon, 1995.

that tourists and other visitors to PAs are often willing to pay much more than they are charged.¹⁰⁴ Surveys conducted in Etosha National Park and Sossusvlei, in Namibia, for example, suggest that international tourists – mainly from Europe and the USA – would be willing to pay park entry prices 2–3 times higher than current tariffs, on average, if the additional revenue was used to conserve biodiversity.¹⁰⁵ Respondents also expressed the view that current entry fees are too low.

In addition to direct entry fees and charges for the use of PAs, several countries impose indirect taxes on tourists and tourism facilities, with a proportion of the revenues earned earmarked for conservation. Such mechanisms are most common in countries that rely on nature-based tourism for a significant share of foreign exchange earnings. The Protected Areas Conservation Trust in Belize, for example, receives most of its revenue from an airport tax of BZ\$7.50 (about US\$3.75), paid by all visitors upon departure, together with a 20% commission on cruise ship passenger fees. The Turks and Caicos Islands designate 1% of a 9% hotel tax to support the maintenance and protection of the country's protected areas.

Obstacles and opportunities for PA financial sustainability

Various charges are used to generate revenues from tourism-based activities, which can be allocated to PA management or other conservation efforts. Ideally, such fees reflect both the costs of supplying recreational services and facilities, and the value that visitors place on their recreational experiences. Examples include direct charges such as gate fees, licences or permits for recreational activities (e.g. trekking, hiking, hunting, fishing or camping), as well as indirect taxes and charges levied on sales of PA souvenirs, hotel accommodation, airport departures, or tourism-related goods and services in other sectors of the economy.

Tourism is not only an extremely important source of revenue for some PAs, but also acts as a driver for economic development more generally, supporting a variety of local and national businesses, such as restaurants, hotels, transport and the production of souvenirs. An additional benefit of tourism charges is the ability to manage the number and type of visits – within a single PA as well as between PAs. In Kenya, for example, differential entry fees are used to spread visitors across different PAs, thereby maximizing revenues while reducing congestion in more popular sites.

In their most basic form, as simple entry fees, tourist charges are relatively straightforward to set up and implement. Most PAs have the infrastructure and staff required to collect fees from visitors. As tourism markets and services become more complex, however, a higher level of on-site investment and management may be required, which can exceed the capacity of PA staff and budgets, particularly in some developing countries.

Another common challenge is confusion – or even conflict – about which agency is responsible for setting, collecting, retaining and allocating PA tourism revenues. In Vietnam, for example, several different agencies collect revenue from PA visitors, in some cases for providing the same services and facilities. In Yok Don National Park, for instance, the National Park Management Board, Tourism Division and local municipality all set and collect fees for various tourist services (in some cases overlapping each other) and have developed separate tourism development plans.¹⁰⁶

Potential for improvement and remaining challenges

Demand for nature-based tourism continues to grow, on a global scale as well as in specific sites and countries. As described above, charges for PA entry and recreational use are in many cases either non-existent or set well below their potential. Introducing fees where none currently exist, or rationalizing PA tourism charges in line with market demand and willingness to pay, could generate significantly greater revenue for many PAs. Even where entry fees are banned by law, there is often considerable potential to raise funds by charging for other PA services (Box 24). There is also evidence that recreational visitors are constantly seeking new experiences,¹⁰⁷ providing on-going opportunities to develop new and improved PA services and facilities.

¹⁰⁴ Loomis and Walsh, 1997.; Mantua *et al.*, 2001.

¹⁰⁵ Krug *et al.*, 2002.

¹⁰⁶ Emerton *et al.*, 2002.

¹⁰⁷ Eagles, 2001.

Building the capacity to exploit these opportunities remains a major challenge in many countries and sites. Estimating visitors' willingness to pay and setting optimum fee levels can be difficult, requiring substantial data and complex analysis, especially when additional considerations such as modelling impacts on visitor demand for different sites is important. Identifying new PA tourism markets, developing and promoting them, also necessitates a level of investment and expertise that are not widely available.

Box 24. New Zealand protected area fees and charges¹⁰⁸

The Department of Conservation (DOC) manages all national parks, reserves and conservation areas in the country, as well as handling marine conservation issues and 'off-estate' conservation advocacy. By law, DOC cannot impose fees for entry to any publicly-owned conservation area in New Zealand. However, fees may be set for the provision of PA facilities and services, and for concessions, permits and other consents. The DOC retains all revenue raised from sources other than central government, creating a strong incentive to maximize revenue-generating activities and cost recovery.

DOC issues concessions to individuals and businesses to conduct commercial activities such as tourism, agriculture, horticulture, telecommunications and commercial filming on public conservation land. In 2000, there were approximately 4,000 concessions in place throughout New Zealand. Concessionaires normally pay a fee in recognition of the rights extended under the concession by DOC, acting on behalf of New Zealand taxpayers. Under law, concession fees may be set at fair market value.

In addition to concession income, the DOC charges individuals for the use of PA facilities. The department maintains a network of over 1,000 "back-country" huts and 250 campsites throughout New Zealand. Until the late 1980s and early 1990s, use of these huts and camps was free of charge. Since then the DOC has introduced a scale of fees, based on the type and quality of facilities provided. While there was some initial resistance, most users now accept the fees. At the top end of the market are the Routeburn and Milford tracks, with fees of \$35 per person per night (ppn). Most other 'Great Walks' are charged at around \$15 ppn. An extensive network of huts in other locations charge fees of \$10 ppn or \$5 ppn, depending on the services provided. Some 300 basic and remote huts remain free of charge. Campsite charges similarly range from \$7 ppn for fully developed sites with showers, cooking facilities etc. down to \$3 ppn for basic camps. For 'Great Walk' tracks, in particular, fees are set at a level which ensures that the costs of providing hut facilities are fully recovered from users. In other words, no taxpayer subsidy is required to provide Great Walk huts. For the other categories of huts and camps, varying levels of subsidy are required (i.e. the difference between the price charged for a facility and the cost of providing that facility).

All told, the DOC raises around \$24 million per year from market-based concession fees, hut and campsite charges and other external sources of revenue. This represents about 15% of the total budget of the Department. Much of this income is used to maintain high quality facilities and provide other services to users of public conservation areas.

There is great potential for PA authorities to form partnerships with other sectors and agencies in order to develop tourism opportunities. Experience has shown that devolving responsibilities for the establishment and operation of PA tourist facilities to local communities and the private sector can yield substantial increases in revenue, as well as providing a financing mechanism that can help cover many of the wider social costs of PAs (see above, Sections 3.4 and 6.4).

¹⁰⁸ Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Unit of IUCN, 2000.

7.3 Resource extraction fees

Status

The harvesting, processing and sale of products derived from PAs can generate substantial income and other benefits to users. Where such extraction is consistent with conservation objectives, PA authorities may charge users for access (Box 25). Charges range from royalties and concession fees for large-scale extractive operations, such as industrial logging and mining, through to permit and licence fees for recreational hunting, fishing or harvesting of wild plants.

While the use of resource extraction fees to raise revenues is not new, some new forms of extraction fee have emerged in recent years. The devolution of PA management to private and community groups has also provided new opportunities to raise revenues (see above, Sections 3.4, 6.4, 7.2). Increasing emphasis on local benefit sharing and sustainable use (see above, Sections 6.3, 6.5) has also prompted an expansion of the range of extractive uses that are permitted – or charged for – in PAs.

Box 25. Resource extraction fees at Sultan Sazligi Nature Reserve, Turkey

The wetlands of Sultan Sazligi Nature Reserve in Turkey cover 17,200ha, forming part of an extensive wetland complex on the Develi plain. The site includes a saline lake, salt steppe, nutrient-rich freshwater marshes, wet meadows, small islands and lakes. Freshwater areas support reeds and rushes, while halophytic plants occur in the saltwater ecosystem. Situated in a closed basin and surrounded by hills and mountains, the area is an important breeding and wintering site for various species of endangered or globally threatened water birds.

In addition to bird habitat, the wetlands are a valuable source of raw material for local communities and businesses. In particular, the government management agency allows communities to cut reeds for their own use or for sale to processors. Reeds are used for various purposes including wall screens, roof thatch, insulating houses and handicrafts. Waste material is sometimes used as cattle fodder or cushioning.

Reed cutting has long been practised by local communities but increased pressure on the resource has led the General Directorate of National Parks to impose limits on both the amount of reeds harvested and the period when they may be cut. The government also charges an annual fee for the right to cut reeds in the Reserve. A permit costs about US\$5 and is normally issued only to persons from local communities. Permit revenues of about US\$2,000 per year are remitted to central government.

Reed collection and processing are important sources of income to local communities. Processors pay approximately US\$1 per bundle and up to 70 bundles per day can be harvested by one worker. Between 250 and 400 people are involved in the collection and sale of reeds, on a seasonal basis, yielding an income of up to US\$470 per person. Local people are also involved in reed processing, providing an additional source of income. Processed reed products are sold locally or exported to Holland, Denmark and other markets.

Obstacles and opportunities for PA financial sustainability

As is the case for tourism charges (see above Section 7.2), resource extraction fees have long been used to generate revenue for PAs and to support a range of secondary or value-added activities. Moreover, like tourism charges, resource extraction fees can be used to regulate demand for PA resources and more generally to help address market distortions that lead to PAs being under-valued. The use of resource extraction fees by PA managers also raises similar challenges to tourism charges, including weak institutional capacities, conflicting responsibilities for setting and collecting fees, and variation in the extent to which revenues are reinvested in conservation activities.

An additional challenge in using resource extraction fees as a mechanism for improving PA financing is ensuring the sustainability of resource use. Raising revenue from resource extraction will make little contribution to long-term financial sustainability or biodiversity conservation goals, unless extraction activities are themselves sustainable. Demand management must be built into fee scales and the property rights or quota systems that accompany them. It is also important to consider the compatibility of different PA goods and services. Large-scale extractive activities or

wildlife cropping, for example, may not be feasible alongside nature tourism. Analysing and addressing such concerns may exceed the capacity of some PA managers or agencies.

Issues of equity, benefit sharing and local needs also need to be considered in the design of PA resource extraction fees. For example, in many developing countries, extraction fees are set at different levels for different users. Fees may be lower or waived for local users, or they may be granted a special quota or preferential allocation of extractive rights.

Potential for improvement and remaining challenges

Like tourism charges, extraction fees are often set at levels which fail to reflect the real demand for PA resources, let alone wider economic values (see above, Section 3.5). There is often potential to improve the contribution of resource extraction to PA funding by rationalizing fee scales, by developing new resource uses and markets, by promoting multiple-use management regimes which can raise funds from a number of sources, and by increasing the extent to which users and other stakeholders are involved in managing and using PA resources.

Designing and promoting resource extraction regimes and fee systems that support long-term PA funding needs, as well as incorporating environmental sustainability concerns, is a challenge. More collaboration is needed between natural scientists, finance experts and PA planners in order to build ecological and financial sustainability into resource extraction regimes. At the same time, widespread reservations about managing PAs for extractive uses must be confronted and may require a shift in thinking about the objectives of biodiversity conservation and PA management. Even where there is a willingness to integrate resource extraction in PA management, there is often also a need to strengthen management capacity and improve physical infrastructure in order to collect fees and administer extractive regimes.

7.4 Bio-prospecting charges

Status

The commercial potential of biological resources is expanding partly due to growing demand for products which use them as essential inputs, such as cosmetics, dietary supplements and pharmaceuticals. PAs can be an important source of wild biological material for commercial use, where this is consistent with their management objectives. In some cases, individual PAs or PA systems have expanded their range of uses and users, and added a new source of revenue, by introducing fees for the right to collect biochemical or genetic materials from organisms found within PAs. A variety of up-front payments, royalties and profit-sharing agreements for such 'bio-prospecting' activities have been employed in several countries (Box 26).

Some governments in sub-Saharan Africa have negotiated biodiversity or genetic prospecting agreements with medical and pharmaceutical organizations. These agreements set out the terms and conditions under which researchers, companies and private collectors may search for naturally occurring biochemical compounds of potential commercial value. Examples include agreements between the British firm Biotics Ltd. and the Government of Ghana, and between the US National Cancer Institute and the governments of Madagascar, Tanzania and Zimbabwe.¹⁰⁹ Concession fees and a share of expected royalties for any commercially valuable discoveries are often paid in advance, with a proportion of the payment typically allocated to in situ conservation efforts in PAs.

Obstacles and opportunities for PA financial sustainability

The financial returns from bio-prospecting are often exaggerated, and many of the claims and expectations of high returns have not been realized. Collection of wild species (and payment for this collection) may only be a one-off event. Once a successful product has been found, new discoveries that yield the same product may be redundant and, in effect valueless.¹¹⁰ As more countries enter the biochemical prospecting market with unique combinations of biological and technical resources for sale, market niches may become smaller, leading to declining profits and

¹⁰⁹ Emerton, 1999.

¹¹⁰ Simpson *et al.*, 1996

conservation incentives.¹¹¹ The funds available for bio-prospecting are not often used to make direct payments to conservation. Furthermore, private industry and research institutes are unlikely to provide funds for conservation efforts without receiving tangible benefits in return.

Box 26. Bio-prospecting and PAs¹¹²

Bio-prospecting refers to the search for naturally occurring biochemical compounds of potential scientific or commercial value. Several recent examples illustrate how bio-prospecting is evolving and how PAs can capture more of the benefits of this activity.

One well-known example is the collaboration between Merck – an international pharmaceutical company – and the National Biodiversity Institute (INBio) of Costa Rica. Their agreement, which dates from the early 1990s, grants Merck access to natural material from which compounds are extracted and screened using various bioassays to see whether they have medically useful properties. Compounds identified as having potential are, of course, not immediately brought to market but must go through a long process of animal and human trials and certification before they can be produced and sold. INBio coordinates the collection of material and the initial extraction of compounds. Under the terms of the agreement, Merck supports the strengthening of INBio’s capacity to carry out its work, as well promising a portion of the profits arising from any successful drug produced. INBio in turn provides a share of this funding to Costa Rica’s protected areas (some US\$300,000 has been paid, most of which has gone to Cocos Island National Park). INBio now negotiated similar agreements with a number of other companies, including Givaudan-Roure (fragrances for use in the cosmetic industry), Recombinant Bio-Catalysis (micro-organisms living in harsh conditions), Bristol-Myers Squib (insects as input to drug development), AnaLyticum and INDENA (dermatological products). Despite criticism of these deals (mainly concerning transparency, public accountability and the price paid by companies for access to resources), there is no doubt that INBio’s innovative approach has demonstrated the potential of securing additional funding for PAs from commercial bio-prospecting.

Another approach is illustrated by Shaman Pharmaceuticals, a company set up to conduct bio-prospecting. A key feature of Shaman’s approach is to focus on drugs from species that indigenous peoples believe to be efficacious. A second feature is that Shaman pools risk and profits among its indigenous collaborators. Shaman has also established the Healing Forest Conservancy, a non-profit organization which aims to channel a portion of profits directly to cooperating indigenous peoples in Asia, Africa and Latin America; other funds are provided directly to PA management agencies. Whether indigenous groups will invest in maintaining the biodiversity that is the source of medicinal plants, for example through PAs, remains to be seen.

A third bio-prospecting model is presented by another company — Andes Pharmaceuticals. Like Shaman, Andes is dedicated to bio-prospecting in cooperation with indigenous peoples. In addition, however, the Andes approach builds capacity to screen biological materials for useful products in the country of origin. Andes has signed agreements with several South American universities and NGOs to transfer state-of-the-art screening technology to laboratories in the countries where materials are being collected. In this case, not only does the source country benefit from capacity building, but what had previously been costs (for screening) subtracted from potential profits can become a new source of income to local institutions. Moreover, because both the developing country institution and the company would jointly hold any resulting patents, a larger share of the ultimate value of the drugs (rather than a 1 or 2% royalty) would go to the country of origin. On the other hand, Andes’ approach does not include any direct or explicit benefit for the protected areas from which samples are derived.

¹¹¹ McNeely, 1999.

¹¹² McNeely, 1999.

The rules and procedures governing bio-prospecting are of necessity quite complex. In most cases, bio-prospectors must satisfy the requirements of the Convention on Biological Diversity with respect to prior informed consent, access on mutually agreed terms, and the fair and equitable sharing of benefits. They must also address issues of intellectual property rights (including patent applications); obtain appropriate visas and permits to collect, enter land, and export and import materials; satisfy phytosanitary (for plants) and CITES requirements; while also satisfying regulatory requirements concerning product health and safety.

Potential for improvement and remaining challenges

Bio-prospecting undoubtedly has potential to generate additional revenue for PAs, based on the sustainable use of wild plant and animal species. Whether bio-prospecting can generate returns that are sufficient to influence land-use decisions and thus provide a financial incentive for conservation remains uncertain. Much of the economic value attributed to bio-prospecting remains speculative, while the lion's share of the returns generated to date have tended to accrue to researchers, exporters and user companies in developed countries. The people and countries who live alongside and host wild species of actual or potential medicinal importance have typically received a much smaller proportion of this value.

PA managers, as well as the communities living around PAs in biodiversity-rich countries, often lack the capacity to negotiate bio-prospecting fees, royalties and other financial agreements that would enable them to capture a larger share of the value of medicinal plants used by the pharmaceutical industry.¹¹³ More equitable benefit sharing in the future will require the development of local institutional capacity, as well as the establishment and enforcement of appropriate legal and regulatory safeguards.

7.5 Payment for PA ecosystem services

Status

Biodiversity conservation is increasingly justified in terms of “ecosystem services” provided to people. Examples include the natural water filtration function of wetlands, which often benefits people far downstream, the storm protection function of coastal mangrove forests, which benefits coastal properties and infrastructure, and carbon sequestration in biomass, which benefits the entire global community by abating climate change. Many other ecosystem services have been identified in different contexts.¹¹⁴

While many PAs and PA management plans were established long before the notion of ecosystem services was popularized, it remains the case that all PAs provide such services to varying degrees. More relevant for the present discussion is the fact that ecosystem services provided by PAs are typically enjoyed by offsite producers and consumers at low or zero cost, and thus make little or no contribution to PA finance.

Systems of payments for ecosystem services (PES) seek to create financial incentives for resource users and managers to adopt, voluntarily, activities and technologies that generate environmental benefits. The use of PES to generate funding for PAs is a relatively recent phenomenon; most schemes have been developed in the last decade or so. PES is however becoming an increasingly popular source of funding for biodiversity conservation, especially on private land. Payments by government to farmers to conserve or restore native vegetation, or to adopt low-external-input farming practices, are two common examples of PES.

¹¹³ Pearce, D.W., and Puroshothaman, S. 1992. “The Economic value of plants based pharmaceuticals” in Swanson, T. (ed.) *Intellectual Property Rights and Biodiversity Conservation*, Cambridge University Press: Cambridge, UK.

¹¹⁴ The concept of ecosystem services builds on economic interpretations of environmental value, particularly the notion of “indirect use value” or benefits derived from the role of natural ecosystems in supporting and protecting economic activity and property. The Millennium Ecosystem Assessment (www.MAweb.org) adopts a more inclusive definition, in which all environmental benefits are described in terms of services provided to people. See also: Daily, 1997; Pagiola *et al.*, 2004.

While many PES systems rely on public funds, others seek to capture the willingness-to-pay of private users (beneficiaries) of ecosystem services. Demand from beneficiaries may be voluntary, for example consumers' preference for "ecological" products and services, or contributions by major water users to support watershed protection efforts upstream. Alternatively, consumer demand for ecosystem services may derive from legal obligations to avoid, minimize or offset environmental damages, such as payments for CO₂ emission reductions by industries subject to emission caps under the Kyoto Agreement, or payments to wetland mitigation bankers by land developers in the USA.

In theory, payment schemes could be developed for any of the ecological services provided by PAs. In practice PES schemes are most developed for ecosystem services that are clearly defined, highly valued by beneficiaries, and/or legally protected under rules that encourage markets and trade. These conditions vary from one country to another, leading to diverse experiences with PES for different ecosystem services in different locations. Information on the scale of PES and especially the role of such schemes in funding PAs is not readily available. However, recent efforts to document PES suggest that the approach is gaining ground rapidly in many parts of the world.¹¹⁵

Examples of PES used to generate funding for PAs include payments for watershed protection, carbon sequestration and biodiversity conservation. Payments for hydrological services have been applied in a wide range of cases and countries (Box 27), and range from transfers between public hydropower and water utilities to PA agencies and conservation NGOs, to direct payments by governments to small-scale farmers. With respect to carbon sequestration, the main potential under the provisions of the Kyoto Protocol lies with efforts to restore or establish forests rather than the conservation of existing forests. Nevertheless, carbon finance has already provided funding for several PAs in both developed and developing countries (Box 28). Some proposed financial mechanisms to address climate change may generate even more funding, although whether PAs will benefit remains to be determined (Box 29). Other payment schemes have likewise been used to promote biodiversity-friendly land use practices (Box 30).

Box 27. PES for watershed protection in Latin America¹¹⁶

Protected areas can be a cost-effective means of maintaining healthy watersheds that produce a steady and reliable source of water. Protected forests, in particular, have significant influence on the hydrological cycle, especially in mountainous areas. Compared to agricultural crops or grassland, natural forest cover intercepts, evaporates and transpires larger quantities of precipitation, resulting in less runoff. Cloud forests are an exception; they appear to generate increased runoff as a result of increased interception rates. While empirical data on the relation between vegetation cover and water supply is scarce, some studies suggest that forest conservation and appropriate farming methods can:

- reduce sediment loads in waterways, reducing sedimentation of reservoirs and associated construction and maintenance costs for irrigation systems, hydro-electric power (HEP) plants, water supply systems and fisheries;
- regulate water-flows so as to reduce flood risk in the wet season and the likelihood of water shortages in the dry season;
- increase the volume of water available, either year-round or specifically in the dry season; and
- improve the quality of water for domestic use.

The economic value of watershed services provided by PAs can be substantial. For example, 7,600ha of cloud forest in the La Tigra National Park in Honduras provide the capital city of Tegucigalpa with about 40% of its drinking water supply, at only 5% of the cost of the city's second main water source. Guatopo National Park in

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¹¹⁵ Recent reviews of PES include: Daily and Ellison, 2002; Ferraro and Kiss, 2002; Fox and Nino-Murcia, 2005; Gutman, 2003; Johnson *et al.*, 2001; Landell-Mills and Porras, 2002; Lecocq, 2004; Mantua *et al.*, 2001; Pagiola *et al.*, 2002; Scherr *et al.*, 2004; Swingland, 2002; Wilkinson and Kennedy, 2002.

¹¹⁶ Pagiola, 2002, in Pagiola *et al.*, 2002, pp. 37–62; Snider *et al.*, 2003; Verweij, 2003; McNeely, 1999.

Box 27. PES for watershed protection in Latin America (cont.)

Venezuela provides 20,000 litres per second of high-quality water to the city of Caracas, justifying an expenditure of over US\$15 million to buy out timber and farming interests in the area. The value of hydro-electricity produced by Venezuela's Canaima National Park (covering 3 million ha) is equivalent to 144 million barrels of oil per year, or about US\$2.5 billion at the current price.

In spite of the valuable ecosystem services provided by upland forests, deforestation in mountainous areas continues apace, driven by the expansion of agriculture with little consideration of hydrological impacts. Annual deforestation rates for tropical montane forests are about 2.5 times the average rate for all tropical forests. In response, some Latin American countries have developed new PES schemes in an attempt to conserve the hydrological functions of upland and especially montane forests, and to encourage adoption of more "watershed-friendly" farming and ranching.

Costa Rica

Payments for watershed protection are provided under several different initiatives in Costa Rica. At a national level, since 1997, the National Fund for Forest Financing (FONAFIFO) pays forest owners and protected areas for reforestation, forest management and forest conservation. FONAFIFO acts as an intermediary between landowners and buyers of various ecosystem services, including carbon sequestration, watershed protection, scenic beauty and biodiversity conservation. Landowners involved in the scheme receive payments over five years for specified land-use changes (supported by detailed plans). Payments are set at slightly more than the opportunity cost of relatively low-value land uses such as pasture, about US\$35–40/ha/yr for conserving forest, compared to US\$538/ha over five years for reforestation. At these prices, most landowners prefer to conserve existing forest, rather than undertake more expensive reforestation. Note that landowners are legally bound to honour their commitments under the scheme for 10–15 years after the payments cease. Nevertheless, by the end of 2001, it was reported that 4,500 contracts had been written covering over 250,000 hectares, with pending applications for another 800,000 hectares.

Funding for the scheme has come from various sources, including a fossil fuel tax, sales of carbon credits, a World Bank loan and GEF grant. In addition, agreements have been reached with some HEP utilities to make voluntary contributions to FONAFIFO. The latter payments are used to finance conservation agreements with farmers in watersheds that supply the HEP reservoirs and turbines. As of 2001, contracts under negotiation with HEP companies were expected to generate payments of about US\$500,000 per year to landowners in an area of some 18,000 hectares. While these contributions make up a relatively small share of FONAFIFO's total income, they indicate the willingness of major water users to pay for watershed protection services and help establish the important precedent that ecosystem services can no longer be seen as a free gift of nature.

In addition to the agreements between HEP producers and FONAFIFO, there is a bilateral agreement between a private HEP producer, La Manguera S.A., and the NGO that owns the Peñas Blancas watershed, from which La Esperanza HEP plant draws its water. In 1998, La Manguera agreed to pay the Monteverde Conservation League US\$10/ha/year to maintain the watershed under forest cover. Similarly, in 2000, Costa Rica approved a law to establish a trial 'environmentally adjusted water tariff', the proceeds of which will be used to help maintain and reforest watershed areas near the town of Heredia.

Ecuador

The municipal water companies of Quito and Pimampiro, Ecuador, created water funds by charging levies on drinking water. In the case of Quito, revenues from the water tax were to be supplemented with voluntary payments by major agricultural and industrial water consumers, and invested in nature conservation activities in upland areas. In Pimampiro, an environmental NGO promoted the creation of a municipal water fund, which makes direct payments to forest owners. International donors provided seed money to both water funds. The municipal water company of Cuenca, also in Ecuador, adopted a more direct approach, using revenues from water bills to purchase upstream nature areas for strict conservation purposes.

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Box 27. PES for watershed protection in Latin America (cont.)**Colombia**

In the Cauca Valley of Colombia, agro-industrial water users suffered chronic water shortages for many years. In response, some of them set up private associations to collect voluntary contributions to support watershed management activities. In 2000, there were 12 such Associations of Water Users, covering an area of more than 1 million hectares and benefiting approximately 97,000 families in the upper watersheds.

Similar PES are being developed or implemented throughout Latin America, including El Salvador, Honduras, Guatemala, Mexico and Nicaragua. Initial lessons from these and related experiences suggest that:

- The potential to finance forest conservation with payments for water services has barely been exploited;
- Lack of information about the impact of forest cover on hydrological services remains a serious weakness of most schemes;
- The institutional burden and administrative costs of PES schemes varies widely, depending on the geographic scale and numbers of buyers and sellers involved;
- Binding legal frameworks are not indispensable, as satisfactory “deals” can often be worked out bilaterally;
- Payment rates need to reflect both the opportunity costs of alternative land uses and the willingness-to-pay of beneficiaries. Auction and tendering systems can help to reduce over-payments to landowners; and
- Implementation of PES schemes can help to secure the land-use rights of marginalized communities in upper watersheds, providing important social benefits as well as a new source of income.

Box 28. Selling carbon offsets to finance Noel Kempff Mercado National Park, Bolivia¹¹⁷

The Noel Kempff Mercado National Park (NKMNP) is one of the most biologically diverse areas in the world and among the most pristine parks in the Amazon Basin. Covering an area of over 1.5 million hectares in north eastern Bolivia, NKMNP encompasses five distinct ecosystems and contains an estimated 4,000 species of flora, over 600 bird species and important populations of many endangered species. In the mid-1990s the park was under imminent threat from logging and conversion to agriculture.

In 1997 a partnership was forged between the Government of Bolivia (GOB), the Bolivian NGO Fundación Amigos de la Naturaleza (FAN), The Nature Conservancy (TNC), two US-based energy companies (American Electric Power and PacifiCorp) and an international petroleum company (BP Amoco), in order to reinforce protection of the NKMNP. The Noel Kempff Mercado Climate Action Project raised over US\$10 million for the park on the basis of a suite of conservation and sustainable development activities that would reduce deforestation, enhance the re-growth of native vegetation and thereby offset some 25–36 million tonnes of CO₂ emissions over 30 years. The project’s business partners provided some US\$7 million up-front, with additional contributions from TNC and other sponsors. The GOB committed to provide US\$250,000 per year to cover recurrent costs during the life of the project. Carbon offset credits generated by the project were divided between the GOB (46.5%) and the industry sponsors (53.5%), including a 5% bonus to American Electric Power, the lead investor. The GOB further agreed to use the proceeds from the sale of carbon offsets generated by the project on conservation activities elsewhere in Bolivia.

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¹¹⁷ Totten, 1999; Bruneau, 2000; Noel Kempff Mercado Climate Action Project website (www.noelkempff.com); Cottle and Crosthwaite-Eyre, 2002, in Pagiola *et al.*, 2002, pp. 247–59.

Box 28. Selling carbon offsets to finance Noel Kempff Mercado National Park, Bolivia (cont.)

The main source of carbon offsets within the project was the termination of pre-existing logging concessions (at a cost of US\$1.6 million) on over 500,000 hectares of government-owned land. This land was incorporated into the National Park and allowed to regenerate naturally, storing carbon as the forest recovers. At the same time a “leakage” prevention agreement was signed with former timber concessionaires, who agreed to report on their use of compensation funds received to cease operations, and to concentrate on sustainable forestry practices in their other logging operations.

Additional project funding was used to establish an endowment fund of US\$1.5 million. Income from the endowment is expected to cover 20% of the park’s annual operating budget. Project funds were also used to hire guards, invest in equipment and infrastructure and strengthen park protection and management activities. Support for local community development included employment by the park, the establishment of revolving funds for local enterprise development, promotion of sustainable resource harvesting, assistance in obtaining legal title to land and investments in local educational and healthcare facilities. Eco-tourism facilities were created and a for-profit venture (Canopy Botanicals) was established to generate additional revenues for the park.

With the incorporation of retired logging land into the park, the size of NKMNP almost doubled, from 0.89 million ha to 1.5 million ha. At the same time, the funding raised from the sale of carbon credits enabled a higher level of management and protection activities within NKMNP. On the other hand, limited community participation in project design led to concerns about the impact of the project on local livelihoods (including access to park resources and employment in the logging industry). Initial opposition to expanding the park from local communities was only partially addressed by community development activities, and offers of employment as park rangers. Illegal logging is another concern, calling into question the security of the park and the reliability of carbon sequestration projections. Thus while in 1998 the project was expected to provide at least 18 million tonnes of sequestered CO₂, by 2001 the figure published on the project website had dropped to 10 million tonnes.

The Noel Kempff Mercado Climate Action Project has been succeeded by many other examples around the world, where carbon credits have been used to finance PA conservation. Although carbon credits are not allowed for avoided deforestation under the Clean Development Mechanism of the Kyoto Protocol, a parallel market of “non-Kyoto compliant” carbon is less restrictive and continues to provide funding for forest conservation. One recent high-profile example is in Madagascar, where Conservation International, Natsource Japan Ltd. and the Mitsubishi Group have joined forces to protect threatened forests and support local sustainable development.¹¹⁸ These and other experiences suggest that carbon markets can provide substantial new funding for PAs, in particular when:

- **Carbon credits are professionally marketed to private sector buyers.** For the companies involved in the Noel Kempff Mercado project, investing in forest preservation and restoration in partnership with NGOs and governments offered a high-visibility and low-risk opportunity to demonstrate their commitment to reduce greenhouse gas emissions. Buying out logging concessions was also highly cost-effective, generating carbon credits at less than US\$1 per tonne. Raising carbon finance for PAs in the future will require similar professional marketing efforts that pay close attention to the needs of business.
- **Clear procedures and guidelines are in place.** The Noel Kempff Mercado Project was designed in accordance with criteria suggested by the World Business Council for Sustainable Development, as well as the rules of the US Initiative on Joint Implementation, the Canadian joint implementation programme and the Decision on Joint Implementation reached during the first Conference of the Parties to the UN Framework Convention on Climate Change. Other recent projects rely on the rules of the Clean Development Mechanism of the Kyoto Protocol or parallel frameworks for “voluntary” carbon emission mitigation.

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¹¹⁸ www.celb.org/xp/CELB/news-events/press_releases/03222005.xml.

Box 28. Selling carbon offsets to finance Noel Kempff Mercado National Park, Bolivia (cont.)

- **A range of agencies ensure credibility.** TNC and FAN played critical roles in promoting, brokering and supporting the deal. An independent NGO, Winrock International, was contracted alongside FAN to monitor and verify carbon sequestration results. Additional support was provided by a US-based law firm, Hopp & Associates PLLC, one of few firms at the time with substantial legal experience of carbon sequestration and offsets projects under the US Initiative on Joint Implementation. Expertise in carbon financing is increasingly available but still largely concentrates on the developed world and on the energy sector. Additional capacity building of PA authorities as well as partnerships with carbon finance experts are needed to secure more carbon funding for PAs, especially in the developing world.

Box 29. Economic instruments to reduce greenhouse gas emissions from aviation in the EU

The Intergovernmental Panel on Climate Change forecasts that aviation will account for roughly 15% of all greenhouse gas emissions by 2050. Rapid growth in aviation is stimulated in part by low taxes on fuel, as the sector is largely exempt under the terms of the 1944 Chicago Convention. Recent proposals to impose “green” taxes on aviation fuel have been accompanied by various recommendations regarding the potential uses of tax revenues, including environmental protection.

During the Dutch Presidency of the European Union, in 1997, Transport Minister Annemarie Jorritsma of The Netherlands suggested that the EU should unilaterally introduce an aviation fuel tax. In December 2000, the Economic and Monetary Affairs Committee of the European Parliament confirmed its support for a recommendation that would allow Member States to tax domestic and intra-EU flights. The Committee further urged the European Commission to pursue negotiations through the International Civil Aviation Organization, with a view to amending the long-standing tax exemption for aviation fuel under the Chicago Convention.

Despite opposition from industry, in late 2005 the European Commission unveiled plans to include aviation in the EU Emissions Trading Scheme. If these proposals are agreed by EU governments, airline passengers would likely be obliged to pay a surcharge in order to offset the environmental damage caused by pollutants produced during their flights. All airlines flying in Europe would be subject to restrictions on emissions. Although robust climate targets for the aviation sector have not yet been set, the European Commission has clearly expressed its desire to see new taxes on aviation fuel, or the incorporation of aviation within the Emissions Trading Scheme.

Box 30. Wetland and Conservation Banking in the USA¹¹⁹

The United States, like most developed countries, has lost much of its natural wetlands and other habitat as a result of efforts to “improve” land for agriculture, infrastructure, industrial and residential development. In the process, vast swathes of natural habitat for birds, fish and other fauna and flora have been lost. During the ten years from 1976–86, for example, the US Fish and Wildlife Service (FWS) estimated that wetlands were being lost at an average rate of 117,000ha per year.

More recently the situation has improved, with the FWS reporting a loss of about 24,000ha of wetlands per year, net of additions, during the period 1986–97. The decline in wetland loss is partly due to regulatory reforms introduced during the early 1990s, under the 1972 Clean Water Act. These reforms allow land developers to

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¹¹⁹ Fox and Nino-Murcia, 2005; ten Kate *et al.*, 2004; Wilkinson and Kennedy, 2002; www.usace.army.mil/inet/functions/cw/hot_topics/didyouknow.pdf; www.nwi.fws.gov/statusandrends.htm

Box 30. Wetland and Conservation Banking in the USA (cont.)

compensate for the environmental damage they cause, when adverse impacts are considered unavoidable, by financing the creation, restoration and/or protection of wetlands and other natural habitat elsewhere. In 2003, for example, the US Army Corps of Engineers (which has authority over the nation's wetlands) issued permits to drain and fill 8,632ha of wetland. As a condition for issuing these permits, however, the Corps required developers to provide roughly twice as many hectares of wetland restoration, creation or mitigation. The ultimate aim of the policy is to achieve "no net loss" of wetland. Similar provisions have been introduced with respect to terrestrial habitat under the 1973 Endangered Species Act, as well as relevant state and local laws.

Compensation for unavoidable losses of wetland and other natural habitat need not be carried out by the developer directly. The possibility of off-site mitigation by third parties, where public authorities determine that it is feasible and appropriate, has stimulated an emerging market in mitigation services. Because most land developers don't have expertise in habitat creation, restoration or management, many prefer to buy "mitigation credits" from specialist wetland and conservation "bankers". The latter include conservation NGOs and commercial companies that buy land and create or restore habitat (banks), as well as some public PAs. Prices of mitigation credits are highly variable, depending on land purchase and restoration costs as well as the level of demand from developers. Reported prices range from as little as US\$1,200 per hectare for wetland credits in some areas, up to US\$300,000 per hectare for certain exceptional conservation banks, according to recent reports.

At these prices, it is hardly surprising that private firms have become interested in supplying mitigation credits. The growing mitigation market is illustrated by the number of wetland banks, up from 46 approved banks operating in 18 States in 1992/93 (of which just one was privately owned), to a total of 219 approved banks in 40 States in 2001/02, of which two-thirds were private, commercial operators. Endangered species or "conservation" banking is at an earlier stage of development but also growing rapidly, with 35 approved banks operating in five States in 2003, of which 63% privately owned. Note that 29 of the latter are in the State of California and half are located adjacent to existing PAs.

Other examples of habitat compensation and offset schemes can be found in Brazil (Protected Areas Law of 2002 and Forestry Code of 2001); Canada (Fisheries Act of 1985); Switzerland (Federal Law for Protection of Nature and Landscape of 1983), as well as several Australian states (e.g. Victoria's Native Vegetation Management Framework of 2002, New South Wales Green Offset Pilot programme). Most recently, the new Environmental Liability Directive passed by the European Commission in April 2004 could lead to similar arrangements throughout the European Union, as private firms seek to fulfil their obligations to compensate for environmental damage on- or off-site. Several industry associations have also identified biodiversity offsets as a potentially valuable mechanism for maintaining their members' "license to operate", even in situations where habitat compensation is not required by law (see International Petroleum Industry Environmental Conservation Association, Energy and Biodiversity Initiative, International Council on Mining and Metals).

Biodiversity compensation and offsets have enormous potential as a source of funding for ecosystem restoration and for PAs in general. Experience to date suggests that offset programmes require good relations between business, environmental NGOs and regulatory authorities, consensus on conservation priorities and indicators, strong local participation in decision making, and reliable mechanisms for monitoring, enforcement and maintenance of offsets over the long term.

Obstacles and opportunities for PA financial sustainability

Although still relatively new, payments for ecosystem services are an increasingly important source of PA finance. A range of schemes have been piloted in different ecosystems and countries. There is also growing recognition and evidence that payments for ecosystem services can be an effective mechanism for compensating landholders near PAs for the biodiversity conservation services they provide. This flexibility, together with the ability of some payment schemes to generate revenues for PAs which have few other sources of revenue, underline the potential and need to

develop such financing mechanisms further – for a wider range of ecosystem services, beneficiaries and PAs. Experience has shown that payments for environmental services, if carefully designed and implemented, can achieve environmental goals at significantly less cost than conventional ‘command-and-control’ approaches, while creating positive incentives for continual improvement in biodiversity and ecosystem services.¹²⁰

Several obstacles hamper the development of payments for ecosystem services to benefit PAs. Substantial data and analysis is often required to demonstrate the relationship between PA management and the quantity and quality of ecosystem services provided, to set appropriate prices for the provision of ecosystem services, and to monitor the conservation effectiveness, economic efficiency and social equity impacts of payments for ecosystem services. In some cases, legislative or regulatory reforms may be needed to ensure that payment schemes are adopted and enforced. Ongoing efforts to develop payments for ecosystem services as a mechanism to fund PAs have sometimes found it difficult to generate adequate biophysical or socio-economic data to enable the informed design or monitoring of schemes, or to persuade policy makers and decision makers to enact the broader policy and legal changes needed to back them up.

Potential for improvement and remaining challenges

There is great potential to develop payments for ecosystem services as a funding mechanism for PAs. Experience to date indicates that such schemes can be effective both for increasing revenue flows to PAs, and for ensuring that funding reaches the right stakeholders. To date, however, most of the payment systems that have been developed are relatively small-scale, or run as pilot projects. A key question is what conditions or actions are required to enable PES schemes to contribute to ecosystem conservation on a global scale.¹²¹

Among the advantages of payments for ecosystem services is the ability to generate revenues from non-extractive and non-consumptive uses of PAs, and also to capture willingness-to-pay from a wide range of PA beneficiaries who may reside very far away. Such mechanisms provide an opportunity to expand the concept of multiple-use PAs by introducing an additional revenue stream. On the other hand, payments for ecosystem services may sometimes induce changes in PA management that conflict with other PA uses (e.g. optimizing carbon storage or downstream water supply may not always be consistent with biodiversity conservation).

In terms of the supply of ecosystem services, most PES schemes target private resource users rather than public conservation agencies or PA managers. This reflects the emphasis of PES on inducing voluntary changes in resource use or production practices, by modifying market incentives. Many PAs (as well as many private resource owners) are legally obliged to provide ecosystem services under their mandates or according to other regulations on resource use. Nevertheless, even where PAs or other resource users are required by law to provide ecosystem services, payments can enhance the incentive to do so.

In other cases, PAs may be expressly forbidden from “charging” for certain ecosystem services they provide, just as some PAs are obliged to provide free entry to visitors. An important example of such constraints is the ineligibility of carbon credits generated through avoided deforestation under the Clean Development Mechanism of the Kyoto Protocol, which effectively bars many PAs (and potential PAs) from participating in the rapidly emerging global carbon market. Notwithstanding such barriers, some PAs have secured carbon finance from voluntary buyers.

Perhaps the greatest challenge to extending payments for ecosystem services is the difficulty, cost and time required to design, implement and enforce them. In-depth consultation with both service providers and beneficiaries is normally required; elaborate negotiations may be involved before such schemes can be set up; monitoring is often complex and far-reaching policy changes may be required to ensure success. Nevertheless, as the use of payments for ecosystem services becomes more widespread, and as methods, data and experiences are generated by existing schemes, it is becoming easier to design, implement and monitor such schemes for the benefit of biodiversity and local livelihoods.

¹²⁰ Jenkins *et al.*, 2004.

¹²¹ Jenkins *et al.*, 2004.

7.6 Conclusion: market-based fees for PA goods and services

Tourism charges and resource use fees are an important existing source of funding for many PAs. Payments for ecosystem services are rapidly emerging as a significant new funding source. What all of these mechanisms share is an emphasis on charging PA users and beneficiaries for the goods and services provided. While much progress has been made to increase cost recovery by charging for PA goods and services, there remain many opportunities and challenges for increasing the use of market-based charges as a funding mechanism.

Future progress will require a broader view of the range of goods and services that PAs provide and are managed for, along with concrete action to develop and improve charging mechanisms. Efforts to identify and promote new or improved markets, and to create the institutional infrastructure needed to implement them, is likely to require significant inputs and partnerships with other sectors and will need to draw on skills far removed from those of most environmental agencies. In addition, there is a need to strengthen the capacity of PA authorities in some countries to implement “consumer-oriented” models of PA management. This should include efforts to clarify the conflicts and complementarities between different PA uses and beneficiaries, and to design market-based charges that can encourage appropriate changes in PA management practices without undermining their fundamental mission to conserve biodiversity (Table 4).

Table 4. Market-based fees for PA goods and services: status, potential and needs

	Status	Main potential	Actions required
Tourism charges	<ul style="list-style-type: none"> • A core component of PA funding in many places • Demand for nature-based tourism is growing 	<ul style="list-style-type: none"> • Opportunities to improve cost recovery for tourist facilities, and introduce charges that better reflect visitors’ real willingness to pay • Potential to diversify tourist markets and services offered • Use to manage/direct demand within and between PA sites 	<ul style="list-style-type: none"> • Improve calculation of tourist charges • Investment to develop tourism facilities • Additional expertise may be required to market and operate high-quality tourism facilities
Resource use fees	<ul style="list-style-type: none"> • A core component of PA funding in many places • Diversification of PA products and extractive activities carried out in PAs 	<ul style="list-style-type: none"> • Prices need to be set in line with true economic values • Potential to diversify markets and charges for PA products • Increased support for secondary or value-added industries 	<ul style="list-style-type: none"> • Improve calculation of user fees, royalties and other charges • Strengthen institutional capacity and clarify roles of agencies in setting and collecting PA fees • Integrate ecological sustainability into extractive regimes
Bio-prospecting charges	<ul style="list-style-type: none"> • PA authorities in some countries charge for the right to collect bio-chemical or genetic materials from PAs 	<ul style="list-style-type: none"> • Potential to generate additional revenue for PAs, but sometimes exaggerated leading to unrealistic expectations 	<ul style="list-style-type: none"> • Strengthen PA capacity to negotiate bio-prospecting agreements • Develop regulations to ensure more equitable benefit sharing

Table 4. Market-based fees for PA goods and services: status, potential and needs (cont.)

	Status	Main potential	Actions required
Payments for ecosystem services (PES)	<ul style="list-style-type: none"> • Relatively new financing mechanism • Rapid growth especially for conservation on private land 	<ul style="list-style-type: none"> • Opportunity to generate increased revenue from non-extractive PA management regimes • Can be effective means of compensating PAs and private landholders for providing ecosystem services 	<ul style="list-style-type: none"> • Develop supportive policy and/or legislative frameworks • Improve methods and data on biophysical linkages, efficiency and social impacts of PES • Clarify trade-offs between different ecosystem services

Part III:

Conclusions and recommendations

8. Conclusions

This document reviews and assesses PA financing mechanisms, with a view to improving their future sustainability, efficiency and effectiveness. Parts I and II of this report analyse the status of and recent trends in PA finance, develop a conceptual framework for judging financial sustainability, and describe how different PA financing mechanisms are used in practice. This chapter aims to draw conclusions about the key factors which influence the success of different financing mechanisms across countries, ecosystems and types of PA.

8.1 PA financing: potential and future directions

Because government agencies manage PAs in most countries, so public sector budgets will remain at the core of their long-term funding. In the developing world, bilateral and multilateral donor funds are similarly likely to remain an important secondary source of PA finance. However, this review suggests a need to re-frame the way such conventional funding is secured for biodiversity conservation, both in order to maintain existing flows as well as to increase them.

A key condition for securing public funds for PAs in the future will be the ability of PA planners and managers to justify their funding requests in terms of socio-economic objectives. In the developing world this argument needs to be even stronger, due to the over-riding urgency of poverty reduction. At the same time, greater efforts will be needed to convince both domestic and foreign governments to honour their prior commitments to funding PAs, in the light of the international agreements they have already ratified and in recognition of the national and global public service function that PAs fulfil.

It is equally clear that conventional sources of PA funding, by themselves, will not be sufficient to maintain and expand PA networks in the future, or to meet the growing demands placed upon them. In order to meet this challenge, there is an urgent need to develop and expand the innovative PA financing mechanisms that have emerged in recent years. Such mechanisms offer the greatest chance of substantially increasing PA funding in the future, and can also help stimulate broader improvements in PA management and sustainability.

Financing mechanisms with high potential include fiscal and financial instruments long used in other sectors of the economy, such as taxes, subsidies and credit schemes, and devolution of cost and benefit-sharing mechanisms for PA management and facilities. There is also a need for wider adoption by PAs of incentive-based approaches that are increasingly used to guide broader development processes, e.g. developing new markets for PA goods and services and setting prices according to market principles. Financing mechanisms which stimulate (and reward) private sector and community participation in PA management are especially promising. Payments for ecosystem services also have high potential as mechanisms to generate funding for PAs and biodiversity conservation generally.

Efforts to enhance PA funding should capitalize on the growing diversity of funding sources. PA managers and authorities should particularly seek to mobilize increased resources from (and to) private and non-government sources, through commercial and extra-budgetary channels. Indeed, this diversification of funding may be seen as a prerequisite for ensuring the long-term financial sustainability of PAs.

Capacity building will be key. PA planners and managers, as well as decision makers in the agencies that fund them, must invest in creating the necessary awareness, infrastructure and information base to ensure that existing funding for PAs is maintained, opportunities to increase funding from new sources are seized, and that policies governing resource use in other sectors of the economy do not inadvertently undermine the prospects for PAs.

8.2 Major challenges to PA financial sustainability

While there are many opportunities to improve PA financial sustainability, there are also many challenges to overcome. Foremost among these challenges is the failure of many international donors and national governments to honour

their commitments to biodiversity conservation. In most countries, funding for PAs has scarcely kept pace with their growing number, area and the demands placed upon them.

Changing public policy priorities and growing public budget constraints are part of the problem. A more fundamental constraint is the low awareness, among both conservation and development decision makers, of the role of PAs in supporting sustainable development and poverty reduction. Hence funding for PAs remains inadequate to sustain, let alone expand, PA networks, particularly in under-represented marine environments. Stronger arguments are needed to convince public donors, in addition to efforts to secure more funding from alternative sources. A key tool for raising awareness is the economic valuation of PA costs and benefits.

Economic incentives are another critical issue. Factoring PA concerns into the design of fiscal systems (to provide positive incentives and funding, as well as removing disincentives) is a major challenge in most countries. Greater awareness is needed among conservation and development decision makers of the potential of fiscal instruments as a mechanism for funding PAs and for reducing pressure on biodiversity.

As well as better information on the economic contribution of PAs and the role of incentives in supporting or undermining conservation, there is a need to consider more broadly the social costs of PAs and to factor these costs into conservation budgets. Many PAs impose significant indirect and opportunity costs on neighbouring communities and yet funding to cover these costs is rarely a major element of PA budgets. Conservation organizations should pay more attention to community funding as part of PA financing strategies. This includes increasing the amount of funding spent at local level, as well as making revenue- and benefit-sharing mechanisms part of PA budget allocations. New mechanisms may be required to ensure that sufficient funds are allocated, in appropriate form and on a timely basis, to local stakeholders.

A related challenge concerns the participation of local communities and the private sector in PA management (or delegation of management to such entities). While there are many instructive examples, the impacts of involving external groups on PA management effectiveness are not well understood. Opportunities to mobilize external groups (notably the private sector and NGOs) to share the costs and responsibility of managing PAs and of providing PA services are under-appreciated. Nor is it clear what is required to sustain such arrangements over the long term.

A popular strategy for enhancing the local economic impacts of PAs (as well as raising new funds) is to foster commercial enterprise linked to the sustainable use of PA resources. However, recent efforts to support biodiversity enterprise, through investment, credit and enterprise funds, reveal several challenges which must be overcome if these mechanisms are to contribute significantly to PA financial sustainability. Major concerns include the lack of appropriate skills in many remote areas (where PAs are located) and the high transaction costs of establishing commercially-viable biodiversity enterprises, as well as the limited experience of many PA authorities in marketing the resources they control. In some countries, there are also legislative or regulatory barriers which prevent PAs from engaging in commercial contracts with private investors.

Where PAs generate revenues directly, by charging for goods and services, there are likewise many obstacles to increasing and sustaining income. With respect to resource extraction and user fees, many PAs lack the scientific basis for determining sustainable levels of use, or for determining appropriate fees, royalties and other charges. At the same time, widespread reservations about managing PAs for extractive uses may require a shift in thinking about the means and ends of PA management. Even where there is a willingness to optimize the use of, and revenues from, resource extraction, PA management capacity and infrastructure are often insufficient to collect fees and administer sustainable extractive regimes.

Payments for ecosystem services (PES) are increasingly held up as a new solution to the PA financing crisis. However, implementing PES is no simple task, often requiring substantial investment in technical capacity as well as lengthy processes of baseline research, negotiation with stakeholders, legislative or regulatory reform, as well as elaborate monitoring, evaluation and enforcement. In some cases, PES may accentuate conflicts between conservation objectives (e.g. carbon versus water supply versus biodiversity). Moreover, some PAs may be forbidden from “charging” for ecosystem services or excluded from PES schemes under prevailing environmental policies.

In short, there are no lack of challenges to improving PA finance. None are insurmountable, but all require strong and effective PA institutions. In other words, increasing the amount of funding is a necessary but not sufficient condition for PA financial sustainability. Additional funds will be used most effectively (and more easily raised in future) if accompanied by capacity building of PA authorities in business and financial management skills, and by stronger partnerships between PAs and other sectors (government agencies as well as businesses and charities).

8.3 Key conclusions

Based on the summary above and the other findings of this review, a number of general conclusions may be identified with respect to PA finance:

Increasing funding of PAs is not just a demand, it is an obligation

By establishing a network of permanent PAs, governments assume responsibility for ensuring that adequate funds are provided for their upkeep. As described in Section 2.2, many countries have also bound themselves to provide funds to PAs (both in their own and other countries) by signing up to international agreements such as the CBD, WHC, CITES and Ramsar, or by committing themselves to multilateral declarations such as the MDGs, WSSD Plan of Action, CBD 2010 Target and Programme of Work on PAs. Many of these pledges to fund PAs are echoed in national policies and in regional agreements, declarations and conventions. These official statements provide a basic rationale, and justification, for governments to fund PAs.

Many PAs are under-funded and likely to remain so under current conditions

There are important funding gaps, especially for PAs in the developing world and marine PAs. Even many developed country PAs do not receive sufficient funding to manage them effectively. Sections 2.4 and 2.5 indicate that current financial flows are nowhere near enough to fund the existing PA network, let alone to finance needed expansion. Under current conditions, it is hard to imagine that this funding gap will be overcome. In short, existing funding based mainly on domestic governments and international agencies are unlikely to meet PA financing needs.

PA financing needs and opportunities will continue to grow and change

PA funding needs and financing mechanisms are dynamic. As shown in Section 2.5, PA funding needs are increasing and becoming more varied, partly as a result of growth in PA networks but also due to increased expectations from the public as to what PAs should deliver. External pressures and the social costs of PAs (both indirect and opportunity costs) are also increasing, in the face of population growth and economic expansion. Changes are also occurring in markets and consumer expectations, creating new opportunities for financing PAs. There is growing demand and willingness to pay for nature tourism. Both private individuals and businesses are increasingly willing to contribute funds and other resources to PAs. Some governments and donors are exploring new ways of generating funding for PAs, such as tax deductions for private donations and biodiversity-friendly enterprise, new user fees and charges for PA goods and services, or by ear-marking tax revenue for PAs. At the same time, both domestic governments and international donors are giving more priority to poverty reduction and sustainable development as key filters for budget allocations. There is thus a growing need to justify PA finance in terms of its contribution to broader socio-economic development.

Building PA capacity for financial and business planning is essential

The increasing difficulty of raising funds for PAs from conventional sources, together with the increasing complexity of PA funding needs and opportunities, accentuate the importance of financial planning and marketing skills. Section 3.2 highlights the need to build more secure financial portfolios for PAs, based on a range of funding sources. Financial planning and especially diversification can help ensure that different funding opportunities are identified and captured, different costs and funding needs are met, as well as helping to minimize fluctuations over time. As outlined in Section 3.6, various financial planning tools and business approaches can be used to improve PA financial sustainability and management effectiveness.

Sustainable PA finance requires supportive policy and market conditions

General economic conditions and policies in other sectors have a critical impact on PA financial sustainability. Adverse policy, price and market conditions can seriously undermine PA funding and significantly increase costs. Section 3.5 for instance shows how subsidies to alternative land uses or under-pricing of PA resources can undermine PA finances.

At the same time, supportive policies and laws are often a critical factor underpinning the success of PA financing mechanisms. Enabling legislation has been the key to promoting private reserves and increasing private investment in public PAs in several countries. At a domestic level, policies permitting PA authorities to set fees and retain revenues are often critical to enabling PA financial sustainability. Similarly, international guidelines and mechanisms for raising private sector funding through carbon offsets have made an important contribution to many PAs.

Sustainable PA finance requires support from a wide range of actors

PA financial sustainability does not depend only on PA managers and planners. Local communities, the private sector and other government agencies are all key players in ensuring the success of PA funding mechanisms. Several cases described in this report highlight the willingness of external stakeholders to invest in PAs, as well as the importance of multi-stakeholder dialogue and local participation in decision making for successful fund raising. Other cases show that if stakeholders are not involved in PA financing decisions or do not support a particular funding mechanism, PA financial sustainability will suffer. As in many other areas, the dedication of a few individuals, good personal relationships, and the additional credibility provided by independent, well-respected NGOs can make a huge difference.

Funding is only as sustainable and effective as the PA management system it supports

Fund raising is a means to an end, not an end in itself. Ultimately it is the effectiveness of PA management which determines how biodiversity is conserved, and whether PAs are financially sustainable. Section 3.3 underlines the importance of PA financial administration and management effectiveness, emphasising that the quantity or nature of funding is often less important than how these funds are administered. A critical determinant of successful fund raising is the recruitment of experienced business managers within PA agencies, who can work effectively with a range of stakeholders. Such individuals have an important role in identifying new funding opportunities and securing appropriate external partners to help develop them.

9. Recommendations

Based on the findings of Parts I and II of the report, and the conclusions set out in the previous chapter, this chapter presents several recommendations for different target audiences, each of which has an important stake and role in achieving PA financial sustainability.

9.1 Overview

PA financial sustainability may be defined as “the ability to secure stable and sufficient long-term financial resources, and to allocate them in a timely manner and appropriate form, to cover the full costs of PAs (direct and indirect) and to ensure that PAs are managed effectively and efficiently with respect to conservation and other objectives”. It is clear that achieving PA financial sustainability will require major changes in the way that PA funding is conceptualized, captured and used.

Many if not most PAs face a funding crisis, both in terms of the amount of funds available and how those are used. There is an urgent need to expand and diversify PA financial portfolios, and to ensure that funding reaches the groups and activities essential for biodiversity conservation.

Generating more funds for PAs is necessary, but not sufficient. PA financial sustainability will also require general reinforcement of PA management capacity, in particular to:

- become more responsive to changing opportunities and external demands;
- strengthen institutional capacity to use financial and business planning tools;
- establish more supportive economic policy and market conditions;
- involve a wider range of stakeholders in PA management.

A range of innovative PA financing mechanisms are increasingly used. Examples include raising funds from new markets (such as carbon offsets or other payments for ecosystem services), finding new donors (such as large corporations, private philanthropists, other government agencies or tax revenue sharing), sharing costs and benefits with local stakeholders (including private landholders and local communities), employing new financial tools (such as business planning), improving wider policy and market conditions (such as reforming environmentally harmful subsidies and creating positive incentives), and devolving funding and management responsibilities (for example to NGOs, local communities, individuals or businesses).

All of these innovations are promising but not one is capable, by itself, of closing the quantitative and qualitative gap in PA funding, or ensuring long-term financial sustainability. Few countries have institutionalized these approaches, which largely remain one-off exceptions from the conventional dependence on domestic government budgets and foreign donors. A more strategic approach is required in order to meet the ambitious goals that countries and conservationists have set.

9.2 Recommendations

The following recommendations are offered to three main target audiences: national governments and donor agencies, PA authorities, and the Parties to the CBD, in the context of the Programme of Work on Protected Areas.

Recommendations to national governments and donor agencies:

- **PA financial planning and budgeting processes, and the governments, donors and other agencies that fund PAs, should support all aspects of financial sustainability.** Focusing solely on funding levels will not be enough to overcome the financial constraints that PAs face. Financing strategies, and the funds used to achieve them, must be targeted equally towards improving the security and quality of funding, its timeliness and administration, the range of beneficiaries reached, and overall PA management effectiveness for biodiversity conservation.

- **International and national donors and governments should increase funding to PAs in line with their stated commitments, and in light of identified needs.** The vast majority of donors and governments have committed to fund PAs, by subscribing to the many international conventions and multilateral agreements that call for financial resources to be made available for biodiversity conservation, through their stated policy goals, and as a component of the sustainable development and poverty reduction targets that they have articulated and endorsed in the WSSD outcomes and MDGs, among other fora. Specific calls for action and measurable indicators on PA financing have been developed, by and with governments, in the Recommendations of the Vth IUCN World Parks Congress (September 2003), via the Programme of Work on PAs adopted at CBD COP7, and the subsequent recommendations of the first meeting of the Ad Hoc Open-Ended Working Group on Protected Areas (June 2005). Governments and donors should ensure that these targets and indicators are met. Identified funding needs should form the basis of donor and government responses to their commitments to fund PAs.
- **National environmental agencies should work with financial and economic agencies to ensure that policies, markets and prices in other sectors do not undermine PA financial sustainability.** So long as general economic conditions and incentives are biased against PAs, and countervailing positive incentives for conservation are lacking, it will remain difficult to raise funds for PAs and spend them effectively. At the same time as increasing and diversifying financial resources, and improving the mechanisms used to manage PAs, it is necessary to identify how policies, markets and prices can be made to support – rather than undermine – biodiversity conservation. Additional efforts are needed to establish policy frameworks and market conditions to facilitate fund raising for PAs. This should include consideration of potential new global financing mechanisms, such as taxes or voluntary contributions on international flows of goods and services.

Recommendations to PA agencies and managers:

- **PA authorities should construct financial portfolios incorporating a diversity of funding sources and a multiplicity of beneficiaries.** Conventional public and charitable funding will continue to constitute the backbone of PA financing. However, funding from such sources is rarely sufficient. Building a financial portfolio based on a range of funding sources can increase the total amount of funds available while also ensuring more flexibility, spreading risk, and enhancing responsiveness to changing PA needs and opportunities.

PA agencies need not always assume direct or exclusive responsibility for managing PA facilities, producing PA goods and services, using PA funding, or bearing the costs of PAs. In fact, many people bear the costs of PAs, and diverse groups are both willing and able to assist in management. Financial sustainability can often be enhanced by sharing the burden (and benefits) of PA management with other stakeholder groups, while ensuring that those who bear the costs associated with PAs are adequately rewarded or compensated.
- **PA authorities should take advantage of new opportunities for raising finance.** In recent years a range of innovative financing mechanisms have been developed and tested, and new markets for PA goods and services have emerged. PA agencies and managers should take advantage of these mechanisms to capture the willingness-to-pay of those who use or benefit from PA goods and services, and include such mechanisms in PA budgets and financial plans. In order to take advantage of these opportunities, PA agencies may need to build new capacity within their organizations. Partnerships with organizations already engaged in these new markets can be an efficient way to gain entry.
- **PA authorities (and donors) should view funding as part of broader management requirements.** The financial constraints that hinder effective PA management extend beyond amounts of funding received. Alongside fund raising, PA financial planning and management must seek to improve financial administration, reduce costs, and develop approaches for spending money more efficiently on achieving conservation objectives. A more integrated approach to financial and management planning demands that PA authorities (and the donors that fund them) understand and are able to use the tools and measures required. In particular, successful PA financial management entails linking public interest goals with sound business approaches. Many PA authorities do not have these skills and building such capacity is therefore vital.

- **PA authorities must recognise and respond to the broader sustainable development goals of the governments and other groups that fund them.** When PA managers and planners prepare funding proposals or justify budget allocations they must respond clearly to the higher-level goals of funding agencies. For example, poverty reduction and sustainable development are the overriding objective of most international donor agencies and governments. Other potential donors, such as NGOs, civil society or the private sector, may have different goals. PA agencies and managers need to show how investing in PAs can contribute to these goals. This may also require modifying the activities and objectives of PA management. Moreover, because PA financing needs and opportunities are constantly changing, there is a need to continuously review and refine financial strategies and how to achieve them.

Recommendations to the CBD for the Programme of Work on PAs:

- **A comprehensive global study of PA financing should be undertaken, as a first step towards the creation of a permanent PA financial information system.** In the process of preparing this report, it quickly became apparent that up-to-date information on PA income, funding sources, patterns of expenditure and financial needs is not readily available. While some PA financial information is provided by environmental agencies in a few countries or by certain donors, there is currently no systematic framework for collecting, analysing and publishing PA financial data. This information gap constitutes a major obstacle to assessing PA financing needs and strategies at a global level (and in many cases at country level also).
- **Appropriate means should be found to transfer technical expertise and build the capacity required to achieve PA financial sustainability.** The recommendations of this document are consistent with many of the Goals set out in the PA Programme of Work approved at CBD COP7 (February 2005). In particular, Goal 3.4.2 of the Programme of Work calls on parties to establish and implement country-level sustainable financing plans that support national systems of protected areas, including regulatory, legislative, policy, institutional and other measures (Annex 1). However, the technical capacity needed to achieve this goal is not widespread, particularly in the developing world, and therefore mechanisms for technical assistance and capacity building are required.

Annex 1. Extract from the CBD Programme of Work on Protected Areas (UNEP/CBD/COP/7/21)

Goal 3.4 – To ensure financial sustainability of protected areas and national and regional systems of protected areas

Target: By 2008, sufficient financial, technical and other resources to meet the costs to effectively implement and manage national and regional systems of protected areas are secured, including both from national and international sources, particularly to support the needs of developing countries and countries with economies in transition and small island developing States.

Suggested activities of the Parties

- 3.4.1 Conduct a national-level study by 2005 of the effectiveness in using existing financial resources and of financial needs related to the national system of protected areas and identify options for meeting these needs through a mixture of national and international resources and taking into account the whole range of possible funding instruments, such as public funding, debt for nature swaps, elimination of perverse incentives and subsidies, private funding, taxes and fees for ecological services.
- /...
- 3.4.2 By 2008, establish and begin to implement country-level sustainable financing plans that support national systems of protected areas, including necessary regulatory, legislative, policy, institutional and other measures.
- 3.4.3 Support and further develop international funding programmes to support implementation of national and regional systems of protected areas in developing countries and countries with economies in transition and small island developing States.
- 3.4.4 Collaborate with other countries to develop and implement sustainable financing programmes for national and regional systems of protected areas.
- 3.4.5 Provide regular information on protected areas financing to relevant institutions and mechanisms, including through future national reports under the Convention on Biological Diversity, and to the World Database on Protected Areas.
- 3.4.6 Encourage integration of protected areas needs into national and, where applicable, regional development and financing strategies and development cooperation programmes.

Suggested supporting activities of the Executive Secretary

- 3.4.7 Convene as soon as possible, but not later than 2005, a meeting of the donor agencies and other relevant organizations to discuss options for mobilizing new and additional funding to developing countries and countries with economies in transition and small island developing States for implementation of the programme of work.
- 3.4.8 Compile and disseminate case-studies and best practices concerning protected area financing through the clearing-house mechanism and other media.
- 3.4.9 Review and disseminate by 2006 studies on the value of ecosystem services provided by protected areas.

Annex 2. Extract from the Report of the First Meeting of the Ad Hoc Open-Ended Working Group on Protected Areas (UNEP/CBD/WG-PA/1/6)

The Ad Hoc Open-ended Working Group on Protected Areas recommends that the Conference of the Parties:

1. *Invites Parties:*

- (a) To organize, as a matter of urgency, national—and as appropriate, regional—protected-area financing roundtables of donors and recipient Governments, for the purpose of advancing progress on national and regional-level sustainable finance strategies and the achievement of target 3.4 in the programme of work on protected areas adopted by the Conference of the Parties at its seventh meeting;
- (b) To consider prioritizing the need to undertake immediately a national protected-area values and benefits initiative, in accordance with activities 3.1.2 and 3.4.6 of the programme of work;
- (c) To assess, document and communicate the socio-economic values of protected-area systems, focusing in particular on the critical contribution to poverty alleviation and achievement of the Millennium Development Goals (MDGs), including specific evaluations of the impacts of the existing variety of funding mechanisms and protected area programmes on indigenous and local communities;
- (d) To effectively address protected-areas financing in the outcomes of the Millennium Review Summit in September 2005, including clear recognition of the critical role of protected areas in achieving all the Millennium Development Goals;
- (e) To design and elaborate financial sustainability plans for protected-area systems that incorporate a diversity of national, regional and international funding sources and mechanisms and include:
 - (i) Analysis of current financial income and expenditures, overall financial needs and gaps;
 - (ii) Carry out an analysis of the administrative, legal and management-related barriers and address these in order to create an enabling environment and to facilitate financial sustainability;
 - (iii) Concrete and comprehensive needs assessments to create better insight in the necessary resources for activities;
 - (iv) Definition and quantification of protected area goods and services, and potential sources of investment to pay for such goods and services;
 - (v) Screening and feasibility analysis of potential financial mechanisms; and
 - (vi) Sustainable national financing plans for protected areas;
- (f) To consider the following options in designing financial sustainability plans for ensuring long-term financial support for the system of protected areas:
 - (i) National trust funds that support protected areas systems: to be used for channelling, inter alia, multilateral and bilateral grants, tourism-based revenues, debt-for-nature swap proceeds, and contributions from non-governmental organizations;
 - (ii) Funding mechanisms connected to socially and environmentally sustainable economic activities that have direct links to protected areas, while maintaining the integrity of the protected area and related ecosystems;
 - (iii) Funding mechanisms that channel the economic values of ecosystem services at local, regional and global levels;
 - [(iv) Redirection of perverse subsidies to support protected areas (possibly starting with those sectors

- having clearest linkages to protected areas);]
- (v) Further explore options for innovative international finance mechanisms to support the programme of work, taking into account the conclusion of national and international initiatives to combat hunger, reduce poverty and increase development funding;
- (vi) Retention, by local or national protected-area management authorities, of visitor fees and other revenues generated from protected areas; and
- (vii) Increase, where possible, of national and local government budgets for protected area management;
- (g) To support institutional strengthening and improved governance of protected-areas management authorities and to build capacities of protected-area officials to undertake sound financial planning and management;
- [(h) To explore options for linking protected area funding to the Clean Development Mechanism under the Kyoto Protocol process, as a means of further enhancing the synergy between biodiversity and climate change;]
- (i) To establish an ongoing dialogue on financing, including - if needed - a conference on long-term financing, in order to meet goal 3.4 of the programme of work by 2008, and to achieve a thorough assessment of this Goal by the ninth meeting of the Conference of the Parties, and to focus one of the future meetings of the Ad Hoc Open-Ended Working Group on Protected Areas on the matter of financial commitments, taking into account financial plans and needs assessments;
- (j) To note the need that all activities are carried out with the full and effective participation of, and full respect for the rights of, indigenous and local communities consistent with national law and applicable international obligations;

2. Requests the Conference of the Parties to:

- (a) *Invite* the United Nations Development Programme, the World Bank, the United Nations Environment Programme and other Implementing Agencies of the Global Environment Facility, along with other relevant organizations, to help facilitate and financially support the protected-area financing roundtables referred to in paragraph 1 (a) above;
- (b) *Invite* international and regional development banks to incorporate criteria for biodiversity conservation and/or sustainable use in their guidelines for investment projects which have potential impacts on the financial, ecological and social sustainability of protected areas;
- (c) *Invite* the Global Environment Facility:
 - (i) To approve and operationalize a new expedited project for fast-disbursing and flexible grant funding to support early action activities of the programme of work (e.g., 2006 and 2008 timelines), between US\$ 25 and 50 million, taking into account the identified national needs at a scale to sufficiently support developing countries, particularly the least developed and small island developing States among them, and countries with economies in transition;
 - (ii) To provide full-sized and medium-sized GEF grants designed to support national and regional systems of protected areas and the targets and timetables in the programme of work and focus more sharply on protected area systems and sustainability strategies;
 - (iii) To increase the envelope of GEF biodiversity funds for protected areas in the GEF²⁴ business plan, taking into account the goals and targets in the programme of work and GEF's niche in providing system-wide protected-areas support; and
 - (iv) To review and revise, as appropriate, its protected areas' policies in relation to indigenous and local communities;
- (d) *Urge* developed countries:
 - (i) To support a strong fourth replenishment for the Global Environment Facility, taking into account the goals and targets in the programme of work and the need for new and additional funding to support this work in developing countries, particularly the least developed and small island developing States among them, and countries with economies in transition;
 - (ii) To provide enhanced support for conservation endowment funds and other long-term financing mechanisms, such as debt-for-nature swaps, that have proven to be particularly successful in supporting recurrent protected area management costs;

- (iii) To take reasonable steps to assess, where practicable, Official Development Assistance programmes in order to consider ways to make development aid better support the goals and objectives of protected areas; and
- (iv) To support projects aimed at long-term financial sustainability of protected area systems;
- (e) *Urge* developing countries and countries with economies in transition to evaluate their development priorities, as appropriate, ensuring that implementation of the programme of work on protected areas is a priority in the national development strategies;
- (f) *Urge* international non-governmental organizations, private foundations and private sector:
 - (i) To provide developing countries, particularly the least developed and small island developing States among them, and countries with economies in transition, financial and technical support to implement the programme of work;
 - (ii) To support the design and implementation of capacity-building programmes on sustainable financing mechanisms for protected area managers in developing countries; including through such partnerships as the Conservation Finance Alliance and the IUCN World Commission on Protected Areas;
 - (iii) To provide targeted financial support to conservation and sustainable use of biodiversity initiatives of indigenous and local communities, including capacity-building activities, to promote the implementation of the programme of work; and
 - (iv) To develop partnership initiatives and institutional arrangements for financing the implementation of the programme of work;

3. Requests the Executive Secretary:

- (a) To encourage an ongoing and focused dialogue on the financing of the programme of work by:
 - (i) Reporting, as far as feasible and using existing information, on the progress regarding the follow-up to this recommendation to each meeting of the Ad Hoc Open-Ended Working Group on Protected Areas in preparation of each meeting of the Conference of the Parties; and
 - (ii) Inviting the donor community and relevant organizations to take part in this ongoing dialogue and to participate in the meetings of the Ad Hoc Open-Ended Working Group on Protected Areas;
- (b) To make existing conservation-finance tools available through the clearing-house mechanism and other means;
- (c) To explore options, and report to the Conference of the Parties at its eighth meeting, on means to strengthen the use of innovative mechanisms to develop public-private partnerships to promote private investments of sustainable projects in protected areas, in cooperation with the international financial institutions;
- (d) To submit the present recommendation for the information and for further action of participants in the donors' meeting to be held in Montecatini, Italy, following the first meeting of the Ad Hoc Open-ended Working Group on Protected Areas; and
- (e) To organize, subject to the availability of financial resources, regional workshops on ways and means to make full use of currently available sustainable-funding tools.

Bibliography

- Andersen, L.E., Granger, C.W.J., Reis, E.J., Weinhold, D. and Wunder, S. 2002. *The dynamic of deforestation and economic growth in the Brazilian Amazon*. Cambridge University Press: Cambridge.
- Angelsen, A. and Kaimowitz, D. (Eds.) 2001. *Agricultural technologies and tropical deforestation*. CABI and the Center for International Forestry Research: Wallingford.
- Balmford, A., Bruner, A., Cooper, P., Costanza, R., Farber, S., Green, R.E., Jenkins, M., Jefferiss, P., Jessamy, V., Madden, J., Munro, K., Myers, N., Naeem, S., Paavola, J., Rayment, M., Rosendo, S., Roughgarden, J., Trumper, K. and Turner, R.K. 2002. Economic Reasons for Conserving Wild Nature. *Science* **297**: 950–953 (9 August).
- Balmford, Andrew, Gaston, Kevin J., Blyth, Simon, James, Alex and Kapos, Val. 2003. Global variation in terrestrial conservation costs, conservation benefits, and unmet conservation needs. *PNAS* February 4, **100(3)**: 1046–1050.
- Barbier, E.B., Burgess, J.C., Bishop, J. and Aylward, B. 1994. *The Economics of the Tropical Timber Trade*. Earthscan: London.
- Bernades, A.T. Undated. Brazil – Federal Conservation Units. *Biodiversity in Development Case Study Series*. European Commission, UK Department for International Development and IUCN: Brussels.
- Bouttavong, S., Kettavong, L., Manivong, S., Sivannavong, S. and Emerton, L. 2002. *Lao PDR Biodiversity: Economic Assessment*. Science, Technology and Environment Agency: Vientiane, Laos PDR.
- Bovarnick, Andrew and Gupta, Ajay. 2003. *Local Business for Global Biodiversity Conservation: Improving the design of small business development strategies in biodiversity projects*. UNDP: New York, NY.
- Brown, K. and Pearce, D.W. (Eds.) 1994. *The Causes of Tropical Deforestation*. University College London Press: London.
- Bruneau, R. 2000. *The Noel Kempff Mercado Climate Action Initiative: A Carbon Credit Market Pilot Project in Bolivia*. Servicio Nacional de Areas Protegidas de Bolivia, La Paz.
- Bruner, A., Hanks, J. and Hannah, L. 2003. *How Much Will Effective Protected Area Systems Cost?* Presentation to the Vth IUCN World Parks Congress, 8–17 September: Durban, South Africa.
- Bruner, Aaron G., Gullison, Raymond E., Rice, Richard E. and de Fonseca, Gustavo A.B. 2001. Effectiveness of parks in protecting tropical biodiversity. *Science* **291**: 105.
- Castro, G. and Locker, I. 2000. *Mapping Conservation Investments: An Assessment of Biodiversity Funding in Latin America and the Caribbean*. Biodiversity Support Program: Washington, D.C.
- Castro, Gonzalo. 2003. *Conservation Finance: The Long Road to Sustainability*. Presentation to the Sustainable Finance Stream, Vth IUCN World Parks Congress, 8–17 September 2003: Durban, South Africa.
- CBD. 2003. Protected Areas, Note by the Executive Secretary to the seventh Conference of the Parties to the Convention on Biological Diversity, UNEP/CBD/COP/7/15.
- CBD. 2004. Protected Areas: Message of the Fifth World Parks Congress to the Convention on Biological Diversity, Note by the Executive Secretary to the seventh Conference of the Parties to the Convention on Biological Diversity, UNEP/CBD/COP/7/INF/36.
- CBD. 2003. *Protected Areas: Synthesis of Information in Thematic Reports on Protected Areas*. Note by the Executive Secretary to the seventh Conference of the Parties to the Convention on Biological Diversity, UNEP/CBD/COP/7/INF/8.
- Chape, S., Blyth, S., Fish, L., Fox, P. and Spalding, M. (Compilers) 2003. *2003 United Nations List of Protected Areas*. IUCN: Gland, Switzerland and Cambridge, UK and UNEP-WCMC: Cambridge, UK.
- Chape, S., Harrison, J., Spalding, M. and Lysenko, I. 2005. Measuring the extent and effectiveness of protected areas as an indicator for meeting global biodiversity targets. *Phil. Trans. R. Soc. B* **360**: 443–455.
- Chomitz, K. and Gray, D. 1996. Roads, Lands, Markets, and Deforestation: a Model of Land Use in Belize. *World Bank Economic Review*: 487–512.

- Clark, D. and Downes, D. 1996. *What Price Biodiversity? Economic Incentives and Biodiversity Conservation in the United States*, Centre for International Environmental Law, Washington DC.
- Corcuera, E., Sepúlveda, C. and Geisse, G. 2002. Conserving Land Privately: Spontaneous Markets for Land Conservation in Chile. In: Pagiola, S., Bishop, J. and Landell-Mills, N. (Eds.) *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development*. Earthscan: London.
- Cottle, P. and Crosthwaite-Eyre, C. 2002. Insuring Forest Sinks. In: Pagiola, S., Bishop, J. and Landell-Mills, N. (Eds.) 2002. *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development*. Earthscan: London.
- Daily, G.C. 1997. *Nature's Services: Societal Dependence on Natural Ecosystems*. Island Press: Washington, DC.
- Daily, G.C., and Ellison, K. 2002. *The New Economy of Nature and the Marketplace: The Quest to Make Conservation Profitable*. Island Press: Washington, D.C.
- Davies, R. 2000. Madikwe Game Reserve: A partnership in conservation. In: Prins, H., Grootenhuys, J. and Dolan, T. (Eds.) *Wildlife Conservation by Sustainable Use*. Kluwer Publishers: Boston.
- Dublin, H.T., Mulliken, T. and Barnes, R.F.W. 1995. *Four years after the CITES ban: illegal killing of elephants, ivory trade, and stockpiles*. Report produced by the IUCN/SCC African Elephant Specialist Group (January).
- Eagles, P. 1999. Maloti-Drakensburg Transfrontier Conservation and Development Area: Project Mission Report on Tourism. Unpublished report to the World Bank: Washington, DC.
- Eagles, P. 2001. International Trends in Park Tourism. Paper presented at EUROPARC 2001, October 3–7, Hohe Tauern National Park, Austria.
- EFL. 2003. US Tropical Forest Conservation Act and Sri Lanka. Environmental Foundation Ltd: Colombo.
- Emerton, L. 1997. *The Economics of Tourism, and Wildlife Conservation in Africa*. Applied Conservation Economics Discussion Paper No. 4, African Wildlife Foundation: Nairobi.
- Emerton, L. 1998. *Balancing the Opportunity Costs of Wildlife Conservation for the Communities Around Lake Mburo National Park, Uganda*. Evaluating Eden Discussion Paper EE DP 05, International Institute for Environment and Development: London.
- Emerton, L. 1999. *Using Economics for Biodiversity Strategies and Action Plans in Eastern Africa*. IUCN Eastern Africa Regional Office: Nairobi.
- Emerton, L. 2001a. What are Africa's Forests Worth? *Ecoforum* **24** (4): 7.
- Emerton, L. 2001b. The nature of benefits and the benefits of nature: why wildlife conservation has not economically benefited communities in Africa. In: Hulme, D. and Murphree, M. (Eds.) *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation*. James Currey: Oxford.
- Emerton, L. 2002. *The Use of Economics in National Biodiversity Strategies and Action Plans: A Review of Experiences, Lessons Learned and Ways Forward*. IUCN Regional Environmental Economics Programme for Asia: Karachi, Pakistan.
- Emerton, L. and Mfunda, I. 1999. *Making Wildlife Economically Viable for Communities Living Around the Western Serengeti, Tanzania*. IUCN Eastern Africa Regional Office: Nairobi.
- Emerton, L. and Tessema, Y. 2001. *Economic Constraints to the Management of Marine Protected Areas: The Case of Kisite Marine National Park and Mpunguti Marine National Reserve, Kenya*. IUCN Eastern Africa Programme Economics Programme and Marine & Coastal Programme: Nairobi.
- Emerton, L., Rao, K., Nguyen, N. and Tu, H. 2002. *Sustainable Financing Mechanisms for Yok Don National Park, Vietnam*. PARC Project, Ministry of Agriculture and Rural Development Forest Protection Department, United Nations Office for Project Services, United Nations Development Programme and IUCN: Hanoi.
- Emerton, L., Rao, K., Nguyen, N., Tu, N. and Bao, T. 2003. *Covering the costs of Vietnam's Protected Areas*. IUCN and Government of Vietnam Forest Protection Division: Hanoi.
- Erdmann, M., Merrill, P., Arsyad, I. and Mongdong, M. 2003. Developing a diversified portfolio of sustainable financing options for Bunaken National Marine Park. Presentation at the Vth IUCN World Parks Congress, Durban, South Africa.

- Fearnhead, P. 2003. *Tourism Concessions: Public-private partnerships for commercially sustainable conservation*. Sustainable Financing Stream, Vth IUCN World Parks Congress, 8–17 September 2003, Durban, South Africa.
- Ferraro, P.J. and Kiss, A. 2002. Direct Payments to Conserve Biodiversity. *Science* **298** (29 November): 1718–1719.
- Financing Protected Areas Task Force of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Unit of IUCN. 2000. *Financing Protected Areas*. IUCN: Gland, Switzerland and Cambridge, UK.
- Fox, J. and Nino-Murcia, A. 2005. Status of Species Conservation Banking in the United States. *Conservation Biology* **19(4)**: 996–1007.
- Galt, A., Sigaty, T. and Vinton, M. (Eds.) 2000. *Volume II: Papers Presented, 2nd Southeast Asia Regional Forum of the World Commission on Protected Areas*. Pakse, Lao PDR, 6–11 December 1999. IUCN: Vientiane.
- Ganzi, J., Seymour, F. and Buffett, S., with Navroz K. Dubash. 1998. *Leverage for the Environment: A Guide to the Private Financial Services Industry*. World Resources Institute: Washington, DC.
- Geoghegan, T. 1998. *Financing Protected Area Management: Experiences from the Caribbean*. Caribbean Natural Resources Institute.
- Giordano, T. 2004. *Fiscalité internationale et financement du développement durable*. Les rapports de l’Iddri, No. 4. Institut du développement durable et des relations internationale: Paris, France.
- Good, Len. 2003. Personal communication. Presentation to the Vth IUCN World Parks Congress, 8 September 2003: Durban, South Africa.
- Graßl, H., Kokott, J., Kulesa, M., Luther, J., Nuscheler, F., Sauerborn, R., Schellnhuber, H.-J., Schubert, R. and Schulze, E.-D. 2002. *Charging the Use of Global Commons*. Special Report, German Advisory Council on Global Change: Berlin.
- Gravestock, P. 2002. *Towards a Better Understanding of the Income Requirements of Marine Protected Areas*. MSc Environmental Management for Business by Research, Institute of Water and Environment, Cranfield University at Silsoe.
- Gutman, P. (Ed.) 2003. *From Goodwill to Payments for Environmental Services: A Survey of Financing Options for Sustainable Natural Resource Management in Developing Countries*. Danida and WWF: Washington, DC.
- Hill Rojas, M., Dain, J. and Campbell, C. 2001. *Community Conservation and Protected Area Management with a Gender Perspective: a Synthesis*. WIDTECH: Washington DC.
- Hinchenberger, B. 2004. Private Reserves embrace ecotourism in Brazil. (www.brazilmax.com).
- Howard, P. 1995. The Economics of Protected Areas in Uganda: Costs, Benefits and Policy Issues. Unpublished MSc Thesis submitted to the University of Edinburgh, UK.
- Hulme, D. and Murphree, M. (Eds.) 2001. *African Wildlife and Livelihoods: The Promise and Performance of Community Conservation*. James Currey: Oxford.
- Hunter, M.L. (Ed.) 1999. *Maintaining Biodiversity in Forested Ecosystems*. Cambridge University Press: Cambridge, UK.
- Iftikhar, U. 2002. *Financing NBSAPs in Asia: Options and Opportunities*. IUCN Regional Biodiversity Programme: Colombo, Sri Lanka.
- Iftikhar, U. 2004. Personal communication.
- James, A., Gaston, K. and Balmford, A. 1999b. Balancing the earth’s accounts. *Nature* **401**: 323–324.
- James, A., Gaston, K.J. and Balmford, A. 2001. Can we afford to conserve biodiversity? *BioScience* **51**: 43–52.
- James, A.N., Green, M.J.B. and Paine, J.R. 1999a. *Global Review of Protected Area Budgets and Staff*. WCMC: Cambridge, UK.
- Jenkins, M., Scherr, S. and Inbar, M. 2004. Payment where it’s due. *Environmental Finance* November 2004: 24.
- Johnson, N., White, A. and Perrot-Maitre, D. 2001. *Developing Markets for Water Services from Forests: Issues and Lessons for Innovators*. Forest Trends with World Resources Institute and the Katoomba Group: Washington, DC.
- Khan, S.R. and Parvaiz, A.N. 2001. *National Case Study on the Integration of Economics into Pakistan’s Biodiversity Action Plan*.

- IUCN Pakistan Country Programme: Karachi.
- Kloss, D. 2001. *Guide to Sustainable Financing of Biodiversity and Protected Areas*. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH.
- Korn, H., Schliep, R. and Stadler, J. 2005. *Report on the Expert Meeting in Preparation of the First Meeting of the Ad Hoc Open Ended Working Group on Protected Areas, May 17–22, 2005*. Bundesamt für Naturschutz (BfN), Federal Agency for Nature Conservation: Bonn.
- Koteen, S. 2004. *Financing Species Conservation: A Menu of Options*. Center for Conservation Finance, WorldWide Fund for Nature: Washington, DC.
- Kothari, A., Pathak, N., Auradha, R. and Taneja, B. 1998. *Communities and Conservation: Natural Resource Management in South and Central Asia*. Sage Publications: London.
- Krug, Wolf. 2001. *Private Supply of Protected Land in Southern Africa: A Review of Markets, Approaches, Barriers and Issues*. Workshop Paper, World Bank/OECD International Workshop on Market Creation for Biodiversity Products and Services, Paris, 25 and 26 January 2001.
- Krug, W. Suich, H. and Haimbodi, N. 2002. *Park pricing and economic efficiency in Namibia*. DEA Research Discussion Paper No 45, Directorate of Environmental Affairs, Ministry of Environment and Tourism: Windhoek.
- Landau, J.P. *et al.* 2004. *Rapport à Monsieur Jacques Chirac Président de la République*. Groupe de travail sur les nouvelles contributions financiers internationales: Paris, France.
- Landell-Mills, N. and Porras, I. 2002. *Markets for Forest Environmental Services: Silver Bullet or Fool's Gold?* International Institute for Environment and Development: London.
- Lapham, N. and Livermore, R. 2003. *Striking a Balance: Ensuring Conservation's Place on the International Biodiversity Assistance Agenda*. Conservation International Center for Applied Biodiversity Science & Center for Conservation and Government: Washington, DC.
- Lecocq, F. 2004. *State and Trends of the Carbon Market 2004*. World Bank: Washington, DC.
- Lewandrowski, J., Darwin, R., Tsigas, M. and Raneses, A. 1999. Estimating the costs of protecting global ecosystem diversity. *Ecological Economics* **29**: 111–125.
- Loomis, J.B. and Walsh, R.G. 1997. *Recreation Economic Decisions: Comparing Benefits and Costs, 2nd Edition*. Venture Publishing: State College, PA.
- Mace, G.M., Balmford, A. and Ginsberg, J.R. (Eds.) 1998. *Conservation in a Changing World*. Cambridge University Press: Cambridge, UK.
- Mantua, U., Merlo, M., Sekot, W. and Welcker, B. 2001. *Recreational and Environmental Markets for Forest Enterprises: A New Approach Towards Marketability of Public Goods*. CABI Publishing: Wallingford.
- Margulis, S. 2004. *Causes of Deforestation of the Brazilian Amazon*. World Bank Working Report No. 22, The World Bank: Washington, DC.
- May, P.H., Veiga Neto, F., Denardin, V. and Loureiro, W. 2003. *Using fiscal instruments to encourage conservation: The "ecological" value-added tax in Brazil*. Presentation to the Sustainable Finance Stream, Vth IUCN World Parks Congress, 8–17 September, 2003, Durban, South Africa.
- McNeely, J. 1999. *Mobilizing Broader Support for Asia's Biodiversity: How Civil Society Can Contribute to Protected Area Management*. Asia Development Bank and IUCN: Gland.
- McNeely, J.A. and Scherr, S.J. 2003. *Ecoagriculture: Strategies to Feed the World and Save Wild Biodiversity*. Island Press: Washington, DC.
- Molnar, Augusta, Scherr, Sara J. and Khare, Arvind. 2004. *Who Conserves the World's Forests? Community-Driven Strategies to Protect Forests & Respect Rights*. Forest Trends: Washington, DC.
- Morling, P. 2004. The Economics of Marine Protected Areas in the High Seas. *Ocean Stewardship* **21(4)**: 49–61.
- Norton-Griffiths, M. 1995. Economic incentives to develop the rangelands of the Serengeti: implications for wildlife

- conservation. In: Sinclair, A. and Arcese, P. (Eds.) *Serengeti II: Research, Management and Conservation of an Ecosystem*. University of Chicago Press: Chicago, IL.
- Norton-Griffiths, M. and Southey, C. 1995. The opportunity costs of biodiversity conservation in Kenya. *Ecological Economics* **12**: 125–139.
- OECD. 2002. *Aid Targeting the Objectives of the Rio Conventions 1998–2000*. Development Assistance Committee, Working Party on Statistics. Organisation for Economic Co-operation and Development: Paris.
- OECD. 2005. *Environmental Fiscal Reform for Poverty Reduction: A DAC Reference Document*. DAC Guidelines and Reference Series, Organisation for Economic Co-operation and Development: Paris.
- Ozório de Almeida, A.L. and Campari, J. 1995. *Sustainable Settlement in the Amazon*. The World Bank: Washington, DC.
- Pagiola, S. 2002. Paying for Water Services in Central America: Learning from Costa Rica. In: Pagiola, S., Bishop, J. and Landell-Mills, N. (Eds.) *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development*. Earthscan: London.
- Pagiola, S., Bishop, J. and Landell-Mills, N. (Eds.) 2002. *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development*. Earthscan: London.
- Pagiola, S., von Ritter, K. and Bishop, J. 2004. *Assessing the Economic Value of Ecosystem Conservation*. Environment Department Paper No. 101. The World Bank: Washington, DC.
- Pearce, D. 1997. Can Non-Market Values Save the World's Forests? *Working Paper GEC 97-13*, Centre for Social and Economic Research on the Global Environment, University College London: London.
- Quintela, Carlos E., Thomas, Lee and Robin, Sarah. 2004. *Proceedings of the Workshop Stream: Building a Secure Financial Future*. Vth IUCN World Parks Congress, IUCN, Gland, Switzerland and Cambridge, UK.
- Repetto, R. and Gillis, M. (Eds.) 1988. *Government Policies and the Misuse of Forest Resources*. Cambridge University Press: Cambridge.
- Riedmiller, S. 1998. The Chumbe Island Coral Park Project: a case study of private Marine Protected Area management. In: Salm, R. and Tessema, Y. (Eds.) *Partnership for Conservation: Report from the Regional Workshop on Marine Protected Areas, Tourism and Communities*. IUCN, Eastern Africa Regional Office: Nairobi.
- Riedmiller, S. 2003. Private Sector investment in Marine Protected Areas: experiences of Chumbe Island Coral Park in Zanzibar/Tanzania. Presentation at a Workshop on Building a Complex Portfolio to Sustainably Finance Marine Protected Area Networks, Vth IUCN World Parks Congress, Durban.
- Roe, D., Mayers, J., Grieg-Gran, M., Kothari, A., Fabricius, C. and Hughes, R. 2000. *Evaluating Eden: Exploring the Myths and Realities of Community-Based Wildlife Management*. International Institute for Environment and Development: London.
- Salm, R. and Tessema, Y. (Eds.) 1998. *Partnership for Conservation: Report from the Regional Workshop on Marine Protected Areas, Tourism and Communities*. IUCN Eastern Africa Regional Office: Nairobi.
- Sandler, T. 2001. *On Financing Global and International Public Goods*. Policy Research Working Paper 2638, The World Bank: Washington, DC.
- Sandmo, Agnar. 2003. *Environmental Taxation and Revenue for Development*. Discussion Paper No. 2003/86. World Institute for Development Economic Research: Helsinki, Finland.
- Scherl, L.M., Wilson, A., Wild, R., Blockhus, J., Franks, P., McNeely, J. and McShane, T.O. 2004. *Can Protected Areas Contribute to Poverty Reduction? Opportunities and Limitations*. IUCN: Gland, Switzerland and Cambridge, UK.
- Scherr, S., White, A. and Khare, A., with Inbar, M., and Molnar, A. 2004. *For Services Rendered: The current status and future potential of markets for the ecosystem services provided by tropical forests*. Technical Series No 21, International Tropical Timber Organization: Yokohama.
- Shah, N. 1998. Cousin Island Special Reserve: A case study of Marine Protected Area management in partnership with an NGO. In: Salm, R. and Tessema, Y. (Eds.) *Partnership for Conservation: Report from the Regional Workshop on Marine Protected Areas, Tourism and Communities*. IUCN Eastern Africa Regional Office: Nairobi.

- Shah, N., Undated. Personal communication.
- Sinclair, A. and Arcese, P. (Eds.) 1995. *Serengeti II: Research, Management and Conservation of an Ecosystem*. University of Chicago Press: Chicago, IL.
- Snider, A.G., Pattanayak, S.K., Sills, E.O. and Schuler, J.L. 2003. Policy Innovations for Private Forest Management and Conservation in Costa Rica. *Journal of Forestry* (July/August): 18–23.
- Spergel, B. 2001. *Raising Revenues for Protected Areas: A Menu of Options*. Worldwide Fund for Nature: Washington, DC.
- Suharso, A. 2000. Kutai National Park and the contribution of private companies. In: Galt, A., Sigaty, T. and Vinton, M. (Eds.) *Volume II: Papers Presented, 2nd Southeast Asia Regional Forum of the World Commission on Protected Areas*. Pakse, Lao PDR, 6–11 December 1999. IUCN: Vientiane.
- Suratri, R. 2000. Lessons learned from Protected Area management partnerships in Indonesia. In: Galt, A., Sigaty, T. and Vinton, M. (Eds.) *Volume II: Papers Presented, 2nd Southeast Asia Regional Forum of the World Commission on Protected Areas*. Pakse, Lao PDR, 6–11 December 1999. IUCN: Vientiane.
- Swanson, P. and Lunde, L. 2003. *Public Environmental Expenditure Reviews*. Environment Strategy Papers, Environment Department, The World Bank: Washington, DC.
- Swingland, I. (Ed.) 2002. *Capturing Carbon and Conserving Biodiversity: The Market Approach*. Earthscan: London.
- ten Kate, K., Bishop, J. and Bayon, R. 2004. *Biodiversity offsets: Views, experience, and the business case*. IUCN: Gland, Switzerland and Cambridge, UK.
- Tobgay Namgyal. 2003. *Bhutan Trust Fund*. Presentation to the Vth IUCN World Parks Congress, September 2003, Durban, South Africa.
- Totten, M. 1999. *Getting it Right: Emerging Markets for Storing Carbon in Forests*. World Resources Institute, Washington DC.
- Tropical Forest Conservation Act Fact Sheet, 2003, Bureau of Oceans and International Environmental and Scientific Affairs, Washington DC.
- Tye, H. and Gordon, D. 1995. *Financial and Human Investments in Biosphere Investment*. World Conservation Monitoring Centre: Cambridge, UK.
- UNEP. 2000. *Funding Protected Areas in the Wider Caribbean: A Guide for Managers and Conservation Organizations*. United Nations Environment Programme: Nairobi.
- Verweij, Pita. 2003. Payments for forest hydrological services in Latin America: trends and perspectives. Presentation to the *Congress on Globalisation, localisation and tropical forest management in the 21st century*, 22–23 October 2003, Roeterseiland, Amsterdam, The Netherlands.
- Vincent, J. R. and Gillis, M. 1998. Deforestation and Forest Land Use: A Comment. *The World Bank Research Observer* **13(1)**: 133–140.
- Walpole, M., Goodwin, H. and Ward, K. 2001. Pricing Policy for Tourism in Protected Areas: Lessons from Komodo National Park, Indonesia. *Conservation Biology* **15(1)**: 218–227.
- Wells, M. 1997. *Economic Perspectives on Nature Tourism, Conservation and Development*. Environmental Economics Series Paper No. 55, Pollution and Environmental Economics Division, The World Bank: Washington, DC.
- Wilkinson, J. and Kennedy, C. 2002. *Banks and Fees: The status of off-site wetland mitigation in the United States*. Environmental Law Institute: Washington, DC.
- Wunder, S. 2003. *Oil Wealth and the Fate of the Forests: A Comparative Study of Eight Tropical Countries*. Routledge and CIFOR: London and New York.
- WWF. 2004. *Are protected areas working? An analysis of forest protected areas by WWF*. WWF International: Gland, Switzerland (June).

Web sites and media articles

- Conservation Finance Alliance. 2004. *Conservation Finance Guide* (<http://guide.conservationfinance.org/>)
- Conservation organizations support reauthorization of the Tropical Forest Conservation Act. Press Release, June 29 2004, CI, TNC, WCS and WWF, Washington DC.
- Ground realities: debt for forests conservation à la USA. *Sri Lanka Daily News* 6 July 2003.
- Effects of Sept 11, 2001 events on ecotourism. *Partners in Responsible Tourism Newsletter* **5(1)**.
www.celb.org/xp/CELB/news-events/press_releases/03222005.xml
- www.dea.met.gov/na/met/ArchivedNews/030824news.htm
- www.environment.act.gov.au/yourenvironmenthwp/parkcare.html
- www.gefweb.org/Outreach/outreach-Publications/06%20Status%20of%20GEF%20Projects.pdf
- www.globalenvironmentfund.com/
- www.ifc.org/ifcext/enviro.nsf/Content/TerraCapital
- www.moore.org/grantees/grant_summaries_content.asp?Grantee=ci
- www.nwi.fws.gov/statusandtrends.htm
- www.unfoundation.org/programs/environment/priorities.asp
- www.usace.army.mil/inet/functions/cw/hot_topics/didyouknow.pdf
- Millennium Ecosystem Assessment (www.MAweb.org).
- National Park Service: http://data2.itc.nps.gov/budget2/documents/ten_year_budget_history.pdf
- Noel Kempff Mercado Climate Action Project website (www.noelkempff.com).
- The Nature Conservancy, *Komodo National Park: Collaborative Management Initiative* (www.tnc.org).
- US Federal Government: www.gpoaccess.gov/usbudget/fy04/pdf/budget/tables.pdf