1. Protected area planning and management

The global experience

Section 1

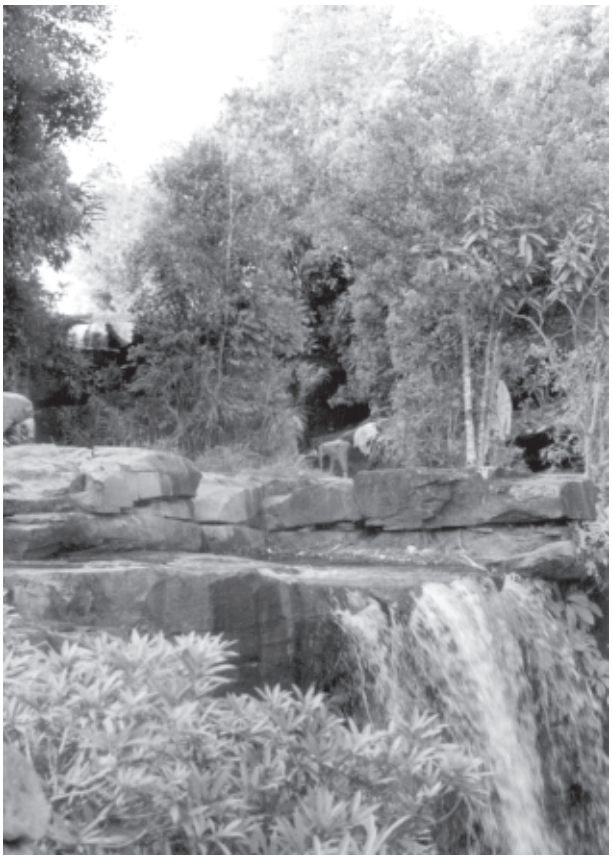
Introduction

Over the past decade or so, several notable innovations have been made in the concept and practice of protected areas (PAs). These innovations reflect the changing context for protected areas and address emerging challenges. Many traditional views about PAs have had to change and a new set of ideas and approaches has emerged (Phillips 2000a).

This chapter distils global experience in PA planning and management over the past decade, with particular reference to PAs' relationship to surrounding landscapes and economic activities. It also reviews the international frameworks of PA practice and approaches that have evolved over this period. The emphasis is on experience that may be relevant to the countries of the lower Mekong (Cambodia, Lao PDR, Thailand and Vietnam). The four countries could apply this global experience to more effectively manage PAs and integrate them into their national and local development processes.

Section 1 explores the following:

- the emerging place of PAs in national and regional land use planning;
- the benefits provided by systems with a range of PA management categories;
- the diversity of institutional arrangements for establishing and managing PAs;
- PAs' evolving relationship with local communities;
- the evolving perspective on PA management effectiveness; and
- the relevance of international frameworks in supporting PA management.



1.1 Evolution of the protected area approach

Five main changes have taken place in the approach to protected areas: PAs are no longer islands but networks; they are guided by not just conservation goals but social and economic objectives; management is now with and for the people, instead of against the people; the emphasis is now on quality versus quantity; and they are not just of national but international concern.

From islands to networks

Many different types of PAs are being incorporated into regional land-use planning. They address a range of conservation and sustainable use functions that meet a range of conservation and development objectives. This is a significant change. PAs are being planned and managed at the landscape or bioregional scale, reflecting the ecosystem approach advocated by the Convention on Biological Diversity (CBD)[1] and extending their conservation effects well beyond strictly protected core zones. As a result, PAs are being incorporated into larger landscapes, including trans-national ecosystems, as opposed to being managed as individual sites cut off from their surrounding socio-economic and ecological contexts. The use of a range of management categories in designing PA systems has helped greatly to integrate them with the broader regional landscape and to mitigate people-PA conflicts.

From conservation to social and economic objectives

PAs are increasingly being integrated into local and regional economies, thus contributing to livelihoods and establishing mutually productive partnerships with local businesses and communities. New and innovative financing mechanisms have been adopted to cover the costs of PAs and reduce their dependence on the public purse. While the central or provincial government management model still predominates, management responsibility is being devolved to local levels of government and being taken up by conservation trusts, NGOs, communities and private individuals or corporations. With this administrative decentralisation has come a diversity of institutional arrangements for managing PAs.

Management with and for the people

The relationship between PAs and the local communities has undergone a sea change. The issue first came to international attention at the 1982 World Parks Congress in Bali, Indonesia. Through co-management or collaborative management arrangements protected areas are actively being managed with and for the people — and sometimes by them — rather than against them. Community-based conservation initiatives provide new insights into sustainable conservation practices, and have been instrumental in bringing changes to the national legal frameworks for PAs.

Quality versus quantity

The earlier emphasis on rapidly expanding the protected area estate has given way to the need to manage existing PAs more effectively. This is especially important given the ever-increasing threats that are degrading and destroying them. The concern is that of quality versus quantity: PAs must be able to achieve their ecological, economic and social objectives. New methodologies for assessing management effectiveness are being tested and an international system for certifying PA management quality is being considered.

National to international concern

The contribution of PAs to in-situ conservation of biological diversity was formally recognised through the landmark 1992 CBD. The convention outlined a number of activities aimed at strengthening the effective management of PAs. It also established the Global Environment Facility (GEF), a sustainable funding mechanism that has provided a substantial flow of money for strengthening PA conservation and management. Other relevant international conventions, such as the Ramsar and World Heritage conventions, have also adapted to the changing context of PAs and biodiversity conservation.

1.2 What is a protected area?

A protected area is a region of land or sea that is managed through legal or customary measures for conserving or protecting biodiversity. The Fourth World Congress on National Parks and Protected Areas (now known as the World Parks Congress, or WPC), held in Caracas, Venezuela in 1992, agreed on this definition: "An area of land or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means."

The WPC is held every ten years (the next congress will be in Durban, South Africa in September 2003). It provides the major global forum to set the agenda for protected areas. The WPC is convened by the World Commission on Protected Areas (WCPA),[2] one of the six commissions of IUCN – The World Conservation Union.[3]

1.3 Protected area categories

More than 200 different designations are used for PAs throughout the world. IUCN has developed six main PA categories (Box 1), which are defined by management objectives based on the definition developed in Caracas (Green and Paine 1997). This international classification system reduces confusion about terminology, demonstrates the range of purposes that PAs serve, provides an agreed set of international standards and facilitates international comparison and accounting (Phillips and Harrison 1997).

National and international PA designations may differ, but for a protected area to be recognised internationally it is expected to conform to one of the six categories in terms of its primary management objective (Phillips and Harrison 1997). For example, irrespective of the legal designation used by a specific country, if an area is strictly protected, consists of largely unmodified ecosystems, is free of human intervention, and has limited access mainly for research purposes, it would qualify under category I (strict nature reserve) of IUCN's international classification.

Prior to 1994, IUCN's international classification of PAs had ten categories (IUCN 1978). In that system, biosphere reserves (BRs) and world heritage sites (WHSs) were, respectively, category IX and X areas. The realisation that these were designations accorded by international conventions and not related to management functions led to a reorganisation of the system into the present six categories in 1994 (IUCN 1994). Under the new system, the core PA of a biosphere reserve or world heritage site could belong to any one of categories I–IV.

According to the protected areas data base maintained by the United Nations Environment Program's World Conservation Monitoring Centre (WCMC), over 44,000 protected areas have been set up throughout the world, covering all six IUCN management categories. These PAs cover 13,630,616 sq. km or 10.1 per cent of the world's terrestrial area. The four countries of the lower Mekong region have established 232 PAs, covering 140,906 sq. km or 11.7 per cent of their combined geographical area (Box 2).

1.4 Types of PAs in the Lower Mekong region

IUCN's management categories, which categorise PAs according to their primary management objectives (Galt et al. 2000), reflect a gradient of management interventions. The various designations used for PAs in the countries of the lower Mekong is indicative of this diversity:

- Cambodia's protected areas include national parks (category II), wildlife sanctuaries (category II), multiple use areas (category II) and protected landscapes (category II);
- In Laos most PAs are national biodiversity conservation areas (NBCAs, category VI) and protection forest areas (category VI);

- Thailand has several types of protected areas, including national parks (category II), wildlife sanctuaries (category I), wetland sites (category VI), and forest parks (category VI); and
- Vietnam's PAs include national parks (category II), nature reserves (category I and IV) and cultural-historical sites (category III).

Box 1. IUCN's protected area categories

I. Strict nature reserve/wilderness area. Areas of land and/or sea possessing outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring; or large areas of unmodified or slightly modified land, and/or sea, retaining their natural character and influence, without permanent or significant habitation, which are protected and managed so as to preserve their natural condition.

II. National park: protected areas managed mainly for ecosystem conservation and recreation. Natural areas of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for this and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

III. Natural monument: protected areas managed mainly for conservation of specific features. Areas containing one or more specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

IV. Habitat/species management area: protected areas managed mainly for conservation. Through Management Intervention. Areas of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

V. Protected landscape/seascape: protected areas managed mainly for landscape/seascape conservation and recreation. Areas of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, cultural and/or ecological value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

VI. Managed resource protected area: protected areas managed mainly for the sustainable use of natural ecosystems. Areas containing predominantly unmodified natural systems managed to ensure long-term protection and maintenance of biological diversity, while at the same time providing a sustainable flow of natural products and services to meet community needs.

Source: IUCN 1994

Box 2. Protected areas in the Lower Mekong region

	Total area (sq. km)	No. of PAs*	Area (sq. km)	Area (%)
Cambodia**	181,000	23	32,672	18.1
Lao PDR***	236,800	20	28,600–33,500	12–14
Thailand	514,000	204	109,539	21.3
Vietnam	329,565	139	25,154	7.6
Total	1,261,290	232	140,906	11.17

**Includes only areas larger than 1000 hectares*
*** Recent additions, including the Sarus Crane Sanctuary and the Cardomom Mountains Protected Forest, make the total area 21%.*
****If local-level PAs are included, the area is 21%*

Achievement: The experience with PA designations and categories has taught that different types of management, representing varying regimes of protection and sustainable use, enable PAs to meet multiple management objectives, provide sustainable ecological, social and economic benefits and respond to emerging challenges.

Challenge: The full range of options offered by different management categories must be used in developing national PA systems. Most countries have relied on a narrow range of types — involving strict protection — in developing their national systems. WCMC's global database of PAs shows that category II and IV areas are the most extensive in terms of size, accounting for over 6.5 million sq. km, or half the total area.

Section 2

Protected areas and integrated planning

Landscape-level management

Achievement: The focus of protected area planning and management has moved from the site to the landscape level.

Initially PAs were viewed as islands in a sea of human-influenced ecosystems, areas to be managed essentially as fortresses. The emerging trend to dominate PA planning and management is the view of PAs as a system, part of a larger network, that is nested within the broader economic and human context and is a component of the related ecological landscape or ecosystem. This major conceptual shift has taken place over the past decade or more. There is a growing realisation that managing PAs in isolation from the main forces shaping the environment is no longer feasible in a rapidly changing world of increasing development pressures. PAs have started to be linked to national policy through national environmental action plans, national conservation strategies, national strategies for sustainable development, and more recently to biodiversity action plans and strategies under the CBD (EC/IUCN 1999).

Approaches must require PAs to address resource use outside their boundaries. Response strategies have included the need to provide for support zones around PAs to buffer them against pressures beyond their boundaries, and requiring them to provide multiple benefits to a range of users. Developmental interventions in the buffer zones and adjacent areas to support both social development and conservation objectives gave rise to the current crop of integrated conservation and development projects (ICDPs).

Biosphere reserves

Achievement: Biosphere reserves represent the first management approach to strike a balance between what were initially perceived as conflicting goals: conserving biodiversity, promoting economic and social development and maintaining associated cultural values.

The major accomplishment in managing biosphere reserves was the zone concept, including a strictly protected core, a buffer zone, and a transition area. Through such zoning it became possible to integrate ecological, social and cultural values. In addition, biosphere reserve management boards brought all stakeholders together under one umbrella (Batisse 2001). Though biosphere reserves were originally visualised as a global network of research and monitoring sites, this concept has evolved in response to the need to extend management attention beyond the core conservation area into the social and economic landscape. Consequently, activities in the buffer zone and transition area that support sustainable development of local populations have gradually gained prominence. This has given rise to a new generation of PAs that are flexible, large-scale co-management systems (e.g. *La Amistad* BR in Costa Rica) which truly reflect the ecosystem approach advocated by the CBD (Bridgewater 2001).

A five-year review of the 1992 WPC, held in Albany, Australia in 1997, set out the imperatives for PAs and underscored the need for them to continue to move from "islands to networks". The new generation of biosphere reserves is now projected as the "networks beyond the islands" (Bridgewater 2001). The theme of the fifth WPC, to be held in September 2003, is "Benefits Beyond Boundaries", which captures the direction for PA management to follow in the new millennium. Dealing effectively with both benefits and boundaries will be crucial to the success of any PA conservation programs (WCPA 2001a).

The bioregional approach

Achievement: PAs are increasingly being required not only to expand in size and scale, but to form partnerships with neighbouring land-owners and resource users.

This need for PAs to integrate with their surroundings has spawned the "bioregional"[4] or landscape approach, the most recent development in the evolution of PA planning and management approaches. It advocates using the full range of IUCN's PA categories to develop a matrix of conservation areas within the larger landscape. Under the bioregional approach, core PAs (usually categories I–II) are surrounded by buffer zones (e.g. categories IV–VI); these in turn are linked with other cores and their buffers through biological corridors (e.g. categories V and VI) that allow for movement of species (Miller 1996).

Some examples include the proposed Central American Biological Corridor (connecting PAs in seven countries), the Pantanal BR and WHS in Western Brazil, the Terai Arc Conservation Area (covering PAs in India and Nepal) and the Great Barrier Reef Marine National Park in Australia. Examples from Southeast Asia include the Western Forest Complex in Thailand and the Leuser Ecosystem in Sumatra, Indonesia. Under the WWF's Global 200 Initiative an integrated conservation strategy is being developed at the landscape level for high-priority ecoregions of the Central Annamite Range Moist Forests in Vietnam and Lao PDR and the Indochina Dry Forests in Cambodia, consisting of several PAs and their connecting corridors (Mike Baltzer, pers. comm.)

In the bioregional approach, buffer zones and corridors usually comprise lands outside the jurisdiction of the PA authority. These are often under private ownership, and require partnerships and voluntary cooperative agreements or incentive programs to be established with a range of stakeholders (Davey 1998). Networks of interconnected PAs are in turn nested within larger bioregions where people live and work (Miller 1996). Therefore, the bioregional approach has relevance not only in terms of the individual PA, but at the national and transnational levels.

This new vision for PAs seeks to establish their connections to the broader landscape and extend conservation practices beyond the boundaries of PA systems. It also aims to incorporate PAs into social and

economic agendas. This entails an intermediate institutional level — biosphere reserve management committees, the coordination committee under the ICDP approach, or protected areas management boards as established in the Philippines — to facilitate cooperation and coordination and bring all the partners together. This makes it possible for PA planning and management to be coordinated with the use and management of other lands, leading to sustainable patterns of development in general (Davey 1998).

Challenge: New planning and management skills are required.

The major conceptual shift in planning and managing PAs has brought a corresponding change in the work of the PA manager. From being essentially concerned with resource protection and visitor management services, the new breed of PA manager is increasingly being called upon to be more outward looking and to possess the necessary skills to forge relations and work with a range of partners. PA managers must have the ability to work with people, negotiate co-management agreements, resolve conflict and carry out business and financial tasks.

Challenge: This need for new skills on the part of PA managers has not been matched by a commensurate increase in authority, resources or capacity.

PA management continues to be predominantly inward looking, without the skills or resources to engage prospective partners and deal with complex issues in the broader regional landscape. This limitation does not just affect the manager; it applies to PA management as a whole. PA management remains a marginal presence in the local, regional and national planning and development process, and lacks the political and administrative mandate and the clout to influence policy. Consequently, issues relating to coordination, integration and negotiated agreements continue to be problematic.

Protected areas and decentralisation

Achievement: A diversity of institutional arrangements have emerged.

In most countries with a federal structure, central and state governments have traditionally shared the responsibility for creating and managing different types of PAs. Although the predominant form of institutional arrangement for PAs still continues to be central government ownership and management, there is an increasing move towards decentralisation, where responsibility is devolved to the state or provincial level authorities, and to local levels of government at county or municipal and equivalent levels. Spain, Italy and the UK are examples of this decentralisation. Decentralisation is also reflected in the recognition of indigenous and native title over land, as in the case of Brazil, Colombia and Australia (McNeely 1998).

Parastatal organisations

Achievement: Government-owned companies (parastatals), conservation trusts, NGOs and the private sector are managing more of the PA system.

Parastatal organisations have more autonomy in financial and decision-making matters, compared to government bureaucracies, and have proved to be successful models for managing PAs in Malaysia, East Africa and the Caribbean. In many parts of the world, such as the U.S., South America, Nepal and Malaysia, NGOs and conservation trusts such as The Nature Conservancy (TNC), Conservation International (CI), the King Mahendra Trust for Nature Conservation in Nepal and the Leuser International Foundation in Indonesia have taken over management responsibility for some PAs. This includes buying and dedicating land for conservation. Private PAs in Kenya, Namibia, South Africa and Zimbabwe comprise from one to seven per cent of total land area and are marginally larger than the legally designated PAs that are managed by government agencies. Fiscal tools, such as conservation agreements and easements, also influence private land management in a manner that enhances biodiversity conservation in Australia, the U.S., Europe and South Africa.

Private ownership

Achievement: Private companies that hold vast tracts of lands, such as forest companies in Sweden, are dedicating substantial areas to protection.

Creation of PAs as part of sustainable forest management operations is happening either voluntarily, through incentive arrangements, or as requirements of forest certification under the Forest Stewardship Council (FSC). In Sweden, FSC regulations require five per cent of forest holding to be protected; in practice this has gone up to as much as 15–20 per cent through voluntary protection of areas that are not commercially viable to harvest (Stolton et al. 1999). Private landowners, local communities and indigenous peoples have become involved in establishing and managing PAs and community-based conservation areas in various parts of the world, either on their own or in partnership with local authorities. Examples include land-owners in South Africa and Latin America (Ecuador, Brazil, Colombia and Chile), and local communities andindigenous people in Australia, the Philippines and the Pacific (WCPA 1999).

Achievement: This diversity of institutional arrangements has developed in part due to the range of PA management categories.

Experience shows that generally higher-order PA categories like I–IV tend to be managed by the central or provincial government, while categories V and VI, which allow for varying degrees of sustainable use of renewable natural resources, are usually managed by local, private or community institutions. Some national parks (category II) are being managed by corporations and conservation trusts, but mainly in situations where there is a strong tourism sector and where operations are commercially viable.

Challenge: With the growing variety of institutional arrangements, PAs with different institutional and administrative arrangements must be able to fit within and contribute to the national PA system (Davey 1998).

Central PA authorities have the primary responsibility for achieving this and for maintaining effective management, including an appropriate regulatory framework. Moreover, devolving management responsibility to lower levels of government means that adequate resources and capacity must also be transferred.

Protected areas and community development

Challenge: PAs have had a negative impact on peoples' access to traditional and customary resources and thus on meeting their subsistence and livelihood needs.

In most cases PAs were set up in areas that were traditionally used by local communities to meet their daily needs, particularly in developing countries with high levels of poverty and dependence on natural resources for subsistence and livelihoods. PA-related relocation programs also alienated people from their homelands and resources (Oviedo and Brown 1999). These issues were of fundamental concern to local communities, and they frequently caused conflict. Managers eventually realised that PA conservation programs needed to work with, through and for local communities, not against them. Buffer zone management and integrated conservation and development projects, consisting mainly of social development and alternative livelihood activities, emerged to address the economic issues of subsistence and livelihoods.

Collaborative management

Achievement: The relationship between PAs and local communities has changed, from one of conflict to one of participation, and then to partnership and collaboration.

It has taken more than a decade for this relationship to evolve. Early conservation efforts sought to protect wildlife and other PA resources from the people, sometimes even by using military force, but more participatory approaches to management began to be adopted. Social activists and human rights groups criticised initial efforts at involving local communities in PA management as paternalistic, because PA management decided who should or should not participate and fixed the limits of such participation.

With the increasing use of social science tools, such as social impact assessment (SIA), participatory rural appraisal (PRA), and action research,[5] the relationship between people and PAs has evolved into a management partnership, involving all the major stakeholders, including PA agencies, local residents, resource users and other relevant agencies (Oli 1999). Integrated conservation and development projects (ICDPs) have been important in building local and institutional capacity for strengthening PA management. They have helped provide examples of new institutional models, public-private partnerships and an increased recognition of the value of NGOs, local communities and indigenous people in PA and conservation activities (MacKinnon 2001).

Achievement: Co-management has now become an essential tool in most PA management efforts.

Also known as collaborative management,[6] it can establish and strengthen partnerships by involving some or all of the relevant stakeholders in a substantive way in planning and management. Co-management is a broad concept that encompasses a variety of ways in which stakeholders can jointly develop and implement a management partnership. It is particularly relevant in situations where the active commitment and collaboration of stakeholders is necessary, and where access to the PA's natural resources is essential for local livelihood security and cultural survival (Borrini-Feyerabend 1996).

Co-management involves identification of stakeholders and their functions, responsibilities, specific benefits and rights. It also comprises management priorities and a plan for the PA, procedures for making decisions and dealing with conflicts, and operational rules and regulations. It requires the establishment of a management body that represents all the stakeholders equitably. Collaborative management of PAs began with joint forest management, where achieving participation and benefit sharing was relatively easy because of the support of resource use practices in the identified forest area. A survey by the WCPA shows that a large number of PAs — nearly 20 per cent in Central America — are under co-management and that the approach is spreading rapidly in Africa and Asia. Most PAs today have some form and degree of co-management arrangement in place.

Benefit sharing through co-management

Achievement: Co-management arrangements have allowed economic benefits to accrue to local communities.

Several strategies have been followed to achieve this. Management has sought to provide alternatives to natural products being extracted or to make them available from other sources. This is intended to reduce the pressure on resources. It has tried to raise income levels by generating employment opportunities and alternative livelihoods, including through PA operations, and it has tried to use PA resources to establish sustainable use practices through regulated access (Fisher 2000). Co-management has provided an opportunity for demonstrating the value of PAs in alleviating poverty and providing sustainable livelihoods in rural areas that are largely deprived of such economic opportunities.

Challenge: There is little evidence of any lessening in dependence on PA resources as a result of alternative livelihoods provided through the ICDP approach (Fisher 2000).

Participatory and partnership approaches to conservation must be confirmed through reciprocal agreements; otherwise, old practices that have a negative impact on conservation will continue even while alternatives are in place (MacKinnon 2001). Effective participation by local people is dependent on whether crucial issues — security of tenure, land rights, usufruct rights and equity — are addressed by co-management agreements. In practice, achieving genuine participation in decision-making and benefit sharing has proved difficult. Action research methodology is increasingly being used to overcome this problem. It provides a learning process approach to implementation, contributes to increased trust and cooperation and develops peoples' sense of ownership by involving them in decision-making (Fisher 2000).

Challenge: Natural resources in the landscapes linked to PAs must be enhanced and sustainably managed so that local communities can meet their basic subsistence and income requirements and the pressure on PAs can be reduced.

Following a co-management approach should not lead to the neglect of core conservation concerns. Co-management programs have to keep in mind the PA's management plans and legal frameworks; collaboration is a means of achieving management objectives and not an end in itself. Co-management is meaningless if the core values of the PA cannot be protected. Likewise, core values cannot be protected if the relationship with neighbouring communities is adversarial.

PAs and relocation

Challenge: PA-related relocation programs have alienated people from their traditional homelands and resources.

Relocation has been used as a conservation strategy in many parts of the world, including the lower Mekong region. There are two types of relocation programs: voluntary and involuntary or forced. Generally, governments resort to involuntary relocations when PA legislation does not allow for resident populations in certain types of PAs.

Some relocation programs are justified on the grounds of due process of law; i.e forest squatters within PAs. Where indigenous people or people with long-standing traditional or customary rights are involved, however, relocation is indefensible. Relocations can perhaps be viewed as voluntary when they result from democratically negotiated agreements and are backed up by alternatives that ensure a better life for the people being moved. Nevertheless, almost every case of displacement from PAs has resulted in social, economic and cultural deprivation of the affected people. The use of relocation as a conservation tool should therefore be avoided.

In only two of IUCN's PA categories is the presence of resident human populations and use of resources considered undesirable:

- category I sites (specifically sub-category Ia, which is mainly established for science); and
- category III sites (which are usually small, site-specific natural or cultural features).

There should be no need for relocations as part of PA management in the countries of the lower Mekong. None of the lower Mekong countries have any PAs in these two categories, although Thailand has 48 wildlife sanctuaries that correspond to IUCN's category Ib, which is for wilderness protection and which does not specifically proscribe human presence.

Are protected areas achieving their objectives?

Challenge: Protected areas can only deliver their environmental, social and economic benefits if they are effectively managed.

WCMC's protected area data shows that the extent of the global network has grown steadily over the past decade. Many of these PAs are protected in name only, however, and are considered "paper parks". Around the world PAs are being degraded and destroyed by a variety of threats: illegal logging, poaching, grazing, encroachment, fire, mining and management failure. A review of the PAs in the Indo-Malayan Realm found that, despite a 50 per cent increase in the number of PAs between 1985 and 1995, standards of PA management across the region were generally poor due to a lack of trained staff members and insufficient operational budgets (MacKinnon 1997). The review noted the enormous challenge in implementing effective and sustainable PA management systems. Similarly, a review of marine protected areas (MPAs) by the World Bank, IUCN and the Great Barrier Reef Marine Park Authority concluded that less than 50 per cent of them were effectively managed (Kelleher et al. 1995).

Monitoring and evaluation

Challenge: There are few, if any, systems to comprehensively assess PA management.

Theoretically, all PAs with a scientifically developed management plan also include monitoring and evaluation components to track results and measure if objectives are being met. In reality, due to inadequate financial resources and management capacity there is usually a gap between what is intended and what is achieved. Donor-funded PA conservation projects also include an evaluation component but this is generally used only to assess how resources were applied and whether the project's objectives were achieved. Such evaluations do not assess PA management in a comprehensive manner.

In recent years, several assessment frameworks for evaluating PA management have been developed and tested, but most of them have been carried out at the national or regional scales. The Ministry of Environment and Forests in India sponsored a country-wide survey of the management status of protected areas that used a variety of indicators. The Nature Conservancy (TNC) and the World Wildlife Fund (WWF) have undertaken PA assessment studies in several countries in Latin America. WWF has assessed PAs in Europe and, with the World Bank, in key forestry countries. IUCN has conducted a study on the effectiveness of the biosphere reserves program (Corbett 1995). Techniques and methods vary considerably; this makes it difficult to compare assessments (Dudley et al. 1999).

There are several advantages of an assessment program for measuring PA management effectiveness:

- developing a professional approach to management through greater accountability of performance;
- identifying PAs at risk from threats;
- ranking conservation efforts and funding to address critical problems;
- putting pressure on institutions that are degrading PAs; and
- improving management through advocacy (Hockings, Stolton and Dudley 2000).

In 1999 WWF and the Brazilian Environment Institute evaluated the management effectiveness of 86 of Brazil's PAs. The evaluation highlighted management shortcomings, revealing that 74 per cent of the PAs faced medium or extremely high levels of risk due to management failure and vulnerability to human activity. The evaluation was instrumental in getting the government to pass a bill to improve the situation.

Achievement: There is growing effort in developing methods to systematically assess the effectiveness of PA management.

Several international organisations, such as WWF, IUCN, and The Nature Conservancy, are using different frameworks for assessing management effectiveness of PAs. The lack of a consistent approach to assessment and monitoring of management has hampered progress in this area.

In 1998, in response to this problem, the WCPA established a Management Effectiveness Task Force. The task force developed and tested a framework for assessing PA management effectiveness and published it as part of its best practice PA guidelines series. The WCPA framework provides an operational model for the design of assessment and monitoring programs. Addressing issues relating to both individual sites and protected area systems, it suggests appropriate management processes and ways to measure whether protected area objectives have been met (Hockings, Stolton and Dudley 2000).

The UNESCO World Heritage Centre, WCPA and TNC are currently collaborating on a project (Enhancing our Heritage: Monitoring and managing for success in World Natural Heritage sites) to test the framework with World Heritage sites and its possible use in meeting reporting requirements under the CBD, particularly for forest and marine biomes. Indicators of management quality are part of the process of establishing a globally recognised system of standards.

Management certification

Drawing on the principles and criteria for sustainable forest management established by the Forest Stewardship Council (FSC) the WCPA is also considering methods to certify PA protection and management at national and international levels. This could, in time, lead to the establishment of an international accreditation body that would conduct evaluations to certify PAs on the basis of their management effectiveness. Such certification could bring international recognition to the country concerned, much like World Heritage designation. WCPA's Europe office has initiated a project to consider the introduction of an effective and transparent procedure for certifying PAs, focusing on management objectives and IUCN's PA management categories. It is also exploring mechanisms for a "citizen watch" program that would enable local residents, NGOs, and communities to monitor compliance with management plans and certification standards (WCPA 2001).

Challenge: Governments must be willing to open up their PA systems to national and international scrutiny.

Broadening the support base for protected areas

Financial resources

Challenge: The lack of adequate financial resources is one of the main constraints to the effective management of PAs.

Money is required for annual operating budgets, capital investment, protection enforcement, staff training, community development and public awareness, as well as other activities. In many countries PAs are often left unmanaged due to inadequate budgets and staffing. Studies in Africa show that the estimated mean annual expenditure on PAs is US$52 per sq. km, compared to the US$230 per sq. km required for effective conservation.

A WCMC global review of PA budgets and staff by James, Green and Paine (1999) identified a global mean annual PA expenditure of US$893 per sq. km. The average for developed countries was US$2,058 per sq. km, compared to only US$157 per sq. km in developing countries. For Southeast Asia PAs the mean budget was 48 per cent of the global average, but this figure is skewed by the very high annual budgets of Brunei, Malaysia and Thailand and the absence of budget figures for Vietnam. The review reported a budget of less than US$1 per sq. km for Cambodia and Laos, while projecting a funding requirement of US$742 per sq. km for effective conservation of PAs in Southeast Asian countries.

Economic valuation

Challenge: PAs are being required to provide economic justification for their existence in the face of competing demands for resources.

Government is still the predominant management agency for PAs, which means that PAs have to compete with other important sectors for public funds. They are often unsuccessful in doing so (McNeely 1997). PA management must establish the relevance of PAs to local and national development in order to get access to public funds. PAs managed under alternative institutional arrangements have proved to be more successful in securing private and public funds from a variety of national and international sources. The need for an economic justification of PAs has catalysed the development of new methods and tools for economic valuation and new ways to measure the tangible and non-tangible benefits that they provide. The WCPA, for instance, has published guidelines on economic valuation for PA managers (Phillips 1998).

The economic valuation of a particular PA also allows the people who benefit from its services and values to be identified. They constitute the PA's customer base and according to the "user pays" principle are required to pay for these values and services. Developing an economic valuation of a country's PAs

provides the justification for integrating protected areas into economic sectors and national budgets. This recognises their true value to economic development and helps them obtain public funds for conservation and management. Brown and Henry (1989), for example, calculated the annual viewing value of Kenya's elephants at US$25–30 million, which supports the argument for increased investment in elephant conservation and PA management. Similarly, Emerton et al. (1999) calculated the benefits from a wetland in Kampala, Uganda at more than $1.5 million a year, making a strong case for it to be protected as part of the city's green belt.

New financing mechanisms

Achievement: A variety of innovative financing mechanisms are being used to secure sustainable funding for PAs.

Several of them have been reviewed and summarised by the WCPA in their best practice guidelines for managers (Phillips 2000b), which advocate using a combination of mechanisms and sources to ensure that funding is long term and sustainable. The guidelines include a number of methods available to PA managers and agencies for securing financing at three levels:

- local (e.g. user fees, sponsorships, donations);
- national (e.g. taxes and charges, endowment funds, incentives); and
- international (bilateral and multilateral donors and lending agencies).

The Environment and Development Group (EDG) of UK has produced a manual on applying a business approach to financing PAs (Inamdar and Merode 1999). WWF has also reviewed suitable financing mechanisms for PAs (Spergel 2001).

Some of the methods being successfully used in different parts of the world include transfer payments from the users to the PA. These payments make it possible to achieve a financial return for the environmental services that the PA provides, such as watershed protection for a downstream hydro-electric facility. This method is being used in Costa Rica; the conservation and sustainable management of mountain watershed forests in PAs is paid for by downstream hydro-electric projects at rates of US$10–40/ha/year (Phillips 2000a). The value of a PA in protecting watershed functions is demonstrated by Dumoga-Bone National Park in northern Sulawesi, Indonesia. Created in 1984 to protect the upper watershed of the Dumoga River as part of a major irrigation scheme. it is justified economically through its protection of constant and regular water flow and reduction of sedimentation in irrigation canals (MacKinnon and Wardojo 2001).

Another financing innovation is the debt-for-nature swap. This entails a third party, such as an international NGO, purchasing a country's international debt (or part of it) at a discount and then selling it back to the country for redemption in local currency. The money is then used for specified purposes, such as PA and biodiversity conservation (Richards 1999). Recently, the U.S. government and TNC signed a landmark debt-for-nature agreement with the government of Belize to reduce that country's debt to the U.S. by half. In exchange, Belize has agreed to protect 23,000 acres of vulnerable forests in the Maya Mountain Marine Corridor. The area includes several PAs and reserves (Bioplan 2001). Since 1987 over US$1 billion has been raised through debt-for-nature swaps, including US$18 million in the Philippines (Bagri et al. 1999).

The right to "biological prospecting" within PAs by multinational drug companies has also raised significant funds in Costa Rica, Brazil and China, including the much-publicised US$1 million deal between Merck and the National Biodiversity Institute (InBio) of Costa Rica in 1991 (Reid 1993). This mechanism, however, has not been able to realise the expected returns from royalties in the absence of any commercial drugs resulting from such research, or to provide the expected benefits for the local people (Richards 1999). Consequently, the amount of money available for biodiversity conservation from this source is likely to be relatively limited (Inamdar and Merode 1999). Carbon offset projects under the Clean Development

Mechanism (CDM) of the Kyoto Protocol also promise to contribute to the conservation of PAs. These projects allow developed countries to earn emission credits by investing in conservation projects in developing countries (Phillips 2000b).

User fees

At the site level, user fees are still the most important source of revenue; the Department of Conservation in New Zealand raises 15 per cent of its annual budget from them. It is important to identify all of the "customers" who will pay such fees. Cross-sector economic partnerships — with the tourism sector, for instance, including private service providers — have proved to be mutually productive. The Nature Conservation Service of KwaZulu-Natal province in South Africa raises over 50 per cent of its funding from ecotourism and other activities (Phillips 2000b).

Taxes and other charges have also been used to raise revenues for PAs. These include conservations fee as part of an airport departure tax and a nature conservation surcharge as a hotel room tax (Spergel 2001).

Trust funds

Trust funds are also useful financing mechanisms, both at the site and national level. They are being used more and more. Trust funds can be receive donations from individuals and institutions and can be the basis for endowments, with contributions from international agencies like GEF to provide sustainable long-term sources of funding. Most of the funds raised through debt-for-nature swaps, for instance, are managed through conservation trust funds. A considerable amount of experience on the establishment and management of trust funds for conservation has been documented in Africa, Europe, the Philippines, Bhutan, Mexico and South America (Bayon and Deere 1998).

Challenge: PAs need to be able to retain the revenues (or a substantial part of them) that they generate locally from various sources and through different mechanisms.

Changes in financial regulations may be needed so that these locally generated revenues are not required to be deposited into the national treasury. In addition, it is unlikely that any one of the individual mechanisms discussed earlier can raise adequate resources for PAs; a combination of several options might have to be used. Private sources of financing might not provide adequate resources either. An appropriate combination of public and private financing is required. Along with broadening the financial support base through a diversity of financing options is the need to reduce PA management costs. Priorities should be assigned to management activities. PA managers must be cautious about seeking to generate high revenues from visitor fees that could lead to degradation of the natural resources on which this income is dependent.

Section 3

International frameworks

Advances in bioregion management are part of the evolving international framework. The bioregion concept is an important component of the current trends in PA planning and management, as exemplified by UNESCO's World Heritage Convention (WHC),[7] the Ramsar Convention and the Convention on Biological Diversity.[8]

The World Heritage Convention (WHC)

Achievement: Designation under the World Heritage Convention gives governments access to international funds and helps ward off existing and potential threats.

World heritage natural sites are included in the World Heritage List (WHL)[9] under the WHC. Most WHSs in the "natural" category are PAs and are so designated on account of their outstanding universal value. There are only two WHSs in the countries of the lower Mekong, one in Thailand (Thung Yai-Huay Kha Khaeng Wildlife Sanctuaries) and one in Vietnam (Ha Long Bay); an additional Vietnam site (Phong Nha-Ke Bang) has been nominated. Designation of a WHS is undoubtedly a matter of great prestige for a country but at the same time it entails a commitment to ensure the integrity of the site through appropriate protection and management.

Although inclusion in the WHL does not in itself entail financial assistance from the international community, modest resourcs have become available from the World Heritage Fund for technical assistance, including emergency funding for sites under threat or in danger, and for monitoring and capacity-building activities in developing countries. More importantly, the designation provides access to international funds, including GEF, which targets funds to projects containing World Heritage Sites with natural or a mix of natural and cultural significance. Between 1991 and 2000, for example, GEF provided US$274 million in grants and US$475 in co-financing (Singh and Volonte 2001). Even the nomination of a site for inclusion in the WHL brings many benefits, including national and international support for improving management and increased pressure to deal with existing and potential threats.

Achievement: The WHC has become more pragmatic about human use of listed sites.

In keeping with the growing trend of integrating ecological and social concerns and planning PA systems at the bioregional scale, the WHC also now permits large landscapes that are a combination of both "natural" and "cultural" criteria to be considered a single "mixed site". Although this category is used rather sparingly at present — only 23 such sites exist — it will likely be more common in the future. The development of this category stems from the growing recognition that human use exists in many natural sites and that such use has evolved over time while biodiversity value has been preserved. The management objective is not to eliminate all human activities but to preserve the values of the site by managing those activities that pose the greatest threat.

The Ramsar Convention

Achievement: The Ramsar Convention[10] now recognises sustainable development as one of its key elements.

A Ramsar site is an international designation that gives protected wetlands world recognition and greater support and protection. The Ramsar Convention came into force in 1975. While its original emphasis was the conservation and wise use of wetlands (primarily to provide habitat for waterbirds), over the years its scope has broadened to cover all aspects of wetland conservation. It recognises wetlands as ecosystems that are extremely important for biodiversity conservation and for human well-being. This shift in emphasis is reflected in its mission statement, adopted in 1996, that sees the conservation of wetlands as a means of achieving sustainable development. The convention also now emphasises that sustainable human use is entirely compatible with Ramsar listing and wetland conservation in general. Between 1991 and 2000 GEF funded US$210 million for 47 projects involving Ramsar sites (Singh and Volonte 2001).

The Convention on Biological Diversity

Achievement: The many complementary approaches among the international agreements that deal with or are relevant to PAs are most strongly reflected in the 1994 Convention on Biological Diversity.

The CBD has made a significant contribution to PA conservation and management capacity. The ecosystem approach adopted by the Conference of Parties to the CBD in 2000 reflects the current trends in PA planning and management. It advocates the need for integrated management of land, water and living resources so as to promote conservation and sustainable use in an equitable way. It calls for recognising

indigenous peoples and other local communities as important stakeholders and for protecting their rights and interests. It promotes greater connectivity between areas and it advocates dealing with management boundaries on a regional or transnational scale. It sees cross-sector cooperation and decentralisation of management as important components of the ecosystem approach. Finally, it underscores the need to enhance benefit sharing among all relevant stakeholders (CBD 2000). The CBD has made a tremendous contribution to international cooperation for conservation of biological diversity, particularly its in situ conservation through PAs (Article 8).

Challenge: The CBD needs to integrate the conservation and sustainable use of biological diversity into relevant sectoral or cross-sector plans, programs and policies, as called for in Article 6 (b), so that it becomes one of the cornerstones of a national strategy for sustainable development (Hyvarinen 2001).

The Global Environment Facility

Achievement: The establishment of the Global Environment Facility (GEF) as a financial mechanism to implement the CBD has brought significant funds to PAs throughout the world.

This has made it possible to promote new approaches in PA planning and management and to build capacity for their effective protection and conservation.

A study sponsored by the GEF secretariat revealed that between 1991 and 2000 GEF allocated approximately US$1.1 billion to the costs of conservation and sustainable use of biodiversity resources in 123 developing countries and economies in transition (Singh and Volonte 2001). In addition, it leveraged about US$2 billion in co-financing. This included GEF funding of US$350 for 320 protected areas covering a total of 600,000 sq. km.

Challenge: Countries need to increase their capacity to obtain funds from multilateral sources such as GEF.

This entails complex and time-consuming procedures, and involves strengthening the individual, institutional and systemic abilities to effectively and efficiently utilise such funds. Another challenge is extending the timeframe of bilateral and multilateral assisted projects relating to PAs to ensure greater sustainability (Singh and Volonte 2001; EC/IUCN 1999).

Section 4
Conclusions

This brief review of the experience with PA planning and management over the past decade has highlighted some of the major lessons learned, as well as the many challenges that still exist. Although successful examples are often specific to sites, situations and times, general lessons and principles have emerged. They have proved to be widely relevant and it is such lessons that this paper has sought to highlight. Substantial progress has been made in trying to secure effective conservation of PAs. Concepts and management approaches have gradually evolved; many of them have matured into effective practices and guidelines. Significant sources of international funding are becoming available for implementation and several international conventions and agreements reaffirm commitments globally. These lessons from the global experience with PA planning and management form the context for the review of PAs and development in the countries of the lower Meking.

Endnotes

1. The Convention had 180 Parties (179 countries and the European Union) at the end of 2000.
2. WCPA is the world's largest network of protected area professionals, with 1,300 members in 142 countries. The commission is organised geographically across 16 global regions and five theme programs. Its mission is to promote the establishment and effective management of a worldwide network of terrestrial and marine PAs.
3. IUCN - The World Conservation Union, created in 1948, brings together 79 states, 112 government agencies, 760 NGOs, 37 affiliates, and some 10,000 scientists and experts from 181 countries in a unique world partnership. Its mission is "to influence, encourage, and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable". IUCN seeks to achieve this mission through its members; its global secretariat (HQ, Gland and offices in over 40 countries), and its six expert commissions, including the WCPA.
4. The term bioregion denotes a geographic space that contains one or whole or several nested ecosystems. It is characterised by its landforms, vegetative cover, human culture, and history, as identified by local communities, governments, and scientists (Miller 1996).
5. It is defined as a collaborative process by which a group of people with a shared issue or concern collaboratively, systematically and deliberately plan, implement and evaluate actions.
6. Other terms used to describe co-management include joint management, participatory management, shared management, multi-stakeholder management and participatory natural resource management.
7. Convention concerning the protection of the world cultural and natural heritage, signed by 164 state parties and ratified by 122 of them.
8. See the Joint Website of the Biodiversity-Related Conventions: http://216.95.224.234/rioconv/websites.html for more details on each of these international frameworks.
9. Currently 690 properties are listed, of which 529 are cultural, 138 natural and 23 mixed sites.
10. The Convention on Wetlands of International Importance especially as Waterfowl Habitat, with 111 state parties who have listed 907 Ramsar sites.

Section 5

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