Biodiversity IN Development

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Protected areas

Many protected areas were established to protect fragile environments, outstanding scenery, wildlife or places for recreation and hunting. This approach excluded many groups and has led to conflicts with local livelihoods and with other forms of land-use, leaving protected areas as a low priority for many developing countries. However, protected areas provide a range of potential benefits for human development: from the provision of wild products, to ecosystem services which underpin development, and these values are being increasingly integrated into protected area management.

There are approximately 560 million hectares of protected areas (PAs) in tropical countries. In tropical areas this accounts for 7.7% of the land area, with coverage being fuller in Africa and South America than elsewhere in the tropics (see figure on page 2).

Recent research indicates that PAs are effective in protecting biodiversity, at least at the level of habitat maintenance. The most crucial factors in ensuring effectiveness are resources and staff capacity (particularly the number of guards employed), deterrents to discourage unsustainable practices, clear demarcation of the park boundaries, and incentives and compensation to local people.

A protected area (PA) is defined by IUCN 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.*

The changing approach to protected areas

Selection of PAs has been chiefly driven by the aim of protecting fragile habitats, preserving a representative sample of a nation's, or the world's, habitats or species, or for scenic beauty, recreation and sport. These selection criteria have been tested over time by changing social, economic and political circumstances. Lessons learned from PA experience have shown that failure to address the livelihood needs of local people, or actions which alienate them from the resources on which they rely, are unlikely to succeed. Building on the Man and the Biosphere Reserve concept of multiple-use landscapes managed for human benefit and biodiversity maintenance, PAs are today being managed for a wider range of aims: for public and private benefit at local, national and global levels, and over short and long time-scales. This is reflected in IUCN's current classification of PAs (e.g. the addition of categories V and VI).

There has been a move to consider PAs not as 'islands' in a sea of development, but as networks linked by nature-friendly corridors within a bioregional landscape. This is most obviously important where populations range widely or migrate long-distances, but it also

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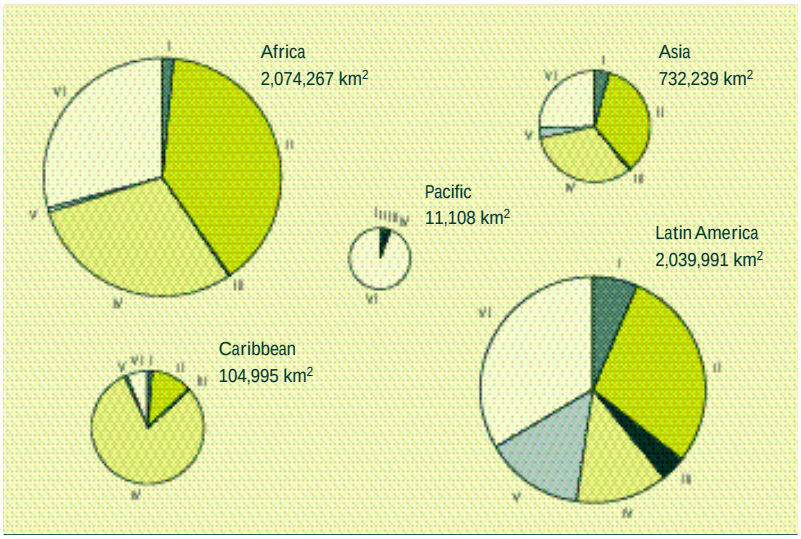
DFID Department for International Development
IUCN The World Conservation Union

Distribution of protected areas in tropical countries by IUCN categories[1]



[1] *The relative size of each pie is to scale with the land area of PAs in each region.*

allows exchange of individuals (and genetic material) between isolated populations to avoid negative in-breeding effects. This issue extends beyond national borders, and trans-boundary protected areas systems (sometimes called Peace Parks) have been developed as a result (see BB5).

There is a risk that PA management may now no longer serve its conservation function if, for example, biodiversity maintenance is given lower priority than raising tourism revenues. Conversely, the importance of conservation and sustainable use outside protected areas should not be overlooked because it is assumed that it only occurs in PAs.

Opportunities for income generation can include sport and trophy fishing, but require clear cost- and benefit-sharing to ensure that local people do not lose out. Effective regulations and monitoring are also needed.

WWF-CANON/EDWARD PARKER

IUCN protected area categories

Each country has its own nomenclature for protected areas, with their own management principles, but the following generic categories have been drawn up to show the international range:

I. **Strict Nature Reserve/Wilderness Area:** managed for scientific purposes;
II. **National Park:** managed for ecosystem protection and recreation;
III. **Natural Monument/Natural Landmark:** mainly managed for the conservation of a specific natural phenomenon;
IV. **Habitats/Species Management Area:** mainly actively managed for conservation;
V. **Protected Landscape/Seascape:** mainly managed for the conservation of a landscape/seascape;
VI. **Managed Resource Protected Area:** mainly managed for the sustainable use of natural resources.

Development perspective

In assessing how a PA might contribute to local development it is important to take into account all values – both use and non-use. Many non-use values are difficult to quantify, or have no obvious markets, but they contribute substantial long-term and intangible benefits.

Economic valuations can identify the goods and services suitable for capturing revenues, which can be crucial in ensuring the long-term sustainability of a PA. For example, annual tourism revenues of around US$330 million in Costa Rica more than cover PA outlay of US$12 million/year. Opportunities for income generating include sport and trophy hunting, but require clear cost- and benefit-sharing to ensure that local people do not lose out, and also effective regulations and monitoring to ensure that extraction does not exceed a species' ability to recover.

In addition, PAs can have other commercial benefits. In St Lucia, for example, one third of the country's fishing grounds were designated as no-take areas in 1995. Within 3 years commercially important fish stocks had doubled in the seas adjacent to those reserves.

Not all PAs have easy income generating potential. However, various approaches can increase opportunities for PAs to support

Long-term versus short-term benefits

Research indicates that – within a long-term development vision in which depreciation of natural capital is taken into account – the sustainable exploitation of tropical rainforest products provides a realistic alternative to the combined oil exploitation, cattle-rearing and coffee growing found in the Ecuadorian rainforest. Analysis shows that while oil/cattle/coffee generate a net benefit of US$ 316,344,662/hectare during the first 10 years of exploitation (compared to only US$ 122,762,156 /hectare from sustainable use of forest products), once the oil reserves are used up, the sustainable production alternative will be providing 168% more benefits than the cattle/coffee production.

Potential values of protected areas

Goods
- access to natural resources, improved management and sustainable harvesting
- generate revenue through marketing of sustainably harvested goods
- reservoir of genetic material from ancestral stocks of domesticated species
- representative sample of indigenous plants animals and micro-organisms that are used, or potentially useful
- conservation of wetlands which act as nurseries for fish, or marine PA networks that maintain fish stocks in adjacent areas

Services
- conservation of soil, watersheds and coastlines
- provision of clean water
- maintenance of biotic processes such as pollination which are important in supporting agricultural systems
- the sequestration of carbon
- climate regulation
- maintenance of buffers to natural disasters

Non-consumptive use
- education and research
- recreation and tourism, providing benefits for local economies

Others (non-use)
- preservation of cultural heritage, spiritual beliefs, sacred sites, cultural/traditional practices and traditional knowledge
- the conservation of genetic materials in natural habitats, which can be used in medicine, and plant and animal breeding
- preservation of scenic beauty and rare species
- preservation of options for future use
- promotion of peace and international cooperation

livelihoods and address poverty. Integrated conservation and development projects (ICDPs) have commonly been developed to provide benefits for local livelihoods through sustainable use of natural resources (including tourism). The main lesson learned from this approach is that the development-related activities should be integrated into overall PA planning, and not grafted onto an existing design. New approaches also need to be built on, and work with, existing socio-cultural practices, rather than against them. Any economic appraisal that fails to take all values into account will consistently undervalue natural resources and PAs, making it difficult to assess which stakeholders gain or loose, and undermining proposals for effective management.

Effective management

PAs are subject to a range of pressures, such as in-migration of displaced populations, or those who wish to exploit the land and its resources. To resist (or reverse) these pressures it is necessary to:

a) safeguard sites which serve several important biodiversity functions and provide ecological services (such as water supply);
b) design PAs systems with corridors and buffer zones;
c) develop appropriate economic, legal and policy framework to engage the support of all stakeholders.

However, even if these principles are followed, many PAs already suffer due to lack of resources and capacity. According to a WWF-World Bank survey of 10 countries, only 1% of PAs are wholly secure. Many PAs in developing countries have been termed ‘paper parks’ because they are not managed effectively. This is largely a result of changing circumstances, with increasing stakeholder conflicts, more complex objectives and fewer central government resources. In cases where the state pays for PA maintenance, as in much of Africa, other demands on the treasury tend to hold sway, and PAs are commonly given lower priority.

Conclusions

The lack of attention to the costs being borne by local communities has resulted in unrealistic management plans and negative local attitudes to PAs. To address this short-coming, PA establishment and management must be participatory, building on communities’ expressed needs and involving them in the development and implementation of the PA.

This Biodiversity Brief was written by the BDP. Additional technical input was provided by the World Commission on Protected Areas.

This Brief was funded by the European Commission Budget Line B7-6200 and the UK Department for International Development. Opinions expressed in this document are the contributors' alone, and do not necessarily reflect those of the European Commission, DFID or IUCN. The Brief does not imply any opinion on the legal status of any country, territory or sea, or their boundaries.

Buffer zones

A buffer zone is an area, usually on the periphery of a PA, designed to be managed to provide support for PA, and to:

- buffer the PA from the negative impacts of neighbouring communities
- protect neighbouring communities from wild animals leaving the PA
- provide local communities with opportunities lost from the PA, such as sustainable harvesting of resources.

Buffer zones therefore provide an important means for fulfilling both conservation and development aims, and are often linked with integrated conservation and development projects (ICDPs).

Management systems that address equitable cost and benefit sharing require a new approach to conflict resolution, and need to develop partnerships with local communities for co-management in buffer zones. Initiatives for community wildlife management in southern Africa, and sharing forest management in south Asia, are examples of management models that incorporate these needs. However, co-management systems must be adapted to different local situations, especially where population growth and immigration are important factors.

In supporting PAs, it is crucial that donors take a long-term perspective, and support financial sustainability. Where PA benefits are global, funding instruments such as the Global Environment Facility (GEF), and carbon-trading through the Kyoto Protocol, can provide financial support to weak national economies and poor rural communities. As a multi-national institution the EC needs to coordinate its investments in global environmental goods with GEF to ensure synergy and complementarity.

Further information

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- UNESCO World Heritage Centre *http://www.unesco.org/whc*
- World Commission on Protected Areas (WCPA) *http://wcpa.iucn.org*

Website

All Biodiversity Development Project (BDP) documents can be found on the website: http://europa.eu.int/comm/development/sector/environment