PROTECTED AREAS FOR THE TWENTIETH CENTURY: BENEFITS BEYOND BOUNDARIES

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Introduction

If protected areas are to maintain their position as an ecological and environmental asset and to overcome the criticism that there existence is inimical to social and economic development, then significant changes in approach are required. These changes were the basis of the Vth World Parks Congress held in Durban, South Africa in September 2003. The theme of 'Benefits Beyond Boundaries' was chosen to ensure that protected areas did not continue to live in isolation from the surrounding territory or from civil society.

Two sets of changes are required and will form the main part of the paper to be presented at the conference: linking protected areas to wider environmental systems and processes and linking protected areas to society at different scales. The paper will reflect the outcomes from the Congress, as determined in the Durban Accord and Action Plan and the specific recommendations approved.

This paper sets out, in summary form, the issues likely to be covered in the paper to be presented at the conference, but is subject to change in the light of the outcomes of the World parks congress.

A new vision for protected areas

A new vision should be agreed for protected areas for the simple reasons that they are not sufficiently connected to the wider world. It might consist of the following.

"We seek to achieve equity for people and equity for nature in an integrated way through improved understanding of the benefits of protected areas to society and the importance of society's positive engagement and interaction with protected areas. Protected areas are enriched areas that enrich the lives of everyone.

Our vision is for protected areas to be recognised by politicians, communities, business and all other constituencies as assets to be cared and shared for the benefit of our and future generations locally, nationally and internationally. In the next decade, we hope for more local engagement in the governance and management of these areas, greater attention to working with natural systems and processes, increased use of traditional and other information to inform improved management, building the capacity of all involved to meet the new challenges and opportunities, using the resources of these areas sustainably for societal benefit and within their natural carrying capacity, and ensuring that the world wide system is truly representative of the global ecosystems."

To bring this to fruition will require a number of significant challenges to be addressed successfully.

- Protected areas can no longer be seen only as local and national concerns but as global, regional, national and local assets for the present and future generations.

- Protected areas can no longer be seen in isolation from the people who live in them and nearby and who have helped to shape and sustain them and to place demands on them as part of their own survival.
- Protected areas can no longer be regarded as the special preserve of experts in nature but need to be managed collaboratively with all relevant stakeholders.
- Protected areas effort can no longer concentrate on adding to the numbers and territory covered and must place more effort and resources on improving their care.
- Protected areas can no longer be seen as 'islands' but as part of vibrant natural systems and also linking with economic activity and society beyond their boundaries.
- Protected areas can no longer survive with limited financial resources for their maintenance and improvement; new forms of financing and enhanced resources are needed.
- Protected areas management can longer be left to natural science and other experts as a wide variety of skills are required.
- Protected areas can no longer be fossilised; management approaches will need to be adaptable to changes in the natural environment and societal aspirations.

The challenges present a formidable agenda internationally, regionally, nationally and locally and it is vitally important that these are recognised and acted on by all governments, authorities, agencies and communities of interest.

Connecting protected areas to the wider natural world

As currently formulated, many protected areas are managed in a static manner, ignoring the flows of species, energy, water and other features which make them dynamic and vibrant entities.

There are many approaches which have been developed and applied over recent decades to break down the geographical isolation of protected areas. They all tend to have the common aim of linking protected areas into the wider surrounding landscape. One of the perspectives is maintaining or re-establishing linkages to ecological and other environmental systems and processes. Another is that protected areas should be planned and managed taking into account cultural heritage, social aspirations and economic development opportunities. However, different experts have developed many of the approaches for slightly different purposes. So there is confusion both in the terminology and in the preferences for application The list of approaches is seemingly endless and includes: biological corridors, ecological networks, bioregional planning, integrated planning, ecosystem management, and biosphere reserves

Protected areas have often been developed in isolation from their biogeographical surroundings. They were regarded as the places where species and habitat protection should take place, and where landscape should be conserved. Not infrequently, they were the paces where the last vestiges of natural habitats in a landscape changed radically as a result of economic development pressures. Their description as 'islands of protection in a sea of devastation' is a truism which is an all too frequent

occurrence in many countries. Recent challenges for progressing from “islands to networks” have stimulated both international debates and practical action to place protected areas in their wider biogeographical setting

In this paper, a distinction is drawn between the tools based primarily on linkages between protected areas and ecological and environmental systems and processes, and those based on a wider construct of the linkage between protected areas and communities, cultural history, society and economic activity. In drawing this distinction, it is recognised that some of the approaches do straddle the two types. There is no one answer to the approach which should be used, as it will depend on the needs of the each situation and the precise definition of objectives. These points will be developed later in the paper.

Ecological and environmentally focussed approaches

There are a series of approaches which focus primarily on the linkages in natural environmental systems from the heart of a protected area outwards. The basic construct of these approaches is the recognition that protected areas have functional links and dependencies beyond their boundaries. Therefore in defining the objectives of a protected area, delimiting its boundary and determining its management regime the flows of water and energy and the movement of species and habitats, and the migration of species across the boundary should all be taken into account.

The Biosphere Reserve approach in one sense seeks to overcome the classic issue of where to place the boundary by defining a buffer zone whose outer boundary is not necessarily precisely delineated; this is the position reported for some of the Biosphere Reserves in France for example. Nevertheless, most protected area authorities, and the legislative and administrative regime under which they are established, accept the need to define a precise boundary which can be delineated both on the ground and in plans. This being the case then most approaches reported below recognise that protected areas have a formally recognised boundary.

The scale of application of these approaches varies with the objectives of the protected area and the wider programme within which it is placed. ‘Moving up scale’ is how Kenton Miller has described the approaches which start from the core strictly protected part of the protected area outwards in space and upwards in scale order from local to sub national, national, regional and global approaches. The descriptions and analysis which follow start with the core of a protected area and gradually move ‘up scale’ to the global approaches.

(1) IUCN Protected Area Management Categories

In considering environmental linkages, the natural starting point should be the core of the protected area. This is usually the part which defines the rational for the status of the area and generally has the highest level of protection. Moving out from the core there should be a series of zones, if the boundaries of the protected area have been drawn to reflect knowledge of the species and habitats and the environmental systems which underpin them, then there should be a series of zones between the core and the boundary.

The international system developed by IUCN as Guidelines for Protected Areas Management Categories should be the basis for subdividing protected areas to reflect the diversity of management objectives within the area and to provide support for the effective maintenance of the core area. Six categories have been developed as follows:

Ia Strict Nature Reserve: protected area managed mainly for science

Ib Wilderness Area: protected area managed mainly for wilderness protection

II National Park: protected area managed mainly for ecosystem protection and recreation

III Natural Monument: protected area managed mainly for conservation of specific natural features

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly for sustainable use of natural ecosystems.

In the standard approach adopted by IUCN and UNEP/WCMC each protected area in the world is usually assigned to one of the Categories on the basis of the predominate type of management objectives within the boundary. |Such an exercise is currently underway to produce the next draft United Nations List of protected Areas. However, this approach fails to recognise the values of using the category system to define variable management objectives within the protected areas as a whole. For example, many protected areas in practice will have zone of strict protection rating to Category I, zones of slightly lower protection relating to category II, zones relating to lower protection still as in Category V, and perhaps particular Category IV natural monuments such as geological of geomorphological features. Some protected areas will also have degrees of management intervention which accord to category IV and /or Category VI. In defining linkages within protected areas on the basis of ecological and other environmental objectives, it seems perfectly reasonable to use the IUCN system as a basis for informing the objectives of management and the type of activities which should be allowed. In Europe the Abruzzi National Park, Umbria Province, Italy is often quoted as a good example of the application of zonation principles. There are many other protected areas which use zoning, such as in the Canadian National Parks in the Maritime Province (for example, Cap Breton national park).

The essential point in the context of the linkages between protected areas and the ecological and environmental systems within which they are located is that the use of the IUCN Guidelines on Protected Area Management Categories provides the basis for a systematic, globally agreed and globally applicable approach to zoning in protected areas from strictly protection core outwards to greater intervention and greater use of the natural resources.

(2) Corridors and Ecological Networks

Fragmentation of habitats and the separation of species from their diurnal and seasonal breeding and roosting grounds are widely accepted as a practical problem in the longer term health of species populations and the effectiveness of core protected

areas. Andrew Bennett (1998) admirably summarises the issues and the various approaches which have been developed in an effort to restore linkages. At the lowest level is the assumption that physical corridors linking protected areas are an effective mechanism for species movement. There is no agreement, however, that geographically linked areas through corridors of various widths has an overall beneficial effect on the longer-term survival of individual species. It is for this reason that most recent attention has been focussed on the ecological basis and the practical value of ecological networks. The argument has shifted therefore from one about physical connection through corridors to one of linkage through various mechanisms in which connectivity for species movement, and for maintenance of ecological functions is the overriding objective.

Graham Bennett, who has lead much of the development work on ecological zones in Europe defines an **ecological network** as 'a coherent system of natural and semi-natural landscape of marine elements that is configured and managed with the objective of maintaining and restoring ecological functions, while providing appropriate opportunities for the sustainable use of natural resources'. With its two-fold objectives, the ecological network approach is similar to the Biosphere Reserve approach but each has a different manifestation in space, with the former emphasising the linkages in the landscape between protected areas and the latter emphasises the linkages outwards from core protected areas to the surrounding landscape. Bennett describes four key design principles for the ecological network: conserved areas should extend over the traditional habitat range, the areas should be sufficiently large to contain viable populations of species and the functional ecological and wider environmental processes on which they depend, contiguity of conservation areas is important to allow movement and dispersal of populations, and human activities in the conserved areas and the connecting areas should be compatible with the conservation objectives. An interesting additional element which has been built into many ecological networks is the restoration of damaged habitats and ecosystems which are not properly functioning.

In Europe, the ecological network approach has taken on a more formal basis with the agreement of European Environment Ministers to the development of a Pan-European Ecological Network as part of the Pan-European Biological and Landscape Diversity Strategy. There has been widespread application, for example, in the Baltic Countries, and in other parts of Europe. Elsewhere, the approach has been adopted at many spatial scales covering whole countries such as Russia and Poland, large-scale mountain systems such as the Ecological Corridor of the Andes and the Meso-America Biological Corridor, major river basins such as the Amazon, the Congo and the Donau, regions such as the Mediterranean, through to small-scale networks to improve the effectiveness of nature reserves.

Benefits have been claimed in terms of minimising loss or damage to landscape and biodiversity, integrating biodiversity with other environmental measures, promoting biodiversity conservation outside protected areas, contributing to sustainable development and integrating different sect oral interests. The major issue in the application of the ecological network approach is the ability to influence positively the planning, development and management of the whole landscape. This means influencing the intensity and scale of agriculture, forestry and other land uses, the development of urban areas and associated industry and housing and transport

networks. In the past it is these activities and the associated policies and financial support mechanisms which have been the main drivers of fragmentation in the landscape. There remain many situations where this fragmentation is continuing with the resultant damage to the functioning of the ecosystems and the implications for the well being of the natural species and also for the well being of human communities.

(3) Biogeographical Regions

Placing protected areas in the context of their surrounding biogeographical region (sometimes called ecoregions) has been developed for some time. This approach has come to prominence in recent years for two reasons: recognition that the activities outside protected areas can have a profound influence on the state of health of the features within them and that they are a valuable tool for ensuring that there is representation of the necessary variation of species, habitats and landscapes within the protected areas suite. The approach is often referred to as 'the landscape approach' or the landscape ecology approach' given that the focus of attention is not on the protected area per se but on the whole of the landscape, irrespective of the scales, and the operation and interaction of the individual components.

There are many classifications of biogeographical regions globally and for individual continents and countries. Some versions are based on vegetation distribution as it was expected to be prior to human intervention. However, broader-based classifications have been inexistence for a number of decades. The basis of these classifications is that there are areas of the globe with similarity in topography, climate, soil and vegetation characteristics which give them coherence and distinguishes them from other areas where these parameters have a different association. Notable are the boreal forest regions, the mid-latitude temperate forest zone, and the tropical rain forest.

These biogeographical regions have formed the basis of global, regional and national assessments of protected area coverage. For example, WWF developed a global ecoregion framework to assess biodiversity hotspots and the need for more protected areas. For example, Parks Canada used a biogeographical subdivision as a basis for identifying gaps in the national parks network. A similar biogeographical basis has been used, for example, as the framework for the identification of protected areas in the European Union to form the Natura 2000 network.

The biogeographical region approach has been invaluable in assessing the distribution and degree of representativeness of protected areas within their natural ecological units. It is preferable to the systems used in some countries where the units for the selection of protected areas have no relationship to natural units or to the ecological dynamics of the territory. For example, in Great Britain the domestic system of wildlife sites (Sites of Special Scientific Interest) are selected on the basis of 'Areas of Search' defined entirely as administrative units rather than natural regions.

The biogeographical region approaches are, therefore, valuable in the identification of protected areas to be both representative of the region and to protect those parts of greater significance because of their relative biodiversity richness.

In conclusion "moving up scale" from the core protected areas to the wider landscape ecologically and environmentally has the following requirements:

- defining the core areas for protection;
- identifying the adjacent areas which support the continuation of natural functions and processes;
- identifying areas where protection can and should be of a lesser order;
- linking the protected areas, and the various zones within them to each other through ecological networks where appropriate;
- placing the protected areas within wider networks of functioning systems; and
- placing the whole within a framework of units defined in terms of biogeographical criteria.

Using this relatively simple scheme means that protected areas should be linked with, rather than isolated from, the surrounding landscape and that measures to ensure their perpetual protection are developed and implemented through focussing on the ecological and wider environmental systems and processes.

The outcome from the WPC will be given at the conference in terms of how the problem and key issues have been defined, how the longterm goals are defined, what experience has been learnt from around the world, and what action is planned.

Integrated Approaches linking Protected Areas to Society

The approaches described in the previous section recognise, implicitly or explicitly, that protected areas have to be linked into civil society: cultural heritage and modern culture, politics, social well being and economic development. The Biosphere reserve approach has been in existence for many years and has demonstrated and a new approach. Two approaches have emerged in recent years – bioregional planning and the Ecosystem Approach, which explicitly seek to connect protected areas with wider society in a more integrated way.

(1) UNESCO Biosphere Reserves

The UNESCO system of Biosphere Reserves was introduced in 1976 as part of the Man and the Biosphere Programme. The accepted definition is that 'Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognised within the framework of UNESCO's Programme on Man and the Biosphere. Each Biosphere Reserve is intended to fulfil three complementary functions: a conservation function to preserve genetic resources, species, ecosystems and landscapes; a development function, to foster sustainable economic and human development; and a logistic support function, to support demonstration projects, environmental education and training, and research and monitoring related to the local, national and global issues of conservation and sustainable development'.

Biosphere Reserves were the first systematic globally recognised approach to applying the principles of zoning to link the strictly protected cores of protected areas to the surrounding landscape where development was allowed and so stimulate the

coexistence of conservation and development. They are therefore a valuable approach for ‘moving up scale’ and out from the core of protected areas by placing the core area within a wider context embracing both environmental and socio-economic objectives.

In the standard approach each Biosphere Reserve should contain three zones: one or more **core** areas which are securely protected sites for conserving biological diversity, monitoring minimally disturbed ecosystems, and undertaking non-destructive research and other low impact use, such as education; a clearly identified **buffer** zone, which usually surrounds or adjoins the core areas, and is used for cooperative activities compatible with sound ecological practices, including environmental education, recreation, eco-tourism and applied and basic research; and a flexible **transition** zone, or area of cooperation, which may contain a variety of agricultural activities, settlements and other uses and in which local communities, management agencies, and other stakeholders work together to manage and sustainable develop the area’s resources.

Biosphere Reserves have been regarded by many commentators as being ahead of their time in bringing together protected areas and the surrounding landscape and seascape, in seeking to reconcile conservation and development, and recognising the importance of the engaging all stakeholders in the process of developing and managing the designated areas. Whether they are best viewed as a designation or as a practical and effective means of achieving the multiplicity of objectives within a defined space which society aspires to be a mote point. This was an issue debated in the later 1990s with the conclusion that Biosphere Reserves should not be seen as rivals to protected areas and that the processes and objectives which are intrinsic components of the approach could be applied with benefit to more traditional protected area mechanisms.

Biosphere Reserves have been implemented in many countries. There is increasing recognition of the value of the approach in implementing the Convention on Biological Diversity and Agenda 21. As a result a new strategy was defined, The Seville Strategy, in 1995 to refocus the approach in tune with the agenda from the UNCED Summit in Rio de Janeiro in 1992.

(2) Bioregional Planning

The development of the bioregional planning has arisen as a result of the limitations of approaches based solely on the functions and processes of natural systems. The basic premise is that the natural environment is subject to change as a result of human activity and that to ignore this activity and its effects means that goals for biodiversity and landscape diversity cannot be achieved. In practice, it means placing protected areas in their wider setting of the biogeographical region and the social and economic activities which have occurred, are occurring and may occur in the region in the future. It is an integrated approach seeking to reconcile environmental, social and economic aspirations and goals within a defined territory. The scale of bioregion will depend on the issues and the objectives defined and means of resolving conflicts. It can therefore be applied to a small local community area, to a major landscape of

global proportions or anything in between. Miller and his colleagues at the World Resources Institute have been instrumental in the development and operation of this approach.

The approach has six components: geographical scale and scope; stakeholder communities; science technology, and information; institutional mechanisms and governance arrangements; incentives and enabling policies; and adaptive management, monitoring and restoration.

The geographical unit is termed the **'bioregion'.** It comprises the protected area and its subdivision into zones using the theory and practice developed in the biosphere reserve approach, i.e. core, buffer/transitional zones, but without explicit account being taken of the use of IUCN Protected Area Management Categories. In addition, protected areas are linked through corridors, rather than networks. All of these elements are placed within a wider region termed the 'matrix', comprising the main settlements and the areas of most intensive economic activity. The bioregion is defined in terms of agreed objectives and using a variety of tools including administrative, ecological social and economic. Its scale depends on the views and agreement of the various stakeholders. All stakeholders, both local and those from further afield, are included in the partnership for the bioregion. All relevant scientific and other knowledge is used in drawing up plans and in their implementation and monitoring. Often novel arrangements for the governance of the bioregion will be drawn up to suit local circumstances. Perhaps the most critical component is the effectiveness of influencing incentives and policies to achieve a variety of objectives in a coherent manner. Changed approaches to key land use policies and their funding and influencing transport policies and actions will be key in the industrialised world, whereas measures which safeguard natural resources for human benefit and remove disparities between social groups are likely to be of greater significance in the developing world. Finally, monitoring and evaluation systems, including changes in management regimes and practices are necessary.

(3) The Ecosystem Approach

The Ecosystem Approach is a method adopted formally by the signatory governments to the Convention on Biological Diversity at its fifth meeting in 2000. It is defined as 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way' (CBD, Decision V6, 2000). It is consider by the signatories that its application will help to reach a balance between the three objectives of the Convention: conservation of biological diversity, sustainable use of natural resources and equitable sharing of genetic resources.

Fundamental to understanding ands applying the Ecosystem Approach is the recognition that human society is an integral component of many ecosystems (CBD Decision V/6, 2000). These are set out in 12 Principles as follows:

1. The objectives of management of land, water and living resources are a matter of societal choice.
2. Management should be decentralised to the lowest appropriate level.
3. Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
4. Recognising potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context. Any such ecosystem-management programme should:
    a) Reduce those market distortions that adversely affect biological diversity;
    b) Align incentives to promote biodiversity conservation and sustainable use;
    c) Internalise costs and benefits in the given ecosystem to the extent feasible.
5. Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
6. Ecosystems must be managed within the limits of their functioning.
7. The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
8. Recognising the varying temporal scales and lag-effects that characterise ecosystem processes, objectives for ecosystem management should be set for the long term.
9. Management must recognise that change is inevitable.
10. The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
11. The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
12. The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

In addition, five Operational Guidelines (CBD Decision V/6, 2000) were agreed as follows:

1. Focus on the functional relationships and processes within ecosystems.
2. Enhance benefit-sharing.
3. Use adaptive management practices.
4. Carry out management actions at the scale appropriate for the issue being addressed, with decentralisation to the lowest level, as appropriate
5. Ensure intersectoral cooperation.

The approach, or approaches along similar lines have been implemented in many parts of the worlds. Case studies have been gathered together from southern Africa, south east Asia and South America.

The Ecosystem Approach demands a paradigm shift: from preservation to adaptive management, from a sectoral to an integrated approach, from a solely scientific to a multifaceted knowledge based approach, from a solely environmental to an integrated environmental and people approach, from a top down decision approach to a two-way

approach; from a national approach to an approach at the most appropriate level, from being restricted to conservationists to one engaging all stakeholders, and from nature protection to social and environmental well-being.

In essence, this approach is not a competitor to the bioregional planning approach but has a greater focus on the continued functioning, or restored functioning of natural ecosystems, and does not define the spatial scale of implementation. There is more in common between the two approaches than there are differences It can be argued that bioregional planning is the application of the Ecosystem Approach at the geographical scale appropriate to the issues to be resolved and the stakeholders engaged.

The outcomes from the WPC will be summarised in relation to the views of the different constituents, the new governance models for protected areas, and the action planned.