CONSERVATION AND MANAGEMENT OF PROTECTED AREAS AND NATURE RESERVES IN WEST AFRICA

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Contents

Summary

This chapter presents an overview of conservation and management of protected areas and nature reserves in West Africa. Protected areas have been recognized as one of the most viable tools for securing and conserving the environment to serve as "sanctuary" for threatened species, ecotourism, and sustainable management of natural resources. They serve as natural buffers against climate change, sources of pure water and other vital ecosystem services, genetic storehouses, protection for sacred sites, and places for recreation, spiritual and physical renewal and generation of foreign exchange.

Conservation and management of protected areas and nature reserves have been given renewed impetus and direction in West Africa since the 1960s. The region, has demonstrated her commitment to biodiversity conservation by the establishment of a network of protected areas system based on the World Conservation Union (IUCN) categories of protected areas. However, this commitment to conservation has not been accompanied by the development of appropriate management capacity and allocation of resources to develop the desired infrastructure and manage them according to the designated IUCN classification for protected areas. Consequently, many of them exist on paper as protected areas without any effective management system.

Effective management of national parks will make an essential contribution to sustainable development by maintaining biodiversity, environmental services and human well-being. The sustainable management and maintenance of protected areas depends on effective human and institutional capacity building, education and awareness creation, involvement of all the major groups in the management of national parks will significantly enhance the sustainable management of national parks in

1. Introduction

1980s and 1990s have witnessed an increased attention of the world community on the issue of conservation and sustainable use of natural resources. Protected areas and nature reserves have been recognized as the most viable tools for securing and conserving the environment and serve as "sanctuary" for threatened species, ecotourism, and sustainable management of natural resources (McNeely, J. A, 2004; IUCN, 1994; UNEP, 2004; CBD, 2004). The social, economic, and environmental importance of protected areas in providing environmental services like water, flood control and mitigation of the effects of climate change have moved to the centre stage of the global effort to conserve natural resources (IUCN, 1998; IUCN, 2003). Protected areas are the most effective tool for sustaining viable populations of mammals, birds, reptiles, fishes and plants. Protected areas are the most effective way of preserving biodiversity and safeguarding crucial ecological processes. About 9% of the terrestrial and 1% of the marine systems fall under some form of protection (Bakarr, 2002).

Conservation science and principles for establishing and managing protected areas have developed enormously since the 1960s. International conservation organizations and academic institutions have helped this development, but primarily the growth of protected area knowledge has resulted from the work commenced by the International Union for Conservation Nature (IUCN) and the original National Parks Commission (NPC) in the late 1950s (now the World Commission on Protected Areas; WPCA) and strengthened over theperiod since the 1960s. In particular, the early 1960s were a benchmark period in the global approach to protected areas (Chape et al. 2005).

All types of protected areas have a role in global *in situ* biodiversity conservation to a greater or lesser extent, whether they are managed as strict nature reserves, national parks, community conserved areas or managed resource areas. In the face of increasing human pressure on the planet's resources, an effective global protected area system is the best hope for conserving viable, representative areas of natural ecosystems and their habitats and species. Therefore, protected areas are a valid, measurable indicator of progress in conserving the world's remaining biodiversity, or at least slowing the rate of loss (Chape et al. 2005).

As international efforts to preserve biological diversity have evolved, it has become clear that protected areas and nature reserves are at the heart of any global strategy for success. They serve as natural buffers against climate change, sources of pure water and other vital ecosystem services, genetic storehouses, protection for sacred sites, and places for recreation and spiritual and physical renewal (Shepherd, G., 2004; IUCN, 2003). Protected areas are a tool for promoting effective planning of land and water use so that they can better contribute to broader socio-economic development plans and programs in the territory where they are located. Protected areas remain the strongest tool for managers interested in conserving biodiversity (IUCN, 2002, Lea M. Scherl et al 2004).

Since the adoption of the Convention on Biological Diversity (CBD) in 1992, much of the world attention has been focused on the idea of developing more national protected areas as means of conserving biodiversity *in situ* and for other purposes (Davey, 1998

Phillips, 2002). Indeed, many protected areas now form part of international networks, both global systems, notably World Heritage Sites (WHS), Ramsar sites, and Biosphere Reserves and regional systems such as the Europa 2000 networks of nature conservation sites in Europe.

The global protected areas have grown enormously since the first UN list was published in 1962 with just over 1,000 protected areas. Now, there are 102,102 global protected areas covering more than 18.8 million km^2 equivalent to12.0% of the earth land surface (IUCN, 2003). This is one of the largest conscious, collective, land-use decisions in the world history. Most of the growth in the establishment of protected areas occurred in the latter half of the 20th century, and a considerable proportion since the global commitments made at the 1992 Earth Summit in Rio. A more holistic approach to conservation and development is being promoted through the application of ecological networks and bioregional planning concepts. However, there is much to be done to ensure that protected area systems and their management are effective in ensuring the survival of species and ecosystems, and the environmental benefits they provide (UNEP 2004; CBD 2004).

The expansion of the world's protected areas continues to be considered a vital component of the conservation of natural resources, since the III World Congress of Parks held in Bali in 1992. The Bali Declaration highlights the importance of protected areas as essential elements for the conservation of biodiversity, ensuring the maintenance of representative samples of natural habitats, of species diversity and genetic variability, as well as providing opportunities for scientific research, environmental education, tourism and other low-impact income generating activities, as well as providing ecosystem services essential to human life (Cavalcanti et al 1998; IUCN, 1994). The Convention on Biological Diversity reiterated this theme, by recognizing *in situ* conservation as one of the top priorities for worldwide biodiversity protection. In the mandate of the Convention, an adequate system of protected areas is considered a centerpiece for the development of national conservation strategies (IUCN, 1994).

The continuing establishment of protected areas by governments, communities and the private sector reflects growing concern that the world's ecosystems, and the biodiversity that they contain and the services that they provide, are coming under increasing threat. (Davey,1998). In Durban, 2003, an international commitment was made at ***Vth World Parks Congress*** by governments, non-governmental organizations, professional cadre of rangers, managers and scientists to work towards a sustainable management, conservation and development of all types of protected areas by equitably integrating them with the interests of all affected people to create a synergy between conservation, maintenance of life-support systems and sustainable development (UNEP, 2004).

1.1. Definition of Protected Areas

Protected areas, defined by IUCN as an area of land and/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 (IUCN, 1994), are the cornerstone of the global community's efforts to conserve biological diversity.

According to the 2003 UN List of Protected Areas (Chape et al. 2003), the extent of the Earth's surface covered by terrestrial protected areas is now about 17.1 million km^2 (11.5% of the land surface), while marine reserves cover an additional 1.7 million km^2 or less than 0.5% of the world's oceans.

Protected areas are of many types, established with widely different objectives, and designated by many different names (national park, nature reserve, national reserve, etc.) in different countries. With this in mind, IUCN has developed a system of categorization for protected areas, based on their management objectives. This system recognizes that while some protected areas (e.g., those in Categories I and II) are more strictly protected against consumptive human activities, others (e.g. those in Categories V and VI) allow for certain types of intervention such as the sustainable use of natural resources. About two-thirds of the world's protected areas have now been assigned an IUCN management category, while 33.4% remain uncategorized (Chape et al. 2003)

1.2. Evolution of Protected Areas and Nature Reserves

Setting aside natural areas to maintain their intrinsic values is not a recent phenomenon in human history. It has been part of human endeavor for millennia, occurring in all regions of the planet where humans have settled (Holdgate 1999; Chape et al, 2003). Historically, the motivation for protecting natural areas has ranged from the religious to resource or species management, including initiatives such as designating sacred groves and limiting or prohibiting the exploitation of particular species in certain areas.

As McNeely (1998) has noted, "protected areas are a cultural response to perceived threats to nature. Many early 'protected areas' were actually hunting reserves, for example in northern India more than 2000 years ago and in Indonesia almost 1500 years ago (Holdgate, 1999). Other places were protected because they were considered sacred; homes of the gods, resting places for the dead, or places for spiritual reflection.

By the nineteenth century, human impact on the planet's natural ecosystems, especially through European colonial expansion and commercial enterprise in the Americas, Australasia, Asia and Africa, led to the establishment of the first modern national parks and reserves, as understood in the initial western paradigm of protected areas. The establishment of Yellowstone National Park in the United States in 1872 is usually seen as the start of the modern protected area movement, being the first time the term 'national park' had been used. In the following decades, many other countries started protecting sites, such as Banff in Canada, El Chico in Mexico, Tongariro in New Zealand and the Swiss National Park (Holdgate, 1999; Chape et al. 2003, 2003).

In the decades that followed, what had started as a trickle rapidly became a flood as new protected areas were created in virtually every country in the world. Hunting reserves were chosen by and for the elite, and early national parks often followed a similar pattern, with local people sometimes being displaced from their traditional lands as a result. In tropical areas the choices were usually made by colonial powers (UNEP, 2004).

Since the 1960s, conservation science and principles for establishing and managing

protected areas have developed enormously. International conservation organizations and academic institutions have helped this development, but primarily the growth of protected area knowledge has resulted from the work commenced by the International Union for Conservation Nature (IUCN) in 1948 and the original National Parks Commission (NPC) in the late 1950s (now the World Commission on Protected Areas; WPCA) and strengthened over the period since the 1960s. In particular, the early 1960s were a benchmark period in the global approach to protected areas.

Category	No. of sites	Proportion of total no. of protected areas (%)	Area Covered (km^2)	Proportion of total area protected (%)
Ia	4,731	4.6	1,033,888	5.5
Ib	1,302	1.3	1,015,512	5.4
II	3,881	3.8	4,413,142	23.6
III	19,833	19.4	275,432	1.5
IV	27,641	27.1	3,022,515	16.1
V	6,555	6.4	1,056,008	5.6
VI	4,123	4.0	4,377,091	23.3
No Category	34,036	33.4	3,569,820	19.0
Total	**102,102**	**100.00**	**18,763,407**	**100.00**

Source: WCPA, IUCN 2004

Table 1. Global Number and Extent of Protected Areas

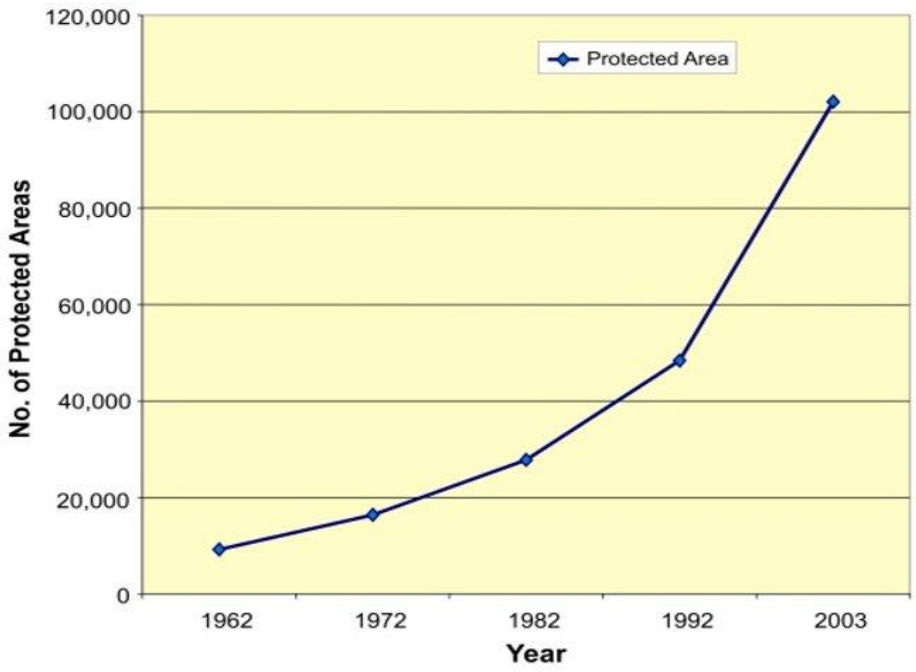

Figure 1. Evolution of Protected Areas (1962-2003)

By 1962, there were 10, 000 protected areas around the world, which already seemed a huge figure, yet by the Vth World Parks Congress in Durban, South Africa, in

September 2003 the number had increased tenfold to 102,101 (UNEP, 2004 ;Chape 2005). What had begun as a small movement has become a worldwide approach to land use and nature conservation. Protected areas now cover almost a twelfth of the world's land surface as well as a small but increasing proportion of marine area. Table 1 and Figure 1 in the annex depict the trends and evolution of protected areas in the world.

1.3. International Agreements on Protected Areas

International agreements that recognize or designate specific protected areas are a relatively recent phenomenon. During the first part of the last century at least two international agreements recognized the importance of protected areas in general terms and encouraged their establishment. Both the 1933 convention relative to the preservation of fauna and flora in their natural state (African Convention) and the 1940 Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere. Since then a number of international agreements recognize and promote the importance of protected areas has been established (Jeremy, H and Karen S, 2002).

2. Protected Areas and Nature Reserves in West Africa

Category	Description
I	Strict Nature Reserve/Wilderness Area: Protected area managed mainly for science or wilderness protection.
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 the sustainable use of natural ecosystems.

Source: (IUCN, 1994)

Table 2. IUCN Management Categories of Protected Areas (IUCN, 1994)

Effort to secure remnant natural habitats in West Africa has been underway since the early 1900s when the first series of protected areas were established (Mohammed I. Bakarr, 2002), but concentrated mainly in the Sahelian belt where terrestrial herbivores occurred in abundance and forest reserves. Although these reserves were mostly designed to protect watersheds and timber supplies rather than biodiversity, they are vital for conserving the remaining forest fragments in West Africa. Some of the largest and most recognized protected areas in West Africa include; Park W in the cross border area of Benin, Burkina Faso and Niger (total area of 978,000ha), Boucle du Baule

(350,000ha) in Mali, Comoe (1,150,000ha), and Mole (491,440ha) in Ghana. It was only in the late 1960s when significant attention was focused on expanding protected areas networks to accommodate all existing ecosystems, including the forest region (Marten, 1991).

Today, the entire Upper Guinean forest block has only three designated and significantly large forest National Parks. These include: Tai National Park (330,000ha) in Côte d'Ivoire and the Sapo National Park (130,000ha) in Liberia (Conservation International 2006). In the Nigeria-Cameroon forest sub-region, the most important parks include the 4,227 km² Cross River National Park in Nigeria, which is the largest protected area in this sub-region, and the adjacent 1,260 km² Korup National Park in Cameroon, which is home to the oldest rainforests in Africa. The total area of Upper Guinean large forest in protected areas amounts to only 719,400ha, which is 10.5% of the existing forest cover. However, the true picture emerges when one considers only those protected areas in categories I to IV, which shows that a mere 18,800 square kilometers (3 percent) of the area is under a more appropriate level of protection for biodiversity conservation purposes (Conservation International, 2006).

2.1. Economic, Social and Environmental Importance of Protected Areas

As the magnitude of the human imprint on ecosystems increases globally, the role of protected areas and nature reserves becomes critically important in West Africa. The purposes for creation of protected forest areas range from the purely utilitarian, related to timber and water values, through a wide variety of biodiversity, cultural, and landscape values. In most cases, the purpose for the creation of the protected area already indicates the expected benefit. However, the acceleration of deforestation worldwide gives increased leverage to the existing protected areas, so that many now offer multiple benefits beyond the originally intended (Cavalcanti et al, 1998). Protected areas provide access to natural resources, improved management and sustainable harvesting; generate revenue through marketing of sustainable harvested goods, and reservoir of genetic materials.

Protected areas provide a range of goods and ecological services while preserving natural and cultural heritage. These include the services that yield natural products such as food, fresh water, fuel wood and herbal medicines that have direct use value to rural communities. In theory, these products would only be legally accessible to local people living in and around those protected areas that allow the sustainable harvesting of such resources. However, even the most strictly protected areas could provide additional food security for surrounding communities in times of famine (McNeely 2004.). They contribute to poverty alleviation by providing employment opportunities and livelihoods to people living in and around them. In addition, they also provide opportunities for research including for adaptive measures to cope with climate change, environmental education, recreation and tourism. Although in some cases, national parks areas have failed to sustain the wildlife populations they were designed to protect, while, at the same time, having a negative impact on the food security, livelihoods and cultures of local people. The distribution of costs and benefits in relation to conventional protected areas has been highly inequitable, with local people bearing the brunt of the costs and reaping few of the benefits in the form of cultural and livelihood security, and enterprise

opportunities. In general, we may classify the benefits either as economic, social, and ecological benefits.

2.1.1. Economic Importance

Most protected areas by definition place substantial restraints on extraction of natural resources from within their boundaries. However, some extractive activity may occur and occasionally may have been the driving force in their establishment. Typical economic benefits in West Africa include: timber, wildlife, non-timber plant products, tourism. However, the relation between economic returns and protection is often controversial, particularly when certain forestry practices are proposed to be compatible with biodiversity preservation. Although generally recognized in the process of creating protected areas, until comparatively recently these benefits were not expressed in monetary values (Cavalcanti et al 1998). With the increase in ecotourism, and the consolidation of a large-scale biotechnology industry, many such non-extractive benefits have immediate cash value. Currently tourism is the most widespread benefit (Cavalcanti et al 1998).

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