National parks and protected areas in African countries: A free market environmentalism approach for social and environmental sustainability

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Abstract

There are two primary options for the successful preservation of national resources in African national parks: centralized government management and decentralized privatized management. In this article we argue that a free market environmentalism approach to the management of national parks in Africa is preferable to centralized government management. We begin by discussing social, economic, and biophysical trends related to the operations of national parks in Africa. Next, we describe the institutional and political structures of management options, including the conventional centralized planning model, and present alternatives such as co-management and privatization. We then identify current conflicts and controversies regarding national park management in the African context, which include land tenure and expropriation, poverty, and the protection of large mammalian endangered species. Finally, we apply the free market environmentalism approach to African national park management and make a case for why this approach would allow for better protection of endangered large mammal species, benefit African citizens in the surrounding communities, eliminate the free-rider incentive which can lead to acts such as poaching, and create incentives that are necessary for the preservation of African national resources. We conclude that this market-based system is effective in protecting natural resources in areas of Africa where the private owners are willing to pay for the preservation of the environment, and on privatized and which can be successfully profitable through the aid of competition in the market.

Keywords: national parks; Africa; free market environmentalism; sustainability (environmental, social)

Introduction

Government ownership of natural areas in the form of natural parks is a relatively new phenomenon, developing globally in the late 19th to early 20th century [1,2]. The phenomenon developed in light of the realization that there could be a potential scarcity of natural resources in the future from unsustainable use by private landowners – examples include over-grazing, slash-and-burn brush clearing techniques, and exploitation of the natural resources present on the land [1]. The first purpose of government owned (or managed) national parks is to protect the natural, historic and cultural heritage values on an area of land [3]. The second purpose is to provide opportunities for recreation and tourism [3]. There is a general consensus globally among resource managers, (including government agencies and populations), that private ownership is unable to preserve environmental

resources and amenities, therefore government controlled land containing natural resources such as national parks and protected areas are required [1].

It has also been argued, however, that market forces, through a decentralized market structure, are a better option, especially for developing countries, which have consistently undervalued natural resources, pricing them below their actual market values [4,5]. This market-based system would create economic incentives for managers and would result in improved environmental quality and sustainability in areas (such as national parks) within developing countries in Africa that are currently under government ownership [4].

To answer the question of what is the most viable management option for African National Parks, it is

important to observe the current trends, institutional and political structure, and the problems and controversies related to national parks and protected areas in African countries. These components will be discussed in the following sections of this article in order to move towards identifying a solution for African National Park management. Here, we argue that a free market environmentalism approach to the management of national parks in Africa is preferable to centralized government management because it would better manage the protection of endangered large mammal species, as well as benefit African citizens in the surrounding communities. The free market environmentalism ideology is based on a decentralized market structure, and argues that this system (which is based on private property and tort law) is the best way to preserve the environment and its resources [6]. A free market approach and the commercial use of natural resources will create incentives that are necessary for the preservation of Africa's natural resources.

The way in which African National Parks are managed influences the conservation and preservation of natural resources generally in Africa. Lessons can be learned from the African National Parks that can inform National Park management elsewhere. Distinguishing between management approaches such as free market environmentalism and centralized government management techniques illustrates the pros and cons of each management system. A successful management system can be defined as one which protects valuable natural resources in the short and in the long term. This perspective is important because, without proper protection, over-exploitation of natural resources occurs, and this inevitably leads to a lack of resources required to sustain the human population. Our conclusion is that instituting a free market environmentalism approach for African National Park Management would provide the necessary protection of natural resources as well as the rights of local indigenous peoples. The encouragement and involvement of local indigenous peoples surrounding the protected parks allows for both scientific and local knowledge to be incorporated in the protection of these natural areas through the use of private property.

Social, Economic, and Biophysical Trends of African Protected Areas

A protected area is defined as a recognized geographical space that is dedicated and managed by the government or privately to achieve the long-term conservation of natural resources, ecosystem services and cultural values [7]. The International Union for Conservation of Nature (IUCN) divides protected areas into categories according to management objectives; these include areas such as nature reserves, natural monuments and national parks [8]. The percent of the earth's surface covered in national parks and protected areas has increased from 3% in 1962 to 11.5% in 2005 [9].

Distribution of protected areas and national parks

Based on the IUCN category system, Africa has a total of 1166 protected areas, which cover a total of 2,808,250 square kilometers (23.3%) of eastern, southern, western and central Africa, and 1,272,840 square kilometers (9.7%) of northern Africa and the Middle East [10,11]. The largest percentage of protected areas in the African continent consists of both habitat and species management areas and national parks [10]. The continent of Africa has a total of 338 national parks, with the majority residing within the borders of South Africa, Kenya, and Madagascar [10].

The majority of Africa's 50 largest national parks (established between 1970 and 1980), are within the borders of Botswana, Malawi, Namibia, Tanzania, Uganda, Zambia and Zimbabwe (*Table 1*) [10]. In Kenya and South Africa, only one national park in each country is considered to be one of the 50 largest because although there are numerous national parks in these countries, each of the parks' individual areas are relatively small [10,12].

Revenue to finance operations of African national parks and game reserves is obtained from tourism revenues, sport hunting revenues, government funding and global donation/support programs [13]. The tourism revenue that a park receives depends on park entry fees and the number of tourists visiting the park [13]. National park entrance fees for tourists vary widely between individual African countries [14]. In most countries, less than the equilibrium price is charged for park entry [1]. In 2002, national park visitor entry fees varied from free entry in Kiang West National Park in Gambia, to upwards of USD 100 in Tanzanian National Parks [14]. Africa has experienced major growth in the tourism industry in the last decade, indicating increased visitation and tourism revenues [15]. This growth indicates an increase in tourism in all parts of Africa between 2000 and 2008 [13].

Table 1. National parks in African countries (2010). Note: African countries omitted from this Table may have established protected areas, but do not have established national parks under the IUCN classification system. *Reproduced with permission from [11].*

Country	Total Number of National Parks	Country	Total No. National Parks
Algeria	9	Madagascar	22
Angola	6	Malawi	5
Benin	2	Mali	1
Botswana	4	Mauritania	2
Burkina Faso	3	Mauritius	1
Cameroon	12	Mozambique	5
Central African Rep.	4	Namibia	10
Chad	2	Niger	1
Cote d'Ivoire	7	Nigeria	8
Congo	3	Rwanda	2
Democratic Republic of Congo	10	Saint Helena, Ascension and Tristan Da Cunha	2
Egypt	2	Senegal	6
Equatorial Guinea	3	Seychelles	7
Ethiopia	15	Sierra Leone	4
Gabon	4	South Africa	41
Gambia	2	Sudan	8
Ghana	7	Tanzania, The United Republic of Togo	15
Guinea Bissau	2	Tunisia	5
Guinea	1	Uganda	10
Kenya	36	Zambia	19
Liberia	1	Zimbabwe	10
		Total:	329

Funding for African protected areas and national parks

Although tourist entrance fees can contribute to the funds used for park support in protected areas like game reserves, the majority of the funds used for this purpose are obtained from sport and trophy hunting revenues [13]. In the Selous Game Reserve in Tanzania, both tourism and hunting increased between 1991 and 2001, but hunting revenues consistently amounted to approximately 80-90% of the total park income compared to approximately 10% from tourism alone throughout the decade [13].

Although global spending on protected areas is USD 6.5 million, the required amount to fully support conservation programs and parks has been estimated to be between USD 12 and 45 billion [5]. National parks and protected areas in Africa receive less than 30% of the funding that is necessary for adequate park management. In the past several decades, there has been a decline in the amount of funding available to African National Parks. Estimates have stated that already inadequate park budgets have been cut in half in the last ten years [16]. Budget shortfalls in selected African countries ranged from approximately USD 220,000 to over 7,000,000 per year [16]. One consequence of these budget shortfalls is the existence of “paper parks”, parks that only exist on paper due to the lack of financial support for staff, vehicles and ongoing conservation programs [5].

Institutional and Political Context of National Parks in Africa

The conservation practices in place in African countries prior to colonization likely had highly adapted patterns of natural resource use [17,18]. The development of official government protected areas worldwide began with the model established in Yellowstone National Park in 1872 in the United States [2]. Developing countries in Africa have followed this historical model of conservation after colonization. The model’s purpose is to “defend the established boundaries (of the park) against the enemy” [16]. In this context, the enemy refers to the indigenous people in the surrounding geographical area who desire to use the natural resources inside the park boundaries. However, in recent years, there has been a push for more community involvement in the management of African national parks and protected areas – in other words, the privatization of publicly owned land [2,5].

The conventional national park model

Within the conventional national park model, land is publically owned, reserved for conservation, and has been withdrawn from the market and from the effects of market

forces [1]. National parks and protected areas in Africa are mainly governed by decision-making bodies created within governmental or semi-governmental institutions in accordance with national and/or regional legislation and policies [1]. Within Africa, like other countries around the world, the widely accepted reasoning behind publically owned national parks is to increase biodiversity and to create goods and services such as tourism for public use [9].

The conventional national park model in Africa focuses on policies and practices that discourage local participation, and emphasize centralized government decision-making [19]. Historically, in many African countries, parks and protected areas have operated in isolation from the surrounding indigenous societies, and do not include these societies in developmental activities and management decisions [19]. The ideology behind this method of management used globally can be seen in an example from the Imperial Institute of Forestry in Oxford, U.K. [20]. Their philosophy regarding natural resources states that “the public good was best served through the protection of forests and water resources, even if this meant the displacement of local communities” [21]. Decisions in African countries on what areas of land or water should be incorporated in the national parks are made by the state, with little or no public involvement in the design, establishment and execution of the park management plans [19].

Co-managed protected areas

Co-managed protected areas have been designated by national, sub-national or local governments but are managed by all stakeholders that depend on the area culturally and/or for their livelihoods. The parties involved in a co-managed protected area negotiate a management plan, which is generally part of a broader agreement that includes complementary initiatives, by-laws, incentives and compensation [2].

The main difference between co-management and the conventional management model is that indigenous and local communities who occupy or use the lands and resources within the protected area can claim customary and/or legal rights to the land and resources when the areas are co-managed [2]. Other stakeholders, however, have different incentives and entitlements within the protected area and co-management agreements do not give them equal weight in consultation and decision-making as those with customary or legal rights.

Privatization of protected areas

An alternative to publically owned natural resources and national parks is privatization, which is the conversion of publically owned land to private ownership [7]. The idea that privatization would be a better alternative to government management of parks and protected areas than government

decision makers stems from the belief that private owners have stronger incentives to conserve natural resources, especially large mammal populations such as those found in many African National Parks and nature reserves. [22]. Within Africa, many private protected areas already exist, including a multitude of game reserves such as the Selous Game Reserve in Tanzania [13].

Challenges and Controversies with National Parks and Protected Areas

Land use conflicts are typically defined as disagreements surrounding the current management of national parks and protected areas, the surrounding indigenous communities, and other stakeholders who have an investment in the specific area of land [23]. Challenges and controversies related to national parks and protected areas in Africa include: expropriation and land tenure conflicts, poverty in communities surrounding protected areas, and the survival of populations of large mammalian endangered species.

Expropriation and land tenure conflicts

Land tenure can be defined as “the various relationships that people establish in order to access and manage land” [24]. In developing countries, land tenure conflicts usually arise as a result of the high rates of population growth and urbanization [24]. In African countries, there are several types of land tenure conflict: Unequal geographical distribution of natural resources, land utilization, legal recognition of ownership over parcels of land (e.g. customary rights) and, lastly, the conflict over the control of the land and its resources [24].

Major land conflicts come from public policies regarding the management of renewable resources, which maintain or reinforce existing logics of exclusion [24]. This leads to a “military”-based model, where “commanders” are appointed to “defend” the established boundaries against the “enemy”, usually the local people who require use of the resources within the boundary [16]. Although these policies partly develop from the intent to protect natural resources, they also allow centralized managers to monopolize the income they generate. Certain governments have encouraged the expropriation of land without the establishment of regulatory mechanisms to buffer the local communities from loss of these lands [24].

An example of a land tenure conflict related to expropriation is the 1969 expansion of Kruger National Park in South Africa [23]. Expropriation is a typical component in the establishment and functions of a protected area [5]. In 1969, the expansion of Kruger National Park in South Africa was completed, and the Makuleke indigenous community in the surrounding area was forced to move elsewhere without

compensation [23]. In 1995, the Makuleke community argued their land claim in the form of the Restitution of Land Rights Act and after two years of negotiations and conflict, settled on a co-management plan with the South African National Parks (SANParks) to ensure that conservation of the land was not at the expense of the needs of the indigenous community [23].

Other examples of land tenure conflict include the Mkomazi Game Reserve in Tanzania, where in 1988 more than 8,000 Maasai and Parakuyo cattle farmers and 100,000 cattle were displaced after conservationists became concerned over endangering wildlife species, habitats and tourism in the area [9]. Similarly, when the Lake Mburo National Park was created in 1982, 4,500 families were evicted from the area without compensation. This caused ongoing conflicts between the farmers and park authorities over the grazing of cattle within the park [9]. Finally, without notification in 2002, 30,000 people were evicted in Uganda when the game corridor linking Queen Elizabeth National Park to Kibale Forest Reserve was established [9].

According to the IUCN, national parks are “natural areas of land and/or sea, designed to protect the ecological integrity of one of more ecosystems for this and future generations, exclude exploitation or occupation inimical to the purposes of designation of that area, and to provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible” [9]. Considering this definition, it is easy to see how national parks can be areas of conflict, especially because many countries have communities of people living within their boundaries who are at risk of being evicted [9]. For example, in the central African Region, about 70% of national parks are inhabited and/or used by local people who are at risk from expropriation [9].

Poverty

There is controversy about whether the establishment of a national park exacerbates poverty in developing countries due to expropriation of land by the government from citizens without just compensation during park establishment [20]. In developing countries outside of the African continent, a relationship can be seen between park establishment using expropriation and poverty [25]. It is acknowledged that in the protected areas of the rainforest in central Africa, customary land rights are not acknowledged in conservation projects despite a World Bank policy that stresses that citizens displaced from protected areas should be compensated for their losses [25]. Instead, displaced citizens must find alternative sources of revenue to compensate for the revenue lost from their displaced land; this replacement income is typically much less and therefore exacerbates poverty conditions.

Individuals in local communities can also potentially lose their sources of income with the creation of national parks [25]. As the definition of a national park does

not allow for the use of the resources within the park (unless regulated heavily by the governing body [9]) local communities who would traditionally use the area for hunting and other related activities are left without a source of income [25]. During both the 1993 and 2003 World Park Congress, it was recognized that while national parks have global benefits, it is the poorer communities that have to carry the majority of the burden of conservation [25].

In 2008, a study consisting of 12 case studies in six countries used research regarding displacement and poverty collected over the last three decades to study the results using the Impoverishment Risks and Reconstruction Model for involuntary resettlement. [25]. It was found that by displacing inhabitants, individuals lost the income of the land within the National Park. An example of this phenomenon was seen when the scarcely populated area of Dzanga-Ndoki National Park in the Central African Republic lost access to 1,000 km². Each individual lost access to forested land with a value of 55,000 dollars per person [25]. The study also found that the majority (67%) of an average central African's total income came from hunting and gathering, while only 33% came from agriculture, labour and formal employment. Therefore, income generated in central African communities was found to be largely dependent on access to forests [25]. As the per capita per year income is one dollar per day in the Central African Republic, many individuals must rely on areas found in national parks to survive [25].

It is also of note that in African countries, there is evidence of large numbers of land sales and land abandonment after national park establishment, which may be caused by people moving to cities to find alternate employment and income [20]. Areas close to parks are typically much poorer than communities farther away as they do not have as much privately owned land [20].

Protection of large mammalian endangered species

Eastern and southern African countries are home to seven of the world's biodiversity 'hotspots', which means that many of the species in these areas cannot be found anywhere else in the world. This has contributed to demands for the establishment of natural parks, game reserves, and other protected areas [9]. Controversies often arise due to conflicting opinions on how species habitat and how endangered species themselves should be managed.

The main controversy related to large African wildlife species is that although a large number of protected areas and other conservation methods such as trade bans have been established under the assumption that centralized planning is the best option, they have done little to preserve the dwindling numbers of threatened, endangered or vulnerable species [4,22,26].

An example of how national parks and trade bans can actually threaten species can be seen in rhino populations. In 1975, rhinos were placed under the CITES

Appendix I policy, which meant that the hunting and trading of rhinos and rhino horn were completely banned [22]. This caused the price of rhino horn to rise dramatically in consumer markets and only fuelled poaching [22].

Another shortfall of national parks with regard to large mammalian species is that many of the parks are too small to contain these populations [16]. In many cases, mammalian populations migrate outside of the unfenced boundaries at certain times of the year [16].

Due to the ineffectiveness of endangered species protection thus far, the privatization of protected areas which makes use of the market structure of supply and demand, would create incentives that would aid in the conservation of large mammals and other natural resources [4,22]. Generally, the idea of the privatization of national parks and protected areas is not widely accepted. Many resource managers are reluctant even to consider it as an option [11].

The Free Market Environmentalism Perspective

Free market environmentalism is based on a privatized market-based economy and emphasizes incentives associated with prices, profits and entrepreneurship. At the heart of free market environmentalism is a system of well-defined property rights which are specified and enforced by the government [6]. Research has documented the ability of this approach to preserve natural resources [6].

An example of the use of this approach can be seen in the operation of the Nature Conservancy in the United States. The Nature Conservancy is an environmental group that operates extensive land holdings. [6]. It has been able to successfully protect over 100 million acres of land worldwide through private ownership, without the aid of government funds or management [7].

There has been some push for a free market environmental approach to be applied to the management of national parks in Africa. For example, it has been well documented that wild animal populations have been declining within African national parks for many years. Reasons for this may include poaching, agriculture, mining, intrusive development and land clearing, among others [4]. Dissatisfaction with the public sector's record of protecting endangered species has caused a push for the use of market-based, commercialized approach [4].

A change to a de-centralized private market-based management approach includes the purchasing of land through private groups of likeminded individuals (such as The Nature Conservancy) or fully private individual firms [7]. The trading of live animals, breeding programs, hunting, and non-consumptive tourism are some examples of private entrepreneurship within free market environmentalism that may be successful in addressing the controversies associated with the current management of African national parks.

Evaluation of the free market environmentalism approach to national park management

Free market environmentalism has the capability to address many of the current problems associated with government-run centralized national park management in Africa, if carefully implemented [22,26]. A market-based approach will add value to many of the resources within African national parks that are currently illegal to use, especially large mammalian endangered species. This allows the surrounding community to receive the benefits of these resources, which currently are very limited [26].

The market is simply a medium through which people voluntarily exchange items and property in a manner that conveys information about their values [26]. If individuals are willing to pay for what they value, their demands will be met by other individuals who are willing to supply the requested services. For example, animal welfare activists could pay land owners to preserve animals such as elephants from uses such as hunting [26]. A more likely scenario, however, is that the price for large mammals would be paid and preserved as hunters and consumers of large mammal products (such as elephant ivory and rhino horn) would be willing to pay the highest prices, protecting them from such purposes [26]. This would add a positive value to these large mammals and aid in their long-term survival, while eliminating the negative effects that currently encompass them such as poaching [26].

In Zimbabwe and South Africa, where it is legal to trade rhino horn, endangered rhino populations have increased, and so has the economic wealth of the surrounding community [22]. South Africa also introduced white and black rhino populations on private land, which caused the mammal to become a “draw card” species, meaning that it could be legally used for both trophy hunting and non-consumptive tourism [22]. The increased demand and price for live rhinos has ensured that private land owners have a strong incentive to conserve and breed rhino populations. Profits from the selling of live rhinos have also allowed the National Park Board in South Africa to reinvest the proceeds from these sales in conservation initiatives.

The privatization of African National Parks will also free up funds within African governments as they will no longer be responsible for upkeep and other park services [1]. While governments have little incentive to reduce spending, competitive firms are driven to minimize costs and run more efficiently in order to be successful in the marketplace [1]. National parks will benefit from a wider range of potential suppliers and therefore push towards achieving a better balance between cost of maintenance and profit. Thus, the government will benefit from the cost savings associated with the removal of government funding from national parks and will be able to invest the monetary reserves in other social or economic problems [1].

Privatization of African national parks would also allow for fair entry into the market and allow for the

surrounding community to take advantage of the economic benefits available [7]. Benefits include permitting traditional activities within the park, or compensation paid directly to the community [18]. The associated benefit activities on land within national parks to local communities can range from free entrance into the park for traditional cultural activities, to the permission for harvesting of fuel wood, medicinal plants, and approved sources of sustenance. Other benefits given to surrounding communities include lease payments paid by parks into tribal authority trust funds, preferential hiring of community members, and direct allocation of a percentage of the park fees and profits gained from tourism [18].

Programs have also been created to compensate for communities that have been negatively affected by the establishment of national parks and protected areas. These programs include the African Wildlife Foundation’s Good Neighbourliness program, which is aimed towards distributing benefits to the surrounding communities of protected areas in Tanzania, Kenya and Uganda where infrastructure must be built to accommodate the communities (i.e. schools, water supply outlets). Another compensation program is the Communal Area Management Program for Indigenous Resources (CAMPFIRE), in which community leaders offer wildlife revenues to locals on a per capita basis, as well as compensate farmers who experience damages due to wildlife encroachment on their private lands [18].

Although the intention of compensation programs is to directly benefit local communities, compensation and benefits can be mismanaged through actions of unequal distribution or through the withholding of subsidies. In turn, this can cause tension between the communities and the representatives involved in park privatization, potentially causing upheaval and unrest in community settlements [18]. These recurrent negatives associated with compensation from national parks are being dealt with through the institutionalization of commodity-based incentives programs and better management of potential benefits [18].

Any individual outside of the local communities that surround a national park and engage in traditional activities must be willing to pay to receive the benefits of the park. This aspect of the free market solves the free-rider problem (i.e. the use of resources without paying for use – for example poaching), as well as reduces the negative externalities that affect the surrounding community including damages caused by large endangered mammals on private farmland and personal property [7]. If land is privately owned, it is in the landowner’s best interest to keep problems to a minimum, as they are personally liable for damage to their own property. Publicly owned national parks do not have any incentive to stop damage to surrounding areas by wildlife, and so damage may be more frequent [1].

Despite all of its benefits, there are also several limitations to the free market environmentalism method that must be considered. Only areas of land capable of making a profit will be protected in a free market system [7]. This will

ignore factors such as the value of the ecological integrity of an area and there is no guarantee against future development or alternative uses as individual values may change [7].

Moreover, markets are a medium through which people voluntarily exchange items of property and thereby express their values. If an individual's values change, then there is no promise that national parks will continue to be protected [26]. A lack of land tenure security is a problem in Africa [26]. African countries need to ensure that there is a medium in which these rights are enforced, which will require government action [7]. As some African countries do not have governments fully committed to this, or these governments are compromised, it may be difficult to properly enforce the free market environmentalism method.

Conclusions

There are two primary options for the preservation of natural resources in African National Parks: Government management or privatized management. A free market environmentalism approach to the management of national parks in Africa is preferable to centralized government management as it would better manage the protection of endangered large mammal species as well as benefit African citizens in the surrounding communities. A free market approach, including the commercial use of natural resources, will create incentives that are necessary for the preservation of Africa's national resources. It will also eliminate the free-rider problem associated with those who want to preserve natural resources in national parks without directly paying for these benefits. In recent years, there has been recognition of the benefits of a market based system, as seen in the shift from a conventional national park model to co-managed parks. While full privatization of national parks is not generally an accepted view as of yet, there have been considerations of this course of action in some areas.

It is important to consider both the benefits and the limitations of the free market environmental approach when considering the application of this approach to African parks. The free market environmental approach for resource protection will not be successful in all circumstances [7] [26]. It is best to take a more pragmatic approach to the implementation of free market environmentalism to National Park management in Africa; in other words, privatization should be decided on a case-by-case basis. In addition, national governments in Africa will need to strengthen legal protections of property rights if a free market environmental approach is to be successful. This way, national parks in Africa will be managed as efficiently as possible in every situation to preserve natural resources for future generations.

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