

Management Objectives and Economic Value of National Parks: Preservation, Conservation and Development

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Abstract

This article discusses distinctions between management objectives and economic values in the uses of National Parks. The authors use historical and philosophical resources in the presentation of ideas. The article reviews some issues relating to the foundations of National Park administration, describing the distinction between preservation and conservationism and their connections to ecocentrism, anthropocentrism and deep ecology.

The International Union for Conservation of Nature and Natural Resources (IUCN) has established a six-category system of protected areas to clarify the differences between various objectives for protected areas including National Parks. National Parks are designated for three primary management objectives with equal emphasis on each, viz. preservation of species and genetic diversity; maintenance of environmental services; and tourism and recreation. Secondary objectives of National Parks include scientific, educational, spiritual and aesthetic uses, which are likely compatible with the primary goals. However, it is often questioned whether the primary goals are able to coexist among themselves. For example, recreational uses are often in conflict with the preservation goal. The management objectives for National Parks can be rearranged into three components, viz. preservation, conservation and public use.

In the literature, the economic value of natural resources is often classified into direct use value, indirect use value, option value, bequest value and existence value. This value typology has widespread a misconception that each individual economic value category additively counts towards the total economic value. In a way of avoiding this confusion, the economic value of National Parks is to be grouped into three categories. They are preservation value, conservation-based use value and development-based use value. This typology employs the everyday speech and matches the IUCN classification of National Parks management objectives. More importantly, this classification clearly reveals that the economic value of National Parks is not the additive sum of the component values, because of incompatibility between the values pursued in the management of National Parks.

Multiple management objectives for National Parks defined by IUCN are increasingly being integrated within domestic legislation by a number of countries in the world. The materials integrated in this article will help administration authorities of National Parks to shape up appropriate National Parks management strategies.

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1. INTRODUCTION

The provision of natural areas for recreational tourism has been one of the essential items of government policy in many countries, because it is seen to be unprofitable for the private sector to supply people with natural areas for recreation due to their characteristics as public goods. Public goods are distinguished from private goods by having two primary characteristics, nonrivalry and nonexcludability in consumption. Moving from pure public goods to private goods in the spectrum, the term 'quasi-public' is often used when emphasis is on the presence of congestion or rivalry in the use of public goods.

National Parks have great importance in providing people with requirements for recreation as possibly quasi-public goods (Mitchell and Carson, 1989; Kahn, 1998). Congestion beyond a particular level can reduce the quality of the consumption available to visitors, and the use of a National Park by one additional individual begins to be intruding on the use of the park by another. Additional visitors can no longer enjoy the good without reducing others' enjoyment. The presence of these phenomena is due to the fact that the park area supplied is physically limited.

The *Yosemite Park Act 1864* was the first actual expression of the necessity for planned public use of natural environments at the national level. A few years later, the *Yellowstone Park Act 1872* dedicated and set apart the Yellowstone region of the USA as the world's first National Park. The principal purpose of the designation was to preserve exceptional natural resources for the benefit and enjoyment of the people (Runte, 1979). However, this notion contained the inherent friction of use and preservation directives.

Monumentalism rather than environmentalism was the driving impetus behind the Yellowstone Park legislation (Runte, 1979; Cronon, 1995): early American National Park advocates argued that wilderness and unusual natural beauty should be set aside, never to be changed, and kept sacred just as they are, for the ultimate purpose of public enjoyment. The first National Park in the world was the result of lobbying by a host of competing interests, and not only fed the dreams of preservationists but also served the interests of railroad owners, who were eager to transport tourists (Satchell, 1997). Cronon (1995) described an

irony of the National Park movement at that time with heavy sarcasm: Native Americans, who were the original inhabitants in the wilderness areas, were forced to move elsewhere so that wealthy city folks could safely enjoy the illusion that they were seeing their nation in its pristine, original state.

It was possible to achieve the goals of both preservation and recreation during the early days of National Parks because use pressures were low (Stankey, 1989). However, people nowadays demand outdoor recreation as part of their life. Lack of time and money denied this to most people, particularly in developing countries, but increasing prosperity has gradually reduced these barriers. Nature-based outdoor recreation is more in demand as urbanization continues around the world. The more artificial their living environment becomes, the more eagerly people tend to stay away from home and to find comfort in nature-based recreational areas. National Parks have been affected by the intrusion of various recreation facilities to meet recreation demand. Even though tourism is considered as a clean industry, it relies on intensive development and provision of more convenient and sometimes luxurious facilities to attract wealthier tourists (Cronon, 1995). Nowadays, the construction of roads into National Parks and trails and parking lots within the parks is justified for the reason that to exclude people is to risk the loss of their support for the National Park idea (Morgan, 1996). A major consequence has been the alteration of the nationally significant natural and cultural resources upon which tourism depends. Almost every part of the world has been aware of the negative impacts of such development over the park ecosystem.

It is necessary to examine closely the definition and management objectives for National Parks, in order to understand precisely the contemporary dilemma of National Parks management strategies. To this end, the definitions of National Parks suggested by International Union for Conservation of Nature and Natural Resources (IUCN) are first examined in the next section. A way of categorizing National Park benefits is then developed in line with management objectives for National Parks identified by the IUCN. Attention is next drawn to the conceptual distinction between the terms 'preservation' and 'conservation' in the context of classification of non-market National Park benefits. Finally, summary and concluding comments are provided to highlight the contribution of the paper or value added to existing understanding of the subject matter.

2. MANAGEMENT OBJECTIVES FOR NATIONAL PARKS

Nearly 100 years after the *Yellowstone Act 1872*, the 10th General Assembly of the IUCN meeting in New Delhi in 1969 considered the situation of the increasing use of the term 'National Park' with increasingly different status and objectives, and formalized the definition of the term. According to the definition, a National Park is a relatively large area where:

- (1) one or several ecosystems are not materially altered by human exploitation and occupation, where plant and animal species, geomorphologic sites, and habitats are of scientific, educational, and recreational interest or which contain a natural landscape of great beauty;
- (2) the highest competent authority of the country has taken steps to prevent or eliminate exploitation or occupation in the whole area and to enforce, effectively, the respect of ecological, geomorphological or aesthetic features that have led to its establishment; and
- (3) visitors are allowed to enter, under special conditions, for inspirational, educational, cultural, and recreation purposes (reported by Burdened and Radosevich, 1972, p. 264).

In 1978, the IUCN established a five-category system of protected areas to clarify the distinction between various objectives for protected areas including National Parks. The definition of National Parks remained the same as above. In 1993, the IUCN modified the classification system of protected areas into six categories and revised the definitions in order to make each more distinct from the others, as indicated Table 1.¹ In this classification system, all categories are considered equally important, but they imply varying degrees of human intervention.

Table 1. Matrix of management objectives for various protected areas.

Management objective	Category of protected areas						
	Ia	Ib	II	III	IV	V	VI
Scientific research	1	3	2	2	2	2	3
Wilderness protection	2	1	2	3	3	-	2
Preservation of species and genetic diversity	1	2	1	1	1	2	1
Maintenance of environmental services	2	1	1	-	1	2	1
Protection of specific natural or cultural features	-	-	2	1	3	1	3
Tourism and recreation	-	2	1	1	3	1	3
Education	-	-	2	2	2	2	3
Sustainable use of resources from natural ecosystem	-	3	3	-	2	2	1
Maintenance of cultural or traditional attributes	-	-	-	-	-	1	2
Categories:	Ia	Strict nature reserve					
	Ib	Wilderness area					
	II	National park					
	III	Natural monument					
	IV	Habitat or species management area					
	V	Protected landscape or seascape					
	VI	Managed resource protected area					
Priorities:	1	Primary objective					
	2	Secondary objective					
	3	Potentially applicable objective					
	-	Not applicable					

With regard to Category II, 'National Park', the IUCN defines it as a natural area of land or sea, designated to:

- (a) protect the ecological integrity of one or more ecosystems for present and future generations;
- (b) exclude exploitation or occupation inimical to the purposes of designation of the area; and

¹ The term 'protected area' is defined as 'an area of land or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means' (IUCN, 1994, p. 7).

(c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible (IUCN, 1994, p. 19).

The definition above, compared to the one it replaced, clearly states that the aim of ecosystem protection is to provide present and future human benefits. For instance, the phrase ‘environmentally compatible’ in (c) above, which was newly added to the definition, is more positive in accepting recreational uses than the phrase ‘under the special condition’ which appeared in (3) before the definition of National Park was revised in 1993. This revision reflects the increasing demand for natural resources for recreation.

In the 1993 revision, the IUCN identified the primary and secondary goals for each category. Table 1 illustrates the various mixes and priorities accorded to nine management objectives for each category. According to the matrix, National Parks are designated for three main management objectives with equal emphasis on each. They are preservation, maintenance of environmental services, and recreation and tourism. The IUCN also set the secondary and potential objectives, which include the continuing provision of environmental resources over generations for education and scientific research, and sustainable use of resources from natural ecosystem.

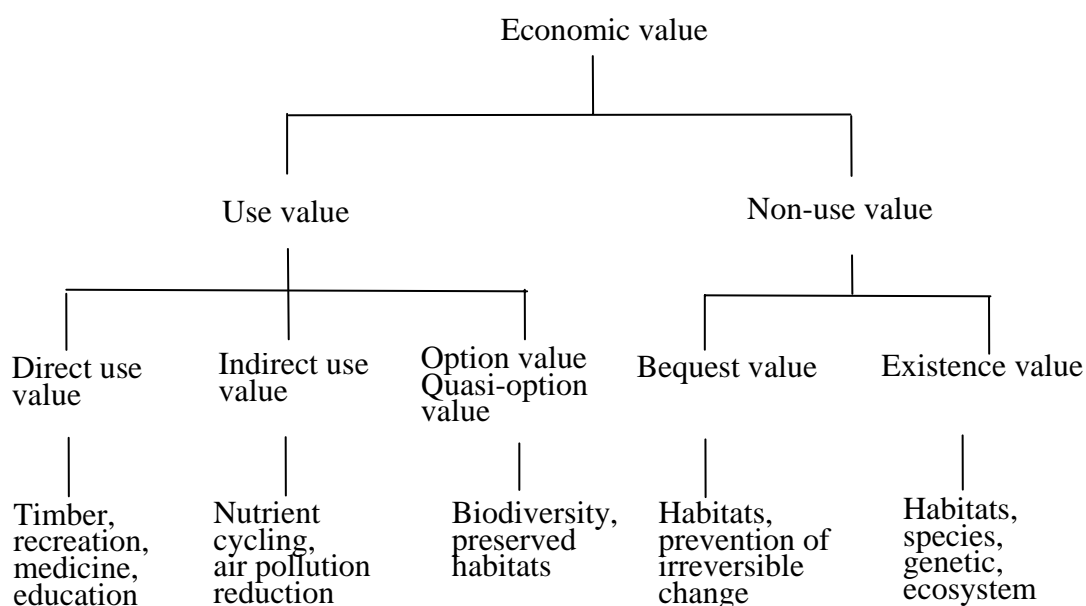
According to Loomis (1993), the idea of establishing National Parks emerged as a contrast to multiple uses of public lands. Nonetheless, the philosophy of a single dominant use – viz. preservation – has never arisen in the National Park history. Rather, the multiple management objectives for National Parks defined by IUCN are increasingly being integrated within domestic legislation by a number of countries in the world.

The management goals for National Parks set by the IUCN can be rearranged into three components, viz. preservation, conservation and public use. It can be argued that this classification sounds arbitrary in the sense that the IUCN (1994) did not use the word ‘conservation’ in enumerating the National Parks management goals. However, scientific, educational, spiritual and aesthetic uses, and some types of recreational uses can all be reduced to one category, i.e. ‘conservation’.

3. CONVENTIONAL AND ALTERNATIVE CLASSIFICATIONS OF THE ECONOMIC VALUE OF NATIONAL PARKS

There is a vast literature that discusses the topology of economic value of natural resources. The literature has usually broken the economic value of natural resources into use value and non-use value, the latter also being referred to as passive use value. The use class of economic value consists of direct and indirect, present and future use value for current generations. The non-use class of benefits falls into two subcategories, namely bequest value and existence value. Benefits of National Parks are commonly classified in line with this convention. For example, Figure 1 illustrates the use and non-use values that a National Park provides.

Figure 1. The economic value of a National Park.



Source: Adapted from Bateman and Turner (1993); Barbier (1994).

Direct use benefits of a National Park may arise as a result of recreational or withdrawal activities that occur on the forest. Examples would include the scenic beauty conferred by a natural vista or timber harvested from the forest. Indirect use benefits refer to those associated with ecological services such as carbon sequestration and water purification. Option value is defined as the potential use benefit, opposed to present use value, of an

environmental good. The value is viewed, in other words, as the willingness-to-pay (WTP) for preservation of a natural resource that will be made use of at a later date by the present generation. Bishop (1982) provided an excellent review of the evolution along with an extension of the concept of option value. It is known that Weisbrod (1964) originated this concept by proposing that many individuals expect they may possibly visit a National Park for example and are willing to pay for an option that would guarantee their future access.

Bishop (1982) extended the concept of option value with supply side uncertainty. If a risk averse consumer was certain of demanding the services of an environmental asset in the future and uncertain about its future availability, there exists a positive option value. That is, the maximum WTP to avoid the risk to the supply of the environmental resource is larger than the expected loss. This concept is grounded on the fact that an individual will be willing to pay more than the expected consumer surplus in order to ensure that he or she can make use of the environmental resource later on. Edwards (1988) reported empirical evidence of positive option value from a study of households' WTP to prevent uncertain future nitrate contamination of groundwater in Cape Cod, Massachusetts. Bishop noted that option value ceases to exist in the case of supply side certainty.

Quasi-option value is present when there is uncertainty about future availability of a natural resource given some expectation of the growth of knowledge about natural environments. In particular, the value of additional information about goods subject irreversible changes is of importance (Mitchell and Carson, 1989). For example, there are uncertain benefits for scientific purposes from the preservation of a tropical forest, but these benefits could become more certain through time as information is accumulated about the uses to which the forest habitat can be put (Pearce and Turner, 1990). Arrow and Fisher (1974) originally introduced the concept of quasi-option value in the context of an irreversible development decision. Quasi-option value is always positive if the expected increase of information about a natural resource is independent of a proposed development of the environmental asset. In contrast, as Freeman (1984) argued, if the uncertainty is primarily about the benefits of development, this strengthens the case for development. That is, the quasi-option value of preserving options is negative.

Krutilla (1967) argued that many persons may be willing to pay for the satisfaction derived from knowledge of the bequest of unique environmental resources to future generations.

Thereafter, bequest value is often defined as the benefit accruing to current generations from knowing that future generations will benefit from the resources. This concept takes a strong stance for intergenerational moral duty so as to prevent future sufferings from environmental degradation.

Pearce and Turner (1990) defined existence value as a value placed on an environmental good and a value that is unrelated to any actual or potential use of the good. Solow (1993) supported the view that particular landscapes or species have to be preserved for their own sake because they are intrinsically important to preserve. Expectedly, existence value is often recognized on the basis of ecocentric value orientation that nature has the right to exist for its own sake, and destruction of species and wilderness is intrinsically wrong. In fact, the concept of existence value becomes confusing when it is mixed with that of intrinsic value of a resource. The non-market valuation literature, based on neoclassical economics, often resorts to the term 'economic value' to avoid the confusing use of the term 'existence value' (Lockwood, 1999). The underlying idea is that no objective existence has strictly intrinsic value; all values in objects are extrinsic only. Further, even intrinsic value is a human value as long as the value depends on human beings, because without humans valuing nature there would be no value (Lewis, 1962; Brennan, 1988). Mitchell and Carson (1989) viewed the term 'intrinsic' as being contradictory to the term 'economic' and argued that intrinsic value cannot be part of economic value. In the same context, Bateman and Langford (1997) clarified that existence value is a human value whereas intrinsic value is a non-human value, which cannot be estimated.

Economic value, which is tantamount to anthropocentric value, covers bequest value and existence value as well as use value, as depicted in Figure 1. There is, however, considerable disagreement in the literature regarding the typology of economic value attributed to non-market environmental assets. For example, Bateman and Turner (1993) regarded recreational use value as indirect use value whereas Mitchell and Carson (1989), Barbier (1994), and Pearce and Moran (1995) classed it as direct use value. As Walsh *et al.* (1984) pointed out, bequest value in fact clouds the distinction between option value and existence value. Randall and Stoll (1983) and Mitchell and Carson (1989) treated bequest motives as a source of existence value. As Bateman and Turner (1993) noted, however, bequest value is often considered as an intergenerational option value as far as it is motivated by concern for

potential use value. Mitchell and Carson (1989) divided existence value into two subcategories, namely stewardship and vicarious consumption. Stewardship value is generated from a desire to see public resources used in a responsible manner and conserved for future generations. Stewardship value may belong in the class of option value in Pearce and Turner's (1990) sense. A person can view countryside indirectly or through media such as photographs and TV programs. The experience can be expressed as a form of use value. To some extent, the person can gain pleasure from knowing about the enjoyment of other people, via wildlife TV programs and photos. In some economics literature, this kind of benefit is known as 'vicarious' value. Vicarious value may be related to an intra-generational option value. In practice, it may be difficult to distinguish the motivation behind vicarious value from the individual's own indirect use.²

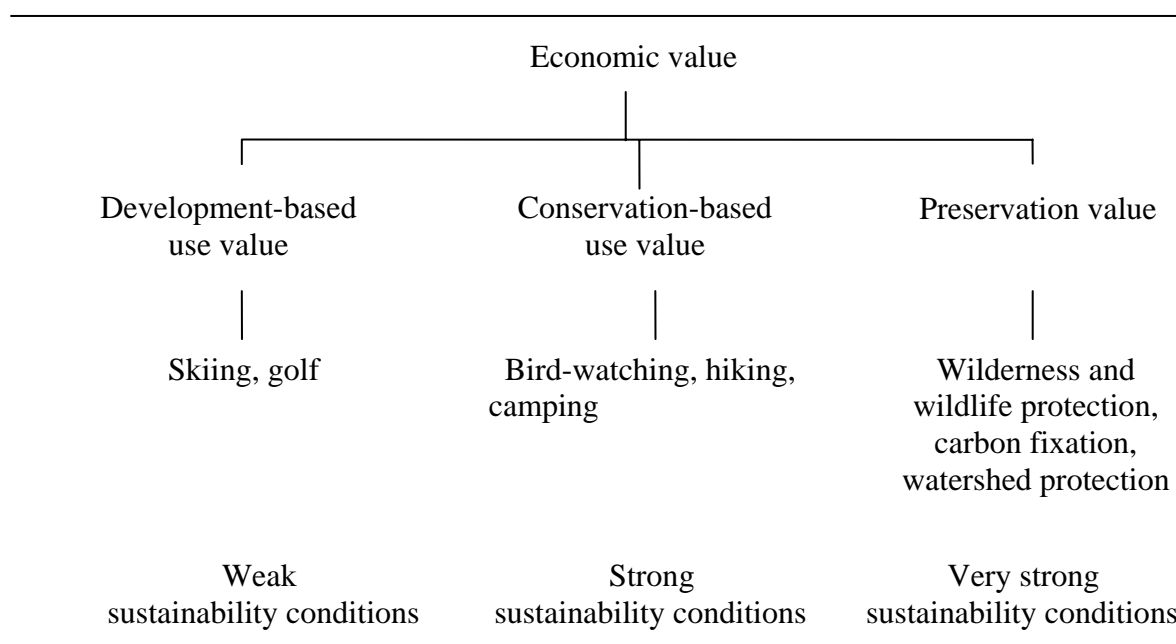
Some authors have indicated that the economic benefits of natural resources could be grouped in a different way. Greenley *et al.* (1981) and Walsh *et al.* (1984) came to the view that a single category – i.e. preservation value – can cover option value, bequest value and existence value. Cutter *et al.* (1991) suggested that benefits regarding natural resources could be classified along a spectrum from exploitation to conservation to preservation. They defined exploitation as the complete and maximum use of a resource for individual or social gain in the short-term; conservation is the wise utilization of a resource so that use is tempered by protection to enhance the resource's continued availability; and preservation is the non-use of a resource by which it is fully protected and left unimpaired for future generations. In the same token, Bateman and Turner (1993) suggested that all the value components be sorted into development benefits and conservation benefits. They also implied that some recreational use value arising from development be classified into development benefits whereas recreational benefits based on conservation be regarded as conservation benefits. Certainly, some recreational uses need artificial facilities whereas some others do

² As a side issue, there is a debate in valuation literature (Walsh *et al.*, 1984; Mitchell and Carson, 1989) as to whether the economic value of a non-market environmental good is separable into the several components. Mitchell and Carson (1989) argued that if one assumes this is possible, the person makes an error called 'fallacy of motivational precision' – the error of assuming that respondents are aware of what motivates their value judgments to the degree of precision desired by the researcher. They suggested one may be able to obtain meaningful estimates of various types of benefits that respondents might receive from a given amenity, if each respondent is first asked to state a total WTP amount and next how much they would pay for each subcategory out of this total amount.

not. Therefore, a distinction should be made between development-based use value and conservation-based use value. Economists have not paid appropriate attention to this issue. Putting all these suggestions together, the economic value of National Parks can be divided into the categories of preservation value, conservation-based use value and development-based use value.

This alternative way of classifying the economic value of a National Park is illustrated in Figure 2. The categories employ the terms used in the everyday speech of laymen. Most importantly, these value classifications correspond with management objectives for National Parks as espoused by IUCN. Thus, it can be said that the economic value of a National Park is conceptually equivalent to the integrated social value placed on management objectives for the National Park.

Figure 2. Alternative classifications of the economic value of a National Park.



Preservation relates to long-term economic value whereas conservation and current intensive use relate to medium-term and short-term economic value, respectively. The categories also reflect a spectrum of sustainability views about the extent to which weak or strong conditions should be imposed to achieve sustainable use of resources in natural ecosystems. Some may suggest that weak conditions on the use of natural resources will suffice whereas others believe very strong restrictions must be imposed (Pearce *et al.*, 1993; Tisdell, 1999; Ayres *et al.*, 2001). People who advocate the weak conditions may take some

loss of environmental assets for granted so long as any loss can be offset by increasing the stock of roads or other social capitals. A very strong sustainability view such as ecocentrism, on the other hand, would stress that human beings should leave natural ecosystem intact. Thus, it can be said that those who place more stress on development-based uses will favor weak conditions for sustainability. In contrast, preservation value is associated with a very strong sustainability philosophy.

4. COEXISTENCE OF CONFLICTING NATIONAL PARK MANAGEMENT OBJECTIVES

The categorization presented in Figure 2, relative to that of Figure 1, more clearly reveals that the economic value of National Parks is not the additive sum of the component values of the public goods, because of incompatibility between the value categories. That is, value linked with each of the management goals for a National Park would not positively contribute to the economic value of the natural asset at the same time because of the trade-off relationship between the goals. For example, to the extent that conservation-based use of a National Park is mutually exclusive of development-based use, benefits arising from each of these uses tend to cancel each other. Some people in some African countries may place value on harvesting or hunting elephants in their natural habitat, while another values viewing the elephants.

It is notable that debates between preservationists and conservationists in literature are no less fierce than those between preservation and development. Passmore (1974) discussed the comparative connotation of preservation and conservation. He considered that 'to preserve' is to save species and wilderness from damage and destruction. By wilderness, Passmore meant what human beings have not created and what people have not yet destroyed. Preservationists would represent concerns to protect biological diversity from simplifying effects of human management, and to exclude disruption between activities in specified areas. On the other hand, 'to conserve' is to use wisely resources in such a way that use is tempered with the goal of maintaining their future availability or productivity. Conservationists are concerned in most cases about a duty to posterity. Conservationists emphasize the necessity of nature for

human beings' economic purposes whereas preservationists argue that nature has to be preserved for its own sake. Barbier (1991) came to the parallel view that the distinction between preservation and conservation is important: preservation would be formally equivalent to outright non-use of, say, a forest resource, whereas conservation may involve limited uses of the forest consistent with leaving the original natural forests and ecosystem broadly intact.

Preservationists appeal to established moral principles and criticize the materialistic attitudes of conservationists. Pearce and Turner (1990, p. 312) stated that 'many preservationists feel that conservation as a compromise between development and preservation gives too much ground'. According to Cutter *et al.* (1991), the battle between preservationists and conservationists in fact emerged from the early period of the National Park history in the USA. John Muir, who was a strong preservationist and founded the Sierra Club in 1892, fought with a conservationist, Gifford Pinchot, over the preservation of Hetchy Hetchy Valley adjacent to Yosemite Valley in the Sierra Nevada. Hetchy Hetchy was a convenient source of water for the growing city of San Francisco and an excellent dam site. Pinchot believed in conservation for maintenance of the productive capacity of natural resources and claimed that to prevent development was contrary to the notion that resources could be used for general benefit of the population.

The preservation versus conservation debate equates with ecocentrism versus anthropocentrism (Norton, 1986). The key question in the ecocentrism–anthropocentrism debate is ecological justice, which concerned with responsible relationships between humans and non-humans (Low and Gleeson, 1998). Anthropocentrism delivers a notion that nature is valued for the value it has for human beings. In contrast, ecocentrism puts humankind within nature, as part of natural ecosystems; human beings must contribute to the stability and mutual harmony of the ecosystems from the ecocentric viewpoint. Moreover, deep ecologists (e.g. Naess, 1984) view that nature has the right to exist independently of the wishes of human beings. Ecocentrism has been part and parcel of the lesson of Darwin's evolution theory that human beings are one with all the other species, not one created in the image of

God (Worster, 1995; Hayward, 1998).³

Many critiques (e.g. Hayward, 1998) contended that the usage of both terms ‘ecocentrism’ and ‘anthropocentrism’ is often misleading and confusing in practice. In particular, the underlying attitude of ecocentrism has been challenged for its dualism. Ecocentric camp argues that human beings should not plunder, exploit and destroy natural ecosystems because in so doing they are destroying the biological foundation of their own life. That is, the very human motives do justify the protection of species and natural systems (Leopold, 1979; Soper, 1995). Norton (1986, pp. 213-214) came to the view that respect for nature does not require non-anthropocentrism, and that ‘non-anthropocentrism is sufficient, but not necessary, to support preservationism’. Also, Sterba (1994) argued that non-anthropocentrists would probably agree on ‘the principle of human self-defence’ that a defending action for oneself and other human beings against harmful aggression is permissible even when it necessitates killing or harming animals or plants, because human beings are not inferior to other species. It can be seen that it is not humans *per se* but rather human-centeredness that is criticized the ecocentric camp (Fox, 1989). Of course, anthropocentrism literally refers to human-centeredness. However, it is unobjectionable and not ethically wrong that human beings should be interested in humankind. Moreover, human-centeredness may be desirable from the perspective of ecocentrism to the extent that self-love can be regarded as a precondition of loving others (Hayward, 1998): a positive concern for human well-being does not automatically preclude a concern for the well-being of the rest of the natural world, and may even serve to promote it. Indeed, anthropocentric standpoint shares some elements of ecocentrism in the sense that no anthropocentrist would reject the fact human beings can

³ Ecocentric perception of nature is not unique to a particular community or was prevailed at particular times. Heraclitus of Ephesus in ancient Greece taught that human beings are a part of the interwoven living totality of nature (Cloudsley, 1995). Ancient Chinese Taoism leans towards a holistic worldview. It stresses that humans need to put themselves in respectful harmony with whatever exists (Capra, 1977; 1983). Jewish talmudic law, *bal tashchit* (meaning ‘do not destroy’) has often been quoted in demonstrating Jewish attitudes to the environmental crisis (Schwartz, 1997). Passing to current Latin America, Mexican modern industrialization has taken off under the doctrine of *ecodesarollo*, which means ‘development without deterioration’ (Graham, 1991). Native Canadians in the Okanagan region in British Columbia believe that their body is a piece of the land and that the soil, the water, the air and all the other life forms contributed parts to be their flesh (Amstrong, 1996). There are examples of eco-villages that carry on economic activities in harmony with nature around the world. For instance, about 100,000 Ladakhis in India along the Himalayan border with China still remain with their way of life fitted in with the forest, not threatening the balance of the ecosystem in accordance with their Buddhist economics (Bunyard, 1984).

never be free of the nature of nature. In sum, one should avoid the temptation to divide people neatly into an ecocentric camp and an anthropocentric camp (Pepper, 1984).

5. SUMMARY AND CONCLUDING COMMENTS

National Parks provide a variety of benefits such as recreation opportunities, watershed protection, wilderness, and wildlife habitat. The recreational experience of wilderness can be recognized as probably the highest valued service provided by natural forests. However, promoting tourism is not the sole primary role of National Parks. Nor is the preservation of species biodiversity or the provision of a rich natural resource, which permits scientists, educators and the community at large to meet their various needs. Inherently, the debate over management goals for National Parks often centers on how to strike a balance between leaving areas in their natural or near-natural state, and developing and exploiting them. The economic rationale of having multiple objectives of National Park management is that the economic benefits of various objectives would be greater than the benefit from any single objective. However, it should be recapitulated that the primary concern of National Park management authorities would not be maximization of the economic value of a National Park as a whole. Rather, the conceptual and physical compatibility between the management objectives should be the central issue of National Park management.

Preservation value embodies the welfare of particular species and whole ecosystems, but ultimately appeals to human welfare. It is not possible to eliminate anthropocentric element from nature protection motives. Stated another way, preservation value may stem from altruistic motives such as sympathy, responsibility and a concern about the state of the world that some people may feel towards non-human objects, but the value is still anthropocentric and does not reveal the value independent of human wants. In this sense, economic value categories in Figure 2 do not represent the total value of environmental resources. Undoubtedly, the economic value of a specific environmental change represents only part of total value of the environmental change because there might be some values that cannot be captured in monetary terms. These are of value in themselves and not for human beings, i.e. values that exist not just because individual human beings have preferences for them. However, a manifest distinction should still remain between preservationists who argue to

stop all use or development of some valuable areas and resources, and conservationists who encourage careful husbanding of resources yet do not condemn their use. The concept ‘conservation’ could easily lead to substantial modification, domestication and possibly even destruction on natural environment.

This paper demonstrated how the IUCN classification of National Park management objectives links with the economic value of a National Park. Although one does not have to follow the IUCN classification, a number of countries in the world are increasingly adopting the National Park management philosophy embedded in the multiple management objective system. The fact is that conflicts are rampant not only between the management objectives, but also within the same objective category. For example, there are many different types of recreational activities ranging from conservational use to intensive use that can take place in a National Park. The material integrated in the article is not aimed to resolve use conflicts, but to clarify that the corresponding economic value of each of National Park management objectives is not the additive sum of the component values of the public goods, because of incompatibility between the value categories. The classification often illustrated in the literature as in Figure 1 has widespread a misconception that each individual economic value category of a National Park additively counts towards the total economic value.

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