

辯論

Discussion Paper

THE CHALLENGE IN CONSERVATION OF BIODIVERSITY: REGULATION
OF NATIONAL PARKS IN CHINA AND SOUTH AFRICA IN COMPARISON

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ABSTRACT

Due to the increasing depletion and extinction of the world's biodiversity, it has become a vital process among the global community to protect the environment and safeguard natural habitats and thousands of species. In developing countries like China and South Africa, factors like the growth and development of urban and rural spaces, industrialisation, high population growth and agriculture activities have added extra pressures to the countries' biodiversity and natural environment. For this reason, there has been an increase in the number of protected areas established, especially national parks, that are firstly established to protect biodiversity and secondly, established for education and recreation.

China, known as one of the "17 megadiverse" countries in the world, is home to a large percentage of the world's biodiversity. Due to factors such as development, industrialisation as well as a high population growth in recent decades, much of the country's biodiversity has been harmed or threatened. Similar to China, South Africa has some of the richest biodiversity in the world, also threatened by both natural causes and human-made factors. For this reason, protected areas such as nature reserves, botanical gardens, scenic landscapes, historical areas and national parks have increasingly been established. Although China has an established nature reserve system as well as regulation thereof, the national park system in China is in its early developing phase, with national parks only having been established in one province. South Africa on the other hand has an older and established national park system, with 22 national parks regulated and managed around the country by SANParks as well as the Department of Environmental Affairs. Because national parks are considered public spaces, they have been regulated, in order to properly protect and manage the parks and the species within them.

This study looks at the way China and South Africa have attempted to regulate and manage national parks. Regulation and management of parks are important as parks need to uphold the laws and policy on biodiversity conservation and environmental protection. This study thus looks at how national parks have come to do this in two countries with very rich biodiversity, high tourist numbers and development taking place, in some instances at a rapid pace.

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CCS discussion papers should contribute to the academic debate on China's global rise and the consequences thereof for African development. We do therefore explicitly invite scholars from Africa, China, or elsewhere, to use this format for advanced papers that are ready for an initial publication, not least to obtain input from other colleagues in the field. Discussion papers should thus be seen as work in progress, exposed to (and ideally stimulating) policy-relevant discussion based on academic standards. The views expressed in this paper are those of the author.

List of Abbreviations and Acronyms

CPPNE	Cape Peninsula Protected Natural Environment
CBD	Convention for Biological Diversity
CCICED	China Council for International Cooperation on Environment and Development
DEA	Department of Environmental Affairs
GKG	Gaza-Kruger-Gonarezhou
IUCN	International Union for the Conservation of Nature
KNP	Kruger National Park
KTFP	Kgalagadi Transfrontier Park
NBSAP	National Biodiversity Conservation Strategy and Action Plan
NGO	Non-governmental organisation
NPMO	National Park Management Office
ROPGYP	Research Office of the People's Government of Yunnan Province
SANParks	South African National Parks
TMNP	Table Mountain National Park
TNC	The Nature Conservancy
UNESCO	United Nations Educational, Scientific and Cultural Organisations
US	United States
WWF	World Wildlife Fund

1. INTRODUCTION

“Parks reflect a nation’s desire to preserve for generations unborn its floral, faunal, and landscape diversity, as well as elements of its national and cultural heritage. In a world of rapid environmental change, parks and protected areas ideally represent islands of stability – places where environmental changes are dictated by the rhythms of nature rather than by human demography and economic demands” (Wright, 1996: 3).

The increase in depletion and extinction of the world’s biodiversity has led to a greater interest from the global community to protect the environment and safeguard natural habitats and thousands of species. In developing countries like China and South Africa, factors like the growth and development of urban and rural spaces – with negative effects of industrialisation on the environment – as well as high population growth have added extra pressures to both countries’ biodiversity and natural environments. For a number of reasons, protected areas like national parks have become increasingly important. Besides the conservation value of national parks, they are also a place for activities such as education, tourism and relaxation.

In China, a country with one of the richest and most diverse biological regions (it is also known as one of the 17 mega-diverse nations in the world), many threats have been identified, causing a serious loss of biodiversity. A particular challenge to biodiversity in China has been development - a great amount of industrialisation has taken place alongside a fast development growth path in recent decades. The impacts of this have been immense, especially on the country’s biodiversity. Factors like air and water pollution, as well as extensive land use through agriculture activities (this due to the high population growth) have all been instrumental in the extreme loss of the country’s biodiversity and natural habitats. In some instances, many of the challenges facing China’s biodiversity can be witnessed in similar cases in South Africa’s biodiversity. In the Western Cape region of South Africa, where the Table Mountain National Park (TMNP) is situated, the park has to deal with an expanding and developing city around it. What is significant here, is the fact that Cape Town and other parts of the Western Cape has very rich biodiversity and ecological resources, especially in the form of fauna and flora, thus just like in parts of China, these particular species face increasing threats both natural and human-made.

Although they face similar challenges, there are differences however in the two countries approach to environmental protection. With a fast development growth path in the last two decades, it has only been in recent years that the Chinese government has improved on its environmental policy. With a focus on economic development, environmental factors took a backseat in China. Moreover, although China has a somewhat old nature reserve system, environmental protection in the form of protected areas like national parks have only recently been established, while South Africa has a long history of protected areas such as nature reserves and national parks. National parks have a crucial role in the protected areas system in the world, as they not only provide a tourist attraction but also important environmental protection services for the natural growth and life of ecological processes and habitats. For this reason, this study focuses on national parks as protected areas in China and South Africa, their roles in conservation, and the implementation of regulation in light of current challenges as well as the special case of tourism.

Regulation and management of parks are critical as parks need to uphold the laws and policy on biodiversity conservation and environmental protection. Most national parks, like other protected areas such as nature reserves and national heritage sites, fall within the laws and regulations of the state. Their regulation is important as these areas are essential for the

conservation of a country's biodiversity. Moreover, laws and regulation on biodiversity conservation ensure that the proper management of the parks are ensured. This paper looks at where China can learn from South Africa as well as vice versa in terms of protected areas and dealing with current challenges.

This paper examines how China and South Africa have come to regulate and manage national parks, being two countries with very rich biodiversity, high tourist numbers and development taking place at a rapid pace. This research is important for the building of knowledge in environmental protection. With the increasing loss of biodiversity globally, more and more ways of protecting these precious resources will become necessary, and one of the ways of doing this has been the establishment of protected areas, especially national parks. China and South Africa are important for this study as both countries contain some of the richest biodiverse areas in the world. Moreover, both countries are becoming increasingly important for ecotourism, thus this, together with other challenges, is important to explore and discern ways or areas where challenges can be addressed, one of which is the proper regulation and management of national parks.

Understanding South African regulation will be important for China's engagement with South Africa, be it investment or tourist management, while the knowledge of Chinese domestic regulation is expected to be useful for policy-implementation in African states. South Africa has a long history of protected areas especially that of national parks. National parks have been successfully established all around the country for a long time. Moreover, the regulation and management of national parks in South Africa has also been institutionalised with one body, SANParks, managing all national parks while the Department of Environmental Affairs regulates them. This could be an important learning area for the Chinese where regulation is still lacking in terms of national parks. With this comparative approach, higher degrees of protection in one or the other side of Sino-African relations can be detected. This can lead to the identification of good practice, and will elucidate the level of experience with national parks and special conservation areas of investors from China.

The targeted groups for this study are South African and Chinese authorities on environmental affairs as well as the authorities involved in the national parks system in both countries. Because the aspects of regulation and management of national parks in South Africa and China are largely under-researched, this project could benefit conservationists and national park stakeholders in the implementation of regulation. The limitations of this study are to be found in the yet missing field work in China. While field work and interviews with key people in the South African national park system has taken place, interviews have yet to be done on the Chinese side. Further limitations have also been found in finding or accessing information in China on this subject as the national park system is relatively new in that country.

As a starting point, the increasing depletion of the world's biodiversity, as well as the threats of development and industrialisation on the world's biodiversity is discussed. The second part of the paper briefly discusses the various types of conservation regimes or protected areas, the history of national parks as well as its importance and use for ecological conservation. The third part of this paper examines the primary case study, China, by discussing the country's biodiversity challenges as well as its protected areas system. It further examines the regulation of protected areas and national parks. The case of South Africa's national parks system is then discussed in comparison to China, further exploring a case study of Table Mountain National Park. The final section of this paper is the concluding section, where findings of the paper are summarized and recommendations are made.

2. SQUARING THE CIRCLE: BIODIVERSITY, DEVELOPMENT, CONSERVATION AND TOURISM

“Biodiversity is the variability among living organisms including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. It includes diversity within species and diversity of ecosystems,” (Article 2 of the 1992 Convention of Biological Diversity quoted in Birnie et al, 2009: 588).

From the description above, biodiversity is the variability of life in all its forms (Birnie et al, 2009: 588), and conserving biodiversity is essential to sustaining the “living networks and systems that provides health, wealth, food, fuel and the vital services life depend on” (Rands et al, 2010: 1298). According to Halvorson, “conserving or preserving biodiversity does not mean simply maintaining a given number of species on a particular plot of ground, rather, it is ensuring that each of these species continues to play its unique role in the ecosystem” (Halvorson quoted in Wright, 1996: 17). Globally biodiversity is threatened due to a variety of factors: habitat loss, invasive alien species, over-harvesting, pollution, climate change as well as urban and rural development, industry, mining and agriculture. Thus biodiversity has continued to lose many species (Rands et al, 2010: 1299). The increasing rate of the depletion and extinction of the world’s biodiversity has become an important issue for many involved in the conservation of the world’s natural environment. According to Lohmborg (2007: 207), the world loses “something in the region of 40 000 species every year, 109 a day.” The same author further suggests that it is “estimated that more than 95% of all species that have ever existed are now extinct” (Lohmborg 2007: 210).

DEVELOPMENT – SPECIAL CONSERVATION CHALLENGES FOR DEVELOPING COUNTRIES

One of the most important threatening factors on the world’s biodiversity, as listed above, has been the impacts of development and industrialisation. In the process of developing infrastructure or the construction of buildings and urban areas etc, as well as agricultural activities, many species have been lost, due to the damage development takes on the natural land as well as the depletion of a variety of species and their habitats. According to Viss and Shelton (2004: 354), extinction of species can be directly linked to the phenomena of industrialisation, urbanisation, desertification, the disappearance of forests and rainforests, and the human population explosion. Industrialisation for one has led to much air and water pollution, further harming the natural environment. Natural resources required for production that has been affected by pollution can no longer be used in agriculture (Shaw, 2012). Mining activities also takes its toll on the environment, often with damaging effects on the biodiversity surrounding the mine. Agriculture also further contributes to the depletion of natural ecological systems. Cultivation of single products over the large areas replaces the diverse richness of the environment (Viss and Shelton, 2004). Thus development, in its many forms, has become an enormous challenge for environmental protection and the conservation of biodiversity.

“The massive growth in world population and changes in lifestyle brought about by economic growth and technology in the past century, whether in developed or developing states, have greatly increased demands on these resources, and led to accelerating degradation and loss of nature, natural resources and biodiversity” (Birnie et al, 2009: 589).

In recent decades, the rapid development growth path in the major emerging economies such as China, Brazil, Russia and India has been accompanied by severe environmental degradation (Shaw, 2012). Past development and industrialisation that took place in the currently developed regions such as Europe however had phenomenal and irreversible impacts on the biodiversity in those regions. “Extinction of species, although part of the natural order, has reached alarming proportions since the beginning of the industrial revolution” (Viss and Shelton, 2004: 353). For example, throughout the nineteenth and early twentieth century at the peak of industrialisation, smog was a huge problem in London, causing serious amounts of pollution and believed to be responsible for numerous deaths (Shaw, 2012). Enormous damage was done to air and water systems as industrialisation progressed. At the time, efforts to address the environmental consequences for growth “often waited until wealth was sufficiently high and technology sufficiently advanced to achieve cleaner production at minimal costs” (Shaw, 2012). Presently, this can be seen happening again in developing states as they too attempt to grow their economies, with damaging impacts on the natural environment and biodiversity.

According to Shaw, rapid growth in Brazil, Russia, India and China has dramatically reduced poverty and provided essential support for the global economy during the recent financial crisis (2012). However he further notes that those countries are “repeating the past mistakes of advanced countries, where industrialisation was accompanied by severe degradation of the environment that was not seriously addressed until relatively high income levels were reached” (Shaw, 2012: 1). An example with critical international implications is climate change. The BRICs have increasingly become responsible for global carbon emissions (Shaw, 2012). In China, more than half the country’s cities are affected by acid rain and 40% of major rivers are so polluted that their water can only be used for industry or landscaping (Shaw, 2012). Many towns and urban areas, especially in developing countries are still grappling with the challenge of how to put in place climate change strategies thus natural landscapes and ecosystems have been greatly altered or damaged because of the impacts of climate change (Anonymous, 2011).

In addition, urban development has also led to further impacts on the natural environment and, specifically, biodiversity. With the development of cities and urban spaces, one finds more people moving to those areas and consequently putting more pressure on the environment and ecosystems. In the case of China as well as South Africa, people from the rural areas go looking for employment opportunities in the cities. This rural migration leads to a high population growth in the urban areas which in the end, leads to more pressure on the land. Also, because of the high concentration of people and the high level of economic activity that takes place, cities are where most of the pollution emanates from (Clos quoted in Anonymous, 2011). Thus, “the world’s cities which now collectively accommodate half of the world’s population account for 70% of the green house gases released in the world’s atmosphere” (Anonymous, 2011). According to Viss and Shelton, “the immediate causes of biodiversity loss mask economic and social factors, from population growth to lack of economic incentives to conserve natural resources” (2004: 354). Thus developing countries have continued to industrialise and grow their economies, causing even more threats to biodiversity. For this reason, protected areas are vastly needed, where the biodiversity at least finds niches for survival. Protected areas according to Dudley are essential for biodiversity conservation (2008: 2) as they aim to “maintain the benefits

provided by natural ecosystems, or in some cases long-established manipulated ecosystems, which cannot be replicated in intensively managed landscape” (Stolton, 2010: 2).

According to Rands et al, although 12% of the land surface on earth is protected, only 0.5% of territorial seas have been so designated. More than two-thirds of critical sites for biodiversity have incomplete protection or none at all (2010: 1300). In South Africa, about 6.5% of land is protected, with 9.1% of marine in-shore, and 0.16% of marine off-shore areas declared as ‘no-take’ zones. SANParks (2010: 10) suggests, despite these conservation efforts, the world continues to lose biodiversity and species are disappearing much faster than the natural rate. In response to the growing threats on the world’s biodiversity and the vital need for these resources, the global community established the Convention for Biological Diversity (CBD). The CBD committed to expanding the world’s protected area network, aiming to develop and maintain “comprehensive, effectively managed and ecologically representative systems of protected areas” (CBD, 2004 quoted in Stolton, 2010: 9).

Box 2.1: The Panda – China’s best known conservation effort

For many working in conservation around the world, the Chinese indigenous mammal, the Panda, is probably the most well-known and powerful symbol for species conservation. The Panda has been the World Wildlife Fund’s (WWF) symbol since 1961 when the organisation formed. Considered an endangered species, panda conservation has been undertaken by the WWF since 1980, when many mountainous bamboo habitats were lost due to the degradation from timber logging. The Chinese government banned logging in the Panda’s habitat in 1998 and by mid-2005, over 50 panda reserves were established, protecting more than 10 400km² and over 45% of remaining giant panda habitat, leading to timber demands from elsewhere (including Gabon and Cameroon) (Grimm 2011, as argued by Kaplinsky et al, 2010: 319). Habitat destruction however has continued to pose a threat to the pandas living outside of reserves. According to the WWF, currently only around 61% of the population, or about 980 pandas, are under protection in reserves. Moreover, other major factors contributing to habitat loss and fragmentation has been the conversion of forests to agricultural areas; medicinal herb collection; bamboo harvesting; poaching, and large-scale development activities such as road construction, hydropower development, and mining.¹

CONSERVATION/ PROTECTED AREAS AND BIODIVERSITY

The growth in the number of protected areas around the world has been significant since the 1960s (Terborgh and Van Schaik, 2002: 9). The increasing amount of threatened biodiversity has led to an increase in the number of protected areas, this in the form of botanical gardens, nature and wildlife reserves, historical sites and national parks. These protected areas are for the purpose of environmental conservation – protecting the biodiversity of areas where a variety of species, fauna and flora or wildlife can live in their natural state without disturbance or external threat. With the recognition in recent years of the loss of natural values such as “wilderness, biodiversity, and ecological service,” by human society, awareness has been further set in motion and thus the value of protected areas have become more recognised or even redefined in some quarters (Wright, 1996: 13).

¹ WWF, 25 January 2012

Conserving or preserving biodiversity no longer means just maintaining a “given number of species on a particular plot of ground,” but rather has come to mean “ensuring that each of these species continues to play its unique role in the ecosystem” (Halvorson quoted in Wright, 1996: 18). According to the broader definition of conservation given above, only relying on zoos and/or botanical gardens to maintain a species only ensures the genetics maintenance of a few individuals (Halvorson quoted in Wright, 1996), while areas like national parks could ensure the growth of species, also in their natural habitat. For this reason, conservationists have concluded that managing the landscape for the greatest good of the greatest number of people requires protected areas like national parks and nature reserves, as well as more “ecologically sensitive management of the landscape” (Wright, 1996: 20). Protected areas have become important and necessary for the protection of entire ecosystems and the safeguarding of vital ecosystem services. Protected areas are no longer only a lifeline for rare or endangered species. They provide a space where species may live and grow together in their natural habitats. Moreover, according to SANParks, protected areas also serve a purpose of acting as a buffer to the impacts of extreme weather events, such as floods and storms, thus further potentially limiting the spreading of diseases. Protected areas further act as reserves that aid the recovery of over-exploited resources such as marine fish stock (SANParks report, 2010: 16), In this way however, the protected areas such as national parks have thus come to play a vital role in conservation areas and safeguarding biodiversity (Rands et al, 2010: 1299).

In countries like China and South Africa, where economic development occurs on a significant scale and is likely to continue to for a long time due to social demand for economic growth and industrial development, initiatives like national parks, even in the midst of urban areas and cities will be viewed as necessary for the upkeep of the environment. As will be illustrated later in this paper, South Africa has a long history of national parks being developed in the country. China can presumably learn lessons from South Africa with regard to conservation efforts, especially since both countries are dealing with similar threats to their biodiversity and the need for more environmental protection initiatives. The question – both from the Chinese example and from Table Mountain National Park – thus remains how to continue to develop the economy without harming the natural environment? Part of the answer to that, even if not the full-fledged solution, can be found in protected areas such as national parks.

THE SPECIAL CHALLENGE OF TOURISM IN PARKS

As mentioned above, national parks exist not only for the purpose of conservation but also for the purpose of recreation and education. Social, cultural and educational responsibilities for national parks were explicitly specified in one of the clauses to the 1993 Convention on Biological Diversity, which stipulated that a national park is an area that is:

set aside for the propagation, protection and preservation of objects of aesthetic, geological, prehistoric, historical, archaeological, or other scientific interest for the benefit, advantage or enjoyment of the general public (Child, 2004: 115-116).

And, in a related clause:

... facilities shall, so far as possible, be given to the general public for observing the fauna and flora in national parks (Child, 2004: 115-116).

Protected areas often entail scenic landscapes and areas of natural beauty that are popular with the public. Parks, as Child (2004) notes, in Southern Africa are widely considered a central component of regional and national tourist industries. Clear examples of where this has led to

the viable and productive use of land for wildlife conservation include the conservancies neighbouring the Kruger National Park. Tourists from many parts of the world flock to view the land in its natural state. National parks have thus become an activity or opportunity for people to do just that. Because parks however serve a key role of protecting the environment and biodiversity, tourist activities have to be moderated or managed carefully in order to not harm the environment. According to Wright (1996: 20), “the goal of protected landscapes is to provide opportunities for the public to visit and experience natural areas in ways that enhance the local economy but do not harm the landscape’s natural, cultural and social values.” Thus national parks have become a major tourist initiative in many countries, where visitors may view natural habitats while the park continues to protect the environment.

“Biodiversity conservation has emerged as one of the more important global challenges confronting national planners, world bodies, professionals and academics” (Male et al, 2005 quoted in Zhou and Seethal, 2011: 393). Central to conservation efforts however are the protected areas, where biodiversity conservation and management initiatives are at the nexus of considerable tension, especially from tourism as argued by Zhou and Seethal (2011: 393). There are many debates in the literature regarding tourism in protected areas, with tension found between the need for recreational activities for tourists, and the need to conserve biodiversity in the protected areas (Wright, 1996; Eagles and McCool, 2004; Stolton and Dudley, 2010; Zhou and Seethal, 2011). Moreover, often the much bigger and popular national parks offer unique tourist packages to visitors thus parks take on extra development within the conserved areas. It is here where the tension lies as many believe that added pressure of recreational facilities has the potential to threaten the biodiversity that should be protected.

However, according to representatives in national parks, this tension needs careful management. According to the SANParks representative (Interview, 26 January 2012) tourism and conservation need to exist alongside each other as parks are made to be accessible to visitors. Moreover, conservation in the parks restricts high numbers of visitors. “Development does not really affect conservation – regulation limits that. There are limits to the number of cars that are allowed to enter the park (e.g. the Kruger Park), and people do get turned away” (Interview, 26 January 2012). According to the representative of the Department of Environmental Affairs (DEA), “tourism is a goal rather than a tool” (Interview, 27 January 2012). The idea is that the park should not be fenced off. People should be able to see and visit the park, while not harming it. The DEA representative also mentioned that conservation cannot pay for itself therefore tourism is necessary in parks as it contributes to the funding for the upkeep of parks. The important thing is the management of tourism and that it is properly planned as well as done for the right reasons (Interview, 27 January 2012). As a result, although parks have to be open and freely accessible to the public, one has to note that tourism can be considered a special challenge for parks, especially when they have to be carefully regulated and monitored. Later in the paper, some specific illustrations of the challenge of tourism in protected areas in both China and South Africa will be examined.

3. TYPES OF CONSERVATION REGIMES AND NATIONAL PARKS

Today, protected areas include national parks, wilderness areas, and nature and game reserves. Protected areas are defined by the International Union for the Conservation of Nature (IUCN) as: “a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values” (Dudley, 2008: 8).

One of the most important types of protected area today for conservation and recreation are national parks. National parks are described by Phillips (1988 quoted in Wright, 1996: 21) as: “comprises an extensive natural area that is protected from exploitation, protected from occupation, is the responsibility of the national government, and is owned publicly.” Under the IUCN’s category system for protected areas, the IUCN lists national parks under Category II and describes national parks as “protected areas managed mainly for ecosystem protection and recreation” (Eagles and McCool, 2002: 19). Category II protected areas are large natural or near-natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities (Dudley, 2008: 16). The primary objective of national parks is “to protect natural biodiversity along with underlying ecological structure and supporting environmental processes, and to promote education and recreation” (Dudley, 2008: 16). It is important to note that recreation is mentioned but as secondary to protecting biodiversity.

Table 3.1. IUCN CATEGORY SYSTEM FOR PROTECTED AREAS

CATE-GORY	PROTECTED AREA	DEFINITION	EXAMPLE
1a	Strict nature reserve	Strictly protected areas set aside to protect biodiversity and also possibly geological/geomorphological features, where human visitation, use and impacts are strictly controlled and limited to ensure protection of the conservation values. Such protected areas can serve as indispensable reference areas for scientific research and monitoring.	Wolong nature reserve, China
1b	Wilderness Areas	Large unmodified or slightly modified areas, retaining their natural character and influence, without permanent or significant human habitation, which are protected and managed so as to preserve their natural condition.	Serengeti national park wilderness area, Tanzania
II	National Park	Large natural or near natural areas set aside to protect large-scale ecological processes, along with the complement of species and ecosystems characteristic of the area, which also provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational and visitor opportunities.	Monastery in Montserrat National Park, Spain
III	National Monument or feature	Set aside to protect a specific natural monument, which can be a landform, sea mount, submarine cavern, geological feature such as a cave or even a living feature such as an ancient grove. They are generally quite small protected areas and often have high visitor value.	Monastery in Montserrat National Park, Spain
IV	Habitat/species management	Protects particular species or habitats and management reflects this priority. Many category IV protected areas will	Galapagos tortoise in the

	areas	need regular, active interventions to address the requirements of particular species or to maintain habitats, but this is not a requirement of the category.	Galapagos, Ecuador.
V	Protected landscape/seas cape	Where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.	Great Barrier Reef, Australia
VI	Protected landscape/seas cape	Where the interaction of people and nature over time has produced an area of distinct character with significant ecological, biological, cultural and scenic value: and where safeguarding the integrity of this interaction is vital to protecting and sustaining the area and its associated nature conservation and other values.	Great Barrier Reef, Australia

Source: http://www.iucn.org/about/work/programmes/pa/pa_products/wcpa_categories/
 Accessed: 23 February 2012

WHY NATIONAL PARKS WERE ESTABLISHED

The modern concept of a national park being a large protected area has been generally agreed upon to have originated with the establishment of Yellowstone National Park in the United States (US) (Wright, 1996). Established in 1872, Yellowstone was the United State's first national park (Davenport and Rao, 2002: 34). Yellowstone has been a model park for most national parks in the US and around the world, including the Chinese national park system. US national parks were initially developed to cater to a public eager to enjoy scenery, wildlife, and recreational activities. Facilities such as information centres, rest rooms, restaurants, and overnight accommodations as well as offering backcountry hiking and camping are provided by most national parks in the US (Terborgh and van Schaik, 2002: 8). "The key concepts of a public park open to all for benefit and enjoyment became the cornerstone of national park establishment worldwide" (Eagles and McCool, 2002: 30).

Like the US, national parks have long existed in South Africa, with the establishment of the Kruger National Park in 1898 to protect the wildlife of the South African Lowveld (SANParks Kruger profile). In 1898, the Transvaal government, under the leadership of President Paul Kruger, declared the Sabi Reserve (Eagles and McCool, 2002: 32-33). Then in 1903, the Shingwedzi Game Reserve was declared, and on 31 May 1926 in the Union of South Africa, the Sabi and Shingwedzi reserves were formally united and declared Kruger National Park. The National Parks Board (now SANParks) was established in the same year. Kruger National Park developed a significant international profile over time and is now the anchor of the nature-tourism industry in South Africa (Eagles and McCool, 2002: 32-33). Other parks were subsequently created in South Africa in the 1930s (Addo Elephant National Park in 1931; Bontebok National Park in 1931; Kgalagadi Transfrontier National Park in 1931 and Mountain Zebra National Park in 1937) (SANParks, 2004).

Apart from a few countries, the majority of the world's parkland was created in the 1960s, 1970s and 1980s (Terborgh and Van Schaik, 2002: 9). Protected areas such as nature reserves, national parks, scenic landscapes and historical sites are areas that provide a space for biodiversity to be conserved and the natural environment to grow and live without harm. National parks however can be viewed as the most important protected area as they provide, under strict control, the conservation of ecological processes and habitats. Because national parks are publicly owned,

they are monitored and regulated. This aspires to limit the consequences of human development to the protected areas to a minimum. This has essentially led to the necessity for proper management of parks.

Management of national parks is also an essential aspect to look at, as this details how parks are used, set up and how boundaries are created. Due to development taking place and the need to conserve biodiversity hotspots, many parks are found close to urban areas, thus boundaries are important to develop and manage in and around the parks. In addition, the amount of space that is given to the different areas of interest in parks also needs to be carefully managed. In the US, management of national parks is based on boundaries, even inside the parks. General Management Plans for parks in the US National Park system delineate federally owned land in the parks into three zones: natural zones, cultural zones, and development zones (Wright, 1996). The emphasis of management in 'natural zones' is to conserve and restore natural ecosystem processes. Ecological processes are relied upon to regulate wildlife populations and other aspects of the ecosystem. Where these processes have been disrupted, park managers often make an effort to restore them or to stimulate them as closely as possible (Wright, 1996: 53). The emphasis in 'cultural zones' is to conserve cultural landscapes, historic or prehistoric structures, or other cultural resources. The primary emphasis in 'development zones' is to accommodate human use. In both zones, management policies call for natural ecosystem processes to be conserved "where compatible with other resource objectives" (National Park Service, 1988 quoted in Wright, 1996: 54). This type of zoning creates a system of de facto boundaries within a national park. Conditions are often quite different on opposite sides of these boundaries, reflecting different management objectives.

This clearly illustrates that there is a need for more protected areas like national parks, which can be regulated and ensure that parks are protecting the environment in the face of factors like urbanisation and population growth. However, there will be challenges in conserving biodiversity. Terborgh and van Schaik, notes two major challenges: First, there needs to be more land dedicated to conservation (of biodiversity) – much more than is currently devoted to the purpose. And second, land that is dedicated to biodiversity conservation must be adequately protected from a whole host of erosive forces, some legal but many illegal (2002: 4). As a result, land cannot be dedicated to protected areas without the proper regulation that limits external threats (legal or illegal).

THE RATIONALE OF NATIONAL PARKS IN ECOLOGICAL CONSERVATION

At present, there has been a surge in the depletion and extinction of many species around the world. As was previously illustrated, many threats to the world's biodiversity have been found, many of them human-made. According to Van Schaik and Rijksen (2002: 15), in almost every country, unprotected land is being rapidly converted to human use, for the purpose of infrastructure (the construction of roads and buildings etc.), as well as agriculture (producing of food). As a consequence, the natural environment often suffers, with many countries establishing protected areas containing the only surviving remnants of natural habitats (van Schaik and Rijksen, 2002: 15). It was during the time of increased industrialisation in the US in the late 19th century that conservationists began to see the importance of conserving natural habitats and environmental protection. Consequently, much of the national park movement started in the late 19th century in the industrialised nations like the US and grew further in importance during the twentieth century (van Schaik and Rijksen, 2002: 15). In places like India, protection was driven by a desire to stop species disappearing, as is the case with some of the

earliest established parks there (Stolton, 2010: 2). Moreover, marine ecosystems, consisting of a myriad of species, are under increasing pressure from “fishing and associated damage, pollution, invasive species and diseases, climate change, mineral exploitation, coastal development and tourism” (Dudley and Stolton, 2010: 80). Thus the need for protected areas has become even more essential, more so in still rich-biodiversity areas of Africa and Asia. In Beijing, Shanghai and other parts of China, air pollution has also been a big concern, impacting negatively on the environment (Anonymous, 2012). In China, the Three Gorges Dam is the “world’s biggest dam, biggest power plant and biggest consumer of dirt, stone, concrete and steel” (Yardley, 2007). This development of the dam by the Chinese caused serious environmental problems like water pollution and landslides.

Although humans form part of the natural ecosystem and ecological process, which they too depend on for necessities, most protected areas are established in order to conserve the natural areas with minimal human impact. According to Eagles and McCool, “IUCN Categories I to IV involve landscapes where humans are not allowed to live permanently” while in “Categories I to III are not allowed to have a material impact on the natural ecosystems to any significant degree” (2002: 22) (see table 3.1). This inevitably illustrates the importance and significance of national parks, viewed as areas which virtually provide “the only areas on the Earth surface where natural ecosystems occur and can be studied, with minimum negative human impact” (Eagles and McCool, 2002: 22). This is ultimately the most important role of protected areas and especially that of national parks – serving a purpose in which a country’s biodiversity can be protected with minimal threats. Thus national parks are viewed as valuable all over the world for the protection of the world’s biodiversity. As Stolton (2010: 3) suggests, “protected areas are the cornerstones of national and international conservation strategies.” Acting as refuges for species and ecological processes, and providing space for natural evolution and future ecological restoration, protected areas can be viewed as “maintaining species until management elsewhere is modified to allow existence in the wider landscape or seascape” (Stolton, 2010: 3).

As a result, in many protected areas around the world and in a growing number of countries, national parks are all that remain of the natural habitat, “and are essentially the only places where any native large fauna survives” (Terborgh and Van Schaik, 2002: 5). That can be said of Ghana and several other West African countries but also of Cuba, the Dominican Republic, South Africa, Madagascar, India, Thailand, the Philippines, and several other Asian countries and other industrialised countries (Terborgh and Van Schaik, 2002: 5). Due to the increasing development of urban spaces and cities, many states are opting to preserve certain natural habitats and land by making them national parks, thus this even happens in urban areas and cities. In the city of Cape Town, South Africa (as will further be discussed), the Table Mountain National Park is situated in and around the city centre and urban areas.

The protection that national parks provide thus ensures that a variety of species are able to live and grow where the threat of external factors is lessened. As suggested by Terborgh and Van Schaik (2002: 5), “the survival of nature almost uniquely in parks is inevitable where there are no firm mechanisms in place to prevent unprotected wetlands from being converted to human use.” This means that national parks often has regulation that ensures that no harm may be done to the biodiversity in the area nor can development take place in the parks without proper planning or regulatory procedures that needs to be followed. Regulation and management is necessary for national parks due to the activities in parks such as conservation, ecological study and recreation. As mentioned before, parks are not only used for conservation purposes but also for recreation and as a tourist attraction. It is these activities inside parks that require regulation and legislation as regulation is there to uphold that the biodiversity in national parks are

safeguarded and that tourist activities are limited. “All countries that have ratified the Convention on Biological Diversity (CBD) have an obligation under Article 8 to establish representative systems of PAs. Article 7 of the CBD further requires member parties to monitor biodiversity and conservation initiatives such as PAs, and Article 17 obliges member countries to share such information globally” (CCICED, 2004).

The earliest park objective was to “protect the game” (Child (2004: 108). Because of the protective area of national parks, they were often used to protect particular species that may have been close to extinction. Initially in the 1930s, smaller parks such as the Bontebok National Park and the Mountain Zebra national park, both in South Africa, were established to protect particular species. “The need to protect representative examples of a full range of habitats developed later and with it the objective of placing at least 10 per cent of country or region under protected-area status” (Child, 2004: 112). The recovery of white rhino and elephant populations has been spectacular and several other species (e.g. bontebok, black wildebeest, mountain zebra in South Africa) on the brink of extinction in southern Africa were saved by the creation of parks (Child, 2004: 108). In southern Africa, no large mammal species has become extinct over the past century – a result largely attributed to the early establishment and maintenance of protected areas like nature reserves (Child, 2004: 108). With the further creation of national parks in Southern Africa, and especially in South Africa, the potential for the extinction of mammals have been even further lessened. National parks thus provide a space where wildlife can roam free in a protected area with minimal threat to its environment.

It must be noted however that in recent years, especially in the southern African and Asian region, but even more so in South Africa, there has been an increase in the number of rhinos being poached. As recent as 2011, there was a record number of 448 rhinos poached in South Africa, while up until February 2012, there has already been 44 rhinos poached (Anonymous, 2012). Moreover, this phenomenon has not only taken place in South Africa. In 2011, a species of Rhino, the Javan rhino, became extinct in Vietnam, so although protected areas serve a truly valuable purpose, threats from poaching has been on the increase in these areas and as a result these animals are on the brink of being endangered or even extinct (Burgess, 2011). According to Stolton (2010: 2), the earlier efforts of national parks mainly centred on preserving landscapes however recently, “recognition of extinction risk has switched the emphasis towards maintenance of species and ecosystems, and increasing efforts are made to identify new protected areas to fill ‘gaps’ in national conservation policies.” This can clearly be seen with the example of the Rhino, where especially in the Kruger National Park, emphasis has been put on the conserving and preserving of mammals, especially the elephant and the rhino.

National parks also serve a purpose for ecological conservation in that they provide a space where ecologists and conservationists may study various species in a protected area. Environmental conservation, with increasing threats, is an area that needs continuous study therefore national parks provides the space where study can occur without disturbance. Protected areas, especially national parks, serve an important and necessary purpose whereby research and scientific study can take place in the parks. Because the area is significantly protected, scientists and/or researchers are able to study a variety of species in their natural habitat. Moreover, if there is a threat on the species or area, studies can further take place without disturbance. Much research has been done on the impact of fires in the parks, which can be significantly explored. As an example of this, there is the Cape Research Centre,

established alongside the Table Mountain National Park.² This centre specifically focuses on scientific research on a number of topics in the park. The Cape Node was established to develop internal scientific capacity, mainly in the form of science programme managers and applied conservation ecologists, to serve the parks of the Cape Floral Kingdom (see box 3.2) and adjacent Succulent Karoo, the unique position of the Western Cape with regard to marine/coastal biodiversity, and the socio-economic pressures in the urban-park interface around Cape Town (SANParks). This serves a great purpose for conservation in the country as continuous study in the park without disturbance ensures, or provides, greater knowledge for science, environmental protection and conservation processes needed especially with the increasing threats to biodiversity.

Box 3.2: The Cape Flora Region

An example of how a national park provides ecological protection is the Cape Flora region in the Western Cape, a biodiversity hotspot with the biggest variety of fauna and flora in the world. The Cape Floral region is made up of eight protected areas, covering 553 000 ha. It is one of the richest areas for plant-life in the world. The Western Cape represents less than 0.5% of the area of Africa but is home to nearly 20% of the continent's flora (Anonymous, 2009). The site displays outstanding ecological and biological processes associated with the Fynbos vegetation, which is unique to the Cape Floral Region. According to UNESCO, the outstanding diversity, density and endemism of the flora are among the highest worldwide. Unique plant reproductive strategies, adaptive to fire, patterns of seed dispersal by insects, as well as patterns of endemism and adaptive radiation found in the flora, are of outstanding value to science (Anonymous, 2009). The Cape Floral region is legally protected and managed by three authorities³ who, with the national Department of Environmental Affairs and the Department of Tourism, make up the "Cape Floral Region Protected Areas World Heritage Property Joint Management Committee." As a result, protected areas, especially national parks have become essential in the protection of biodiversity and ecological processes. It ensures that species are able to live and be protected in their own natural habitats, an area that is protected, and where people may visit the park however under many regulations, where no damage may be done to the park or that which it protects.

In China, as mentioned before, the national park system is still in an early developing phase however there have been initiatives undertaken for ecological conservation via protected areas. According to McBeath and McBeath (2006: 298), one of the most concrete actions that have been taken by the Chinese state to address biodiversity conservation has been the establishment of nature reserves, forest reserves, parks and other protected areas.

The first nature reserve established in China was in 1956 (Harkness, 1998). Later, in the 1980s and 1990s, protected areas were rapidly developed. By 2005, over 2000 protected areas had been formed in China; "some are quite small, but a few compromise large areas of the land in a province or autonomous region" (McBeath and McBeath, 2006: 298-299). Altogether they

² The Cape Research Centre, home of the Cape Node, is situated in the Tokai section of Table Mountain National Park. The Cape Node, a research wing of SANParks' Conservation Services Division, was established in 2008.

³ South African National Parks, Western Cape Nature Conservation Board and Eastern Cape Parks Board

compromise 15% of China's land area. As a comparative figure, the total landmass protected in the US also accounts to 15%, including Alaska, Puerto Rico and Hawaii (U.S. Department of the Interior, 2009). According to Yuan et al (2008), 2 395 nature reserves were established as of 2006, accounting for 15-16% of Chinese territory. In this way, 85% of China's terrestrial ecosystems, 85% of its wild animal populations, and 65% of the country's wild vegetation communities are represented under the net of protected areas (SEPA, 2007). "The Chinese government deems the establishment of nature reserves as an important step to protect the environment" (GoC, 2006: 14). Questions remain about individual implementation and management.

As mentioned earlier, protected areas provide an important space for the protection of a variety of species as well as the growth thereof. In China specifically, where the biodiversity is extremely rich and one of the most diverse in the world, protected areas can serve a significant purpose. Moreover, due to the high and diverse number of threats on China's biodiversity and natural resources such as natural disasters and man-made threats such as pollution caused by development and industrialisation – protected areas are vastly needed. In addition, the kind of protected area that a national park can provide, such as in the case of South Africa, where not only tourism is allowed in the parks but first and foremost they protect the natural environment and species, will be beneficial to the Chinese system. In the case of China, because there has been a significant amount of attention been given to environmental protection in the country in recent years, the establishment of national parks could be good for the state of biodiversity in the country. Even though there are over 2000 nature reserves, as noted later, many of the protected areas in China, are used as tourist attractions and less so as spaces for the protection of biodiversity and natural habitats. China is one of the richest countries in biological resources thus national parks, would do well for the Chinese ecological processes and system. Ultimately, due to their high degree of protection, national parks would ensure that biodiversity is protected, scientific study takes place in parks without harm or minimal threat and the park can still be used as a tourist attraction.

One has to recognise that national parks are also places of recreation and major tourist attractions. All around the world, millions of tourists visit national parks in order to observe species and wildlife in their natural habitat. "Visitation at national parks is on the rise everywhere. US parks now accommodate more than 270 million visitors per year, a number equal to the entire population of the country" (Terborgh and Boza, 2002: 383). This clearly has the potential to have negative effects on parks as the heavy numbers of people visiting the park could cause damage to the environment. "Tourism has become the largest industry on the planet", and ecotourism was the fastest-growing component of the tourism industry in the 1990s (Terborgh and Boza, 2002: 383). According to Stolton, et al, by 2004, "ecotourism/nature tourism was growing globally three times faster than the tourism industry as a whole and it was predicted that by 2024 ecotourism could represent 5% of the global holiday market (Sharpley, 2006 quoted in Stolton et al, 2010: 191)." Thus in many countries, including Belize, Madagascar, Brazil, Costa Rica, Mexico and South Africa, biodiversity represents the primary tourist attraction (Christ et al, 2003 quoted in Stolton, 2010: 194) (see box 3.3).

Box 3.3: The Special Role of Ecotourism

The term ‘ecotourism’ was coined in the 1980s. Ecotourism was defined by IUCN in the 1990s as: “environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy and appreciate nature (and any accompanying cultural features – both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations” (Ceballos-Lascurain, 1996 quoted in Stolton et al, 2010: 191). The term spawned a new industry and in 2002 the United Nations declared the International Year of Ecotourism. By 2004, “ecotourism/ nature tourism was growing globally three times faster than the tourism industry as a whole and it was predicted that by 2024 ecotourism could represent 5% of the global holiday market (Sharpley, 2006 quoted in Stolton et al, 2010: 191).”

“Ecotourism is advocated in theory for its harmonious relationship between the natural and human environment. Protected areas are often being considered as destinations because of their naturalness and high-quality tourism-related resources. It is commonly perceived that ecotourism in protected areas can bring incentives necessary for their management, and has minimal physical and social impact on the visited area. The primary appeal of tourism as a conservation and development tool is that it can, in theory, provide local economic benefits and while maintaining ecological integrity through low-impact, non-consumptive use of local resources” (Stem et al, 2003 quoted in Xu et al, 2009: 30).

4. CHINA

THE SPECIAL CHALLENGES OF CHINA’S BIODIVERSITY

China is one of the world’s richest and biologically most diverse countries. Known as one of the 17 “mega-diverse” nations, China’s biodiversity accounts for an estimated 60 to 80% of all life on earth (Williams et al. 2001 quoted in Jordan, 2010). Similar to the South African case as well as many other biodiversity-rich parts of the world (most notably: Brazil, Mexico, Madagascar, Indonesia, Philippines and Australia), threats to China’s biodiversity have also been on the increase. Threats to China’s biodiversity come from several sources, some of them similar to threats in the Western Cape and other parts of the world (McBeath and McBeath, 2006). Threats include uncontrolled deforestation, desertification, overgrazing of rangelands, overexploitation and use of animal and plant resources, atmospheric pollution, poor protection and overutilization of water resources in arid and semi-arid regions, invasive plants and animals, overfishing, water pollution, and adverse effects of tourism, mining, wetland reclamation and other human activities. One may note from the range of threats to China’s biodiversity, that many of the threats stem from factors of human development as well as the need for agriculture (food production). Threats such as overgrazing of rangelands and the poor protection and utilization of water resources in arid and semi-arid regions stem from agricultural activities that are necessary for the current development of China and its high population numbers (with changing consumption patterns). The loss of biodiversity is ever more pressing in China than elsewhere, as the authors note that, “compared to a global rate of species loss of ten percent, the estimate for China is greater, about 15-20%” (McBeath and McBeath, 2006).

Due to the rapid development path of China in recent decades, much of the country’s biodiversity and natural habitats have been destroyed. Harkness notes that “unprecedented

economic growth has entailed large increases in the absolute demand for natural resources of all kinds over the past two decades” such as the rapid consumption of timber in the early reform period which led to depletion of many forest areas (1998: 914). Moreover, industrialisation, (including some agriculture sectors), further urbanisation caused by a migrating rural population, increasing consumption levels, accelerated extraction of minerals and ores, and growing air and car transportation have resulted in increases in resource use and higher pollution levels (Mol and Carter, 2007: 2), causing further harm to biodiversity. The building of infrastructure and the development of an urban environment has further led to the loss of biodiversity and natural habitats. Due to the reforms and open policies since the early 1980s, China has experienced about 8-9% economic growth per year and as a result, “urbanisation – i.e. spatial concentration of population, increase in infrastructure, and rapid economic development” – has greatly increased around the country with many impacts on the natural environment and biodiversity (Baiping et al, 2004).

One of the natural landscapes that have been vastly affected by development in China has been the mountainous areas. During 1999, China launched the “Develop the West” campaign with an emphasis on development and industrialisation in the mountainous regions. Several major infrastructure projects were launched including the “Qinghai-Tibet Railway across the Tibetan plateau and the 4000-km-long west-east natural gas pipeline (Baiping et al, 2004), and according to the same authors, “from 2000 to 2002, the central government invested some US\$ 31.3 billion in developing the west. Of this total, about 24 billion was allocated for infrastructure, 6 billion for environmental protection and over 1.2 billion for social undertakings” (Baiping et al, 2004: 204-205). Thus much harm was done to the natural landscapes, with more development having taken place than what the environment could handle. Moreover, urbanisation mostly occurred where there were beautiful landscapes, especially in connection with mountain tourism, which then developed on a considerable scale (Baiping et al, 2004: 205).

In other examples where development has affected China’s biodiversity, one can observe the case of wildlife’s natural habitats being destroyed by construction and industrialisation, as well as the impacts of pollution. A well-known native mammal, the Panda (see box 2.1) and other mammals in China are threatened by development and encroachment on their natural habitats, cutting off access to important migratory routes for feeding and breeding, and destroying necessary species and resources for life (Jordan, 2010: 44). Development and pollution has threatened their native habitats and thus endangered their movement or need to live in their natural environment. The high population growth and the increased activity in agriculture, has led to further threats to China’s biodiversity. Many of China’s most biologically diverse areas lie alongside the fertile south and south-eastern coastal areas, also home to a significant proportion of the nation’s human population. Due to human encroachment into “upstream river headlands’ and the exploitation of the rivers and coastal regions by human activity in China, the biological diversity of the areas (sea and rivers) has declined (Jordan, 2010: 42-43).

The conversion of natural habitats such as forests or grasslands to farm fields and human settlements has increased the loss of biodiversity (Harkness, 1998), however in order to sustain the populous country, agriculture has been on the increase, leading to more pressure on the country’s natural habitats. According to Jordan (2010), the threat of biodiversity loss in plant species is particularly troublesome as a number of mammals, birds, invertebrates, and other plants depend on a narrow range of plants for their primary nutrition and other needs. Similarly, humans are also dependent on a diverse range of plant life to sustain agriculture needs as well as the landscape remaining stable. In the case of China, a country with such “varied and often difficult terrain,” the great loss of such diverse flora and fauna species (trees, shrubs, and grass)

can mean more environmental damage and ecologically inconvenient occurrences (Jordan, 2010: 45). There is a further need to protect the country's natural states because the more biodiversity is ruined, the less natural states will be left. As a result, China has begun to address these challenges, with the increase in the establishment of protected areas as well as a National Biodiversity Conservation Strategy and Action Plan (see box 4.2).

CHINA'S PROTECTED AREAS AND NATIONAL PARKS

China does not have a well-established national park system; national parks are only a recent development. In the literature found on biodiversity conservation and protected areas in China, much of the literature use different names and definitions for national parks. China has an older nature reserves system, hence all of the regulation on protected areas in China refers to nature reserves, forest parks and scenic landscapes. "When one discusses the national park system, most refer to or compare parks to the nature-reserve system" (Fritz, 2009: 9). It must be noted that forest parks in China are referred to as National Forest Parks. National forest parks were established out of depleted forest areas⁴ (Wang et al, 2011). There are also debates regarding the first national park established in China. According to some authors and US-based "The Nature Conservancy" (TNC), the very first national park that followed IUCN standards established in China was the Pudacuo National Park in Yunnan province in 2005 (see box 4.1). However, according to other sources the first national park developed was the Yang Wang He National Park in Heilongjian Province (Anonymous, 2008). This park was the first official park named by the Ministry of Environmental Protection and National Tourism Administration in 2008 (Anonymous, 2008). Confusion prevails on the status of protected areas and in how far international standards are applied. There have been no national regulation developed for national parks in China yet, draft regulation has been developed for the pilot national parks projects in Yunnan province according to TNC staff (Niu, 2011)⁵.

China's park system is said to have been modelled on the US park system (Fritz, 2009). Direct interaction can especially be seen with the role of the TNC in the creation of the national park system in the Yunnan province (Zinda, 2011). TNC introduced the national park system to China as part of a partnership with the Chinese government (Haomin, 2011)⁶. The partnership included study tours for local, provincial and national Chinese government officials to such places as Yellowstone National Park and Komodo National Park in Indonesia, where they observed examples of protected-area management and learned about park design, infrastructure development and tourism management (Haomin, 2011). Table Mountain National Park also reported visits by Chinese delegations to their park (Interview, 9 March 2012). From this partnership, TNC together with Chinese officials in the Yunnan province established the Pudacuo National Park as well as other pilot projects in the province. According to Zinda (2011: 4) TNC played an influential role in promoting new conservation practices in Yunnan, China, starting in 1998. "The campaign to develop national parks in Yunnan arose from discontent

⁴ "The creation of National Forest Parks in these areas soon followed, in the hope that such parks would lead to the rehabilitation of forests; limit the erosion and flooding associated with deforestation; and at the same time, generate tourism revenue to compensate for reductions in timber harvests" (Wang et al, 2011).

⁵ Personal correspondence with author. 13 December 2012

⁶ <http://www.nature.org/ourinitiatives/regions/asiaandthepacific/china/placesweprotect/pudacuo-national-park.xml> Accessed: 21 October 2011

among both conservationists and government authorities with China's dominant protected-area models, scenic areas and nature reserves" (Zinda, 2011) It was argued that the formally strict rules of nature reserves, when consistently implemented, imposed hardships on residents. Furthermore, in practice, there were many limitations in the regulation of nature reserves on funding and the profitable economic activity disinclined local authorities to undertake effective implementation according to Zinda (2011). Also, in contrast, scenic areas were perceived to allow profitable tourism operations but had a weak conservation mandate (Zinda, 2011: 5). Thus a new system of national parks was necessary where these issues could be addressed under one protected area model.

The definition of 'national park' in Yunnan according to Zhoua and Grumbineb incorporates ideas from several models as it attempts to alleviate "the contradiction between resources conservation and regional development" found in the province (and China) (ROPGYP, 2010 quoted in Zhoua and Grumbineb, 2011). In Yunnan, the specific definition of national park closely follows this aspiration even as it also ties into the IUCN definition: "the purpose of national parks is to protect nationally or internationally significant natural resources, cultural resources, and magnificent landscapes while providing opportunities for scientific research, recreation, community development, etc." (ROPGYP, 2010 quoted in Zhoua and Grumbineb, 2011). Beyond this general definition however, three areas addressing specific circumstances for national parks in Yunnan have been identified. Firstly, parks are meant to provide "social benefits" that are "higher than those of a nature reserve" and ecological benefits that "far exceed those of scenic and historic areas" as specified by provincial documents (ROPGYP, 2010 quoted in Zhoua and Grumbineb, 2011). Secondly, administrative authority for designing park regulations resides with the province through a new National Park Management Office (NPMO), but local government park offices are authorized to run the parks and collect and distribute income from park receipts. Zhoua and Grumbineb notes that this follows the international model of park administration where central authorities set the rules and local government implements them (2011). Thirdly, NPMO documents are clear that present administrative structures in China are problematic for park operations as outlined above due to "overlapping duties, multiple leaders, and gaps between provincial and local government law enforcement authority" (ROPGYP et al., 2010 quoted in Zhoua and Grubineb, 2011).

Box 4.1: Pudacuo National Park, Yunnan Province

Founded in 2005, Pudacuo is understood to be China's first national park (Fritz, 2009: 16). According to Fritz (2009: 16) "as Pudacuo proved, national parks are expensive and complicated to establish, so expansion of the national park model has been slow." There are however several other 'official' national park projects in the design phase, including Laojun Shan National Park and Meili Xue Shan National Park, with many auxiliary projects in the works all over Yunnan (Fritz, 2009: 16). According to Haomin (2011), local Chinese governments could look at Pudacuo National Park as an example of how a well-managed park can be both ecologically and economically valuable. For example, the park helps the local economy through providing neighbouring residents jobs in park management. It operates on the conservation ideal that nature is not meant to be kept from people; rather, it is for people (Haomin, 2011). The Conservancy has provided critical support in this effort — drawing on a history of conservation success in the Yunnan Province in which it has linked poverty alleviation and human well-being with environmental conservation and sustainability. Tourism has been another key aspect of Pudacuo's development. Nestled in the mountains of southwest China, the park is an integral

part of the Three Parallel Rivers Scenic Area, a UNESCO World Heritage Site and one of China's most popular tourist destinations. By helping the Chinese government properly plan for and manage tourism through this model national park, the Conservancy is providing the government with an opportunity to reduce the impacts of tourism and other threats to biodiversity in one of the world's most ecologically valuable natural areas (Haomin, 2011). "The creation of Pudacuo National Park brought together TNC, the local state and its affiliated tourism firms, and a collection of government agencies and tourism planners in efforts to define and establish the new national park. The parties involved needed one another to turn the national park into reality. As the local state controlled access to territory that could be designated as a protected area and the administrative means to manage one, to make a conservation accomplishment, TNC needed the state's help... working together, these two could engage expert tourism planners and provincial agencies to facilitate establishing Pudacuo national park" (Zinda, 2011: 12).

TOURISM AS A CHALLENGE TO CONSERVATION

Protected areas such as the national parks that have recently been created in China have become a popular activity for tourists – both local and international. In China, nature bound tourist activities are very popular. According to Xiao-Long et al (2008: 1), nature reserves⁷ are by their very nature, "repositories of outstanding natural scenery and are cultural and-or historic resources both popular and significant as sites of tourism development" therefore it is not surprising that in China, 80% of domestic tourist trips are to nature reserves (Qiu, 2006 quoted in Xiao-Long, 2008). Thus beyond the existing pressure on resources by human settlement, agriculture and industrialisation, tourism has become a special challenge to Chinese protected areas, putting more and more pressure on the natural environment and landscape.

According to Yuan et al (2008), ecotourism is booming in China: "The establishment of the first national forest park (Zhangjiajie National Forest Park) in 1982 triggered the development of ecotourism. Since then, it has attracted more attention, both social and scientific, around China, and is gradually becoming an ecologically important activity in the country." According to a survey conducted by UNESCO, 80% of nature reserves in China had some kind of ecotourism programme in 1997. The rapid development of the tourism industry – both domestic and overseas – has led to a dramatic increase in the number of tourists visiting nature reserves and a broad use of the term "ecotourism" (Han and Zhuge, 2001 quoted in Yuan et al, 2008). Ecotourism is thought to be an inevitable way for Chinese nature reserves to achieve sustainable development (Bai, 2002 quoted in Yuan et al, 2008), and it certainly has the potential of becoming a prominent industry in currently economically under-developed western China. "In 2005, 1900 forest parks (mainly reserves) accommodated 180 million tourists. The number of visitors to the park has increased annually by 20% in the past 5 years" (Yuan et al, 2008). This ever increasing number of tourists in protected areas had triggered a need for new hotels and other facilities according to Baiping et al (2004: 205), which has further led to increased urbanisation in and around the scenic landscapes. Thus one can observe that tourism is a challenge in China's protected areas, with millions of people wanting to visit the areas as well as be a part of it. Moreover, the development of those areas has further increased the population numbers as people seek work where development takes place.

⁷ The author refers to nature reserves as national parks in this article.

China's protected areas are mostly in remote and under-developed regions, with only 60 million inhabitants and a population density generally exceeding 60 persons/ km². (Xu et al, 2009: 31). "As a consequence, the rapid growth of protected areas and the huge pressure from the human population has become a challenge to protected area management in China. Due to exceptional natural resources in protected areas, tourism revenue is the main source of funds for protected area management and improving local people's economic status" (Xu et al, 2009: 31). Thus, as will be seen in similar South African cases, tourism in China's protected areas is also viewed as an important source for local income and economic growth. On the one hand, national parks and other protected areas are first and foremost an area that protects the environment however tourism in the parks is also necessary for the upkeep of the parks and to stimulate economic growth.

CHINESE REGULATION OF PROTECTED AREAS

Due to the recent establishment of Chinese national parks, regulation for national parks is still in preparation, even though there has been regulation established for protected areas in China such as nature reserves, scenic landscape and historical landscapes. According to McBeath and McBeath (2006) the first mention of protected areas in planning documents was in 1979 and regulations were promulgated for them in 1985. Revisions to these rules were endorsed by the State Council in 1994. According to the China Council for International Cooperation on Environment and Development (CCICED), there are several regulations on protected areas: the *Nature Reserve Regulations*, the *Temporary Regulations for Scenic Landscape and Historical Site*, and a *Management Measures for Forest Parks*. All nature reserves are established under the 1994 *Regulations of the People's Republic of China on Nature Reserves* which allow for only one management category, but nature reserves are established for a variety of purposes and at different levels of government (national and local (provincial, prefectural, county). Nature reserves are also assigned to one of three major types – wildlife protection, ecosystem protection or natural monument protection. Most reserves do, however, include elements of more than one type (CCICED, 2004). In terms of the operations of protected areas in China, local governments coordinate between government agencies (CCICED, 2004).

According to regulation, protected areas in China include three separate management zones: the "core area" with no use, habitation or interference permitted, apart from limited scientific research; the "buffer zone" where some collection, measurements, management and scientific research is permitted; and finally, an "experimental zone" where scientific investigation, public education, tourism and raising of rare and endangered wild species are permitted (McBeath and McBeath, 2006: 298).

Box 4.2: National Biodiversity Conservation Strategy and Action Plan (2011-2030)

The overall objective of China's NBSAP is to undertake effective measures expeditiously to avoid further damage to the natural environment and resources in China and mitigate or reverse this serious situation. Specifically, the action plan has identified seven major objectives, including: strengthening the fundamental studies of biodiversity; improving networks of protected areas; protecting wild species with biodiversity importance; protecting the genetic resources of crops and domesticated animals; in-situ conservation outside protected areas; establishing national networks of biodiversity monitoring and information; and coordinating between biodiversity conservation and sustainable development. Twenty-six priority activities

and eighteen priority programmes have been identified, including: assessment of status of biodiversity and its economic values; assessment of representativeness and effectiveness of protected areas and identifying needs for establishing new protected areas; identifying priority wild animals for protection based on their biodiversity importance and level of their risks to endangerment; mainstreaming biodiversity into national economic development plan; promoting eco-farming; establishing standardized monitoring techniques; and setting up model areas for well-coordinated biodiversity protection and sustainable development. China has also developed sectoral plans for conservation and sustainable use of agricultural, forest, marine and coastal and wetland biodiversity (CBD country profile – China).⁸

CHALLENGES WITH MANAGEMENT OF PROTECTED AREAS

In terms of the management of protected areas, a variety of challenges were found and discussed by some sources. “Many scholars, both Chinese and foreign, have cited major problems with China’s approach to conservation, particularly in nature reserves in western China. Some of these problems include, but are not limited to displacement and economic disenfranchisement of local people, “paper park” syndrome⁹, poor education of reserve managers, governmental oversight problems, lack of park funding and irresponsible development within protected areas” (Fritz, 2009: 8-9). One of the biggest challenges is funding. According to Su (2004 quoted in Yuan et al, 2008) 41, 5% of the reserves in China are short of money to cover routine management activities. “Insufficient government funding for the operation of protected areas has resulted in increased revenue-raising activities within reserves, including tourism development and the harvesting of natural resources” (Xu and Melick, 2007 quoted in Yuan et al, 2008). Furthermore administration according to Fritz (2009) poses further challenges. There are often as many as 10 different Chinese government ministries overseeing protected lands. Moreover, nature reserves are designated at the country, provincial and national levels, further complicating the administrative structure (Fritz, 2009: 13).

According to Baiping et al, the “administration of world heritage sites and national parks by the central government is inappropriate” (2004: 205). The relevant government departments in charge of the parks, e.g. the Forestry Administration and the Ministry of Construction etc, were loosely connected with the management of parks and heritage sites, with no clear aims and measures. Moreover, management of world heritage sites and parks were left to local governments which, in turn, rented them to tourist corporations (Baiping et al, 2004: 205). As a result, one can note that in the past, China has dealt with the same administrative problems that it deals with today. There are too many different government departments involved in the administration of protected areas as well as national parks. This in turn does not help with the services that protected areas are supposed to be undertaking as administrative issues hinders that. China’s biodiversity resources have drawn domestic and international attention for their richness and endangerment (Zinda, 2011: 4). Since 1978, China has expanded the country’s protected area system. “However, the institutional foundations of China’s protected area system have not kept pace with its expansion. Critics cite a litany of problems, including insufficient funding; lack of well-trained staff; administrative overlap; inappropriate legislation; conflicts between

⁸ <http://www.cbd.int/countries/profile.shtml?country=cn#status>. Accessed: 1 February 2012.

⁹ “The funds allocated to protected areas authorities often do not match the management tasks that they have to fulfill leading to syndrome of paper-parks in China” (Harkness, 1998, in Jim/Xu, 2004: 39).

restrictions on economic activities and mandates to promote enterprise; tourism operations that underprioritize conservation and fail to share benefits broadly; and clashes between resource use restrictions and residents' livelihood requirements" (Zinda, 2011: 4).

A further concern pointed out in the past by Baiping et al (2004) that could be compared to the present state of protected areas in China is that of environmental awareness. Among the many causes of uncontrolled urbanisation in mountainous regions in China was due to the "lack of environmental awareness among tourists, authorities and scholars; and the lack of understanding of the purpose of protected areas," (Baiping et al, 2004: 206). Presently, although environmental awareness is growing among the Chinese, through the work of NGO's as well as the environmental policy being created, there is still a need for the education and understanding of the purpose of protected areas. A way of doing this has been through environmental education for students via the implementation of Green Schools¹⁰ (Sternang and Lundholm, 2011). China's Green School programme was initiated in 1996 and according to the same authors, there are now 16 000 schools across the country (2011: 4). "The model of Chinese Green Schools adheres to the spirit of fostering an environmentally friendly way of living" (Sternang and Lundholm, 2011).

According to Zinda (2011), by combining strong conservation rules with unified management and profitable tourism concerns, national parks are supposed to remedy pre-existing models' perceived defects. The author notes that the model TNC espouse has the following attributes:

"Tourism Underwrites Conservation: National park promoters contend that tourism activities can maximize revenue while minimizing impacts on conservation targets. They urge adopting forms of tourism that enable enjoyment of resources with minimal disturbance of conservation targets. In contrast with scenic areas, and in line with guidelines issued by the IUCN, tourism is subordinate to conservation goals" (Zinda, 2011: 6).

Some of these functions are mandated in existing regulations for nature reserves and scenic areas, but for the reasons cited earlier, implementation often suffers. As a result, according to Zinda (2011: 7), the goal of national park promoters is, by setting up an entirely new management model, to establish well-coordinated protected areas whose zoning and regulations accord with local conditions and whose management balances conservation and tourism objectives.

For the purpose of this study, field work in China will be necessary in order to fully understand and grasp the situation of national parks and protected areas in the country. As will be noted later, field work took place in South Africa, where a vast amount of knowledge was gained through interviews with the relevant national park authorities. Thus, the same is necessary for China, as interviews with relevant institutions and persons involved in the national park system could add to this body of research.

¹⁰ A Green School is an international long-term programme with the aim of increasing students knowledge of environmental issues, and transferring this knowledge into positive actions to affect the wide community (Zhang 2004 quoted in Sternang and Lundholm, 2011: 4).

5. SOUTH AFRICA

For its part, in South Africa, and the Western Cape region in particular, biodiversity is under threat from global warming, pollution and generally speaking, the increasing development taking place (Cape Nature, 2007). Particular threats according to the Cape Nature organisation¹¹ (2007) include:

- population growth;
- pollution (industrial emissions that cause acid rain);
- global climate change (the greenhouse effect and destruction of the ozone layer);
- habitat destruction (burning or felling of old-growth forests);
- overexploitation of natural resources (illegal trade of fauna and flora);
- invasion by introduced species.

“These and other human activities cause species to become extinct and thus threaten biodiversity. Once species and habitats are lost they can never be replaced” (Cape Nature, 2007).

South Africa has an old and established system of protected areas including nature and wildlife (game) reserves, many of them private; botanical gardens (such as Kirstenbosch Botanical gardens in Cape Town); as well as many national parks. Protected areas in South Africa were ultimately established for the protection of the rich biodiversity that the country holds as well as for recreation purpose. South Africa is one of the most popular countries for ecotourism visitors. The botanical gardens, Kirstenbosch was established in 1913 to promote, conserve and display the extraordinarily rich and diverse flora of southern Africa, and was the first botanic garden in the world to be devoted to a country's indigenous flora (SANBI, 2011)¹². As mentioned above, South Africa has a well-established national park system, with the very first national park (Kruger National Park) established in 1898. SANParks manages 54% of South Africa's formal protected area network and is currently responsible for 22 national parks (SANParks, 2010: 5).¹³ South African national parks represent eight of South Africa's nine biomes, jointly protecting 4.15 million hectares – 4 million ha on land and 150 000 ha at sea (SANParks, 2010: 6).

Beyond national parks, there are also contractual national parks in South Africa, established on land owned either by the state or a group of private individuals. They are managed by the national conservation authority according to the terms of a joint management agreement drawn up by a joint management committee usually consisting of representatives from the national conservation authority and the landowners. Since the establishment of democracy in 1994,

¹¹ Cape Nature is a public institution with the statutory responsibility for biodiversity conservation in the Western Cape. It is governed by the Western Cape Nature Conservation Board Act 15 of 1998 and to: promote and ensure nature conservation; render services and provide facilities for research and training; and generate income

¹² The Garden covers 36 hectares in a 528 hectare estate that contains protected mountainside supporting natural forest and fynbos along with a variety of animals and birds. Kirstenbosch lies in the heart of the Cape Floristic Region, also known as the Cape Floral Kingdom. In 2004 the Cape Floristic Region, including Kirstenbosch, was declared a UNESCO World Heritage Site – another first for Kirstenbosch, it is the first botanic garden in the world to be included within a natural World Heritage Site.

¹³ The national parks of South Africa are: Groenkloof, Kruger, Table Mountain, Marakele, Golden Gate, Camdeboo, Mountain Zebra, Addo Elephant, Garden Route National Park (Tsitsikamma, Knysna, & Wilderness), Bontebok, Agulhas, West Coast, Karoo, Namaqua, Ais/Richtersveld, Augrabies, Kgalagadi, Mapungubwe, Tankwa Karoo and Mokala (SANParks, 2004).

South African contractual national parks have provided a model through which the country's conservation as well as development objectives can be met, particularly where landowners are previously disadvantaged communities¹⁴ (Reid, et al. 2004: 377). Central to the idea of a contractual national park is the drawing up of a joint management agreement in which the rights and responsibilities of the landowners and the conservation authority that manages the land are laid out. Contractual national parks provide a framework through which social development, and economic objectives can be met without alienating local people, whilst conservation objectives can also be met without heavy investment in land purchase (de Villiers 1999a; Robinson 1994 quoted in Reid, et al. 2004: 377). In the case of Table Mountain National Park, they have contracts with the City of Cape Town as well as private land owners. In terms of the contract with the City, there are various agreements made regarding the national park, the use thereof for conservation and recreation, and then also regarding fires in the park (Interview, 9 March 2012). Moreover, contracts are also agreed upon with private land owners. The national park authorities will negotiate land with the private owners so theoretically it still belongs to private owners however it falls under the national park and thus can be conserved (Interview, 9 March 2012). By establishing contracts with private land owners, TMNP avoid having to buy land from the City, which according to the park manager, can be very expensive (Interview, 9 March 2012).

According to Grossman and Holden (2002) the land restitution initiative, aimed at redressing the dispossession of land during the apartheid era, added impetus to the transformation process, with the formal gazetting of land claims in the Kruger National Park (KNP) by the Makuleke clan and in the Kalahari Gemsbok National Park (now Kgalagadi Transfrontier Park (KTFP)) by the †Khomani San and Mier communities. Both the Makuleke and the Kalahari claims were recognised as valid and were not contested by the state. The Makuleke people received full ownership and title deeds to some 25 000 ha of their former land in the far north of KNP, and the Khomani San and Mier communities each received 25 000 ha in the extreme south of the KTFP. In all cases, the claimants decided to maintain their land under conservation and entered into a contractual agreement with the then Minister of Environment Affairs and Tourism to establish a formal contractual national park, legally registered as such in terms of the National Parks Act of 1976, as amended (Grossman and Holden, 2002: 2).

Box 5.1: Transfrontier Conservation Regimes

Ecosystems are often not confined by national borders. Consequently, South Africa also has a number of transfrontier parks or transfrontier conservation areas. According to the Department of Environmental Affairs (DEA)¹⁵ “essentially all a transfrontier park means is that the authorities responsible for areas in which the primary focus is wildlife conservation, and which border each other across international boundaries, formally agree to manage those areas as one integrated unit according to a streamlined management plan. These authorities also undertake to remove all human barriers within the Transfrontier Park so that animals can roam freely” (Anonymous, DEA). Slightly different, a transfrontier conservation area usually refers to a cross-border region where the different component areas have different forms of conservation

¹⁴ Term given to those non-white groups/communities systematically politically and economically-disadvantaged during the Apartheid period in South Africa. Many of those groups continue to be economically-disadvantaged today.

¹⁵ http://www.environment.gov.za/Documents/Documents/GreatLimpopoTP/background_GKG.htm
Accessed: 25 January 2012

status, such as Private Game Reserves, communal natural resource management areas, and even hunting concession areas. Fences, major road highways, railway lines or other barriers may separate the various parts. Nevertheless, they border each other and they are managed for long-term sustainable use of natural resources, although free movement of animals between the different parts is not possible (Anonymous, DEA). The establishment of transfrontier conservation areas is an exemplary process of partnerships. While the main players are the relevant governments and implementing agencies, donors and NGOs have also greatly contributed towards the creation of transfrontier parks (SANParks).

The first transfrontier park in Southern Africa was declared early in 2000 by the Presidents of Botswana and South Africa, creating the Kgalagadi Transfrontier Park across the borders of the two countries. Another transfrontier park established was the Gaza-Kruger-Gonarezhou (GKG) Transfrontier Park, a park managed as an integrated unit across three international boundaries (Anonymous, DEA). The idea behind this park was that tourists could drive across international boundaries into adjoining conservation areas in the three countries with easy accessibility. For the GKG Transfrontier Park, the conservation authorities in Mozambique, South Africa and Zimbabwe collaboratively manage wildlife and natural resources in the different areas to promote biodiversity conservation, and in a manner which benefits local communities and regional tourism. The GKG Transfrontier Park includes the Kruger National Park in South Africa, a large area of Mozambique currently known as Coutada, and in Zimbabwe the Gonarezhou National Park and a slice of land southwards to the Limpopo River. The total surface area of this Park will be approximately 40 000km². According to the DEA, this Park would provide jobs and revenue generating opportunities for many of the thousands of local people affected by decades of civil war. “Improving the lives of these rural communities will in turn further contribute towards biodiversity conservation by demonstrating the economic and social advantages that can be achieved through wildlife conservation” (Anonymous, DEA).

SOUTH AFRICA’S PARKS AND TOURISM

Zhou and Seethal (2011: 393) suggests, in South Africa’s Kruger National Park (KNP), tensions abound in balancing the competing demands of tourism on the one hand and biodiversity conservation and management on the other hand. The KNP, located in the eastern lowveld of northern South Africa is one of Africa’s iconic tourist attractions and one of the world’s greatest wildlife sanctuaries. According to Zhou and Seethal (2011: 393), given its international standing as a wildlife tourist destination, the KNP has attracted considerable attention regarding its initiatives towards dealing with competing economic and conservation demands. KNP is one of the largest areas in the world managed primarily for biodiversity conservation. The KNP covers approximately 20,000 km in the eastern lowveld region of northern South Africa, adjoining the Mozambique border in the east and Zimbabwe in the north. This particular aspect is due to the KNP being a “transfrontier park” (see box 5.1) as it allows its wildlife to cross the borders of Mozambique and Zimbabwe. Moreover visitors to the park are able to cross the borders as part of the planning of the park. There are only a few of these national parks in the world and six in South Africa.

Furthermore, given the high levels of tourism in the Kruger National Park, there have been serious implications for biodiversity conservation and management. The park has been continuously degraded due to excessive infrastructure development and high-use pressure, including increased tourism (the park attracting in excess of one million visitors per year) (Zhou and Seethal, 2011: 395). The impacts of tourism on biodiversity conservation and management

are expected to increase as needs and the volume of tourism grows. According to Zhou and Seethal (2011), tourism activities in the park have had negative effects on biodiversity conservation and management. A variety of factors have led to this such as: the compounded impact of fencing that resulted in injury, maiming and death of individual animals and restriction of animal movements; from infrastructure development including road networks, to use of gravel in the park. In addition, tourism-related activities, including excessive water demand from the perennial rivers, increased waste generation, electricity consumption, vehicular emissions and noise levels in the camps, have negatively affected biodiversity conservation and management (Zhou and Seethal, 2011: 395-396). “It is not surprising therefore that KNP has introduced a number of policies, including a tourism policy, elephant management policy and water provision policy to help address the biodiversity conservation and management issues within the park” (Zhou and Seethal, 2011: 396).

REGULATION AND MANAGEMENT OF PARKS IN SOUTH AFRICA

South Africa has a long history of protected areas and that of national parks thus national regulation and legislation has long been established in all parks across the country. On the one hand, South Africa has a protected areas act that sets out regulation for all protected areas (special nature reserves, national parks, nature reserves (including wilderness areas) and protected environments; world heritage sites; marine protected areas; specially protected forest areas, forest nature reserves and forest wilderness areas, and mountain catchment areas (Protected Areas Act 2003: 12). On the other hand there is also a National Parks Act. According to SANParks, the Protected Areas Act 57 of 2003 gives SANParks its legal mandate. The Protected Areas Act establishes that the conservation and sustainable use of biodiversity are important objectives to be achieved in national parks. Furthermore, the Protected Areas Act promotes participation by stakeholders in the planning of national parks. In accordance with the Act, SANParks will consult with affected parties in drawing up plans for national parks (SANParks, 2004).

Under the Protected Areas Act, one can note that conservation is established as the most important objective of the Act as protected areas are for the purposes of: protecting ecologically viable areas representative of South Africa’s biological diversity and its natural landscapes and seascapes in a system of protected areas; preserving the ecological integrity of those areas; conserving biodiversity in those areas; protecting areas representative of all ecosystems, habitats and species naturally occurring in South Africa; protecting South Africa’s threatened or rare species; protecting an area which is vulnerable or ecologically sensitive; assisting in ensuring the sustained supply of environmental goods and services; and providing for the sustainable use of natural and biological resources (Protected Areas Act 2003: 15). Moreover, the protected areas are also for the purpose of creating or augmenting destinations for nature-based tourism; managing the interrelationship between natural environmental biodiversity, human settlement and economic development; generally contributing to human, social, cultural, spiritual and economic development; or rehabilitating and restoring degraded ecosystems and promoting the recovery of endangered and vulnerable species (Protected Areas Act 2003: 15).

Alongside the Protected Areas Act, the regulatory framework governing SANParks is the National Parks Act 57 of 1976. This regulatory framework is used for all South African national parks. Under this Act, “the object of the constitution of a park is the establishment, preservation and study therein of wild animals, marine and plant life and objects of geological, archaeological, historical, ethnological, oceanographic, educational and other scientific interests

and objects relating to the said life or the first mentioned objects or to events in or the history of the park, in such a manner that the area which constitutes the park shall, as far as may be and for the benefit and enjoyment of visitors, be retained in its natural state” (National Park Act 57 of 1976: 5). This Act, together with all amendments thereof, apply and be of force in the whole of the national territory to the exclusion and in substitution of any other law relating to national parks applicable in any particular portion of the national territory.

Regulations of the National Parks Act 57 of 1976 states that the board (SANParks) may, with the approval of the Minister, make regulations not inconsistent with this Act as to matters including: the powers and duties of officers and employees in regard to - the exclusion of members of the public from certain areas within a park; the burning of grass, the cutting of trees, reeds and grass and the gathering of marine plants within a park; the disposal of any animal, vegetable, mineral or other product of a park (National Parks Act 57 of 1976). The board may also make decisions regarding the conditions subject to which permission to enter or reside in a park may be granted under section 23, and the periods during which or times when a park or any portion of a park shall be open to the public; the admission of aircraft, motor cars or other vehicles or vessels to, and the taking of photographs within, a park, the demarcation of areas in a park for the purposes determined by the board and the control over such areas, or any other matter connected with the use and enjoyment of a park; the maintenance, protection and preservation of a park and the animals, plant life and property therein; the regulation of traffic and carriage of passengers in a park, including (but subject to the provisions of any other law in this regard) the requirements to which vessels and persons on such vessels shall conform, the places at which persons may enter or leave and the routes by which they may pass through a park; the protection from defacement by writing or otherwise of any tree, bridge, rock, fence, seat or other object in a park. The board may make different regulations in respect of different parks (National Parks Act 57 of 1976).

One can observe from the regulations in the National Parks Act, that there are very strict laws and regulation with regard to what the objectives of the parks are as well as what is and are not allowed in the parks. SANParks has overall control in terms of what is allowed in the park, the number of people present in the parks as well as strict regulation regarding the activities of park employees. This ultimately is what ensures that limited threats are found to the natural landscape and the species that live in the park. The regulation is there to uphold that proper ecological conservation takes place with minimal disturbance from the public as well as other human activities. Moreover, it is noted that SANParks may make different regulations in respect of different parks. This makes sense as different parks in the different cities or provinces may be confronted with different experiences as well as threats to the park. Furthermore, some parks like Kruger National Park and Table Mountain National Park, because they are popular tourists destinations, may further deal with more threats or pressure to the park as they receive more visitors thus different regulation may be necessary in that respect.

In terms of management, the important functions of the SANParks include controlling, managing and maintaining the parks for a number of purposes. Where the board sees it necessary for the maintenance and management of the park, they may undertake the construction and erection of infrastructure and other developments (roads, bridges, buildings, dams, fences, breakwaters, seawalls, boathouses, landing stages, mooring places, swimming pools, oceanariums and underwater tunnels). Further important and necessary functions include ensuring the security of visitors, biodiversity in the park as well as the preservation of the park, animals and vegetation within. More importantly, this has to be kept in their most natural state thus areas has to be reserved in the park for the breeding places for animals, or as nurseries for

trees, shrubs, plants and flowers. In terms of visitors to the park, the Board has to further provide accommodation and facilities for recreation, refreshment as well as business that ensures the convenience of visitors to the park thus one can observe that national parks are truly not only for conservation but also for recreation (National Parks Act 57 of 1976).

In terms of regulation, it takes very long for a national park to get protected area status. According to the manager of TMNP, there is considerable autonomy for national parks, in the design of their own management plans and park plans etc (Interview, 9 March 2012). The election board has to go through the DEA as well as and plans developed for the park. DEA is thus the mother body however they do ask SANParks for their input into policy-making. DEA is the umbrella for national parks however according to TMNP's manager, the only money SANParks authorities receives from the national department is for land acquisition (Interview, 9 March 2012). As a result, TMNP has to generate its own income (Interview, 9 March 2012). This can thus be seen as similar to the Chinese experience where the national government does not provide much funding to the protected areas, this usually left to the provincial authorities or the protected areas have to create their own funding mechanism. In China, this is usually done via tourism and recreational activities in the protected areas.

TABLE MOUNTAIN NATIONAL PARK AS A CASE STUDY

Table Mountain National Park (TMNP) was established in 1998 and is one of the 22 national parks in South Africa. Unlike the other parks, TMNP is surrounded entirely by a city and for this reason it is fragmented by urban development and privately owned land. According to the SANParks website¹⁶, because the park is surrounded by the city and is primarily an open access park (TMNP has only three managed pay points), this has resulted in it being the most visited of all National Parks receiving an annual quota of 4.2 million visits annually. According to Daitz and Myrdal, TMNP is part of the backbone of the tourism economy in Cape Town – “not only is it the most visited of all South African national parks, but is also the most visited park on the African continent” (Daitz and Myrdal, 2009 quoted in Ferreira, 2011: 279). According to Ferreira (2011: 279), TMNP plays four major roles: protected area with a unique biodiversity; special heritage site; very popular recreational area for local and international visitors; and an economic lever to assist job creation, social upliftment, transformation and economic growth (Ferreira, 2011: 279). Prior to the establishment of the Park, a 30 000 hectare area of conservation-worthy land on the peninsula was identified as the Cape Peninsula Protected Natural Environment (CPPNE). Currently the TMNP includes 25 000 hectares of the CPPNE and it is a goal of SANParks to incorporate the remaining 5 000 hectares into the Park. The TMNP's jurisdiction also includes 1 000 km² of the seas and coastline around the peninsula (SANParks).

Similar to China, Cape Town's biodiversity is globally unique and its conservation is of international importance. “The local variability and uniqueness of vegetation types and species diversity together with processes of urbanisation have resulted in 65% of the remaining natural vegetation in the city being classified as critically endangered or endangered. No other city in the world harbours as many threatened plant species per unit” (Laros and Associates, 2007 quoted in Ferreira, 2011: 278). Also, similar to China, Cape Town has to deal with external factors/threats that are increasingly threatening the region and/or park's biodiversity. Population

¹⁶ http://www.sanparks.org/parks/table_mountain/about/profile.php. Accessed: 6 December 2011

growth has also become a factor as more people move to the city, and because the park essentially borders urban areas, human activity puts more pressure on the park. For TMNP, the access and impact of people are the main issues. According to the park manager, it is easy to manage those who come through the pay points however it is more difficult with those who do not, i.e. those living close to the park and have easy access to the land (Interview, 9 March 2012). There are further problems with the number of people walking and cycling in the park, potentially harming the ecosystem in the park. SANParks has to deal with this by setting up agreements with the Pedal Power cycling association for example. Together with the park management, they have an agreement where specific zones are set out for their activities in the park. In this case, zoning is important, and the Protected Areas Act ensures it (Interview, 9 March 2012). Challenges are further found with many criminal elements in the parks due to the open access. Criminal activities such as poaching often take place, especially the poaching of perlemoen (abalone) out of the oceans that falls under the park's jurisdiction and regulation.

Development of the city is another challenge as often private owners or people living alongside the park may want to expand their properties. This often leads to challenges for the park however because the park has specific regulations, it does limit development that can take place. However, according to the TMNP manager (Interview, 9 March 2012), one still finds private land owners that challenge the park's boundaries by either developing on park land or very close to it. Thus SANParks has to negotiate with the private owners (property developers). "Theoretically it is their land, but it falls under the national park" (Interview, 9 March 2012). Negotiation has to occur because ultimately TMNP cannot afford to buy city land, as it is too expensive thus contracts have to be developed. In terms of the communities that live close to the park, most of the time these communities cooperate with the SANParks officials. Park officials deal with this by going into the communities and teaching them about the value of the park as well as showing them exactly where the park land is. According to the TMNP manager, for the poorer communities in Cape Town, they usually respect the boundaries of the park; it is the private land owners that are more difficult to deal with (Interview, 9 March 2012.).

The City of Cape Town is the main partner of SANParks with regard to TMNP. Any plans that SANParks has with the park, have to go through the City. Bilateral meetings are held with senior city officials and senior park officials. The relationship is often complex, as the Manager of TMNP says, "where the city ends, the park begins and vice versa" (i.e. there is no buffer zone) (Interview, 9 March 2012). This makes it very difficult at times to ensure that boundary between the two is respected, the obvious challenges are people entering the park land unknowingly and potentially harming the protected land. In terms of agreements, there is a formal and legalised agreement between the City and SANParks. They also have fire-fighting agreements (TMNP have their own resources). Moreover, SANParks has to explain and ensure that the City understands that the park land is not just a recreational area. It is a national park predominantly because it does have conservation value (TMNP is the hub of the fynbos region and it is also a World Heritage Site according to the IUCN), thus it will always be recognised as a conservation site. An example of this is the way in which Table Mountain is zoned, it's designed on ecological status. Recreation thus has to be managed in terms of conservation (Interview, 9 March 2012).

6. Conclusion

China is a country with some of the richest biodiversity in the world. This biodiversity is under phenomenal threat, due to the steep pace of development, industrialisation and the consequences of the current development model for air and water pollution, as well as a high population growth among other factors. Around the world in recent years, but more so in developing countries, there has been an increase in the loss of biodiversity; many ecosystems and species becoming depleted or extinct. Consequently, there has been an increasing need for protected areas, where natural and scenic landscapes, historical areas and flora and fauna, as well as wildlife can survive in their natural habitat. National parks, i.e. protected areas that have the primary objective of protecting biodiversity, are a necessity. This does not preclude the additional aspects of national parks to provide education and recreation to the public; yet, the different purposes have to be regulated. The recently developed national park system in China was examined, juxtapositioned to the existing South African national park system, with the aim of finding lessons to learn.

It was found that the *regulation* and *management* of these protected areas are vastly important as they ultimately ensure that the objectives of parks are fulfilled – that first and foremost, conservation is undertaken and then secondly, that recreation is allowed in parks however with regulation ensuring that minimal impact is left on the protected area. The recreational aspects were also emphasised in the South African cases: interviewees in Table Mountain National Park as well as SANParks headquarters emphasised that national parks are for the people and for their enjoyment. However, because the park has protected area status, parks have to have regulation that ensures that visitors to the park or any development in the form of recreation facilities, cannot harm the biodiversity or spoil the natural landscape of the area. Enforcing these regulations can be a challenge, specifically in parks with population pressure like TMNP.

It is important for national parks to have proper regulatory frameworks as well as management practices that ensure that parks protect what they are meant to protect. China currently has no national regulation for national parks. While there is regulation for protected areas including nature reserves, scenic landscapes and forest parks, this is not enough to ensure that the protected areas are properly regulated. Moreover it is not enough that there is only provincial regulation for the national parks being developed in Yunnan province. More strictly regulated protected areas – namely: national parks – are needed in China. These future national parks will have to provide the necessary objectives and practices that protected areas need, namely: minimal human impact and disturbance in the protected areas. This is specifically important in a country like China, where developmental pressure is high, but where nature-bound tourism figures (possibly also as a consequence of development pressure on citizens' daily lives) have also skyrocketed.

No doubt, in years to come with the increasing depletion of the world's biodiversity and climate change, environmental protection policy will become more important, with countries increasing policy to protect their natural resources and areas. Thus, this study has attempted to seek an area where a rapidly-developing China could learn from the national parks system of South Africa.

As a recommendation, it would be wise for the Chinese to consider a system of contract parks as is done in South Africa. Contract parks were established in order to ensure that local communities, who inhabited the protected land first, were included in the management and development of the parks. Thus economic development that took place via the park (e.g. in zones that are open for tourism) could enrich the local communities of that area too. Contract parks might be an interesting model for China due to the number of people living in and around

protected areas. According to Hakness (1998), in 1997 there were an estimated 30 million poor people living in and around China's nature reserves, and because of the expansion of protected areas in China in the last decade, this number has likely increased (Xu and Melick, 2006). According to the same authors, "despite being directly affected, local people are generally excluded from conservation and resource management decision making" (2006: 319). This is an area that merits addressing – also with a view to the social sustainability of parks. By including those local communities in the conservation of the area as well as the management thereof, they could indeed be helping those communities and also ensure that they themselves do not cause harm to the area.

For more elaborate recommendations and a more in-depth analysis of lessons to learn from each other, field work in China is still necessary. It will be necessary to explore the system in China, not least by conducting empirical work, including talking to the relevant park authorities and government officials that are involved in the system in China. The number of actors is currently vast: many different departments are involved in the Chinese national park system. Finding information for research purposes consequently was a challenge. Of special interest in hopefully subsequent field research will be Yunnan province, as it has become the pilot project province for China's national parks. Also, in order to get a grasp of the practice of management of parks, interviews with the relevant park officials will be necessary as was already done for the South African case.

During this initial leg of the research, different issues and areas of interest already emerged, and subsequent questions were also raised, such as environmental awareness, which would be an interesting area for further research, too. South Africa has an established environmental education system; a comparison to China in this aspect can also be beneficial for mutual learning. Questions were further raised regarding the economic impact on local communities via national parks. How do national parks affect poorer communities especially if it were their land that is now under protected area status? How strong is the political will in China to take the necessary steps to protect the country's biodiversity and continue to develop *around* those protected areas? These questions are necessary to explore further in China in the study of conservation policy, as the need to protect the environment and biodiversity becomes increasingly obvious and higher political levels begin to emphasise the need for environmental protection in China too.

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