

UNITED NATIONS RESEARCH INSTITUTE FOR SOCIAL DEVELOPMENT

DP 29

**PARKS AND PEOPLE:
LIVELIHOOD ISSUES IN NATIONAL PARKS
MANAGEMENT IN THAILAND AND MADAGASCAR**

by Krishna B. Ghimire

UNRISD Discussion Papers are preliminary documents circulated in a limited number of copies to stimulate discussion and critical comment.

December 1991

The **United Nations Research Institute for Social Development (UNRISD)** is an autonomous agency that engages in multi-disciplinary research on the social dimensions of contemporary problems affecting development. Its work is guided by the conviction that, for effective development policies to be formulated, an understanding of the social and political context is crucial. The Institute attempts to provide governments, development agencies, grassroots organizations and scholars with a better understanding of how development policies and processes of economic, social and environmental change affect different social groups. Working through an extensive network of national research centres, UNRISD aims to promote original research and strengthen research capacity in developing countries.

Current research themes include: Crisis, Adjustment and Social Change; Environment, Sustainable Development and Social Change; Ethnic Conflict and Development; Social and Development Indicators; Political Violence and Social Movements; Refugees, Returnees and Local Society; Socio-Economic and Political Consequences of the International Trade in Illicit Drugs; and Participation and Changes in Property Relations in Communist and Post-Communist Societies.

A list of the Institute's free and priced publications can be obtained from the Reference Centre.

**United Nations Research Institute
for Social Development
Palais des Nations
1211 Geneva 10
Switzerland**

**E-mail: info@unrisd.org
World Wide Web Site: www.unrisd.org**

ISSN 1012-6511

Copyright © United Nations Research Institute for Social Development (UNRISD). Short extracts from this publication may be reproduced unaltered without authorization on condition that the source is indicated. For rights of reproduction or translation, application should be made to UNRISD, Palais des Nations, 1211 Geneva 10, Switzerland. UNRISD welcomes such applications.

The designations employed in UNRISD publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of UNRISD concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by UNRISD of the opinions expressed in them.

Preface

UNRISD's work on the Social Dynamics of Deforestation in Developing Countries has involved carrying out case studies in Brazil, Central America, Nepal and Tanzania. In addition, some eight studies dealing with particular themes which cut across several countries and regions, and which have not yet been treated systematically in the literature, have been prepared by specialists. This paper represents one of these thematic studies. Its author is responsible for the co-ordination of the research programme within UNRISD.

The paper examines some of the interrelated socio-economic and environmental impacts of the management of national parks and protected areas in Madagascar and Thailand. These countries were chosen for field research due to their high rates of deforestation and ambitious government plans to create protected areas, as well as to the recent policy changes in which protected areas management activities are planned to integrate with socio-economic development in surrounding areas.

The paper suggests that, although in both countries the development of protected areas has made some contribution to the preservation of biodiversity and to the generation of foreign exchange earnings through tourism, the expansion of the network of protected areas, has frequently led to a critical impact on local livelihood systems, resulting in the increased vulnerability of certain groups of people. In many locations, local people have either been expelled from their settlements without being provided with alternative sources of employment or income, or restricted in their livelihood activities by the prohibition of grazing, hunting, fishing, food-gathering, and collection of wood and other forest products. The result is that some social groups - such as pastoral and tribal people, and poorer peasants - which traditionally relied upon these activities, are forced to endure not only economic hardships, but also difficult social and cultural adjustment processes.

The paper goes on to argue that the establishment of protected areas in these countries has often led to an increased level of deforestation as households losing land in and around the protected areas have tended to move to new locations and clear forests for settlements. Similarly, those who were unable to migrate to new locations were pressed to over-exploit those forest and land resources existing outside of the protected areas. One consequence of this situation is that often areas much larger than the protected area itself become degraded. Furthermore, the local people tend to see the protected areas as "lost village resources" and take little or no interest in their long-term management.

The paper also examines the local level impact of recent policy measures which attempt to combine park management activities with the socio-economic development in surrounding or "buffer zone" areas. The experience of both countries shows that the creation of a "buffer zone" has generally allowed the authorities of the protected areas to make claims over the common property resources of the villages. In addition, the development activities carried out in these areas were inadequate, sectoral and short-term, with richer more powerful social groups tending to benefit. The author argues that the idea of rural development in "buffer zone" areas has usually come from "above", with little or no participation of the local communities.

In the last section of the paper, the author asks to what extent developing countries should continue to designate extensive territories as strictly protected areas despite high population growth, landlessness and the rising demand for food, shelter and many basic needs. It is argued that, in attempting to bring larger areas under protected status, many of these areas remain unmanaged -

thereby fulfilling neither the conservation functions nor permitting local people to utilize the areas. Finally, the author points out that even where local people could benefit from the establishment of protected areas, such as in the collection of forest products, controlled hunting and fishing, bee-keeping, and through tourism and employment in park management activities, little attention has been given to maximizing these gains.

As yet there is little literature dealing with the local level socio-economic and environmental impacts of forest protection initiatives such as the establishment of national parks and reserves, or with how local communities can benefit from conservation measures. A deeper understanding of these issues, based on broader theoretical and empirical foundation, could facilitate the formulation of successful environment-related initiatives, and could improve the prospects for sustainable development. In the second phase of UNRISD's research programme on Environment, Sustainable Development and Social change, planned for 1992-1995, some of these issues will be investigated in greater depth.

Dharam Ghai
Director

Table of Contents

Abstract	Page 1
Introduction	1
Thailand	4
General features of national parks and protected areas	4
Present status of national parks and wildlife sanctuaries	5
The current forms of management of national parks and wildlife sanctuaries	8
Khao Yai National Park	10
Huai Kha Khaeng Wildlife Sanctuary	12
Summary	14
Madagascar	15
General background on national parks and protected areas	15
Present forms of management of national parks and protected areas	16
Mananara Biosphere Project	19
Montagne d' Ambre National Park	22
Summary	25
Issues for Discussion	26
Bibliography	30

Glossary

FAO	Food and Agriculture Organization of the United Nations
IUCN	The World Conservation Union
PCDA	Population and Community Development Association
PNUD	Programme des Nations Unies pour le Développement
RFD	Royal Forestry Department
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WFT	Wildlife Fund Thailand
WRI	World Resources Institute
WWF	World Wide Fund For Nature

Acknowledgements

Many individuals and institutions have helped me in data collection in Madagascar and Thailand, as well as in the preparation of the paper. I am particularly grateful to Solon Barraclough, Adolfo Mascarenhas and Peter Utting for their useful comments on the earlier draft. Within UNRISD, I am also grateful to Adrienne Cruz, Chandana Dey and Rhonda Gibbes for editorial help, Irene Ruíz and Josephine Yates for typing and Françoise Jaffré for production of maps and the layout of the paper.

Abstract

This paper examines the forms of management of national parks in developing countries. Conscious of the current rate of deforestation, many developing countries are transforming much of their remaining forests into strictly protected areas such as national parks. The implications of this process for the survival imperatives of local people and the sustainable management of forests are discussed. Using case studies in Thailand and Madagascar, this paper demonstrates that the expansion of protected area networks has generally resulted in an increasing displacement of people and a disruption of their livelihoods, frequently accompanied by higher rates of deforestation. Since most protected areas are established for "conservation" purposes rather than for "sustained use", the "social benefits" occurring at the local level have tended to be exiguous. In recent years, although a growing number of plans for the implementation of parks aim to promote rural development activities, field observation suggests that these measures are introduced primarily to reduce tensions rather than to provide sustainable livelihood alternatives. There is an apparent lack of participation by the local people in the planning, management and benefit-sharing of national parks. This paper suggests that the present form of management of national parks results in greater "bureaucratic control" of forests, combined with the socio-economic decline for many social groups, rural dissension and, often, further environmental deterioration.

Introduction

National parks are one of the prominent forms of protected areas in developing countries. Other types of protected areas include nature reserves, wildlife sanctuaries, biosphere reserves, etc. (see page 2 for IUCN's classification of protected areas). The formal goal of establishing protected areas has been to preserve plants, animals and micro-organisms, although actual management procedures vary somewhat in different countries. For example, a wildlife sanctuary may be a stringently protected area in one country, whereas some level of resource use might be permitted in another. Likewise, some national parks may function as strict nature reserves where most human activities are prohibited, while others may remain partially accessible to local communities. One distinct feature of national parks is that tourism is encouraged in a majority of cases.

National parks and protected areas constitute substantial tracts of land area in developing countries. Since 1950, there has been a marked growth in the number of national parks and protected areas created (see table 1). Most of these were established in developing countries, especially in the tropics. An astonishing expansion took place in the 1970s, when over 1,300 new parks and forest reserves were created within a 10-year period. In the 1980s, although there was a slight decline in the number of protected areas that were established, overall there continued to be a strong upward trend. A combination of factors contributed to this rapid growth and these included rising international concern for deforestation and loss of biodiversity, the availability of foreign aid for nature conservation, and the possibility of generating foreign exchange earnings through tourism. Furthermore, in recent years, the ideology of nature conservation has become increasingly fashionable among many of the dominant social groups in developing countries.

The idea of establishing national parks came into being in the United States during the second half of the nineteenth century. The main aim of the parks was to preserve scenic beauty and natural wonders, and to meet the educational and recreational needs of the population. Accordingly, the

zoning of designated areas, surveillance and the provision of facilities for visitors were seen as the main issues in the management of parks (Hales, 1989).

The management objectives of different categories of protected areas

- **Scientific reserve/strict nature reserve**
To protect nature and maintain natural processes in an undisturbed state, with emphasis on scientific study, environmental monitoring and education, and maintenance of genetic resources in a dynamic and evolutionary state.
- **National park**
To protect relatively large natural and scenic areas of national or international significance for scientific, educational and recreational use.
- **Natural monument/natural landmark**
To preserve nationally significant natural features and maintain their unique characteristics.
- **Managed nature reserve/wildlife sanctuary**
To protect nationally significant species, groups of species, biotic communities or physical features of the environment when these require specific human manipulation for their perpetuation.
- **Protected landscapes**
To maintain nationally significant natural landscapes characteristic of the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal life-style and economic activity of these areas.
- **Resource reserve**
To protect the natural resources for future use and prevent or contain development activities that could affect the resource pending the establishment of management objectives based on appropriate knowledge and planning.
- **Natural biotic area/anthropological reserve**
To allow societies to live in harmony with the environment, undisturbed by modern technology.
- **Multiple-use management area/managed resource area**
To sustain production of water, timber, wildlife, pasture and outdoor recreation. Conservation of nature oriented to supporting economic activities (although specific zones can also be designed within these areas to achieve specific conservation objectives).

Source: IUCN (1985)

The United States model, which emphasized the protection of natural uniqueness for educational and recreational benefits of the "public", became the initial impetus for the establishment of national parks in developing countries. In many African and Asian countries, parks were originally established to protect larger mammals, such as elephants, rhinos, hippopotamuses, lions and tigers, which were admired by Europeans and North Americans for safari viewing and hunting.

Table 1: Global rate of establishment of protected areas

Decade	Number of areas	Size (square kilometres)
Unknown date	711	194,395
Pre-1900	37	51,455
1900-1909	52	131,385
1910-1919	68	76,983
1920-1929	92	172,474
1930-1939	251	275,381
1940-1949	119	97,107
1950-1959	319	229,025
1960-1969	573	537,924
1970-1979	1,317	2,029,302
1980-1989	781	1,068,572

Source: Reid and Miller, 1989:71

The notion of creating parks in order to protect large animals is still inherent in many developing countries. Increasingly, however, the preservation of biological diversity and the maintenance of ecological processes are seen as being the crucial functions of national parks (McNeely and Miller, 1984). The role of national parks in developing tourism, particularly with a view to generating foreign exchange earnings and providing income and employment opportunities for local people, is also commonly emphasized. However, the extent of this benefit at the local level is open to discussion among specialists (Kadt, 1976; Parkipuny, 1991).

In the majority of cases, the objectives of national park management in developing countries have been limited to defining their legal status, demarcation of boundaries, providing visitor services, fire control measures and protecting flora and fauna (FAO, 1984 and 1988). The interrelated socio-economic aspects, particularly the role that national parks play in supporting local livelihood systems, have frequently been neglected in developing park management plans.

Since the local people living in and around the park are seen as the principal "threat" to the destruction of forests and wildlife, the major preoccupation of park authorities in developing countries has been to curtail the prevailing level of "human interference". People have frequently been displaced from their settlements or denied access to resources within parks such as the fuelwood, biomass and forest-food. In most cases, this has increased economic insecurity for many social groups and generated extreme apathy towards official conservation measures.

In recent years, governments and influential aid agencies have come to realize that national parks and other protected areas cannot be managed successfully without taking into account the subsistence and natural resource requirements of local people. In the 1970s, the UNESCO Man and Biosphere Programme (MAB) promoted the concept of creating "buffer zones" between strictly preserved areas and human settlements so that the needs and aspirations of local people could also be met. However, MAB programmes are generally seen as being strong in theory and weak in "addressing explicitly the relationship between environment and development" (Batisse, 1986). More importantly, MAB programmes have been very biased towards "conservation objectives" (Poole, 1989).

Many international organizations such as United Nations agencies, the World Bank, USAID, IUCN, WWF and other NGOs now commonly emphasize that nature conservation programmes should take into account the survival imperatives of local inhabitants. Subsequently, in some national parks and forest reserve projects - especially those established after the mid-1980s - agricultural and rural development programmes are promoted alongside conservation measures. However, evidence suggests that many of these activities are "experimental", and designed

principally to reduce conflicts rather than to offer sustainable livelihood alternatives. In most cases, local people are not consulted during the planning process and the benefits to be derived from national parks are not directed to the advantage of local communities. This paper examines some of the interrelated socio-economic issues and processes associated with the management of national parks and protected areas in developing countries, focusing particularly on its impact on local livelihood systems.

This paper is based on a review of secondary sources and some limited field research in Madagascar and Thailand. These two countries were selected for field research because of their high rates of deforestation, the ambitious plans of their respective governments to create national parks and forest reserves, and the recent policy changes in which it is planned to integrate park management activities with some level of socio-economic development in the surrounding areas. Two national parks or reserves representing most of the above-mentioned phenomena were selected in each country. The principal methods of field inquiry included discussions with park authorities, visitors and key informants such as local politicians, school teachers and community development workers, and, above all, individual and group interviews with local people.

Thailand

General features of national parks and protected areas

There are several types of protected areas in Thailand, including national forest reserves, forest parks, national parks, wildlife sanctuaries, watershed areas, biosphere reserves, botanical gardens and arboretums. National forest reserves constitute the largest land area, covering some 25 per cent of the national territory. The term "reserves" is misleading here, for these areas are functionally national forests, not the strictly protected "forest reserves" found in many developing countries. Despite legal bans, logging, mining, hunting, charcoal making and the establishment of new agricultural settlements often occur in these areas.

Forest parks are located in national forest reserves. There are currently 50 in Thailand, covering 736 square kilometres (Kasetsart University, 1987). They usually include limited attractions such as waterfalls, caves and beaches and are created essentially for recreational use, although they are generally considered to be too small to be classified as national parks.

Current and proposed national parks and wildlife sanctuaries comprise 16.3 per cent of the national territory, or approximately 83,593 square kilometres (Wongpakdee, 1990), and are regarded as the most successful categories of protected areas in the country. Consequently, a great deal of emphasis has been placed on expanding these core areas in recent years.

No definite figure is available on the size of protected watershed areas, since most categories of protected areas already fulfil watershed functions. No legislation concerning these areas currently exists (Wongpakdee, 1990).

There are at present three biosphere reserves in Thailand. The broad objectives of these areas are conservation and research, but the actual functions differ widely. For example, wildlife research is emphasized at one reserve, teak research at another and watershed management at the third (Kasetsart University, 1987). Together botanical gardens and arboretums cover 43 square kilometres of the country (Kasetsart University, 1987). These areas are used primarily for plant collections and recreational purposes.

A few additional explanatory notes on national parks and wildlife sanctuaries in Thailand may be useful here. According to the official definition of the Royal Forestry Department (RFD), national parks are intended for "the protection of interesting natural features", and wildlife sanctuaries for the "preservation of the habitat of wild animals" (Wongpakdee, 1990:annex 1&2). In essence, both are strict nature reserves functioning to protect forests and wildlife. The main difference between the two is the level of human access allowed in these areas. National parks, which allow tourism, are "open" to the public for educational and recreational use, but this is not usually the case in wildlife sanctuaries where tourism is discouraged. Given the similarities in concepts and functions, as well as the identical socio-economic implications at the local level, the following discussion will include an analysis of both national parks and wildlife sanctuaries.

Present status of national parks and wildlife sanctuaries

There are currently 63 national parks in Thailand, which cover approximately 33,830 square kilometres (see table 2). In addition, 45 new parks, covering an area of 22,617 square kilometres, are being proposed (Wongpakdee, 1990). The parks are located throughout the country, although the majority are situated in the north-west and in the south, since many large stretches of forests have remained intact in these regions. Of the 63 national parks, 14 are marine parks situated near the Gulf of Thailand and the Andaman Sea. The first marine park was set up in 1966, while most of the others were established during the 1980s (Chettamart, 1989).

Similarly, there are 32 wildlife sanctuaries in the country, covering some 24,950 square kilometres (table 2); and there are plans to establish six more sanctuaries comprising 2,196 square kilometres (Wongpakdee, 1990). The wildlife sanctuaries are concentrated primarily in the north and north-west, and to date all are located in terrestrial areas.

The establishment of national parks and wildlife sanctuaries in Thailand began some 30 years ago. During the 1960s, only three national parks and one wildlife sanctuary were established. However, there was a manifold increase in the 1970s and 1980s, as some 60 national parks and 31 wildlife sanctuaries were established. Various factors were responsible for this growth.

From the early 1970s, the Thai government considered that national parks and wildlife sanctuaries would best prevent the occupation and exploitation of forest areas by shifting cultivators and land-hungry migrants.

The industrial timber lobby also opposed land settlement by peasant cultivators because this led to increased forest clearance and a consequent lack of timber. Thailand's relatively high standard of living and access to cheap timber from neighbouring countries (i.e. Cambodia, Laos and Myanmar) has actually permitted the dominant Thai social groups, such as the loggers, to support official forest protection measures. Moreover, it is easier to convert gazetted forest land to eucalyptus plantations than when the same forest is under private ownership (Lohmann, 1990).

Table 2: National parks and wildlife sanctuaries in Thailand

Name	Year of establishment	Area in hectares
National parks		
1. Khao Yai	1962	216,863
2. Phu Kradueng	1962	34,812
3. Khao Sam Roi Yot	1966	9,808
4. Nam Nao	1972	96,600
5. Tarutao	1974	149,000
6. Khao Luang	1974	57,000
7. Doi Khuntan	1975	25,529
8. Namtok Phliu (Khao Sabup)	1975	13,450
9. Thung Sulaeng Luang	1975	126,240
10. Phu Phan	1975	66,470
11. Erawan	1975	55,000
12. Khao Chamao- Khao Wong	1975	8,368
13. Khao Khitchakut	1977	5,870
14. Doi Inthanon	1978	48,240
15. Lansang	1979	10,400
16. Phu Rua	1979	12,084
17. Chaloe Ratanakosin (Tham Than Lot)	1980	5,900
18. Ramkhamhaeng	1980	34,100
19. Sai Yok	1980	50,000
20. Thaleban	1980	10,168
21. Mu Ko Ang Thong	1980	10,200
22. Khao Sok	1980	64,552
23. Tad Ton	1980	21,718
24. Doi Suthep-Pui	1981	26,106
25. Phang-Nga Bay	1981	40,000
26. Si Satchanalai	1981	21,320
27. Khao Sam Lan	1981	4,457
28. Kaeng Krachan	1981	291,500
29. Mu Ko Surin	1981	13,500
30. Phanom Bencha	1981	5,012
31. Had Ni Yang	1981	9,000
32. Mae Ping	1981	100,300
33. Kaeng Tana	1981	8,000
34. Khao Laem Ya Mu Ko Samet	1981	13,100
35. Wiang Kosai	1981	41,000
36. Hat Chao Mai	1981	23,088
37. Namtok Mae Surin	1981	39,660
38. Si Nakarind	1981	153,200
39. Thap Lan	1981	224,000
40. Ton Krabak Yai	1981	14,900
41. Pang Sida	1982	84,400
42. Khao Pu - Khao Ya	1982	69,400
43. Mu Ko Similan	1982	12,800
44. Khlong Lan	1982	30,000
45. Mu Ko Chang	1982	60,500
46. Laem Son	1983	31,500
47. Hat Noppharat Thara-Mu Ko Phi Phi	1983	38,996
48. Phu Hin Rong Kla	1984	30,700
49. Mu Ko Phetra	1984	49,438
50. Phu Kao - Phu Pha Kham	1985	32,000
51. Mae Yom	1986	45,475
52. Khao Lam Pi Hat Thai Muang	1986	7,200
53. Phu Jong Nayoi	1987	68,600
54. Mae Wong	1987	89,400
55.	1987	54,300
56. Sri Phang-Nga	1988	24,608
57. Hoiy Huad	1988	82,856
58. Jaa Saun	1988	59,200
59. Mukdahan	1988	4,850
60. Sree Lanna	1989	140,600
61. Doi Luang	1990	117,564
62. Mu Ko Lanta	1990	13,400
63. Klong Wang Jao	1990	74,700
Total	63	3,383,002

Table 2 (Continued)		
Name	Year of establishment	Area in hectares
Wildlife sanctuaries		
1. Salak-phra	1966	85,855
2. Khlong-nakha	1972	48,000
3. Phu-Khiao	1972	156,000
4. Khao-soi-dao	1972	74,502
5. Huai-kha-khaeng	1972	257,464
6. Lum-nam-pai	1972	118,111
7. Thung-yai-naresuan	1974	320,000
8. Khao-khiao Khao-chomphu	1974	14,470
9. Khlong-saeng	1974	115,530
10. Phu-luang	1974	84,799
11. Phu-wua	1975	18,650
12. Khao-banthat	1977	126,695
13. Yod-dome	1977	20,255
14. Phu-miang Phu-thong	1977	54,500
15. Khao-ang-runai	1977	10,810
16. Ton-ngachang	1978	18,195
17. Maenam-phachi	1978	48,931
18. Mae-tuen	1978	117,300
19. Doi-chiang-dao	1978	52,100
20. Salawin	1978	87,500
21. Khao-phanom-dong-rak	1978	31,600
22. Doi-pha-muang	1980	58,311
23. Doi-pha-chang	1980	57,108
24. Khlong-phraya	1980	9,500
25. Omgoy	1983	122,400
26. Doi-luang	1984	9,700
27. Khao-sanam-priang	1985	10,100
28. Mae-yuam	1986	29,200
29. Sub-lungka	1986	15,500
30. Prince Chumphon Park	1988	45,400
31. Umphang	1989	251,564
32. Phu-si-tan	1990	25,000
Total 32		2,495,050

Source: Royal Forestry Department, Bangkok, 1990.

National parks are also considered to be one of the crucial sources of foreign exchange earnings as the country has seen a rapid growth in tourism since the early 1960s. Similarly, there has been a significant increase in urbanization, particularly in Bangkok and the central-eastern part of the country, resulting in a rising demand for recreational facilities. Furthermore, due partly to the relentless efforts made by the Thai Royal family, the media, schools and academic institutions, a section of the urban population has become steadily conscious of the importance of nature conservation and has acted as an important pressure group. These developments greatly facilitated the establishment of increasing numbers of national parks in the country.

Figure 1: Growth of national parks and wildlife sanctuaries in Thailand (1960-1990)

(Figure not available in this version of the report)

Lastly, the availability of foreign assistance has been a major stimulus to the growth of national parks in Thailand. A national system for the management of protected areas was developed by an expert from the United States National Park Service in the 1960s. In the 1970s and 1980s, FAO, IUCN, UNDP, USAID, WWF and many other agencies provided substantial financial and technical assistance to the management of protected areas. The availability of foreign assistance at such a high level has provided an important incentive to government officials to create more parks and

sanctuaries, since the aid programmes generally offer additional project allowances, better office, housing and transport facilities, and overseas studies. Similar trends have been commonly noted in other Asian countries (Ghimire, forthcoming).

Until the late 1980s, the dominant land use policy in Thailand had been that at least 15 per cent of the national territory remain under national parks and wildlife sanctuaries, and another 25 per cent within national forest reserves. Since forests are thought to be better protected under national parks and wildlife sanctuaries, in recent years a great deal of emphasis has been placed on the expansion of these areas. As a matter of fact, senior forestry officials in Bangkok indicated that the government was planning to increase the land area designated as national parks and wildlife sanctuaries from the present level of 16.3 per cent to 25 per cent of the national territory during the next 1992-1996 Five Year Plan (personal communication).

The implications of this policy need to be understood. First of all, it is uncertain whether the RFD has the capacity to manage such a large territory. Secondly, external financial assistance may not be as available as in the past, since so many other countries are also seeking international financial help to establish parks and reserves. Moreover, if all exploitation is prohibited in forests retained in their primordial state, no significant socio-economic benefits would exist for local communities. In fact, the extent to which these measures will affect local survival imperatives has not been sufficiently realized. The following section discusses the nature of present park management in Thailand, and indicates that some of these issues have already surfaced on a significant scale.

The current forms of management of national parks and wildlife sanctuaries

In Thailand, the general procedure followed in almost all cases is that an area of forest is first declared a national park or wildlife sanctuary; boundaries are then marked, checkpoints established and the forestry laws are enforced quite strictly. In the past, the need for national parks and wildlife sanctuaries was justified by the government's desire to protect specific animals or plants. In recent years, the very existence of forest areas has been a sufficient justification to create new ones.

In the process of establishing a park or wildlife sanctuary, the chief problems commonly perceived by government officials are that of policing, administration, staffing and funds. Issues not immediately related to the ones mentioned above are considered secondary. Officials fail in particular to address the major problem posed by the local people who inhabited, and greatly depended on, the forests prior to their becoming protected zones.

One official source indicated that "in many parks up to 10 percent of the total area is cleared and resided on by people from surrounding areas". "Illegal" land settlement is thus regarded as the "most serious problem within protected areas" (Wongpakdee, 1990:10). The general policy towards existing settlements has varied, depending on when they were established and external political support and internal solidarity among settlers. Generally government policies have revolved around three main measures.

The RFD has principally sought whenever possible to remove the people from the area. The official justification has been that the presence of a growing population of "encroachers" exerts a continuous pressure on the park resources (Wongpakdee, 1990). This has proved a difficult task as most settlers were unwilling to leave their homes and had no viable economic alternatives. Furthermore, "unauthorized" land settlement provides many peasants with land not only to grow crops for subsistence but also for the construction of housing and shelter. This latter requirement

(i.e. land for housing) is particularly crucial for migrant households who, having left their original place of residence, have nowhere else to live.

If "total removal" proves impossible, attempts are made to relocate people in other areas. In the 1970s and early 1980s, the Thai government was engaged in a number of "resettlement" schemes. However, its activities were often criticized on the grounds that people were moved to unproductive, marginal land, small plots with inadequate agricultural support services. Often these were in entirely new geographical or climatic zones. However, in recent years, official relocation measures have been few and far between. This is primarily because the RFD is unwilling to release gazetted forest areas for resettlement and little "public" land (i.e. outside of forests) is available in the country for this purpose.

In a situation where neither removal nor relocation is possible, the RFD has sought to provide smaller plots of land (i.e. large enough for a house and a small kitchen garden or farmyard) and include the remaining settlement area in the adjacent park or sanctuary. In the past, this measure tended to encourage further deforestation as households which were unable to meet subsistence needs from their small plots of land cleared new patches of forests in isolated locations or moved to other forest-frontier areas to establish new dwellings and farmland.

"Law enforcement" measures are emphasized in order to control the unauthorized local use of forests for other purposes such as hunting, and the gathering of food, wood and forest products. Most officials generally consider that these activities are carried out to maximize profits rather than for genuine survival needs.

Ad-hoc and often coercive official policies regarding the "regularization" of existing human settlements within or outside park or sanctuary boundaries have on many occasions led to outright clashes between government officials and local people. Rural conflicts surrounding entitlement and access to land were frequently reported in local newspapers in the late 1960s and 1970s, despite official attempts to prevent the events from getting publicized. The official belief tended to be that most of these people were manipulated by underground communist groups. The 1980s saw a rise in these protest movements because the government tried to increase the numbers of national parks and wildlife sanctuaries, thereby evicting villagers from these places (for example, *The Nation*, 29 August 1989, *Bangkok Post*, 31 July 1989).

As restrictions on the exploitation of forest products have increased, so have the frequent "thefts" of these very items by the local people. One consequence of this situation is that the local communities have tended to regard forests as "lost village resources" and take little or no initiative in managing these areas.

Another interrelated consequence of the lack of involvement of local communities in managing national parks and wildlife sanctuaries is that the government is required to spend considerable sums of money to administer and police the areas concerned. An increasing number of trained forest guards, radios, automatic weapons, vehicles and helicopters are sought by all parks and sanctuaries. This exerts considerable financial pressure on the government, obliging it to look for increased foreign assistance. Ironically, these expenditures are being used to keep those who could have been the best protectors out of the parks or sanctuaries.

A few rural development programmes, designed to reduce conflicts and provide a level of economic security for local people, have been promoted in recent years. However, their scale is extremely limited and they usually fail to address fundamental livelihood issues. In order to

examine this development and to elaborate further on the nature of present park management - specifically with respect to the effects of official forest and wildlife conservation measures on the livelihood systems of local communities - the experiences of two of the country's main protected areas are examined below.

Khao Yai National Park

General description

Established in 1962, Khao Yai is the oldest national park in Thailand. It covers 2,168 square kilometres and is located in the central-eastern region of the country, forming part of the western Phanom Dongrek mountain range (see map 1). In Thai, "Khao Yai" literally means "high mountains". There are some peaks in the park which rise to over 1,000 metres, although much of the area consists of plateaux and valley floors. A number of rivers originate inside the park. These rivers constitute an important water source for irrigation, agricultural industry and urban centres in adjacent lowland areas. Nearly two thirds of the park's surface is covered with tropical rain forest (i.e. moist evergreen forest). A number of animals found in the park are considered endangered species, for example, wild elephants, tigers and gaurs; and, ever since the establishment of the park, a great deal of emphasis has been placed on the protection of these animals, particularly the elephants.

Map 1: Khao Yai National Park (Map not available in this version of the report)

Local people vs. wildlife and tourists

When Khao Yai was proclaimed a national park, there were many settlements within its boundaries. Some of these villages were established long before the government had begun promulgating any forest protection legislation. These settlements were located in fertile areas, usually near rivers or lakes, and generally made use of small patches of forest for housing and crop production. Swidden cultivation was the principal form of agriculture, used with long fallow intervals. Many households supplemented their subsistence requirements with hunting and forest food gathering.

Government officials believed that the slash-and-burn cultivation methods led to frequent forest fires, and that hunting resulted in the indiscriminate killing of wild animals. The existence of the settlements within park boundaries was thus regarded as a serious threat to the protection of wild animals and of their habitat. Consequently, settlers from inside the park were evicted, followed by the removal of households settled on the outskirts of the park. Relics of some of the burnt farm-houses can still be seen in the park.

Government officials also sought to include adjacent marginal areas within park boundaries in order to diminish human pressure in the park. This process continues even now. These actions are justified on the grounds of "conservation", especially since the park has acquired a growing national and international reputation in recent years. This has affected the survival imperatives of many groups of local people. One major consequence of this policy has been further deforestation since households losing land in and around the park have moved to new locations and cleared forests for settlement. Those who were unable to migrate tended to over-exploit forest and land

resources which remained relatively accessible (for example, forests and village commons outside of the national park). This is especially true in Khao Yai where the park represents only a little "green island" amidst a much larger grey and denuded settlement area.

Khao Yai has become one of the most popular recreational centres in Thailand. It is located at about 200 kilometres north-east of Bangkok and is connected by a good road network. The park includes the mountain chain nearest to Bangkok and offers pleasant temperatures throughout the year. Hence, it is regarded as an "idyllic retreat" from the noise, pollution and humidity which characterize urban life in Bangkok.

Indeed, the park is visited annually by a large number of urban people, government officials, foreign dignitaries and tourists. Many roads and trails have recently been constructed inside as well as on the periphery of the park to cater to visitors; and tourist bungalows, watch towers and a 18-hole golf course have been built inside the park, especially in areas where local people previously maintained dwellings and farmlands. Motored generators, which provide electricity and pump water, roar most of the night. Loud music is played by the many groups of urban youth who visit the park. One could question whether the earlier settlers disturbed the wild animals as much current park visitors. One thing is sure however: unlike the local residents, the tourists (both urban dwellers and foreigners) bring in money, which is extremely crucial for the maintenance of the park, as well as for the development of the local tourist industry.

Recent attempts to minimize conflicts

Despite the removal of people from the park perimeter and the imposition of heavier fines and imprisonment for the illegal exploitation of park resources, poaching and unauthorized removal of forest resources in general have continued. According to park authorities, people often deliberately set the forest on fire and poison wild animals, especially those animals which enter the villages.

A typical conception that has emerged in recent years in Thailand is that local people are involved in illegal exploitation of forests principally due to "the lack of environmental awareness driven by poverty" (WFT, 1990a). Although this opinion is seriously flawed, it seems to have found favour with several donor agencies.

There are currently two principal environmental development programmes in villages surrounding Khao Yai National Park. The first programme, known as Mobile Conservation Education Awareness Dissemination, is implemented by the Wildlife Fund Thailand (WFT). This project, funded by WWF International, seeks to promote conservation education, along with a limited degree of income-generating activities. Some 30 villages north-east and east of Khao Yai are covered, although only 10 of these villages benefit from these income-generating activities (WFT, 1990b). This includes small loans for crop diversification given to selected households which pledge not to enter the forest.

The second programme, called Rural Development for Conservation, is run by the Population and Community Development Association (PCDA) together with the WFT. It is funded by German Agro Action and USAID. Its activities are very similar to that of the above programme, except that this project promotes family planning more actively, and also emphasizes "nature tourism" in order to generate income outside of agriculture (Brockelman and Dearden, 1990).

The organizations involved feel that their programmes are such "huge successes" that they should be replicated in the surrounding villages, provided that external financial assistance is available

(WFT, 1990a and 1990b, PCDA, 1990). However, the villagers themselves seem to have mixed reactions. Many suspect that programme activities are yet another government intervention designed to curtail their access to forest resources. One discontented farmer said the government was "giving away a finger but taking in return an arm". Indeed, in some cases villagers claimed that, before they were given any loans from the project, they were obliged to take an oath, in the Buddhist religion manner, never to enter the forest.

Some specialists consider these two projects to be the "model" for the successful management of parks and sanctuaries in Thailand (Gradwohl and Greenberg, 1988; Wells et al., 1990). This is questionable for four reasons. Firstly, these programmes cover only a few households. Secondly, the extension of credits has primarily been for cash crop production. This causes the farmers to become dependent on market mechanisms over which they have no control; furthermore, they are not producing what they usually eat. Thirdly, these programmes provide only small, short-term loans, while many of the farmers' needs are structural and require long-term assistance. For example, a large section of the peasantry either has no land or owns plots which are marginal in location and quality. There is no irrigation. There are few possibilities for wage employment in agriculture in the villages which surround the park. Lastly, the local people have no alternatives to their traditional forest products (wood, bamboo, biomass and forest food) which they previously collected from the park area. Therefore, the long-term success of these programmes seems doubtful.

Huai Kha Khaeng wildlife sanctuary

General description

Huai Kha Khaeng is located in the western part of Thailand, near the border with Myanmar (formerly Burma) (see map 2). The sanctuary was established in 1972 and initially covered 1,631 square kilometres. In 1986, a further 944 square kilometres were added by incorporating surrounding national forest reserves and settlement areas. Huai Kha Khaeng borders the Thung Yai and Um Phang sanctuaries, as well as the Srinakarin National Park and national forest reserves. If these areas were consolidated, they would represent the single largest "protected area" in South-East Asia.

Map 2: Huai Kha Khaeng Wildlife Sanctuary

(Map not available in this version of the report)

The sanctuary is composed of mountains, plains and marshland areas. As a result, significant diversity in flora and fauna can be found. Nearly 50 per cent of the sanctuary is covered by evergreen forest (i.e. rain forest), with some mixed deciduous forest. Most of the plants in the sanctuary are considered common species. However, the sanctuary authorities consider a number of wildlife species, such as water-buffaloes, as being endangered.

Reviving the "law of nature"?

The Huai Kha Khaeng area is regarded as one of Thailand's "least accessible and least disturbed forest areas" (Nakhasathien and Stewart-Cox, 1990:3). About 200 households belonging to the Hmong and Karen hilltribes were believed to have migrated to the area some 30-40 years ago (Dobias, et al., 1988). These people practised shifting cultivation and hunted certain species. Given

the large wooded area that they inhabited, it is probable that no serious depletion of forests and wildlife resources occurred.

However, when the wildlife sanctuary was established, all the households settled within its boundaries were removed. Despite the fact that concessionary logging activities were permitted until the late 1980s in certain locations (Nakhasathien and Stewart-Cox, 1990), and that a large number of people visit the sanctuary each year, officials have attempted to keep the sanctuary free of human presence and activities.

A common assumption made by government officials regarding the management of wildlife sanctuaries in Thailand has been that the "law of nature" should prevail in these areas. This might be justified in certain locations. However, the wisdom of having an undifferentiated policy for all areas is questionable. In the case of Huai Kha Khaeng, as many of the plants and animals are common species (i.e. found in other sanctuaries and parks, or in the neighbouring countries), there is no reason why a total prohibition on the use of all forest products should be sought. For example, the organized collection of dried wood and other biomass from the forest would cause no serious effect to the overall protection of plants and wild animals in the sanctuary.

Issues of survival

The management of wildlife sanctuaries in Thailand is characterized by the total lack of attention paid to the livelihood requirements of local communities. Different social groups have been affected in the process, albeit to a somewhat varying degree.

Tribal hunters, belonging to the Hmong and Karen ethnic groups, are one set of people whose livelihood systems are most threatened. These people previously fulfilled a substantial part of their subsistence needs, as well as a limited degree of their market requirements, through hunting. This is also because most households cultivated small parcels of land and raised no livestock. Furthermore, hunting was carried out during the dry season when agricultural employment in the area is generally scarce. Most of the animals hunted were common species existing in the forest in substantial numbers. However, a complete ban has now been imposed on the hunting of all types of animals.

During a field visit to the area, the author observed an "arms surrendering ceremony" in the town of Uthai Thani. Some 350 home-made guns were surrendered by local hunters to the army Chief-of-Staff as a sign of respect to mark the birthday of the Thai King. In return, they were told that no legal action would be taken against them for possessing the arms (**The Nation**, 7 December 1990). Asked why they were giving up their guns, one hunter replied: "we can now sleep peacefully at night". This was because army officers and sanctuary guards frequently raided villages at night to confiscate guns. Another respondent added, "it isn't worth it, really; one has to take too much risk just to be able to get in the forest". Similarly, a female hunter said she "did not want to live a life constantly fearful of sanctuary guards". She was angry, however, that they were obliged to take a pledge in a monastery that they would never hunt again.

A great deal of political and religious pressure was clearly being used to persuade people to hand over their guns to the authorities. During the ceremony, local politicians, government and army officials delivered speeches noting that the hunters finally understood the "importance of nature conservation". None, however, mentioned the fact that laying down their arms would deprive local people of one of their main forms of subsistence.

People living in Khao Hin Dang and Pong Chang Puag villages (see map 2) were the second group affected by the establishment of the sanctuary. Khao Hin Dang residents had previously settled inside the boundaries of the sanctuary and were later removed so that sanctuary headquarters could be built on the already cleared location. These displaced households formed a new settlement outside the sanctuary on the National Forest Reserve. The village of Pong Chang Puag also existed before the sanctuary was established, and had expanded considerably in the 1970s, when many households from other areas moved into the village.

Although the authorities have sought to maintain the sanctuary without human interference, tourism has been steadily rising. In fact, the authorities are obliged to receive a large number of visitors each week. The sanctuary is invaded, especially at weekends, by numerous people, including students, government officials and other urban dwellers, as Huai Kha Khaeng is portrayed as a "success story" in the media. Yet the sanctuary has few provisions for visitors. The authorities have therefore attempted to remove the villagers from Khao Hin Dang and Pong Chang Puag and transform these areas into camp sites for visitors.

However, villagers are unwilling to move unless alternative arrangements are made for them. Some residents say that they are prepared to have tourists in their houses, as this would provide them with a source of income. But sanctuary authorities are concerned that growing local tourism and the high fascination amongst Thais for game meat and wild animals would encourage local people to become involved in "poaching" activities. However, this is only an assumption.

The third group of people affected by the establishment of the sanctuary includes inhabitants of approximately 45 villages located on its eastern side. Even though a narrow strip of national forest reserve "buffer zone" exists between the villages and sanctuary boundaries, many households rely heavily on grazing areas, firewood and construction materials, as well as on the edible items found within the sanctuary. All of these local subsistence-oriented activities are no longer possible.

As a result, people from the surrounding villages tend to consider the establishment of the sanctuary as an imposition by the government. For example, one woman in Pong Chang Puag described the sanctuary as "an act of stealing our forest lands by government officials". Asked if he could see any benefits deriving from the sanctuary, a young man in the same village replied: "we don't care what goes on over there", and walked off. Resentment seemed to be on the rise despite an apparent absence of wider political support for their needs and aspirations.

Summary

This inquiry into the socio-economic aspects of the management of national parks and wildlife sanctuaries in Thailand may be summed up by highlighting a few specific points.

There has been a strong inclination on the part of both the Thai government and the politically dominant social groups to create national parks and wildlife sanctuaries. Attempts have been made to establish new areas as well as to expand existing park boundaries by incorporating adjacent forest and settlement areas. This has meant increasing government control over local forest resources. This is also being done without the involvement of the local communities.

In establishing protected areas, little attention has been given to the subsistence needs of local people. Instead, most official efforts seem to have been concentrated primarily on "driving them away" from the areas and on introducing tougher law enforcement measures. Within the planning process, scarcely any thought is given to directing the ensuing benefits of protected areas to the

advantage of local people. For example, park management plans give no preferential treatment to local people as far as employment in park management activities is concerned. Tourism, especially associated with "nature trekking", is seen by some as a potentially significant source of income for villages near the borders of national parks (Brockelman and Dearden, 1990). However, most tourist facilities (such as accommodation, recreational facilities, etc.) are mainly centred inside the park, far away from the surrounding villages, thereby limiting the benefits to the local people. At best, income-generating activities are likely to be confined to "spillover" benefits only. Integrated, long-term and targeted (i.e. group-specific) rural and/or environmental development projects could offer a degree of economic opportunity for local communities. However, only a few such projects exist in the entire country; and, as mentioned above, these seem to be "showpieces" rather than solid and sustained advantages to local areas. One way of directing the actual benefits of protected areas to surrounding villages would be to allow local people to harvest forest resources in an organized and sustainable manner. However, to date they are prohibited from collecting even those forest products which are to be found in excess quantities, or which are either burned each year or rot naturally.

Finally, the majority of rural dwellers in Thailand lack the political means to advance their interests or to make their grievances heard. Some observations were made earlier in this paper concerning local level collective action (for example, open protests and rallies) in response to the establishment of parks and sanctuaries and the accompanying restrictions on the utilization of forest resources. The creation and management of protected areas has produced prolonged discontent in many locations, although many of these protests have tended to be short-lived and sporadic due to the lack of outside political support. The limited role of popularly based political parties, trade unions and professional organizations is evident. Authoritarian and hierarchical political structures put severe restrictions on popular participation in decision-making and resource management (Turton, 1987:121-22). Over the last 20 years or so, a degree of external political support has tended to come from some professional organizations, NGOs and Buddhist monks. However, because of the perceived "environmental crisis" in the country, these social actors, including the monks (Kaye, 1990), now support official conservation measures and have withdrawn their previous support for local communities. They consider local people to be the principal agents of forest destruction. Consequently, in Thailand today, many weaker social groups find themselves increasingly helpless and at the mercy of the RFD and the bureaucracy in Bangkok.

Madagascar

General background on national parks and protected areas

At the end of the 1980s, national parks and protected areas constituted over 50 per cent of the forest formations in Madagascar (Randrianarijaona, 1989). These areas covered 66,380 square kilometres (see table 3), and represented about 11 per cent of the total land surface of the country.

As shown in table 3, Madagascar has various types of protected areas such as national reserves, special reserves, biosphere reserves, national parks, hunting reserves, classified forests, etc. The primary function of all protected areas is to preserve forest fauna and flora. The main difference between the various categories is the level of protection that is maintained. For example, national parks, national reserves, special reserves and biosphere reserves are strictly protected areas, whereas partial exploitation is generally permitted in hunting reserves and classified forests. Cultivation, grazing and logging, however, are prohibited in all protected areas.

Table 3: Protected areas in Madagascar			
Category	Number	Area in hectares	Main characteristic
National reserve	11	569,542	only scientific research allowed
Special reserve	25	390,489	scientific research, education and a limited degree of tourism permitted
National park	4	133,760	tourism and education encouraged
Biosphere reserve	1	116,000	established to strengthen biological diversity/strictly protected
Classified forest	167	2,157,336	the use of forests by riverain population generally tolerated
Hunting reserve	93	1,549,248	hunting allowed with official permits
Reforestation/enrichment area	120	1,083,271	areas designated for reforestation and forest enrichment
Forest station	23	38,257	only protection and research activities allowed
Total	444	6,637,903	

Source: Service des Eaux et Forêts, Antananarivo, May 1990.

Until recently, only a few protected areas in Madagascar were classified as national parks. However, the Malagasy government has been expanding national parks in recent years, after observing the foreign exchange earnings generated through tourism in the national parks of neighbouring countries, namely Kenya and Tanzania. In order to encourage growing numbers of tourists to visit the country, several forest reserves have acquired the status of national parks. Equal emphasis has been placed on terrestrial and marine parks.

The government is also planning to establish some 15 new protected areas in the next 10 years (personal communication, Direction des Eaux et Forêts, Antananarivo). Many of these areas are likely to be classified as national parks. Furthermore, since earnings from tourism are seen as a potential financial source for park management, foreign aid donors have taken an interest in encouraging changes in the status of protected areas and the growth of the national parks area. Thus, national parks are likely to become increasingly prominent in Madagascar.

Present forms of management of national parks and protected areas

Madagascar has been bestowed with a unique ecological evolution and a high level of biological diversity. The endemism rate of flora and fauna in the country is remarkable. For example, nearly 100 per cent of the lemurs, 95 per cent of the reptiles and 86 per cent of the plants in Madagascar are found nowhere else in the world (Randrianarijaona, 1989). As a result, its biological richness is considered to be an important "part of the international patrimony" (World Bank et al., 1988:9). Yet, due to the rapid rate of deforestation, the country's heritage of biological diversity is believed to be at serious risk (Jolly, 1989).

It is against this background that most of the recent management policies of national parks and protected areas were formulated in Madagascar.

During the 1960s and 1970s, the Malagasy government, while claiming to represent "rural interests", lessened official control over local forest resources. Peasants were encouraged to move from the heavily populated southern provinces to the north-east coast where both virgin land as well as agricultural estates previously maintained by French colons were available. Laws regulating access to forests for agriculture and the collection of forest products were relaxed. The status of a few protected areas was even downgraded to permit freer exploitation of land and other resources.

Of course, part of the aim of these policies was to ensure rural political support for the regime and to achieve national food self-sufficiency.

However, the 1980s saw very different policies emerge. The government held back its "socialist strategies" and introduced a "free market economy". Economic and technical assistance was sought from developed countries and international organizations. At the same time, concerns for forest protection and biodiversity had steadily increased in developed countries. To capitalize on this, the government designed a conservation programme which included the management of protected areas. An ordinance was formulated in 1983 to reinforce forestry regulations more vigorously. In 1984, a strategy for the conservation of natural resources in the country was developed; and in 1988/89 a new Environmental Action Plan was launched. As will be discussed below, these policies have resulted in increasing government control of forest resources, along with more and more restrictions on access to forests for local communities.

The government has periodically revised forestry and conservation acts in order to ensure that a sizeable part of the country's forests remain under these stricter management regimes. Attempts have also been made to establish several new national parks and protected areas. In addition, where political and administrative circumstances permitted, the government has sought to expand the existing boundaries of national parks and protected areas by incorporating adjacent forest and settlement areas.

Madagascar has several advantages over many developing countries as far as the management of its national parks and protected areas is concerned. The country is physically larger than France, but has only 11 million inhabitants. This is unusual among developing countries. Moreover, as only half of the forest formations are included within management systems of national parks and protected areas, the remaining forest areas serve as an important "buffer zone" between human settlements and protected areas. Finally, illegal poaching and/or commercial hunting of wild animals does not constitute a serious threat as Madagascar does not have any animals like the apes, antelopes, lions, rhinos or elephants of the African mainland, which command a high market price. Although there is external demand for some reptiles, orchids and succulents, trading in these products is marginal. The most protected animals on the island are some rare species of lemurs. As it happens, however, there is a local taboo against hunting or eating lemurs, for they are considered by rural people to resemble human beings. In general, "common species" such as wild boar are hunted for local consumption.

The most commonly cited problem with respect to the management of national parks and protected areas in Madagascar is slash-and-burn agricultural/pastoral practices, known locally as *tavy*. Of the 3 million hectares of cultivated land, approximately 1 to 1.5 million hectares are believed to be affected by these and other rainfed agricultural practices (World Bank et al., 1988). The extent to which periodic clear-cutting and burning of forests, especially with long fallows, cause damage to forest ecosystems is questionable. However, in the case of Madagascar, this practice has been described as a "*gaspillage* (waste) of wood" (Uhart, 1962:108), "destruction of forest habitat" (de George, 1990), "threat to the forest patrimony or capital" (Randrianarijaona, 1989:78), a practice "carried out without concern for conservation" (World Bank et al., 1988:25), etc. As a result, many forestry and conservation legislation measures adopted directly aim at controlling *tavy*.

Indeed, evidence suggests that, prior to French rule on the island (1885-1960), local authorities had attempted to restrict *tavy*. For example, the Forest Code of 1881 set regulations for forest use and prohibited employing new forest areas for this purpose (Uhart, 1962). The measure may have also

been prompted by the growing shortage of wood for cooking, heating and as a construction material in the capital city (Uhart, 1962)).

French authorities also introduced many forestry measures to curtail *tavy*. The principal goals of these acts were to "utilize the forest wealth properly" (*mise en valeur des richesses forestières*), while at the same time giving concessionary rights to colons and other powerful interests, who often exploited forests in a wasteful manner (Uhart, 1962). For recreational and educational purposes, parts of forests were set aside as natural reserves or parks, where *tavy* could not be practised. Attempts were also made to promote permanent agriculture, instead of swidden, to reduce forest clearance as well as to increase agricultural surpluses.

Little has changed since independence (1960) regarding the official interpretation of the phenomenon of *tavy*, except during the late 1960s and 1970s when political changes seemed to slightly favour peasants' interests. The French pejoratively termed the peasants practising *tavy* as *mineurs agricoles*. This terminology is commonly used in Madagascar today. Accordingly, *tavy* is considered a "long-lived habit" (Andriamampianina, 1985:84) which "developed with little thought to conservation of the fragile ecosystem" (World Bank et al., 1988:9). These views fail to explain climatic, topographical, economic and livelihood-related rationalities for adopting the practice. In view of controlling *tavy*, the present official policy measures stress the need to remove villagers from within protected areas, to create larger "buffer zones", to enforce forest patrolling, and to impose heavy fines and imprisonment for the unauthorized use of forests.

One assumption inherent in forest management policy seems to be that local communities destroy forests primarily due to their ignorance concerning the wider effects of deforestation (World Bank et al., 1988). For the same reason, it is also thought that the long-term perspectives of official nature conservation programmes are not properly understood by rural folk. Therefore, environmental education, or *sensibilisation* as it is called in Madagascar, have been considered essential aspects of the management of protected areas.

Ironically, the explanation that people frequently clear forests because of a lack of alternatives was not spoken of until very recently. However, as international aid for combining park management with socio-economic development of surrounding villages is becoming readily available, the Malagasy government has been quick to employ this new approach. This stance is politically favourable, for it demonstrates the government's concern for rural livelihood requirements, and dampens to some degree the rising political opposition surrounding forestry issues.

Since the late 1980s, a number of rural development projects have been introduced in villages located near parks or reserves in order to diminish local people's reliance on park resources. The World Bank, USAID, WWF, UNESCO, UNDP and the Swiss Technical Cooperation are major aid agencies involved in this field. The country has been divided into different zones depending upon the sphere of activities carried out by these agencies. For example, the World Bank focuses on the central region, USAID is involved in the south-east, the Swiss concentrate their activities in the south-west; UNESCO and UNDP are in the north, and WWF is working in the far north. Most of the programmes are fairly recent, and it is unclear what their future socio-economic, political and environmental impacts will be. It can be assumed, however, that these programmes will be basically concerned with the "biodiversity" component, rather than long-term socio-economic development of the surrounding areas. Some of these processes as well as other interrelated issues regarding the management of national parks and protected areas are elaborated upon in the following discussion of Madagascar's two most prominent protected areas.

Mananara Biosphere Project

General description

The Mananara Biosphere Project is located on the north-east coast of Madagascar (see map 3). The project was begun in 1988, with the financial assistance of UNDP, and is implemented by UNESCO in association with the central bureau of Direction des Eaux et Forêts. Programme activities are based on the Man and Biosphere (MAB) concept developed by UNESCO in the 1970s. The project aims at conserving biological diversity by promoting rural development programmes in villages located in and around the biosphere. It is the first of its kind to be introduced in Madagascar and is spread over an area of 140,000 hectares, covering both forest areas and human settlements.

Map 3: Mananara Biosphere Project (Map not available in this version of the report)

There are two national parks which form the core of the forest area. The first is a terrestrial park which has three units and extends over an area of 23,000 hectares. The second is a marine park which includes the scenic island of Nosy Antafana in the Indian Ocean. This latter park covers 1,200 hectares. The protection of lemurs, chiefly the *Daubentonia madagascariensis*, is the principal objective of the terrestrial park while the marine park was established to encourage tourism in the area. The local people are prohibited from entering both the terrestrial and marine parks.

The Mananara Biosphere Project also covers 115,000 hectares of "development zone", comprising approximately 50 villages with a total population of 35,000. The project seeks to improve the socio-economic conditions of local inhabitants and to reduce their dependency on the forest.

The project is considered to be "successful" by both funding and executing agencies, and has already been replicated in Ankarafantsika, Andasibe-Mantady and Bemaraha in the north-west (Albignac, 1990). Project documents give the impression that both forest protection and local level economic development are parallel objectives. In reality, however, the project is beginning to seriously affect local livelihood systems, and has been unable to reach social groups which need rural development services most. Some of these issues are examined in the following section.

The poor are the losers

During the colonial period, timber extraction and the extension of cash crops were encouraged in and around the Mananara area. French settlers were given the leading role in these activities. Timber extraction was undertaken particularly in coastal areas because of easier transport facilities. Many of the areas where logging was carried out were eventually brought under cash crop production. A prolonged annual rainy season combined with high humidity meant that cash crops such as clove, vanilla and coffee were most suited to these areas (Fanony, 1975). Therefore, coastal areas were highly desired by *colons* and by more prosperous farmers who usually collaborated with the French. This process led to a sizeable proportion of the peasantry either losing their lands or shifting from staple to cash crop production. Those who had been dispossessed of their lands were obliged to move further up the valley where they cultivated dry-rice (by practising *tavy*) and some cash crops, if the soil and climate conditions permitted them to do so.

After independence, the government attempted to include many of the areas under peasant *tavy* practices as "classified forests" (Nicoll and Langrand, 1989), thereby prohibiting cultivation in these areas. However, as the "central leadership" was seeking to consolidate its power in the rural areas, no outright coercive measures were applied. Furthermore, as some of these areas were very isolated, and the number of forest guards was relatively small, measures designed to prevent *tavy* were usually ineffective. In some cases, peasants were required to give food or cash to forest guards as bribes in order to continue cultivating *tavy*.

All this changed when the area was included in the Biosphere Project in the late 1980s. Nearly all forest areas where peasants previously practiced *tavy* became incorporated into the terrestrial national park. Peasants were given a 12-month period to cease *tavy* practices and leave the designated area. No compensation was offered to households affected by this measure. One village was removed from the park boundary without any compensation. Two larger ones (Ambodilalanda and Sahatsara) were allowed to remain due to fears of large-scale opposition to the Biosphere Project. For purposes of law enforcement, the *Direction des Eaux et Forêts* substantially increased the number of forest guards stationed in the area. Many extension workers, whose tasks also included surveillance, were recruited and based in different villages. The local administrative and political unit (*Fakontany*), along with the police, also supported the Biosphere authority. All of this has meant an increasing level of restrictions on peasants using forest areas.

For peasants living near the national park boundary, *tavy* fields represent an extremely important source of food supply. Most households are believed to derive between 50 to 65 per cent of their annual food requirements from *tavy* cultivation. Some peasants practice *tavy* instead of permanent agriculture because it requires no bunds, terracing or additional manure; moreover, the fields are thought to attract less weeds. The most important reason, however, for practising *tavy* is that very few peasant households have access to "permanent" or irrigated land.

In addition to the restriction on *tavy*, peasants are also prohibited from grazing and collecting wood, honey and other edible stuffs from the forest. They are also forbidden from hunting. Many of the peasants interviewed said that they had been intimidated by forest guards and Biosphere officials for scaring away wild animals which were caught eating their crops. This was especially the case with lemurs which tend to live near villages and are apparently fond of eating coconuts, bananas and jackfruit.

Similarly, the establishment of the marine park, which led to restrictions on the use of surrounding aquatic resources, has affected the livelihood of some social groups in the area. Before Nosy Antafana was declared a marine park, the island was used by local fishermen as a place to dry fish and collect wood. These practices are now prohibited. One of the villages most affected is the nearby fishing village of Sahasoa. During a field visit to the area, many villagers were found to be extremely unhappy with the Biosphere Project. They said that fishing was prohibited not only at the Nosy Antafana area but also in many other surrounding locations, and that the cutting of trees for the construction of boats was not allowed in the terrestrial park. In all cases, they were not consulted by the Biosphere officials. The villagers also fear being removed from their settlement or dispossessed of their land, as the Biosphere authorities have been seeking to develop tourist facilities, including the construction of a small port and tourist lodges in and around the village.

Some examples of the Biosphere's functioning in relation to the subsistence needs of local social groups have been examined above. These developments are taking place at a time when the ability to improve survival strategies is extremely limited for many households. Given the increasing

official control over the remaining forest areas, access to new agricultural land has now become nearly impossible. A peasant's savings are rarely adequate for the purchase of a new plot of land. Sharecropping is limited in the area since a majority of the households possess small parcels of land and require no outside leasing. In the past, a limited level of agricultural wage employment was generated in cash crops production (i.e. clove, vanilla and coffee). However, due to continuously depressed prices, the production of these crops has been declining in recent years (Fanony, 1975; Szal, 1987), and so has the demand for labour. Moreover, as most of the larger holdings used for cultivating cash crops are located near Mananara town, the peasants in interior areas cannot travel such long distances to find daily employment. The lack of education and training is such that off-farm employment is also limited for most households. In any event, the process of industrialization or urbanization has been advancing rather slowly in the country as a whole. As a consequence of these circumstances, most households seemed to have little economic alternative and are likely to experience a steadily declining standard of living. Evidently, it is the poorer sections of the population which are likely to suffer the most.

Piecemeal rural development programmes

As discussed earlier, the Mananara Project seeks, at least in principle, to combine its nature conservation goals with rural development programmes. Present activities are centred around agriculture, health, education and transport sectors. Interventions aim to provide some level of "compensatory inputs" to local communities' survival needs. However, the field observation suggested that, these activities are mostly piecemeal and the neediest and most vulnerable of the social groups are frequently neglected. One local teacher in one of the villages covered by the project said the rural development activities have so far stayed at the level of "intellectual concept".

A large part of the answer to this situation seems to lie in the low level of financing available to the rural development component of the project. Evidence suggests that between 1988 and 1990, out of the total budget (395,000 US dollars), less than 2 per cent (20,000 US dollars) was allocated for rural development activities (PNUD, 1988). This phenomenon is very common among many rural development projects in developing countries, where most of the budget is used for personnel, vehicle purchases, etc. (PNUD, 1988).

Evidence also suggests that during the period 1988-1990, some 55 projects were "completed" (Albignac, 1991). These included the construction of irrigation dams, the repair of canals, roads, bridges and school buildings, and the provision of drinking water and family planning services (Albignac, 1991). All these activities were carried out with the meagre fund of 20,000 US dollars. The consequence of attempting to cover every sector of the rural economy has been that none of the projects has really been successful. Indeed, many have either remained incomplete or are already damaged, such as the irrigation dams and roads.

The people who are directly affected by the establishment of the Biosphere programme have benefited the least. For example, most development activities related to agriculture have been limited to improving the yield and the productivity of wet-rice cultivation. This shows a bias towards plain areas and larger plots of land. The households possessing these areas are less dependent on the forest than those which live up the valley. These latter groups are overwhelmingly dependent on dry-rice cultivation. As discussed earlier, many of their *tavy* plots are now included within the boundary of the park. At the same time, these people seem to be receiving very little help for improving the production capacity of their remaining ancestral plots. No attempt has so far been made to develop paddy varieties suitable to upland areas. Peasants receive no credit. Indebtedness, albeit generally low, appears to be steadily growing in recent years due to increasing market

penetration and controlled access to forest resources. Financial and technical assistance for constructing terraces and canals would have been most appreciated in these areas. The project sets aside no funds to take care of these aspects on a long-term basis. Most crucially, the needs and aspirations of the local people are not taken into account because of the generally negative attitude of the Biosphere officials who see them as a menace to the project.

Montagne d'Ambre National Park

General description

Montagne d'Ambre National Park is located in the extreme north of Madagascar (see map 4). Although the original core area of the park was of 18,200 hectares, many new buffer zone areas have recently been added. As its name denotes the park includes a chain of mountains stretching from the north to the south. The altitude of the park begins at 850 metres, and the highest peak is about 1,500 metres. The climate in the area is marked by high humidity and a long precipitation period, although there is also a short winter spell in January and February. This park is similar to other wooded areas on the north-east coast. It is covered by moist evergreen forests, and the flora and fauna found here greatly resemble those in the surrounding regions. Although project documents emphasize the economic, scientific and touristic roles of the park (Ravaoartimalala, 1991), the preservation of the lemur habitat remains its chief objective.

Map 4: Park Montagne d'Ambre (Map not available in this version of the report)

Increasing restrictions on customary access to forests

From the beginning of the century, the Montagne d'Ambre National Park has constituted a "protected area". In 1958, it acquired the status of a national park. Wood (for boat building and the construction of administrative buildings and houses in the town of Diego-Suarez and other larger coastal settlements) and hunting were the two initial stimuli for the colonial authorities to enter this area. The colons, who all operated large, mechanized plantations, and some local farmers, also used the water readily available in the park to irrigate their estates.

Traditionally, the Ambre mountain was regarded by local people as a sacred site and only minor products (for example, fruits and medicines) were removed from the area. Forest burning, cultivation and grazing were not practised. It is also possible that the low population density meant availability of sufficient land and other subsistence resources in areas near the settlements. As a result, the colonial authorities faced no serious problem in transforming the area into a "protected régime". A limited amount of conflict existed over the use of resources at lower altitudes where peasants grazed their flocks or planted crops, while the authorities sought to preserve forests for timber extraction.

The conflict between local populations and the authorities regarding the park significantly increased in the 1960s and 1970s. Its root cause was the rising demand by local people for land and forest products while at the same time the park authorities attempted to maintain effective control over the area through policing and other measures.

Two factors are specifically important concerning the growing local level demand for the use of land and forest products in the park. Firstly, there was a high level of immigration to the area in the 1960s and 1970s, with most immigrants coming from densely populated locations in the southern part of the country. Some of them obtained wage employment in agriculture or entered into sharecropping relationships. They often replaced the local labour force as they were willing to accept lower wage rates. The limited availability of wage employment combined with the rise in the local labour force looking for jobs led to sluggish wages, making it difficult for both groups of labourers to earn a decent living. These people were practically driven to exploit existing forest resources.

Secondly, rural areas in this part of the country were well-integrated with market mechanisms for a considerable period. Besides the large established commercial town of Diego-Suarez, there has been an increase in the number of other local market centres in the area. Peasants frequently travel to these market centres to exchange commodities and obtain many necessary elements of their lives and livelihood, and itinerant merchants also regularly visit their settlements. One aspect contributing to peasants' dependence on the market centres is the necessity to purchase food. This is because the common diet in the area is rice, and the unfavourable climatic conditions, especially the cold in January and February when paddy is not yet matured, do not allow peasants to cultivate rice. As a result, peasants seemed to have specialized in producing fruits which are sold in Diego-Suarez or exported to other urban centres in the country or abroad; and the cash generated through fruit sales is used to purchase food and other necessary commodities. Fruit such as bananas, liches, mangoes and avocados are not only grown on farmland but are also planted in the forest. This is particularly the case with the landless and immigrant households which possess very small plots of land. In addition to the fruit, some households also grow beans and leguminous crops, as well as *kat* (*catha edulis-celastraceae*: a druggist plant) in the forest for sale in the market.

While high demographic concentration and dependence on the market for food supplies have increased local level dependence on the forest, government officials have sought to protect forests even more vigorously. Various restrictive measures have been applied, including patrolling and surveillance of national park borders. Local people are prohibited from entering the park for any purpose, and are liable to arrest and fines if found inside park boundaries. To create a psychological barrier, the park authorities have planted eucalyptus in many locations at the periphery of the park. Many of these areas were previously used by local people for growing fruit, vegetables, or *kat*, or for grazing livestock. Most crucially, in recent years, the park authorities have been seeking to include the remaining peripheral forests as well as marginal areas into the national park. Two village woodlots north of the park have been included in the "buffer zone" and there are plans to incorporate two other sites on the southern side of the park.

In all cases, local communities have experienced increasing restrictions on their forest areas. As peasants are prohibited from cultivating even their long-utilized customary plots inside of the forest, clearing of new areas for agricultural purposes is becoming nearly inconceivable. This is so even if peasants generally grow fruit, vegetables and *kat* by clearing only the undergrowth and without felling standing trees. The closure of the park to all local uses has meant that local people are not able to collect even such items as dried wood, nuts, berries, shoots and medicinal plants which are renewable and whose rational removal would cause no serious forest degradation. Instead, by including village woodlots in the national park management system, authorities are effectively encroaching upon local forest and land resources, thus leaving little "safety net" for peasants' livelihood.

Reaction to these restrictive measures has varied between locations and over time. Some responses commonly observed include the theft of wood at night, planting of fruit, vegetables and *kat* in more remote forest areas and deliberate burning of the forest and the eucalyptus plantations established between the park and the settlements (Nicoll and Langrand, 1989). Evidence suggests that there was active resistance by the local people to the extension of buffer zones covering two village woodlots north of the park, resulting in physical confrontations with the national park guards. The consequence was that some 15 adults were arrested and imprisoned for six months (personal communication with village chief, Joffreville). However, collective resistance has occurred only occasionally, and is usually short-lived. Overall, people do not seem to be making any significant headway in their effort to maintain access to forest resources.

"All fires have only one colour"

It should be noted that, similar to the Mananara Biosphere Project discussed earlier, a new component which links conservation works to socio-economic development in the peripheral zones has also been introduced in the Montagne d'Ambre Park area. This "integrated approach" began in 1989, and is funded in large part by USAID. These and other park management activities are executed by WWF International in collaboration with the regional division of the *Direction des Eaux et Forêts*.

In the rural development activities carried out so far, environmental education has been given high priority. The basic aim of this has been to make peasants aware of the negative effects of deforestation and the need to protect the park. For this reason, extension workers have been placed in five of the surrounding villages. The project also attempts to utilize local political representatives for "environmental campaigns". In village gatherings, glossy WWF posters urging protection of nature, etc. are distributed, and project staff and extension workers give talks on related subjects. However, public interest is low. The themes covered in the meetings and talks tend to be about the rare birds and animals threatened by deforestation, but mention is rarely made of how local people can gain from the protection of forests. One ex-village chief in Antsalaka summed up popular feeling by saying: "they [project officials] ask us only to protect forests, for whose benefit they don't say".

Another rural development activity is the establishment of nurseries. This is being promoted both in view of reducing pressure on the park and providing wood to urban centres such as Diego-Suarez. The project is attempting to establish nurseries in the five pilot villages. In order to get community support, financial assistance is provided to improve canals and drinking water supplies in a few villages. However, local interest in the nurseries has so far been very limited. As a matter of fact, in most villages, extension workers were obliged to establish nurseries on their own plots. It is possible that the peasants do not see the rationale of planting trees on their land (which takes time as well as already limited land away from food production), for wood is plentiful and wasted in the park nearby.

The priorities of the park authorities clearly do not match the needs of local inhabitants. Rural development activities have largely been designed to reduce local opposition to stricter management of the park. Consequently, it is not surprising that most intervention measures reflect "top-down" deliveries. Furthermore, these activities represent too limited a scale in terms of both the sectors covered and the total budget allocated. A careful look at project documents shows emphasis is placed rather on strengthening of surveillance and patrolling, technical research (i.e. on plants and animals) and promotion of tourism (Ravaoartimalala, 1991).

The majority of the local people are aware that the interests of the park authorities lie in animals and trees, rather than in people. The rural development programmes initiated by the WWF in collaboration with the *Direction des Eaux et Forêts* are not considered to be much different from previous park management activities which exclusively relied on policing and the imposition of fines. Asked about the opinion on these rural development measures in the Joffreville area, one peasant replied: "all fires have only one colour". This is in many ways self-explanatory. Indeed, people tend to commonly identify the WWF with the government's forestry department; and interestingly enough, the internationally reputed panda logo of WWF was taken as a symbol of ill-fortune.

Summary

The above discussion depicts a general picture of national parks management in Madagascar, outlining the status and functions of national parks and other protected areas. Recent national and international emphasis on establishing national parks in the country, and current forms of management of national parks, meant to combine an integrated approach between nature conservation and human needs were also examined. Three specific factors emerging from this observation merit further attention.

Firstly, the establishment and expansion of national parks and protected areas have a critical impact at the local level. Peasants have been expelled from their settlements without being provided with any alternatives. They are prohibited from cultivating even their long-established, customary fields as soon as the area is gazetted as a protected area. Much of the marginal areas which were previously used by local people for dwellings, fallow cultivation, grazing and the collection of forest products are steadily incorporated into the parks. Indeed, as seen in the case of the Montagne d'Ambre National Park, even village woodlots are now sought to be included in the park management system. This growing official encroachment on local forest and land resources has made the lives of many rural dwellers extremely precarious.

Secondly, local people receive no tangible benefits from protected areas. The strategy of establishing protected areas in the country revolves primarily around the aim of conserving wild animals and their habitats. Local requirements (i.e. food production, grazing, wood, etc.) are perceived as a threat to conservation efforts. As a consequence, little thought is given to how local inhabitants could also benefit from the establishment of protected areas. For example, as mentioned earlier, local people are forbidden to remove even drywood and other forest products existing in ample quantity in the parks. Park entrance fees are directed to the government treasury, or to park headquarters. The lack of infrastructural development (for example, the construction of trails and local lodges) in rural areas requires tourists to lodge in urban centres, to the benefit of larger hotel owners and tourist operators. Park authorities have taken little care to develop local handicraft which could provide a level of income to some social groups in rural areas.

Finally, village rural development programmes which are supposed to provide local people with alternative sources of employment and income appear attractive on paper only. Compared to the total budgets of parks and protected areas, too little is allocated to rural development activities. Furthermore, most programmes are planned for two or three years only, and they lack any long-term perspectives. Not a single park or protected area management plan in the country takes into consideration future demographic trends and food and other interrelated livelihood requirements. In addition, most programmes fail to specify target populations. Consequently, whatever limited assistance is extended, it is the richer and powerful socio-economic groups which tend to benefit most.

Issues for Discussion

This paper has considered the experiences of two developing countries in Africa and Asia regarding the management of national parks and the associated effects on local livelihood systems. The main findings of the research have been summarized in each section, so they will not be repeated here. A Latin American case study would have provided a more global picture, especially since forest protection and use, as well as the "fate" of indigenous people are much debated in that region. However, available information suggests that many of the trends observed in the cases of Thailand and Madagascar are also recurrent in several Latin American countries (Poole, 1989; Hart, 1991; Diegues, 1991; Pearce, 1989; Utting, 1991).

The increasing emphasis on establishing national parks and protected areas is a recurring feature in Africa, Asia and Latin America. This process has been discussed at some length in the introductory chapter as well as in the case studies. In this regard, the core issue is how much land area of a country should be allocated for national parks and protected areas. Many environmentalists and conservation agencies are in favour of bringing "as much land area as possible" under these régimes of resource management (Ehrlich, 1982), although there are also some who are beginning to recognize the limitations of such a policy (MacKinnon et al., 1986). UNEP proposes that a network of protected areas should cover approximately 10 per cent of the world's surface (UNEP, 1989). However, it is not spelled out which parts of the world, which countries and which climatic and resource zones should be protected and in what proportion. Some specialists believe that the developing countries should aim to bring 10 per cent of their national territories under protected areas (MacKinnon et al., 1986).

There are quite a few developing countries which have transformed more than 10 per cent of their land surface into protected areas. In Asia, such countries include Bhutan, Brunei, Nepal, Pakistan, Sri Lanka and Thailand. The protected areas in Indonesia measure just under 10 per cent of the country's total land surface. In Africa, 25 per cent of Tanzania's total territory constitutes wildlife protected areas (Mascarenhas, 1991). Benin, Botswana, Central African Republic, Kenya, Madagascar, Malawi, Rwanda, Senegal and Zimbabwe all maintain over 10 per cent of their territory under protected areas. Cameroon, Togo, Uganda and Zambia are other African countries which are approaching the same level. In Latin America, Chile, Costa Rica, Cuba, Dominican Republic, Guatemala, Honduras, Nicaragua, Panama and Venezuela already meet this requirement.

**Table 4: The land area under national parks and strictly protected areas
in selected South Asian countries (in 1990)**

Country	Percentage of national territory
Bhutan	18.6 (a)
India	4.6 (b)
Nepal	10.8 (c)
Pakistan	9.8 (d)
Sri Lanka	11.4 (e)

Source: (a) WRI, 1990; (b) Panwar, 1990; (c) Upreti, 1991; (d) WRI, 1990; (e) WRI, 1990.

Table 4 presents the percentage of land area under national parks and strictly protected areas in selected South Asian countries. Owing to the high rate of population growth, landlessness and the rising demand for food, the land area allocated for national parks and protected areas in these countries is significant. It may be noted that the United States (the main adherent of the concept of national parks), for example, has less than 2 per cent of its territory under national parks (**Parks Guide**, 1989). Similarly, the average land area that is being protected in Europe is less than 7 per cent (WRI, 1990).

IUCN launched its World Conservation Strategy in the early 1980s, maintaining that "in view of the scarcity of high quality arable land and the rising demand for food and other agricultural products, land that is most suitable for crops should be reserved for agriculture" (IUCN, 1980). The decade of the 1980s in fact saw a contradictory trend. With the exception of Indonesia and Ethiopia (albeit for differing reasons), no significant official land settlement or agricultural expansion programmes have been witnessed in developing countries. Where possible, governments have attempted to control settlements and cultivation even in marginal forest-frontier regions (Ghimire, forthcoming).

In most developing countries, the recent trend has been to transform as much of the remaining forest areas as possible into national parks or reserves. This has led to a significant increase in the number of protected areas that are established. Village woodlots, marginal communal land and settlement areas are also being incorporated in order to expand the total park or reserve area. The question is therefore, whether the developing countries should continue to do this, when demands for food, shelter and many other basic needs are becoming more and more pressing.

Furthermore, governments, conservationists and authorities of protected areas all seem to overlook the interrelated environmental and social costs of the expansion of national parks and protected areas in developing countries. For example, the result of trying to include additional land areas as well as to maintain tight control over forest resources in adjacent parks is that local people become compelled to "overuse" land and other natural resources existing outside forest boundaries. In fact, more land area may be degraded as a result of this situation, rather than the reverse.

Most crucially, the effects of national parks or reserves on local livelihood systems are not sufficiently assessed. As shown in the country case studies, many groups of people have been removed from their settlements and provided with no alternative sources of income and employment. This has been a common experience in many other developing countries. For example, the establishment of eight tiger reserves in India in the 1970s led to the eviction of thousands of people from their settlements (Poole, 1989). In Africa, tribal people have been removed from national parks or prohibited from using resources within parks. The expulsions of the Rendille from Sibiloi National Park in Kenya, the Ik from Kidepo National Park in Uganda (MacKinnon et al., 1986), and the Masai from Serengeti National Park in Tanzania (Arhem, 1986) are just three examples. Some 1,100 villagers living within the Korup Park in Cameroon have also been displaced (**The Guardian**, 21 November 1987).

A "properly managed" relocation of affected people from national parks has so far been rare. People are usually transferred to entirely different socio-economic or climatic zones, or are given very small land plots - forcing many of them to re-enter forests for "unauthorized" cultivation and extraction of forest products.

Even where people have not been removed from their settlements, the establishment of a national park in the area has usually meant an increasing restriction on livelihood activities. Grazing, hunting, fishing, food-gathering and collection of wood and biomass products are prohibited in almost all parks. The social groups which rely heavily on these activities, especially pastoral, tribal or landless people, are forced to undergo not only economic hardships, but also difficult social and cultural adjustment processes. A recent study of one of the major indigenous groups (the Tharus) in Nepal's Tarai, for example, showed an increasing level of impoverishment resulting from, among other things, the establishment of a national park in the area. Since these people practised a balanced subsistence-oriented agro-pastoralism, the inclusion of a considerable area of "indigenous

land" in the national park and the prohibition of grazing within park boundaries has had a disastrous effect on their livelihood system (Ghimire, 1991).

From this overview, the extent to which the local communities in various locations are subjected to socio-economic decline as a result of the establishment of national parks and wildlife reserves should be clear. There is little evidence that this trend will be altered in the future. As a matter of fact, since most governments are proposing to increase areas under national parks and wildlife reserves, the coming years are likely to see further official encroachment on local land and use of forest resources, hence affecting the livelihood systems of many social groups even further.

It should be noted that, even where local people could benefit from the establishment of national parks, little attention has been given to maximizing these gains. For example, a periodic collection of dried wood, bamboo, leaves and grass by local people would not undermine conservation efforts, as these are burned or decompose anyhow. In some cases, removal of some of these items may even be desirable, especially in preventing forest fires, and lakes, rivers and swampland from filling up, and allowing certain animals to breed better. In Manas Wildlife Sanctuary in India, for instance, grasslands are burnt by the sanctuary authorities annually in order to allow larger animals (for example, elephants, buffaloes and tigers) to eat new grass-shoots or to roam freely (Roy, 1990). As there is a scarcity of grass and thatch material in the area, local people are very keen to remove these items from areas which need to be cleared.

The stock of wild animals also needs to be harvested according to the carrying capacity of the park, and could provide food and some income for local communities. But even where animals are numerous, spilling over to settlements, eating crops and killing people and their livestock (Marks, 1984; McDougal, 1990), hunting by local people is prohibited.

Many domesticated animals can intermingle and graze with wild animals. Therefore, a total prohibition on grazing of livestock on national parks may not be required, especially where the stock does not exceed the carrying capacity of the (grazing) area.

Collection of dried nuts, berries and selective removal of plant shoots would scarcely deplete forests. Controlled fishing could be permitted within park boundaries; and bee-keeping is another economic activity which could be authorized in the parks. By growing coconut, banana and other fruit trees at the periphery of parks, as discussed in the case of Madagascar, peasants might actually help to further enrich a park's vegetation and biomass.

Tourism is another aspect which could provide people with some income, although it tends to have many negative socio-economic effects, and governments in many developing countries have tended to favour "grand tourism" accompanied with huge hotels, modern recreation facilities and roads which mainly serve urban and international commercial interests (Kadt, 1976; Brockelman and Dearden, 1990; Parkipuny, 1991).

Finally, by involving local communities in park protection activities, authorities could not only provide local people with some level of employment, but also reduce the costs of policing the area. In Nepal, for example, as much as 80 per cent of the annual budget of parks and reserves is earmarked for protection purposes (Upreti, 1991). The main problem seems to be that officials do not trust local people, perceiving them mainly as encroachers and destroyers of forests and wildlife. Consequently, a great many of the opportunities mentioned above are completely neglected.

The concept of "buffer zone development" has recently been promoted in many developing countries in order to dissuade local people from exploiting the protected areas. The logic of this policy is that if local people are provided with alternative sources of income and employment, parks and reserves would be protected against "external pressures" (Sayer, 1990; Wells et al., 1990). In theory, this is an attractive proposition. In reality, however, many of the interrelated intentions and outcomes appear quite ambiguous. First of all, the creation of a "buffer zone" has generally implied further encroachment of settlement and common property areas by park authorities. A good example of this is the Selous Game Reserve in Tanzania. This is the world's second largest park, and is nearly the combined size of neighbouring Rwanda and Burundi. Yet in the late 1980s, in order to create a "buffer zone", the reserve authorities added an additional 3,630 square kilometres of adjacent forest/grazing and settlement areas to the boundaries of the reserve (Mwamfupe et al., 1990). Secondly, as discussed in the cases of both Madagascar and Thailand, development activities carried out in "buffer zone" areas seem to be scant and sectoral, introduced mainly on an ad hoc basis. Most programmes lack long-term perspectives; and, typical of many rural development programmes in the past, richer and more powerful elements have tended to benefit from these activities. Moreover, the idea of rural development in "buffer zone" areas usually comes totally from "above", with little or no participation of local communities.

In the majority of developing countries, an increasing "bureaucratic control" of local forest resources can be observed in recent years. The "buffer zone" development activities seem to be designed basically to decrease local public opposition to the establishment and expansion of parks and reserves, rather than offering sustainable livelihood alternatives. The growing international concern for environmental protection and the current ideology of nature conservation, which emphasizes "preservation" over sustainable "use", is that local communities are likely to experience even further levels of "bureaucratic domineering" over forests in the future. Obviously, not all social groups suffer to the same extent in the process, nor do they all respond in an identical manner. However, what is certain is that parks and forest reserves are likely to be one of the major issues of future rural social conflict in many developing countries. It is possible that in certain countries the slightest political change or slackness would be sufficient for people to invade parks, kill animals or set the forest on fire. Should this happen, all the years of "protection efforts" would have had little significance.

Bibliography

Albignac, R., "Rapport d'Activités de l'Année 1990", Mananara, 1991 (mimeo).

-----, "Le Programme MAB de l'UNESCO : Sa Mise en place à Madagascar dans le cadre des réserves de la biosphère", **Réunion d'orientation du projet MPAEP/DEF et UNESCO/PNUD/MAG/88/007**, PNUD et UNESCO MAB, Antananarivo, 1990.

Andriamampianina, J., "Traditional Land-Use and Nature Conservation in Madagascar", in McNeely, J. and Pitt, D. (eds), **Culture and Conservation: The Human Dimension in Environmental Planning**, Croom Helm, Kent, 1985.

Arhem, K., "Pastoralism Under Pressure: The Ngorongoro Maasai", in Boesen, J. et al. (eds), **Tanzania Crisis and Struggle for Survival**, Scandinavian Institute of African Studies, Uppsala, 1986.

Bangkok Post, 31 July 1989.

Batisse, M., "Developing and Focusing the Biosphere Reserve Concept", **UNESCO Nature and Resources**, 22 (3), 1986.

Brockelman, W. and Dearden, P., "The Role of Nature Trekking in Conservation: A Case Study in Thailand", **Environmental Conservation**, Summer 1990.

Chettamart, S., **Park Management Plan for Phi Phi and Tarutao Marine Parks, Thailand**, Bangkok, 1989.

de George, A., "Development of Interactive Park Management Plans in Madagascar" (USAID mimeo), July 1990.

Diegues, A., Kageyama, P. et al., "The Social Dynamics of Deforestation in the Brazilian Amazon", 1991 (an unpublished paper).

Dobias, R. J. et al., **Beneficial Use Quantifications of Huai Kha Khaeng/Thung Yai Naresuan Wildlife Sanctuary Complex: Executive Summary and Main Report**, WWF, 1988).

Ehrlich, P., "Human Carrying Capacity, Extinctions, and Nature Reserves", **BioScience**, Vol. 32, No. 5, 1982.

Fanony, F., **Fasina Dynamisme Social et Recours a la Tradition**, Musée d'Art et d'Archéologie de l'Université de Madagascar, Tananarive, 1975.

FAO, **Operations Manual for a Protected Area System**, FAO, Rome, 1984.

-----, **National Parks Planning: A Manual with Annotated Examples**, FAO, Rome, 1988.

Ghimire, K., **Forest or Farm? The Politics of Poverty and Land Hunger in Nepal**, Oxford University Press, New Delhi, forthcoming.

-----, "The Victims of Development An Inquiry into Ethnicity in Development Planning", **D+C**, January 1991.

Gradwohl, J. and Greenberg, R., **Saving the Tropical Forests**, Earthscan, London, 1988.

Hales, D., "Changing Concepts of National Parks", in Western, D. and Pearl, M. (eds), **Conservation for the twenty-first Century**, Oxford University Press, 1989.

Hart, C., "A Brazilian Tribe Escapes Extinction", **World Development**, March 1991.

IUCN, **World Conservation Strategy**, IUCN, Gland, 1980.

-----, **United Nations List of National Parks and Protected Areas**, IUCN, Gland, 1985.

Jolly, A., "The Madagascar Challenge: Human Needs and Fragile Ecosystems" in Leonard, H.J. and Contributors, **Environment and the Poor: Development Strategies for a Common Agenda**, Transaction Books, New Brunswick and Oxford, 1989.

Kadt, E., **Tourism Passport to Development?**, Oxford University Press, 1976.

Kasetsart University, **Assessment of National Parks, Wildlife Sanctuaries and Other Preserves Development in Thailand**, Kasetsart University, Bangkok, 1987.

Kaye, L., "Buddhist 'greens' aim to oust Thailand's hilltribes of Cabbages and Cultures", **Far Eastern Economic Review**, 13 December 1990.

Lohmann, L. "Commercial Tree Plantations in Thailand: Deforestation By Any Name", **The Ecologist**, January-February, 1990.

MacKinnon, J., MacKinnon, K. et al., **Managing Protected Areas in the Tropics**, IUCN, Gland, 1986.

Marks, S., **The Imperial Lion Human Dimensions of Wildlife Management in Central Africa**, Westview Press, Colorado, 1984.

Mascarenhas, A., "An Overview of Deforestation Processes in Tanzania", 1991 (an unpublished paper).

McDougal, C., "Saving the Tiger A Delicate Balance", **Shangri-La**, October-December 1990.

McNeely, J. and Miller, K. (eds) **National Parks, Conservation and Development**, Smithsonian Institute Press, Washington, 1984.

Mwamfupe, D, Lerise, F. and Schöler, U., **Sustainable Management of Natural Resources in the Liwale Bufferzone**, GTZ, Dar es Salaam, 1990.

Nakhasathien, S. and Stewart-Cox, B., **Nomination of the Thung Yai- Huai Kha Khaeng Wildlife Sanctuary to be a UNESCO World Heritage Site**, Bangkok, 1990.

Nicoll, M. and Langrand, O., **Madagascar: Revue de la Conservation et des Aires Protégées**, WWF, Gland, 1989.

Panwar, H., "Status of Management of Protected Areas in India", paper presented at FAO Regional Expert Consultation on Management of Protected Areas in the Asia-Pacific Region, 10-14 December 1990, Bangkok.

Parkipuny, M.S. "Pastoralism, Conservation and Development in the Greater Serengeti Region", Issues Paper No. 26, IIED, London, June 1991.

Parks Guide, July 1989 (Nairobi).

PCDA, "Suptai Rural Development Project" (mimeo), 1990.

Pearce, F., "Kill or Cure? Remedies for the Rainforest", **New Scientist**, 16 September 1989.

PNUD, **Conservation des Ecosystèmes Naturels: Bases Scientifiques pour un Développement Rural Intégré à Mananara-Nord**, PNUD, Antananarivo, 1988.

Poole, P., **Developing a Partnership of Indigenous Peoples, Conservationists and Land Use Planners in Latin America**, WPS 245, World Bank, Washington, 1989.

Randrianarijaona, P., "Etat de l'Environnement à Madagascar", **Actes du Séminaire International sur la Gestion de l'Environnement, Zone Africaine de l'Océan Indien, 25 Sept. - 3 Oct. 1988**, UNESCO, Paris, 1989.

Ravaoartimalala, F., "Projet Complex des Réserves de la Montagne d'Ambre", 1991 (mimeo).

Reid, W. and Miller, K., **Keeping Options Alive The Scientific Basis for Conserving Biodiversity**, World Resources Institute, Washington, 1989.

Roy, S., "Manas- a monograph", paper presented at FAO Regional Expert Consultation on Management of Protected Areas in the Asia-Pacific Region, 10-14 December 1990, Bangkok.

Sayer, J., "Buffer Zone Management in Rain Forest Protected Areas", paper presented at FAO Regional Expert Consultation on Management of Protected Areas in the Asia-Pacific Region, 10-14 December 1990, Bangkok.

Szal, R., **An Agrarian Crisis in Madagascar?**, EP 10-6/WP84, ILO, Geneva, July 1987.

The Guardian, "A forest of hopes", 21 November 1987.

The Nation, 29 August 1989 and 7 December 1990.

Turton, A., **Production, Power and Participation in Rural Thailand**, UNRISD, Geneva, 1987.

Uhart, E., "Madagascar Etudes et Perspectives Economiques" in **Cahiers de l'Institut de Science Economique Appliquée**, Paris, No. 121, January 1962.

UNEP, **Integrated Management of Resources in Africa**, UNEP, Nairobi, 1989.

Upreti, B., "Status of National Parks and Protected Areas in Nepal", **Tiger Paper**, April-June, 1991.

Utting, P., The Social Dynamics of Deforestation and Forest Protection Initiatives in Central America, (unpublished report), UNRISD, Geneva, 1991.

Wells, M., Bradon, K. and Hannah, L., **People and Parks Linking Protected Area Management with Local Communities**, World Bank, Washington, 1990.

WFT, **The Environmental Awareness and Development Mobilization (TEAM) Project**, WFT, Bangkok, 1990a.

-----, **Report and Conservation Programme 1989**, WFT, Bangkok, 1990b.

Wongpakdee, S., **Thailand National Parks and Wildlife Sanctuaries in 1990**, RFD, Bangkok, 1990.

World Bank et al., **Madagascar Environmental Action Plan**, Vol. I, July 1988.

World Resources Institute, **World Resources 1990-91**, Oxford University Press, New York & Oxford, 1990.