THE ROCKY ROAD OF SOCIAL SUSTAINABILITY

The Impact of Integrated Biodiversity Conservation and Development on the Local Realities in Ranomafana National Park, Madagascar

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Doctoral Dissertation
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Abstract

The objective of this study is to examine the social impacts of the integrated conservation and development project (ICDP) aimed at biodiversity conservation and local socio-economic development in the Ranomafana National Park (RNP), Madagascar. Furthermore, the study explores social sustainability and justice of the ICDP in Ranomafana.

This ethnographically informed impact study uses of various field methods. The research material used consists of observation, interviews (key-person and focus group), school children's writings, official statistics and project documents. Fieldwork was conducted in three phases in 2001, 2002 and 2004 in twelve villages around the park, as well as in neighbouring areas of Ranomafana. However, four of those twelve villages were chosen for closer study.

This study consists of five independent articles and a concluding chapter. Social impacts were studied through reproductive health indicators as well as a life security approach. Equity and distribution of benefits and drawbacks of ICDP were analysed and the actors related to the conservation in Ranomafana were identified. The children and adolescents' environmental views were also examined.

The reproductive health indicators studied showed a poor state of reproductive health in the park area. Moreover, the existing social capital in the villages seemed to be fragmented due to economic difficulties that were partly caused by the conservation regulations. The ICDP in Ranomafana did not pay attention to the heterogeneity of the affected communities even though the local beneficiaries of the ICDP varied according to their ethnicity, living place, wealth, social position and gender. In addition, various conservation actors (local people in various groups, local authorities, tourist business owners, conservation NGOs and scientists) contest their interests over the forest, conservation and its related activities.

This study corroborates the same type of evidence and conclusions discussed in other similar cases elsewhere: so called social conservation programmes still cannot meet the needs of the people living near the protected areas; on the contrary, they even have a reverse impact on the people's lives.

A fundamental misunderstood assumption in the conservation process in Ranomafana was to consider the local people as a *problem* for biodiversity conservation. Major reasons for the failure of the ICDP in Ranomafana include a lack of local institutions that would have been able to communicate as equals with the conservation NGOs as well as to transfer the tradition of the authoritarian governance in conservation management together with the over-appreciation of scientific biodiversity, and lack of will to understand the local people's rights to use the forest for their livelihoods.

Tiivistelmä

Tutkimuksen tavoitteena on tarkastella yhdistetyn kehitys- ja suojeluhankkeen (ICDP) sosiaalisia vaikutuksia Ranomafanan kansallispuistossa Madagaskarilla. Lisäksi luonnonsuojelun sosiaalista kestävyyttä ja oikeudenmukaisuutta tutkitaan ICDP:n toimintojen kautta.

Tässä etnografisesti informoituneessa vaikutustutkimuksessa käytetään useita kenttämenetelmiä. Tutkimusmateriaali koostuu havainnointipäiväkirjoista, haastatteluista (avainhenkilö- ja fokusryhmähaastattelut), koululaisten kirjoituksista, viranomaistilastoista ja projektidokumenteista. Kenttätyö suoritettiin kolmessa vaiheessa vuosina 2001, 2002 ja 2004 kahdessatoista kylässä puiston läheisyydessä sekä sen naapurialueilla. Syvällisempään tarkasteluun kahdestatoista kylästä valittiin neljä.

Tutkimus koostuu viidestä itsenäisestä artikkelista sekä yhteenvetoluvusta. Sosiaalisia vaikutuksia tarkastellaan lisääntymisterveysindikaattoreiden kautta sekä analysoimalla niitä ”elämän turvallisuuden-” käsitteen avulla. Tutkimuksessa tarkastellaan myös ICDP:n hyötyjen ja haittojen jakautumista sekä identifioidaan suojeluun liittyvät toimijat. Lisäksi tutkitaan lasten ja nuorten ympäristötietoutta.

Tutkittujen lisääntymisterveysindikaattorien mukaan terveystilanne lisääntymisterveyden osalta on huono puiston alueella. Olemassa oleva sosiaalinen pääoma tuntuu rapautuvan johtuen osaltaan luonnonsuojelun mukanaan tuomista rajoitteista. Suojeluprojekti ei myöskään ole ottanut huomioon paikallisyhteisöjen monimuotoisuutta vaikkakin oletetut paikalliset ICDP:n hyödynsaajat vaihtelivat etnisyyden, asuinpaikan, varallisuuden, sosiaalisen aseman ja sukupuolen mukaan. Tämän lisäksi useat eri suojeluun liittyvät toimijat (paikalliset ihmiset eri ryhmissä, paikalliset viranomaiset, turistiyrityksien omistajat, suojelujärjestöt ja tutkijat) vaativat osansa metsästä, sen suojelusta ja suojeluun liittyvistä toimista.

Tämän tutkimuksen päätelmät vahvistavat muissa samantyyppisissä tutkimuksissa saatuja tuloksia, joiden mukaan niin kutsutut sosiaaliset luonnonsuojeluohjelmat eivät vieläkään kykene kohtaamaan suojelualueiden liepeillä asuvien ihmisten tarpeita, päinvastoin, niillä voi olla jopa käänteinen vaikutus ihmisten elämään.

Perimmäinen väärinymmärretty oletus Ranomafanan luonnonsuojeluprosessissa oli kohdella paikallisia ihmisiä *ongelmana* biodiversiteetin suojelun saavuttamiseksi. ICDP:n epäonnistumisen pääsyyt voidaan löytää sellaisten paikallisten järjestöjen puutteesta, jotka olisivat pystyneet kommunikoimaan tasavertaisina suojeluorganisaation kanssa sekä autoritäärisen hallintomallin siirtymisestä suojeluhallintoon. Näiden lisäksi epäonnistumiseen vaikutti tieteellisen biodiversiteetti- käsityksen yliarvostus suhteessa tahtoon ymmärtää paikallisten ihmisten oikeuksia käyttää metsää toimeentulonsa turvaamiseksi

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Veikkola, November 2006.

Kaisa Korhonen

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I. Korhonen, K., Rahkonen, O. and Hemminki, E. (2004) Implications of Integrated Conservation and Development on Human Reproductive Health- A Case Study from Ranomafana National Park, Madagascar. *Development Southern Africa* 21 (4): 603-621.

II. Korhonen, K. and Lappalainen, A. (2004). Examining Children's Awareness on Environment and Environmental Problems in Ranomafana Region, Madagascar *Environmental Education Research* 10 (2):195- 216.

III. Korhonen, K. (2005). Local People and Benefits in Integrated Biodiversity Conservation – A Case Study from Ranomafana National Park, Madagascar. In: Ros-Tonen, M. and Dietz, T. (eds.) *African Forests Between Nature and Livelihood Resources.* Interdisciplinary Studies in Conservation and Forest Management. African Studies Vol 81. Lampeter: Edwin Mellen Press. Pp. 129-157.

IV. Korhonen, K. (*Forthcoming 2007a, In Press)* Exploring Malagasy Environment as a Battlefield of Multiple Interests In: Kaufmann, J. (ed.) *Greening the Great Red Island: Madagascar in Nature and Culture*. Pretoria: Africa Institute of South Africa AISA. African Books Collective.

V. Korhonen, K. (*Forthcoming 2007b*) A Life Asset Analysis – Conservation and Life Security of Local People in Ranomafana National Park, Madagascar. In: Raumolin, J. (ed.) *Natural Resources and Development- Perspectives from Asia and Africa*. Helsinki: Interkont Books.

1. INTRODUCTION

> "Rakoto is poor; his children do not have enough to eat. Rakoto is an endangered species but there is no SOS for him. Don't tell him your absurdities about protecting eagles, lemurs and turtles. As long as Rakoto is starving, he will eat them."
> *"Reso Babokoto" a song by Rossy, Malagasy musician*

This song summarises the context in which this study is embedded – how to protect biodiversity, and simultaneously ensure the wellbeing of the local people who are dependent on natural resources. The main aim of this study is to examine the social impacts of the integrated conservation and development project (ICDP) aimed at biodiversity conservation and local socio-economic development in the Ranomafana National Park (RNP), Madagascar (see Figure 1).



Figure 1. A map of Madagascar and the location of the Ranomafana National Park.

Madagascar, the world's fourth-largest island, lies in the Indian Ocean 400 km from the African coast. The first settlers of Madagascar came by sea only about 1500 to 2000 years ago. These people sailed from Southeast Asia and mixed with the Bantu people coming from the African coast (Beaujard 1983). However, despite the division into 18 ethnic groups, people living in Madagascar today have a rather uniform culture, and only one language is spoken in different dialects in the whole country (Huntington 1988). Madagascar has been isolated for over 80 million years and this makes its nature unique: the country has been classified as one of the world's biodiversity hotspots and around 90 % of its

species are endemic (Myers *et al*. 2000). Nevertheless, threats to Madagascar's "megadiversity" are environmental degradation, deforestation and species loss (ibid.).

Even so, the human impact on Madagascar's unique nature is not unambiguous. Despite the claims that the all of Madagascar was covered in forest before human settlement, palynological evidence shows that the island has been a mosaic of forest, grasslands, and complex secondary succession since the last glaciations (Kull 2000). For instance, Jarosz (1993) challenges the general assumption that the major reason for forest destruction is small-scale farmer's slash-and-burn agriculture (*tavy*). Most of the primary forest in Madagascar was harvested in the 30 years between 1895 and 1925 under the colonial government, with sifting cultivation *joined by* logging, grazing and export crop production, especially coffee, pursued as explicit goals of the colonial power of the French (Jarosz 1993).

Today's Madagascar's 18 million people live in one of the poorest countries in the world, ranking 146 on the United Nations Development programme's human development index in 2005, with a GDP of 809 US dollars per capita (UNDP 2005). The poverty prevails in Madagascar especially in the countryside where people are highly dependent on natural resources. Factors such as the high biodiversity of natural resources together with environmental degradation attract numerous international conservation agencies whose conservation goals often conflict with the rural people's livelihood demands. This provides an interesting context to study the questions of social sustainability and justice in biodiversity conservation.

This study draws from various fields of disciplines and combines the concepts from social policy, development studies and environmental social science. In relation to social policy, this study concentrates on one of the central themes: as Blakemore (1999, 5) concludes, "The major aim of the subject of the social policy is to critically evaluate the impact of social policies on people's lives". In addition, social impacts include central concepts such as marginalisation, which is also widely discussed in contemporary social policy. In regard to development studies, this study discusses the issues of development projects and the wider questions concerning the relations of developing and developed worlds. However, ultimately this is a study about biodiversity conservation studied from the social science point of view.

Previously, the social impacts of conservation and the ICDPs have concentrated mainly on people's opinions about the park, evaluating the success of the conservation objectives or, measuring the social impacts through administrating household surveys. However, a growing number of researchers have emphasized the discursive plurality of biodiversity conservation and the politicized struggles over the resources that contribute to contesting protected areas (Peet and Watts 1996, Blaikie and Jeanrenaud 1997). This study combines the experience from previous research and thereby approaches the impacts of

conservation from the realistic evaluation, and attempts to explain the reasons for the impacts from the perspective of political ecology.

The thesis consists of five independent articles already published (or to be published) elsewhere, and this concluding chapter. In this chapter, I will provide a general review of biodiversity conservation in the developing countries. Second, I will present the theoretical considerations of the critical realist approach and the framework of political ecology that are used to guide the analysis of this study. Third, I will consider the methodological solutions, and fourth, I will present the conservation process and describe the social context in Ranomafana National Park. Finally, I will return briefly to published articles and attempt to summarise the common themes and conclusions based on the results presented in those articles, and in some extend, consider them further on.

2. BIODIVERSITY CONSERVATION AND PEOPLE'S LIVELIHOODS IN DEVELOPING COUNTRIES

National parks are established primarily to conserve nature beyond human needs; they are to conserve nature mainly for its intrinsic value. Nevertheless, they are also created to save the "national natural heritage" for people. In recent years, the number of national parks has increased worldwide (Pretty 2002, Myers 2002). The national park model originates from Northern America in the 19th century where national parks were created in remote and sparsely populated areas and where the human costs of eviction have been small (Adams 2001, 271). The conservation in Europe has also been built around systems of protected areas, even though, being less extensive and less exclusive than the North American model. For example, the British national parks are large areas of privately owned land and mostly farmed according to their own planning framework rather than tracts of empty (and emptied) stated-owned land believed to be wilderness (Adams 2001).Yet, it is the American model that is the most applied model of nature protection in the developing world.

The national parks in the developing world are mostly introduced by foreign conservation organisations. In many cases the local context has been overlooked and a number of conservation projects have suffered from the lack of local support and understanding. Historically, protected area designations occurred via authoritarian policies in which rural communities were forced off their lands and they were thereby denied access to resources viable to their well-being (Brechin *et al*. 1991). In addition, numerous parks, particularly in Eastern Africa and Southeast Asia were set up as game and recreation parks for the ruling elite (Grove 1995). According to Myers (2002) one- third of the parks in the tropics are subjects to encroachment by landless and impoverished peasants, displaced cultivators. This is the question in all nature conservation, which has to face the problem between people's and "nature's" interests (Wilshusen *et al*.

2002). Conserving nature only for its intrinsic value tends to forget local people's rights as human beings. Pretty (2002) suggests that the assumption that the conservation of natural resources is only possible through the exclusion of the local people has been prevailing throughout history. Local mismanagement has been used as an excuse to exclude people –who are in turn often seen as different from the ruling elite.

Integrating people into conservation management started slowly in the 1970's and expanded in the late 1980's. The first declaration of human rights in relation to the environment was announced in Stockholm in 1972 in the United Nations Environment programme (UNEP). However, in only just 1980, the IUCN published the World Conservation Strategy, which recognises the need to reconsider conservation and to address human needs in relation to it. In addition, a few years later new conservation approaches promoting greater local participation and sustainable use of resources were announced at the 1982 Third World Congress on Parks and Protected Areas held in Bali (McCormick 1989). Since then, various types of participatory and people-oriented conservation models have been developed rooting from the failure of top-down conservation projects. Integrated conservation and development projects (ICDPs) belong to these current "participatory" and to these bottom-up approaches of conservation.

The World Wildlife Fund (WWF) introduced ICDPs in 1985 as part of its Wildlands and Human Needs Program that encompassed twenty such projects. At the beginning of the 2000's an estimated 300 ICDPs existed worldwide (Hughes and Flintan 2001). An ICDP means the conservation of natural resources in those areas of significant biodiversity value having the aim to reconcile biodiversity conservation and the socio-economic development interests of multiple stakeholders at the local, regional and international levels (Sayer and Campbell 2004, 5). Generally, the main objective is to compensate the local people's loss of the right to use resources (Brandon and Wells 1992). A buffer zone is left around the conserved area where development activities will direct the people to change their "nature-destructive" farming practices into new techniques. Besides, new job opportunities such as being a guide, making handicrafts for tourists, etc. are introduced by the conservation project. The emphasis on development themes varies between the projects nevertheless it has been crucial that development activities also reap benefits for conservation. Without the linkages the connection of these activities to conservation could be very vague (Brandon 1998).

However, ICDPs and other participatory approaches have also confronted many problems. The idea of compensation or offering economic alternatives does not lead automatically to nature conservation. Many have argued that the idea of integration is conceptually appealing but it is impossible to achieve in practise (Sayer and Cambell 2004). Wilshusen *et al.* (2002, 28) argue that the suggestion that alleviating poverty will enhance conservation "relies on a number of tenuous assumptions about human behaviour". In addition, ICDPs do not address many

questions concerning the local people's rights to participating and influence the process affecting the use of natural resources as much as economic alternatives (Neumann 2005). From these failures have emerged a new call for approaches that support very strict conservation since it was found that local participation had no positive effect on biodiversity conservation (Terborgh 1999, Bruner *et al*. 2001).

This leads to the question of what is considered the most important in the first place: nature, the people or, if possible, both? The debate between the "pro people" stance and "pro nature" approach has continued in the conservation literature for decades rooting from the Western idea of the separation of nature and humans, which could be a strange idea for the various other cultures (see e.g. Guyer and Richards 1996). Yet, emphasising the indigenous and traditional ways of managing natural resources and believing that in all cases "local people" have lived in harmonious equilibrium with the nature is also not true.

Some anthropologists and environmental historians have presented an alternative view of conservation and they view international conservation movements as being similar to neo-imperialism (see e.g. Grove 1995) and point out the equal importance of the conservation of minor human cultures and languages. Many of the "new" people-oriented conservation models still resemble the old "fines and fences" conservation in their implementation. Some researchers argue that the question of biodiversity conservation in developing countries is closely related to colonial traditions (particularly in the African context, see e.g. Adams and Mulligan 2003). This brings the discussion to the wider questions of the North-South relations and the unequal distributions of resources and power between them, and this also relates the conservation as a part of world politics.

Nygren (2000, 2004), Brechin *et al.* (2002) and Alcorn (2005) point out that conservation is primarily a social process where multiple interests and actors with unequal resources of power shape the implementation and outcome. Neverteleless, despite the growing awareness of taking into account the social aspect of conservation and considering conservation as a social process, these ideas are not yet shown in the developing world reality. In Madagascar, environmental programmes have highlighted the mutual benefits of conservation for the common global biodiversity, as well as for the local farmers. At present this is seen to be achieved through the conservation schemes, which are embedded in all sectors of society, and in the neo-liberal spirit, which is funded mostly by the free market mechanisms. However, multiple interests, views and powers, which have not been taken into account in these mechanisms, affect the conservation and its implementation.

I believe that nature conservation should strongly take into account social aspects. Nature conservation based only on biological criteria tends not to be socially sustainable. Local people have to be provided with viable means to affect the processes that shape their use of resources and conservation so as not

to endanger the local livelihoods. In other words, human well-being is a necessity for sustainable biodiversity conservation (Colfer and Byron 2001). In this study, I have considered an integrated conservation project as being a social intervention which is influenced and affected by the surrounding reality in the same way as is any other developing intervention or project, and which also has to take into account claims of social justice.

3 RESEARCH JUSTIFICATION AND QUESTIONS

3.1 Justification of the study

It is important to understand the social impacts of biodiversity conservation in order to adjust the conservation programs to support socially sustainable development. Madagascar as a study focus was chosen, as it is certainly one of the hotspots of biodiversity of the world, and at the same time, it was one of the poorest countries being under interest of various global conservation organizations. In addition, the University of Helsinki has just started closer research work in Madagascar by being a founder member of the international biodiversity research centre (ValBio) in Ranomafana. Furthermore, there was a need to study the social impacts of conservation in that particular place, as no comprehensive impact studies were made in Ranomafana after the establishment of the park. However, despite the practical focus of this study, its scientific objectives also lay in clarification and manifestation of concepts of social sustainability and social justice in integrated biodiversity conservation.

3.2 Objectives and research questions

The main objective of this study is to investigate the social impacts of the biodiversity conservation and assess the social sustainability through the ICDP in Ranomafana National Park. I approach social impacts from various angles. The main research question is what has been the impact of the RNP on the local people? Yet, my intention is not only to describe the possible changes in the people's lives but also to look for the reasons for them and to assess the social sustainability and social justice in the process of biodiversity conservation in Ranomafana.

More specifically I ask the following questions:

- How has the RNP affected the reproductive health situation in the area? What do these effects mean? (article I)
- How do the adolescents and children perceive the environment and how has the park affected it? (article II)
- How are local people defined in the RNP and how have these local people benefited from conservation and its related development activities? Who in the group of local people have benefited and why? (article III)
- Who or what are the main actors involved in conservation within the RNP

locally? What kind of ideas and views have they on biodiversity and conservation? What kind of power resources do these actors have and how have they been manifested in implementation and outcome of conservation in Ranomafana? (article IV)

- How do people around the park define their life security, and how does the park affect their lives through it? (article V)
- How have social sustainability and social justice been manifested in the conservation process of the Ranomafana National Park? (all the articles)

This thesis includes five independent articles and the research has truly been a process where my abilities as a researcher and my knowledge of research issues have developed during the journey. This is why my first article would not be the same if it were written at the same time as the concluding article. The three last articles form a more comprehensive entity, and the two first articles provide more general descriptive information. This is quite understandable, as the two first articles have been written before the last fieldwork was even conducted and before the final analysis had taken place. However, even though there are differences between the articles, together with this concluding chapter, they form a collection of stories from Ranomafana that constitutes a doctoral dissertation. I will briefly present the issue of the articles and shortly evaluate their content.

First, I used reproductive health indicators to assess the possible changes in living conditions. The first article concentrates on reproductive health. This was a very useful way to consider the impact of conservation on the people's lives. This article presents some quantitative statistical information which provides a good basis for a more qualitative consideration.

The second article is about children's and adolescents' environmental knowledge. The material in the study is quite extensive: I also combined data from the field study of Lappalainen (2000). The data of the article is based on two school surveys and the findings of the second article mainly provide additional information on the impact the park has.

In the third article, I consider the distribution of the local benefits of the RNP through the concept of "local people" and its interpretation. I also present quantitative information on development projects carried out in the park area. The main idea of the article is to analyse the various meanings given to the local people through the benefits of the development projects and the ideas of compensation of the ICDP. This article provides good grounds for the following article to consider the reasons why the distribution of the benefits was unequal.

The fourth article identifies the actors related to the conservation efforts in Ranomafana and describes their aspirations regarding the forest and conservation. I also consider the conflicts between the actors and analyze the reasons behind them. All the different actors contest, frame and view the forest and the environment in a different way as well as see the justification and reason for conservation in diverse ways. This article goes deeper into the reasons why the impact of conservation was as it was encountered to be.

In the fifth article, which originally has been written at the same time together with the third and the fourth articles, I go back to the impacts by analysing them through the concept of life security, concentrating particularly on social and human capitals. This article deepens the local point of view of the impacts through the issues the people themselves feel important.

4. THEORETHICAL BACKGROUND

4.1 Realistic evaluation for social impacts of conservation

This study draws from realistic evaluation (see Pawson and Tiley 1997) to assess the impacts of conservation and development on people's lives. This realistic evaluation is based upon the critical realism developed e.g. by Bhaskar (1978) and Sayer (2000). Ideas of critical realism explain how the world under the study is viewed. According to the ontological argument of critical realism, there is a world out there *independent of our interpretation* of it. Moreover, investigation of the realm of objects, their structures and powers requires the *understanding* of their causal relationships (see Sayer 2000).

Realistic evaluation (as an application of critical realism) argues that as it is important to recognise the reason and its causes, it is equally important to *clarify the circumstances* that made the change possible. Rather than concentrate only on a cause and effect – relation, the realistic approach tries to characterise the *complex phenomena* of the intervention and its impacts in a particular *context*. Pawson and Tiley (1997, 63) have identified five of the key concepts that are central to realistic evaluation: embeddedness, mechanisms, contexts, regularities and changes. Embeddedness implies the stratified nature of social reality (Pawson and Tiley 1997, 64, Sayer 2000, 12-13). This is central to realistic evaluation, as human action needs to be understood in terms of its location within the different layers of social reality. The "reception" of any intervention will thus depend on the cultural, social, political, ecological and economic circumstances in which the "recipients" are embedded. Thus, the impact of a specific intervention depends on the circumstances inside the intervention itself as well as in the "area" where it is operating (see also Pawson and Tiley 1997, 69).

The most characteristic tool for realistic explanation is the notion of explanatory mechanisms. These can also be called underlying mechanisms since the aim usually is to explain how things work by going beneath the surface and by defining their inner workings. The underlying mechanisms are those in which realists concentrate on studying the effects the mechanisms generate. (Pawson and Tiley 1997, 65, Sayer 2000, Danermark *et al.* 2002). The realistic approach points out the contextual conditioning of the causal mechanisms, which turns (or fails to turn) a causal potential into a causal outcome (Pawson and Tiley 1997, 69). That is why it is crucial to ask how and why an intervention has the potential to cause change (Pawson and Tiley 1997, 215). This is related again to

contextualisation. A realistic impact evaluation forces a sharpening of the contextualisation in which the causation is seen to be dependent.

Realistic impact evaluation can include various kinds of research methods from the quantitative to the qualitative; however, central to this type of evaluation is to consider social phenomena as being context dependent. In short, the social phenomena have to be *understood* in order to realise the essence of their change. One of the key aspects of the realistic impact study is contextualisation. Bebbington (2004) also emphasises the need to contextualize the effects of the NGO interventions. He argues for the determining the geography of the absences and presences of the effects and argues that investigating the impacts of an intervention has to begin by asking *why* a particular intervention was set in a particular place.

Every study on a social phenomenon has to consider the relation between the structures and agencies. The research focus in this study is more on the actors and agencies. However, structures are seen to greatly affect the actors' capabilities and possibilities. The social actor attributes to those social entities that can meaningfully possess the power of agency (Long 1992, 23). Sayer (2000) characterises social structures as people's reproduction, which can endure only if people continuously reproduce them. Sayer also argues that social structures have to be understood qualitatively.

However, social systems are open and transformative (Bashkar 1978). The focus in realistic impact evaluation is on causal mechanisms, which are activated in specific structures. Causal mechanisms have different outcomes in different contexts, and this study attempts to emphasize this. *For realistic impact evaluation, it is essential to find the links in the intervention that show how the mechanism of change counteracts the existing social processes* (Pawson and Tiley 1997, 75). A realistic researcher is not only interested in what has happened after an intervention, but she wants to know why people reacted as they did.

Cracknell (2000) has analysed the methods and ways to study and evaluate development aid and argues that realistic evaluation (see Pawson and Tiley 1997) does introduce many new aspects to the field of development, since context has always been central to practitioners working with development issues. In my point of view, the ideas of realistic evaluation to approach the intervention and its impacts provide a useful and applicable tool to study the biodiversity conservation as a social process, which is embedded in the particular context. The emphasis of a social context is particularly important in an intervention such as biodiversity conservation. This is because the conservation is usually carried out as a technical endeavour based on biological criteria and not as such related to social reality. There are nevertheless some difficulties in applying realistic ideas at the empirical level: it is difficult to distinguish the causal powers and where they have been manifested. Despite the contextual causation, I found it useful to use to some extent, the traditional methods of impact attribution (with-without and before- present) to sharpen the observations.

I see that impact attribution gains strength also from the "classical" impact evaluation setting that is, bringing up "more" contexts.

Classical impact evaluations rely on research designs that are based on with or without comparisons or before and after situations (Folke 2001). But these kinds of approaches are difficult to carry out in social reality where ceteris paribus assumptions never hold as such and the appropriate baseline information from the starting situation rarely exists, particularly in developing world contexts. Despite the weaknesses in designs of classical evaluations, I have also used them as a part of a combination of approaches which form the study design as a whole. Classical with and without as well as before and after- approaches which were used particularly in the more quantitative part enabled me to understand more deeply the particular context where the impacts were studied. In addition, contrary to various similar cases where the researcher has to start all over, before- information was available from various sources, due the government statistics and the research traditions in the area.

To conclude, what I draw from critical realism for this analysis is the *way* of understanding the world under study, and furthermore, *through its application of realistic evaluation*, I obtain the ideas and research tools for impact attribution. In addition, what particularly runs through this study is the emphasis of a context as well as notion of an already existent social world where intervention operates.

4.2 Studying social change: the *impact* of conservation and development

Unlike normal project evaluation, impact studies do not focus on the project or on the intervention, but the context in which the intervention operates. It is important to distinguish the difference between an ordinary project evaluation and a deeper impact study. The impact study examines critically both the intended and unintended outcomes of the intervention as a scientific work, whereas the ordinary evaluation concentrates on success of the project goals. The focus in impact studies cannot be only on the targeted population, as the impacts of the other effected should also be considered (Cracknell 2000, 241).

The key concept here is *impact*, which can be defined in different ways. In the context of the literature that evaluates development intervention, impact usually refers to the long-term, sustainable changes brought on by any given intervention (Oakley and Pratt 1998, Roche 1999). This includes both intended and unintended changes (Cracknell 2000, 237). Some impacts can be immediate while others may be manifested long after the intervention, impact that happen throughout the lifetime of the intervention (Folke 2000). Impact is thus perceived as the result of a complex interplay of intervention and context. The outcome is influenced by both the social context in which an intervention is implemented and the objective of the intervention.

There has been a lack of theoretical terminology and methods to study the broad impacts of development interventions, particularly locally. As pointed out, for instance, by Olivier de Sardan (1988), development (and development

together with conservation) is a social phenomenon that involves several actors both among the developers and among those to be developed and the result is a complex interaction. This is why the approach of realistic evaluation is well suited for impact studies, as they lack research methodology that is clearly grounded in theory.

In a context of social impact assessments (SIA), which are usually carried out before any intervention but are not so commonly used in context of development interventions or biodiversity conservation, although they could be included in both (see Geisler 2003 for SIA in national park management), impacts can be defined as quantifiable variables such as economic or demographic issues as well as the changes in people's norms, values, beliefs and perceptions of the society they live (see e.g. Vanclay 2002). Furthermore, Slootweg *et al*. (2001) make a distinct difference between the change and impact as such: changes happen, for example in population size (e.g. population growth) but the impact of this change is the changed perception about the nature of the community due its increased size. According to Slootweg *et al*., these impacts are perceptions, feelings and experiences of the change or as well some impacts are corporeal (in that they are felt by the body as physical reality).

My interpretation of the essence of impacts includes the idea of the long-term changes in people's lives. However, the *sustainability,* which includes the general impact definitions (Roche, Oakley and Pratt) is very difficult to investigate. I consider impacts as the "effects" of the long-term *changes* in people's lives. In other words, the various kinds of changes may happen due to the intervention (here conservation project) but the impacts are the deeper outcomes of these changes. The impact of the RNP is a consideration of the park (and its related activities) as an "entity" on people's lives as a dynamic process. These impacts can be material as well as the changes in the people's ways of thinking. Yet, I want to differentiate between the examined changes in people's lives and *social change,* by which I refer to wider, societal (also structural) changes meaning e.g. "modernisation", including the livelihood change from the subsistence to cash crops. Figure 2 summarises the change – impact –social change distinction.

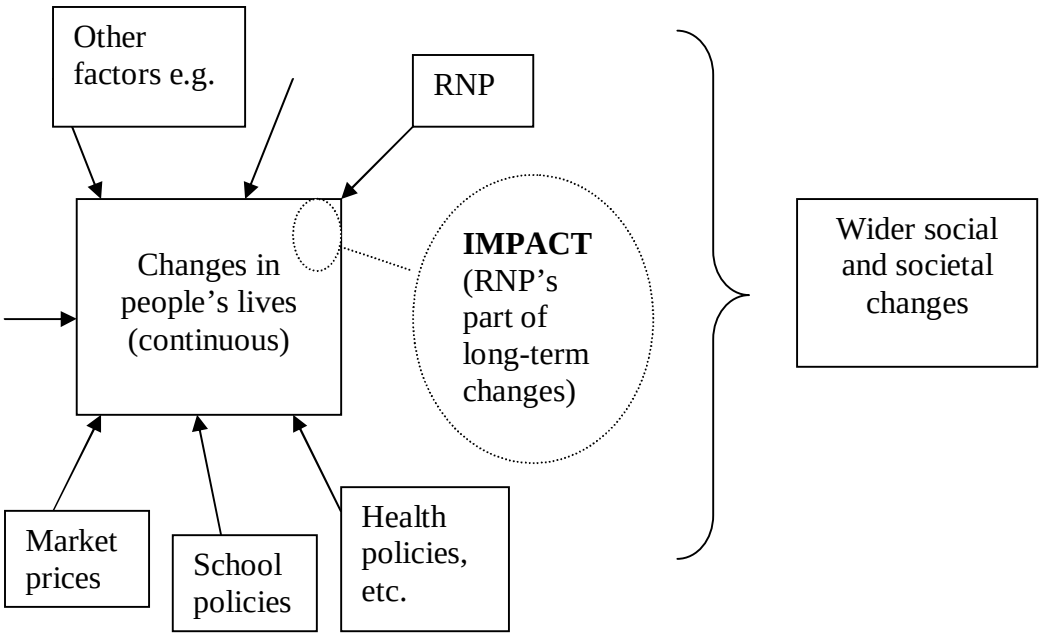

Figure 2. Conceptualisation of the change, impact and social change

Various types of impact indicators have been used in previous research. Naturally the type of indicator depends on the issues and themes of the study and the intervention. However, usually an indicator for the social impacts measures, for example, the income and living standards of the studied people (see e.g. Crackell 2000, 244). Vanclay (2002) has gathered a comprehensive list of 50 indicators of impacts for the purposes of the SIA. These are categorised under the sub-heading of wealth and social well-being, quality of the living environment (liveability), economic and material well-being, as well as cultural impacts (ibid).

This study adopts various types of impact indicators. For instance, reproductive health indicators (such as the number of births in health centres, contraceptive use, infant mortality, fertility, etc.) were used to describe mainly the quantitative changes in living conditions and wellbeing. I believe that reproductive health indicators better describe the overall well-being of the communities instead of the traditional income and wealth measures. This is because reproductive health focuses on one of the most important and comprehensive themes of community development. In addition, according to the initial need consultation, the health component of the studied conservation project was the only request of the people, and it played an important role in compensation schemes. Furthermore, in regard to the social and human impact assessments, health as such is one of the most applied aspects (see e.g. Kemm *et al*. 2004 for Health Impact Assessments).

Additionally, the present study examines the distribution of benefits (their absences and presences; see Bebbington 2004) of the conservation and its related activities for the heterogeneous communities. This was particularly important in order to analyse the equality of the conservation benefits and the reasons for their

distribution. Next, I used a life security approach, concentrating on the essential assets that form the satisfactory living for the affected people, and use these to analyse the impact of the park. This was done in order to identify what the people themselves considered the criteria for development to be and how the conservation and development project had corresponded to those.

However, all the types of impact definitions and their indicators face the same problem of impact attribution and causality. To address these issues, I used the tools of the realistic evaluation.

4.3 Political ecology of conservation

The realistic evaluation of social impacts emphasises the understanding of the impacts as well as the importance of explaining the reasons for the changes. I use a framework of political ecology to explain *the reasons* for the changes and the impacts generated by the biodiversity conservation. Both of them the impact studies and political ecology - underline the importance of understanding the contexts locally, but also from a wider perspective. Moreover, impact studies investigate society where the intervention operates through its "inner workings", and this is well suited to political ecology, which also emphasises the deep understanding of the research issues.

Political ecology refers to a loose bundle of theories that analyse environmental issues from wider political viewpoint. Political ecology investigates how the cultural, ecological, social, and political issues conflate in environmental questions. Historically, political ecology draws from political economy. Blaikie and Brookfield (1987, 17) state that political ecology "combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialect between society and land-based resources, an also with classes and groups within society itself". Watts (2000, 257) argues that political ecology is "to understand the complex relation between nature and society through a careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods".

There are various ways to study and approach the environmental issues within political ecology. Other research fields, such as cultural ecology, also share some of the themes found in studies in political ecology but what constitutes research on political ecology is the theoretical view as to how these issues are seen. One very central aspect is the idea that *social relations among the actors interested in and associated to the natural resources define the access, use and control over them.* As a result of this, environmental problems are seen to link to the wider levels of social structures from local to regional, national and global levels (see more e.g. Paulson *et al.* 2003). Political ecology also emphasises the recognition of the plurality of positions, perceptions, interests and rationalities in relation to the environment. The research in political ecology has

mainly concentrated on the third world and related the environmental issues to the problems of development (Bryant and Bailey 1997).

Even though this field has these common characteristics more or less, political ecological research can emphasise different theoretical arguments. One example is the strong actor-oriented approach in political ecology which emphasises the different interests and goals of various actors associated with the use of natural resources or the conflict over them. For example, Gezon (1997) points out the importance of identifying and studying the different actors on various scales concentrating more on the present-day situation. The other approach focuses more on the investigation of social structures and not on individuals as such. Recently, some recent approaches in political ecology have drawn from post-structural theories, developed e.g. by Bourdieu and Giddens which orients toward policies more broadly as power relations characterised by negotiation and infused by symbolic and discursive meanings (e.g. Escobar 1995). Some researchers (e.g. Peluso 1992, Jaroz 1993, Fairhead and Leach 1995) stress the historical background of the studied phenomena and the area. As a consequence, they trace their point through the environmental and social history.

Robbins (2004, 14) divides political ecology into four theses. The first thesis explains environmental changes, the degradation and marginalisation in their political and economic context. The second concentrates on environmental conflict and access. The third thesis explains conservation control, and political and economic exclusion, while the fourth thesis focuses on the issues of environmental identity and social movement.

There is also a growing body of studies in political ecology concerning environmental justice (which also forms part of the social movement agenda) to describe the injustices commited in the use of natural resources. However, the theoretical framework of environmental justice is strongly linked to the environmental justice movement that emerged it the beginning of the 1980s in the United States (see e.g. Agyeman *et al.* 2003) and this discourse has a quite strong connection to the North American circumstances. The environmental justice movement can be divided in North American basis into the civil right movement of the African-Americans, the occupational health and safety movement and the indigenous land right movement (Faber and MacCarthy 2003, 45). However, the environmental justice-approach has also increasingly been applied in other parts of the world (see e.g. Costi 2003 or Roberts 2003).

This study mainly investigates the themes related to conservation control and to some extent environmental conflict and access to resources. As the theoretical basis for this study, I found “an actor oriented approach” useful for my research, developed by the scholars associated with political ecology (e.g. Gezon 1997). This approach discusses the plurality of actors who are related to conservation intervention as well as their positions, knowledges and perceptions and the questions of power that occur between the actors. My view is that these

issues and concepts help find an answer to the ultimate question of *why* the impacts of conservation were as they were encountered to be. Furthermore, the present work is placed among the political ecological studies on social justice in conservation (see e.g. Ghimire and Pimbert 1997, Zerner 2000) and through some concepts such as human rights and marginality, belongs to the environmental justice-approach (see Agyeman *et al.* 2003, 10).

The reasons why I have not gone deep into social and environmental history in my own research is that previous social science research in Ranomafana (e.g. Hanson 1997, Harper 2002) have already produced an extensive historical analysis related to natural resource use and control in that area. I could have incorporated this material in my study to construct the research context in Ranomafana. In addition, this study concentrates quite exclusively on local circumstances even though political ecology tends to highlight the various levels of society (international, national, regional, and local), and I very much recognise the internal connections between all these "levels". Therefore, *local* as such, cannot be separated from other "levels" (discussed further later on) and the relevant issues for study themes from all these "levels" of stratified reality are taken into account. Nevertheless, this study has a strong focus on investigating the situation in a particular place from various different angels (health, environmental views, life security, etc.) yet widening this study to cover all the "levels" comprehensively was beyond the scope of this research.

Nevertheless, problems arise in the application of the political ecology. The number of "theories" and applications makes it difficult to establish your own point and position within them. In addition, it is easy to adopt a standpoint in which the rights of the poor and the marginalised are defended. This is not necessarily a problem but can add a slight populist view to the analysis and make objectivity difficult.

The concept of community is widely debated in recent political ecological research (see e.g. Brosius *et al.* 2005). Communities are often seen to presuppose the existence of shared norms and a homogenous social structure. However, recently the heterogeneity of the communities is widely recognised in natural resource management (Agrawal and Gibson 1999). This is to say that communities pose various social positions that include gender, age, lineage, social caste, ethnicity, etc.

Moreover, environmental conceptions and meanings also vary among the heterogeneous actors who are related to conservation as well as among the communities, themselves. Even so, the distribution of power resources affects whose "meanings" become dominant in a complex net of interests and ideologies. The questions of power and its distributions play a central role in understanding the outcomes of conservation in Ranomafana. In a conservation context, power can be conceptualised as a social relation built on the asymmetrical distribution of resources (Paulson *et al*. 2003). According to Peluso and Ribot (2003), some people and institutions control resource access while

others must maintain their access through those who have control. Ability is akin to power, defined as the capacity of actors to affect the practises and ideas of others (Lukes 1987, 3) as well as emergent from people (Ribot and Peluso 2003, drawn from Foucault). Wilshusen (2003, 56) synthesises both approaches by defining power relationships as "continuously enacted and transformed within the symbolic and material limits of a given set of institutional and discursive practises". Actors may also seek to exert control over the actors' access to the environment in an indirect manner through discursive means.

The hegemony power of some of the actors also relates to the hegemony of knowledges and this forms a basis for the use of power. I also consider these issues briefly as part of the analysis as to why the social outcome of the conservation was as it was encountered to be. All the above aspects relate to the central concepts of marginality and social justice, which are discussed more in the next chapter.

4.4 Social sustainability and justice in nature conservation

Ultimately, this is a study about the social sustainability and social justice, which are the central themes of which the encountered impacts reflect. The issues of socially just and sustainable conservation have also recently been raised by various scholars concerned about the negative social impacts that many conservation projects have provoked (see e.g. Brechin *et al*. 2003 and Lehtinen and Rannikko 2003 for discussion in Finland). A number of international agreements suggest that conservation should take into account human rights and social justice issues (UNCED 1992, CBD 1993, IUCN 2000). The current people- oriented conservation programmes are (or at least should be) committed to socially sustainable conservation. This has been pointed out in the 1992 UNCED Conference (Rio 1992), and further emphasized in Johannesburg 2002. The World Parks Conference 2003 concluded that biodiversity should be conserved both for its value as a local livelihood resource and for the national and global public good (IUCN 2003). A basic assumption underlying this research has been that nature conservation should be ecological but also socially just and sustainable.

Social sustainability and justice are not the same, although they can be seen to be related to each other from various angles. The "sustainability" discussion has a long history (see e.g. Adams 2001, 54-79) and it was widely adopted after the 1972 United Nations Conference on the Human Environment. However, this discussion really has gained momentum after the Brundtland Commission report "Our Common Future" which was published in 1987. Sustainability can been defined to be "a combination of regularity and perennity (Sachs 1999, 25), whereas social sustainability "must rest on the basic values of equity and democracy as well as human rights – political, civil, economic, social and cultural by all the people" (ibid, 27). Furthermore, Sachs (1999, 32) characterises a society with social sustainability as achieving a fair degree of

social homogeneity, equitable income distribution, full employment and /or self-employment and allowing the creation of decent livelihoods and equitable access to resources and services. Also, Dobson (1998) notes that the principal reason for social sustainability is usually the maintenance of levels of human welfare. Sustainable development originally has been divided into social (sometimes also cultural), economic and ecological dimensions. However, the economic aspects (in some extent) are here seen to be included in the "social" when considering the social issues of biodiversity conservation (see e.g. Polanyi 2001 for the connections of social and economic). Social issues are here mainly discussed from the local point of view from which livelihood activities are tightly engaged as being "social". Nevertheless, "social" as such does not refer solely to local issues.

These very same issues also hold when applied to the socially sustainable biodiversity conservation. Often in a conservation context, social sustainability is considered as being the maintenance or improvement of the local people's well-being and needs (Wollenberg and Colfer 1997, Colfer and Byron 2001). As for well-being, it can be defined as consisting of all the aspects of life that provide people a secure life such as security of access to resources, economic opportunity, decision- making opportunity, justice, heritage and identity as well as safety and health (Wollenberg and Colfer 1997, Colfer and Byron 2001).

The concept of sustainability includes the rights of the future generations but also the rights of the poor in the present generation as opposed to those of the rich (McNeill 2000). This also includes the idea of justice. Moreover, Rannikko (2003, 103) argues that sustainable development as such includes the demand for justice. A social justice agenda arises from the notions of the marginalisation of the poorer actors. Marginalisation can be defined in various ways, such as a process that alienates an individual or a group from the social code of a society (Room 1995). In political ecology, marginalisation can be considered as a process whereby politically and socially marginal people are pushed into ecological marginal spaces and economically marginal social positions, resulting in their increasing demands on the marginal productivity of ecosystems (Blaikie and Brookfield 1987). In a context of biodiversity conservation which mostly has been initiated from global interests and focused on local places, local people have increasingly been "pushed" into marginal positions (see also Neumann 1998). However, it is not straightforward to separate global and local as such because this issue is a complex question as a whole, and in the third and fourth articles "local" is examined as in a focus of studying the ICDP benefits, and not analysed as such in a "continuum" from local to global. Moreover, a concept of glocalisation describes a "twin" process where the local and global entangle. The global processes and integration take place at the same time with a growing interest on local decision-making and solutions (see e.g. Swyngedouw 2004 about glocalisation). Nevertheless, in biodiversity conservation these interests,

even not seen as polarised extremes, tend to conflict (although ultimately both of them have the same final goal: to have natural resources in the future).

The basic problem of justice asks if it is right that the majority's requirements are harmful for the minority. From the perspective of environmental policy, justice is a principle that highlights and respects the simultaneous wellbeing of nature and the marginal people (Lehtinen and Rannikko 2003, 239). Frankena (1962) concludes that one of the central foundations of *social* justice is the idea that all men are to be treated as equals simply because they are human. In a conservation context, this may mean that a local farmer has an equal right to livelihood, as does an international conservationist coming to implement "his global conservation task".

My application of social justice for biodiversity conservation is based on the recognition of the *equal rights of all human beings* (drawn from the egalitarianism: as a human being you are entitled to certain rights, see more e.g. Sajama 2000) as well as loosely on the justice principles of Rawls in which the just choice always benefits the people in the worst situation (see Rawls 1973). The ideas put forth by Rawls are difficult to apply in practice, but they provide basic ideas for further applications. The rights of nature as equal with the rights of human beings have been discussed widely in the literature on justice and environment (see e.g. Dobson 1998) but when studying socially just conservation, I see that the *focus* is on human beings and their rights (see Fortwangler 2003 about human rights and conservation) associated with conservation (even so, this does not mean that nature as such, could not have any rights). In addition, I use some principles of distributive justice, as basically justice is about the distribution of benefits and drawbacks (Dobson 1998, 30). However, as the social world is seen as a stratified reality (see Sayer 2000), the distribution of benefits and burdens is not straightforward. As ideal and just situation in distribution is difficult to achieve, according to procedural justice (see e.g. Nozick 1974), more important than just final state is the *way how* the distribution of the goods and bads has happened. However, my application of justice in this research seeks for more or less the just final state. Furthermore, the way how it will be achieved is also relevant (how socially just conservation operates).

In a conservation context, socially just conservation recognizes the needs of the local people not as a threat to biodiversity but as being equally important with global conservation goals. Social justice in conservation can be defined through full participation, self-representation and self-determination (Brechin *et al.* 2002). The local social development in its own right is equally as crucial as the conservation agenda (Ghimire and Pimbert, 1997, 3). Social justice is the right to fulfil basic needs, the rights to livelihoods and to use natural resources as well as to self-determination. To achieve the social goals of conservation, most of the present programmes aim at compensation or at alternatives such as the ICDPs. People who have lost their right to use natural resources for their

livelihood are provided alternative means of living through development activities. Schmidt-Soltau (2003) suggests that without fair compensation to the affected communities, conservation projects are rarely likely to be successful. Schroeder (2000) and Brechin *et al.* (2002) argue that conservation with 'real' social justice has not been tried yet, since socially just conservation associated with the current programmes aims only for economic compensation. In regard to the ICDPs, where benefits and drawbacks are divided between the different actors, the approach of distributive justice is often used. However, particularly for the market-centred conservation practitioners, the even distribution of the economic benefits of conservation constitutes socially just conservation. Nevertheless, Schroeder (2000, 53) suggests that distributive justice in conservation could be based on a notion of the compensation of the various losses and forfeitures (rights, physical property, knowledge and labour). He also argues that more culturally informed notions of justice, raised from political ecology, respects for traditional leaders, human dignity and observance of cultural forms (Schroeder 2000, 62).

Nevertheless, as I see it, economic compensation and fair distribution of the 'costs' of conservation should also be an important part of socially just conservation. The well-being of local people (social sustainability) is very much dependent on justice: the rights and fair resolution of conflicts, but equally with the *distribution of benefits, responsibilities and incentives*. This does not mean that compensation only includes quantitatively measured economic substitutes to an undetermined group of local people, because different people experience and face the distribution of burdens and benefits in various ways. Instead it means the *fair distribution* of all kinds of costs and benefits among the heterogeneous actors concerned with conservation together with an acknowledgement of the local communities' *rights* for livelihoods and natural resources under conservation.

Social sustainability should go along with ecological sustainability in conservation projects but as Brechin *et al.* (2002) point out, that environmental governance agenda is not the same as environmental conservation with a social justice agenda. However, both can be grouped under sustainable development. Thrupp (1989) divides the sustainable development agenda into two extremes: scientific environmentalism and anti-establishment environmentalism. The former presents the current elite conservatism relying on the western scientific worldview, and the latter defends the social justice issues from Marxist grounds. The crucial question is how to combine these two agendas? How does this conservation with a social justice agenda take into account biodiversity conservation, and how does the conservation with a conservationist agenda take into account social justice?

Goulet (1995, 119) points out the importance of both the agendas: "There can be no social development ethics without environmental wisdom and conversely no environmental wisdom without a social development ethic". Furthermore, Neumann (2005, 189) argues that when considering rural Africa, there is no

possibility of separating the environmental conservation questions from the questions of property rights, social welfare, human rights and justice. Yet, even recognising the importance of both agendas, Dobson (2003) points out that social justice and environmental sustainability are not always compatible. To find a common answer to this question would solve an ultimate dilemma between people's and nature's interest in conservation. Nevertheless, I believe that my study can highlight some issues which at least locally affect and shape this question.

5 RESEARCH METHODOLOGY

5.1 Ethnographically informed impact research

Ethnography is a thick description of the research object and the intention to understand the way of life of the people who are under the study from their own perspective (see e.g. Denzin 1997 and Hammersley and Atkinson 1995 about ethnography). Traditionally, ethnography has relied on extensive participant observation. However, the rapid application of "ethnography" also has been popular among the development researchers due their capacity for generating information in a short period of time (see e.g. Scrimshaw and Hurtado 1988 for rapid ethnography as well as Bentley *et al.*1988, Taplin *et al*. 2002 for rapid ethnographic assessment and Bebbington *et al.* 2004 for use of rapid ethnography in natural resource use). This applies also to the various participatory approaches, such as PAR and PRA, etc. (see e.g. Chambers 1997 for PAR). The two, basic methodological principles for rapid research methods are the triangulation of techniques and iteration. Triangulation, or the use of multiple methods, aims at maximising the validity and reliability of the data (Patton 1990). The characteristic elements of a triangulated methodology are the semi-structured interview, expert interview, and the community focus group. However, using other methods together with participant observation also holds for "traditional" ethnography "…collect whatever data are available to throw light on the issues that are the focus of research" (Hammersley and Atkinson 1995, 1). Iteration, (also characteristic for both rapid and traditional ethnographies) refers to the constant re-evaluation of findings as new data come in, with the implication that new research questions may be generated in light of such re-evaluations (Harris *et al.* 1997).

My research cannot be considered as being an ethnographical work as such; it is also not straightforwardly a "rapid assessment". I rather called it as "an ethnographically informed" realistic impact study where the main aim is to understand the impacts and their reasons in their contexts (see chapter 3.1). Realistic impact evaluation and ethnographically informed methods are compatible as context- understanding is particularly emphasised in both. As for critical realism and realistic evaluation, the research methods (the ways how the empiria is investigated see Sayer 2000, 19) can vary from qualitative to

quantitative, but what matters most is what the researcher wants to learn about the objects of study.

I chose to use a diverse set of field methods. In the frame of this study, it would have been impossible to learn the local language so as to be able to communicate perfectly with interviewees and conducting extensive participatory observation (even so, I studied the basics of Malagasy). However, the researched phenomenon has been followed during the research period from different angles (among the park workers, conservationists and people in the villages) and the observation of various actors dealing with conservation in Ranomafana has been an important part of this research.

5.2 Fieldwork methods

Setting and access

Fieldwork was conducted in three phases (2001, 2002, 2004), and six months was spent in the field. The research setting was designed as comparative, but concentrated on key villages that were affected by the park. A comparative setting was used as the main strategy in the reproductive health part, as well as in the other parts of the study, a comparative setting strengthened for the impact of the analysis, although comparison was not the only method used.

The RNP overlaps three *fivondronanas* (sub-provincial jurisdiction). Each *fivondronana* is divided into several communes (*firaisana),* which consist of *fokotanys* (groups of 2-6 villages). The RNP, with its buffer zone, overlaps seven communes. I selected 4 communes in the park area and 4 from further away. From these communes, I selected 12 villages, half of them from the buffer zone and the other half outside of the zone. Figure 3 presents the location of studied villages. The criteria for selection were the situation of the village (accessible vs. remote), ethnicity and the livelihood activities and the former studies conducted in the area. Due the quite frequent assessments and surveys by national students, I wanted to study the less surveyed villages (see article IV for the research in Ranomafana). In addition, the livelihood activities and "way of life" ("ethnicity" see more later on) differ in the park area and I wanted to include villages from both livelihood areas (the *tavy* and paddy rice cultivators).

The number of inhabitants in the villages varied from 80 to 300. But on average, the villages studied were medium in size (most of the inhabitants in a village are children). The villages were all "typical"; relying on agriculture for livelihood and (most of them) had a small primary school (see Figure 4 for a picture of a village). All the other "services" were found in the municipality centres such as Ranomafana. To get a deeper understanding of what the people experience I selected four villages from the twelve villages I had already visited for closer study. However, it was a good strategy to visit in so many villages as this provided a comprehensive overview of the area. Also, the Ranomafana

centre was added as the fifth village for closer study, as it is obviously one of the most influenced villages by the park. It has to be noted that the research area is situated in a remote mountainous area and many of the villages are difficult to reach. The long distances between the study villages (2-100 km) and difficulties in transportation have limited the village selection.

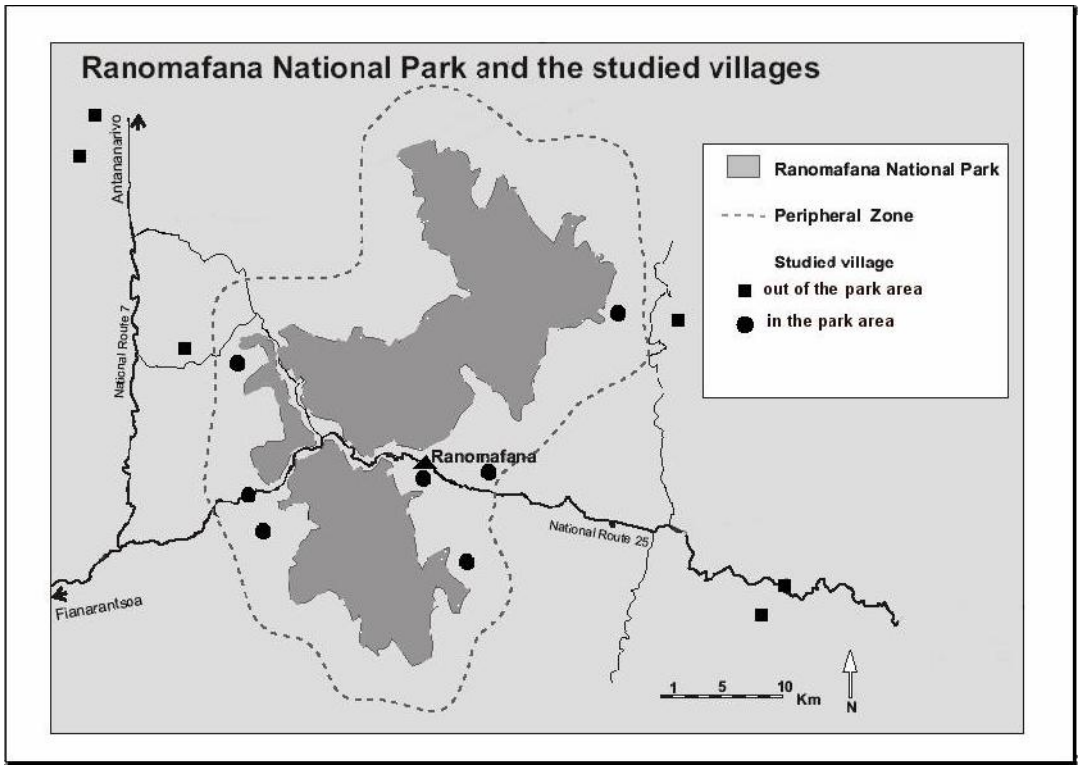

Figure 3. A map of the Ranomafana National Park and the location of the study villages

The villages were selected on the basis of preliminary information from the park management, the *firaisaina* mayor as well as from the previous studies conducted in the area. Those villages chosen for closer study were selected according to my experience from the first field trip. Together with an official research permit from the national office of the ANGAP (*Association Nationale pour la Gestion des Aires Protégées*), as well as park management, a mayor of each *firaisana* gave me permission to visit a certain village and to send his official note to the village before our arrival.

During the first fieldwork period in 2001, I visited all of the 12 villages, spending one to two days in each village. This was done to get a preliminary view of the research area on a wider scale. I also visited the mayor's offices, schools and health centres in each *firaisana* centre. During the first fieldtrip, I stayed in the Ranomafana National Park biological research station between the village visits. This was also useful in order to understand the views of the conservationists, researchers and tourists, whom I met during my stay.

During the second fieldwork in 2002, I revisited four villages, selected for closer study, as well as the Ranomafana centre. Four to six days were spent in each of the villages while I lived in a house in the Ranomafana centre. During the third stage of fieldwork in 2004, two villages in the lowlands of the park were revisited for four to five days.



Figure 4. A picture of a study village.

Observation

Observation was an important part of the fieldwork during the whole study. Participant observation is one of the key methods in ethnographic research and rapid appraisals also rely on the information from observation despite the differences in their intensity and level of participation. In general, observation consists of the gathering impressions of the surrounding world through all relevant human faculties (see e.g. Adler and Adler (1998) for observation as a field method). It could be said that almost all days of my fieldwork in Ranomafana as well as also in the capital among the conservation NGOs, were full of observation. Living in villages, as well as living among the conservationists and NGO workers, helped me to understand the multiplicity of views, positions and opinions concerning conservation and its related activities. When in villages, I lived nearby in one of the key families and observed as well as to some extent, participated in their meals and everyday activities (cooking, fieldwork, water fetching, bathing etc.). Little maps of each village (see Figure 5) indicating the source of water, situation of houses, etc. were drawn by the

assistant and villager (s). I used systematic observation (a form was filled out in every village) of some of the living conditions matters (such as the conditions of houses, the presence/absence and situation of toilets, household objects, firewood collection etc.) but used as well a free diary on my discussions with villagers as well as project workers.

I wrote a diary every day by describing the social situations I was witnessing in the villages as well as those among the park workers. Important matters were written down almost immediately and in the evening, a more concluding summary of the day was written. Participatory observation was not a primary method in this study, as I found it difficult to conduct it in a proper way without being able to speak the local language adequately. It was, however, a very important part in complementing the interviews, particularly as I discussed extensively with my research assistants who were aware of the kinds of issues I was studying, and they were able to point out to me important events and situations.

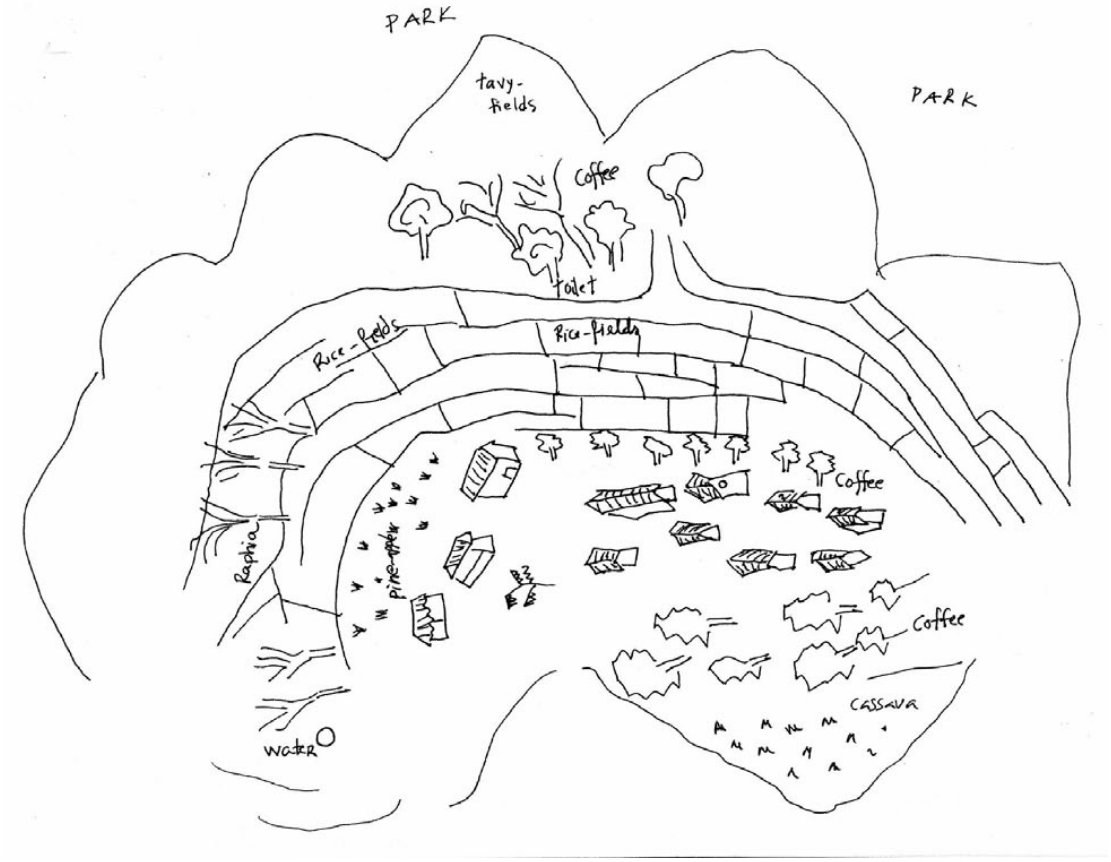

Figure 5. A map of a study village drawn by the research assistant.

Interviews

The interviews consisted of two types: individual key-person interviews (in total n=90) and focus group interviews (n=20). In each study village, I interviewed the key persons by using semi-structured interviews. Two types of key persons

were identified. First, “the expert type” key persons included the “specialised” villagers or other professionals who were relevant for the research themes of this study. These included e.g. a teacher of the village who was interviewed about education, a doctor, a mid-wife (traditional and modern) and health animators about the reproductive and living conditions issues, agricultural animators about the livelihood issues, and village elders about the village history and context. However, I do not consider a doctor as representing the villagers’ ideas. These “expert” interviews were conducted to provide information from study questions, not to gain perceptions of the villagers.

In addition, opinions and views of various conservation related actors were also included in the study, and the NGO and park workers were interviewed as “professional key persons” as well as actors with their own opinions. These key-person interviews form the second type of the key- person interviews. They also included ordinary villagers who were willing to talk with me and they had a wealth of information on the research topics. Most of these individual key persons were identified through the focus group interviews. These interviews focussed on the people’s views and conceptions concerning the studied issues. The interviewers of this “category” also formed the “actors of the conservation” discovered out in this study.

The interviewed persons spoke Malagasy, as did my interpreter who was a Malagasy university student. The interviews were recorded and the essential point of the answers was translated to me directly so that I was able to ask further questions. During the interview I had time to make notes of a situation, as well to observe the respondent. This kind of approach was found to be useful when not knowing the respondents’ language (Devereux 1993, 46) because translating everything directly during the interview would have taken too much of a respondent’s time. The sample of the informants increased by a snowball technique (Patton 1990, 176) and I noticed that at some point, no new issues were coming up in the interviews. This was when I decided that no more interviews were needed due to saturation (see e.g. Patton 1990). The recorded tapes were translated and transcribed into English by the translator who was person other than my assistant in the interviews. I did indeed study Malagasy in order to know the basic words related to the theme, and I was able to control the work of the interpreter/moderator and capture some ideas of the people by myself. As the interviews more or less followed the same pattern, I could follow the work of my assistant, as I understood the basic words used in the questions and answers. This has also been pointed out by the researchers who had conducted research in the developing world without knowing the local language properly (Devereux and Hoddinott 1993, 16).

Focus group interviews were originally developed for marketing research in the 1920’s but during the past decades, focus groups have been used quite extensively in social and health sciences, as well as a combination of methods in the rural appraisals in developing research. (Khan and Manderson 1992, Yach

1992, Ite 1996, Pötsönen and Välimaa 1998, Mgalla and Boerma 2001, Rinne-Koistinen 2004). One of the benefits of the focus groups is that they offer an opportunity to collect information from the "real world", covering not only the questions about the opinions but also explanations, experiences, views and attitudes as well as expectations towards a particular issue. Actually, the method operates between an observation and a structural interview, combining applicable elements of both (Pötsönen and Välimaa 1998). Focus groups are well suited for the study of attitudes and thinking, as they enable the researcher to understand why people feel the way they do and present a wide variety of views to be extracted (Morgan 1988).

I conducted focus group interviews in those four villages that were selected for closer study as well as in the Ranomafana centre. I conducted focus groups among women and men (in different groups) from different ages. I intended to have representatives from all the "wealth classes" in a village. A suggestive wealth ranking was done before the interviews with contact persons in a village. A contact person was generally a president of the *fokotany*, a villager that the villagers had elected to be their representative for the official administration. Wealth ranking was mainly based on a household's land ownership: the type of landholding greatly affects the person's position in a village. Other matters were also considered such as the number of children, a sickness of a husband, relations to royal lineage, etc. After a preliminary view of a village (and previous knowledge that I had gathered during my first trip), I gathered a list of potential interviews with a contact person who then visited the people and invited them for a group interview. This interview was set in a time suitable for the people to participate. I recognise that unequal power relations between participants may have influenced the discussion but organising groups directly through social caste would have been practically impossible. But the "poorer" were also speaking out in-group situations.

Usually a desirable group size is about 6-10, depending on the situation. (Khan and Manderson 1992, Pötsönen and Välimaa 1998) and my group sizes changed from seven to twelve participants. A moderator who in my case was my interpreter, a Malagasy student of sociology, controlled the focus groups. Actually, in the beginning, I had two students, a male and a female, for conducting the gender groups but this was only for a couple of the first interviews, as the male assistant had to leave. However, I noticed that the gender of an assistant as such, was not as significant as personal characteristics. The student acted as a person who led the discussion. Students were trained in the focus- group interview- method theory and two group interviews were conducted as a practise. These interviews were also recorded and translated so that I could see what the students were asking in every specific situation. After the practise, the form and content of questions were also revised. Before the interview, basic information on each of the participants was written down (the age, origin, land owning, as well as some other relevant matters such as, relation to royal lineage).

According to this information it was possible later on to distinguish the speakers' characteristics. In the beginning of the discussions, "a warming up"- exercise was made by drawing a schedule of the daily activities and in the end, a little gift (a piece of soap and matches) were given to each participant.

I myself acted as a facilitator who recorded the conversation, observed the situation and made notes. I was also able to follow the interview the same way as I did in the personal interviews. The whole discussion was translated roughly into English soon after the discussion. This was very useful, as I was able to check some of the issues that are in the interview while still being in the village. The tapes were translated and transcribed by a university English teacher afterwards.

I conducted a group interview to test the method in the first fieldwork period and I found the group situation to be suitable for the local context. Particularly many of the women obviously had quite a lot to say about the research issues but were not so easily expressing their ideas individually. Nevertheless, the group situation was more comfortable for them to become familiar with the interview setting and many of them talked, as they were participating in an informal gathering which was normal for village life. When studying people in cultures in which communality is a central feature, the focus group is generally a more natural way of gathering data than individual interviews (Morgan 1988). Nevertheless, sometimes people talked at the same time, or it was difficult to separate individual opinion from the consensus of a group. After making careful reparation, I was able to distinguish the speakers separately. In addition, the groups were very different; some groups had participants who were very talkative and the interview therefore lasted more than two hours while a few groups were not so successful (particularly one group of young women was very difficult to conduct owing to the shyness of the people). Even when shyness was a factor, it usually disappeared after the beginning of the group interview.

Statistics, documents and previous studies

I collected existing statistic material that the local authorities had gathered. This material consisted of a time series (between 1990-2000) of the demographic change (births and deaths, including infant deaths) and the enrolment of school children. Health related information, such as the appearance of common diseases and familial planning, was only available from the last three years. Statistics were gathered at the commune level. Health data were collected from the local health centres and from the provincial health office (Pro-Santé) in Fianarantsoa, the province capital. The statistical information from the health centres included the data on births in the health centres, prenatal visits and the contraceptive use in the study municipalities from the years 1999-2001. No population-based statistical health data were available from the year 1990. However, educational information was available from the early 1990s. This information was obtained

from regional school district offices and from a school. This statistical material can be considered as a primary material as it was not summarised but the form of official questionnaires (particularly school data), (see article I for more details). I believe that these official records can produce scientifically reliable data especially as the Malagasy administration holds to the strong traditions of respecting orders due their own culture and to their inherited tradition of the French colonial period as well their former centralised, communist system.

In addition, documents were collected that were reports on the distribution of national park entrance fees, developing projects, health activities, etc., from those organisations working in Ranomafana. The park organisations' annual reports and other related documents were collected in every field trip. Other doctoral studies (e.g. Harper 2002, Hanson 1997, Marcus 2000) also provided important information used in this study. Particularly Hanson and Harper have already produced extensive historical investigations which I could have used in my study to deepen context knowledge. This is also one of the reasons why I have not included a deeper, historical analysis in my study, as this has already been done. In addition, particularly the study by Harper (2002, fieldwork conducted in 1996) discusses the few common issues (such as community structure, and health), which are presented in this study and these are used as pre-information for further analysis. Marcus (2000) provided some quite recent quantitative information on the household economics in Ranomafana, as the study included a quite extensive household survey. Furthermore, the initial park surveys near the establishment of the park in the early 1990s (Kightlinger *et al*. 1990 and 1991) provided crucial baseline information for a comparison, particularly for article I.

Another source of information was national newspapers (*Midi Madagasikara, L'Express* and *Tribune Madagascar*) which were followed to some extent to find articles that were related to rural development and conservation. My research assistant went through the newspaper archives in the National Library in Antananarivo from 2002-2004, particularly the issues around the date of the renewal of the burning law. Approximately 85 articles were collected.

School surveys

The study material also consisted of a school children's survey and writings (article II). I proposed that the teachers in two high schools in the area ask their students to write about their considerations regarding the environment and the future. Students wrote in Malagasy and the writings were then translated into English. Students answering the survey were 15-21 years of age. A total of 32 complete questionnaires were collected of which 17 were from the Ifanadiana Secondary School and 15 were from Ambohimahasoa. This material was used together with the school survey that conducted in 2000 by Anu Lappalainen. This survey had been distributed among the younger pupils in 16 schools in 6 villages

and more than 400 responses were received. Of the responses, a random sample of about 200 was taken to control the cost of translation. Table 1 presents the summary of this research material.

Table 1. Summary of research material

Data source	*Unit and number*	*Park / Non-park*	*Year (s)*
Census data (births and deaths)	8 municipalities	5/ 3	1990-1998
Health Statistics	10 municipalities	6 / 4	1999-2001
School enrolment statistics	26 schools (*fokotany*)	14/12	1990- 2000
Newspaper articles	approx. 85		2002-2004
Small tourist business "interviews"	14 businesses	14/0	2002
Key-persons' interviews (number of interviews)	13 villages and 10 municipalities	7/6 and 6/4	2001/2002/ 2004
• Official health personnel (9) • NGO and park workers (18) • Teachers (12) • Local authorities (6) • Village midwives/health animators (15)			
• Village elders (10) • Key villagers (20)	3 villages	20/0	
Focus group interviews (20)	20 groups in 5 villages	3/2	2002
• 10 female/ 10 male groups • 10 younger people/ 10 older people			
High school students writings*	32 writings		
Observation	Diaries, maps, discussions	everywhere	2001,2002, 2004
Secondary sources			
MICET follow-up surveys	6 villages	6/ 0	1998
Initial park surveys (Kightlinger *et al.*)	18 villages	18/ 0	1990-91
ANGAP and RNPP documents	Several documents	park area	1993-2004
Other doctoral studies (Harper 2002, Hanson 1997, Marcus 2001)			

*Used with a school survey among younger pupils (Lappalainen)

5.3 Analysis - Research as a Process

As the material of the study is diverse, the methods of analysis differ as well. The process of analysis started in the field. During every fieldtrip, I have written a preliminary conclusion on the conducted research from observation, interviews and diaries. This proved to be very useful. Although the conclusion was not final

and sophisticated, it had nevertheless been a useful "tool" to return back to for more analysed results.

The guiding idea in the analysis has been to distinguish the role of the national park in the changes and in the aspects of the studied issues. One of the key challenges of the study has been impact attribution. A comparative research setting in time and in place was useful, and it also revealed the difficulty of the impact attribution. If no differences were detected in the comparison can this be interpreted as the park having no impact? A realistic impact evaluation started in deep into the investigation of the studied subjects. When understanding the essence of them and their functions (e.g. land tenure and distribution), the role of in how the park may have affected them was easier to ascertain. However, the tools of the comparative setting were also useful in understanding the essence of the studied subjects and this guided and sharpened the analysis: some of the obvious impacts were more a result of the wider changes where the park played a role but was not the only factor. This also became apparent to me when studying the villages outside the park area. As this research was conducted as a process, ideas concerning the realistic evaluation and the tools for impact attribution from critical realisms sharpened during the study.

The transcribed and translated texts were then analysed. Many of the interviews were used merely as a source of general information. For others however, a part of the interviews were coded to search for common themes. A computer program ATLAS.TI was used to facilitate the analysis of such a vast quantity of text. The analysis focused on identifying the occurrence and differences as well as the interpretation of the structures and relations (see Kvale 1996, 197-204). Since the research material consisted not only of the interview texts but also of the observation diaries, etc., all the research material was put together under specific themes in separate files. As a result, I constructed a "picture" of every village, especially those which were selected for closer examination, to characterise the general living conditions, community life and livelihoods in each village. A similar analysis was also undertaken for the key actors. These "village and actor profiles" with the background information (documents and previous studies) were used in the final analysis. To describe the process of this analysis, I will shortly go through the entire study, article by article, identifying which material was used for a particular article and how.

In the first article, the idea behind the method used was to access existing quantitative material (health, school and census statistics, see Table 1) instead of traditional surveys. Of course, due to the different levels of official material, summarising the data was more complicated than in the village-level surveys. Besides the quantitative material, key-person interviews were used to complement that data. Next, I summarised the statistical information and calculated the average values for each indicator used. Tables were then created to show the comparison of the park and non-park figures. I then went through the interviews and observation diaries, looking for the information related to each

indicator and used this information to complement and explain the statistical figures. I also constructed an observation matrix from the systematically observed factors pertaining to living conditions and placed them into a comparison of the park and non-park. The research design in this work differs from the last three studies in regard of use of a comparative setting with a non-park aspect in it. However, I see a comparative setting as providing more contexts for a realistic evaluation (which has been used more intentionally in the latter part of the study) as will be explained later.

The second article is based solely on the material from two types of school surveys. If these were carried out now, I would also add more interviews to add depth to the data as well as to change the scope of the article to better support the main research question. Nevertheless, the writings of school children were analysed by exploring the common ideas and considerations of their living environment. The questions asked related to the issues of environmental changes, to the functions of environment, as to what the students considered to be important in life and how they perceived the future. The length of the answers varied from a few words to several sentences. The responses were analysed by grouping each one under themes arising from the writings. In addition, each student's responses were analysed individually, checking the inter-linkages between them. A comparison among the writing from the forested area and the writings from the deforested area was made and their differences and similarities were analysed. The findings of the second article provide additional information on the park's impact, although the general approach could have been more critical. My thoughts on conservation and its justifications have changed gradually during this research process, and the second article may consist of some claims (such as the western ideas of environment in the study design) that are no longer adhered to completely in the final conclusions.

The idea of the third article developed during the second fieldtrip when observing the various interpretations by the local people in Ranomafana. The material used here consists primarily of the information from the key-person interviews as persons with their opinions as well as observations (also the observation matrix from the living condition matters). In addition, park management documents on rural development projects from years 1997-2002 formed an important part of research material for this article. I systematically went through all the material (interviews, park documents, observation schemes and diaries) searching for meanings given and used for the concept "local people". However, the intent of this article was not to categorise "local" as an entity compared to other levels of the social world, but to highlight *the complexity* of the concept of local people. Realistic evaluation was used in the in-depth investigation of the various contexts in which "local" was reproduced: an elaboration and concretisation was conducted of the issues affecting the use of the concept of "local people" (see Pawson and Tiley 1997, 153-182 and Danermark *et al.* 2002).

The analysis of the fourth article started with identifying the identification of the conservation actors and continued by analysing of interviews and observations of each actor group. It could be said that since most of the primary material consisted of key-person interviews, some extent focus group interviews, as well as observations. However, information was also used from previously analysed material used in the three other articles. The actors' conceptions on the environment and the meaning of conservation were found in the transcribed texts and complemented by observational information. Moreover, an analysis and investigation, as well as concrete contextualisation was made of the actors in their relation to the conservation process (see e.g. Danermark *et al.* 2002 more for concrete contextualisation). Furthermore, an analysis of power between the actors was undertaken in part of the contextualisation process. While realising that there were no grassroots movements in Ranomafana, I also started to look for reasons for this and therefore established it as a part of this analysis.

The fifth article is based mostly on an analysis from the focus group interview data but also on key person interviews as well as information from pervious articles. The analysis of the focus-group discussions consisted of mostly the "ethnographic" analysis of translated texts (Morgan 1988). "The rough data" from the group interviews (texts and notes) was compiled to serve as a descriptive conclusion of the discussion. These "conclusions" were analysed in order to recognise the main ideas and experiences of the each research theme. The guiding idea was to look for the various components relating to life security for the people and to analyse them deeply (for description and analytical comparison as tool of realistic evaluation, see Pawson and Tiley 1997 and Danermark *et al.* 2002) and through this analysis to distinguish the impact of the park.

The research has lasted for several years and it is not possible to state precisely when the analysis began and when it was completed. The study continued during the writing and the results were shaped up during the various phases of the process writing. Due to various comments and new sources, I had to return to my older "results" and reconsider them (theoretical iteration). This research has also been conducted in a form of articles, which means that the whole study has to be seen as a process in which my knowledge has increased and my understanding of the issues has changed during the journey from the first article to the last.

5.4 Different roles of a researcher, and questions of ethics, validity and reliability

The personal frame of the research has an important role in this study. As Weber (1978) has pointed out, all research is contaminated to some extend by the values of the researcher. That is particularly true in this study, which attempts to explain how social reality of people is affected by various values that are manifested through the unequal distribution of resources. I have tried to construct a whole

and objective picture about the situation, nevertheless I have taken a somewhat value- coloured position, and expressed normative claims. Even so, my intention is not to point out what is wrong and what is right or to prescribe the true way to do things.

During the field research, my role as a researcher was not clear and obvious. In several cases, I was not seen as a researcher, despite the fact that the villagers in Ranomafana have a history with researchers. I intended to present myself as being an independent from the park organisation, and succeeded quite well, particularly after some discussions. However, it was not always easy for the people to see me being different from a developing worker or a government officer. I was also seen, of course, as a foreigner (*vazaha*) and a European (not as an American). I believe that my status as being from a country other than the US also benefited my position as an independent evaluator.

I have to point out the important role of my research assistants. During the first stage of fieldwork, I had a male assistant (Andry Rakotoarivao), who was very experienced in rural development interviews and was a geographer as training. During the second and the third stage, I had a female assistant (Chantal Soloniaina), a sociologist, who also written her master's dissertation on this research subject. Both of them were more than translators, as they were my friends as well as guides to the Malagasy culture. They were also both easily accepted by the villagers due their amiable personalities and social skills.

Among the park authority and other researchers, my position as a social scientist was not easily understood. However, due my own background from ecology, I could also understand claims from natural science and I consider this also to be a distinct advantage in this work. I also have experienced difficult situations with the park authority workers whom I interviewed several times, and to whom I consider somehow to be my friends and hosts in Ranomafana. Their opinions, nevertheless, differ from mine and during fieldwork, I was not in a position to express my own personal views on research issues. In a research report, some of their opinions and actions may have been used in "a negative" way from their point of view. This may make them feel that I have betrayed them and may cause a difficult situation for my future activities in Ranomafana, or it could influence their decisions when they consider my suggestions for improvements. Previous social research has not been taken into account in the park activities (Harper 2002). I began this research with the aim of producing something that would also benefit the researched people together with its scientific objectives. This confronts me with a question: can I just leave the problem there, study the issue as an academic practise and not care about the consequences of my research?

Furthermore, my study explored the equity of the benefits of the park and concluded that one of the most benefited groups has been the foreign researchers and I can no doubt include myself among them. The park has created favourable circumstances for me to study the social sustainability of the biodiversity

conservation and I have been using it here in the same way as the other researchers, to carry out my thesis to obtain an academic degree.

However, the communities have also to be informed on these research results. A short summary of the results was written and translated into Malagasy. My research assistant, who still works in the area, delivered these notes to the villagers. Practical recommendations for the improvements for the park management have been made and delivered to the NGOs working in the area.

Ranomafana National Park was studied carefully, but the results of the study rely on the experience of the studied villages. This study includes information from the different kinds of villages in different parts of the park and the experience from these villages can be generalised in some extent to the whole park area. However, Ranomafana National Park is also used as a case study for the wider questions of sustainability and justice in biodiversity conservation, but the experience from Ranomafana does not reflect the situation in the other parks in Madagascar or elsewhere, where the context is different. Each case is unique and other similar cases may experience the same problems and the same characteristics but their outcome can be different. This may also be true in Ranomafana in those villages which were not included in this study.

A pertinent question is how the validity and reliability of the qualitative research is ensured. Patton (1990) suggests many ways to test the reliability of the qualitative research and triangulation is one of the tools often used to strengthen the results. I also attempted to use various types of field methods and collect the material from the same issue in many ways. This is true particularly of the reproductive health issues as social indicators were studied through various statistical sources and interviewees were both laypersons as well as professional people. Also, the interview answers were cross-checked, and the same issues were asked by different questions and from various persons. Another useful way to check the information gained in interviews was to observe and participate in informal situations. In addition, as language is a central part of the qualitative material, the information embedded in the richness of the language will be lost if the researcher does not speak the same language as a respondent. An attempt was made to overcome this by studying the basics of the local language and by using double translations provided by two different people.

6. RANOMAFANA NATIONAL PARK

6.1 Context – Border land of Betsileo and Tanala

People around the protected area

The area which now constitutes Ranomafana National Park and its surroundings has been sparsely inhabited for a long time. The first inhabitants are thought to have arrived in the Ranomafana region already around one thousand years ago. The *Vazimba* (the original inhabitants, *Sambinoro*) "were small, very black and cultivated nothing" (Beaujard 1983). This would imply that these inhabitants

came from the west coast where the Bantu peoples first arrived. The Sambinoro lived off the *tavy*, manioc and forest products until the 16th century. Starting in the 16th century, the Sambinoro were confronted with a significant conflict as the first waves of Betsileo (from the southern part of the central plateau) migrants arrived in the region after having fled from the demands of the Merina (the dominant ethnic group in the Central highlands) kingdom. (Hanson 1997).

By the end of the 18th century, the Sambinoro systems of governance were displaced in favour of Merina dominance. The Sambinoro became an underclass who served of the Merina. The norm became forced labour (*fanompoana*), high taxes and the excise of slaves. By the mid-nineteenth century, most Merina had slaves, and these slaves did most of the productive work for the benefit of their masters. The Merina increasingly left their ancestral lands to become administrators, traders, teachers, or farmers elsewhere, particularly in the new-colonised lands (Campbell 1988). The Sambinoro mode of production was stilted and their social structure was entirely eroded. As the Sambinoro were seen by the Merina as dark people who live off the forest, they were named the “Tanala” meaning "people of the forest" (Hanson 1997, Marcus 2000).

It can be said that Ranomafana has been a meeting point of different people for a long time (Ferraro and Rakotondranjaona, 1991). People living in Ranomafana, descend mainly from the migrants from the Betsileo high plateau. The Ranomafana area has been seen as a region of endless forests, and the majority of the present day farmer’s ancestors moved there just over 200 years ago. This immigration has continued during the past decades, being either seasonal or more permanent. Furthermore, many of the village locations were moved to more remote areas that were closer to the forests as a result of the rebels against the French. The most violent rebels of the French colonial history inhabited this region, as ancestors of today’s farmers were collectively taken part in the fight against the French in 1947. (See more e.g. Harper 2002)

Today 11% of the population of Ranomafana town is Merina and they are mainly merchants, civil servants and NGO workers (Marcus 2000). But many of them have recently moved to work for the park authority. In addition, also a number of Merina have lived in Ranomafana for decades due its situation as a national highway and the history of a national tourist place due the thermal springs.

Even though the people in the park area are a mix of various ethnicities, they have been classified by the park authority into two ethnic groups: Tanala and Betsileo. The park documents state that Betsileo (around 55% of the people in the buffer zone) live in the highlands and practise paddy rice cultivation and the Tanala (45%) live in the lowlands and rely mainly on *tavy* (Grenfell 1995). Yet ethnicity is a complex concept and cannot be considered to be a fixed characteristic. Especially in Madagascar, the division into certain “ethnic” groups has been defined by the economic activities that the people practice, rather than

by their "ethnic characteristics" (e.g. exterior features) (Kottak 1971). Even so, being a Tanala or Betsileo is more a "way of life" and the result of the livelihood activities that has been determined by ecological conditions.

Social organisation

People around RNP live in approximately 100 small communities, ranging from 10-600 people, with a total population of about 32, 000. The Malagasy administration consists of a hierarchical system: provinces, *fivondronanas* (sub-jurisdiction), *firaisanas* (municipalities) and *fokotanys* (groups of two to five villages, *tanana*s). The *fokotany* is the lowest official administrative unit but the villages are led by traditional leaders (*apamjakas*) or by the village elders' council. The park overlaps seven municipalities, which have villages in the buffer zone. The development projects of the park are carried out in this buffer zone, which is defined to be a three-kilometre belt around the park including those *fokotany* and *firaisana* centres which have villages in this belt (Grenfell 1995).

A Malagasy village is generally organised around the one *fianakaviana*, (family), and descendants of the same ancestor, while some villages may consist of two or even three original *fianakaviana*s. *Fianakaviana* is a loose concept for kinship and it can also include people who have lived together for a long time. But marriages within one *fianakaviana* are forbidden (Peters 1992). In addition, many immigrants may have moved to villages to serve as the labour needed in the fields and have married. The villages in the highlands (Betsileo) and the villages in lowlands (Tanala) of the park differ from each other in their livelihood activities but also in their form of governance. The highlands villages are led by the *ray-mandreny* (village elders) but in the lowlands, a village is led by one or more *apamjakas* (king, "the one who rules"), generally the oldest male of the royal founder lineage. However, an *apamjaka* is elected by the people and his power is given to him by the people's choice. (See Peters 1992)

The *ray-mandreny* also participates in decision-making in the Tanala villages, however, together with a king, who has a final decision power. A woman can also be an *apamjaka*, however, this rarely occurs and only when the past *apamjaka* has no sons to be elected as a king. Once elected, he remains the *apamjaka* for life. (In 2004, there was a female *apamjaka* at least in one village in the Ranomafana *fiaraisana.*). The power of the *apamjaka* depends on his popularity among the people.

People living in a village form a *fokolona*, a "community" or "*the people of a village"*. The *fokolona* are those who share daily life together. The *fokolona* regulates their whole living: "*It is a fokolona which makes a human being a human being. Without a structure like the fokolona, there would be chaos*". (An old man in Ranomafana).

When breaking the rule of the *fokolona,* the village elders and *ampamjaka* order a punishment. The nature of this punishment underscores the importance of

the *fokolona*: depending on the degree of crime, the punishment is a certain degree of isolation from the *fokolona*. The *fokolona* therefore presents the greatest security in life for the people. Notwithstanding, economic activities are generally kept within a family (*fianakaviana*), not within the *fokolona*.

Education and health care

Generally, every *fokotany* has a primary school. Yet, sometimes there can be two or three schools in a *fokotany* if the distances between the villages inside of it are great. These village schools have one to two teachers and provide instruction from the first to the fourth classes. Most of the children attend school at least one or two years before dropping some continue until the end of primary school. Reasons dropping out are mostly the parents' inability to pay the school fees and materials and the need for the children's labour at home. But recently, primary school has become obligatory in Madagascar and schools have been provided new teaching materials. This has increased school attendance (see more article II). Nevertheless, the quality and motivation of the teachers sometimes remain low and schools can be closed for several days or even weeks without any apparent reasons.

In the highlands of the park, school attendance has a longer tradition than in the lowlands owing to the closer connections to highland Merina culture and permanent village structure. In the lowlands, slash and burn activities have required the moving of families to field houses during the school year. Secondary school is usually situated in the *firaisana* centre (some of the remote *fiaraisanas* have just recently established a secondary school). Only wealthier parents can afford to pay the schooling in secondary schools. In addition, this schooling is more likely for the families and villages who live in or near the *firaisana* centre.

Health centres (CSB) can be found also in the *fiaraisana* centres although they vary in the quantity and quality of the personnel and medicine stock. The larger *fiaraisanas* such as Ranomafana have a health centre with a doctor and a mid-wife as well as a refrigerator for some of the medicines, while most of the CSBs lack electricity. Consultations are free and in 2003, a new president also declared that medicines were to be free of charge. Yet, this led to the end of the already poor medicine stocks, and today people have to pay for medicines again. The poor availability and high price of western medicines make them inaccessible to the majority of the people living around the park (see also Harper 2002). But they are more appreciated than the traditional ones. *Ombiasa* (the healer, medicine man) is a traditional healer but he does not exist in every village. Furthermore, his remedies can even be more expensive (e.g. to cure a disease one has to kill a cow) than western doctors. Many women also know how to use medicinal plants growing near the villages. Moreover, births happen more often in villages (see article I) than in health centres and infant mortality remains high.

Livelihood activities

In the highlands, the agricultural activities and the culture of Betsileo concentrates on wet paddy rice cultivation. Almost all the villagers own at least a small plot of paddy field (*tanim-bary*). Most of the fields are situated near the village in the same lowland valley. Besides these plots, many families also have some paddy fields further away. According Marcus (2000), the average area of cultivated land (including both the *tavy* and *tanim- bary*) per household in the Ranomafana region is 1.43 hectares. Various vegetables are also cultivated, mainly sweet potatoes, beans and cassava. Despite its important role of subsistence, rice is also cultivated for the market. Since the soil in Ranomafana region is extremely unfertile (see Johnson 2000 for the soil characteristics in Ranomafana) and the "cold" climate in the highlands does not provide suitable conditions for bananas or coffee. In some areas, charcoal burning, together with many wild collected items such as crayfish, serve as important sources of cash income. Slash and burn cultivation (*tavy*) is also used (particularly as the last survival strategy) although on a minor scale than in lowland forests. Villagers also keep cows (1.3 cows/ household, Marcus 2000), pigs (0.76 heads/ household, Marcus 2000), geese and hens. A cow (*omby*) is a symbol of wealth and owned only by some of the families (richer families have several cows while most do not have any). In the highlands, cow robbery (*dahalo*) by the bandits has been common particular in the 1980s and 1990s. In fact, various villages in the park area highlands were robbed and even some of the people were killed. Since the 2000s, *dahalo* attacks in the park area have not been common.

In the lowland area of the park, agriculture relies mainly on the *tavy*. However, the *tavy* is not only a rice cultivation technique, other crops such as bananas and cassava are also intercropped and/or rotated with rice. The *tavy* also is important culturally for the "Tanala" as do the *tanim-bary* for the Betsileo (see Hanson 1997, 37-39 more for importance of *tavy*). Paddy rice fields are scare and in most of the villages very few families own paddy rice fields, while most of the families have only a *tavy* (for example, in a study village in the Tanala area, the average area of landholdings/household was around 1 ha, mostly consisting of *tavy* fields only). Furthermore, the cash crop cultivation, which presently mainly bananas, due the low price of coffee, plays a very important role in these people's livelihoods. Nevertheless, the benefit of the banana crop is diminishing by the cost in time and human labour for those living in remote villages who need to transport the bananas long distance. As in the Betsileo villages as in the lowlands, a variety of other crops (leafy vegetables, peanuts, sugar cane for rum, corn, taro, avocados, etc.) are cultivated despite their poor use in their diets. In some of the villages, illegal sugarcane and rum production is an important source of money for some families. In both areas, the most important strategy for wage work is found in wealthier villagers' fields. This is particularly for the landless.

Whereas men and women both work in the fields, their tasks differ. Men are more engaged in hard work with spades to turn the land and the women do the replanting of rice. They both participate in weeding, planting and harvesting (see more Järvilehto 2005 for the roles of women and men in agricultural work). Children also participate in rice cultivation particularly by watching over the crops so that the birds do not eat the rice before the harvest. Children also have various other tasks such as looking of fire wood, fetching water, looking after the cattle, preparing the meals and looking after the younger children, etc.

The agricultural work follows the seasonal calendar. The paddy rice fields are repaired using the long-handled spades and the *tavy* fields using big knives. The *tavy* fields are burned and afterwards the tree roots are dug up during September -October. After that, women and young girls replant the rice in fields (the rice has been grown in separate seedlings). Once rice has been planted, it has to be weeded daily. When crops mature for March to April (depending on altitude and the timing of re-planting) both men and women harvest them. As in the most of the villages, there is only one harvest and the food is in shortage particularly before the harvest in the beginning of the year. The period of hunger has become longer due the shortage of cultivable land.

Land Tenure and Fire regulations

The agricultural land is individually owned by households. Both women and men can inherit and own the land. The official land registration is conducted by the Service de Domain, which gives the official land title to its owner. Even so, around 30% of the lands are registered around Ranomafana and less in the more remote areas. Land registration is expensive and requires also an annual pay of taxes. Registered lands are mostly permanents paddy rice fields (see also Marcus 2000). However, the traditional land-tenure system still exists in the villages. These agreements are based on inheritance, the power of *apamjaka* or *ray-mandreny* and mutual agreement between the buyer and seller, but can not be appreciated officially despite their local recognition. This implies both the *tavy* and paddy fields, although the paddy fields are much more valuable due to the higher productivity as well as to the fire regulations that concern *tavy* cultivation.

Fire regulations have a long history in Madagascar. The Merina autocracy Andrianimpoinimerina instituted the first policy against *tavy*:

> I also charge you with keeping watch over the forest. It is not only the desire to have a mountain covered with forests, which motivates me in this matter, but God has blessed the forest to be the glory of this land. He who cuts the trees of my forest will himself be cut and gathered by God. It is forbidden to collect firewood from the forest, to cut the trees of the forest. Only royalty can do this in the case where their palace workers cannot find firewood. Then, I collect only dead wood. If they search for firewood, it is formally interdicted to collect it in the forest. Never forget this recommendation. (Hanson 1997, 76, translated from the old *kabary*, Malagasy traditional tonal speech)

This policy was continued throughout the 19th century. Only Merina were allowed to practice dry agriculture. As a consequence, all wet rice cultivation was prohibited. As this practice of dry agriculture did not involved blending rice and manioc cultures, and exported the rice to other parts of the kingdom, dry rice agriculture grew dramatically during this period. This, combined with the exploitation of timber, led to significant deforestation. The intensification of rice cultivation also then changed Tanala consumption. From then on, manioc would no longer be considered a preferred consumable. (Jarosz 1993, Hanson 1997)

When the French took control of the region in 1896, they continued the anti-*tavy* ordinance. But they introduced a wet rice culture in Eastern forested areas. According to the French, the wet rice culture would help protect the forest while producing larger quantities of rice for consumption and export. Yet, this new culture, which was conducted on the valley floors rather than on the hillsides, required significant inputs, as the tropical soils were not amenable to such production. (Marcus 2000)

Despite the prohibitions, the Tanala continued to practice *tavy*. Once introduced, *tavy* became an outcome of the first Merina commoditisation of dry rice as goods and then the French value of rice cultivation that required inputs that were too significant. As the colonial administration was replaced by a Malagasy state that was void of the power to police agricultural practices, dry rice culture increased dramatically in the region once again, even though the people knew that anti-*tavy* ordinances (passed by the colonial administration in 1913 and 1951) where continued by the government of President Tsirinana (1960). (Hanson 1997)

Looking at history, it is not hard to imagine that it was not a surprise for the people of the forest that outsiders tell them not to do *tavy*. *Tavy* is still considered to be the most serious threat to primary forests and the park (ANGAP 1998, 2002) and it has been forbidden in the buffer zone during the existence of the park. In addition, the newly elected president renewed the old law on buring in September 2002 and announced a ban on all kind of burning. The maximum punishment for burning forest (or land without authorisation) then became five years imprisonment. The farmers in Ranomafana associate this ban with the park, as it has been denying *tavy* for the last ten years. However, although the law is the same in and outside of the park area, it gives legal tools to the ANGAP (which works together with the Ministry and police forces) to punish people for burning. It could be said that the effect of this law is stronger in the park area because of the park's patrolling agents who control the activities of the people in the park area.

Forest use

People living around the protected area also use the forest in many other ways than as merely for agricultural land. The forest plays an important role in people's everyday activities and provides elements for basic survival. Various

non-wooden products are collected in the forest to supplement livelihoods. Particularly in the western part of the park, the collection of crayfish is an important part to obtain cash revenues. In addition, other aquatic species such as shrimps, eels, frogs, crabs and fish are collected. The collection of wild honey is also very important. Besides these, women collect various different types of woven fibres for handicrafts. Other collected items include fruits, roots and other edible plants and some animals for food. As wood for house construction is needed from the forest, the secondary forest is mostly used for firewood collection. (See more Ferraro and Rakotondranjaona 1992)

The forest also provides a living environment, particularly for the Tanala, and going into the forest presents freedom for them. The forest also harbours the sacred places, which usually include the *vatolahy*, the tombs and memorial stones. These areas are considered to be sacred grounds and in most villages, disturbing these area and the lands surrounding them is forbidden.

6.2 Conservation Process in Ranomafana

The first protected area (strict nature reserve) in Madagascar was established as early as 1927 in Lokobe. Today Madagascar's protected areas cover 1, 698, 639 ha and are divided into strict nature reserves, national parks and special reserves (Randrianandianina *et al.* 2003). The first Malagasy environmental programme was introduced in 1989. It was funded by USAID, the World Bank and by other bilateral donors who supported independent contracts for international NGOs. The first phase of the programme was dedicated to integrated conservation and to development projects (ICDPs) guided by the need to conserve the "biodiversity hotspots". USAID/ Madagascar designed an environmental programme through its environmental NGO partners that focused on the protected areas as being central to biodiversity conservation on the island (see also Medley 2004). During 1989 and 1997 USAID funded several ICDPs in Madagascar, including Ranomafana National Park Project (RNPP) situated in the Eastern mountainous rainforests. The park project was initiated by a group of primate researchers after the discovery of a new lemur species in Ranomafana in 1986 (Wright, 1997) and established as an ICDP in 1991 (see Hanson 1997 for the need interpretation in inauguration of the RNP). RNPP was organized by two U.S universities (Kightlinger *et al.* 1990) and consisted of six integrated components: park management, biodiversity research, ecotourism, conservation education, rural development and health (see articles I and III for more details on the functions of these different components).

The Ranomafana National Park (RNP) area consists of 43,500 ha of forested land with an altitudinal gradient varying from 400 m to 1,374 m above sea level (Wright 1997). The ecological circumstances differ in the park area from the mild climate of the "lowlands" with steep slopes, to the flat and cold highlands. The biodiversity in the park is rated as being extremely high. The biological diversity in Madagascar is concentrated primarily on the Eastern

humid forests. Twelve species of lemurs are found in the park, the forest being one of the richest primate sites in Madagascar. In addition to primates, the park is home to, for instance, 28 species of other mammals, 36 species reptiles, 73 species of insects, 47 species amphibians being 100% endemic (Ramahafaly 1995). Furthermore, the forest has many of the species still unknown to science.

The land which is now under the park, was considered as being uninhabited by the park founders, although some farmers lost their farming lands when the park boundaries were defined (Peters, J, 1998). In the beginning of 2000s, the park border is easily seen, as all the possible land outside of it has been used for cultivation (see Figure 6.)



Figure 6. The limit of Ranomafana National Park.

Evaluation of phase I of the national environmental programme concluded that the ICDPs were too costly and disappointing in achieving both of their goals (see e.g. Medley 2004 about ecological "failures" of ICDPs). The second phase started in 1997 and the approach shifted from the ICDPs to "landscape ecology". The objectives of phase two was included in the decentralization, shifting the natural resources management to the Malagasy institutions, enhancing ecotourism and linking the protected areas to a more broad ecological entity (see more Gezon 2003). The ANGAP (*Association Nationale pour la Gestion des Aires Protégées*) started to manage the protected areas. The ANGAP works with close contacts to the Ministry of Water and Forests but has no legal authority itself. Moreover, the landscape approach continued the commitment to the belief that development and conservation go hand in hand.

In Ranomafana National Park, the ANGAP took care of park management, conservation education, rural development and promotion of ecotourism, while the MICET (*Madagascar Institute pour la Conservation des Ecosystemes Tropicaux*) was established as a sister organisation for the US-based environmental NGO (ICTE). The MICET started to facilitate biodiversity research and health projects. Also, co-operation with other NGOs, such as *Tefy Saina* and *Malagasy Mahomby*, which carry out rural development projects in the area, were included in the park development activities.

However, the change in the conservation policy decreased the funding for the development projects carried out in the buffer zones of already established protected areas. Funding concentrated on the corridor areas between the "hotspots". The LDI (Landscape Development Intervention), a USAID- funded organisation which has implemented a "regional" approach after the ICDPs, has not worked directly in the buffer zone of the RNP but rather in the forest corridor between Ranomafana and Andringtra. This caused a confusing situation in the buffer zones, since the villagers were promised economic subsidies in exchange for conservation. Changes in the policies were also difficult to perceive at a local level (see more article IV).

In Ranomafana, these "NGOs" carrying out the ICDP activities have had difficulties in implementing their agenda which still consist of the ideology of ICDP. They hired the same personnel who had worked for the ICDP and local participation remained low. The development component decreased and projects diminished over time: health activities ended in 2001 and conservation objectives dictated the implementation of the other development projects. The evaluation of phase two of the environmental programme concluded that also the regional approach has failed to achieve its objectives (ONE 2002). This approach has been said to be too broad to implement and its benefits have not been felt at the grassroots level.

From the beginning of 2002, phase three of the environmental program began. As Phase III, the aim is to realize the gained experience from the previous phases. The aim is to integrate an environmental policy for all sectors of society, particularly to seek private partners for conservation. In addition to the previous phases, the PIII aims also to combine the objectives for reduction national poverty within the environmental plan. This aims to equalize the regional socio-economic differences together with the environmental conservation (ONE 2002). But the "failures" of the previous approaches, even "corrected" in the ideology and level of programme objectives, are not easily changed in implementation.

The Ranomafana has been planned to become a UNESCO World Heritage Site (final nomination in 2007) together with three other sites in Madagascar (Midongy du Sud, Andringitra, and Pic d'Ivohibe). During the assessment period, small grants were used for development projects. At a local level, these funds

were coordinated by the ANGAP (ANGAP 2001, ANGAP 2003). However, the UNESCO nomination will increase foreign interest in the future.

Foreign interest as a form of tourism, however, is already quite substantial. Ranomafana National Park is one of the most popular and visited parks among the tourists in Madagascar, and the RNP is mentioned as one of the five highlights in the "best natural spectacles" in the Lonely Planet's Africa on a shoestring- travel book in 2004. Nevertheless, the benefits of tourism are mainly raked by non-locals (see more in article III).

In addition, a few Finnish small-scale NGOs have carried out rural development projects in some villages around the park. These activities are carried out independently but by permission of the ANGAP.

7. CHANGES AND IMPACTS OF CONSERVATION AND DEVELOPMENT

7.1 Social changes – marginalisation?

Reproductive health

I defined the impacts of the RNP as parts of the long-term changes in people's lives. I explored changes in people's living conditions by using the reproductive health indicators and by the health component of the ICDP that played an important role in compensative schemes. The findings indicate that the impact of the RNP (conservation and development) on reproductive issues has been modest. When measured "development" through reproductive indicators, it seems that the park has had no effect on decreasing the age of starting sexual activity and having the first child. On the contrary, the conservation and development might have accelerated the teenagers' pregnancies. RNP has increased contraceptive use but the scale has been very minimal. Prenatal health care has increased in Ranomafana, but the reason seems not to be the park. Births in health centres have decreased, and as one reason for that might be the park through the weakened economic situation (see article I for more details).

Harper (2002) discovered that people's health had worsened as the RNP had enhanced the decline of the economic resources started by other external factors such as structural adjustment. People's purchasing power had seriously declined and this was especially true concerning the costs of medicines for ordinary people. Marcus (2000) reported that participating in the ICDP activities in Ranomafana did not play any role in the wealth of the villagers. The factors influencing economic success were not related to the ICDP in any way. The reproductive indicators revealed the poor state of reproductive health in the park area even though the objective of the project was to improve the situation.

Nevertheless, hardly any differences in the indicators emerged in and out of the park area. Yet, there were great differences between the villages and municipalities. In the Ranomafana centre and in the roadside lowland villages,

the reproductive health situation seems to be better than in the remotely situated municipalities and villages. However, the remote villages have also faced problems caused by nature conservation (article I). One of the main reasons that the health component of the park changed to concentrate on reproductive health was to aim to limit the number of children as the growing population was seen as threat to the forest. This was however, the goal that villagers would have understood. For the villagers, children, as such constitute of one the central elements of one's life (see articles I and V).

Life Security

Changes in people's lives were also studied through a life asset analysis. People defined the most important assets forming a secure life for them and the impacts of the park were assessed through them (see article V for more details). These assets consist of "life security" which implies different ways to satisfy fundamental human needs. Fundamental human needs can be considered very broadly. The analysis of universal human needs by Doyal and Gough (1991) concludes that individual needs can be considered to be based on physical health and the individual's autonomy which are preconditioned by the intermediate needs such as water, nutrition, housing, security, education and reproduction. Despite the overall goal of the research to draw insights from the people's life security, I concentrated on human and social assets. Bebbington (1997) argues that social capital is a crucial asset also to widen the other assets. Sayer and Campbell (2004, 11) state that social capital enables people to deal with difficult times and allows them to corporate and share with scarcity (see more article V).

For the people (as a heterogeneous group) living around the protected area in Ranomafana, a secure life is dependent on having natural and economic resources (land), the means and freedom to derive benefits from it, as well as having a good social and spiritual family and community life. In addition, it also includes the ability to have children, money, freedom, faith, kindness, youth, security, health and education. Together with their "normal" changes of living and life assets, villagers (both in the buffer zone and out of it) perceived increasing insecurity and negative changes in their main assets. Furthermore, shortage has increased particularly in the park area and the productivity of the available lands on the getting poorer due the too frequent use and lack of fertilisers. The suitable cultivation technique for the lands on the steep slopes (*tavy*) is forbidden and the ability to derive benefit from the land is weakened. Due the previously mentioned reasons as well as to the high prices of purchased food, the products are diminished and are insufficient to feed and support the families. In fact, the park has affected and fortified the access mechanisms over land by strengthening the positions of those already wealthier (access through ancestry, social caste, age and gender). (See article V)

Another significant change is that social relations within the families and communities are fragmenting and the park may have been a contributing factor to

the wider social change affecting the *fokolona* (community) through, for example, an increased market reliance and economic difficulties. This lack of social capital is also a loss of an important asset of a secured life itself, but it also limits the peoples' abilities to improve their living situations. However, people's abilities vary according to their social positions, genders, lineages, etc. Nevertheless, lack of social assets leads to a vulnerability of the people, particularly in a society where the *fokolona* is a security for their lives (see article V). Increasing social fragmentation was noticed already before the park was established (Ferraro 2002) and in this study, social problems were also common in the villages outside of the buffer zone. Even so, the effect of the law of *tavy* is stronger in the park area because of the park's patrolling agents. This strengthens the economic difficulties that lead to social fragmentation. Even though, social capital existed in villages and despite the fact that the particular importance of social capital for legitimate biodiversity conservation has been emphasised elsewhere (see e.g. Pretty 2002), these issues were not properly understood by the conservation agents in Ranomafana. (See article V)

In some villages and particularly in the Ranomafana centre, the park has created new, powerful social groups who benefit from the conservation- related funds and can pass over the traditional authorities. Furthermore, the power of the *apamjaka* and the village elders has been reduced owing to the land shortage as well as to the park's regulations on land use: before they were legitimated to give the lands to the young and to newcomers but currently there are no lands to be given. Thus, it can be said that the park (conservation and development) has contributed both to the social and economic problems in the villages, not cushioned the adverse economic effect of the conservation was the main objective of the ICDPs.

Life security consists of various elements and the access to it is shaped by a complex set of aspects and interests. The fragmentation of social and human assets leads to wider social, as well as economic changes. In the villages, the park was seen as a part of the livelihood problem, not as a contributor to the development for the better future. (See article V)

Marginalisation

All these changes imply the further marginalisation of the already remote, landless, asset-poor farmers. A long-term "lack of assets" (vulnerability) can lead to marginalisation. The conservation and development effort has not *improved* their situation; on the contrary, in many respects it seems to have a controversial affect.

The park initiators argue that research funding (as a part of the conservation in Ranomafana) has made a lasting impact on the surrounding villages (Wright and Andrimiaja 2003, 1487). These park initiators do not, however, define what they mean by a lasting impact. According to the changes described above, what can I say about the impacts? It seems that local people

have perceived various negative changes in their lives during the years of conservation, and some of these changes have been contributed or initiated by the park and by the biodiversity conservation. This all leads to the marginalisation and exclusion of the local residents. Can it be said that marginalisation is, thus, one of the wider, social impacts of RNP? However, it has to be noted that conservation alone is not the *only* reason for this marginalisation as other international and national aspects have exerted a great influence on that. Moreover, despite the overall negative experience of the park by the people, it also has benefited some (e.g. richer villagers owning many paddy fields or those who got jobs in the hotels or the in park activities).

In addition, to consider the overall impact of conservation, the ecological side of it has also to be taken into account. However, it is difficult to estimate the ecological benefit of the park for the local people (e.g. watershed protection, the influence on microclimate etc.) as conservation also has "negative" ecological consequences such as the overuse and degradation of the agricultural land near the park border, which in turn influence the overall impact. No studies have been conducted on this subject. Another point is that the conservation of the forest as a national park may have increased the fragmentation of the forests outside of it, as the remaining forests are under great pressure because it is prohibited to enter the forest inside the protected area (see more Dehgan 2003).

To conclude shortly, according to my study, the material impacts of the RNP are apparent through the weakened economic situation (see also Marcus 2000 and Harper 2002), and the RNP has contributed to it. This has affected everyday survival through the land shortage (affected also by the population growth). Another factor influencing everyday survival is controlling the use of fire in agriculture, which has been the only known productive strategy to produce food in the poor soils and steep slopes. This is also apparent in the poor reproductive health, which the indicators of my study measured. The RNP has also affected the social relationships and power structures inside the villages, as well as people's ways of thinking. For example, the environment as such has taken on a new meaning through conservation and its related activities (see article IV). Conservation has strengthened the state interest and control in the area and the general prevailing feeling is that outsiders increasingly define and control their lives. Particularly, for the people in the park lowlands (Tanala), freedom as such (translated as going free into forest) forms an essential part of their living (more details on this issue in following chapters).

7.2 Different people - different impacts

All of the above changes also highlight the diversity of the affected people. The conservation process in Ranomafana consists of various actors: international scientists, national conservation NGOs, tourist business owners, local authorities and farmers in different groups and social positions. All the groups contest their interest over the forest and the conservation funds as well as see the justification

and reason for conservation in diverse ways. Particularly the recognition of the heterogeneity of the local people is crucially important to study the distributions of impacts –the benefits and drawbacks of conservation and development. The idea in the article III is to analyse the various meanings given to the local people through the benefits of the development projects and the ideas of compensation of the ICDP. "Local" is not analysed as such, in a continuum from local to global (see more later on). Yet, local people are seen as a heterogeneous group in which the people vary according to ethnicity, gender, social position, etc. Furthermore, in the article IV, I still very much recognise the heterogeneity and complexity of the concept, even though the "local people" (*as a heterogeneous group*) has been analysed as falling under one title towards other groups interested in and dealing with the park in Ranomafana.

In Ranomafana, the development projects aimed at compensating the lost right to use the natural resources as well as to enhance the development of people's wellbeing, failed to achieve the stated beneficiaries for various reasons (see article III). Although economic compensation should include socially just conservation, the implementation of such an agenda can face several difficulties.

The conservation and development agents did not pay attention to the heterogeneity of the affected communities, despite the great social divisions that existed in the villages (see article III and V as well as Harper 2002). The definitions of 'local people' or local beneficiaries of the ICDP in Ranomafana varied according to ethnicity, pressure they placed on natural resources, living place, wealth, social position and gender.

The other ethnic group that lives in the lowland mountainous areas and has relied on *tavy* cultivation and forest resources for their livelihood, benefited less from the development projects as most of the projects were designed to be more suitable for the highlanders' livelihood activities. In addition, ethnicity was used as criterion to be able to become developed (see also Hanson 1997 and Harper 2002 for the misinterpretation of ethnicity in RNP). The ecotourism-related activities benefited mainly those people who moved from the cities to look for business opportunities (see article III).

In addition, the conservation organisation counted only the Malagasy nationals as local people. Nevertheless, if nationality is used and widely accepted as a sufficient definition for the local people in a conservation context, those who were there before the conservation and lost their land and livelihood because of external intervention are considered to be in the same line as those who experience only the win-win situation.

Furthermore, no particular attention was paid to gender differences between villagers. Although men are more power in the village societies, the women's position is relatively good: women make decisions about household and family matters together with their husbands and women can also inherit and own the land. Whereas women can define themselves as farmers, their

agricultural tasks differ from those of men, and no project has dealt with women's activities. (See more article III and Järvilehto 2005)

7.3 Environment - conceptions and education

Different environmental conceptions and values have been behind the conflicts and differences between the actors concerning the forest and its use and conservation. Vilkka (2000, 26) identifies the value conflict as a conflict between the distinct ways of seeing the world, where different worldview systems confront each other. Particularly the park initiators and managers have promoted scientific environmental view and knowledge. Nevertheless, it has to be noted here that biological knowledge of biodiversity is not necessarily the same as the conservationist thoughts of biodiversity (see Terbourgh 1999 or Wright and Andrimihaja 2002 for the conservationist thoughts, however many biological studies do not commit themselves to conservation directly see e.g. Lehtonen *et al.* 2001). Yet, they both tend to rely on dual dichotomy to separate the humanity and nature.

One of the emphasised components of the integrated conservation in Ranomafana is environmental education, influenced particularly by the conservationist thoughts. Environmental education is promoted among the children (in schools), adolescents (youngsters environmental groups) as well as among the adult farmers. As a part of this research, I have explored the sources of the environmental knowledge and the factors influencing on it, particularly among the children and the adolescents (article II). This was done in order to assess the influence of the park in their environmental knowledge both as a forested environment and as a provider of environmental education. In addition, according to Chawla (1988), interactions with the living environment and with other people in early childhood are the most important factors in shaping opinions. I also believe that the negative changes perceived in the environment during childhood will shape the understanding of environmental problems and increase concern in adulthood, especially under conditions in which people's daily survival is directly dependent on the quality and availability of natural resources.

Young people living around the Ranomafana National Park were aware of the causes of the local environmental problems such as the *tavy* in the forested area and bush fires for charcoal- burning in the deforested area. Indeed, the pupils from the deforested area showed the most concern over forest loss and the majority of children living in the forested area also recognized this particular problem. The majority of children and adolescents in this study felt that their living environment was deteriorating. In general, concern for the environment and awareness of destructive human behaviour was expressed in the respondents' responses. Children and adolescents recognized the underlying causes of the environmental problems, such as poverty and the lack of other alternatives (see more details article II).

As for the environmental education, I noticed that certain schools highlighted the problems that are prevalent in the industrialised world, which led to distorted views of reality that ignore local environmental issues. In addition, local environmental knowledge as a part of the education schemes was not appreciated or implemented, which would have been crucially important. Nevertheless, this possibility was not even realised by the educators.

This implies the over-appreciation of the scientific knowledge which is increasingly used as the main source of environmental arguments. Science has a central position in defining the existence and nature of environmental problems (article IV). This does not mean that "modern" environmental education, based on biological knowledge, would be something negative; the increase in "scientific" knowledge of ecological processes is useful and necessary for the farmers as well as for the children. But in Ranomafana, the environmental education has also been used as a "tool" of exercise of power by the elite working in the conservation authority. Based on the conservationist ideology, the ANGAP and the conservation project before, aim to teach the real value of the forest to the villagers (see Grenfell 1995) although the forest is "valuable" for them already. It is simplistic to think that while being dependent on natural resources, people are not aware of their "value". It is in people's own interest to have the forest for their children in the future (see article IV) and children themselves are concerned that there will be forest left when they become adults (see article II). Nevertheless, it also has to be noted that when local farmers and conservationists talk about the "forest", they ultimately talk about different things.

For the local people, the forest was mainly framed through discourses of livelihood, identity, freedom and living place (ancestry), while the scientists' interests consisted of the intrinsic value of biodiversity as well as the use of the forest as a vehicle for scientific careers. For the Malagasy NGO workers, the forest, through foreign conservation interests, represents modernity and generates funds for the modern powerful job. Even children wanted to become a guide or "a protector of the environment" due its potential to provide a good salary, however, they did not know (except in the villages closest to the park) that park would have had any other ways to generate income for the local people. Local authorities use "forest" and its related regulations as a tool for their own political endeavour and tourist business owners see the forest as a business opportunity (see more details article IV).

It was interesting to find out that the park's management's view on the environment has created a completely new understanding of the environment among the local people. Yet this is not necessarily the view they meant to promote. For people who have learned about "modern environmental education", the environment was "something nice" because so many people are interested in it and that is why people have to take care of it. This was also seen in the children's answers: the park represented a beautiful, ideal environment (see

article II). But the villagers were not so clear as to how this will help them in their lives. If people talk about the importance of conservation, they relate it to their lives and their children's lives. Environment for them is the lived environment that is connected to everyday life practices (see e.g. Oksanen 2003 for the Finnish peasants' similar views). The environment of the ANGAP is, however, different. It must be something very precious as there is so much money involved. Discourse on the environment has started to represent inequality; some people profit from this "environment" but for those who are accustomed used to live from it, there is no profit from the funds involved. In addition, the forest has started to represent the park and in this way it is associated with the arguments and limitations concerned with the park activities. (See article IV)

In addition, for the Malagasy conservation workers the environment and environmental concerns have started to represent modernity owing to the funds and jobs that are generated by the Western-based conservation organisations. Conservation has thus brought the whole set of "modernisation" to Ranomafana, but the distribution of its benefits has not been equal. This has created a situation where an environmental concern can be used as a political tool (article IV).

7.4 Socially sustainable and just conservation and development in Ranomafana

I will review briefly some of the issues forming socially just and sustainable conservation and consider how they have been manifested in the conservation in Ranomafana. If socially sustainable conservation was defined mainly as maintaining the well-being of affected people, it also contains aspects of "basic values of equity and democracy" (Sachs 1999). Socially just conservation is based on legitimacy, self-determination, trade-offs and a respect for human dignity (Brechin *et al*. 2002).

Obstacles for participation

Self-determination is essential for socially just conservation, and participation is in-built to it. Here I shortly consider how local participation in the RNP has succeeded and consider issues affecting it. Participation has become a buzzword in natural resource management and conservation. In many cases participation is, however, used to achieve other goals, and professionals limit the type of participation (Pimbert and Pretty 1997). The term "participation" has been used to justify the extension of control of the state as well as to build local capacity and self-reliance; it has been used to justify external decisions as well as power (Pretty 2002). Cooke and Kothari (2001) also have criticised that unreal participation has a potential of a tyranny, which then leads to the unjust and illegitimate exercise of power.

In Ranomafana, local participation is still today superficial: people who can participate in the park's workshops are elected by the park managing NGO

(ANGAP). The ANGAP does not hide their guidelines for selection, openly saying that they only *call for those who have the right attitude towards conservation* (see also Li 2001 about similar development ideologies in Indonesia). This kind of ideology entitles them to categorise the villagers into bad and good ones, which also affects the distribution of the development projects. Through the conservation regulations, the conservation agents who also act as developers, have the authority and legal tools to exercise power over the farmers (see article IV).

In Ranomafana, the farmers' ways to influence processes that control their natural resource use are manifested mostly in their forms of "everyday resistance" (see article IV). In recent years, particularly in the developing world, the peasants' movements have been active in criticizing the aims and the ways of implementing the biodiversity conservation (see e.g. Martinez-Allier 2002), which tend to exclude people's livelihoods. But, no types of farmers or "grassroots" movements in Ranomafana, or in the whole region, would turn to citizen activism.

Many of the "obstacles" for collective action lie in history. The class structure of the village societies, although they seem to be democratic, still follows the privileges of the royal lineage and social castes. Particularly, the poor and the landless fear to speak out. To remain silent is a way to minimize the risks of extra harm. The economic situation is really tight and there is no time for any extra activities. Also, the ANGAP does not encourage dissenting voices: a person who expresses non-conservationists ideas is blamed as being a "difficult" person and is no longer invited to the park's meetings (see more article IV).

Particularly, for people living in the lowlands of the park ("Tanala") freedom presents a central value of life. To some extent, people are used to working independently in their own *tavy* fields. Co-operation in agricultural work is commonly undertaken through a lineage and economic activities are kept within a family (*fianakaviana*). This was not viewed as "an association" by the ICDP, which attempted to enhance civil society by creating "farmers associations". The park has tried to create associations for development activities but in several cases the projects have failed, particularly in the lowlands because the groups have been perceived as being inappropriate. However, the conservation agents see that a reason for the associations' failure is linked to the peasants' way of life: *life was so easy in the forest, which is the reason why people do not care about each others and can't work together*. Nevertheless, the new associations of the park (used for development projects and conservation education) have been formed in a way that they are the most consistent with conservation objectives (see also Medley 2004 for the priorities of NGOs working in Madagascar). Also due to the misuse of money by the leading villagers, as well as by the NGO workers who have used the common money for their own purposes (as determined through informal discussions and fieldwork diaries), these associations have created arguments between villagers and the

majority no longer want to participate them. The negative experience of "collective action" may not encourage civil activism – nor will people's involvement in the park's activities, although true opportunities for it will be opened. (See article IV)

Although the ICDPs belong to the so-called participatory conservation approaches, there have been no true efforts in Ranomafana to include local participation in the park management. The local people are represented in the COGES, which manages 50% of the entrance fees, but they are not involved in conservation management in any other way except for sporadic calls for park meetings for those who have the right kind of attitude. Furthermore, nobody seems to be interested in changing or improving the situation in such directions where local people will become collaborative managers of the forest; instead, park initiators propose an increase in patrolling the park borders (Wright and Andriamihaja 2002, 128). Socially sustainable and just conservation requires sharing power in a truly inclusive way. The partnerships between conservation organisations and local people are one, important element in the opening of the space for real negotiations of collaborative resource management (Arambiza and Painter 2006). However, the Malagasy elites implementing the conservation rarely are willing to change their ways of governing. The old authoritarian way of governance, prevailing in the state organisation, transferred to the park management. Peluso (1992) identifies this as the "cultures of control and resistance", implying a set of routine practices that have remained generally stable over time despite institutional changes from a colonial to an independent state regime.

Opening true channels for local participation does not mean that just giving power to the grassroots activities would solve the problems. Inclusive and participatory resource management at the local level should be tailored to deal effectively with the local socio-political power structures by realistic strategies that recognize the needs and goals of the multiple actors with different resource interests (see also Nygren 2005).

Whose conservation?

Social justice also depends on the legitimacy of conservation action: is the process considered appropriate and just by those most affected? Socially just conservation also asks: who the conservation ultimately serves? According to Weber (1978), legitimacy refers to any behaviour or set of circumstances that the society defines as being just, correct and appropriate. This also involves the understanding of the social *context* where the conservation is operating, and it becomes more than essential. Every culture has its own sense of justice (Lehtinen and Rannikko 2003, 241).

In Ranomafana, the idea of the park was initiated by the Western and the US conservationist thinking to save the habitats of the newly found lemur species. The process of the park boundary reconnaissance was claimed to be

"consultative", as most of the villages having land inside the proposed protected area or neighbouring it were visited and told about the park before the inauguration (Wright 1997). After several years, a majority of the villagers did not know what the park really meant and perceived that this "participatory" park was owned by its initiator (American researcher) or by the Americans (Marcus 2001, 388), even though the land under conservation is considered legitimately to belong to all Malagasy or to the *fokolona* (community*)* (see article IV).

The legitimacy of the act depends largely on the symbolic realm of the rules and norms (Wilshusen 2003). Furthermore, the distribution of the power resources affects whose meanings and norms become dominant in a complex net of interests and ideologies. Ideological control in Ranomafana is manifested through the dominant conservation narrative where the conservation agenda has gained a position of a hegemonic discourse. In fact, there are hardly any counter discourses (see article IV for absence of grassroots movements). Conservationist discourse was used as a political tool by the park agents to get money from the international donors. Park agents conduct their work in a manner that best reflects their self-interests and strengthens the existing authoritarian power structures, which enable them to control the access to the benefits from development projects. Conservation agents have the authority and legal tools to exercise power over the peasants. Power relations, translated into concepts of nationality, ethnicity, remoteness, etc. have also affected the distribution of the material benefits of the development projects related to conservation (see articles III and IV).

Ferraro (2002) concludes that although the cost of the establishment of Ranomafana National Park for the local people was substantial, 'on a national and global scale the benefits from protecting the RNP are likely to be far greater than the opportunity cost of local residents'. He clearly states the real beneficiaries of conservation, which have not been local people, but the national and global conservation community. Among the most benefited groups together with the conservationists, local elite and the NGOs, have been the foreign researchers. Biodiversity research has been the best-organised component of the project (see more article III for the failure of the development components). This is one of the reasons why the park has remained alien to the locals – most of the effort has been put in conservation and in the study for which they have not felt any tangible benefits – to the contrary. Moreover, as the whole idea of conserving the forest to be untouched by human activities is strange for the people, as the working methods of the park have resembled state oppressions which have led to a lack of trust between the people and the park managers. All this affects the local people's perception that the park is not now theirs but belongs for the strangers.

Human dignity

Socially just conservation includes a moral aspect to respect human dignity (Brechin *et al.* 2003). People living from the natural resources under conservation should be treated as human beings with *rights* to basic needs, livelihoods, natural resources, to solve conflicts through legal channels and to maintain their way of thinking and cultural representations (see social justice definition ch. 4.4). Even so, in many cases as in Ranomafana, the conservationist ideologies tend to neglect such ideas, while the biodiversity agenda is seen as a superior goal, which goes beyond the others (see article IV). Conservationists considered themselves to be justified in conserving the forest of Ranomafana in the name of saving nature, although this is also just one form of human-centred conservation, as nature is *always* seen from the cultural perspective (see e.g. Lehtinen and Rannikko 2003). Sajama (2003, 86) has also stated that it is difficult to consider that some people would have the right to speak for nature. But some of the conservationists still truly think that biodiversity protection (based mainly on scientific knowledge as the only truth of it, see also Kotilainen 1995) is granted as a morally superior relative to the ideals of human welfare and dignity. Nevertheless, Brechin *et al.* (2003) argue that conservationists *should have a special social responsibility* to work in ways that promote increased social welfare in the resource-dependent communities.

Biodiversity conservation, in its present western form, influenced particularly by US conservationists' thinking (see e.g. Bruner *et al.* 2001 or Terborgh 1999 for recent call for fortress conservation, or Grove 1995 for history of western colonial ideas of nature conservation), has become a global issue affecting local places. However, "the real world" (see Sayer 2000, 11) is more complex and a separation of local and global from the stratified reality is not that straightforward. In the social world, people's roles and identities are often internally related (Sayer 2000) and the demarcation is difficult between one's global and local identity[1]. This is why the local-global dichotomy is not sufficient to explain the contradictions and conflicts in conservation. To whom the issues of socially just conservation should concern, is not determined by the distance (or locality) but the volume of the obligations and the quality and intensity of the communication (Palviainen 2003, 105).

Järvelä (1999, 118) also suggests that the dimensions of solidarity from people to people are changing in the global world where distance and time get shorter. This is to say that people operating in global arenas of conservation are also obliged to deal effectively with the local issues (drawbacks) of conservation. This also implies that local people should take care of the global consequences of their forest use. Both claims are true. However, in a developing world the context of poverty and unequal distribution of resources and power, the poor people do

[1] In the article III, the "local people" are used as an analytical concept to describe its complexity through development project benefits. "Local" is not analysed there as such in a continuum from local to global.

not *afford* to think globally. These same reasons also dictate their forest use (see more in article IV). The "global" has been structured in a way that the North has all the rights and no responsibility, and the South has no rights, but all the responsibility (McNeill 2000).

Conflicts between the interests are rooted in the different conceptions of nature and when this was manifested in reality where the less powerful actors' lack of resources and ways to defend their views, human rights were ignored and local people were treated as obstacles in front of successful conservation. Science provides knowledge which can be used to control the environment, economy and society in such a way that change can be directed in desired directions (Adams 2001, 41). Environmental control has also become a way of controlling communities (Lehtinen and Rannikko 2003, 235).

From the perspective of social justice, the tight definition of biodiversity is not viable. Colfer and Byron (2001) in their synthesis on human well-being and forest conservation, conclude that local people should be viewed as part of the forest, in recognition of humanity's biological basis and their place in forest ecosystems. This not means that "the park people" are seen as being a part of nature as such, but general idea against the tight separation of human beings and the environment. They further continue, "cultures and ecosystems represent storehouses of both complex systems not yet fully understood and creative potential that should be maintained and nurtured" (Colfer and Byron 2001, 10). O'Riordan and Stoll-Kleeman (2002) point out that the future challenge of conservation is re-integrating humanity and biodiversity instead of protecting nature from people.

8 CONCLUSIONS

This study explored the impact of conservation, which was attempted to integrate together with a development component. This study corroborates the same evidence and conclusions discussed in other similar cases elsewhere: the so-called social conservation programmes still cannot meet the needs of the people living near the protected areas; on the contrary, they even have a reverse impact on people's lives (see e.g. Neumann 1998, Oates 1995). Biodiversity conservation, initiated from the global interests of US conservation ideologies together with current government policies, accelerate the unjust social and livelihood change among the villagers in Ranomafana.

Despite the critical approach of this study, my intention was not to blame the park for all the negative aspects happening in Ranomafana, or to claim that biodiversity conservation is not at all necessary. However, the *way* it has been done in Ranomafana has been in under criticism here. So many development (and human right) objectives failed in favour of conservation, although with foreign interest and abundant funds involved in the RNP during the past 15 years, *there was an opportunity* to do things in different ways. One fundamental,

misunderstood assumption was to consider the local people as a *problem* for successful biodiversity conservation, which can only be overcome through enforcement and education. Major reasons for the failure of the ICDP in Ranomafana have been the lack of local institutions that would have been able to communicate as equals with the conservation NGOs, the transferred tradition of authoritarian governance in conservation management together with the over-appreciation of scientific biodiversity, and finally, the lack of will to understand the local people's rights to forest use and livelihoods.

To conclude, the experience of this study suggests that an understanding of the following issues are crucial for the socially (and hopefully also for the environmentally sound) conservation:

1) Understanding the uniqueness of each *context* where conservation is implemented. If critical realists emphasise the context of the researched phenomenon, socially sound conservation carefully considers the situation in a specific place. Here context not only refers to local circumstances but also to the connections to wider networks (in history, and on the national and international scales).

2) Recognition and respect of the *heterogeneity* of the different realities of conservation related-actors.

3) Consideration of the power relations and willingness to *share* power. It is crucial to have real negotiation between all the involved groups about the governance of conservation with equal opportunities for the less powerful groups to participate.

This study explored the social impacts of conservation using various kinds of indicators that were not the most traditional ones. In that regard, I think that this study has brought out new issues on the social side of biodiversity conservation. Due the diversified use of methods and to the number of research issues, this study also shed light on the *overall* impact of conservation and development in Ranomafana and it brought out the central issues and reasons affecting social justice and sustainability in biodiversity conservation. However, during the research period, various studies on similar issues have been conducted and published elsewhere. This is why the future studies on conservation could explore new ways to study conservation rather than concentrate on conservation and the local people- dilemma. Or, when considering Ranomafana, future studies could focus on investigating how the inclusion of local people into the conservation management could be organised in a practical way that they really could influence the conservation processes, or how to implement conservation in other ways than through a strict reserve. Nevertheless, what would be more important now would be the implementing the present implications politically and practically as well as other similar research. The similar cases of conservation continue to be reproduced in many places despite the numerous "lessons learnt" books on conservation and the ICDPs.

In the end, one can still ask what happens to “nature” if biodiversity conservation should highlight the rights of local people. This was a study on how social sustainability and justice were manifested in the conservation of Ranomafana forest and from based on this research, I cannot say explicitly how a socially just and sustainable conservation would affect biodiversity. However, I recognised clearly that any conservation project cannot be separated from the surrounding social reality and be implemented solely through biological objectives.

The future development of Ranomafana National Park greatly depends on the attitudes of people working in conservation management, creating government policies and making decisions as to the local people whether they stay in ancestral lands or move to other places to look for better living. Yet, it is difficult to estimate what will happen if no major changes will occur in implementing the conservation policies in Ranomafana, as conservation continues to be quite far from the local people’s realities.

Conservation that is socially sustainable and just respects simultaneously both people and biodiversity. In practise, this may mean compromises from both sides, or it might be that in some cases, sharing of the resources for all the interested actors is impossible. Combined with social reality, it is the question of the values of those who have “power” to finance and implement conservation: which is valued more and on which grounds these values are based.

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