# Assessment of Resident Wellbeing and Perceived Biodiversity Impacts in the Padampur Resettlement, Royal Chitwan National Park, Nepal

## Final Report

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**HMG, Ministry of Local Development, Nepal**
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**Royal Chitwan National Park, Kasara, Chitwan, Nepal**
**Padampur Village Development Committee, Padampur, Chitwan, Nepal**
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## Executive Summary

Considering people's plight as a result of forced resettlement during the creation and maintenance of national parks and protected areas in many African and Asian countries, we investigate social, economic, and biodiversity impacts of a citizen-initiated resettlement program in Padampur, Nepal. Findings are based on three focus group sessions designed to understand the residents' critique of the resettlement planning process and a household survey (n=322) designed to investigate respondents' comparative evaluation of wellbeing factors in old and new Padampur.

Mixed results, but many positive outcomes, were found regarding respondents' evaluations of their wellbeing improvement existed in health services, physical access and facilities, land ownership and title, and social ties after the resettlement. Whereas, there was some loss of *Tharu* traditional knowledge and culture, loss of farm-based jobs, water scarcity, and lower food production. Anticipated marginalization was reduced through increased support services and women's empowerment programs.

Respondents' believed the resettlement would provide an increase in the Park's core wildlife habitat for endangered species, contributing to conservation of endangered mega species (mainly rhino and tiger). Changes in wellbeing should be monitored in order to evaluate the long-term socio-economic impact of citizen-initiated resettlement. Of particular concern in Padampur is the need to increase off-farm economic opportunities and water availability.

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## Introduction

The impact of biodiversity conservation on human wellbeing as a result of the creation of park and protected areas has become an important concern in South Asian nations. The maintenance of a true balance between conservation and human needs has always been a complex matter. There have been several cases of conservation initiatives affecting the livelihood of people, in particular indigenous communities, leading to impoverishment for these people after their forced displacement. In the past, biodiversity conservation practices have been uniformly biased towards conserving biological resources, while undermining people's needs (Cernea, 2005; West and Berchin, 1991; Clochester, 1997; McLean and Stradee, 2000; Rawal, 1991).

Conservation related resettlement programs are judged to be largely unsuccessful, due to people's opposition to move from their original place, especially in the case of tribal and indigenous peoples (Schmidt-Soltau, 2003). In some cases, environmental resettlement programs have been positive with respect to income, off-farm employment and access to infrastructure, but failed to provide people's participation in making decisions (Dickinson & Webber, 2004).

Some argue the issue is not whether or not to practice resettlement but to know how it should be designed and implemented for the benefit of people, while minimizing risk (Cernea and Schmidt-Soltau, 2005). It is also important to understand people's self determination, i.e., whether they want to get away from the recurrent hardships caused by natural hazards and disturbances from Park wild animals or stay at their original residence and strategize for a better living. Future policies should consider residents' desires prior to make any decisions regarding resettlement of enclaves.

We investigate this complex issue by focusing on Padampur, Nepal as a particular enclave that faced the resettlement debate since 1964 and was finally resettled in 2004. At this point in history, insights can be gained by investigating how it was planned and how people evaluate their own wellbeing one year after resettlement was completed. Prior to the establishment of Royal Chitwan National Park (RCNP)[1], old Padampur was a predominantly *Tharu*[2] village in Chitwan. Old Padampur remained an enclave within RCNP. It provides a good example of the issues facing resettlement. The enclave remained within the national Park after Park designation despite various conflicts associated with the Park and the people. Over a period of thirty years residents discussed the possibility of resettlement but could never reach a consensus to move. In 1993, for the first time, major flooding had a devastating impact on the agricultural land of the entire old Padampur community. This catastrophe suddenly awakened the Padampur residents to the fear that they might keep loosing their highly valued land to each year's monsoon flood. As a result, a renewed local initiative was established to request government help in resettling. Such a change in attitude within this enclave community is set against the backdrop of an on-going debate over the policy of resettlement.

To take a special look at human wellbeing, we investigated eight anticipated risks under the scope of the Impoverishment Risk and Reconstruction (IRR) model designed by Michael Cernea (2000). Variables considered in this theoretical model include, landlessness, joblessness, homelessness, increased morbidity, loss of common property, marginalization, and social disarticulation. The model suggests that if these are not minimized one may observe increased impoverishment. He further suggests risk mitigation measures through strategies and funding. This model has been largely applied for the World Bank's funding of 200 resettlement projects throughout the world (2000). In this study, we compared people's wellbeing in reference to each risk in the

[1] RCNP will be referred as Park hereafter.
[2] *Tharu* are considered an indigenous people of RCNP. However, anthropologists argue they might have migrated from the Northern Indian States of Bihar during extreme drought in 1769 and made their refuge in the boarder forest in Nepal (Gunaratne, 2002)

old location and the new location in order to understand people's self evaluation in the changed context.

Kai Schmidt-Soltau argues that the IRR model may not provide every solution to the resettlement problem, specifically when dealing with tribal and indigenous communities. He argues that the compensation package is never sufficient to match people's property and sentiment and that the non-transparent distribution mechanisms also impede social justice (2003). He further argues there is no way to compensate intrinsic loss and notes discrepancies in balancing theories and practice in terms of minimizing risks (2003). Similarly, other researchers note that risks should be analyzed based on process based mechanisms rather than a blueprint model. Instead of risk reversal, remedial responses should be applied for the irreparable losses of the communities (Dwivedi, 2002).

Previous studies have been primarily focused on forced displacement and resettlement and have been highly critical about its adverse impacts on people's livelihood and wellbeing (Clochester, 1997; McLean, 2000; McLean and Stradee, 2003; Ghimere & Pimbert, 1997). These findings have led to the general conclusion that resettlement is a threat rather than an opportunity to improve wellbeing and insure optimal biodiversity conservation. But there is subtlety in the origin of resettlement. As Gebre pointed out, "Voluntary migrants are defined as people who, for some reason, willingly left their habitual environment or place of origin, and resettled in settings other than their own. In terms of resource and service provision, most voluntary migrants appeared materially better off than most involuntary relocates" (2002:31 ). The voluntary resettlement may be a better option as people are found to be re-established sooner than involuntary resettlement (Gebre, 2002).

In our study we investigated whether a citizen initiated resettlement program could be a conservation option for the future. This could only be true if people's judgments on their wellbeing and conservation outcomes remain positive. The central issue is whether and how the citizen-initiated resettlement program is contributing to socioeconomic wellbeing as well as biodiversity conservation. Rather than contributing to the rhetoric of

the resettlement debate, this study adds the voice of the Padampur residents in a quantitative and qualitative assessment of their experience, current conditions, and prospects for the future.

The case of old Padampur is unique because it started with the resident initiated demand for resettlement in response to the devastating flood in 1993. It was also based on a history of numerous participatory conservation initiatives developed by the King Mahendra Trust for Nature Conservation (KMTNC) creating a foundation for cooperation and trust with the residents of Padampur.

This study of citizen initiated resettlement suggests a careful evaluation of people's attitudes, perceptions of risks, alternatives assessment, and perceived benefits of resettlement may be timely. Given how rapidly community-based conservation has become established in Nepal and the increasing confidence of local communities in working with NGOs and the government, it is time to evaluate the current role of resettlement in conservation and rural community wellbeing.

This report presents the findings from personal interviews with 322 randomly selected household representatives in new Padampur. This citizen- initiated resettlement program may have some positive outcomes as compared to other forced resettlement and displacements. Residents said that in terms of physical facilities and alternative economic opportunities their new location remained better. Unfortunately, provision and sustainability of fresh water, an important part of livelihood, has been unhelpful. In addition, cultural norms and practices of the indigenous Tharu people have also been compromised by the scarcity of water. We did find increasing confidence in support services of INGOs, NGOs and the government. With this study, it is not prudent to predict long-term risks associated with the resettlement as we conducted this survey within a year of the complete resettlement; rather this serves as a baseline for evaluation and an early indictor of issues that must be addressed.

This report can help conservation professionals and scientists considering resettlement programs as a potential conservation option for ecosystem management in human dominated landscapes.

**Resettlement in Nepal**

The genesis of resettlement in Nepal was first based on the capacity to control endemic malaria in the *Tarai* (Plain) and Inner *Tarai* Valleys as of the early 1950s. The 1961 census data showed 170,137 inter-zonal migrants, which increased to 445,128 in 1971, 929,585 in 1981 and 1,228,356 in 1991 (KC, 1998). Nepal was moving highland people into the lowlands for more economic opportunity.

In 1953 after independence, the Nepali government officially initiated a planned resettlement program in Chitwan. The Rapti Valley Multipurpose Development Project (RVMDP)[3] was established to encourage hill people to settle in the low- lands by clearing forests into productive farm land. However, the project failed to provide socio-economic justifications. Opportunities in the lowland were mostly exploited and the government was not able to resettle people in a systematic manner. During this period there was an influx of both authorized and unauthorized settlers. As a result, a large number of people resettled in the *Terai* making their ultimate refuge at the edge of the forest, leading to further ecosystem degradation (Ghimere, 1992; Singh, 1984; Elder et. al, 1976; Gee, 1959). By 1959, 12,000 people from the hill area had been settled in Chitwan, in alluvial grassland areas (prime tiger and rhino habitat). In addition, it was proposed to resettle 25,000 people within Rapti Valley of Chitwan (Gee, 1959).

**Padampur Dilemma**

Over the years, old Padampur and the Park had a rocky relationship. The main issues of conflict were loss of human life, loss of livestock (domestic cattle may constitute up to 30% of tiger kills in settled areas peripheral to the Park), damage to crops (estimated to

[3] This project was funded by USAID as bilateral aid to Nepal's economic development.

range from 10% to 100% depending on the farmer) and restrictions concerning the use of the Park's resources (hunting, fishing, grazing, as well as collection of timber, fuel wood and other forest products for food and medicine, all prohibited within the Park) (Milton and Binney, 1980; Mishra, 1982).

Sixteen people were killed by tigers in and around the Park between October 1980 and early 1989 (McDougal, 1989), the trend continued. As the number of tigers in the Park increased so did man eater's problems. The tiger/human conflict was a major problem for the Park authority. There were also economic problems; the tourism business led to locally inflated prices for basic foods and household products. This problem was compounded by the fact that few local people were employed in the Park or in the tourism businesses, leading to poverty for the local population as a result of the Park's presence (Mishra, 1982). In addition, poaching was a major issue but it increased after 2000 when the Royal Nepal Army guard diverted their attention towards national security issues due to increasing insurgency in the country. At that time several guard posts were shut down inside the Park. Finally, there were efforts to address wildlife problems over time. As far back as 1974 a fence and moat were constructed in an attempt to reduce rhinoceros grazing on rice crops (Milton and Binney, 1980)

Among many challenges old Padampur also faced the high waters from the Rapti River during monsoons and severe crop depredation, especially by rhinoceros. In 1993, for the first time, major flooding had a devastating impact on the agricultural land of the entire Padampur community. The monsoon flood in 1993 destroyed almost all the farmland in Jayamangala and parts of the other four wards surrounding it. An old Padampur resident and former Chairman of the Padampur Resettlement Commission mentioned that the cause of the high flood is due to the dike construction between Lothar to Kumrose, as part of East Rapti Irrigation Project, ultimately siphoning water to old Padampur lands (Mr. Babu R. Puri, pers. comm., 2004). The elder Tharu Mr. Mallu Mahato, remembered the occurrence of high monsoon floods affecting agriculture and livestock in 10 year intervals. He further recalled that previous floods were even higher,

but caused less harm due to the low population densities and scattered settlement than the devastating floods in the 1990's (Mr. Mallu Mahato, pers. comm., 2004)

Groups of villagers from old Padampur began discussions with the Biodiversity Conservation Center (BCC)[4] in the late 1980s about the difficult living conditions and the possibility of relocating. Opinions among the residents were divided primarily because the villagers in the western portion of the enclave suffered more from floods and rhinoceros trampling than those in the east. Western residents wanted to move, people in the east were less willing to move (Milton and Binney, 1980). As a result of this stalemate the government did not take any action, but they did reduce investment in infrastructure such as schools and health clinics. As a result, people faced the added difficulties of not being able to access health care during the monsoons when river water swelled to high levels.

Given these circumstances some old Padampur residents openly advocated moving to a site closer to an urban, area away from crop-raiding herbivores and flooding rivers. Prior to 1980, Milton and Binney's reported that people of old Padampur were willing to move to the new location if the Nepali government fulfilled certain conditions such as, compensation for their land and construction expenses, provision of development services as well as shifting the whole village to one area, to maintain social ties with adequate physical infrastructure.

**Padampur and *Tharu* People**

Historically, sections of Padampur were established in the 1930s by *Tharu* people, later an influx of hill migrants joined the *Tharu* in the 1950s (Padampur VDC, 2003). Before the planned resettlement of the 1950s, the entire lowland area of the Chitwan District was inhabited by the indigenous *Tharu* people, partially due to their resistance to

[4] Biodiversity Conservation Center (BCC) one of the field arms of King Mahendra Trust for Nature Conservation (KMTNC) was involved in biological research, conservation, human resource development and community development activities since 1989. BCC has strong ties with the local community in minimizing the Park/people conflicts through social forestry and providing alternative livelihood options to reduce forest dependency.

malaria (Gurung, 1983; Gee, 1959). In the early 19th century, movement to the valley was discouraged in order to maintain a disease prone forest as an obstacle for invasion from South (Gurung, 1983). During this period *Tharu* people were heavily dependent on forest resources in many ways. Fishing and collection of snails were essential parts of the *Tharu* diet fulfilling their protein needs. Gradually cattle grazing and agriculture were primary activities of the community, with a heavy reliance on the forest resources. Collection of minor forest products supplied food, household tools, and medicinal products. All these activities, important for the *Tharu* livelihood, were restricted after the establishment of the Park. *Tharu* were practicing shifting cultivation prior to the Nepal government's land registration and reform policy in early 1960's (McLean, 2000 & Muller-Böker, 1993).

After malaria eradication and land reform after 1960s the *Tharu* people were often exploited by and discriminated against by hill people to whom they lost their arable land. But the *Tharu* should not be considered a naive tribal inhabitant of the *Terai*. In the past and present, they are an important part of the Nepalese economy and governance. Their contribution ranges from generating land revenue for the state, judiciary power in some areas[5] and labor. In fact, the *Tharu* guided the hill migrants on how to create a living in the lowland *Terai* (Gunaratne, 2002). However, poor *Tharu* people are vulnerable to exploitation by hill migrants and large landholding *Tharu* due to their limited education and economic power.

The formation of the Park in 1973 affected various cultural traits and family structures of the *Tharu* people, by restricting their free access into the Park to visit religious sites as well as trade and movement among other enclaves within the forest. Similar to the *Tharu*, *Bote, Maji* and *Mushars* are also indigenous to Chitwan and were dependent on the river for their livelihood. They were knowledgeable about river ecology and their livelihood was compromised after the Park establishment (Ghimire, 1999). However, provisions for fishing permit in the Park rules helped address the needs of these people

[5] Some *Tharu* are elected as Village Development Committee (VDC) Chairmen and some are Ward Chairmen at the local level.

to some degree. There was some informal understanding between the Park authority and the people that they could extract minor forest products unless it involves harvesting timber and poaching wild animals.

## Methods

In order to investigate the citizen's evaluation of how wellbeing changed and perceived impact on existing biodiversity as a result of the Padampur resettlement, the following research questions were asked.

a) What change is there in Padampur residents' wellbeing as a result of the resettlement?
b) What are the residents' perceptions of the resettlement contribution to conservation?

We used both quantitative and qualitative survey methods to examine the planning process, household wellbeing, and the perceived impact on biodiversity. Three focus group meetings were conducted to assess the resettlement planning process. Participants discussed the resettlement course of action by evaluating performance of the responsible institution to-date, and the group perceptions of how resettlement addressed their interests.

### Assessment of Planning Process

The focus group discussions were used as a tool to assess the planning process of the resettlement program. The method of focus group data analysis is adapted from (Krueger, 1998). Three independent focus groups were ward representatives (n=11), government and non-government officials (n=8), and Indigenous people and women (n=10).

The focus group meetings concentrated on the history of the resettlement planning process, their evaluation of planning and implementation to-date, and perceptions of how resettlement addressed their interests (Appendix I). Questions include how people felt about the resettlement program?; what are the challenges of resettlement projects?; and what suggestions do they provide for future resettlement planning? The entire

conversation of the focus group meetings was recorded on audio tape and partially recorded on video.

All focus group meetings were conducted in a friendly manner in a village environment. The facilitator, Narayan Dhakal, was involved in the area implementing conservation and development activities for the past three years. Each member took a minimum of 2 minutes to a maximum of 7 minutes to express their views. The group participants were overwhelmingly vocal in their appreciation, concerns, and grievances about the resettlement program. Seven out of ten participants were women in the women and indigenous focus group. The women's group expressed their opinion about the resettlement program, particularly related to gender issues.

A *Tharu* surveyor with an undergraduate education helped with non-Nepali speaking *Tharu* and co-facilitated the sessions. Most of the sessions were conducted in Nepali, but in the women and indigenous focus group, participants were assisted with their language to help understand the questions and discussion. Each participant was also provided the option to communicate in their own language at several points in the discussion.

Tape recorded data was transcribed and the main points were summarized. The focus group meetings were very fruitful in terms of gathering qualitative data to identify how people perceived the overall resettlement program. The focus group meeting also helped to expand on the quantitative data collected from the household survey.

**Household Survey**

Altogether 1,928[6] households are listed as resident in the new Padampur (Land Distribution Lists of Padampur Resettlement Commission Report, 2004). This population record is the most reliable because every household (hh)[7] is listed with the name of hh. chief and the amount of land they received in new Padampur. In order to

[6] The number of household data varies according to source; the Chitwan District Development Committee (CDDC) profile indicates 2140 where as the Village Development Committee (VDC) data shows 2034.
[7] Household is referred as hh. hereafter.

ensure a robust sample, we randomly selected 322 respondents from the new Padampur VDC list. Since the castes and ethnic groups are uniformly distributed among the Padampur community, we did not use a stratified random sample. However, we checked the sample to ensure that of each ethnic group was represented (Table 1). This randomized household survey was used to evaluate community members' comparison of their wellbeing before and after resettlement.

Face-to-face household interviews were conducted to understand household representatives' perceptions of their socioeconomic wellbeing and impact on biodiversity after the resettlement. The interview ranged from a minimum of 45 minutes to a maximum of one and half hours, depending upon the respondent's preference for elaborating. Six local youths with university undergraduate degrees were hired and trained to conduct the survey. The questionnaires were pilot tested first in May 2004 and later in February 2005 and finalized. Each sampled household was contacted seven days prior to the survey and asked if they would agree to an interview. A project brief was typed in Nepali script to help local people understand the context. Residents responded positively to the informed consent adapted by this research project. The positive response may be because this practice had not been used in any other survey conducted in Padampur previously. People appreciated being asked and given the right to decline.

Initial interviews with conservation and community leaders as well as attributes identified in the literature (Cernea, 2000) were used to design a 58 question survey instrument that reflects land tenure, employment, housing, food management, social articulation, marginalization, health facilities, and physical infrastructure. These variables were further analyzed for differential impacts based on ethnicity, caste, and gender. In order to understand people's perceptions of the impact of resettlement on existing biodiversity, respondents were asked to evaluate the conservation impacts. An additional 17 questions, relevant to human induced impacts on natural resources and comparative biodiversity status in both locations, were asked (Appendix II).

Comparative questions were asked about people's perception of factors in old Padampur vs. new Padampur. The survey tool was designed for eight factors: landlessness, joblessness, homelessness, marginalization, increased morbidity, food insecurity, loss of physical facilities as well as social disarticulations (Cernea, 2000). The core analysis units and their definition by Cernea (2000) are listed below (figure 1) along with our terms used in the questionnaire.

Questions based on both socioeconomic and biodiversity factors were asked specifying different units as land tenure, employment, housing, marginalization, health facilities, food management, common property resources, and social ties. Respondents' perceptions on resettlement's impacts on biodiversity were also asked. We did not collect biological or vegetation data to measure the impact on biodiversity resources.

After the interview, completed questions were coded following a coding guide and entered into an SPSS data base. Data was checked for data entry errors and analyzed with SPSS using descriptive statistics.

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**Figure 1: Core analysis units and their definitions based on the Impoverishment Risks and Reconstruction (IRR) model Cernea (2000).**

| Anticipated Risks | Definition (Cernea, 2000) | Our Term |
|---|---|---|
| Landlessness | "Expropriation of land removes the main foundation upon which people's productive systems, commercial activities, and livelihoods are constructed. This is the principal form of de-capitalization and pauperization of displaced people, as they lose both natural and man-made capital" | Land tenure |
| Joblessness | "The risk of losing wage employment is very high both in urban and rural displacements for those employed in enterprises, services, or agriculture. Yet, creating new jobs is difficult and requires substantial investment. Unemployment or underemployment among resettles often endures long after physical relocation has been completed" | Employment |
| Homelessness | "Loss of shelter tends to be only temporary for many resettles; but, for some, homelessness or a worsening in their housing standards remains a lingering condition. In a broader cultural sense, loss of a family's individual home and the loss of a group's cultural space tend to result in alienation and status-deprivation" | Housing |
| Marginalization | "Forced displacement results in marginalization that people suffer both physically and psychologically and this happens even before resettlement design" | Marginalization |
| Increased morbidity | "Massive population displacement threatens to cause serious declines in health levels. Displacement-induced social stress and psychological trauma are sometimes accompanied by the outbreak of relocation-related illnesses, particularly parasitic and vector-born diseases such as malaria and schistosomiasis. Unsafe water supply and improvised sewage systems increase vulnerability to epidemics and chronic diarrhea, dysentery, etc. The weakest segments of the demographic spectrum-infants, children, and the elderly-are affected most strongly" | Health facilities |
| Food insecurity | "Forced displacement increases the risk that people will fall into temporary or chronic undernourishment, defined as calorie-protein intake levels below the minimum necessary for normal growth and work" | Food management |
| Loss of physical facilities | "For the landless and asset less, people loss of access to the common property assets that belonged to relocated communities (pastures, forested lands, water bodies, burial grounds, quarries, etc.) results in significant deterioration in income and livelihood levels" | Common property resources |
| Social disarticulations | "It disperses and fragments communities, dismantles patterns of social organization and interpersonal ties; kinship groups become scattered as well. Life-sustaining informal networks of reciprocal help, local voluntary associations, and self-organized mutual service are disrupted. This is a net loss of valuable "social capital," that compounds the loss of natural, physical, and human capital". | Social ties |

After the interview, completed questions were coded following a coding guide and entered into an SPSS data base. Data was checked for data entry errors and analyzed with SPSS using descriptive statistics.

**The Study Area & History**

The old Padampur Village lies within the Chitwan District (Figure 2), one of the most popular districts of Nepal due to its immense biological and economic resources. In 1973, establishment of Royal Chitwan National Park (RCNP),[8] was recognized as a World Natural Heritage Site (Mishra and Jefferies, 1985). RCNP is situated in south central Nepal, covering 932 sq. km. in the subtropical lowlands of the inner Terai. Prior to Park establishment, the area comprising the Tikauli forest - from the Rapti river to the foothills of the Mahabharat - extending over an area of 175 sq. km. was designated Mahendra *Mriga Kunj* (Deer Park).

The global biological significance of RCNP provides highest density of endangered large mammals' tiger and probably 2nd largest density of one horned rhinoceros (Dinnerstein & Price 1991, Smith et. al, 1999, Dinnerstein at. al, 1999), and presence of wild elephants. The *Terai* area including Chitwan was virgin forest preserved for centuries and an undisturbed wildlife habitat particularly for tigers and wild elephants (Smythies, 1925). In 1951, the World Health Organization (WHO) initiated malaria eradication work at the same time synchronized resettlement was launched to encourage Hill people to resettle in the highly fertile low lands[9]. Since then the influx of people from mountain areas has continued as people search for a better life. The increase in the population of Chitwan, and the *Terai* as a whole was the primary cause

[8] The Park has over seven types of forests, six types of grasslands, three main rivers systems, a number of oxbow lakes and wetlands which support 50 species of mammals, 526 species of birds, 49 species of reptiles and amphibians and 120 species of fishes. Floral diversity encompasses over 600 species of which 50 are grasses, 16 orchids and 73 ferns. The RCNP has a buffer of 35 Village Development Committees and 2 Municipalities covering 766.1 sq km of area in the Park vicinity. Progressive mechanisms for resolving Parks and people conflict and also for community development have been developed in recent years (UNESCO, 2002).

[9] Geographically Nepal divided into five physiographic zones, Chitwan lies within two physiographic zones, Siwalik and Mid mountain. (DDC, 2003).

of the forest degradation in Nepal. This problem ultimately changed the government strategy towards conservation of natural resources as a result RCNP was established in 1973 (Sharma, 1990; DDC Chitwan, 2003).

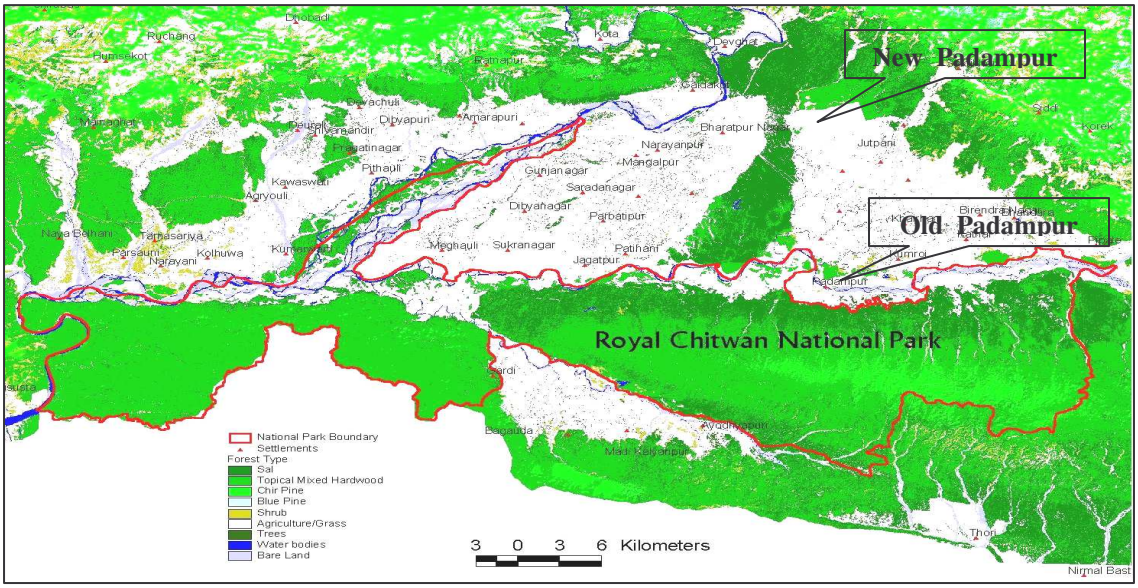


**Figure 2: A portion of Royal Chitwan National Park, Barandhabar Forest Corridor, new and old Padampur sites.**

In 1975, the Management Plan for the Royal Chitwan National Park (RCNP) did not create any pressure for removing the old Padampur village even though it was surrounded by the Park boundary (Milton & Binney, 1980). Prior to the RCNP there had been 26 village clusters, all were removed forcefully with the exception of old Padampur, a clusters of 16 smaller enclaves *(*Amrite, Madanpur, Sawapur, Jitpur, Balarampur, Piparia, Bhimpur, Devipur, Padampur, Dikauli, Marchauli, Kurchauli, Gadauli, Bhawanipur, Bankatta and Jaimangala). The reason old Padampur was not resettled prior to the Park formation was mainly due to the valid land titles held by villagers as well as the political influence of the *Tharu* landlords (Mr. N. Bhattarai, pers. comm., 2004)

The Padampur VDC[10] was the only remaining enclave of Royal Chitwan National Park and recently relocated in another area about 20 Km. north from RCNP. The Whole

[10] Village Development Committee (VDC) is the smallest political administrative unit of Nepal.

Chitwan District lies between $27^0$ 21' 45" to $27^0$ 52' 30" North to $83^0$ 54' 45" to $84^0$ 48' 15" east the area extends from the low land *Bhabar* area to *Mahabharata* Mountain range, a change in elevation from 141 to 1945 meter (DDC[11], 2004).

**Socio-demographic Characteristics**

The total population of new Padampur is 11,037 with 5,543 males (50.2%) and 5,494 females (49.8%). The majority of households are from the *Tharu* caste/ethnicity, which constitutes 44 % (889 hh.)[12]. The second largest caste/ethnic group is Brahmin 22% (444 hh.). The average family size of households is 5.15 individuals (total population / no. of households) (District Development Committee, 2002) (Table 1 & 2).

Working age of majority of sample (16 to 59 age group) were (59%). *Nepali (*49 %) and *Tharu* (36%) were dominant mother languages spoken, with *Tamang, Gurung, Magar, Bote, Chepang* and *Lama* also spoken in the area (Table 4). A majority of respondents were followers of Hinduism 88 % (283 hh) (Table 5). Approximately a quarter of the respondents were either uneducated (27%) or educated up to the primary (22%) or secondary level (29%) (Table 6). Many of the respondents were still in school, as they reported their occupation as student at 29% (n = 617).

The second most frequent occupation was agriculture 24% (n=518) (Table 7). The majority of respondents did not consider themselves indigenous to Chitwan, 59% (191 hh). Their original home was *Pahadi* the northern hilly areas and they moved for agricultural reasons (Table 8,9 & 10).

[11] District Development Committee (DDC), is one step above from the VDC level administration.
[12] The number within the parenthesis after the percentage represents the frequencies of respondents, i.e., n=42 corresponding percentage.

## Results and Discussions

### Assessment of Planning

The focus group participants felt the resettlement master plan was well designed regarding physical infrastructure (road, schools, public buildings, government offices, burial grounds and community forests) and public properties. However the majority of focus group members expressed their dissatisfaction with the long implementation period (nine years) and poor planning for fresh water resources. They believed the lengthy planning process affected people's livelihoods due to inflation and uncertainties. Land speculation drove up the price of land in the new area because current owners knew Padampur was moving. But the residents did not actually move right away so they did not receive their compensation money for several years. Focus group members also expressed that they would have preferred an open option (a household could choose to move to another part of the country) rather than moving everyone into the same location. They suggested that this arrangement might have reduced pressure on agricultural lands in the new location.

Regarding participation in planning, focus group members said that some groups were underrepresented and more planning was still needed. Despite the fact that *Tharu* residents were the majority in Padampur, they were under-represented in resettlement planning. In addition, the lack of post resettlement planning made it difficult to adapt to the alternative economic opportunities immediately after the move. Members noted that during the frequent changes in administration, there were problems with decision making and an effective and timely implementation of the master plan.

### Socioeconomic Wellbeing

One of the compelling arguments against conservation related resettlement is the impoverished livelihoods of the residents after they have been forcefully resettled (Cernea & Schimidt-Soltau, 2005). In this section we investigate eight anticipated risks

discussed in Cernea's (2000) Impoverishment Risk and Reconstruction (IRR) model. The Padampur resettlement was different from many forced resettlement and displacement cases that have been published primarily due to Padampur residents' involvement in the resettlement decision- making process from the beginning. Our assessment is based on people's perception of their recent socioeconomic changes since the completion of the resettlement process. When asked whether respondents agreed to leave their original location, 80% (259 hh) said they agreed, whereas 20% (63 hh) said they did not. The reasons cited for leaving the original location were threat of flood 60% (156 hh), lack of health facilities 14% (37 hh), wildlife crop depredation 12% (31 hh), and lack of transportation facilities 8% (21 hh). Reasons for residents gave for not agreeing to leave were valuing their traditional residence 30% (19 hh) and better production in the old location 40% (25 hh). In response to whether or not they were satisfied with this resettlement program, 81% (260 hh) of new Padampur residents said yes and 19% (62 hh) said no (See Tables 11, 12 and 13).

**1. Land Tenure**

Land is one of the major economic factors for rural farmers. A vast majority of rural people depend on agriculture as it contributes 42% of GDP and employs over 80% of Nepali people (ISRSC[13], 2001). More importantly, land in the *Terai* is quite suitable for rice production due to the alluvial grasslands of the past. These rice lands are found along river banks and streams and are highly valuable for Nepal's rural farmers (Regmi, 1999). Cash crops, such as rice, wheat and mustard, are the main commodities in the *Terai.* Income from these crops is a major part of Nepal's agrarian economy. Given that land is the foundation of agricultural production, risk of impoverishment due to landless is one primary argument against forced displacement and resettlement.

> *"Expropriation of land removes the main foundation upon which people's productive systems, commercial activities, and livelihoods are constructed. This*

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*is the principal form of de-capitalization and pauperization of displaced people, as they lose both natural and man-made capital" (Cernea, 2000:14).*

As unoccupied land becomes scarcer, without affecting the livelihoods of other people equal compensation for land is very difficult, if not impossible (Cernea & Schmidt-Solatau, 2005)

The overall land size in the new location was reduced to 1000 ha. from 1800 ha. in the old location. In our survey, we asked the respondents from 322 households about their land area in the old versus the new location, the monitory compensations, fairness in distributing compensation packages, land title certificates and their general opinions about land distribution. We found that the landless in the old location gained land in this resettlement project. Average land owned was reduced as people with more than one *bigha*[14] of land received one *bigha* and monetary compensation for remaining land.

Some people displaced during the 1964 forced displacement[15] at the time of the Park's establishment made their homes in old Padampur with the support of their friends and relatives. They were living on *Ailaini*[16] land without ownership right to it. In the new location, they received land titles for areas not exceeding one *bigha (20 kattha)*[17] each.

*Land Ownership / Title*

Out of the 322 sampled households, 13% (42 hh)[18] were landless in the old location and received a land area of three *kattha* in the new location. This arrangement provided them greater security in their land holdings. However, in the resettlement, the size of per capita landholding was reduced from 23.5 *kattha* in old Padampur to 14.8 *kattha* in new

[14] "*Bigha*" is the Nepali term for land measurement in the lowland area one *bigha* is equal to 1.67 acre. In a lower denominations 1biga= 20 *kattha*. Since the *kattha* is the most common measurement units we use this measurement unit throughout the document.

[15] Out of forced displaced hhs, 351 (some of them have legal land title) have filed their cases in the supreme court and their cases are not resolved as yet. It is known that the court has ordered the PRC and Land Exise office in Chitwan to explain the status of 151 hh's (Mr. Basu Dhngana, pers. comm.)

[16] Ailaini land is the land not registered in private ownership but people are cultivating it for their livlihoods.

[17] In 1964, Government provided land in the Madi valley across the southern ridge from Padampur. Some people resettled in Madi Valley and people who did not want to leave their original home dispersed in the region. Their cases are still undecided by the Supreme Court (Mr. N. Bhattarai pers. comm., 2004)

[18]

Padampur as people with larger landholdings received less land in the new location. Number of household had land holding between 0.1 to 20 *kattha* increased from 49% (159 hh) in the old location to 70% (227 hh) in the new location but 17% (54 hh) had their landholding reduced in the resettlement (Table 14 & 15).

Land titles are an important component of land security. In a rural setting land title also provides some opportunities for credit and for increased economic activity. Eighty-five percent (272 hh) of respondents received land titles in the resettlement including 33% (107 hh) who did not have titles in the old location. The remaining 14% (47 hh) (Table 16) said that they still did not have land titles at the time of the interview. Since then they have all received titles for their land (Mr. Prem Poudel, pers. comm., 2005)

Of the total recorded households (1928 hh) in new Padampur, 239 were missing in the record due to their lack of legal land separation registration documents (PRC, 2004). The Padampur Relocation Committee (PRC) later confirmed that only 177 households were missing in the record to receive their land (PRC, 2004). Of these, 96 households[19] still have not received land as of May, 2004. A higher level government intervention will be necessary to include their names for land compensation (Mr. Surya S. Regmi, Chairman of PRC pers. comm., 2004). However, for this study, authentic data from the missing households could not be obtained. The focus groups further confirmed that there are discrepancies in distribution of compensations that may be due to government's poor data collection methods and political bias.

*Compensation*

When asked whether household respondents received financial compensation for the reduction in their land holdings, only 30% (96 hh) said that they did, 65% (210 hh) did not and 5%(16 hh) did not respond (Table 17). Twenty-four percent (76 hh) of

[19] Later communication with Chairman, Mriga Kunja Buffer Zone Committee, revealed only 82 hhs were missing from getting land in new Padampur. Their cases were either due to lacking legal of property separation documentation or landlessness. Missing records from property separation may not be the serious problem as people can still live in their parent's house. However, for the landless their problem is greater and has to be considered seriously (Mr. Basu Dhungana, pers. comm., 2005)

respondents said the compensation was fair while 42% (135 hh) said that was not (Table 18). Their grievances were the government mechanisms for allocating land were biased and there was a slow distribution of both monetary compensation and land. Households that received the money earlier were better off, because they were able to buy additional land. However, people who received their money after eight years could not buy land because land prices had increased tremendously as a result of the increased demand in the area.

*Land Quality*

When asked to compare the land quality in the old and the new locations, 70% (226 hh) thought it was worse, 23% (74 hh) believed it was better and 7% (22 hh) said it was the same (Table 19). Water scarcity was the main reason for the negative response according to 72% of the respondents. Apart from the water scarcity, respondents stated that the area would have been highly fertile and productive because it was previously forested land with sufficient soil nutrients. In the focus group meetings participants confirmed that the soil quality in the new location was better as long as there was water available.

When asked "what is your opinion about the overall distribution of land among households in new Padampur?" Forty-nine percent (159 hh) said the distribution was fair, 48% (156 hh) said biased and 2% (7 hh) said they didn't know (Table 20). The respondents who thought it was biased cited as their reasons better land for relatives 32% (103 hh), reduced land size 10% (34 hh), and land without irrigation 5% (17 hh) (Table 21).

*Implications for Tharu*

Before 1950, the total population of Chitwan (25,000) was mostly *Tharu* as the area was malaria prone and they were the only inhabitants in the Terai. *Tharu* collected taxes for the state and helped organize hunting trips for Rana rulers in Kathmandu. Their

economy was based on the size of their land and resulting harvests. After 1955 when the hill migrants were resettled into Chitwan, *Tharu* land ownership began to decline sharply. Numerous factors are responsible for this decline; however some authors argue that the main cause was overexploitation by the hill migrants (mostly Brahmins) as they took advantage of *Tharu* illiteracy and lack of knowledge about their rights (Gunaratne, 2002).

The Padampur resettlement contributed to another decline in land ownership that affected *Tharus,* who had larger landholdings in the old Padampur. Of 114 *Tharu* respondents, 22% (26 hh) who owned land between two and five bigha in the old location owned at least two bigha in the new location. Title security has increased with 83 *Tharu* hhs holding land titles in the old location, as compared to 102 hhs in the new location (Table 22). Land titles are increasingly important to *Tharu* households as they become more aware of local politics through education. In addition, some *Tharu* households acquired additional land with the compensation money, while others spent the cash they received.

**2. Employment**

Old Padampur was very good for agricultural production due to alluvial soils and the surrounding National Park. In the new location, households must also work off the farm because their landholdings have been reduced. The risk of impoverishment may be greater if alternative economic opportunities are not in place.

> *"The risk of losing wage employment is very high both in urban and rural displacements for those employed in enterprises, services, or agriculture. Yet, creating new jobs is difficult and requires substantial investment. Unemployment or underemployment among resettles often endures long after physical relocation has been completed" (Cernea, 2000 : 15).*

In new Padampur some people believe they are more mobile due to the increased road access making it easier to find jobs. However, for some people it is more difficult to seek out jobs in the new location due to unknown situations. Alternative employment

opportunities have been introduced through the support of both national and international NGOs. These initiatives have been temporary[20], however new Padampur needs at least five years of regular support in developing local skills, linking markets and creating an atmosphere for micro-enterprises. This support has to be in place as part of the reconstruction efforts, or the risk of impoverishment may be higher. Unfortunately, the commitment by the NGOs and INGOs has diminished during the recent political conflicts between the government and Maoist insurgents.

During resettlement planning, training for generating alternative livelihood options and strategies for changing the rural economy was lacking. The former Chairman of the Padampur Relocation Committee (PRC) felt that support from King Mahendra Trust for Nature Conservation (KMTNC) in biological and socioeconomic development through the Tiger Rhino Conservation Project (TRCP) was exemplary in leading the community towards more off-farm economic opportunities. However, this support has to be continued for a minimum of five years to assist people in self reliant activities to help support their livelihood (Mr. B. R. Puri, Chairman PRC pers. com., 2005).

*Economic Status*

Forty eight percent (154 hh) of total respondents said their economic condition was worse than it was in the old location (Table 23) many of those that respond negatively were *Tharu*. For the hill migrants this was the second resettlement in forty years, as their first move from the mountains was in the 1960's. Twenty- eight percent of respondents (90 hh) mostly hill migrants said they are better off, and 24% (78 hh) said that the resettlement does not affect their livelihood at all (Table 23). The later group represented marginal families whose primary income was based on farm labor. However, some of these households engaged in Income Generation Activities (IGA) run by NGOs as well as other income generating activities.

[20] The Tiger Rhino Project is helping in new Padampur to support local livelihoods so resident's attitudes towards the surrounding Barandhabhar forest are positive and conserve the critical corridor. There have been numerous activities related to skill development and conservation been accomplished. However, the project will end on April, 2005.

The majority of *Tharu* respondents (65 hh) had a negative response regarding economic wellbeing. This was the first resettlement they had experienced in their lifetime. They were extremely concerned about the scarcity of water and the possible impacts this would have on their traditional culture in the new location. The *Tharu* evaluation of their relative economic wellbeing was found to be discouraging.

*Tharu* households with more financial resources or adaptation skills have been able to purchase land outside of new Padampur with their compensation money. However, the *Tharu* with limited experience dealing with money did not save their cash income to invest in income generating activities. Some of these households used the compensation money to enhance their lifestyles such as, building permanent houses of concrete and buying motorcycles. In other studies, cash compensation was not a good option for indigenous communities as they were accustomed to activities, such as gathering forest resources. According to Cernea and Schimidt-Soltau It is unlikely that displaced people from forest areas will invest their compensation wisely without support in cash management and economic training (Cernea & Schmidt, 2005). Nevertheless, the *Tharu* economy in old Padampur was not solely based on forest resources. They already had some experience dealing with cash economy based on their exchanges with the hill migrants selling agricultural products.

*Job Changes*

In the resettlement, villagers experienced a change in employment from subsistence farming to cash-based income generating activities. Some examples of these new activities include dairy farming, mushroom farming, vegetable farming, wool spinning, and selling in street shops. Sixty-one percent (198 hh) said they had already changed their employment, 37% (119 hh) said they had not changed, and 2% (5 hh) were unsure (Table 24). The reasons for the shift away from agricultural employment were primarily due to limited land and water shortages. Reasons for moving towards these off farm jobs were because they were closer to the market 42% (135 hh), more mobile 45% (145

hh) with access to roads and transportation 69% (221 hh) it was easier to find work 15% (48 hh) (Table 25).

*Job Satisfaction*

The level of satisfaction with the recent shift in work demonstrated that the majority 56% (180 hh) were satisfied with the change in their employment status. Many stated that whatever work they get is easier than farm labor. Out of the remaining households, 18% (58 hh) were not satisfied, and 25% (81 hh) said their satisfaction level was the same as it was previously (Table 26). The reasons for job satisfaction were availability of outside labor (31%), skill training opportunities (32%), access to the job market (19%), (31%) however, had a negative response on the availability of outside jobs and (2%) thought there was limited access to job markets (Table 27).

When asked about the availability of employment opportunities in the new location, 56% (180 hh) said they were happy with it, 25 % (81 hh) found no difference, and 18% (58 hh) said that they were not happy at all with the change. The positive responses were attributed to the availability of non-farm jobs (31%), skill learning opportunities (32%), and other reasons (8%). The reasons for the negative responses were limited outside jobs (21%), no access to job advertisements (2%) and limited skill learning opportunities (4%).

*Crop Pattern and Yield*

Respondents were found to be growing the same crops (rice, maize, mustard, wheat, lentil and vegetables) in the new location as they did in the old. However, the area planted and crop yields changed. Rice production declined sharply in the new location, mainly due to the scarcity of water and the reduced land size. Rice is the most important crop for Nepalese society both as a staple food and as a source of income. One of the reasons *Tharu* people were unhappy was due to this reduced production of rice. Villagers said the soil quality of the new area was good for the production of maize,

mustard, and lentils because it was recently cleared forest. They also believed vegetable production would be an excellent source of income in the winter, provided there is available irrigation. The annual household income from farm-based earning was reduced by 35% in the new location. For the sample households, Nepalese rupees 5.7 million NRs. (US $ 79,529) worth of production in a year was recorded in the new location as compared to 8.8 million NRs. (US $ 123,003) in the old location (Table 28).

*Off-farm employment*

In the old location 95 individuals were found to be involved in off-farm employment, representing 26% of household respondents (84 hh). The types of work they were involved with included government, NGO or private services (54 %), business (3%), labor (33%), and other (9%). When asked how much they earned per year off the farm, 87 individuals provided their yearly income from off-farm activities as being a total of 3.15 million NRs. (US $ 45,000)[21] (Table 29). Based on these respondents, the off farm income per individual [22] was US $ 73.34. The responses ranged from a maximum of $ 2,860 to minimum of $ 6 which is 35% below national per capita[23] US $ 220 (ISRSC, 2001).

In contrast, in the new location 239 individuals representing 60% of households (193 hh) were involved in off-farm employment. The type of work remains similar (i.e., 56% government, NGO or private services, 6% business, 23% labor and 11% others). Only 211 of 239 people provided their annual income and the average per capita income in the new area was $ 96 and ranged from $ 7 - $ 5,142. These observations indicate that the off farm employment opportunities as well as average income have increased in the new location. This change has taken place despite the current political conflicts of the area, which have limited much economic activity. In casual conversations, people said there had been a decline in business, tourism, and other areas due to the conflict

[21] US $ 1.00 = NRs. 70.00
[22] The average sample household size (2131/332) is 6.6
[23] The lower per capita as appeared in our findings is due to the cultural nature of respondents either non or less reporting their true income.

between the government and Maoist groups. Respondents were optimistic that the situation would improve when the present crisis ends.

*Micro Enterprises*

It is evident that the villagers will not be sustained economically by agricultural production alone in the new location. Therefore, people may be in a difficult economic position if they do not adapt to the changing options. Some respondents 9% (23 hh) had already engaged in some micro enterprise development at the household level (Table 30). In their initial phases, these enterprises were supported by NGOs and INGOs through skill development training, technical support, and some financial support. Respondents and community leaders believe more technical and financial assistance will be necessary to bring about the desirable economic shift in new Padampur. Currently, the small businesses are primarily based around agriculture and include mushroom farming, wool spinning, poultry farming, dairy farming, bee keeping, vegetable farming, and others. Economic assessment of these enterprises could not be done at this early stage.

**3. Housing**

Housing is a basic need for any community. In the Padampur move, community involvement in housing was an important issue. In a forced displacement it's been argued that:

> *"Loss of shelter tends to be only temporary for many resettlees; but, for some, homelessness or a worsening in their housing standards remains a lingering condition. In a broader cultural sense, loss of a family's individual home and the loss of a group's cultural space tend to result in alienation and status-deprivation" (Cernea, 2000:16).*

In the old Padampur people mostly had houses made of thatch, mud and timber. Because of the speculation about the possibility of relocating the village people did not build permanent structures. In addition many people lacked sufficient capital to invest in housing. These structures were, however, more environmentally friendly than those

built in the new location. In terms of both housing and land tenure, the people in new Padampur experienced more security than in the old location. The actual structures were more secure, and they were built on private land rather than government land with indisputable ownership rights.

*Physical Structure*

Households with more than 12 bigha of land in the old location received only 2 bigha due to the land distribution criteria[24]. Financial compensation was provided for the additional land (PRC, 2004). Some people invested the compensation money in better housing and/or purchased land in other places (Focus group meeting, 2005).

In a comparison of housing in the old and new location, 66 % (213 hh) said they have "better" [25] housing after the transfer, 31% (101 hh) said their housing conditions remained the same and only 3% (8 hh) said they have worse housing conditions in the new location (Table 31). The respondent's criteria for better housing in the new location were mainly based on the physical structure, including roof, walls, number of rooms, and availability of electricity (Table 32).

*Change in Wealth*

Wealth as measured by possessions increased slightly based on the number of household technology items, vehicles, and alternative energy options. In a comparison of energy options for cooking use of bio gas increased by 8%, use of Liquid Petroleum Gas (LPG) increased by 7%, electric cooker increased by 3% and pressure cooker increased by 9%. The slight shift towards alternative energy sources and modern appliances was particularly beneficial for women, as they typically spent more time doing household chores (collecting fodder and fuel wood and cooking) in the old

[24] According to the land compensation criteria of Padampur Relocation Commission, a minimum of three *kattha* (3,645 sq. ft.) land was provided for those who did not have their own land and having less than three *kattha* of land holdings. Households between three *kattha* to one bigha (72,900 sq. ft.) received equal amount of land in the new location. Households with more than one bigha of land received one biga of land plus one third land and equivalent money for two third of land. The rate of compensation was NRs. 300,000 (eqv. US $ 4,286) per bigha (1 bigha=20 *kattha*).
[25] Better housing is more permanent structure made of brick, cement and concrete.

location. With this additional free time women began to get more involved outside of their houses in things like agro-forestry, community forestry projects, and other IGAs

Similarly, respondents reported motorcycle and bicycles ownership increased by 2% and 13% respectively. But the use of bullock carts reduced in the new location by 29%. The availability of electricity in Padampur also allowed them to purchase electronic devices such as TVs, VCRs and CD players (Table 33).

*Scarcity of Fresh Water*

In terms of drinking water availability, 46% (148 hh) of respondents said that it was worse in the new location than the old. The drinking water problem appears to be a political issue, according to Mr. Babu R. Puri, former Chairman of Padampur Relocation Commission. Apparently, a plan was prepared and approved by the committee to channel upper Sangdi River water for the drinking water in new Padampur. At the time of implementation, however, the villagers in the upper catchments did not agree to share their water with new Padampur. As perceived by Mr. Puri, this was mainly due to the political differences between him and residents people living near the water source. Interviewees in the upper catchments had a different interpretation. According to them, releasing water was a condition of their Government resettlement project (400 households approximately). The water problem appears to be a result of poor planning: They failed to conduct a feasibility study for water supply and calculate the demand for approximately 12,000 people; They did not obtain a binding agreement with the adjacent village regarding water in the upstream catchments; They lacked a proper vision for reconstruction in the new area.

In the new Padampur, the Drinking Water and Sewage Corporation (DWSC) in collaboration with the local community, is managing a 100,000 liter tank supplied by pumped ground water. Given the electricity costs for pumping, people are paying higher water fees than normal. Local NGOs have also supported some drinking water plans run by committees of local users. Nevertheless, Mr. Dipak Gyanwali, Nepal's renowned

water resources expert said “rain water harvest can be an option to deal with fresh water shortage problem. Padampur residents to be trained in producing alternative crops that require less water and involve off farm economic activities rather depend only on rice production” (pers. comm., 2004).

**4. Marginalization**

Forced displacement can result in marginalization, and can affect people both physically and psychologically (Cernea, 2000). In the old location, the government’s investment in local development activities was virtually non-existent. Access to physical infrastructure and facilities for public use was nominal compared to other villages throughout the Chitwan District. In addition, there was no intervention by NGOs and INGOs. Due to the government’s long term plan to move the village, the old Padampur remained isolated. Local development authorities saw it as an enclave of the Park, whereas Park authorities said they did not have resources for local development activities. Even the allocated buffer zone revenue[26] could not be fully used due to an inactive village representative (Jitendra Choudhari, pers. comm., 2004). Marginalization existed in the old Padampur and could have been exacerbated in the new Padampur.

> *“Marginalization occurs when families lose economic power and spiral on a ‘downward mobility’ path. Middle-income farm households do not become landless, they become small landholders; small shopkeepers and craftsmen downsize and slip below poverty thresholds. Many individuals cannot use their earlier acquired skills at the new location; human capital is lost or rendered inactive or obsolete. Economic marginalization is often accompanied by social and psychological marginalization, expressed in a drop in social status, in resettlees’ loss of confidence in society and in themselves, a feeling of injustice, and deepened vulnerability”(Cernea, 2000:17).*

What happens when a community comes from a location that has had minimal development? It may be premature to judge possible economic marginalization as the residents moved to the new location, one year prior to the study. According to the

[26] The buffer zone regulation provided 30 – 50 % of Park revenue to be invested in the local community for various conservation and development activities managed by local user groups.

official record of the Padampur Relocation Commission, a total of 343 landless families received land after the resettlement of them 42 hh were represented in our random sample. On this count, marginalization was reduced.

Land was more equally distributed due to the land compensation threshold set by the Relocation Commission. The minimum area of land-to-land compensation was one *bigha* (0.625 ha.). The bigger landholders became smaller landholders. The gap between landlords and tenants was reduced due to this mechanism that shifted the village towards greater equity. For larger land owners who did not invest their compensation funds wisely, there was also a chance of increased marginalization.

*Effects on Tharu People*

In a resettlement and displacement, indigenous communities are likely to lose much of their culture and their economic independence in a changed environment (Cernea & Schmidt-Soltau, 2005), thereby increasing marginalization. The indigenous *Tharu* community in old Padampur was the last remaining settlement of cultural diversity. The *Tharu* community has more attachment with the forest than other Padampur residents who migrated from the hills (McLean, 2000). Collecting minor forest products such as forest fibers, wild fruits, medicinal plants, and aquatic food sources such as fish and shells from the river were important economic activities for *Tharu* households in old Padampur. A majority of respondents (220 hh) said some groups of people were more affected by the resettlement than others and 31% (98 hh) said there was not. When asked who were such groups and how they were affected?, 63% (203 hh) of respondents said *Tharu*, 42% (135 hh) said *Bote*, and 34% (110 hh) said *Chepang.*

Indigenous residents of new Padampur do not gather the same products from the community forests in the new location due to the size of the forest. Their collections are limited to fuelwood, fodder, and some medicinal plants in the newly established

community forest. The shortage of flowing water in the new location is further aggravating their economic and cultural predicament [27](Table 35)

An ethno-botany survey conducted by the Tiger Rhino Conservation Project (TRCP) identified that the *Tharu Garaus*[28] knew the medicinal value of 200 plant species in the Royal Chitwan National Park (RCNP). Similar to the *Tharu,* the *Bote*[29]*, Darai* and *Kumal* groups of indigenous people were equally dependent on the forest resources. Despite Park restrictions, many indigenous people were dependent on Park resources for their immediate survival (Mueller-Boeker, 1999; Banskota et. al. 1996, Straede, 2000; Straede and Helles, 2000). They used to enter into the Park to gather resources but after their access was restricted, there were always risks of being caught by the Park guards or the Royal Nepal Army.

*Support Services*

Increased support services in the new location were appreciated by the residents because they contributed to improving livelihoods in the new settlement. Based on our findings, people were satisfied with the support of the Government Organizations (GOs), NGOs and INGOs. We found five NGOs actively working in different fields and complementing government efforts to address immediate development needs after resettlement. The King Mahendra Trust for Nature Conservation (KMTNC) through the funding support from GEF, UNF and UNDP was running a Tiger Rhino Conservation Project (TRCP).[30] The Nepal Indigenous Development Society (NIDS) was instrumental

[27] In an informal communication with the local villagers in Padampur, some *Tharus* are still visiting the Park's buffer areas after the resettlement to practice their culture, traveling 18–20 Km to their previous home area.

[28] *Garau* is the Tharu priest and sometimes also called Witch Doctor.
[29] The *Bote, Darai, Kumal, Maji, Mushars* are also regarded as indigenous group in Chitwan.
[30] For updates please visit at: http://www.kmtnc.org.np/prakriti/current/prakriti4.htm This project has been instrumental in providing both biological and socioeconomic support for the area aiming to reduce human pressure and conducting biological research in the Barandhabhar corridor forest which joins lowland and mid hill forest areas of Nepal (KMTNC, 2003).

In addition, the project has been influential in establishing a community based conservation model by enhancing local capacity to ensure long term management of natural resources. Three new community forests with operational plans preparation and a series of capacity building trainings have been provided for the new Padampur villagers. A number of alternative income generating schemes were also introduced to reduce pressure in the forest, for example, distribution of improved stoves (907 hh), bio-gas (185 hh.), mushroom farming (43 hh.), bee keeping (35 hh), livestock farming (15 hh), dairy farming (26 hh) and vegetable farming. All these micro enterprises were introduced with substantial technical training and institutional mechanism to make

in implementing programs mainly designed to help *Tharu* women and support health, sanitation, and literacy education programs in the new location.

New Padampur household respondents were asked to evaluate sustainability of support services provided by the NGOs and INGOs. Nineteen percent (60 hh) were highly optimistic, 73% (236 hh) were optimistic and 7% (22 hh) not optimistic at all (Table 36). Explanations for the optimism included services were more accessible (54%) and more institutionalized (20%). In contrast, people's pessimism was due to the prevailing political situation (6%) in 2005 (Table 37).

*Empowerment of Women*

In the women's focus group, participants said that women's empowerment has increased significantly in the new location. The reduction in land size resulted in reduced labor needs on the farm and in the household for women. More spare time has enabled women to learn new skills and gain more education. Women's skill training programs include bee keeping, mushroom farming, goat rearing, fruit farming, wool spinning and vegetable farming. In one focus group meeting, a participant expressed her feelings about women's empowerment in the new location:

> *"We are so lucky to be here compared to the old location. We acquired more knowledge and insights in our free time in new location. While in the old location we were heavily involved in hard work while men members were enjoying gossiping at tea shop. Now we have developed skill and knowledge on how to generate income. We don't even think water scarcity is a major problem as we are confident this will be solved sooner or later. The opportunities and awareness in the new place really increased our understanding on development and conservation"*

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these efforts sustainable. A special program for gender related literacy (180 hh), establishment of saving and credit group (28 groups), wool spinning training (52 hh) and series of conservation and awareness trainings for women to increase their participation in natural resource management (KMTNC, 2004)

At the community level, financial support was provided to establish a livestock veterinary center and a health post near new Padampur. TRCP helped the local *Tharu* community at Chitwan to establish a *Tharu* cultural museum so that their lifestyle and knowledge could be recognized. The museum was built in a strategic location as a tourist attraction. The revenue generated from this museum will be solely spent on conserving *Tharu* culture by establishing a Tharu Cultural Study Center. In parallel to this, an Indigenous Healing Center was also established to prevent indigenous knowledge from further degradation. (KMTNC, 2004). The WWF – Nepal Program also embarked on launching conservation and development activities in new Padampur for more information visit WWF Nepal's website at http://www.wwfnepal.org/where_we_work/working_community_TAL.php.

Marginalization is difficult to evaluate at this stage of the resettlement. However, it is not difficult to imagine that it will increase if strong support services are not provided by the government and non-governmental institutions for a few years as households make the transition to the new economies and social conditions of the new location.

**5. Food Management**

Food management is a crucial factor after relocation. The evidence of food shortage and insecurity after the resettlement are highlighted in the resettlement discourse.

> *"Forced displacement increases the risk that people will fall into temporary or chronic undernourishment, defined as calorie-protein intake levels below the minimum necessary for normal growth and work" (Cernea, 2000 : 17).*

In the new Padampur, lower production was observed as a result of the decrease in land area for farming and water scarcity. People who used to grow enough food now depend on cash because their existing land is not sufficient to support their food requirements. Padampur residents expressed mixed reactions about their food quality, and strategies for dealing with the food shortage.

Forty-three percent (138 hh) said the children's nutrition was better in the new location and 27% (87 hh) said it was worse. Some said that the available market allowed them to buy food 30% (125 hh) (Table 38), but those who perceived that quality was worse argued that processed food can not be equal to what was produced on their own farm land.

In general, the current land holdings were inadequate for people to produce sufficient food to feed their families. Seventy-four percent of the respondent (237 hh) produced less food from their current land holding due to the reduced size and water scarcity as compared to the old location. Only 26 % (85 hh) did not have food shortages with their current land holdings and of them 2% (6 hh) said they were able to sell surplus food (Table 39 & 40).

In response to the management of a food deficit, 32% (104 hh) were buying from the market, 11% (35 hh) borrowed from the villagers who had surplus food, and 31% (98 hh) said they also buy food from their earnings from labor employment (Table 41). Managing a food deficit may be challenging in the new Padampur, as people shifted from a highly agrarian to cash economy under the prevailing political situation in the area.

Households will need to generate cash to sustain their families. There has been some indication of a shifting economy in animal husbandry, small scale enterprise, and alternative income generating activities. A few households began farming mushrooms, spinning fine wool out of raw wool, selling milk in the milk depot and selling vegetables such as green garlic, onions, ginger and spinach. These household based enterprises[31] indicate a slight economic shift seen in the new location where people produce and sell their products in the nearby market.

**6. Health Facility**

Padampur residents in the old location were struggling with inadequate health facilities. The situation was severe especially in emergencies during the monsoon season. Public infrastructure services and transportation facilities to reach the nearest health post were very poor. “Sick people tend to die while they keep waiting for the river flow to go down. Compared to previous hardships, now people can get any type of health services in the city within half an hour”. (Rukumanda Paudel, informal pers. comm., 2004).

In the new location it is expected that mortality and morbidity will decrease as result of the established health post, which provides immunization services for the children of certain ages. The resettlement project provided improved infrastructure for health facilities and road access to get immediate medical services. In addition to modern

[31] These enterprises were designed for households that can not afford large investments. The initial grant for the kick off the enterprises was provided by TRCP. The mushroom farming for example, is a enterprise that a farmer can grow mushroom within his premises and sell the product in the market. The economic assessment and viability of these enterprise could not be done as these initiatives were recently started.

health services, some *Tharu* people are still practicing their traditional healing methods with the *Gurau.* Research on forced resettlement indicates that there could be increased mortality and deteriorating health conditions.

> *"Massive population displacement threatens to cause serious declines in health levels. Displacement-induced social stress and psychological trauma are sometimes accompanied by the outbreak of relocation-related illnesses, particularly parasitic and vector-born diseases such as malaria and schistosomiasis. Unsafe water supply and improvised sewage systems increase vulnerability to epidemics and chronic diarrhea, dysentery, etc. The weakest segments of the demographic spectrum infants, children, and the elderly are affected most strongly" (Cernea, 2000:18).*

As opposed to the hardships Padampur residents were facing before the move, they were relieved with better health facilities in the new location. Seventy-eight percent respondents (251 hh) said they had better health services in the new location, whereas 16% (51 hh) said they were the same. The villagers' indications of better health facilities included the availability of immediate medical services (91%), quick emergency services (91%) and easy access to child immunization (92%). During our survey, village children were being taken to the health post in new Padampur for immunization (Table 42 & 43). Five percent respondents disagreed and said that the new health facilities were worse because of the high costs and transportation necessary to receive these services.

Households' sanitation level in the new area increased as modern toilets, safer drinking water facilities, compost and rubbish pits were found almost in every household (Table 44). Similarly, health care for women improved in the new location. Ninety-one percent of respondents (294 hh) said they have better pre and post-natal care for women. Only 9% of the respondents (28 hh) said that they did not, citing a lack of proximity, no trained midwives, and no telephone services to contact an ambulance service (Table 45).

*Tharu's Case*

In a cross analysis, we found of the 114 *Tharu* respondent households the majority said there were much better health conditions in the new location. Similarly, 90% (103 hh) were getting immediate medical services, 90% (103 hh) had access to children immunizations, and 87% (101) found easier access to emergency medical help. Ninety percent of *Tharu* people (102 hh) said they were satisfied with the women's health facilities in new Padampur.

*Tharu* people also depend on traditional healers and knowledge to treat several diseases. To preserve and maintain indigenous knowledge and practice, the Tiger Rhino Conservation Project (TRCP) worked with local indigenous healers to establish a Clinic in Bachhauli. The Clinic has been popular and receives six to ten visits per day for various consultations and treatments. Run by a group of indigenous healers, it is registered legally in the Chitwan District Administration Office. Through this local clinic *Tharu* boys are being motivated to learn indigenous medical knowledge.

**7. Common Property Resources**

Out of 1,000 ha. land in the new Padampur, 200 ha. have been used for common property. The Relocation Commission divided the total allocated public land into village roads 45%, government offices, schools, and sites for religious purposes 4%, river and drainage 20%, and community forests 31% (Padampur Relocation Commission, 2004) (Table 46).

These resources were important to the success of the resettlement project. They helped the people from old Padampur maintain the socioeconomic conditions present in their old communities. However researchers argue that, in aftermath of involuntary resettlements these common resources are not compensated adequately:

> *"For poor people, particularly for the landless and asset less, loss of access to the common property assets that belonged to relocated communities (pastures, forested lands, water bodies, burial grounds, quarries, etc.) results in significant deterioration in income and livelihood levels. Typically, losses of common property assets are not compensated by governments. These losses are compounded by loss of access to some public services, such as school (Mathur 1998; Mahapatra 1999a, 1999b), losses that can be grouped within this category of risks" (Cernea,2000:19).*

The physical infrastructure in new Padampur was very useful for the people. Household respondents confirmed that public physical infrastructure in the new location was better. Seventy-three percent (233 hh) said there was very good common physical infrastructure, 23% (74 hh) said it was satisfactory, and 4 % (14 hh) said it was poor. Public physical infrastructure in the old location was perceived by 82% (265 hh) of respondents as being very poor or even non-existent in many cases (Table 47).

Ninety-two percent respondents (295 hh) said they were well compensated for public resources in the new location. Only 6% (18 hh) said they were not compensated due to a lack of funding and land availability. Regarding the government's accountability in the planning and implementation of the physical infrastructure, 90% (289 hh) said they were satisfied. Respondents were also asked whether the built infrastructure was functional and 85% (274 hh) respondents said yes, while 10% (32 hh) said no. They cited carelessness in construction (3%) and lack of adequate maintenance (7%) as being their main reason for this.

In relation to land allocation in the new site for future community use, 70% (227 hh) said there was enough, 20 % said there was not (63 hh), 10% (32 hh) did not know (Table 48). People who believed there was inadequate land for future use is due to the limited budget and a perceived threat to remaining forests. The bad planning of the resettlement commission was also a cause of allocating inadequate land.

In the long term, 83% (268 hh) felt that current land allocation for common use would be inadequate, only 10% (32 hh) said it would be enough. The assessment that there is adequate land in short term but inadequate land in the long run is understandable and

suggests a high degree of environmental awareness. People throughout Nepal have observed rapid population growth and witnessed the consequences in terms of land shortage and habitat degradation. These perceived future problems were not foreseen as an immediate problem in new Padampur, but rather as a national problem of Nepal due to a lack of resources to develop urban economies.

**8. Social Ties**

One of the criticisms of forced resettlement focuses on the disintegration of the social fabric within resettled communities. Top down resettlement conceived by government, development and non-governmental organizations has been documented to have serious social consequences.

> *"Forced displacement tears apart the existing social fabric. It disperses and fragments communities, dismantles patterns of social organization and interpersonal ties; kinship groups become scattered as well. Life-sustaining informal networks of reciprocal help, local voluntary associations, and self-organized mutual service are disrupted. This is a net loss of valuable 'social capital,' that compounds the loss of natural, physical, and human capital. The social capital lost through social disarticulation is typically unperceived and uncompensated by the programs causing it, and this real loss has long-term consequences" (Cernea, 2000:19).*

Furthermore, a resettled community may be politically weaker. The elder's knowledge may disappear and the younger generation that takes the lead can result in deteriorating traditional family values (Cernea & Schmidt-Soltau, 2005).

The Padampur Relocation Commission (PRC) argues that it made every effort to maintain social ties by encouraging people to live together and by allocating land near their former neighbors. However, in our survey 37% (120 hh) had the same neighbors in the new location and 32% (66 hh) said their neighbors were from the same village known each other well. Seven percent, on the other hand said they had new neighbors that they did not know from the same village (Table 49 & 50).

The majority of respondents 69% (223 hh) said that their relationships among neighbors, in the new place were good. However, 4% (13 hh) said it was not easy to

deal with new people, and 23% (75 hh) said the relationships were not like before. They said it required more time to get to know each other in order to maintain a good relationship (Table 51).

It is common for new Padampur residents to be involved in variety of social events. Respondents were engaged in local development activities such as public road (86%) and bridge (82%) construction. Another important social event identified by respondents was sharing good and bad time with neighbors (96%). People believed they engaged in more community events in the new location as compared to the old. Participating in the management of the community forest and the village's drinking water were major social events in the new location. The support services form the NGOs and INGOs helped people engage in more community meetings and a shared awareness about improving their environment and livelihoods.

*Socio-cultural Effects on Tharu*

Unlike other resettlement programs, the Padampur resettlement happened within a similar socio-economic boundary. The village moved approximately 20 km north of the old location. Also the surrounding host communities were not strangers to the newly resettled population. Some social consideration for *Tharu* was evident in planning new Padampur because relatives and clan members were all moved together. Respondents argue that similar to other *Tharu* communities of Nepal, the *Tharu* in Chitwan[32] are more attached to nature than the hill migrants. For example, they need natural resources in their festivals (McLean, 2000; Gurung, 1999). On the memorial day of their ancestors, they require a special grass to decorate the front yard of their house. *Tharu* in old Padampur were within the ecological boundary of the Park and found it easier to maintain their close link with the environment which may be difficult in the new location (McLean, 2000).

[32] In an effort to help preserving local culture, KMTNC and the local *Tharu* people in Sauraha came up with an idea to establish a Tharu Cultural Museum. The purpose of this museum is to preserve and display the remaining *Tharu* Culture in Chitwan. The initial financial resources were provided by TRCP and local *Tharu* group. The Buffer Zone Management Committee contributed land. The museum will serve as for cultural conservation and provide education for younger generation about their cultural values.

**Biodiversity Impacts**

Conservation of biodiversity and human use of forest lands is a complex issue. Often both local people and researchers view biodiversity conservation and meeting local people's resources needs as a conflict situation. For tigers conflict arises because tigers need a larger land base than is available in the existing network of protected areas. Despite an extensive protected area system in the Nepalese lowlands tigers are threatened because the largest protected areas (Chitwan and Bardia national Parks) are too small and isolated to support populations large enough to have long term viability (Smith et. al, 1987; Dinnerstein & Wakramanayake, 1993; Smith et. al. 1998; Ahearn et al., 2001). Lands outside of protected areas which can serve to connect or enlarge protected areas are also important to local people for grazing, fodder and fuel wood gathering. In old Padampur this competition for land between tigers and people created human tiger conflicts. Wild tiger prey was reduced in border areas just inside the park because of illegal grazing and both tigers and their prey had a negative impact on residents of old Padampur. The prey species grazed on local crops and tigers killed livestock.

Padampur resettlement can be seen as both a positive and negative outcome for local people, but clearly a positive result for conservation. After the Padampur resettlement the rhino and tiger population are increasing as evidenced by tracks of both species in the former agricultural lands of old Padampur (Dinnerstein, et, al., 1999). These lands are now a part of the Park and provide habitat for at least three breeding tigers (J. L. David Smith, pers. comm., 2005) and approximately 20 rhinoceros (Dinnerstein, et, al., 1999). The resettlement of Padampur has both increased the land base of Royal Chitwan National Park by adding 1800 ha of prime alluvial habitat to the Park and improved existing park habitat by reducing human use of areas of the Park that were adjacent to old Padampur.

In our survey the majority of respondents agreed that the resettlement program has enhanced biodiversity in the evacuated area. They categorized the biodiversity

improvements as 1) an increased core area of the Park 86% (278 hh), 2) a likely increase in wildlife numbers 76% (244 hh), 3) reduced poaching 40% (128 hh), and 4) reduced human pressure 52% (168 hh)(Table 52).

Household respondents also noted that the resettlement program contributed to biodiversity conservation in the new location by developing community forests 86% (278 hh), adapting alternative energy sources instead of fuel wood 33% (106 hh), and reducing the number of cattle 60% (194 hh) (Table 53).

Because Padampur residents were historically heavily dependent upon natural resources in the old locations, conservation activists anticipated similar forest degradation at the new site. However, predictions of forest degradation did not materialize. Padampur residents realized the potential scarcity of natural resources at the new site and valued the adjacent forest resources. With the initiative of Tiger Rhino Conservation Project (TRCP)[33], three community forests (Figure 3) were established north of the new settlement. As elsewhere in Nepal, these community forests (CF) are managed by a local community forest council in accordance with well developed management prescriptions. People are allowed to periodically collect dead wood for fuel, which is gathered communally and then distributed among all community forest users. Villagers can also visit the forest every day to collect fodder and other minor forest products on a regulated basis. This limited use of the forest established by user group committees was a hardship that was offset by increased community services generated by funds from community forest activities.

[33] TRCP is an integrated conservation and development project funded by GEF, UNF and UNDP. The project is still going on and executed by KMTNC. The aim of this project is to ensure conservation of endangered tiger and rhino in a landscape level by conserving the Barandhabhar Forest Corridor. This corridor joins the RCNP and Valmik Tiger Reserve, India. This whole landscape is known as Vakmik- Parsa-Chitwan Tiger Conservation Unit.

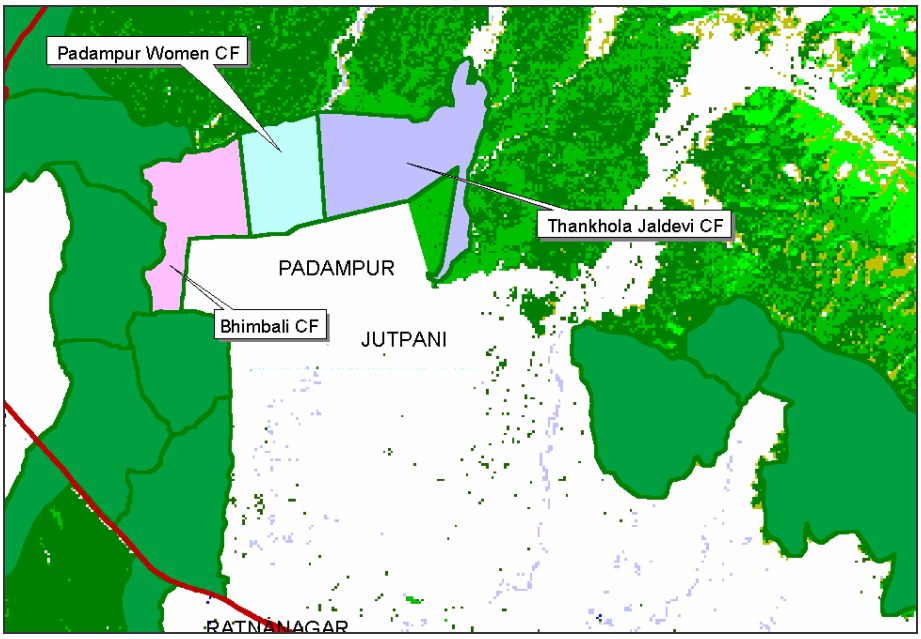


**Figure 3: Three community forests in North from new Padampur**

In contrast to this new management system, at the old location, people tended to enter the Park for diverse time intervals (every day, every week, every two weeks or every month) and for a variety of reasons. Of the 144 respondents who visited the forest daily when living in old Padampur, 74% said they spent 1 to 4 hours, 20% said 5 to 8 hrs., and only 6% said they spent 9 to 12 hrs. in the forest on a daily basis. Their time was spent mostly collecting fodder, fishing and collecting medicinal herbs and minor forest products for their daily needs (Table 54).

**Natural Resources Consumption**

Un-regulated land use and individual households attempting to extract a maximum share of forest resources result in overgrazing by cattle and forest degradation in low lands Nepal (Sharma, 1990). Animal husbandry is considered a major economic activity for rural farmers producing milk, meat, dung cake, and compost fertilizer. John Sidenskiter (1976) indicated that livestock densities were higher near the Park due to the availability of good grazing in the Park. In addition, Jnawali (1994) found that *Tharu* traditionally keep more cattle compared to hill migrants in Chitwan as a means of

converting forest biomass to dung to support their farm based economy (e.g. fertilizers, mud plaster, fuel).

Our survey revealed that in old Padampur respondents kept more local cattle than they currently do and they relied on free grazing the park as the main source of fodder. Livestock numbers measured in Livestock Units (LU)[34] decreased significantly between old and new Padampur. Most importantly free grazing, livestock in old Padampur consisted of approximately 4 LU / hh and was reduced to approximately 0.8 LU/hh. in new site. This suggests cattle numbers may pose less of a threat to the forest area in the new location. The situation is reversed for improved breeds with 0.012 LU of hybrid cattle in old Padampur hh and twenty times that number, 0.24 LU, in new Padampur / hh. Stall feed hybrid livestock are considered better for biodiversity because their fodder includes farm as well as forest biomass. Stall feeding also reduces grazing on regenerating Sal (*Sorea robusta)* seedling. From an economic perspective, people prefer to stall feed hybrid cattle because it increases milk production and has the additional benefit of facilitating biogas production (Dinnerstein, et, al., 1999)

The fuel wood demand from the growing population in and around Chitwan National Park was a major cause of Park / People conflicts in old Padampur (Sharma, 1990). In spite of legal restrictions on fuel wood gathering, Park authorities had to make compromises with the resident allowing some fuel wood collection. However, there was no legal provision for such collection. The majority of respondents (193 hh) said they were self sufficient in fuel wood in the old location but 40% (128 hh) were not (Table 55). In the new location however, only 19% (62 hh) said they were self sufficient in fuel wood (Table 55). The fuel wood deficit in the new location is being partially fulfilled by harvesting stumps that were left behind when the land was cleared for resettlement, collecting dead wood in community forest, and use of alternative energy options, such as bio gas and Liquid Petroleum Gas (LPG). The villagers cautioned that the fuel wood

[34] The conversion factors – Buffalo (1), Cow (0.7), Sheep/Goat (0.1) were adapted from (Bride, 1983; Jahnke, 1982 sited by Saetre, 1994 then cited by Regmi, 1998).

problem could become severe and may threaten the adjacent forests if alternative energy options are not further developed to offset the declining supplies of tree stumps.

People in old Padampur were also reliant on the Park for timber for building homes, 86% (277 hh) (Table 56).

In the new area most residents experienced a reduction in the use of forest products compared to the old location (Table 57). Households responded to reduce forest resources by reducing livestock numbers, and using modern construction materials (iron, concrete, bricks). Overall, Padampur residents have begun to use markets as a means of fulfilling household needs, thereby decreasing their reliance on materials from local forests.

**Value of Wildlife**

Human / wildlife conflicts in the old location were primarily crop and livestock depredation. During the rice harvesting season approximately 43% of the rhino diet was fulfilled by villager's crops (Jnawali, 1986). In one study a few villagers nearest to the park reported that in some years 80 to 90% of all their crops were lost due to grazing by wild animals. As a result, farmers responded by abandoning farming near the park boundary (Milton and Binney, 1980). In our survey for the old location, respondents reported experiencing crop depredation, livestock depredation, and human injury or death by tigers or rhinos (Table 58). Despite various problems associated with wildlife, people of old Padampur valued wild animals as a resource for attracting tourists, 66% (214 hh) (Table 59). Income from tourism was shared with local villagers through the Buffer Zone Act which stipulated that 30 - 50% of Park revenue be distributed to buffer zone villagers[35].

[35] However, as soon as they resettled in the new location they did not get buffer zone revenue because of Buffer Zone legal definition. According to the buffer zone regulations the villages those join their village boundary with the park are defined as the buffer zone village. (Narayan Poudel, Deputy DG Department of National Parks and Wildlife Conservation)

After arriving in the new location people still positively value wildlife. The new Padampur respondents said it was good to see wildlife. They also appreciated having healthier ecosystems with increased ecological services such as watershed management and larger wildlife populations, which they felt was a national asset and a source of revenue (Table 60). Compare to the old location, the respondents said the negative aspects of wildlife in the new area were negligible. Only 17% (56 hh) referred to crop depredation problem, and 9% (28 hh) reported livestock depredation, and 1.6% (5 hh) said human injury and death were a major problem.

**Threats to Connectivity & Corridor**

One of the expected threats of the Padampur resettlement on existing biodiversity was the potential impacts on the role of the Barandhabar Forest Corridor (BCF) as a link between mountain and *Terai* ecosystems. The new Padampur site is adjacent to the eastern portion of BCF. During the focus group discussions, residents mentioned that there had to be urgent actions by appropriate agencies to stop illegal forest harvesting in the mountain area. In our survey, respondent perception of the BCF was that it provided environmental services (84%) and served as a source of fuel wood, fodder, and timber (30%).

Compared to local natural resource consumption in the old location, the people's activities were more organized in the new location; they only entered the forest at specified times as and as a registered member of the community forest user. Respondents predicted that some potential impacts of the resettlement project on the Barandhabar Forest Corridor could be increased human pressure 65% (209 hh), air pollution 17% (55 hh), increased road traffic[36] 22% (68 hh) and a decreased width of the corridor 55% (177 hh) (Table 61).

[36] A road that passes through the corridor is a popular assess road and has had more traffic since the resettlement.

## Conclusion

Although many studies have pointed out adverse implications of forced resettlement and displacements in socioeconomic wellbeing, our research demonstrates that a citizen initiated resettlement program brings mixed results with many positive outcomes (Table 62 and 63). There were positive evaluations of equity in land size and security. The land was distributed favorably to smaller landholders, who received an equal amount of land and landless households were provided land and title to support their livelihoods.

Overall, social ties among the Padampur residents did not disintegrate after resettlement. More needs to be done, however to support employment shifts towards an off-farm based economy. In addition, marginalization was not an issue due to increased support services and women's empowerment. The risk of morbidity and mortality often attributed to resettlement did not occur because at the new site there were increased access to local health services and to hospitals in the near by city. As a whole, resettlement design and implementation was satisfactory with the exception of water resource planning.

As Cernea (2000) pointed out, collaborative resettlement planning between planners and resettlees is important for risk reversal. Maintaining transparent communication and sharing information is also critical for resettlees to effectively participate in the planning. One of the positive aspects of the Padampur resettlement was the extensive involvement of resettlees from the beginning of the planning. Our data suggests that citizen participation in the resettlement planning resulted in increased probability of socio-economic wellbeing as compared to forced resettlement and displacements.

Despite several positive outcomes, there were also problems that need to be addressed. We found food production in the new Padampur was reduced compared to the old location primarily due to water shortages. For example, in the old location every household produced rice for up to two seasons. In the new location, due to water

shortages, some households were limited to one crop of rice or only maize. In addition, the resettlement program was not favorable for *Tharu* people who had lived in Padampur for more than 200 years. One of the earlier critiques of Padampur resettlement was degradation of traditional knowledge within the *Tharu* community in the resettlement design (Mclean, 2000; McLean & Stræde, 2003). We found there was concern among the *Tharu* and other residents that there would be loss of intrinsic biodiversity value and nature based knowledge among the *Tharu.* Nevertheless, *Tharu* people should not be looked at through only an indigenous lens as their livelihood was not entirely dependent on forest resources such as some indigenous communities living in African rain forests (Röschenthaler, 2000; Schimidt-Soltau, 2003). Many *Tharu* are fully engaged in the market economy, often as some of the largest land owners.

Another drawback of Padampur resettlement was the lengthy planning and implementation process. The delay was due to frequent change in the government and conflicts among political forces. The lack of water is another considerable factor in resettlement design as it may intensify social and economic risks if this issue is not addressed in a timely manner. In the post resettlement development, the involvement of NGOs and INGOs has been critical in Nepal due to inadequate financial resources to embrace different aspects of the resettlement. The current political turmoil has also impeded smooth economic development after the resettlement.

Cernea & Schimidt-Soaltau (2005) have discussed African conservation and forced resettlements scenarios as being biased towards conservation at the cost of livelihood for millions of poor indigenous people. Their arguments are primarily that the conservation benefit is not shared among stakeholders and the costs are not shared as well. Nepal's situation differs from the African context. Increased people-centered conservation efforts from both government and non-government sectors, such as revenue sharing mechanisms, helped distribute the benefits and change local people's attitude towards conservation. (Lehmkul, et. al., 1988; Heinen and Kattel,1992; Heinen and Yonzon, 1994; Heinen & Mehta, 2000; Mehta & Heinen, 2001). In terms of biodiversity conservation, people's evaluation of the Padampur resettlement was that it

was positive for conservation. The resettlement program helped support biodiversity conservation in the old as well as new location by restoring a natural ecosystem, reducing human-induced pressure, and increasing the understanding of conservation practices in the new Padampur. A related observation is that residents of other enclaves within lowland biodiversity landscapes asked to initiate a dialogue about their resettlement to a safer place. This change in attitude of the enclave residents, after the Padampur resettlement, provides a new avenue for landscape scale conservation dealing with Park/People issues. However, extra effort is necessary to support the livelihoods of the poorest of the poor who are more dependent on the forest resources than other community members.

Finally, the majority of earlier forced resettlement and displacement studies were based on qualitative data and participant observations, which may be due to methodological differences of professional disciplines. Our study is based on representative, quantitative data in new Padampur. In addition, qualitative data were gathered from the three focused groups in order to assess the overall evaluation of the resettlement and planning process. The findings represent what a broad range of the people involved think about the project. Since the study was done just one year after completion of the resettlement program, our findings provides an empirical baseline for assessing the impacts of the resettlement over time.

We suggest that future scientific studies should focus on periodic monitoring of the livelihood patterns after resettlement. We raise this issue because the sociopolitical problems of a particular country and a region may instigate poverty and job loss and reduce market potential overshadowing resettlement. Another reason for future studies is to detect unanticipated negative consequences of resettlement and address them in a timely manner. Formal biological monitoring of wildlife species is also essential in evaluating the actual impacts of resettlement on biodiversity over time.

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# Tables

## Socio-demographic Characteristics

**Table 1: Total and sample population and gender categories of Padampur Village Development Committee (VDC)**

| Ward No. | Total Population | | | | | Sample Population | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total hh. | Ma | Fe | Total | % | Total hh. | Ma | Fe | Total | % |
| 1 | 269 | 634 | 643 | 1277 | 12 | 39 | 170 | 149 | 319 | 15 |
| 2 | 226 | 722 | 790 | 1512 | 14 | 37 | 129 | 118 | 247 | 12 |
| 3 | 176 | 547 | 540 | 1087 | 10 | 29 | 84 | 79 | 163 | 8 |
| 4 | 142 | 408 | 399 | 807 | 7 | 30 | 103 | 106 | 209 | 10 |
| 5 | 202 | 536 | 526 | 1062 | 10 | 40 | 130 | 103 | 233 | 10 |
| 6 | 278 | 752 | 727 | 1479 | 13 | 44 | 142 | 153 | 295 | 14 |
| 7 | 145 | 418 | 426 | 844 | 8 | 20 | 58 | 61 | 119 | 40 |
| 8 | 325 | 744 | 750 | 1494 | 13 | 49 | 160 | 154 | 314 | 15 |
| 9 | 271 | 782 | 693 | 1475 | 13 | 34 | 105 | 127 | 232 | 11 |
| **Total** | **2,034** | **5,543** | **5,494** | **11,037** | **100** | 322 | **1081** | **1050** | **2131** | **100** |

**Population data source: District Development Committee, Chitwan2002**

**Table 2: Caste and ethnicity of respondent households and total population in Padampur Village Development Committee (VDC)**

| Caste | Sample | % | VDC Total | % |
|---|---|---|---|---|
| *Tharu* | 114 | 35 | 889 | 44 |
| *Brahmin* | 90 | 28 | 444 | 22 |
| *Chhetri* | 28 | 9 | 161 | 8 |
| *Chepang* | 7 | 2 | 32 | 1 |
| *Bote* | 13 | 4 | 60 | 3 |
| Others* | 70 | 22 | 448 | 22 |
| Total | 322 | 100 | 2034 | 100 |

***Tamang, gurung, darai, newar, dharti, damai, Kami, Rai/Magar, Giri/Puri, Kumal & Sarki***

**Table 3: Age categories of members in sampled households**

| Age | n | % |
|---|---|---|
| 0 -15 | 710 | 33 |
| 16 - 59 | 1255 | 59 |
| 60 -100 | 164 | 8 |
| **Total** | **2131** | **100** |

**Table 4: Religious belief of respondent households**

| Type | n | % |
|---|---|---|
| Hindu | 283 | 88 |
| Buddhist | 32 | 10 |
| Christian | 3 | 1 |
| Others | 3 | 1 |
| **Total** | **322** | **100** |

**Table 5: Primary languages spoken in the respondent household.**

| Type | n | % |
|---|---|---|
| Tharu | 115 | 36 |
| Nepali | 159 | 49 |
| Tamang | 19 | 6 |
| Gurung | 8 | 3 |
| Others | 20 | 6 |
| Total | 322 | 100 |

**Table 6: Respondent household members' education levels**

| Levels | Freq. | % | Valid % |
|---|---|---|---|
| Uneducated | 567 | 27 | 27 |
| Literate | 219 | 10 | 10 |
| Primary | 461 | 22 | 22 |
| Secondary | 629 | 29 | 30 |
| Higher Secondary | 114 | 5 | 5 |
| Bachellors | 37 | 2 | 2 |
| Masters | 6 | .3 | .3 |
| Others | 35 | 2 | 2 |
| **Total** | **2068** | **97** | **100** |
| **Missing** | **63** | **3** | |
| **Total** | **2131** | **100** | |

**Table 7: Respondent household members' primary occupations**

| Occupation | Freq. | % |
|---|---|---|
| Agriculture | 518 | 24 |
| Professional service | 173 | 8 |
| House Wife | 366 | 17 |
| Student | 617 | 29 |
| Business | 23 | 1 |
| Unemployed | 34 | 2 |
| Others | 258 | 12 |
| **Total** | **1989** | **93** |
| **Missing System** | **142** | **7** |
| **Total** | **2131** | **100** |

**Table 8: Respondent's origins**

Are you indigenous to Chitwan?

| | Freq. | % |
|---|---|---|
| Yes | 131 | 41 |
| No | 191 | 59 |
| **Total** | **322** | **100** |

**Table 9: Respondent's origin: location**

If No, where was your original settlement?

| Response | Freq. | % |
|---|---|---|
| NA | 132 | 41 |
| Himali | 1 | 0 |
| Pahadi | 189 | 59 |
| **Total** | 322 | 100.0 |

**Table 10: Respondent's reason for migrating to Chitwan**

Why did you come to Chitwan?

| Response | n | % |
|---|---|---|
| NA | 121 | 38 |
| Agriculture | 163 | 51 |
| With Relatives | 11 | 3 |
| Marriage | 6 | 2 |
| Job | 3 | 1 |
| Others | 18 | 6 |
| **Total** | **322** | **100** |

**Table 11: Respondent's willingness to leave old Padampur**

Did you agree to leave?

| Response | n | % |
|---|---|---|
| Yes | 259 | 80 |
| No | 63 | 20 |
| **Total** | **322** | **100** |

**Table 12a: Respondent's reasons for leaving old Padampur**

| Reasons | n | % |
|---|---|---|
| Wildlife depredation | 31 | 12 |
| Threat from flood | 156 | 60 |
| Lack of transportation facilities | 21 | 8 |
| Lack of health facilities | 37 | 14 |
| No development activities | 8 | 3 |
| Threat of being alone | 6 | 2 |
| **Total** | **256** | **100** |

**Table 12b: Respondent's reasons for not agreeing to leave old Padampur**

| Reasons | n | % |
|---|---|---|
| Availability of fodder and fuel wood | 1 | 1 |
| Traditional place | 19 | 30 |
| Clean Environment | 3 | 5 |
| Better production | 25 | 40 |
| Easily available forest products | 4 | 6 |
| Personal reason | 2 | 4 |
| Others | 9 | 14 |
| **Total** | **63** | **100** |

**Table 13: Respondent's overall evaluation of the resettlement program**

Overall, are you satisfied with this resettlement program?

| Response | n | % |
|---|---|---|
| **Yes** | 260 | 81 |
| **No** | 62 | 19 |
| **Total** | **322** | **100** |

## 1. Land Tenure

**Table 14: Land holding categories of households in old and new locations**

| Range | How much land did you own in the old place? | | How much land do you own now in the new location? | |
|---|---|---|---|---|
| | n | % | n | % |
| 0 kattha* | 42 | 13 | 2 | 1 |
| 0.1-20 kattha | 159 | 49 | 227 | 70 |
| 21-40 kattha | 67 | 21 | 86 | 27 |
| 41-60 kattha | 32 | 10 | 2 | 1 |
| 61-80 kattha | 10 | 3 | 1 | 0 |
| 81-100 kattha | 4 | 1 | 1 | 0 |
| >100 kattha | 8 | 3 | 1 | 0 |
| **Total** | **322** | **100** | **320**** | **100** |

***1 Kattha = 3,645 Sq. Ft.  ** 2 missing system**

**Table 15: Respondent households' average land holding**

| | Land holding in Old Padampur *Unit Kattha* | Landholding in New Padampur *Unit Kattha* |
|---|---|---|
| **n** | 322 | 322 |
| **Mean** | 23.5 | 14.8 |
| **Sum** | 7577.7 | 4764.1 |

**Table 16: Respondents' ownership of land title in old and new locations**

| Response | Did you have land title in the old location? | | Do you have land title now? | |
|---|---|---|---|---|
| | n | % | n | % |
| Yes | 212 | 66 | 272 | 85 |
| No | 107 | 33 | 47 | 14 |
| Don't know | 3 | 1 | 3 | 1 |
| **Total** | **322** | **100** | **322** | **100** |

**Table 17: Respondents' receipt of monetary compensation**

Have you received monetary compensation?

| Response | n | % |
|---|---|---|
| Na | 210 | 65 |
| Yes | 96 | 30 |
| No Response | 16 | 5 |
| **Total** | **322** | **100** |

**Table 18: Respondents' evaluation of monetary compensation**

Do you believe compensation was….?

| Response | n | % |
|---|---|---|
| Fair | 76 | 24 |
| Unfair | 135 | 42 |
| Don't know | 1 | .3 |
| NA | 110 | 34 |
| **Total** | **322** | **100** |

**Table 19: Respondents' comparisons of land quality in old and new location**

How do you rate quality of land in the new location as compare to the old location?

| Response | n | % |
|---|---|---|
| Better | 74 | 23 |
| Same | 22 | 7 |
| Worse | 226 | 70 |
| **Total** | 322 | 100 |

**Table 20: Respondents' overall evaluation of land distribution mechanism**

What is your opinion about the overall distribution of land among households in Padampur?

| Response | n | % |
|---|---|---|
| Fair | 159 | 49 |
| Biased | 156 | 48 |
| Don't know | 7 | 2 |
| **Total** | **322** | **100** |

**Table 21: Respondents' reasons for biased land distribution**

| Reasons | n | % |
|---|---|---|
| Better land for relatives | 103 | 32 |
| Lesser land | 34 | 10 |
| Land without irrigation | 17 | 5 |
| Other | 45 | 14 |

**Table 22: Ownership of land title among Tharu respondents**

| | Did you have land title in the old location? (A) | | Do you have land title now? (B) | |
|---|---|---|---|---|
| **Response** | **n** | **%** | **n** | **%** |
| Yes | 83 | 73 | 102 | 90 |
| No | 31 | 27 | 12 | 10 |
| Don't know | 0 | 0 | 3 | 1 |
| **Total** | **114** | **100** | **114** | **100** |

## 2. Employment

**Table 23: Respondents' evaluation of their economic status in old and new location**

How do you compare your economic status in the new place as compared to the old place?

| Response | n | % |
|---|---|---|
| Better | 90 | 28 |
| Same | 78 | 24 |
| Worse | 154 | 48 |
| **Total** | 322 | 100 |

**Table 24: Respondents' evaluation of changing job**

Are their any changes in your job since coming to the new location?

| Response | n | % |
|---|---|---|
| Yes | 198 | 61 |
| No | 119 | 37 |
| Don't know | 5 | 2 |
| **Total** | **322** | **100** |

**Table 25: Respondents' reason for change in employment**

| Reasons | n | % |
|---|---|---|
| Closer to Market | 135 | 42 |
| More mobile | 145 | 45 |
| Transportation & Road network | 221 | 69 |
| Easier to find work | 48 | 15 |
| Others | 26 | 8 |

**Table 26: Respondents' comparison of employment opportunities**

How do you compare your satisfaction with the employment opportunities in the new location vs. old location?

| Response | n | % | Cum. % |
|---|---|---|---|
| Satisfied | 180 | 56 | 56 |
| Indifference | 81 | 25 | 81 |
| Not Satisfied | 58 | 18 | 99 |
| Don't know | 3 | 1 | 100 |
| **Total** | **322** | **100** | |

**Table 27: Respondents' reasons for satisfaction and dissatisfaction**

| | Available | % | Not Available | % | NA | % |
|---|---|---|---|---|---|---|
| Outside work | 101 | 31 | 65 | 31 | 156 | 48 |
| Skill Learning | 104 | 32 | 14 | 4 | 204 | 64 |
| Opportunities Access to Job | 61 | 19 | 6 | 2 | 255 | 79 |
| Advertisement Others | 26 | 8 | 0 | 0 | 296 | 92 |

**Table 28: Comparative cultivated land, production, and market value for respondent households**

| Types of Crops | Old Location | | | New Location | | |
|---|---|---|---|---|---|---|
| | Cultivated Area in *Bigha** | Amount Produced in Quintel | Market Value in NRs '000 | Cultivated Area in *Bigha* | Amount Produced in Quintel | Market Value in NRs '000** |
| Rice | 109 | 9171 | 6641 | 58 | 981 | 659 |
| Maize | 50 | 829 | 455 | 113 | 2521 | 2412 |
| Mustard | 49 | 893 | 534 | 108 | 2613 | 1861 |
| Wheat | 60 | 927 | 559 | 6 | 140 | 17 |
| Lentil | 25 | 490 | 513 | 70 | 1576 | 743 |
| Vegetables | 7 | 224 | 150 | 76 | 78 | 16 |
| Total | **300** | **12534** | **8852** | **431** | **7909** | **5708** |

*** 1 biga (20 kattha) = 1.67 acre** **** 1 US $ = 70.00 NRs.**

**Table 29: Respondents' household yearly income from off-farm job**

| Person Involved in job | Old Padampur (n=2131) | New Padampur (n=2131) |
|---|---|---|
| Father | 47 | 64 |
| Mother | 2 | 2 |
| Son | 35 | 119 |
| Others | 3 | 8 |
| **Total** | 87 | 193 |
| **Total Earning in NRs.** | **9330000** | **3148600** |

**Table 30: Respondents' involvement in small scale industries**

Have you operated any small scale enterprise?

| Response | n | % |
|---|---|---|
| Yes | 23 | 9 |
| No | 236 | 91 |
| Total | 259 | 100 |
| Missing | 63 | |
| **Total** | **322** | **100** |

## 3. Housing

**Table 31: Respondents' compassion of housing in old vs. new location**

How is your house construction? in the new location, compared to the old location?

| Response | n | % |
|---|---|---|
| Better | 213 | 66 |
| Same | 101 | 31 |
| worse | 8 | 3 |
| **Total** | **322** | **100** |

**Table 32: Respondents' comparative evaluation of housing structures, building materials, water, and energy sources in old vs. new location**

How do you compare the structure and materials for your house in the new place compared to the old place?

| Response | Roof | | Wall | | No. of Rooms | | Electricity | | Drinking Water | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| Better | 222 | 72 | 164 | 51 | 132 | 41 | 183 | 57 | 118 | 37 |
| Same | 87 | 27 | 145 | 45 | 172 | 53 | 62 | 19 | 34 | 11 |
| worse | 3 | .9 | 5 | 2 | 7 | 3 | 59 | 18 | 148 | 46 |
| No Response | 0 | 0 | 8 | 2 | 11 | 3 | 18 | 6 | 22 | 7 |
| **Total** | **322** | **100** | **322** | **100** | **322** | **100** | **322** | **100** | **322** | **100** |

**Table 33: Respondents' comparison of their physical wealth in old vs. new**

| Physical Wealth | Old Padampur | | New Padampur | |
|---|---|---|---|---|
| | n | % | n | % |
| Bicycle | 241 | 75 | 284 | 88 |
| Radio | 236 | 73 | 258 | 80 |
| TV | 17 | 5 | 109 | 34 |
| Rice Cooker | 2 | 1 | 12 | 4 |
| Pressure cooker | 40 | 12 | 69 | 21 |
| Bio-Gas | 1 | 0 | 24 | 8 |
| LPG Gas | 2 | 1 | 25 | 8 |
| Tractor | 8 | 3 | 14 | 4 |
| Motorcycle | 5 | 2 | 13 | 4 |
| Bullock Cart | 100 | 31 | 9 | 3 |
| VCR and CD Player | 13 | 4 | 37 | 12 |
| Buses | 0 | 0 | 2 | 1 |

## 4. Marginalization

**Table 34: Respondents' evaluation of differential impacts on particular groups of people**

Is there any group of people more affected than others?

| Response | n=322 | % |
|---|---|---|
| Yes | 220 | 69 |
| No | 98 | 31 |
| **Total** | **318** | **100** |

**Table 35: Respondents' evaluation of affected people**

If yes, who are they and how do they affected?

| Effected Group | n=322 | % | Water Shortage | Short of forest products | Others |
|---|---|---|---|---|---|
| Tharu | 203 | 63 | 191 | 11 | 1 |
| Bote | 135 | 42 | 133 | 2 | 0 |
| Mushar | 7 | 2 | 4 | 3 | 0 |
| Chepang | 110 | 34 | 106 | 2 | 2 |

**Table 36: Respondents' opinions of sustainability of support services**

How optimistic are you that these support services will remains for a long period of time?

| Response | n | % |
|---|---|---|
| Highly optimistic | 60 | 19 |
| Optimistic | 236 | 73 |
| Not optimistic at all | 22 | 7 |
| Don't know | 4 | 1 |
| **Total** | **322** | **100** |

**Table 37: Respondents' reasons for optimism and pessimism**

| Response | n=322 | % |
|---|---|---|
| Sustainable Programs | 63 | 20 |
| More Accessible | 175 | 54 |
| Political Un-certainty | 20 | 6 |

## 5. Food Management

**Table 38: Respondents' comparison of child nutrition in new vs. old location**

How do you compare your children's nutrition in the new place than to the old place?

| Response | n | % |
|---|---|---|
| Better | 138 | 43 |
| Same | 97 | 30 |
| Worse | 87 | 27 |
| **Total** | 322 | 100 |

**Table 39: Respondents' evaluation of land allocation for adequate food production**

Does the current land allocation allowed you to produce enough food to feed your entire family?

| Response | n | % |
|---|---|---|
| Yes | 85 | 26 |
| No | 237 | 74 |
| **Total** | 322 | 100 |

**Table 40: Respondents' ability to sell surplus production**

If yes, do you sale surplus food?

| Response | Do you sell surplus food? | |
|---|---|---|
| | n | % |
| Yes | 6 | 2 |
| No | 79 | 98 |
| Don't know | 0 | 0 |
| **Total** | **85** | **100** |

**Table 41: Respondents' reasons for fulfilling food deficit**

How do you fulfill your food deficit?

| Response | n | % |
|---|---|---|
| Buy | 104 | 32 |
| Borrowed | 35 | 11 |
| Others | 98 | 31 |
| NA | 85 | 26 |
| Total | 322 | 100 |

## 6. Health Facilities

**Table 42: Respondents' comparison of the health situation in old vs. new location**

How do you compare the condition of the health for children and elderly in the old and new location?

| Response | n | % |
|---|---|---|
| Much better | 251 | 78 |
| Same | 51 | 16 |
| worse | 16 | 5 |
| Don't Know | 4 | 1 |
| **Total** | **322** | **100** |

**Table 43: Respondents' evaluation of range of health services in new location**

| Response | Immediate medical services | | Quick emergency services | | Access to children immunization | |
|---|---|---|---|---|---|---|
| | n | % | n | % | n | % |
| Yes | 293 | 91 | 294 | 91 | 298 | 92 |
| No | 26 | 8 | 28 | 9 | 22 | 7 |
| Don't know | 3 | 1 | 0 | 0 | 2 | 1 |
| **Total** | **322** | **100** | **322** | **100** | **322** | **100** |

**Table 44: Respondents' assessment of availability of sanitation facilities in new location**

| Facilities | n=322 | % |
|---|---|---|
| Temporary toilet | 103 | 34 |
| Permanent toilet | 87 | 28 |
| Tap water | 47 | 15 |
| Tube well | 8 | 3 |
| Roar pump | 2 | 1 |
| Rubbish pit | 22 | 7 |
| Compost pit | 34 | 11 |
| Others | 4 | 1 |
| **Total** | **307** | **100** |

**Table 45: Respondents' evaluation of women related health services**

Do you find it easy to get services particularly for women for their pre and post natal care?

| Response | n | % |
|---|---|---|
| Yes | 294 | 91 |
| No | 28 | 9 |
| **Total** | **322** | **100** |

## 7. Common Property Resources

**Table 46: Area of land allocation for common properties in new Padampur**

| Common Property | *Bigha* | Acre | % |
|---|---|---|---|
| Village Roads | 134 | 224 | 45 |
| Government offices, schools and religious sites | 11 | 18 | 4 |
| Rivers and Drainage | 59 | 99 | 20 |
| Community Forest | 96 | 160 | 31 |
| Total | 300 | 501 | 100 |

**Table 47: Respondents' comparison of physical infrastructures in old vs. new location**

What is your general evaluation of the infrastructure in the old and the new location?

| Response | Physical infrastructure in the new place | | Physical infrastructure in the old place | |
|---|---|---|---|---|
| | n | % | n | % |
| Very Good | 233 | 73 | 16 | 5 |
| Satisfactory | 75 | 23 | 41 | 13 |
| Poor | 14 | 4 | 265 | 82 |
| **Total** | **322** | **100** | **322** | **100** |

**Table 48: Respondents' evaluation of compensation, planning, operation and sustainability of physical infrastructure in new Padampur**

| Response | Were All PP Compensated? | | Are you satisfied with the local inf. Planning? | | Are All inf. are in operation? | | Is there enough land set aside for future use? | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| Yes | 295 | 92 | 289 | 90 | 274 | 85 | 227 | 70 |
| No | 18 | 6 | 29 | 9 | 31 | 10 | 63 | 20 |
| don't know | 9 | 2 | 4 | 1 | 16 | 5 | 32 | 10 |
| **Total** | **322** | **100** | **322** | **100** | **322** | **100** | **322** | **100** |

## 8. Social Ties

**Table 49: Respondents' view of neighbours in the new Padampur**

Do you have the Same Neighbors that you had in the past location?

| Response | n | % |
|---|---|---|
| Yes | 120 | 37 |
| No | 202 | 63 |
| **Total** | **322** | **100** |

**Table 50: Respondents' opinion of characteristics of neighbors in the new Padampur**

If no, who are your neighbors now?

| Response | n=202 | % |
|---|---|---|
| From own village but not familiar | 14 | 7 |
| Very much familiar with each other | 66 | 32 |
| From the same village but only hi hello | 100 | 49 |
| Others | 27 | 13 |

**Table 51: Respondents' evaluation of social relations among new neighbors**

How do you feel about the social relations in the new location?

| Response | n | % |
|---|---|---|
| Very Good | 223 | 69 |
| Not easy | 13 | 4 |
| Not similar to the old location | 75 | 23 |
| Other | 9 | 3 |
| **Total** | **320** | **100** |

## Biodiversity Impacts

**Table 52: Respondents' evaluation of impacts of resettlement on biodiversity in the old location**

How do you feel this relocation program affected biodiversity conservation in the old site?

| Response | n = 322 | % |
|---|---|---|
| Increase in park area | 278 | 86 |
| Increase in wildlife number | 244 | 76 |
| Help control poaching | 128 | 40 |
| Reduced human pressure | 168 | 52 |
| Others | 21 | 7 |

**Table 53: Respondents' evaluation of impacts of resettlement on biodiversity in the new location**

How do you feel this relocation program affected biodiversity conservation in the new site?

| Response | n = 322 | Percent |
|---|---|---|
| Community forest management | 277 | 86 |
| Alternative energy sources | 106 | 33 |
| Reduced number of free grazing cattle | 194 | 60 |
| Others | 8 | 3 |

**Table 54: Respondents' purpose for visits and duration of time spent in the Park while they were in the old location**

How often would you or member of your family visit the forest in the old location? and for how long, and for what purpose?

| No. of Respondent visiting park | % | | |
|---|---|---|---|
| | 1 – 4 hrs. | 5 – 8 hrs. | 9 – 12 hrs. |
| Per Day (n =144) | 74 | 20 | 6 |
| Per Week (n = 116) | 89 | 10 | 2 |
| Per two Week (n = 33) | 82 | 12 | 6 |
| Per month (n = 24) | 92 | 8 | 0 |

**Table 55: Respondents' evaluation of sufficiency of fuel wood in old location vs. new location**

Were you self sufficient for your fuel wood in the old location? Are you sufficient in fuel wood now?

| Response | New location | | Old location | |
|---|---|---|---|---|
| | n | % | n | % |
| Yes | 62 | 19 | 194 | 60 |
| No | 260 | 81 | 128 | 40 |
| Total | **322** | **100** | **322** | **100** |

**Table 56. Respondents' sources of timber in the old location**

How did you get timber in old location?

| Response | n | % |
|---|---|---|
| From neighbor | 4 | 1 |
| From forest | 277 | 86 |
| From market | 5 | 2 |
| Others | 29 | 9 |
| Don't know | 7 | 2 |
| **Total** | **322** | **100** |

**Table 57: Respondents' comparison of consumption of forest products in old location vs. new location**

In general, has your consumption of the following items increase or decreased or stayed the same from the old location to the new location?

| Response | Fuel wood | | Fodder | | Construction Materials | | Medicinal Plants | | Forest Fiber | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % | n | % |
| Increased | 7 | 2 | 9 | 3 | 65 | 20 | 9 | 3 | 9 | 3 |
| Decreased | 270 | 84 | 284 | 88 | 222 | 69 | 249 | 77 | 258 | 80 |
| Same | 41 | 13 | 23 | 7 | 23 | 7 | 21 | 7 | 11 | 3 |
| Total | 318 | 99 | 316 | 98 | 310 | 96 | 279 | 87 | 278 | 86 |
| Missing System | 4 | 1 | 6 | 2 | 12 | 4 | 43 | 13 | 44 | 14 |
| **Total** | **322** | **100** | **322** | **100** | **322** | **100** | **322** | **100** | **322** | **100** |

**Table 58: Respondents' evaluation of negative aspects of wildlife in the old location**

What are the negative aspects of wildlife in the old location?

| Response | Crop depredation | | Livestock depredation | | Human Injury and kill | |
|---|---|---|---|---|---|---|
| | n =322 | % | n = 322 | % | n = 322 | % |
| | 314 | 97 | 232 | 72 | 253 | 79 |

**Table 59: Respondents' evaluation of positive aspects of wildlife in the old location**

What are the Positive aspects of wildlife in the old location?

| Response | Ecotourism | | Revenue Sharing | | Others | |
|---|---|---|---|---|---|---|
| | n =322 | % | n =322 | % | n =322 | % |
| Positive | 214 | 66 | 145 | 45 | 25 | 8 |

**Table 60: Respondents' evaluation of positive aspects of wildlife in the new location**

What are the Positive aspects of wildlife in the new location?

| Response | Good to see | | Better ecosystem | | National wealth | | Ecotourism | |
|---|---|---|---|---|---|---|---|---|
| | n =322 | % | n =322 | % | n =322 | % | n =322 | % |
| Positive | 267 | 83 | 185 | 57 | 202 | 63 | 116 | 36 |

**Table 61: Respondents' perception of effects of resettlement in the Barandhabar Forest Corridor**

How the resettlement project affect the forest corridor?

| Responses | n=322 | % |
|---|---|---|
| Increased human pressure | 209 | 65 |
| Increased livestock pressure | 53 | 17 |
| Increased transportation | 68 | 22 |
| Increased pollution | 55 | 17 |
| Decreased in width of corridor | 177 | 55 |

## Summary Tables

**Table 62: Summary of respondents' evaluation of well being characteristics in new Padampur: Yes / no indicators questions.**

| Wellbeing Characteristics Questions | Yes / No indicators | | |
|---|---|---|---|
| **Land Tenure:** | **YES** | **NO** | **DK** |
| Did you have land title in the old location? (n=322) | 66% (212) | 33% (107) | 1% (3) |
| Do you have land title now? (n=322) | 85% (272) | 14% (47) | 1% (3) |
| Did you receive financial compensation of your land? (n=112) | 86% (96) | 0 | 14%(16) |
| **Employment:** | | | |
| Are there any changes in your job since coming to the new location? (n=322) | 61% (198) | 37% (119) | 2% (5) |
| Are you operating any Small Scale Enterprise? (n=259) | 9% (23) | 91% (236) | 0 |
| **Marginalization:** | | | |
| Do you think there are any groups of people who are more affected by the re-location program than others? n=(318) | 69% (220) | 31% (98) | 0 |
| **Food Management:** | | | |
| Does the current land allocation allow you to produce enough food to feed your entire family? n=(322) | 26% (85) | 74% (237) | 0 |
| If yes, do you sell surplus food? (n=85) | 7% (6) | 53%(79) | 0 |
| **Health Facilities:** | | | |
| Do you find it easy to get immediate medical services in the new location? (n=322) | 91% (293) | 8% (26) | 1% (3) |
| Do you have easy access to child immunization? (n=320) | 92% (298) | 7% (22) | 0 |
| Do you have easy access to pre and post natal care? (n=322) | 91% (294) | 9% (28) | 0 |
| **Common Property Resources:** | | | |
| Were all common properties in the old location, compensated in the new location? (n=322) | 92% (295) | 6% (18) | 2% (9) |
| Are you satisfied with the government plan for infrastructures in the new location? (n=322) | 90% (289) | 9% (29) | 1% (4) |
| Are all built infrastructures are in operation? (n= 322) | 85% (274) | 10% (32) | 5% (15) |
| **Social Ties:** | | | |
| Do you have the same neighbors that you had in the old location? (n=322) | 37% (120) | 63% (202) | 0 |

**Table 63: Summary of respondents' comparisons of wellbeing characteristics in old vs. new Padampur: Scale indicator questions.**

| Wellbeing Characteristics Comparison Questions | Scale indicators | | |
|---|---|---|---|
| **Land Tenure:** | **Better** | **Same** | **Worse** |
| How do you rate the quality of land in the new location as compare to the old location? (n=322) | 23% (74) | 7% (22) | 70% (226) |
| **Employment:** | | | |
| How do you compare your economic status in the new place as compared to the old place? (n=322) | 28% (90) | 24% (78) | 48% (154) |
| | **Satisfied** | **Same** | **Not satisfied** |
| How do you compare your satisfaction with the employment opportunities new vs. old? (n=322) | 56% (180) | 25% (81) | 18% (58) |
| | **Better** | **Same** | **Worse** |
| **Housing:** | | | |
| How is your house construction in the new location, compared to the old location? (n=322) | 66% (213) | 31% (101) | 3% (8) |
| **Food Management:** | **Better** | **Same** | **Worse** |
| How do you compare your children's nutrition in the new place to the old place? (n=322) | 43% (138) | 30% (97) | 27% (87) |
| | **Sufficient** | | **Not sufficient** |
| Do produce sufficient food from current land holding? (n=322) | 26% (85) | | 74% (237) |
| | **Much better** | **Same** | **Worse** |
| **Health Facilities:** | | | |
| How do you compare the condition of health for children and elderly in the old and new location? (n=322) | 78% (251) | 16% (51) | 5% (16) |
| **Common Property Resources** | **Good** | **Satisfactory** | **Poor** |
| What is your general evaluation of the infrastructure in the new location? (n=322) | 30% (96) | 66% (212) | 4% (14) |
| How were the infrastructures (road, school, electricity and water) in the old (site? n=322) | 5% (16) | 13% (41) | 82% (265) |
| | **Very Good** | **Not Easy** | **Others** |
| **Social Ties:** | | | |
| How is your social relation with new neighbors in the new location? (n=322) | 69% (223) | 27% (88) | 4% (11) |

# Appendices

## Appendix I: Questionnaire for Focus Group

**Padampur: The Social, Economic and Biodiversity Assessment of a Citizen Initiated Resettlement Project**

1. Please tell us your name and address?
2. How long have you been resident of Padampur VDC?
3. What is your impression about the recent resettlement program?
4. What are the benefits of the resettlement program, those you have observed during the Padampur resettlement?
5. What were the challenges during the relocation program those the people faced?
6. How has people's well-being been in the new location? In terms of:

    a. Land distribution
    b. Housing security
    c. Employment and other economic opportunities
    d. Public infrastructures and local services
    e. Social and educational facilities
    f. Others if there is any

7. What are the benefits of this relocation program you have seen in biodiversity conservation?
8. If you had a chance to give an advice to other people living similar to your past condition, would you recommend a resettlement program? If so what advice would you give, please list? If not why?
9. What are the most important things you think should be considered in planning and implementing future relocation program, if there is going to be one?

# Appendix II: Household Survey Questionnaires for Socio-economic Wellbeing and Impact on Biodiversity

**Household Wellbeing**

**Interview # _____**

A. Name of the Interviewer:_____ Date: _____ Name of the Household Chief: _____ Ward No_____

Comments:_____

**A. Demographics: (1-9)**

1. Caste_____
2. Religion_____
3. Mother Language_____
4. Are you Native to Chitwan ○ Yes ○ No if no, where was your original place and when did you come to Chitwan__ and why_____
5. Number Household Member(s)

| Name of hh. Member | Age | gender | Education | Main Occupation |
|---|---|---|---|---|
| | | | | |
| | | | | |

6. Who suggested that the people of Padampur leave their original location?

   6.1 Wait for response: _____
   6.2 Response to List:_____
   a. ○ Government b. ○ Civil society c. ○ Padampur residents d. ○ Political Parties .
   e. ○ Others _____. f. ○ Don't know

7. Did the people want to leave? ○ Yes ○ No, Why? _____
8. Did you agree to leave? ○ Yes ○ No, Why?, _____
9. Overall how satisfied are you with this resettlement program? Why or why not?_____

**B. Land Tennure (10 – 16)**

10. Let's discuss how the land was distributed in the new location.
    a. How much land did you own in the old place? _____
    b. How much land do you own now in the new location? _____

11. Have you received monetary compensation? If so, how much? please mention the rate of the monetary compensation below:
    a. Yes :_____Nrs. Per Bigha
    b. No:_____ Why?_____
12. Do you believe compensation was:
    ○ Fair ○ Unfair Why? _____
13. How do you rate the quality of land in the new location as compare to the old location?
    ○ Better ○ About the Same ○ Worse
    Why? _____

14. Did you have title in the old location? ○ Yes ○ No
15. Do you have title now ○ Yes ○ No
16. What is your opinion about the overall distribution of land among households in Padampur?
    ○ Fair ○ Unfair Why?_____

***C. Housing (17 – 20)***

17. How is your house construction in the new location, compared to the ole location?
    ○ Better ○Same ○Worse
    Please give a reason_____

18. How do you compare the structure and materials of your house in the new place compared to the old place?

| Description | Better | About the same | Worse | Why? Please give a reason |
|---|---|---|---|---|
| Roof | | | | |
| Walls | | | | |
| No. of rooms | | | | |
| Electricity | | | | |
| Drinking Water | | | | |

19. How do you compare your economic status in the new place as compared to the old place? In accordance with following order
O Better O About the same O Worse

20. Please say if you had/have following items in your household

**Old location**: TV color / B& W, Bicycle Radio, pressure cooker, biogas, tractor, motorcycle, bullock cart, trucks, buses, radio/cassette

**New location**: TV color / B& W, Bicycle Radio, pressure cooker, biogas, tractor, motorcycle, bullock cart, trucks, buses, radio/cassette

**D. Food Management (21 – 24)**

21. How do you compare your children's nutrition in the new place to the old place.

O Better O About the Same O Worse
Why?_____

22. Does the current land allocation allow you to produce enough food to feed your entire family? O Yes O No, if no go to 23
a. If yes, do you have surplus food and what do you do with it:

O sale_____NRs/ year O save for future O barter within village O other_____

23. How do you fulfill your food deficit?_____

24. Are your earnings enough to buy the extra food you need to feed your family? O Yes O No if no, how do you fulfill your food deficit?_____

**E. Employment (25 – 33)**

25. Are there any changes in your job since coming to the new location? OYes ONo
If yes, give reason why these changes occurred? _____

26. How do you compare your satisfaction with the employment opportunities?

O Satisfied O About the same O Not satisfied
Why? Please give reason in any category chosen _____

27. How much land did you cultivate in old Padampur and how much now and what do you produce in one year from your land.

| Old | New |
|---|---|
| Owned # biga_____ | _____ |
| Rented # biga_____ | _____ |

| Crop | Old Padampur | | | New Padampur | | |
|---|---|---|---|---|---|---|
| | Area | Quintal | Price | Area | Quintal | Price |
| | | | | | | |
| | | | | | | |
| | | | | | | |

28. What are off-farm employment activities you or your family members are involved with and corresponding earnings per year?

| Old Location | | | New Location | | |
|---|---|---|---|---|---|
| Who | Type of Job | Yearly Income | Who | Type of Job | Yearly Income |
| | | | | | |

29. Are you operating any Small Scale Enterprise (SME) ○ Yes ○ No if yes? Please list:

| Type of SME | Description | Last Year's Income |
|---|---|---|
| | | |

30. Did any one from your household or yourself obtained loans from the bank or cooperatives etc. in Old Padampur If yes, for what purpose? _____for whom_____

31. Have you taken out any loan since you arrived in New location? If yes, what is the purpose_____

32. What is your last year's income and saving if you have any? (2004)

| Last year's income from | | Last Years Saving from | | Where do you save |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

33. What are the current problems related to finding jobs? Please prioritize them and what are you doing to solve these problems

| Problems | Prioritize | What are you doing to solve these problems |
|---|---|---|
| | | |
| | | |

**F. Common Property Resources (34 - 40)**

34. What is your general evaluation of the infrastructure in the new location?
○ Good ○ Fair ○ Poor
35. How were the infrastructures (road, school, electricity and water) in the old site?
○ Good ○ Fair ○ Poor
36. Were all common properties in the old location, compensated in the new location? ○ Yes ○ NO if no, Why?
_____
37. Are you satisfied with the government plan for infrastructure (road, schools, health posts, community centers etc) in the new location?
○ Yes ○ NO Why? Give reason_____
38. Are all physical facilities (those constructed) are functioning? ○ Yes ○ No if no, Why?_____
39. Is there enough community land set aside for future community use ○ Yes ○ NO if yes, what are they, please list_____
_____
if no, please give reasons_____
40. Will the existing physical infrastructures adequately serve the growing need of the people? ○ Yes ○ NO if no,
Why_____

**G: Health Facility (41 – 47)**

41. How do you compare the condition of health for children and elderly in the old and new location?
○ Much better ○ About the same ○ Worse
42. Do you find easy to get immediate medical facilities in the new location? ○ Yes ○ No
43. Do you find it easy to immunize your children in the new location ○ Yes ○ No if no, why please
give_____
44. Do you find it easy to get to the nearest health post, if there is an emergency? ○ Yes ○ No if no, why please give
reason_____

45. Do you find it easy to get services particularly for women for their pre and post natal care? ○ Yes ○ No if no, why please give reason_____

46. Do you find it easy to get family planning services in the new location? ○ Yes ○ No if no, why please give reason_____

47. In your house do you have:

a. ○ pit toilets or ○ permanent toilet
b. ○ Tap drinking water or ○ Tub-well or ○ Rower pump
c. ○ Rubbish pit or ○ Compost pit
d. ○ Others if any_____

**H. Social Ties (48 – 52)**

48. How do you feel about the social relations in the New Location?

_____

49. Do you have the same neighbors that you had in the old location? ○ Yes ○ No if no, who are your neighbors? Now

_____

50. Do you feel you have the same cooperation from your neighbors as you had in the past location ○ Yes ○ No if no, why

_____

51. What special events, did you participate in old location? Please list:

_____

52. What special events have you participated since your arrival? Please list:

_____

**I. Marginalization (53 – 58)**

53. Is there a difference in support services in the new location as compared to the old location?

○ More support services ○ About the same ○ Few support services

Why? Please explain any category selected_____

54. How optimistic are you that these support services will remains for a long period of time?

○ Highly optimistic ○ Optimistic ○ not optimistic

Please explain why in any category selected_____

55. Are there NGOs & INGOs programs complementing government efforts? ○ *Yes* ○ No if yes please list NGOs and their function:

| **NGOs** | **Functions** |
|---|---|
| _____ | _____ |
| _____ | _____ |

56. Do you think there are any groups of people who are more affected by the re-location program than others?

○ Yes ○ No, who are they and how are they affected?

| Group | How |
|---|---|
| _____ | _____ |
| _____ | _____ |

57. Do you observe any loss of cultural traits of any particular group in the new location?

○ Yes ○ No if yes, please explain _____

58. Overall how has the impact of moving to the new location been for the well being of you and your family?

○ Good ○ No impact ○ Bad

**Impacts on Biodiversity (59–75)**

***This particular section deals with impact on natural resources in old and new location. The impact is basically from the human induced activities of grazing, fuel wood collection and consumption of other forest resources by the people for various purposes.***

59. How do you feel this relocation program affected in conserving biodiversity in the old site?

_____

60. How do you feel this relocation program affected in conserving biodiversity in the new site?

_____

61. How often would you or member of your family visit the forest in the old location, for how long, and for what purpose please mention below:

**For how long?** **what purpose?**

_____ _____

62. Let's talk about livestock in the old and new location:

| Type of livestock | Old Padampur | | | | | New Padampur | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | # Hybrid | # Local | Months Free Grazing | Months Stall Feed | Use of Livestock | # Hybrid | # Local | Months Free Grazing | Months Stall Feed | Use of Livestock |
| Cow | | | | | | | | | | |
| Oxen | | | | | | | | | | |
| Buffalo | | | | | | | | | | |
| He buffalo | | | | | | | | | | |
| Goat | | | | | | | | | | |
| Sheep | | | | | | | | | | |
| Pig | | | | | | | | | | |
| Chicken | | | | | | | | | | |
| Ducks | | | | | | | | | | |

63. Were you self sufficient for your fuel wood in the old location? ○ Yes ○ No if No, then how did you fulfill your fuel wood requirement_____

64. Are you self sufficient for fuel wood now? ○ Yes ○ No if no, then how do you fulfill your requirements_____

65. How did you gather / get construction materials in the old location_____

66. In general, has your consumption of the following items increased or decreased or stayed the same from the old location to the new location?

| Items | Increased | Decreased | Stayed the Same | Why? |
|---|---|---|---|---|
| Fuel wood | | | | |
| Fodder | | | | |
| Construction Materials | | | | |
| Medicinal herbs | | | | |
| Plant fibers | | | | |
| Other's ……if any | | | | |

67. Let's talk about wildlife now: What were the positive and negative aspects of wildlife in the old location for Padampur residents
Positive:_____ Negative:_____

68. How often did you have household livestock and crop depredation from the Park's wild animals in the old location?

| Year | Crop Depredation | | | Livestock Depredation | | Human injury | Human killed | Which Wild animal | Typical Loss Yes/No |
|---|---|---|---|---|---|---|---|---|---|
| | Name of Crops | Total Loss in NRs. | Which W/ animal | Name of Livestock | Total Loss in NRs. | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

69. What were the positive and negative aspects of wildlife in the new location for Padampur residents?
Positive:_____ Negative:_____

70. In the new location, how do you use the surrounding Barandhabhar forest? _____
_____

71. What impact have you seen from the relocation in the Barandhabhar Corridor Forest?

72. How do you compare?:

a. The quality of air in the old versus the new location? ○ better ○ about the same ○ worse
why?_____

b. The quality of water in the streams and rivers in the old and new location?

○ better ○ about the same ○ worse, why?_____

73. Are you a member of a Community Forest? ○ Yes ○ No if Yes,

a. Please mentioned the name _____._____of CF and how far it is located from your home _____Km.

b. How often do you participate in forest conservation work of this Community Forest?

○ Once in a month ○ Quarterly ○ Semi annually ○ Other_____

74. How many times did you bring your livestock to the Vet. Center in 2004 _____

75. How often have you seen the following wild animals in Barandabhar forest in past two years?

| Wild Animals | Frequent sightings | Occasional sightings | Rare sightings | No sightings at all |
|---|---|---|---|---|
| **Rhino** | | | | |
| **Tiger** | | | | |
| **Deer** | | | | |
| **Wild boar** | | | | |