



Original Article

Impact of relocation of forest communities – a case from Chitwan National Park, Nepal

Received Date: May/13/2011

Accepted Date: Jun/20/2011

B.D. Sharma^{1*}
I.D. Bhatta²
N.C. Poudyal³

1- * Terra Global Capital, San Francisco,
CA, USA

2- Council for Technical Education and
Vocational Training, Bhaktapu, Nepal

3- University of Georgia, Athens, GA,
USA

sharma@terraglobalcapital.com

ABSTRACT

This paper presents a scenario of a relocation program carried out for the forest dwelling communities of Padampur Village of Chitwan National Park. The study was carried with an aim to identify the effect of such relocation programs on the conservation of the biodiversity – the park objective and on impact on the livelihood of people. In a more specific terms, the paper assesses the dynamics of access to and control over natural resources due to relocation and identifies the perceptions of the people involved in the relocation program itself and explores the extent that relocated people have generated or regained in terms of power for livelihood generation in new place. The findings showed that people's accesses to the natural resources were limited after the relocation program and their roles over control of forest have increased. Relocated people were found with both opportunities and challenges to sustain their livelihood. However, the result also revealed a questionable implication of the relocation program; that is to say the site where the community from inside the park were resettled, happened to be actually the area, which also requires the conservation to achieve the objective of the park management.

Key-words: *community forestry, forest conservation, biodiversity, livelihood, socio-economic dynamism*

INTRODUCTION

Because of the policies adopted following the establishment of the first Western national parks, relocation of indigenous people from national parks became common practice in most developing countries, with little regard to the impacts imposed on a community's cultural patterns and means for survival [3]. When a whole settlement is relocated, the individuals experience an enormous amount of expectations and challenges as how to get along with a new environment. Their traditional places are gone, their waterways and roadways are new, the cropping systems are new and they have to go through a lot of new things. So, along with the physical displacement, the relocation brings the socio-economic and political alteration in the relocated community [5].

Relocation programs mostly offer a wide horizon of opportunities, at least stated theoretically. They may not be as smooth in reality. While people are being motivated for the relocations, there are always promises for good future along with constraining questions of uncertainty. Resettlement schemes for indigenous peoples and rural communities removed from areas earmarked for conservation have in many cases had devastating consequences for people and the long-term viability of protected area themselves [1-6]. Importantly, the relocated people, in new place should have better livelihood options or opportunities to, at least, regain livelihood they had in the original place [5].

Chitwan National Park [CNP], the first national park in Nepal, is one of the world's most unique protected areas, renowned for its variety and abundance of precious and rare fauna, flora, and rich cultural heritage [4]. Padampur was a culturally sensitive area because it had been the last remaining settlement inside the CNP and represented a significant part of the Nepal's cultural diversity. Since its establishment, Government of Nepal had been carrying out relocation of communities from park to elsewhere to provide non fragmented habitat for wildlife. In this line, the government decided on July 1994 to relocate people from park to current Padampur VDC [formerly a part of Jutpani VDC]. The new place was named Padampur, probably to give a verbal sense of belongingness to the relocated people. People living in Padampur suffered from Rapti river floods and wildlife threats. The livelihood inside park was severe as there used to be loss of fertile agriculture land and crop every year. Viewing these reasons, local people too

opted for resettlements into a new place. Furthermore, the dwelling of people had become a constraint to increase the park area. With these issues, relocation program was planned and implemented with the objective to provide a safe place free from fear and insecurity for the people of Padampur suited for human living and for conservation as well. It was also expected that this would significantly contribute to protect and conserve rare wildlife habitat by increasing the park area by some 2,032 ha [3,000 *bighas*]. The case of relocation at Padampur is important because it was carried out with great ecological expense of clear felling critical wildlife Corridor – Barandrabhar corridor Forest [BCF] as well as refuge in another compartment of the same eco-region. The joint interest of the people and park made it possible for the easy relocation of people. Since the relocation process itself is different from that of relocation programs solely done for the purpose of conservation, it is essential to know if their livelihood is safer at a new place in order to respect their sacrifice for the conservation of resources of CNP. And the impact studies of such relocations would have two fold benefits i.e. one by the social view points and another by the conservation view point.

The objectives of this study were to assess the dynamics of access to and control over natural resources and to identify the perceptions, new roles and results of people's involvement in conservation activities to assess a broader impact on people's livelihood due to relocation programs. Part of the learning objective of this study was to see the implication of such relocation programs in conservation and the people's lives and linking this to the many of the future relocation programs in the similar environment.

MATERIAL & METHODS

Field methods for this study included direct observation and interview with the people living in the New Padampur VDC and other respondents included CNP officials, and officials related organizations working in this area. Secondary sources of information primarily related to literatures were also reviewed. Questionnaire survey was carried with stratified random sample to include all types of caste and ethnicity with a 5 % [of total household no of 1689] sampling intensity. Among the samples, 50 % of the respondents were women. Questionnaire also covered villagers' attitudes toward nature conservation and park management in CNP and the resettlement program, as well as their

expectations of their new life in New Padampur. Field observation was made to gather the general information and apprise the existing resource condition. The primary purpose of field observation in this study was to check the validity of the activities as expressed by the users in surveys and interviews.

The data analysis included categorizing them in qualitative and quantitative terms; and later to work on them with appropriate tools. Biophysical as well as socioeconomic variables were generated and compared for before and after relocation program to assess the general impact. Quantitative analysis included carrying out t – test for pair wise samples, carrying out chi – square testing to assess the significance of difference at 95% confidence interval for both biophysical and socio-economic indicators generated during the study. Descriptive analysis included categorization of impacts and dynamism over resource uses and comparing them with the situation in the past when the concerned groups of people under study were living inside the park.

RESULTS & DISCUSSION

Impact on land holding

The range of land holding was 0 – 240 katta [1 kattha = 0.034 ha] at the previous place while this came down to 40 kattha [3 – 45 kattha is new range] in the New Padampur VDC. The per capita land holding of the people in the New Padampur VDC was significantly lower at the new place assigned [Table 1]. This could make these people who owned large tracts of land in their former place of inhabitation unhappy.

One of the appreciative parts of relocation is allocation of some minimal land to the landless people from the earlier settlement. This has at least helped landless people to initiate their livelihood generation. If they were not given such minimal land, the conservation activities would not serve any humane purpose. Preserving the same landholding size in new place is impractical because of two reasons. One is that the people having large land holding in the original place had occupied it long before the national park was established when they could get as much as they could care. But the case is different in the present context. The second reason is that it is impractical to find the land relocate in a single contiguous unit with the same amount of land for each, especially when the resource is limiting.

Impact on livestock holding

Major livestock components are cattle, buffalo, goat/sheep, pig and poultry reared for

common livestock products like egg, milk, and manure needs as well. Per capita livestock holding decreased in New Padampur VDC except for pig [Table 2]. This could probably be explained by the fact that pigs are generally kept on stall feeding basis while others require more open space.

Government's failure to allocate land for community grazing has not only limited the access of people to community resource, but also seriously undermined the livelihood options of livestock rearing people on the one hand and the conservation efforts of contiguous forest on the other.

Impact on household economy

An issue related to land and household economy is allotment of the plots at different locations, which requires additional work for crop growing. Mean annual household agricultural production in New Padampur VDC was sufficient for 7 months against the year round food sufficiency at previous place. More than one third of the population living in the area are in the category of very poor or poor and face food deficit for longer periods. People living in Padampur VDC suffer the highest percentage of poor people as compared to adjoining VDCs [2].

The per capita household income in new place might have decreased due to lower agricultural production. The traditional households who were involved in agriculture, fishery and livestock were now forced to work as daily laborers in nearby markets. About 13 % of the respondents said their income increased; whilst 71 % found it decreased and about 16 % found unchanged at a new place as opposed to their previous home inside the park [2].

Impact on resource accessibility

Several community-based organizations [CBOs], non governmental organizations [NGOs], cooperatives, and saving credit groups, both of formal or informal types, are working in New Padampur area. These cooperatives are aimed at improving the income and livelihood of people by providing linkage for inputs and output marketing mainly in dairy, farming and micro enterprise sector. The presence of various institutions in the relocated area has given the people better opportunities to receive supports. There were three community forests [CF] at new Padampur.

These community forests are the only legal source of supply of forest products for the people of New Padampur VDC. Ecology and composition of community forests are similar to

the forests in CNP [Table 3], and thus it is likely that if these forests are managed, the resource supply can be met.

Dynamism over access to resource

The source of supply of forest products to the community of New Padampur has changed drastically—from the protected park to the community-managed forests. Sources of forest products have changed from National Park to private forest, community forest, park, farmland and other sources [Fig 1]. Other sources also include the market from where products are bought. Not only the source, but also supply has changed in the new area. People feel that supply was excess before while the situation has been reversed giving rise to the condition where the supply is deficient to the majority of the people in the New Padampur VDC [Fig 2].

While community was inside CNP, there used to be no resource distribution mechanism as people could collect forest products from the park as per their need. But in New Padampur VDC there exist certain rules for product sharing. Resources are allocated and distributed based on need i.e. by incorporating the number of people in the family. People in the New Padampur VDC are now keeping less livestock than before which has led to lower forest product demands [Table 4]. On average, people require about 0.92 m³ of timber every year; 0.86 kg of fuel wood per day; 0.97 kg of fodder per day and 20.26 kg of thatch grass per year from the forest. 88 % of the respondents felt that they never faced livestock grazing problem while they were inside the park. However, the grazing became a problem in new Padampur as such activities are not allowed in community forests.

CFs are not accessible at all times as they have schedules for resource extraction. The distribution system is not the one that people were practicing traditionally and they feel that the distribution systems are not appropriate for the culture of the newly relocated people. They do not have any type of grazing land/facility inside the community forests which are the only sources for the forest products.

Although majority of people expressed their happiness with the relocation program, there were some problems as well. Some opportunities and constraints for life at new Padampur are presented in table 5.

Impact on cultural part of livelihood

The parameters used for the cultural impacts were marriage ceremonies, feast and festival celebrations, and practice of after-death rituals and rituals related after the birth of a child. The parameters also included the culture of fishing. People used to go fishing for 6 days in a month on an average while they were inside the park to collect 1.5 kg of fish per day. However, at the present location they go for fishing once every month and fetch less than half a Kilogram of fish. This means a loss of significant amount of supply of protein food source. The research also revealed that all of the fishing activities were limited to the household consumption. The cultural parts of people's lives have, as a result, significantly changed [Table 6].

Impact on new roles and responsibilities

The role of people in Padampur has been assumed as shifted from the destructor to the guardian of forest after relocation. This is one of the achievements of the relocation program. Whatever the legal issues presented, these people were enjoying the resources from the national park made available to them in the past. Now the trend is reversed and they can get only a certain amount of product in exchange of voluntary labor on protection. Relocated people of New Padampur VDC are still conservationist. Above 96 % of the respondents still hold the belief that wild animals should be protected for the betterment of humanity and for future generation as was the case in their former dwelling place. Some issues together with the possible solutions were identified concerning the effective forest management [Table 7].

Impact on people's happiness

About 80% of the people are happier at New Padampur. In general, reasons could be attributed to infrastructures and safety from the risk of wildlife depredation and flood hazards while the source of happiness at their older dwelling places included, higher agriculture production, access and unlimited forest products supply and sentiment of birthplace. Agriculture infrastructure i.e. irrigation was good in old Padampur. Other infrastructures are better at the new dwelling place with electricity being highly valued among others [Table 8].

These communities were living inside the park where they had much freedom in regards to forest products use. People are active in forest conservation program and they are positive at the

conservation. These communities were obtaining the revenue from the park resource through the buffer zone development council while they were inside CNP but after their relocation, they are not obtaining such revenue.

CONCLUSION

The relocation program caused decrease in available land holdings and livestock wealth with effect in decreased food sufficiency as well as household economy. The people in new Padampur have access to more external institutions. Many organizations and cooperatives are helping the people in new Padampur. People's happiness level increased in the new environment primarily related to better infrastructure. The biophysical aspect of the relocation program is questionable. This area is seasonal home to rhino, which is a potential extension of rhino habitat and a conservation corridor, and thus the conservation objective, by which the relocation was initiated, does not seem to have become a success if people of new Padampur are still conflicting with wildlife habitat. For the people's lives, it is essential to enhance access to forest products by active management of community-based forestry. The community participation should be ensured in all respects, particularly in decision making about education, health, water resources and other infrastructure to better achieve their utilization and equitable sharing. It has been learnt that the government should follow the relocation program with formulation and implementation of viable livelihood plans including agriculture, livestock and fishery, to which they are conversant since the original location.

Relocation programs carried out by negotiations gets more conservationist attitude amongst people. While carrying out such programs concerning land holding should be as per the land holdings maintained by the households in their original locations in regards to spatial juxtaposition. Similarly, the relocation place selection should be as far as possible complaisant with the socio-cultural practice of the communities. Importantly, the resettlements of people should be started after introducing some basic infrastructure in the place of relocation, which was completely lacking in case of Padampur. Massive clear felling of critical forestland in one place, for the benefit of restoring forest in the other place can never be a wise decision in favor of conservation. This gives the serious impression of diminished and improper coordination as well as cooperation among the

government organizations, which is essential to avoid in days to come.

ACKNOWLEDGMENTS

The authors would like to thank National Trust for Nature Conservation [NTNC] and the Mountain Institute [TMI] for providing various supports for this research. Sincere thanks also go to Ms. Sadhana Rana, Rupesh Shrestha and Mr. Bhaskar Thapa of for reviewing this paper. Thanks also go to Mr. Chaudhary and Omkar Joshi for their assistance during data collection and analysis.

REFERENCE

1. Ghimire, K.B., Pimbert, M.P. (1997). Social change and conservation: An overview of issues and concepts. In *Social Change & conservation*, eds. K. B. Ghimire and M. P. Pimbert, 1–45. London: Earthscan.
2. KMTNC [King Mahendra Trust for Nature Conservation]. (2003). *Barandadhar Forest Corridor Management Plan*. KMTNC, Kathmandu
3. McLean, J. (2000). Conservation and the impact of relocation on the Tharus of Chitwan, Nepal. *Himalayan Res. Bull.* 19[2].38–44.
4. Mishra HR; Jefferies M. (1991). *Royal Chitwan National Park: Wildlife heritage of Nepal*. Nepal, Kathmandu: King Mahendra Trust for Nature Conservation, Kathmandu
5. Ota, A.B. (2001). *Reconstructing Livelihood of the Displaced Families in Development Projects. Cases of Failure and Room for Reconstruction*. Available at www.anthrobase.com/Txt/o/Ota_A_02.htm
6. West, P. 1994. Introduction: Resident peoples and protected areas—Part III. *Society Nat. Resources*[7].303–304.

Table 1. Per capita land holding analysis

	Mean	95% confidence interval of the difference		t	df	sig. [2-tailed]
		lower	Upper			
per capita land holding before and after relocation	8.11	2.55	13.66	2.90	83	.005

Table 2. Per capita livestock holding analysis

	mean	s.d.	95% confidence interval of the difference		t	df	sig. [2-tailed]
			lower	upper			
cattle <i>br</i> – cattle <i>ar</i>	1.40	1.62	.68	2.12	4.07	21	.001
buffalo <i>br</i> – buffalo <i>ar</i>	1.78	1.82	1.25	2.32	6.69	46	.000
goat <i>br</i> – goat <i>ar</i>	1.26	2.90	.39	2.13	2.92	44	.005
pig <i>br</i> – pig <i>ar</i>	4.34e ⁻⁰²	1.66	-.67	0.76	.12	22	.901
poultry <i>br</i> – poultry <i>ar</i>	6.65	15.40	1.91	11.39	2.83	42	.007

br: before relocation ; *ar*: after relocation; s.d.: standard deviation; df: degree of freedom; sig: significance level

Table 3. A summarized profile of community forests in New Padampur VDC

CF	Bhimbali	Padampur Women	Thangkhola Jaldevi
Area [ha]	381	308	668
No. of households	518	624	1700
Areas Coverage	Padampur VDC Ward 5 & 6	Padampur VDC - 7 & 9 and Jutpani VDC - 2	Padampur VDC - 1,2,3,4,8 and Jutpani VDC – 2
Forest type	Plantation of Sissoo and natural Sal forest	Natural mixed riveraine forest and a part of Sal forest	Natural mixed forest
Plantation	Sissoo plantation	--	--
Forest products	Timber sps. - <i>Dalbergia</i> <i>sissoo</i> , <i>Shorea robusta</i> , <i>Terminalia tomentosa</i> Fuelwood sps. - <i>Dalbergia</i> <i>sissoo</i> , <i>Shorea robusta</i> , <i>Syzysium cuminii</i> , <i>Ternmionalia</i> <i>tomentosa</i> , Grass - <i>Siru</i> , <i>Dubo</i> , <i>Khar</i>	Timer sps. - <i>Shorea robusta</i> , <i>Ternmionalia tomentosa</i> , Fuelwood sps. - <i>Dalbergia</i> <i>sissoo</i> , <i>Shorea robusta</i> , <i>Syzysium</i> <i>cuminii</i> , <i>Ternmionalia tomentosa</i> Grass - <i>Siru</i> , <i>Dubo</i> , <i>Khar</i>	Timer sps. - <i>Shorea robusta</i> , <i>Ternmionalia tomentosa</i> , Fuelwood sps. - <i>Shorea robusta</i> , <i>Syzysium cuminii</i> , <i>Ternmionalia</i> <i>tomentosa</i> , <i>Lagestremia perviflora</i> , <i>Trewia nudiflora</i> Grass - <i>Siru</i> , <i>Dubo</i>
Wild animals	Spotted deer, Wild boar, Rhino, Tiger, Leopard, Barking deer	Spotted deer, Wild boar, Rhino, Leopard, Barking deer	Spotted deer, Wild boar, Rhino, Leopard, Tiger

Table 4. People's perception regarding the dynamism of resource availability

		perception and causes by percentage on changed resource availability						
		restriction caused by community forest	decrease in the number of cattle	increase in the family member	lack of forest product	increase in the number of cattle	new settlement	Total
increased	Count			5		3	6	14
	% of Total			6.0%		3.6%	7.1%	16.7%
decreased	Count	28	17		25			70
	% of Total	33.3%	20.2%		29.8%			83.3%
Total	Count	28	17	5	25	3	6	84
	% of Total	33.3%	20.2%	6.0%	29.8%	3.6%	7.1%	100.0%

Table 5. Opportunism and constraints after relocation [% of respondents]

Opportunities		%	Constraints / limitation		%
a.	Safe from flood and wildlife damage	56	a.	Lack of forest products	23
b.	Better infrastructure	13	b.	Decreased agricultural productivity	23
c.	Increased land value	11	c.	Poor sanitation and no drinking water	17
d.	Landless people got the land	8	d.	Cultural part of life affected	9
e.	Protected community forests	6	e.	Decreased / lost land	9
f.	Better market opportunity	4	f.	Lost fishing opportunity	6
g.	Conservation of wild animal	2	g.	Difficulty in adjusting at a new place	6
			h.	Flood problem	4
			i.	Lack of pasture land	2
			j.	Poor security situation	1
Total		100	Total		100

Table 6. Chi – square test for assessing cultural impact at 95 % confidence level

	Chi-Square	df	Sig.
Cultural impact	45.762	1	.000

Table 7. Forest related issues with possible solution mechanism

Issues	Possible solution
Forest protection	Fencing supports to be provided
Illegal logging	Confirm resources for forest guard
Lacking coordination and information	Develop mechanism
Low participation	Conduct awareness program
Lack of strict rule	Operational plan and constitution should be finalized and formal handing over should complete
Low technical knowledge	Provide basic forestry training to users
Irregular meeting	Motivate and develop regularity

Table 8. People's happiness score [based on percentage of responses] with the infrastructure at Old and New Padampur VDC

Infrastructure	At Old Padampur VDC	At New Padampur VDC
Agriculture	94	6
Bank	23	77
Post Office	11	89
School	11	89
Health	10	90
Market	8	92
Sanitation	8	92
Road	7	93
Security	7	93
Transport	7	93
Electricity	6	94

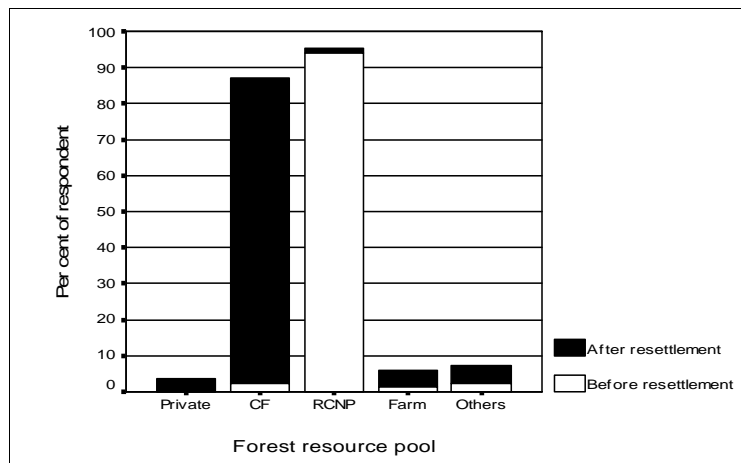


Fig 1. Supply source dynamism of supply of forest products

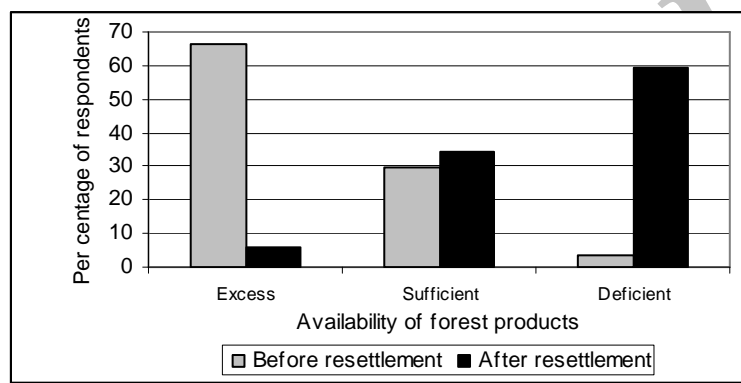


Fig 2. Availability dynamism of forest products

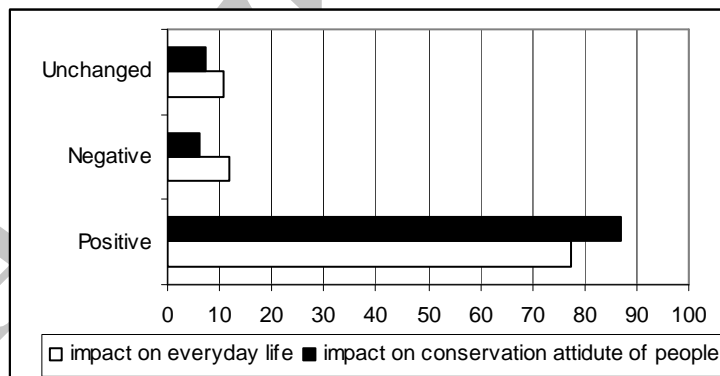


Fig 3. Impact on life and attitude of the people