

The Policy of Reduction of Cattle Populations from Protected Areas: A Case Study from Buxa Tiger Reserve, India

Bidhan Kanti Das

Institute of Development Studies Kolkata, Calcutta University, Alipore Campus,
1 Reformatory Street, Kolkata 700027, West Bengal, India

E-mail: bidhand@gmail.com, bidhan@idsk.org

Abstract

In India, as elsewhere, protected areas (PAs) have permanent resident populations who are historically dependent on forest resources for their livelihood. The Buxa Tiger Reserve (BTR), in the northern part of West Bengal, is one such reserve forest where villagers have been residing for more than a 100 years. With the creation of a national park, employment opportunities for the forest villagers, who were once treated as an important labour force during the commercial forestry regime, have drastically declined. To reduce pressure on forest resources at the BTR, the World Bank financed India Ecodevelopment Project (IEDP) was initiated with the aim to involve local people by supporting sustainable alternative income-generating activities. In consonance with the dominant view that livestock grazing in bio-diverse regions is destructive to nature, reduction in cattle populations and stall feeding of cattle have been included as reciprocal commitments under this project. This paper is an attempt to assess whether the strategy of cattle reduction is really possible. It also tries to explore how far a reduction of cattle is acceptable or feasible in the context of present findings, especially in India. Results show that there is little impact on cattle populations after the project intervention. However, the slow but consistently decreasing trend in cattle populations is evident for other reasons. This article argues that as cattle are an integral part of the rural economy for marginalised groups in PAs like the BTR, where alternative employment opportunities are very limited, the reduction or removal of cattle may not be a viable option as it will adversely affect the livelihood of these vulnerable communities. A more pragmatic approach of rotational grazing would be fruitful for preservation of protected forest areas in countries like India.

Keywords: cattle populations, grazing, biodiversity, forest village, PAs

INTRODUCTION

MORE THAN HALF the livestock population (about 270 million) of India grazes in the forests. Forests meet about 30 per cent of fodder requirements, mostly through provision of grazing facilities. Though only 39 per cent of national parks and 73 per cent of sanctuaries allow grazing of livestock within their boundaries, 67 per cent of national parks and 83 per cent of sanctuaries have incidences of grazing (Kothari *et al.* 1989).

Conservationists claim that this large extent of grazing, which is much more than the sustainable capacity of the forests, adversely affects the forests. They consistently advocated for the removal or at least a drastic reduction of cattle from protected areas (PAs) for conservation of forest and wildlife. Against this backdrop, an attempt has been made to assess whether cattle populations have re-

duced in a PA where cattle reduction linked ecodevelopment activities have been implemented. If not, what are the probable reasons? The study also tries to understand villagers' perceptions about cattle populations and their effect on biodiversity. Furthermore, it tries to explore how far the policy of cattle reduction is acceptable to the people or feasible in the context of the present findings. As a case study, the Buxa Tiger Reserve (BTR), a national park has been selected where ecodevelopment activities were being implemented under the India Ecodevelopment Project (IEDP).

STUDY AREA AND PEOPLE

The BTR is located on the foothills of sub-Himalayan northern Bengal in India. It has thirty-seven forest villages and four fixed demand holdings, forty-six revenue

villages and thirty-four tea gardens in and around it. Most of the people living in non-tea estate areas depend primarily on rainfed traditional agriculture. Also, in most cases their income is supplemented by animal husbandry (Sinha & Das 2003). In forest villages, people cultivate maize, *marwa*, millet, mustard and jute. Villagers from revenue areas cultivate paddy, potato, jute, mustard and some vegetables. Landless people engage themselves as agricultural and daily wage labourers at *panchayat* or Forest Department works, or in selling firewood. Some families sell milk (Das 2005a). The forest villagers face extreme hardships in trying to earn an income as clear felling coupes (CFC) and plantations have reduced dramatically due to a ban on CFC after declaration of Buxa as a PA.

Over the years, the incidences of cattle grazing in these villages have exponentially multiplied. A study placed the number of cattle grazing in the forest every day at about 150,000 cattle graze in the forest every day. Leaving some blanks and steep slopes, the intensity of grazing is 2.5 cattle per ha. The number of households increased by about 66 per cent from 1970 to 1999 (Das 2005a). With the increase in households, cattle numbers have also increased.

INDIA ECODEVELOPMENT PROJECT

The creation of the tiger reserve in 1983 resulted in a ban on fodder collection and cattle grazing, threatening the very survival of the inhabitants residing in and around the BTR. Restrictions on resource use, often leads to conflicts among park managers and villagers. To reduce pressure on PAs and conflicts therein, the IEDP was launched by the Forest Department, West Bengal, with assistance from the World Bank and the Global Environment Facility in 1996. The project addresses the issues regarding participatory management of PAs through a strategy of ecodevelopment. It deals with reducing negative interactions of local people with biodiversity and increasing their collaboration in conservation. It aims at involving local people by supporting sustainable alternative income-generating activities with mutual understanding on controlled grazing, stall feeding, fodder regeneration outside forest areas, reduction of cattle, replacement of scrub cattle by improved cattle and castration (World Bank 1996).

MATERIALS AND METHODS

Structured and semi-structured questionnaires were administered in thirteen sampled villages to assess any change in cattle populations and grazing in forest areas. Sampling was done on the basis of purposive randomness. Data was collected through group discussions comprising members of the Executive Committees as well as general members of the Forest Protection Committees

(FPC)/Ecodevelopment Committees (EDC). As the data collection was not based on a door-to-door survey, there is a probability of errors. To understand changes, if any, the year 1999 was identified as the base year because micro-plan implementation started in December 1999 under the IEDP. Fieldwork was carried out between mid-July to mid-August 2001.

RESULTS

Changing Status of Cattle

Results of the survey reveal that cattle numbers decreased by a small percentage from 1999 to 2001 (Table 1). This small reduction might not be due to mutual understanding regarding cattle reduction as per the agreement for ecodevelopment activities, but due to natural processes like less resources, diseases, sale of cattle during the periods of crisis and natural calamities.

Village-wise distribution shows that maximum reduction of cattle was observed in revenue villages. This is due to increased impounding of cattle for illegal grazing, manpower problem, 25 per cent contribution for ecodevelopment activities and less availability of fodder.

The study reveals that generally forest villages reduced their cattle minimally in comparison to revenue villages of the BTR with some exceptions. Among forest villages, members of East Garam reduced maximum cattle from 1998/1999 to 2001. This was mainly due to sale of some local cows for an improved breed and sale of cattle for 25 per cent contribution to ecodevelopment activities. In a subsistence economy, forest villagers regard cattle as one of the main sources of income. Our earlier study shows that more than 70 per cent of villagers of Bhutia *basti* en-

Table 1
Changing status of cattle populations in and around sampled forest villages/revenue villages of the Buxa Tiger Reserve

FV/RV*	No. of cattle		% change
	1998/1999	2001	
East Garam FV	280	245	-12.50
Dakshin Panbari FV	145	135	-6.90
Garó and Pampu <i>basti</i> FV	1164	1100	-5.50
Nimati FV	242	240	-0.82
Godamdabri FV	449	425	-5.34
Buxa Road FV	682	666	-2.34
Teamari FV	375	368	-1.86
Uttar Dakshin Panialguri RV	845	715	-15.38
Nimti Domohini RV	992	940	-5.24
Purba Salbari and Lepraguri RV	789	730	-7.48
Radhanagar and Barobisha RV	454	425	-6.39
Dakshin Haldibari RV	679	650	-4.27
Narathali RV	463	386	-16.63
Total	7559	7025	-7.06

*FV=Forest Village; RV=Revenue Village.

gaged in the sale of milk, which was about 30 per cent of the total family income especially among the marginalised poor people (data collected by author in 1999). People also feel that domesticated animals can be used as a major source of cash income during emergency periods like disease, marriage or other rituals and ceremonies. So, they are less interested in reducing cattle numbers.

Changes in Cattle Populations

As the data on cattle of forest villages are only available from Census 1984, an attempt has been made to ascertain whether the reduction is due to the effect of the IEDP or is it a part of the usual process. For this, estimation has been done for rate of difference per year from 1984 to 1998/1999. This rate of difference is compared with the rate of difference per year from 1998/1999 to 2001. Results reveal that there is no significant change in the rate of difference between early 1999 and 2001 (Table 2). A very small percentage of cattle reduced since 1999 in sample forest villages. So, the reduction, in general, might not be related to mutual agreement of villagers regarding cattle reduction.

What People Have Actually Done: Some Case Studies

During preparation of the micro-plan, villagers were offered a choice of income-generating activities that should be ecologically, socially and financially sustainable. Some reciprocal commitments like reduction of low yield cattle, controlled grazing and castration had to be implemented. But in Santrabari EDC (within the core area), members consistently demanded for inclusion of bullocks as an activity in the micro-plan, which was against the guidelines of the IEDP. They even *gheraoed* the concerned person from the non-governmental organisation (NGO) who was acting as a facilitator. Finally they succeeded in including cattle rearing as an activity in the micro-plan. About one-fourth of the total members have purchased one pair of the local breed of bullocks each for the cultivation of agricultural lands provided by the Forest

Department to the agreement holder¹. Earlier, those who had no bullocks, had to hire bullocks from others for tilling their lands for 3 hours. In exchange, they had to work for 3 days on the land of the bullock owner or they had to pay INR 20 to INR 30 per day as cash as well as supply fodder to the bullock owner. This system is known as *hauli*. Now they are able to plough lands using their own bullocks and hence make a higher profit from cultivation of ginger, gourd and maize. It is estimated that most beneficiaries are making profits of at least INR 2000 per year from cultivation by their own bullocks.

The same phenomenon is also observed in fringe areas. Twelve per cent members of Ghoramara FPC have purchased one bullock each from the micro-plan for cultivation of their own lands. Earlier, some had one bullock and some did not own any. They had to hire bullocks in exchange for 240–280 kg of paddy per season. At present, they can save their paddy, which they now don't need to offer, by owning their own bullocks; the bullocks have become both a resource and an asset. Also there is no encroachment of lands due to their ownership of bullocks.

It is interesting to note that some beneficiaries have purchased milch cows after making profit from income-generating activities under the IEDP. One member of the Teamari EDC got goats under the micro-plan, which he sold and in turn purchased two milch cows. He felt that the milch cow was a useful income source and an asset in addition to providing nourishment in the form of milk.

Where alternative choices of income-generating activities were limited, people, especially those who had some land, adhered to traditional occupations like agriculture. In such a situation, cattle were regarded as an important resource due to multiplicity of use for sustaining daily livelihoods and also treated as a cash asset by rural as well as forest people for any activities requiring instant cash. The marginal cultivators, who do not possess their own resources for cultivation especially bullocks, have to hire either by giving something in return as kind or by paying high amounts as cash. So whenever opportunities arise, they try to procure items required for cultivation as observed in the IEDP. Moreover, people usually prefer to

Table 2
Changes (per year) in cattle populations in the sampled forest villages of the Buxa Tiger Reserve

Forest village	No. of cattle		% of average difference per year from 1984 to 1998/1999	No. of cattle 2001	% of average difference per year from 1998/1999 to 2001
	1984*	1998/1999			
East Garam	554	280	-3.53	245	-6.25
Dakshin Panbari	375	145	-4.38	135	-3.45
Garo and Pampu <i>basti</i>	1343	1164	-0.95	1100	-2.75
Nimati	603	242	-4.28	240	-0.41
Godamdabri	838	449	-3.32	425	-2.67
Buxa Road	626	682	+0.64	666	-1.17
Teamari	275	375	+0.03	368	-0.93
Total	4614	3337	-1.98	3179	-2.37

*Cattle census (1984) from Management Plan 1999–2009 of the BTR.

purchase milch cows from whatever profits they gain from other activities if they do not have any other asset.

People's Perceptions about Cattle Reduction and Grazing in the Forest Area

The perceptions of forest villagers differ from that of revenue villagers as far as cattle grazing is concerned. Forest villagers opined that they are reluctant to reduce cattle as they considered cattle of high economic value. In a subsistence economy, income from sale of milk plays an important role in sustaining their daily needs, in addition to supplementing nutrition of growing children. Cattle are also regarded as a cash resource during emergencies like diseases, marriages, observance of rituals and ceremonies. Cow dung from cattle is considered as a useful fertiliser for cultivation. On the contrary, forest dwellers are not so much interested in rearing high bred cows due to poor understanding of rearing, less availability of veterinary care and unfortunate experiences in the past. Moreover, most forest villagers do not consider grazing in forests as harmful to forest and wildlife. But villagers from fringe areas opined that people are compelled to reduce cattle due to increased protection work, dwindling resources, reduced manpower for rearing with the disintegration of joint family system and less pasture lands due to increased agriculture. Currently, they are increasingly using riverbeds and adjoining areas to graze cattle. For fodder, they were increasingly using agricultural residues.

DISCUSSION

The above findings show that people are not interested in reduction of cattle though they had agreed to reduce low yielding scrub cattle as reciprocal obligations under the IEDP. A small reduction of cattle may have occurred due to natural processes but not due to mutual obligations. People also feel that domesticated animals can be used as major source of cash income during emergency periods.

For small and marginal cultivators, bullocks are important for cultivation. Actually, villagers have to face two problems—first, the productivity and yield are very low, and they have to depend on rainfed agriculture, and second, they have to hire bullocks for cultivating their own lands. Whatever yield they get from cultivation, they have to give away a part of this to the bullock owner. Naturally small and marginal farmers without bullocks give priority to owning them to increase their stock of staple food for daily survival. This is especially true in the BTR where other employment opportunities are meagre.

Interestingly, most of the forest villagers do not consider grazing in forests as harmful to forest and wildlife. In fact, forest villagers claim that cattle grazing is their right as they have been using the forest as grazing land for more than 100 years. With drastic curtailing of em-

ployment in forestry activities after creation of the tiger reserve, cattle became the most dependable resource for forest villagers due to their multiple uses in traditional agriculture, in supplementing income and also for the consideration of their nutritional importance to their families. In fact, an intensive study of a forest village of the BTR (done by author in 1999) reveals that forest villagers regarded cattle as one of the main source of income especially among the marginalised poor people.

In this context, is it acceptable or feasible to remove cattle populations from the national parks or sanctuaries declared under the Indian Wildlife (Protection) Act 1972, particularly for the people who are living on a subsistence economy? An International Union for Conservation of Nature (IUCN) study reveals that globally about 86 per cent of national parks (Amend & Amend 1992) and over 65 per cent of the PAs in India (Kothari et.al. 1989) had permanent resident populations that were historically dependent on resources of PAs for their livelihood. In rural India, cattle are an integral part of the communities to sustain daily survival needs. From as far back as the Vedic period, cattle serve as a source of food and a measure of wealth (Brown 1964). Naturally, cattle as an integral part of the forest communities came into existence in forest areas for multiple uses. To cater to the demand for timber, colonial forest management encouraged locally available population groups to settle in forest areas as they provided a constant labour force, leading to establishment of forest villages in parts of India. In the process of establishment of forest villages, colonial forest administrators also permitted the rearing of cattle. Thereby the forest authorities recognised the intimate link of cattle stock with forest communities.

Large scale degradation of forest wealth at Buxa region gained momentum from the 1970s onwards. As Buxa is surrounded by agricultural lands or tea estates, the bulk of the population consists of either cultivators or tea estate labourers. Moreover, from 1970 onwards large scale Bangladeshi migrants moved to the border areas of the forests and settled there. Due to the extension of the township of Alipurduar sub-division towards the reserve forest areas a semi-urban population has also come into existence in the neighbourhood of the reserve forest (Sinha & Das 2003). The timber requirements of the local inhabitants have increased tremendously. The more sophisticated section of the urban population also requires some quantities of timber for construction of houses and for furniture. As a result forest managers find it difficult to manage and preserve the already denuded forest resources. Instead forest managers, without any scientific evidence blame cattle grazing in every part of the forest areas as one of the main reasons for degradation of biodiversity in certain parts of the BTR.

By attempting to implement the policy of cattle reduction, the forest authorities are curtailing the rights of the forest villagers living in the forest for generations to sus-

tain their livelihoods. Huge reduction of employment opportunities have left the villagers with no option but to increasingly depend on cultivation and other economic opportunities like non-timber forest production collection and selling of milk (Das 2005b). In effect, the strategy of linking income-generating activities with cattle reduction hasn't succeeded at the desired level under the IEDP at the BTR.

CONCLUDING OBSERVATIONS

This study has tried to show that the implementation of the ecodevelopment strategies has little impact on reduction of cattle at the BTR. However, a steady but consistent declining trend of cattle numbers is evident for several reasons. In fact, imposing any international model of wildlife conservation is often problematic and may not be worthwhile. Most conservationists and wildlife scientists always go for universalisation, without focusing on regional or local variations. As a result, the policy of imposing models developed for one area and with one set of values upon another area and culture is frequently ineffective. The study reveals that the conservation of biodiversity zone under legal restrictions may not be fruitful as it actually goes on to alienate forest people who sustained their livelihoods for centuries in a country like India. As cattle are an integral part of the rural economy and livelihood especially for marginalised, vulnerable groups in forests where alternative employment opportunities are limited, the reduction or removal of cattle may not be a viable strategy. Even the strategy of providing high yielding variety of cattle replacing the scrub cattle to forest villagers living on a subsistence economy is not worthwhile as experienced from the IEDP at the BTR.

Blaming of livestock and cattle grazing for denudation of biodiversity has become a strategy on the part of forest managers as an easy way to shrug off their responsibilities. By taking into cognizance the need of the local people and local resources, forest managers should evolve alternate and viable strategies for management of the forest. A management strategy, like rotational grazing of livestock, might be an alternative instead of sticking to the strategy of reduction of cattle and curtailing villager's rights over forests especially within the PAs. This will instil forest people's confidence in conservation of PAs in India.

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Note

1. As per agreement with the Forest Department, forest villagers were entitled to get 1 ha in the plains and 0.6 ha in the hills per family for cultivation and for their homesteads. Each household was also allowed to keep not more than two plough cattle, two milch cows and four calves; two goats or sheep were allowed provided that they were always stall fed (DoF 1970).

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