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Ecotourism in Lawachara National Park in Bangladesh: Perceptions of Local People and Co-management Officials

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ABSTRACT

National Parks in Bangladesh aim to balance nature conservation and local development. Recently a co-management approach has been adopted to elaborate National Park management plans jointly with local people. In Lawachara National Park, ecotourism is one of the main instruments for its development. This research focuses on local people's perceptions of the contribution of ecotourism to sustainable development and the role of co-management in it. A list of social, economic, environmental and institutional impacts of ecotourism was developed and 105 interviews were executed. The results revealed three groups: satisfied, economic dissatisfied and overall dissatisfied people. Awareness of National Park policies, being involved in ecotourism in terms of activities or jobs, gender and length of residence were found to be major factors influencing satisfaction levels. This study indicates that ecotourism interventions, which result from the co-management projects at Lawachara National Park, have not yet realized their aims in terms of contributions to sustainable development.

Keywords: *Ecotourism, Impact, Perception, Lawachara National Park, Bangladesh*

Introduction

The contribution of ecotourism to sustainable development

One of the greatest challenges the world is facing in the 21st century is to balance nature conservation and development. Ecotourism is increasingly seen as an opportunity for sustainable development as it addresses both nature conservation and poverty reduction (Ahebwa, Van der Duim & Sandbrook, 2012; Van der Duim, 2011). Sustainable development comprises four dimensions: social, economic, environmental and institutional (Cottrell, Vaske, Shen, & Ritter, 2007; Cottrell & Raadik, 2008; Spangenberg, 2002; Valentine & Spangenberg, 2000). The social dimension stipulates that all individuals have access to resources and facilities they need to live a healthy and dignified life. Cultural expressions and activities are an important aspect of people's livelihoods and therefore are integrated in the social dimension. The economic dimension specifies the satisfaction of human needs for material welfare. This implies an economy which supports employment and livelihoods. The environmental dimension describes the

need to protect biodiversity as well as to reduce the pressure on the physical environment. Whereas the first three dimensions refer to a more traditional interpretation of sustainability, the fourth institutional dimension emphasizes participation of stakeholders, including local people, decentralized decision making, information sharing and shared responsibilities (Cottrell & Raadik, 2008; Cottrell & Raadik-Cottrell, 2012; Lanem 2001; Spangenberg, 2002). Participation of stakeholders, however, is considered a crucial precondition for tourism planning to evolve with minimum negative impacts (Ahebwa et al., 2012; Bramwell & Lane, 2000; Fisher, Magginis, Jackson, Barrow, & Jeanrenaud, 2008; Kothari, Singh, & Saloni, 1996; Van Hal & Van der Duim, 2009).Although the institutional dimension has received less attention than the three other dimensions, research has found that all four dimensions contribute to resident satisfaction with ecotourism (Choi & Sirakaya, 2006; Cottrell et al., 2007; Cottrell & Raadik-Cottrell, 2012; Tsaura, Linb, & Linc, 2006).

Perceptions of ecotourism impacts

Obviously perceptions of ecotourism impacts are highly subjective and situational. Several recent studies indicate that there is a widely shared agreement on the economic benefits of ecotourism, especially by means of creating jobs and income (see for example Holladay & Ormsby, 2011; Kuvan & Akan, 2012) and improved community attitudes about nature conservation (Ahebwa, 2012). But as Stronza and Gordilla (2008, p. 449-450) argue "economic benefits may be paramount to success, but noneconomic ones can also influence chances for conservation. These include new skills, broader experiences in managing people and projects, strengthened abilities to negotiate with outsiders, and expanded circles of contacts and support for community efforts". On the other hand, studies also show concerns with respect to the social and environmental costs of ecotourism. Ecotourism can also lead to perceptions of decreased quality of life and of the quality of the environment, for example due to pollution or exhaustion of resources (Abdollahzadeh & Sharifzadeh, 2012; Cottrell & Raadik-Cottrell, 2012; Kuvan & Akan, 2012). It is also widely acknowledged that communities are not homogeneous in their perceptions of local development issues. Factors that influence this heterogeneity are often education, gender, and age (Rao, Nautiyal, Maikhuri & Saxena, 2003). Abdollahzadeh & Sharifzadeh (2012) found in their study on rural residents' perception towards tourism development in Iran that medium-educated people, women and people employed in the tourism industry were the most positive about tourism development. Similarly, Kuvan and Akan (2012) found that having a share in tourism development influences perceptions positively. Similarly, perceptions of planning and management also differ between different community groups (Alkan, Korkmaz & Tolunay, 2009; Lai & Nepal, 2006; Rao et al., 2003).

Ecotourism and co-management in Lawachara National Park, Bangladesh

This article contributes to the debate on tourism-conservation-development, by means of investigating the social, economic, environmental and institutional impacts of ecotourism, and the role of co-management by presenting a case study from Bangladesh. In Bangladesh, biodiversity protection is still in its infancy. In 2011, less than 2% of the total land area was protected. Protection takes place by means of National Parks and Wildlife Sanctuaries. Lawachara National Park (LNP), in the northeast of Bangladesh, is one of the 17 National Parks but also one of the smallest (see also Ahsan, 2007). Traditionally all National Parks in Bangladesh were managed by the Forest Department (FD), but their success was limited. Biodiversity in LNP has been seriously threatened by direct and indirect impacts due to the land uses of various groups (NACOM, 2004). Illegal forest harvest, a rail line and road passing through the Park, uncontrolled tourism, mining for gas, and military use for training are the main threats for biodiversity. An important underlying reason is the persistent poverty in Bangladesh. Bangladesh is one of the poorest countries (155 in position out of 182 countries) in the world and positioned 129 out of 169 countries (score 0.469) in the Human Development Index (UNDP, 2010). The case of Bangladesh clearly illustrates that biodiversity loss and poverty are linked problems (NACOM, 2004).

To increase biodiversity protection and reduce poverty in Bangladesh, collaborative management programs of national parks were set up, aiming at a sustainable development for national parks and surrounding local communities. Since early 2000, co-management initiatives have been developed for some of the protected areas in Bangladesh. The Forest Department worked with USAID to jointly develop a project called the 'Nishorgo Support Project'(NSP) as a five year pilot project to strengthen protected area management by more active local participation in forest resource management (Mollah & Kunda, 2004; Sharma, DeCosse, Roy, Khan, & Mazumder,2007). Since 2006, local communities around LNP are involved in the Co-management Committee (CMC) and in activities such as joint patrolling in the forest, training for and local involvement in different Alternative Income Generation (AIG) activities and awareness generation on forest protection (NSP, 2006). NSP aims at reducing the dependency of the local communities on the natural resources by involving them in ecotourism. Some specific ecotourism objectives of NSP are: encouraging ecotourism in suitable zones and develop visitor amenities; building infrastructure within protected areas to enable better management and provision of visitor services at protected areas; and creating AIG opportunities for key local stakeholders (NSP, 2006).

This research aims at examining the perceptions of local people as well as people involved directly in the co-management initiatives of (i) the contribution of

ecotourism to sustainable development and (ii) the role of co-management. First the methods are being presented, followed by the results. Based upon the perceptions of social, environmental, ecological and institutional impacts by local inhabitants and NSP-official, three groups will be distinguished: satisfied, economic dissatisfied and overall dissatisfied people. The final section discusses the results and presents the main conclusions.

Methods

Study Site

LNP is situated in the northeastern part of Bangladesh, 160 km northeast of the capital Dhaka. The size of the Park is 1250 hectares; another 281 hectares has been proposed for including within the NP area (FSP, 2000; Mollah & Kunda, 2004; NSP, 2006). The forest of LNP is a semi-evergreen and mixed deciduous. The biodiversity of LNP is diverse and consists of 293 faunal species, such as the Hoolock gibbon, leopard cat and King Cobra, and 167 floral species. It is also an attractive ecotourism destination due to its aesthetic beauty, dense high forests, undulating slopes and hillocks based landscape, historical and cultural values and ethnic diversity, surrounding eye catching tea gardens at the border of south-east, south and east sides of the forest and coffee plantation at the west side (NACOM, 2003; NSP, 2006).

Data collection and selection of respondents

This research project conducted semi-structured interviews with both local community members and people involved in the NSP. There are 18 villages in close proximity of LNP (<5km) with approximately 4000-4500 households. People are extremely poor (85-90%) and depend largely on natural resources for livelihood opportunities (DeCosse, 2006). Villages also differ in ecotourism activities and visitor numbers. This dependency on both natural resources and ecotourism can be classified into high, moderate and minor level of dependency (Hossain, 2007; Mollah & Kunda, 2004; NSP, 2006; NACOM, 2003, 2004). Three villages within each dependency level were selected: Lawachara Punji, Magurchara Punji and Duluchera (major dependency level); Radhanagar, Chatakchara and Garopalli (moderate dependency level); Langurpar, Ballarpar and Bongaon (minor dependency level). Interviews with community members were conducted in each of the villages.

A snowball sampling method was followed as villagers needed to be familiar with ecotourism activities and co-management as regards to Lawachara National Park. A local guide helped to initiate the first interview. In each village between 7 and 15 community members, all belonging to different households, participated in the interview. In total, 30 interviews were held in each dependency level, leading to a total of 90 interviews. Interviews were conducted face-to-face in the native language (Bengali) or tribal languages. In the latter case, a translator assisted the interviewing. People involved in the NSP-project can be differentiated in three

groups: (i) the Forest Department (FD), the government authority responsible for the management of LNP, (ii) the International Resources Group (IRG) and its two domestic NGOs i.e., Rangpur-Dinajpur Rural Service (RDRS) and Nature Conservation Management (NACOM), who were responsible for supervision and support, and (iii) members of the Co-Management Committee (CMC) who were directly involved in the decision-making process of ecotourism development. Respondents were selected from different levels of hierarchy within the organization (field level officials as well as higher level officials). In total, 15 NSP-officials (5 from each group) have been interviewed.The total number of conducted interviews was 105 (with a response rate of 75%). Data were collected from November 2008 to January 2009.

Interview design

The interview design was semi-structured, with closed and open questions. This article deals with the closed questions. The four dimensions of ecotourism were used as a starting point to develop a list of indicators. The selection was determined on the basis of current ecotourism activities and objectives (NSP, 2006), the existence of the co-management approach and experiences with surveys carried out in National Parks throughout the world (Choi & Sirakaya, 2006; Cottrell et al., 2007; Cottrell & Raadik, 2008; Cottrell & Raadik-Cottrell, 2012; Tsaura et al., 2006). Five indicators for each dimension were selected (see Table 1). For each indicator the respondent had to indicate the perceived satisfaction and the perceived contribution of the co-management approach by means of a 5-point Likert scale and a 'don't know' answer. Besides, people were interviewed about demographic and socio-economic variables (gender, age, education, income, sources of income, duration of living, etc.), involvement in ecotourism activities, awareness of NSP-project, and an overall quality rating of tourism development around LNP.

Data Analysis

We used both descriptive and multivariate analysis techniques. First, this research applied a selected number of K-means cluster analyses to determine the distribution and possible groupings of respondents (Stevens, 1999). A three cluster solution that could be interpreted consistently was chosen. To analyze differences between groups we used cross tabulations and Anova. We used the measures of association Cramer's V and Eta^2, that not only test for significant differences, but also indicate the proportion of total variability explained by the independent variable (Stevens, 1999).We present results significant at $p < 0.001$ (***), < 0.01 (**) and <0.05 (*) level.

Results

Characteristics of the respondents

Fifty-eight percent of the respondents were male and 42% were female (Table

1). Most NSP-officials were male. Respondents were on average 36 years old, NSP-officials being slightly older than local villagers. The literacy rate of the respondents was 84%. The average education level of local people was in-between primary and high school. NSP-officials were much higher educated than local people. None of them was ecotourism specialist or had a professional background in ecotourism. On average, local people lived 27 years in the village and their total income was 75.8 US $/month (1$ =78.1 Bangladeshi Taka) in 2009. Sources of income were – people could indicate two sources of income - agriculture (58%), business (32%), services (12%), and tourism (8%). Nineteen percent of the interviewed local residents reported no sources of income at all.

About one-fifth of the local people were involved in tourism activities focusing on LNP. Though the awareness of the NSP-project amongst villagers was high (98%), the awareness of the co-management approach and tourism activities was much lower (57% and 36% respectively). Locals living in a village with major or moderate dependency on natural resources and ecotourism were more aware compared to the other villagers. Regarding the overall quality of tourism development in the LNP area (measures at a scale from 1 to 10), remarkably NSP-officials were less positive than local residents (5.3 and 7.3 respectively).

Table 1: Socio-economic characteristics and awareness of NSP contents (standard deviation between brackets)

	All (N=105)	**Local people (n=90)**	**NSP officials (n=15)**	**Statistics**
Age[2]	35.7 (10.1)	34.7 (9.8)	41.9 (9.7)	Eta^2=.06 *
Education[1,2]	3.3 (1.8)	2.8 (1.3)	6.3 (1.5)	Eta^2=.47***
Gender (%)[2]				
- Male	61	58	80	n.s.
- Female	39	42	20	
Length of residence		27.1 (11.4)		
- Major dependency village	-	23.1	-	Eta^2=.08*
- Moderate dependency village		30.9		
- Minor dependency village		27.2		
Income[2]	-	75.8 (32.4)	-	-
Sources of income (% yes, more than one answer possible) [2]				
- Agriculture	-	58	-	-

	All (N=105)	Local people (n=90)	NSP officials (n=15)	Statistics
- Business	-	32	-	-
- Service	-	12	-	-
- Tourism	-	8	-	-
- Nothing at all	-	19	-	-
Overall quality tourism development (scale 1-10) [2]	7.0	7.3	5.3	Eta^2=.11***
Involvement in tourism activities at LNP (% yes)	30	18	100	CV=.63***
- Major dependency village		33		
- Moderate dependency village		17		CV=.32**
- Minor dependency village		3		
Awareness NSP at LNP (% yes)[2]	-	98	-	-.
Awareness co-management approach (% yes)		57		
- Major dependency village	-	73	-	CV=.43*
- Moderate dependency village		70		
- Minor dependency village		27		
Awareness on ecotourism activities (% yes)		36		
- Major dependency village	-	47	-	
- Moderate dependency village		43		CV=.28*
- Minor dependency village		17		

[1]: 1=illiterate, 2=primary school, 3=high school, 4=SSC, 5=HSC, 6=graduate, 7=masters, 8=PhD

[2]: level of dependency of village not significant

Perceptions of ecotourism impacts at LNP

Generally speaking respondents were reasonable satisfied with current ecotourism developments (see Table 2). People were most satisfied with improved environmental awareness (M=4.1) and least satisfied with increased educational opportunities (M=3.5). As Cronbach's alpha for each type of impact appeared to be reasonable (social: α=.71) to strong (economic: α=.88), the items were further analyzed at the level of impact type. People were least satisfied with the economic impacts of ecotourism (M=3.6). For example, they were rather negative about the sharing of the benefits among local people and the infrastructure improvements. People were most satisfied with the environmental impacts (M=3.8). They

emphasized that ecotourism contributed to biodiversity conservation and solid waste management, but also improved local people's and visitors' environmental awareness. Here the publicity of LNP in different media to visit the place and also to conserve its biodiversity and overall environment played a role, as well as the efforts of the local eco-guides to inform and motivate the visitors about the wild and special environment of LNP and its surroundings. The movement of visitors to the Park and its surrounding areas also encouraged more and more people to conserve the natural resources and thus reducing the illegal felling from the Park.

Table 2: Satisfaction with ecotourism (ET) impacts and the contribution of co-management (CM) in realisingthese ecotourism impacts (N=105)

Items	Satisfaction		Contribution CM[2]	
	Mean[3]	DK[4]	Mean	DK
Social impacts				
More educational opportunities for the locals due to ET	3.5	8	3.6	42
ET increases the quality of life by better food, cloth, etc.	3.6	7	3.4	43
ET reduced criminal activities in this area	3.7	7	3.8	44
ET preserves the local culture	3.9	7	3.9	46
Visitors to LNP are encouraged to learn about local cultures	3.7	7	4.0	45
Overall rating social impacts	*3.7*		*3.8*	
Cronbach's α	*.71*		*.87*	
Economic impacts				
ET creates new job opportunities for locals	3.7	7	4.1	43
ET creates more economic opportunities for women	3.7	7	4.1	42
ET provides more benefit sharing among local people	3.5	11	3.9	45
New market has been developed for local products due to ET	3.6	8	3.9	43
ET has improved infrastructures (road, school, etc.)	3.5	9	3.6	43
Overall rating economic impacts	*3.6*		*3.9*	
Cronbach's α	*.88*		*.90*	
Environmental impacts				
ET has improved conservation of flora at LNP	3.9	7	4.0	44

Items	Satisfaction		Contribution CM[2]	
	Mean[3]	DK[4]	Mean	DK
ET has improved conservation of fauna at LNP	3.9	7	4.0	45
ET has improved solid wastage management at LNP	3.7	8	4.0	46
ET has reduced pollution (sound, water, air) status of LNP	3.8	9	3.9	46
ET has improved environmental awareness among people	4.1	5	4.1	43
Overall rating environmental impacts	*3.8*		*4.1*	
Cronbach's α	*.85*		*.91*	
Institutional impacts				
Access to decision making processes has been enhanced	3.8	9	4.4	46
ET has facilitated the implementation of the co-management approach	3.7	29	4.4	53
ET facilities have been developed in cooperation with local businesses	3.6	17	4.0	50
ET helps to get better support (training, finances, technical issues, etc.) from as well as it facilitates good communication with NSP-officials	3.9	6	4.4	42
ET training facilities have been increased	3.7	7	4.4	43
Overall rating institutional impacts	*3.7*		*4.3*	
Cronbach's α	*.84*		*.93*	

[1] 1: strongly dissatisfied, 2: dissatisfied, 3: neutral, 4: satisfied, 5: strongly satisfied.
[2] 1: not at all, 2: not so much, 3: almost half, 4: majority, 5: fully
[3] Mean based on 5-point Likert scale.
[4] Number of respondents who did not know an answer

Regarding the social impacts (M=3.7), the respondents opined that ecotourism hadstimulated local people to practice their indigenous culture by being dressed in traditional clothes, selling handicrafts and souvenirs and performing different cultural shows for their guests. Criminal activities in their area were also reduced. Finally, regarding the institutional impacts (M=3.7), people were least satisfied with the way ecotourism was developed in close cooperation with local entrepreneurs and most satisfied with facilitation and communication provided by the project.

The research did not reveal any statistical significant differences for satisfaction levels between NSP-officials and community members regarding the social, economic, environmental and institutional impacts, nor did we find any differences

for villages with varying levels of dependency.

Perceptions of contribution of co-management at LNP

In general, 43% of the community members were not aware of the co-management program. Respondents who were aware of the co-management program indicated that ecotourism impacts were positively influenced by the co-management initiatives (see Table 2). Again, due the high internal consistency values, a scale was constructed for the contribution of co-management on each sustainability impact. Co-management was perceived satisfactory for all the dimensions. Respondents were most satisfied with the institutional dimension (M=3.8), for example 'access to decision making and training have been improved' (M=4.4). They were least satisfied with the social dimension, illustrated by the fact that respondents were neutral about the contribution of co-management in enhancing the quality of life (food, clothing) through ecotourism (M=3.4).

NSP-officials were much less satisfied with the contribution of co-management than local people (mean values for social, economic, environmental and institutional dimension of NSP-officials in between 0.5 and 0.7 lower than local people, all significant for $p<0.5$). As they were involved with the co-management, they might have had higher expectations of decision-making and might have been more critical about the achievements being made. Again, the level of dependency of villages on natural resources and tourism did not influence satisfaction ratings.

Between satisfaction and dissatisfaction

In this research it was assumed that people perceive ecotourism contributions differently. The satisfaction dimension was used as a basis for a K-means cluster analysis. A three cluster solution was found to be appropriate; both in terms of contents and on the basis of statistical significance (see Table 3). A small part of the respondents (n=9) were not analysed due to many missing values. The three groups of respondents can be characterised as follows:

- *Satisfied people* (n=59, 61%): people belonging to this group were positive about the contributions of ecotourism to sustainable development, whether economic, environmental, institutional or socio-economic;
- *Economic dissatisfied people* (n=20, 21%): this group consisted of people who had doubts about the contributions of ecotourism in economic terms; on the other hand they might be called environmental optimists as they were most satisfied with these impacts;
- *Overall dissatisfied people* (n=17, 18%): these people were sceptic towards the environmental, institutional and economic contributions of ecotourism.

The three groups represent different perceptions of LNP's ecotourism development. Whereas the overall dissatisfied people were rather negative about the overall quality of tourism development (M=5.2), the economic dissatisfied

people rated the overall quality of tourism development more positive (M=7.8), more or less comparable to the satisfied people (M=7.2).

Table 3: Scores of satisfaction clusters on ecotourism impacts and overall quality tourism development (N=96)

Cluster	Satisfied people	Economic dissatisfied people	Overall dissatisfied people	Statistics
Social impacts	4.0	3.5	3.2	Eta^2=.32 ***
Economic impacts	4.0	2.9	3.0	Eta^2=.51 ***
Environmental impacts	4.0	4.2	2.9	Eta^2=.46 ***
Institutional impacts	4.0	3.8	2.9	Eta^2=.56 ***
Overall quality tourism development (scale 1-10)	7.3	7.8	5.2	Eta^2=.18 ***
Number of respondents	59	20	17	

Involvement makes a difference

Involvement in ecotourism clearly influences the level of satisfaction (Table 4). People having an income out of tourism, being involved in tourism activities or being aware of ecotourism activities in LNP, are either satisfied or very satisfied.

Table 4: Ecotourism satisfaction clusters further characterised (N=96)

Cluster	Satisfied people	Economic dissatisfied people	Overall dissatisfied people	Statistics
All respondents	61	21	18	-
Type of respondent (%)				
- local people	60	23	17	n.s.
- NSP-officials	72	7	21	
Dependency level of village (%)				
- Major dependency village	64	25	11	n.s.
- Moderate dependency village	46	27	27	
- Minor dependency village	68	18	14	
Age	35.0	35.6	37.7	n.s.
Education[1]	3.4	2.9	3.6	n.s.
Gender (%)				
- Male	53	22	25	CV=.27*

- Female	76	19	5	
Length of residence	25.0	29.4	33.1	Eta^2=.08*
Income	74.4	84.3	87.8	n.s.
Source of income (%yes)				
- Agriculture	57	24	19	n.s.
- Business	63	28	9	n.s.
- Service	25	37	38	n.s.
- Tourism	50	0	50	CV=.27*
- Nothing at all	79	5	16	n.s.
Involvement in tourism activities at LNP (% yes)	63	7	30	CV=.29*
Awareness (% yes)				
- NSP at LNP	59	24	17	n.s.
- Co-management approach	57	23	20	n.s.
- Ecotourism activities	53	13	34	CV=.39***
[1]: 1=illiterate, 2=primary school, 3=high school, 4=SSC, 5=HSC, 6=graduate, 7=masters, 8=PhD				

Female respondents were more satisfied than male respondents. This might be explained by the fact that some local (mainly ethnic) females, who were not used to earn money, started small businesses, such as the selling of handicrafts, cultural shows, and clothes manufacturing. On average, people living for a long time in the area were most dissatisfied, whereas people with a short residence were most satisfied. As length of residence is correlated with age (Pearson rho .58***), we suggest that older have experienced more changes and are lessinvolved in ecotourism activities and therefore were not so easily impressed by the impacts of ecotourism.

The three satisfaction clusters appeared to be statistically insignificant for both types of respondents and dependency level of villages. It seemed that NSP-officials, responsible for implementing the co-management approach and management plan, more often belong to the category 'satisfied people' than local residents. Inhabitants of villages with a major and minor resource dependency seemed to be more satisfied than inhabitants from villages with a moderate dependency. Communities with a moderate resource dependency had a high awareness, but a much lower involvement, which might cause more dissatisfaction due to higher expectations. Besides, local people in these villages had the longest period of residence, which was negatively correlated with satisfaction. Villages with a major resource dependency

are most familiar with the NSP-project and are most often involved in ecotourism activities. Finally, most of the interviewed people in the communities with a minor resource dependency level belong to the satisfied people; although they do not benefit directly, they do not experience disadvantages as well.

Conclusion

Since early 2000, co-management initiatives have been developed for some of the protected areas in Bangladesh to enhance both biodiversity conservation and poverty reduction. The 'Nishorgo Support Project' was developed to strengthen protected area management by stimulating active local participation in forest resource management. The development of ecotourism was one of the focal areas. For co-management to be effective, local communities and local voices should be fully acknowledged (Stronza & Gordillo, 2008). Perceptions of key stakeholders on ecotourism impacts offer important information for planning and sustainable management (Elands & Van Marwijk, 2012). This research examined these local views and voices by studying the perceptions of the social, environmental, economic and institutional impacts of ecotourism in Lawachara National Park in Bangladesh.

Almost all respondents were able to assess the social, environmental, economic impacts. A clustering of respondents based on the perceived contributions ecotourism can make to conservation and development revealed three groups: satisfied people; economic dissatisfied; and overall dissatisfied people. Awareness of National Park policies, being involved in ecotourism, in terms of activities or jobs, gender and length of residence were found to be the major factors influencing satisfaction levels. These results are consistent with other studies (Cottrell & Raadik-Cottrell, 2012; Rao et al., 2003; Lai & Nepal, 2006) that indicate that communities are heterogeneous in relation to the perceived ecotourism impacts and that satisfaction levels are correlated with involvement in ecotourism activities (Abdollahzadeh & Sharifzadeh, 2012). Similarly, this research confirms that gender differences in perceptions are important with reference to development options (Abdollahzadeh & Sharifzadeh, 2012; Rao et al., 2003).

The assessment of the institutional impact, which measured the co-management achievements, proved to be difficult. Respondents either 'did not know', were unable to assess the institutional aspect of sustainability or might have been reluctant to reveal their true feelings. This substantiates the need for improved communication between resources managers and local communities (Cottrell & Raadik-Cottrell, 2012) and the need to formulate an ecotourism management plan at LNP which guides all the activities related to tourism in an integrated and systematic way (see also Ashan, 2007). It should also have a stronger focus on the way ecotourism can be beneficial to those who still live in poverty. As Leikam, Otis, Raymond, Sielken, and Sweeney (2004) argue, it socially and politically

unacceptable to exclude local stakeholders living next to or within a protected area without providing them with viable economic alternatives, nor is it acceptable to exclude them from the decision making processes.

In both respect in LNP there is still a lot of work to do. Ecotourism still generates only limited benefits to only limited numbers of local people. Results showed that about half of the local respondents were not aware of the co-management approach even at the final stage of the NSP. Awareness of the new rules of game is a crucial precondition for local participation in co-management schemes. Involvement of stakeholders in co-management requires transferring of information to and good communication with those who should be involved. This necessitates human resource development programs to build up the necessary capacity to the locals and officials to develop and promote co-management at LNP. Being the custodian of LNP, the Forest Department should be committed more to work in close collaboration with the local community people as well as other relevant actors to address the tourism-conservation-development nexus in Bangladesh.

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