

Rupantaran : A Multidisciplinary Journal
Vol. VII : pp 1-11, February, 2023
ISSN (Print) : 2091-0061, ISSN (Electronic) : 2738-9960
<https://doi.org/10.3126/rupantaran.v7i1.52198>
Research Management Cell (RMC)
Dhankuta Multiple Campus, Dhankuta
Tribhuvan University, Nepal

Perception and Reliance of Local Communities in Conservation of Protected Areas

Bhola Nath Dhakal¹, PhD
Email: dhakalbn@gmail.com

Abstract

Conservation achievement is strongly inclined by perceptions of the impacts that are experienced by local communities. Perceptions provide an important means of assessing the performance of conservation plan so that better policies may be developed for effective biodiversity protection and the wellbeing of people living near protected areas. Local communities living adjacent to protected areas (PA) have played a vital role in biodiversity conservation. Understanding communities' use and perceptions of a PA will increase its conservation effectiveness through reducing anthropogenic pressures and improving park-people relationship. The specific objective of the study was to explore the perceptions and reliance of local communities in conservation by different social groups and economic conditions on the basis of the current natural resource related needs in Bardia National Park (BNP) and its Buffer Zone (BZ). Data has been collected through a mixed-method approach, including qualitative semi-structured interviews and a household survey. This study confirmed that despite of the property loss and protected area management cost owed by local people, they are very much willing to contribute to biodiversity conservation, and in addition, their overall attitude towards various conservation statements is positive.

Keywords: *biodiversity, governance, management, park-people, socio-economic*

Introduction

Protected areas (PAs) are the key strategy for biodiversity and natural resource conservation worldwide (Juffe-Bignoli et al., 2014). Biodiversity sustains the ecosystems that sustain human life. Biodiversity conservation through use of protected areas relies significantly on the attitudes of local adjoining communities (Tumusiime et al., 2018). The relationship between local communities and management is critical for the success of biodiversity conservation (Muhumuza & Balkwill, 2013). People's perceptions are reconciled by past experiences including tenure insecurity (Bennett, 2016). Ignoring the interests of the local people

¹ Dr. Dhakal is an Assistant Professor of Geography at Tribhuvan University, Ratna Rajyalaxmi Campus, Pradarsanimarg, Kathmandu, Nepal.

and excluding them from decision-making, planning and management of the protected areas are the main sources of conflict between local communities and designated areas (Jusoh, 2012). Peoples' participation, management objectives and type of PA governance provides opportunities for information and education, recreation, scientific research and contributes to regional and local development (Getzner et al., 2012).

Socioeconomic factors like past experiences, benefit-sharing in PAs and conflicts with PAs are particularly considered key to understanding perceptions on conservation (Holmes-Watts & Watts, 2008; Bennett 2016, cited in Thondhlana and Cundill, 2017). Perceptions towards conservation are shaped differently by a diverse range of demographic factors including education levels, gender, household size and age (Mutanga et al., 2015).

Protected area is a geographically defined area of land especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means and managed to achieve specific conservation objectives (IUCN, 2004; CBD, 2003). Local community engagement in protected area conservation helps residents to become a more serious safeguard of the ecosystem and increase their sense of belonging to nature surrounding them, and also address poverty (Jusoh, 2012; Ruschkowski et al., 2013). The history of PA creation may affect perceptions of local people towards conservation of protected areas that is often animosity towards PAs with a history of displacement and deficiency of local resident communities (Mombeshora & Le Bel, 2009). Addressing the conflicts would require promoting interactions between local communities and protected area's officials (Mutanga et al., 2016).

Community support is also dependent on perceptions of the effectiveness and quality of management and governance policies, institutions, and processes (Webb, Maliao & Siar, 2004).

The access of local communities to forest resources is important in order to fulfill its aim to promote people's participation towards conservation. The buffer zone concept primarily targets towards addressing the issue on benefit sharing and providing livelihood opportunities in addition to ensure the role of communities in conservation (DNPWC, 1996). It is also perceptible that co-management efforts in the form of community-based conservation programs have made it possible to reduce the severity of problems for the local people and management around national parks (Matose, 2006). In this regards, present study aims to explore perceptions and reliance of local communities in conservation on park resources in BNP and its BZ by different social groups and economic conditions.

Materials and Methods

The study has followed a multi-stage approach involving the collection and analysis of primary as well as secondary data from all the relevant sources at the national, PAs, Buffer Zone User Committee (BZUC), User Group (UG) and community levels. The study has combined the quantitative methods by combination of several tools and techniques of Participatory Rural Appraisal (PRA) and conventional survey method of household questionnaire survey with local communities using statistical sampling method and qualitative methods by Focus Group Discussion (FGD) and Key Informant Interview (KII) with relevant stakeholders situated both within and outside the protected area.

Selection of Settlements

The participants during stakeholders' consultations have been asked to identify at least three settlements from each BZUC, having high, moderate and low dependency on park resources. Of the three settlements proposed, one settlement from each category has been selected for survey purpose, considering mobility and peace and security situation at the village level.

Sample Size Determination

The sample size n_0 has been determined using a standard formula $(n) = N / (1+Ne^2)$ where n is the sample size and N is the total number of households and e is the margin of error (Tejada & Punzalan, 2012). The sample size (n) has been calculated at confidence level (95 percent) and margin of error (5 percent).

Distribution and selection of households

The number of HHs to be surveyed from each BZUC has divided in 3:4:3 ratio from high, moderate and low dependency settlements; i.e. of the total 20 HHs surveyed from each BZUC, 6, 8 and 6 HHs have been selected randomly from high, moderate and low dependency settlements respectively. Despite the respondents have been selected randomly, the study has ensured the representation of at least one HH from each ethnic group present in the settlement.

Household Survey and Survey Method

HH (household survey) survey has generated data on socio-economic status of HHs and their perception and reliance on park resources. It provided information on resource use pattern and also shed light on pressure on existing park resources and park people conflicts. The study has attempted to make aggregate data representative of a particular group to allow statistically valid conclusions. This study used a two-stage sampling technique for the selection of settlements and HHs/respondents for survey purpose. For each sample settlement, its local leader has approached to introduce the study and explain its purpose as purely scientific and academic, with no legal implications whatsoever. It has clarified that all the responses have to be treated anonymously and with confidentiality. The same explanation has given to all our respondents. Interviews have been conducted at the respondents' homes with the household heads, but in a few circumstances with the most senior and knowledgeable of the adults available when the household head not available.

The sample number of HHs have surveyed by caste group (*The study has classified caste into four groups, Brahmin, Chhettri and Newar (BCN), Ethnic caste (indigenous communities of Nepal, defined by Rastriya Janajati Pratishthan definition), Dalit (so-called untouchable caste group of Nepal, defined by National Dalit Commission and other caste group (other backward class and religious minorities).* and economic conditions (*The study has classified households into Special Target Group and non-STG based on STG classification criteria, which has agreed during the stakeholders' consultations held in BNP. The criteria adopted for classifying STG households where per capita household's income of less than Rs 6200 per annum and food sufficiency of less than 6 months from their farm production*). Majority of the HHs surveyed have been selected from Ethnic caste group (55.83 percent) followed by BCN caste group (27.05 percent), Dalit caste group (14.64 percent) and other caste group (2.48 percent). Likewise 34.5 percent of HHs surveyed belonged to Special Target Group (STG) whereas rest (65.5 percent)

belonged to non-STG.

Focus Group Discussion (FGD) and Key Informant Interview (KII)

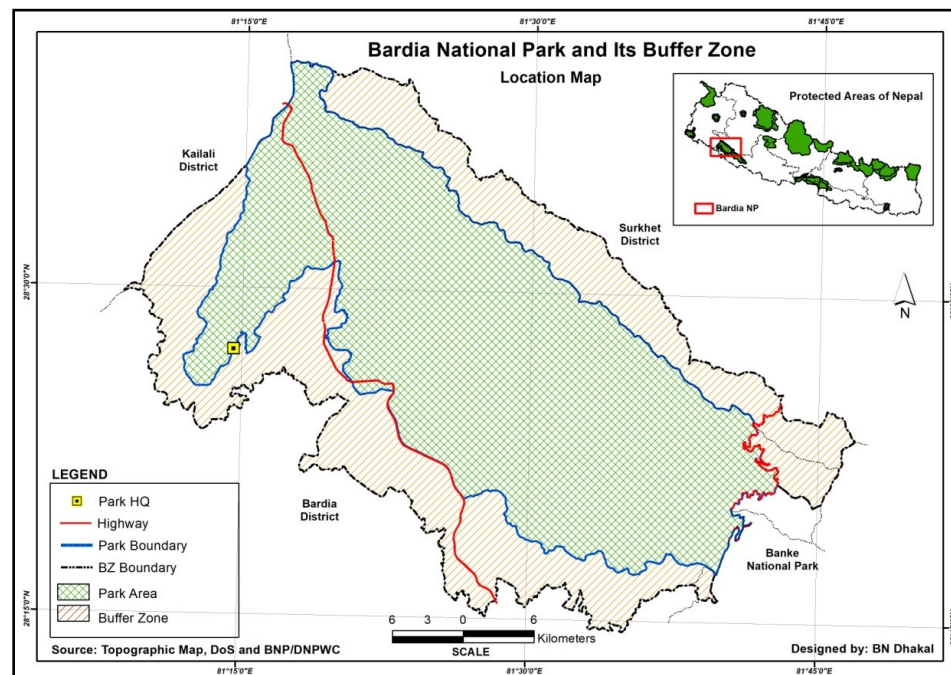
Two focus group discussions (FGDs) have been consulted in each BZCF user group to assess changes in resources use and harvest pattern and forest conditions. During the focus group discussions, participatory tools have been used to collect necessary data and information. In addition to FGD, KII survey has been held with 5 to 7 individuals from each BZUC.

Study area

Bardia National Park (BNP) is the largest National Park covering an area of 968 km². situated in Nepal's Western lowland Tarai. Geographically, the park is located at 28°15' to 28°35.5' North latitude and 80°10' to 81°45' East longitude within the elevation of below 1564 m. from the masl. It was established to protect representative ecosystems and conserve tiger and its prey species in a small area and gazette as the Karnali Wildlife Reserve in 1976. The reserve was given the status of a National Park in 1988 (BNP/DNPWC, 2016).

A narrow strip of buffer zone covering an area of about 507 sq. km adjoins the park in the north, west and in the south. More than 100,000 people of diverse ethnicity inhabit the buffer zone. Tharus are the indigenous group and comprises above 60% of the total population. Other ethnic groups in the buffer zone include Brahmin/Kshetri, occupational castes and the people from Mongoloid origin (Magar, Gurung, Tamang etc). Agriculture is the main occupation of buffer zone communities (BNP/DNPWC, 2020). The park and local communities jointly manage the buffer zone; they initiate community development activities and manage natural resources in the buffer zones.

Figure 1: Location map



Results and Discussion

Socioeconomic Characteristics

The literacy rate of people living around BNP area has encouraging with literacy rate of population of six years and above at 67.3 percent. This is above the national average. Relatively higher proportion of male (75.3 percent) are literate than female (58.6 percent). Among the caste group, literacy rate has highest in BCN (76.4 percent) followed by Dalit (72.5 percent) and ethnic (63.2 percent) (Field survey).

Agriculture has main source of income of nearly 69 percent HHs living in the BZ. This has followed by wage earning (14.2 percent), service (6.7 percent), business (5.8 percent) and other occupational activities (4.2 percent). Share of wage earning on HH income has highest among Dalit followed by STG and Ethnic groups. Land holdings have found small and fragmented but subsistence agriculture remains the main occupation of almost all the inhabitants.

In terms of number of livelihoods related activities, ethnic caste group HHs have found more active than all other caste group. Likewise non-STG carried 10.41 activities where as STG has conducted 6.58 activities only. This reveals that the extent of difference has more evident between STG and Non-STG than among the different classified caste groups. In terms of non-farm activities, number of activities carried out by STG HHs has slightly higher than non-STG. From the above, it can be concluded the STGs have more likely to benefit if BZ development programmes focus more on non-farm related activities than farm-related activities. .

Livestock is an integral part of the farming system, which supplements HH incomes as well as production of manure. About 91 percent HHs have owned livestock. However, proportion of HHs owning livestock has highest among Ethnic (96.9 percent) followed by BCN (86.2 percent) and Dalit (78 percent). No significant difference has been found in number and type of livestock owned by HHs of classified caste groups.

The study has estimated average annual HH income of the BZ communities at Rs. 100,719 with 58.7 percent and 40.3 percent share of farm and non-farm sources respectively. The share of forest related income has found only about one percent because forest resources have been made available to local people for their subsistence use only.

The gross average annual HH income of non-STG has been found Rs 94,950 which is almost four times higher than of STG (Rs 23,828). Despite the average number of non-farm activities carried out by STG has higher than that of the non-STG, the share of farm income to the total income of STG has lower (63.4 percent) than that of non-STG (74.8 percent).

In this study, food sufficient HHs referred to those HHs who produce enough food to feed their family members round the year from their own farm. Only 14.4 percent of HHs has food sufficient whereas rests (85.6 percent) are food insufficient. The study has found the food sufficiency level of Dalit has extremely low (3.4 percent) with some up among BCN (18.5 percent) and further up among Ethnic HHs (18.7 percent). Not only the proportion of food sufficient HHs has low among Dalit and BCN, but most Dalit (61.0 percent) and BCN (22.9 percent) HHs have food sufficiency for less than 3 months from their own production.

The study has revealed 83.9 percent HHs participating in various BZ related organizations such as BZUG, BZCF, BZUC etc. However, such proportion has highest among

BCN (88.1 percent) and lowest among Dalit (76.3 percent). Likewise 84.1 percent of non-STG has members in BZ organizations against 82 percent among STG. When the membership pattern of the HHs between BZCF and BZUG has assessed, the study found that proportions of HHs having membership in BZUG and BZCF have 96.4 and 95 percent respectively. This has shown relatively high coverage of the BZ institutions by local communities.

The coverage of the HHs through training has relatively poor with access to about 17.6 percent HHs. The study has found access of HHs to training opportunities has highest among BCN (25.7 percent) and the lowest among Ethnic groups (13.8 percent). This observation has found even between STG and non-STG, 8.6 percent of STG receiving training against 22.3 percent non-STG. This reflects the poor coverage of STG on training opportunities. The study has also marked gender disparity in training, particularly among men and women. Such situation has similar across the classified caste group and among the STG and non-STG.

Level of Resource Dependency

The people have depend on the forest for various products such as firewood, timber, food, construction materials, fuel-wood for own consumption and for sale. Most of the HHs has visited BNP to collect forest products. This study has noted a moderate dependency of the BZ communities on BNP for their livelihoods; about 36.5 percent HHs have collecting roofing materials, 24.7 percent collecting canes, 9.6 percent collecting cane, 17.3 percent collecting firewood, and 8.0 percent catching timber. Further to these items, the survey report has also showed that 0.3 percent HHs has been employed in the park and 0.5 percent HHs used park for grazing livestock. The study has also observed that people has given more priority to tangible benefits over non-tangible benefits.

The result reveals that more than 87.5 percent sample HHs have been collected firewood. Out of which 76.2 percent HHs collected from the BZCF and among them 75.5 percent of their demand has been fulfilled from the BZCF. This means that the demand of less than 25 percent HHs have not been met their demand for firewood from BZCF and needed to depend on BNP. The proportion of HHs collecting different forest products has found highest in case of firewood (87.5 percent) followed by thatch (73.6 percent), grass (56.5 percent) and reeds (51.3 percent) and so on.

Above 40 percent of demand of forest products has been met except for grass, fodder, timber and litter. Contribution of BZ on demand fulfillment has less than 50 percent for all the forest products except in case of fire wood. This reflects still people have dependent upon other common property resources for fulfillment of their forest product need. BZ has found the main source for litter followed by fodder, firewood, grass, thatch, MAPs and timber where as BNP has found the major source for other forest products, fiber, reeds and WEFs. When the demand and supply of the different forest products have assessed in terms of absolute quantity, the study has found fulfillment of highest proportion of demand for fiber plants and lowest for timber and litter. This finding has suggests that BZCF should focus on enhancing the supply of those commodities than from BNP.

Firewood has overwhelmingly the primary source of energy for cooking irrespective of caste groups. There has no significant difference among the different caste and economic groups on energy use pattern and firewood remained dominant among all the cases. Biogas has emerged as second most important source of energy. Hence, people have very much dependent on forest

for energy requirement and collection of firewood from adjoining BZ and BNP.

Resources management and utilization

There have been considerable plantation activities to improve the resource base in private land to reduce the dependency on protected area. The survey has revealed that BCN HHs has more plantations relatively compared to other caste group. They have reported that 61 percent of them utilized their barren land in plantation. Hence, there have been considerable plantation activities to improve the natural resource base outside the BNP.

The proportion of HHs has reporting their perception about BZCF and importance of protected area has quite high (more than 73 percent) among different caste groups and between STG and non-STG. Yet, the proportion of HHs who have aware of BZCF to enhance the conservation of PA has highest (85.3 percent) among BCN and lowest among Dalit (72.9 percent). Likewise 77.7 percent STG have aware of BZCF in their locality against 83.7 percent of non-STG HHs.

Use of alternative energy sources

Biogas installation has reduced the firewood demand. Of the 392 HHs surveyed, 54 HHs (13.8 percent) have installed biogas plants. The number of HHs with bio-gas plants has increased from 34 (ten years ago) to 86 (now). The increase in the number of HHs with bio-gas plants has mainly due to the mobilization of the Area Conservation Facility (ACF), now known as Biodiversity Conservation Facility (BCF). Many HHs have taken loan from BCF for bio-gas plant installation. Apart from this, the study has found many BZUCs, BZCF and cooperatives have promoting installation of bio-gas plants by providing additional cash incentives and soft loan. The proportion of HHs with bio-gas plants has found highest (20 percent) in case of other caste group and lowest (1.7 percent) in case of Dalit caste group. Likewise, 11.7 percent of non-STG HHs has installed bio-gas plants as compared to 2.2 percent of STG HHs. This clearly indicates that this technology has relatively costlier to lower middle class and lower class HHs. The other reasons have noticed for low installation of biogas plants among these HHs which has small farm size and small holding of animals, especially cow and buffalo.

This study has found saving of about 3214 tones of firewood per year or 210 kg firewood per HHs, which has sustained yield of 2662 ha of forests. This indicates significant contribution of biogas plant in reducing community dependency on PA. Of the total HHs surveyed, 81 HHs (20.5 percent) have installed ICSs. The number of HHs with ICSs has increased from 21 (ten years ago) to 49 (now). The installation of ICSs has a recent affair among Dalit HHs. The survey has revealed the positive trends in increase in number of improved cooking stoves (13 percent per annum). Though the users of ICS must be relatively with poor HHs, very little efforts have been made to promote ICS among the Dalit and STG. The total projected HHs installing ICS has found 795 in BNP. Hence, total firewood saved from ICS has around 370 tons per year or 24 kg per HHs per year, which has sustained annual yield of 307 ha of forest. Hence, this has ultimately contributed to reduce community reliance.

This study revealed that adoption of clean and sustainable energy technology among the STG HHs has found comparatively limited. Very few surveyed HHs have installed biogas plants and similar situation has observed in case of other energy saving devices. Since the use of energy saving devices such as biogas and ICSs can reduce firewood demand significantly, it has hereby

suggested on promoting the use of ICSs and biogas to reduce the demand for the firewood.

Park People Interface

The survey has revealed that 58.7 percent of the households have received compensation on human death, injury, crop damage and loss or harm to domestic animals from wildlife. This has revealed that Park has contributing towards mitigation of park people conflicts. The proportion of HHs reporting loss of properties has slightly high in case of STG compared to non-STG. Lack of endowment fund due to untimely release of park revenue to the BZMC has created some problems on timely disbursement of the compensations. The proportion on distribution of reporting HHs has high among BCN group as compared to Dalit and Ethnic caste groups. The value of crop damage has relatively high among non-STG HHs as compared to STG HHs.

About 80 percent sample HHs has reported that they have known how to mitigate the loss from wildlife. The proportion of distribution has reasonably high among Dalit caste group (83.1 percent) followed by Ethnic caste group (78.2 percent) and BCN (77.1 percent). The knowledge to mitigate the loss from wildlife has slightly high among STG HHs (81.3 percent) than non-STG HHs (78.0 percent). However, mitigating measures have rated moderately effective by almost two-thirds of the reporting HHs. Most of the efforts, which succeeded in mitigating loss, have noticed from group efforts. However, some respondents have reported their private efforts too such as the instillation of bio-fence, construction of view towers/machans, hiring of watchperson and even changing in cropping pattern.

During the field survey, users' problems and needs have been identified, prioritized and analyzed having involving them in participatory processes. A number of practical and specific needs related to PA resources have identified and ranked on the basis of their priorities. The foremost need as prioritized and ranked by the communities has found timely and adequate compensation for the loss of crops, domestic animals, human and properties where as construction of animal preventive infrastructure to minimize the crop losses has given second priority needs. Hence, local communities have more concerned with the construction of infrastructures relating to control and prevention of the loss from the wildlife.

Perception of Communities

The study has found mix perceptions of the BZ communities about the status of resource base, despite of current efforts of promoting resources base on private, community and institutional site land. While 20 percent respondents have reported the improvement on forest conditions due to handing over of BZ forest to local communities, creation of alternative resource base outside BNP, controlled free grazing and limited collection of forest products, especially during specified seasons or months, and 49 percent perceived no change. However, proportion of HHs reporting decline in resource base has low and it has encouraging. Despite of resource base improvement and decline in resource use, human wildlife problems has increased.

Timber, poles, firewood, fodder, litter, grass, thatch and reeds are the major forest products collected by the local people. For all the products, more than fifty percent of HHs has reported no change exceeded for all types of forest products. Only less than 15 percent of HHs has reported decreasing in availability for all forest products. This suggests that either the availability has increased or has not declined. For this, an effort of the BZ activities on resource management and availability has needed to be endorsed.

There has been decreased in the time spend for the collection of all the forest products except in case of thatches, reeds and fiber plants. Likewise, distance traveled before BZ intervention has now decreased in most of the products except in case of reeds and fibre plants. The change situation has mainly due to improvement in resource base inside the BZ as well as increase in private plantation activities. BZ intervention has brought positive changes in livestock grazing practices except for public and private land. There has been gradual decrease in free grazing practices among all management regimes as well as in different land use types. Likewise, people started grazing their cattle in own or private land, which has reduced the grazing pressure on other common property resources. The study has also revealed gradual decrease on grazing intensity among all the grazing places. Hence, assisting and motivating local people to plant fodder and forage trees on their farms have contributed to reduce grazing pressure.

Use of alternative energy such as biogas, LPG gas, electricity and kerosene has increased by more than four times after the BZ initiation. This has significantly contributed to reduce people's reliance on protected areas. Decrease in the proportion of HHs entering the PA to collect forest products such as firewood, grass and medicinal plants has to be considered as a positive perception of local communities in PAs. However, the proportion of HHs entering the PA to collect forest products such as thatches, reeds, and fiber plants has increased in recent years. This shows that people have now collecting more non-wood forest products from BNP compared to past.

Conclusion

The findings of the study illustrates that the perceptions and attitudes of the local residents on their participation in decision-making and management of conservation, tourism and social development are important for sustainability. This investigation has also revealed that biodiversity in National Parks depends on the relations between local people and park officials. Local people who participate in park projects and programmes are more likely to view their relationship with PA management favorably. Local people receiving benefits from park have more likely to have a favorable perception towards PA management.

This study confirms that reliance on forest products has been declining in recent years but still demand exceeds current level of consumption for key forest resources such as firewood, timber, and thatch. The proportion of households entering the PA to collect forest products has declining. This can be considered as one of the positive change brought by community intervention. Higher the demand for the forest products met through BZCF and other sources, lower will be the dependency of the people for that product on the BNP.

The study revealed that the proportion of demand by lower caste groups for different forest product has generally lower for all type of the forest products except for pole, timber and WEFs. This shows that lower caste groups has the low access on the forest products. For instance, in the community-conservation approach, poor people have often targeted so that when they have given economic incentives, they have to be develop and hence reduce pressure on natural resources. Contrary to this perception, in some cases, the well-off people have to be actually more responsible for biodiversity loss from National Parks than the poor.

References

- Bennett, J. N. (2016). Using perceptions as evidence to improve conservation and environmental management. *Conservation Biology*, 30: 582-592.
- BNP/DNPWC. (2020). *Annual Progress Report, 2076/77*. Department of National Parks and Wildlife Conservation, Bardia National Park Office.
- BNP/DNPWC. (2016). *Bardia National Park & its Buffer Zone Management Plan (2016-2020)*. Government of Nepal, Ministry of Forests and Soil Conservation, Department of National Parks and Wildlife Conservation, Bardia National Park Office
- CBD. (2003). *Hand book of the Convention on Biological Diversity*, UN and UNEP, Montreal, CBD Secretariat.
- DNPWC. (1996). *Buffer Zone Management Regulation, 1996*. Kathmandu, Nepal: Department of National Park and Wildlife Conservation, Ministry of Forest and Soil Conservation.
- Dudley, N., Mansourian, S., Stolton, S., & Sukuwana, S. (2010). Do protected areas contribute to poverty reduction? *Biodiversity*, 11(3-4): 5-7.
- Getzner, M., Jungmeier, M. & Lange, S. (2012). *People, Parks and Money, Stakeholder Involvement and Regional Development: A Manual for Protected Areas*. Verlag Johannes Heyn.
- Juffe-Bignoli, D., Burgess, N. D., Bingham, H., Belle, E. M. S., de Lima, M. G., Deguignet, M., Bertzky, B., Milam, A. N., Martinez Lopez, J., Lewis, E., Eassom, A., Wicander, S., Geldmann, J., van Soesbergen, A., Arnell, A. P., O'Connor, B., Park, S., Shi, Y. N., Danks, F. S., MacSharry, B., & Kingston, N. (2014). *Protected Planet Report, 2014*. Cambridge, UK: UNEP-WCMC.
- Jusoh, H. (2012). Assessing natural capitals for sustainable ecotourism in Tasik Chini Biosphere Reserve. *Advances in Natural and Applied Sciences*, 6(1): 1-9.
- Kamphorst, D. Koopmanschap, E., & Oudwater, N. (1997). Effective participation in wildlife management in Zimbabwe's CAMPFIRE programme. *European Journal of Agriculture Education and Extension*, 4(3): 173-182.
- Matose, F. (2006). Co-management options for reserved forests in Zimbabwe and beyond: Policy implications of forest management strategies. *Forest Policy and Economics*, 8: 363-374.
- Mombeshora, S., & Le Bel, S. (2009). Parks-people conflicts: the case of Gonarezhou National Park and the Chitsa community in south-east Zimbabwe. *Biodiversity Conservation*, 18: 2601-2623.
- Muhumuza, M., & Balkwill, K. (2013). Factors affecting the success of conserving biodiversity in national parks: A review of case studies from Africa. *International Journal of Biodiversity*, 1-20. <https://doi.org/10.1155/2013/798101>
- Mutanga, C. N., Muboko, N, Gandiwa, E., & Vengesayi, S. (2016). Beyond a single

- perspective to conservation relationships: Exploring factors influencing protected area staff and local community relationships in Zimbabwe. *International Journal of Biodiversity Science, Ecosystem Service Management*, 12: 212-226.
- Mutanga, C. N., Vengesayi, S., Gandiwa, E., & Muboko, N. (2015). Community perceptions of wildlife conservation and tourism: A case study of communities adjacent to four protected areas in Zimbabwe. *Tropical Conservation Science*, 8:564-582.
- Ruschkowski, E. V., Burns, R. C., Amberger, A., Smaldone, D., & Meybin, J. (2013). Recreation management in parks and protected Areas: A comparative study of resource managers' perceptions in Australia, Germany and United States. *Journal of Park and Recreation Administration*, 31(2): 95-114.
- Tejada, J. J., & Punzalan, J. R. B. (2012). On the misuse of Slovin's formula. *The Philippine Statistician*, 61(1): 129-136.
- Thondhlana, G. & Cundill, G. (2017). Local people and conservation officials' perceptions on relationships and conflicts in South African protected areas. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 13(1): 204-215 <https://doi.org/10.1080/21513732.2017.1315742>
- Tumusiime, D. M., Byakagaba, P., Tweheyo, M., & Turyahabwe, N. (2018). Predicting Attitudes towards Protected Area Management in a Developing Country Context. *Journal of Sustainable Development*, 11(6): 99-110. doi:10.5539/jsd.v11n6p99
- Webb, E. L., Maliao, R. J., & Siar, S. (2004). Using local user perceptions to evaluate outcomes of protected area management in the Sagay Marine Reserve, Philippines. *Environmental Conservation*, 31: 138-148.