Economic significance of ecotourism across biodiversity parks impacting livelihoods and nature conservation: A case study of Central Karakoram National Park, Pakistan.

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Abstract: National parks are biodiversity hotspots of global significance. In absence of informed decisions, irreparable ecological losses may happen. Present study was executed to identify relationship between economic significance of ecotourism and wildlife conservation from a community perspective. To test hypothesis, a purposive sampling survey using a set of self-administered questionnaires was conducted at household level in Askoli valley of the park. OLS multiple regression model was applied to analyze the data. Results reveal that ecotourism and agriculture complement each other benefiting local community. Ecotourism lessens overall resource use pressure substantially on biodiversity in ultra-poverty stricken buffer zone.
[Karim R, Najam N, Mark I, Khan T, Ullah K. **Economic significance of ecotourism across biodiversity parks impacting livelihoods and nature conservation: A case study of Central Karakoram National Park, Pakistan.** *Researcher* 2014;6(10):25-29]. (ISSN: 1553-9865). http://www.sciencepub.net/researcher. 5

Key Words: Ecotourism, Biodiversity, poverty, national parks, Karakorum Mountain Ranges

1. Introduction

Tourism represents important development and economic opportunity to the host communities of every country. In last few decades, tourism is recognized as one of the major economic development engines not only at the national level economy but also within regional and local economies (Nica, 2011). Many of the developing countries have not yet been able to take full advantage of tourism even though they are aware of its potential and significance in the local and international economy. Particularly concerning its contribution to national income, employment and tax revenue as a result, tourism is not given the required priority in the development plans of these countries.

The tourism industry is currently the world's largest and most diverse business sector since it serves as a primary source for generating revenue, employment, private sector growth, and infrastructure development for many countries. Researchers have argued that tourism development not only stimulates the growth of the industry, but also triggers overall economic growth (Lee & Chang, 2008; Chancharat, 2011). Hence, enhancing economic growth by promoting the tourism industry has become an important development strategy in most of the developing countries (Chen & Chiou-Wei, 2009; Chancharat, 2011). Tourism can improve the individuals' quality of life and contributes to the economic welfare of local communities (Swart & Bob, 2007; Homafar et al., 2011).

The economic impacts of tourism are diverse; they are most direct at the primary level of the tourism sector: accommodation, catering, transportation, retail. At the secondary level tourism has an impact on most other economic activities. Economic analyses of tourism are usually based on changes in sales, income, and employment (Stynes & Propst, 1992). Although tourism and recreation provide employment to the local population, this can lead to a nonstructural supply of jobs, including many that require little education. Seasonal unemployment is also a problem, since tourism is an activity which is still of a highly seasonal nature (Cigale, 2004).

Studies by (Downward & Lumsdon, 2003, Fredman, 2008 and Thrane & Farstad, 2011) have constituted a confirming impact between destination earnings and tourism consumptions. The same positive relationship between income of host community and tourism spending has been further studied by (Jang et al., 2004; Lee, 2001; Wang et al., 2006). Progressing economies prioritize the economic policies to boost its outbound tourism as a possible mean of economic prosperity and progress (Tiwari, 2011).

The appropriateness of tourism in modest scale economies has been considered as unfavorable standings in worldwide competitive environment but some current studies, however, witnessed that small size economies amazingly have performed better than gigantic economies (Croes, 2003; Vanegas & Croes, 2003). Studies on tourism impact on economy and society by (Gee et al., 1989; Jurowski et al., 1997;

Choi & Sirikaya, 2006; Ayad & Shujun, 2013) recognized the potential indicator for the benefit and improvement in the lives of host population at any destination. Apart from economic benefit to the community, tourism is one of the main sources for employment, government income through taxes and income for local communities (Ap, 1992; Ayad & Shujun, 2013).

2. Regional Setting

The Karakorum extends 350km parallel to the Himalayas, from the Siachen glacier in the east along the border between Pakistan and China to the Ishkamun River, which divides the Karakorum range from the Hindu Kush in the west (Ives, 2004). The development of tourism in the region of the Karakorum has been influenced in large part by the geographic conditions, most notably by the high concentration of tall mountains – four of them above 8000 m: K2 (8611m), Gasherbrum I (8063m), Broad Peak (8047m) and Gasherbrum II (8035m. The longing to ascend the world's highest peaks in the mid-20th century became a driving force for the development of tourism in this region, which was at first limited to exploration and mountaineering expeditions, and only considerably later was followed by a boom in trekking as one of the most popular forms of adventure tourism in the broader region of the Himalayas more generally (Mrak, 2011). The exceptional growth in the numbers of visitors was made possible by the construction of the Karakorum Highway (KKH) in 1978. The number of tourists to, for example, the Hunza Valley was barely 302 in 1979, but by 1985 this had soared to 5361 (Ives, 2004). The construction of KKH also had a major impact on local communities as well as to their behavioral patterns. The road enabled the out-migration and consequently impacted the significant social structure change (Kreutzmann, 2007). Politically the area lies in Gilgit-Baltistan (formerly known as Northern Areas). Gilgit-Baltistan borders Afghanistan to the north, China to the northeast, the Pakistani administrated state of Azad, Jammu and Kashmir to the south, and the Indian-administered state of Jammu and Kashmir to the southeast. The territory consists of two Baltistan districts (Ganche and Skardu) and the five Gilgit districts (Astore, Diamir, Gilgit, Ghizar and Hunza-Nagar). The main political centers are Gilgit and Skardu. Gilgit-Baltistan covers a territory of 72,496 km² and has an estimated population of 1.8 million (UNPO, 2011). Despite the substantial population growth, the outmigration is also significant in order to increase the household incomes as well as to diversify the income resources (Kreutzmann, 2007).

The Karakoram Mountains, especially the area of Baltoro Glacier has a long history of mountain tourism. The numbers in recent years are fluctuating primarily due to international events (e.g. the terrorist attack in New York on September 11 2001) and unstable internal political conditions in Pakistan (Mrak, 2011). The central parts of the Karakorum Mountains are a protected area. Namely, in 1993, the Government of Pakistan established the Central Karakoram National Park which covers the area of 10,000 Sq km. The area has numerous high mountain peaks and long glaciers which are the largest outside the polar region is most easily reached on foot, and one of the main starting or exit points is the village of Askoli, which has been involved in mountain research expeditions and later on into tourism since the 19th century. The men from the village traditionally work as porters, cooks, and guides, and help visitors transport equipment and food to the base camps or along the selected trekking route. Agriculture and tourism are the main sources of income for the village; together they sustain the quality of life of the households which are facing the rapid demographic increase, consequently also the race for natural resources, not only among themselves but also with visitors to the area.

3. Objectives and Methodology

The main objective of study was to assess the tourism contribution in households' income in Askoli village (CKNP area). Beside tourism, the data on other sources of household income was also collected and analyzed by using a survey method. Surveys are commonly used for collecting data within the field of tourism and hospitality (Ramukumba et al., 2012). Descriptive surveys are concerned with particular characteristics of a specific population and are predominantly used to gather information about what people do or think (Altinay & Paraskevas, 2008).

Primary data was used for the sampled respondents. Researchers tried to access the whole population of 67 houses but some household heads did not consent to fill the questionnaire and some households were headed by females and they were reluctant to give information. Therefore, researchers could access forty four household heads/representatives to collect the required data. Questionnaires were distributed among 44 household representatives/heads in Askoli (CKNP). In order to measure the economic significance of tourism on resident of the study area (Askoli), a purposive sampling method was used to acquire the required information. Askoli is one of the tourism nucleus sites in CKNP area; therefore, this site was purposively selected. To analyze the collected data, multiple regression model was used to find the relationship

between dependent and independent variables. Data was processed in Eviews and SPSS-16 to interpret the result.

4. Results and Discussion

In Askoli 44 households were randomly selected to collect the information. Results attained from this survey show that average household population is 10 people. Total population of surveyed household was 447 (54%) or n=241were males and 46% or n=206 were females.

Average Per Capita Income is Rs. 26762 which is enough for a household to counter their daily life expenditures.

$PCI = THI(samp)/TP(samp)$

Table 1: Per Capital Income

No. of Sample Household	Yearly PCI (Rs.)	Monthly PCI (Rs.)
44	26,762	2,230
		1 USD=102

According to the data acquired in Askoli, local population works in multiple sectors with agriculture being the primary activity. Besides agriculture male population is involved in tourism activities during the season (May – October). Although tourism is a potential sector for Askoli the villagers try not to rely only on tourism because it's a matter of seasonal activity and is also vulnerable in terms of unexpected events and political instability in the country. In the surveyed 44 households, 271 men work in tourism sector as cooks, guides, porter sirdars, high altitude porters, low altitude porters, cook helpers etc. while 271 people in sample population work in agriculture sector and 28 people are working in other sectors like small business, etc. The sample population indulge themselves both in agriculture and tourism activities in accordance with the seasons to supplement their household income. Therefore, total number of employment becomes greater than the surveyed sample.

Table 2: Employment Status of population in the study area

No. of Sample Households	Agriculture	Tourism	Other	Total
44	255	271	28	554

4.1. Regression analysis:

Table 3: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	81685.88	21757.90	3.754308	0.0006
AI	0.887330	0.322896	2.748037	0.0089
TI	0.805113	0.070530	11.41520	0.0000
JI	0.546756	0.158845	3.442066	0.0014
R-squared				0.769586
Adjusted R-squared				0.752305
F-statistic				44.53364
Prob (F-statistic)				0.000000

For checking the relationship between the dependent and independent variables of the study, OLS multiple regression model was run on the data and the results were obtained. The regression results show 76.95 percent variation in the dependent variable (THI) is due to independent variables of the model i.e. Agriculture Income (AI), Tourism Income (TI) and Job income (JI). This significance relationship shows the important composition of different sectors to fulfill the households' expenditures in Askoli.

The following regression model was developed;

THI=f (AI, TI, JI).

THI (Askoli)= $\beta_0 + \beta_1 AI + \beta_1 TI + \beta_1 JI + \varepsilon i$

Where:

THI= Total Household's Income in Askoli

AI= Income from Agriculture Sector

TI= Income from Tourism Sector

JI= Income from other Jobs (other than tourism sector)

Ɛi= Error Term

4.2. Multicollinearity Identification

Multicollinearity is one of the econometric problems which create unwanted situations with strong correlation among independent variables in multiple regression model. There is rule of thumb that if Variance Inflation Factor (VIF) value lies between 5 to10, it shows the multicollinearity among independent variables and if VIF exceeds 10 it means

there is severe multicollinearity (Montgomery, 2001). The Table 4 shows that VIF

value for all variables is less than 5-10. This shows the problem of multicollinearity doesn't exist among the variables used in the data.

Table 4: Multicollinearity Test

Variables	VIF Value
AI	1.010
TI	1.050
JI	1.040

4.3. Hetroskedasticity Analysis:

For the detection of hetroskedasticity problem in the data, Breusch-Pagan test was carried out and results of which, appears in the Table 5 shows that value of ρ is greater than 0.05 indicating that there is no problem of hetroskedasticity in the data.

Table 5: Breusch-Pagan-Godfrey Test Results

F-statistic	1.469234	Prob. F(3,40)	0.2374
Obs*R-squared	4.367236	Prob. Chi-Square(3)	0.2244
Scaled explained SS	23.24718	Prob. Chi-Square(3)	0.0000

5. Conclusions

The main aim of his study was to identify the economic conditions of households (Askoli) living in far flung area of Gilgit-Baltistan. This area has been one of the ignored remote regions by government in terms of development. The only source of peoples' survival is tourism sector because Askoli is entry and exit point for K2, Biafo-Hisper trekking etc. From the data analysis this can be concluded that tourism plays an important role in Askoli not only to survive but to be able to send their children to schools, accessing the health facilities and to counter other household expenditures. According to the analysis, in Askoli tourism sector contributes 61% in total household income, whereas jobs in government and private organization contributes 16%, agriculture gives 13% and other sources like businesses and remittances etc. contributes 10% in sample households. Most of the population in sample area lives below poverty line if we look at the results drawn from this survey. According to World Bank Report 2013 (WDI, 2013) international standard of poverty line is 2 US dollars per day which become approximately Rs. 200 per day. In Askoli the monthly per capita income (PCI) accounts as Rs. 2230.16 which is lower than 1 dollar per day, so the sample households in Askoli live below poverty line as per international standard. According to the results shown in this study area, tourism and agriculture sectors complement each other to give benefit to the host community. Agriculture is used as subsistence source for the household consumption while tourism helps them in combating their other household expenditures like health, education and transportation etc. Local guides and porters earn small portion of tourism spending whereas major portion goes to big tour operators. There is a need to formulate a policy for reasonable distribution of tourism income at the destination which is at present being exploited. This is one of the requirements of sustainable tourism development in the remote mountainous regions.

Contribution of the agriculture sector in total employment is higher than the other sectors but the returns from this sector are low as compared to other sectors. Since the returns to the agriculture sector are subject to diminishing returns and especially in areas where the farming practices are of subsistence nature therefore sectors like tourism should be focused to enhance the livelihoods of indigenous population. Park management therefore should strive towards improving the process through evaluating and improving their own performance (Soheyla, 2014) to ensure interest of the indigenous communities is protected.

References

1. Altinay L, and Paraskevas, A. 2008. Planning research in hospitality and tourism. UK: Elsevier.
2. Ap, J. 1992. Residents' perception of tourism impacts. *Annals of Tourism Research* (19) 665-690.
3. Ayad, A.T..H. and Shujun, Y. 2013. Local People Attitude towards Social, Economic and Environmental Impacts of Tourism in Siwa Oasis, *Life Science Journal (LSJ)*, 10(1) 57-65.
4. BISP. 2010. Benezir Income Support Program, Government of Pakistan, unpublished households' survey in 2010.
5. Cigale, D. 2004. Posledična navzkrižja in obremenitve slovenskega alpskega sveta zaradi turistične in rekreativne dejavnosti. Doktorska disertacija. Univerza v Ljubljani, FF, Oddelek za geografijo.
6. Chancharat, S. 2011. Thai Tourism and Economic Development: The Current State of Research, *(Kasetsart J. (Soc. Sci)* 32: 340-351.
7. Chen, C. F. and Chiou-Wei, S. Z. 2009. Tourism Expansion, Tourism Uncertainty and Economic Growth: New Evidence from Taiwan and Korea, *Tourism Management*, 30(6): 812-818.
8. Choi, H.C. and Sirakaya, E. 2006. Sustainability indicators for managing community tourism. *Tourism Management*, (27) 1274-1289.
9. Croes, R.R. 2003. Dancing with paradise: tourism in the Caribbean. The need for empirical

analysis and policy perspectives: a research agenda for the 21st century. In *Boorsma*, MoI N, Groenedik N, Piet de Vries 9eds). University of Twente: Enschede; 237-249.
10. Downward, P., and Lumsdon, L. 2003. Beyond the demand for day- visits: an analysis of visitor spending, *Tourism Economics*, 9(1), 67- 77.
11. Fredman, P. 2008. Determinants of visitor expenditures in mountain tourism. *Tourism Economics*, 14(2), 297- 311.
12. Gee, C.Y., Mackens, G.C. and Choy, D.J. 1989. The Travel Industry. New York: Van Nostrand Reinhold.
13. Homafar, F., Honari, H., Heidary, A., Heidary, T. and Emami, A. 2011. The role of sport tourism in employment, income and economic development. *Journal of Hospitality Management and Tourism*, 2(3):34-37.
14. Ives, J. 2004. Himalayan Perceptions. Environmental Change and the Well-being of Mountain Peoples. Routledge.
15. Jang, S. C. S., Bai, B., Hong, G. S. and O'Leary, J. T. 2004. Understanding travel expenditure patterns: a study of Japanese pleasure travelers to the United States by income level. *Tourism Management*, 25(3), 331 -341.
16. Jurowski, C., Uysal, M. and Williams, D.R. 1997. A theoretical analysis of host community resident reactions to tourism, *Journal of Travel Research,* (36)3-11.
17. Lee, H.C. 2001. Determinants of recreational boater expenditures on trips. *Tourism Management*, 22(6), 659 -667.
18. Lee, C. -C. and Chang, C. -P. 2008. Tourism Development and Economic Growth: A Closer Look at Panels. *Tourism Management*, 29(1): 180-192.
19. Mrak, I. 2011. High mountain areas and their resilience to tourism development, GeograFF, 1st ed. Ljubljana. University Press, Faculty of Arts, 2011. p. 168.
20. Nica, A.M. 2011. Overview of the Romanian and Spanish Approaches on the Tourism economic Impact Measurement Methods*: Cactus Tourism Journal*, 2(1):16-32.
21. Ramukumba, T., Mmbengwa, V. M., Mwamayi, K. A., and Groenewald, J. A. 2012. Analysis of the socio-economic impacts of tourism for emerging tourism entrepreneurs: The case of George municipality in the Western Cape Province, South Africa, *Journal of Hospitality Management and Tourism*, 3(3):39-45.
22. Soheyla Abdolahi. 2014. Business Intelligence as a Tool for Managers Decision Makings in Organization. Researcher 2014;6(4):4-6]. (ISSN: 1553-9865). http://www.sciencepub.net/researcher.2
23. Stynes, D.J. and Propst, D.B. 1992. A system for estimating local economic impacts of recreation and tourism. Measuring tourism impacts at the community level. S. Reiling (ed.). Maine Agr. Expmt. Sta. Misc. Report No.374.
24. Swart K. and Bob U. 2007. "The eluding link: Toward developing a national sport tourism strategy in South Africa beyond 2010". *Politikon*, 34(3): 373-391.
25. Thrane, C. and Farstad, E. 2011. Domestic tourism expenditures: The non- linear effects of length of stay and travel party size. *Tourism Management*, 32, 46-52.
26. Tiwari, A.K. 2011. Tourism, Exports and FDI as a Means of Growth: Evidence from four Asian Countries. *The Romanian Economic Journal*, 14(40) 131-151.
27. UNPO, 2011. http://www.unpo.org/members/8727 (accessed 27.9.2011).
28. Venegas Sr, M. and Croes, R.R. 2003. Growth, Development and Tourism in a Small Economy: Evidence from Aruba, *Int. J. Tourism Res*. 5, 315-330.
29. Wang, Y., Rompf, P., Severt, D., and Peerapatdit, N. 2006. Examining and identifying the determinants of travel expenditure patterns. *International Journal of Tourism Research*, 8(5). 333- 347.
30. WDI. 2013. World Bank Report, World Development Indicators, 2013.

9/26/2014