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Does Prevailing Natural Resource Pool Nearby Matter? A Case Study on Determinants of Participation on Yarshagumba Collection in Dolpa, Nepal

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Abstract

This research work explores the socio-economic status of the local peeople, their perception regarding existing scenario of yarshagumba business in local level and factors determining their participation in Yarshagumba collection in Dolpa district using logit model. The findings of the study suggest that there is a considerable variation in people of Dunai and Juphal interms of their socio-economic attributes. Income level, sex, literacy and religion had more roles to play with respect to their participation in Yarshagumba collection in comparisiion to their ethnicity, marital status, language and sickness in the family. The research also identified the prevalance of resource conflict between people and local government bodies regarding property rights and royalty of Yarshagumba collection. In addition, Yarshagumba collection has posed many challenges for conservation programs because of thousands entering into protected regions for the collection activities. Yarshagumba collection has been emerging as an important source of livelihood to many Nepali people.

Introduction

The vivid altitudinal gradient that Nepal posseses allows for the occurrence of diverse bioclimatic zones making it a treasure house of wide varieties of flora and fauna. Nepal holds immense potential for its socio-economic development by harnessing these valuable natural resource base (Devkota and Shrestha, 2007). However, herbs and aromatic floras are the least explored and researched subjects. Research from ecological and biological perspectives do exists but researches having socio-economic component to explore what motivates the locals and other individuals to travel to the resource site and engage in harnessing activity is very less in number.

Though the vast array of resource in Nepal has not been optimally used given the

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limitaion of alternatives to sustain livelihood, communities have been dependent on natural resources from the time immemorable. Non Timber Forest Products (NTFPs) have been an important source of livelihood for many communities.

A majority (84%) of Nepal's population live in rural areas (CBS,2001). Out of the total households in the country, 78 percent are agricultural households with land and about two percent are agricultural households without land (CBS, 2003). While just eight percent of the total land is arable in mountain region, the abundance of rich floral diversity offers an important livelihood source to people in this region (CBS, 2003).

Nepal is endowed with more than 7000 species of flowering plants, out of which more than 700 species are reported to be of medicinal importance (Kanel, 2002). Mountain region has a higher concentration of these species. Yarshagumba (Cordyceps sinensis) is one such internationally highly demanded species having tremendous potential to uplift socio-economic status of people in Mountain region. There are several factors that affect peoples' perception towards Yarshagumba collection and sales which have direct bearing to the overall functioning of the business and hence to the socio-economic upliftment of the region.

Yarshagumba (Cordyceps sinensis), found in the alpine region of Nepal, has emerged as an important means of livelihood to the locals. People have been attracted towards its trade, collection in general. There have been several researches regarding biological aspects of Yarshagumba . However, there is dearth of literature and research works regarding the socio-economic factors that affect Yarshagumba collection. Limited attempts have been made to understand the factors that motivate and determine the behaviour of Yarshagumba collectors. This situation calls for a minute understanding of the determinants that affect the Yarshagumba collecting behaviour and problems associated with the business. Such understanding is vital for the policy makers and planners to formulate appropriate policy and institutional mechanisms to support this business. It can help people involved in the collection of Yarshagumba raise their income and hence their level of socio-economic well being. This can assist the government's overriding policy of poverty reduction in this economically and socially lopsided region of remote Nepal.

Even though the participation of locals is considerably high in the pool of local natural resource, there is still significant level of discrepency among them with respect to various socio-economic attributes. Resource conflict is rampant in the local social fabric in Dolpa.This research explores the socio-economic status including the local peoples perception and factors determining the participation of Yarshagumba collection in Dolpa district where majority of population indulge in Yarshagumba collection activities.This research does not investigated the biological characteristics of Yarshagumba , its aspects of market and revenue collection. Moreover, the socio-economic variables and their nested type analysis is beyond the scope of the model used. Usual constraint domain of the research contains a kernel of truth and it is asymptomatic of model selection problem due to 'exactly determined' problem inherit in the nature of the data set generated.

SOCIO-ECONOMY OF DOLPA

People of different socio-economic status live in Dunai and Juphal VDCs. Among other things they differ in terms of ethnicity, religion, occupation, health, gender, age, education and level of economic well being. The level of involvement and motivation to engage in the collection and selling of Yarshagumba are affected by these factors. At the same time people have oodles of problems to face during their engagement in Yarshagumba business. In Dolpa, Brahmin and Chhetri comprises 51 percent while other 49 percent are of various other castes (CBS, 2001). Hinduism and Buddhism are the dominant religions of Dolpa district. Hinduism accounts 60.40 percent with Buddhism accounting 39.60 percent. The total number of schools in the district is 131. The literacy rate is calculated to be 33.64 percent , out of which female literacy rate is 19.88 percent whereas the male literacy rate is 47.40 percent (CBS, 2001).

The number of people actively involved in the economy in terms of employment is as follows : Agriculture (90.27 percent), Industry/Production(2.24 percent) and others(0.40 percent). Out of total population, economically active population is estimated to be 56.31 percent among which male comprises 47.05 percent and female is 52.95 percent. Even though 90 percent people are engaged in agriculture, only 1.18 percent land is arable. Similarly, 2.24 percent are engaged in manufacturing industries, while 7.08 percent are engaged in technical, administrative and other service sectors. A majority, 61.53 percent are engaged in some sort of economic activities lasting only for three to seven months. People that are economically active for eight months or above account for just 35.58 percent. This shows the prevalence of seasonal unemployment in the district (CBS, 2001). The district lags behind in terms of health facilities. There is only one primary health care centre. The district has nine health posts and fourteen sub health posts. Similarly health facilities are also provided by one district 'Ayurved' health center, 'Amchis', local healers also provide primary health care through Tibetan method of health practices (Thapa and Sharma, 2003).

YARSHAGUMBA[Cordyceps sinensis (Berk.) Sacc.]

Morphology: C. sinensis is a fungus cum insect. It exibits both plant and animal forms. This himalayan herb is commonly known as Yar tsa gun bu (In Tibetan language ' summer plant winter insect'), 'Jeevanbuti'(life tonic), 'Chyaukira' (mushroom insect), 'Kira' (insect) etc. Yarshagumba occurs during monsoon season on moist alipne medows. The fruitification is dark brown and stalk is yellowish white (MoFSC, 2003). It is estimated that there are 350 specices of Cordyceps sinesis found in the world. Altogether 3 species are reported in Nepal viz C. sinesis C. nutans and C. nepalensis (Devkota, 2006). It is 5-8cm long club shaped mushroom that comes out from the anterior end of the caterpillar of Himalayan Bat Moth [Hepialis armonicus] (WWF, 2001).

Occurrence: C. sinensis is found in Nepal, Bhutan, India, Korea and Japan. In Nepal it grows at the range of 3,500 - 5,500 meters from the sea level in the alpine meadows (MoFSC, 2003). It is distributed from 4500m to 5200m throughout high alpine areas such

as Dokpa, Jagduila, Kagmara, Pungmo, Ringmo, Majphal, Numla, Bagala, Dho, Bijer, Saldang etc in Nepal (WWF, 2001). However, this fungus has been recently spotted growing at the altitude of 2500m above sea level in different places like Khadbari-5, Matsyapokhari-2, Chichila, Jaljala-2 and Tesra. Consumption of C. sinensis found at such lower altitudes have been reported to cause certain illness (Bhandari & Giri, 2008).

Usage: C. sinensis has been in use since 1500 years when Tibetan herdsmen observed that their livestock became energetic after eating it. Cordyceps as medicine dates back to the Qing Dynasty in China in 1757(Sharma, 2004). Its current high international profile and demand developed in 1993 when many Chinese long distance runners broke world records. Since then it has been acclaimed as a "wonder herb" all over the world (Zhu et al., 1998). It has high medicinal value and is used as tonic, aphrodisiac, cardiac tonic and expectorant. It is also used in making medicine for diarohhea, headache, cough, rheumatism and liver disease (Devkota, 2006). Internationally, the healh efficacies of Cordyceps are observed and tested in Asthma, Allergic Rhinits, pooor renal functions, renal injuries by chronic bronchitis, coughing, poor resistance of respiratory tract, high or low blood pressure, anti aging, weakness, strengthing the body's immunity, poor function of lungs and kidneys and irregular mensturation (Zhu et al., 1998).

Policy: The Forest Act 1993 and Forest Regulation 1995 govern the use and trade of Cordyceps in Nepal. Eversince the species was recognized it used to be sold in high prices by the locals of mountainous districts. While the much collection mounted up with environmental repercussions, series of provisions for ban and restrictions over its use were induced. In 1993 it was totally banned for collection while in 2001 only its export in crude form was banned. Later in 2002 all the bans were lifted and Yarshagumba could be exported in crude form without processing (Devkota and Shrestha, 2007).

METHODOLOGY

Study site: Dolpa is a remote mountain district of Nepal situated in the Mid Western Development region. It shares its border with districts like Mustang, Mugu, Jajarkot, Rukum and Myagdi. Dolpa is a close neighbor of Tibet, autonomous region of China, towards its north (Annex II). With the area of 793230 Ha (5.36% of total surface area of Nepal), Dolpa is the biggest district among 75 districts of the country with Dunai as its headquarter. It has been divided into 23 VDCs. Furthermore these VDCs are divided into 9 'illakas' (CBS, 2001).This study has been conducted in three clusters viz. Dunai and Juphal VDC's, and Thange-patan (Yarshagumba collection site of Sahartara VDC) of Dolpa district. Dunai lies in the southern part of the district while Juphal and Sahartara are VDCs adjacent to Dunai.

Sampling design and sample size: There are basically four folds to the sampling design. Dolpa district was purposively selected as it contains the most available pastures and meadows for Yarshagumba habitat. Out of 23 VDCs in the district, 2 VDCs viz. Dunai and Juphal were selected randomly using random number table (Macfie and Nufrio, 2006). Since the socio-economic parameters of the households of the two VDCs randomly choosen above

are found to be quite heterogeneous, to select the sample households out of the population under consideration, stratified random sample (proportional allocation) method is used considering the two VDCs as two different strata (Parel et al,1973). So, the sample size

$(n) = \frac{N\sum N_h P_h(1-P_h)}{\frac{N^2 d^2}{Z^2} + \sum N_h P_h(1-P_h)}$ 63. Moreover, $n_1 = \frac{nN_1}{N}$ N"32 and $n_2 = \frac{nN_2}{N}$ 31. Where, N = Total Population = 646 (Thapa and Sharma, 2003); N_1 = Total Population of Dunai Strata = 332 (ibid); N_2 = Total Population of Juphal Strata = 314 (ibid); z = Standardized z-value =1.96 (95 percent confidence level); p = Sample Proportion = 15 percent; d = Level of Precision or Deemed Error Accepted =10 percent; n = Sample Size = from Dunai (n_1) + from Juphal(n_2) =32 + 31 = 63. To understand the perception of Yarshagumba collectors regarding various aspects of Yarshagumba they were interviewed at Thange-patan using accidental sampling technique.

Variable identification: The categorical variable, defined by 'zero' if the household under consideration does not participate in Yarshagumba collection and 'one' if participate, is considered as the dependent variable. Age of the household head, Experience of the household head, Sex of the household head,Ehnicity of the household, Marital Status of the household head, Language, Religion, Literacy, No. of Kids in the household, Sickness in Family and Income group of the household head are considered as the dependent variables. Out of thesevariables, age, experience and no. of kids in the household are the contineous variables and remainings are catagorigals. Sex is defined as 'zero' if the household head is female and 'one' otherwise. Ethnicity is defined as 'one' if the household belongd to Brahmin/ Chhetri/ Thakuri and 'zero' otherwise. Marital status is assigned 'zero' if the household head is single and 'one' otherwise. Language is defined as 'zero' if the household speaks Nepali language and 'one' otherwise. Religion is defined as 'zero' if the household belongs to Hindu Religion and 'one' otherwise.Literacy is defined as 'zero' if the household head is illiterate and 'one' otherwise. Sickness in Family is defined as 'zero' if no one is sick in the household and 'one' otherwise. Income group is stratified as 'zero' if the household belongs to low income group and 'one' otherwise.

Data sources and estimation: For primary information, a household survey was carried out in Dunai and Juphal VDCs using structured and standardized questionnaire. Such questionnaire had maximum of closed ended questions in which coding was done prior to the interview. Collectors were also interviewed at the collection site (Thange-patan) to find out their perception towards the collection business. Key informants view have also been documented to gain perspective for the same. For secondary information, various books, magazine articles, reports, journals and internet websites relating to the subject of the research were referred during the course of the study. STATA 10 was used to analyze the data. Chi-square test to test the discrepancy between dependent variable and various independent variables, p-value of z-statistic provided by STATA 10 is reported to test the significance of coefficients and LR-test to test the over all significance of the model is used.

Model selection: The dependent variable defined above is dichotomous in nature. To

capture the probability of participation in Yarshagumba collection given the set of explanatory variables, Logit model is employed. Participation in Yarshagumba collection (Yi) given the set of independent variables (Gujarati, 2004) is expressed in terms of log odd ratio as:

$$L_i = Ln(\frac{p_i}{1-p_i}) = \beta_1 + \beta_2 X_i + \mu_i \quad \ldots\ldots(i)$$

Where, P_i = probability to participate in Yarshagumba collection

$X_i \in$ {Sex, Experience, Ethnicity, Marital Status, Literacy, No Of Kids, Sickness In Family, Income Level}

Since, the data set generated for independent variable is almost categorical breading the exact etermination problem while adopting maximum likelihood estimation (MLE) metthod, three different sub-equations are specified as below. They are:

$X_1 \in$ {Experience, Sex, Ethnicity} $\subset X_i$ .....(ii)

$X_2 \in$ {Literacy, Marital Status} $\subset X_i$ .....(iii)

$X_3 \in$ {Income Level, No Of kids, Sickness In Family} $\subset X_i$.....(iv)

RESULTS AND DISCUSSIONS

Socio-economic attributes of the respondents

Among the total respondents, 85.7 percent revealed that they participated in Yarshagumba collection while remaining 14.3 percent revealed their non- participation in it. In total of 63 respondents, 20 percent of them were females and remaining 80 percent were male. This gender segregation of numbers reveals that male are more involved in Yarshagumba collection in the study site. There is sufficient evidence in hand to accept the null hypothesis (Annex I) that the discrepency between male and female participation in locally available natural resource pool of Yarshagumba is statistically significant at 6 percent level of significance in the sampled zone; ceteris paribus. Among the respondents, 79.4 percent were married while 20.6 percent were unmarried. There is sufficient evidence in hand to reject the null hypothesis (Annex I) that the discrepancy between married and unmarried respondents' participation in locally available natural resource pool of Yarshagumba is statistically insignificant; ceteris paribus.Regarding the religion of the respondents, the research revealed that a majority 69.88 percent followed Hinduism while remaining 30.2 percent followed some other religions like Buddhism and Kirat .There is sufficient evidence in hand to accept the null hypothesis (Annex I) that the discrepancy between the people of different religion (Hindu and Others) in the participation of locally available natural resource pool of Yarshagumba is statistically significant at 4 percent level of significance in the sampled zone ; ceteris paribus. In total of 63 respondents, 28.6 percent were illiterate and remaining 71.4 percent were literate. There is sufficient evidence in hand to accept the Null hypothesis (Annex I) that the discrepancy between the literate and illiterate respondents in the participation of locally available natural resource pool of Yarshagumba is statistically significant only at 25 percentage level of significance in the sampled zone ; ceteris paribus.

In the sample zone,among the respondents, 74.6 percent of the respondents had some sort of health problem prevailing in their families while 25.4 percent revealed not so.There is sufficient evidence in hand to reject the null hypothesis (Annex I) that the discrepancy between participation of respondents (those revealing sickness in the family and those without it) in locally available natural resource pool of Yarshagumba is statistically insignificant; ceteris paribus. The respondents have been grouped into two categories namely high and low according to their level of income. A majority, 82.5 percent fall into low income group while17.5 percent belonged to high income category.There is sufficient evidence in hand to accept the null hypothesis (Annex I) that the discrepancy between the high income group and low income group in participation of locally available natural resource pool of Yarshagumba is statistically significant only at 10 percentage level of significance in the sampled zone; ceteris paribus. The response regarding the ethnicity of the collecters revealed that majority i.e. half of them are Chhetris followed by Magars.There is sufficient evidence in hand to reject the null hypothesis (Annex I) that the discrepancy between the Brahmin/Chhetri and other respondents in participation of 'locally available natural resource pool of Yarshagumba is statistically insignificant; ceteris paribus.In regard to language spoken in the place, 63.49 percnet household spoke Nepali while 36.5 percent spoke some other national languages.The chi-square statistics (Annex I) reveals that the discrepency among the participating and non-participating respondents in Yarshagumba collection with respect to Nepali language speakers and other languages speakers is statistically insignificant, ceteris paribus.

Determinants of Yarshagumba collection

Experience, Sex and Ethnicity: The estimated logit (Equation ii) coefficients (Table 3) shows (Gujarati, 2005) that, ceteris paribus, if one unit increases in experience (age squared), the probability of participating on yarsha collecting behavior (as revealed by the respondents) is likely to decrease by one fold and vice versa, at 8 percentage significance level. Similarly, ceteris parribus,being a male instead of female, the probability of participating on yarsha collecting behavior as revealed by the respondents is likely to increase by more than seven folds, vice versa, at 3 percent level of significance. Ceteris parribus, being a Brahmin/ Chhetri instead of others, the probability of participating on yarsha collecting behavior as revealed by the respondents is likely to increase by about seven folds and vice versa. Though the coefficient is insignificant, it supports the sign expected by the theory. Overall model is significant at 10 percentage level of significance.

TABLE 3: Logit Coefficients (Dependent variable = Participation)

Independent Variables	Coefficients (p-value)	Antilog of Coefficients
Experience	-0.0005694 (0.079)	1.000569562
Sex	1.995814 (0.030)	7.358190158
Ethnicity	0.4658308 (0.563)	7.358190158

LR-value = 6..39 p-value = 0.0939

* Figures in the parenthesis shows the p- value of respective coefficients

Marital Status and Literacy: The estimated logit (Equation iii) coefficients (Table 4) shows (ibid) that, ceteris paribus, being married instead of unmarried, the probability of participating on yarsha collecting behavior revealed by the respondents is likely to decrease by two folds, vice versa. Similarly, ceteris paribus,being a literate (formal education attended) instead of illiterate (formal education not attended), the probability of participating on yarsha collecting behavior as revealed by the respondents is likely to increase by more than two folds, vice versa. Though both the coefficients are insignificant, they support the expected sign and overall model is significant at 8 percentage level of significant

TABLE 4: Logit Coefficients (Dependent variable = Participation)

Independent Variables	Coefficients (p-value)	Antilog of coefficients
Marital status	-0.693478 (0.537)	2.000661748
Literacy	0.7533331 (0.313)	2.124067962

LR-value =3.65 p-value = 0.0792

* Figures in the parenthesis shows the p- value of respective coefficients

Income, Number of kids and Sickness in family: The estimated logit (Equation iv) coefficients (Table 5) shows (ibid) that, ceteris paribus, having one more children, the probability of participating on yarsha collecting behavior as revealed by the respondents is likely to increase by more than one folds, vice versa. Similarly, ceteris parribus, having and sick family members , the probability of participating on yarsha collecting behavior as revealed by the respondents is likely to decraease by more than one fold, vice versa. Ceteris paribus, being a high income group instead of lower one, the probability of participating on yarsha collecting behavior revealed by the respondents is likely to decrease by more than one fold, vice versa. All the coefficients are significant at 8 percentage level of significance and they support the expected sign also. Overall model is significant at 10 percentage level of significance.

TABLE 5: Logit Coefficients (Dependent variable = Participation)

Independent Variables	Coefficients (P-value)	Antilog of coeficients
Number of kids	0.0646708 (0.0705)	1.066807773
Sickness in family	-0.2838358 (0.0719)	1.32821482
Income	-0.2031496 (0.0797)	1.225255753

LR-value = 2.32 p-value = 0.0956

* Figures in the parenthesis shows the p- value of respective coefficients

Key informants' view:

Resource conflict at Thange 'lekh': "If I am to speak the truth the conflict here is like of the Kargil War that took place in 1999 between India and Pakistan. Both the groups put up their camps and started firing", says Manav Dahal, a social worker in Dolpa. He added,

"The Sahartara group claims there ownership on the forest and so does the Tarel group, if there wasn't Yarshagumba in the forest no one would care about." This is clearly a conflict over the high value resources that help people uplift their living standard to some extent.

Another strand of conflict lies in fixing the revenue. It is said to be NRS 1000 for those outside of Dolpa district and NRS 500 for those from Dolpa. When asked why both the groups are collecting revenue from the incoming collecters a local leader of Sahartra said, "Tarels cannot collect revenue. This is our forest. It is not all about money it is also about our dignity and pride."

When asked about the real ownership status of the forest Manav replies, "I think the state should intervene in this matter by resurveying the area and by establishing the user's group. The ownership issue is not clear in the previous survey."

The scene at the place was quite terrifying. Groups moving around with arms (especially light guns) were also spotted. At last for this year they sat down for the negotiations and reached to an agreement. This conflict is a delicate issue and should be handled with safe hands. Failure to handle may result a protracted conflict which then might be very difficult to resolve.

Problems and ongoing policy draft regarding yarshagumba: According to Mr. Ganesh Poudel of Northern Mountain Conservation Project (NMCP) of DNPWC and WWF, for more than a decade now is involved in community development and conservation activities in the Shey Phoksundo National Park and its surrounding buffer zone. He forwarded following views which are listed in points below:

i. Yarshagumba collection had posed many challenges for conservation programs because thousands enter into protected regions for the collection in a haphazard way.

ii. It is very difficult to manage negative consequences of this activity. Negative aspects of it are like solid waste management from periodic human encroachment in the form of Yarshagumba collection.

iii. Security needs health needs of many women and children needs to be addressed when they go for collection. This is one of the major challenges.

iv. After consultation with stakeholders including political parties a draft policy is prepared and sent to the ministry. If this gets ratified then sustainable harnessing of Yarshagumba will take a new direction

Ripples and reflexes of Chyau Kira: Angad Hamal, resident of Dunai, Dolpa and also engineer of District Development Committee, Dolpa cited two examples of Yarshagumba healing, curing people from arthritis and meningitis. Regarding the social aspect of Yarshagumba his views can be summarized in the following points-

i. There has been increase in the mobility to collect the Yarshagumba because of its high price in recent days.

ii. The influx of people from adjacent district is an indicator that people are poor in this region.

iii. Environmental impact is of serious concern because people take noodles and other instant food when they are up in the mountains for collecting. They dump the plastic bags and wildlife feed on it resulting to death.

iv. Research needs to be done to identify the species of moth involved.

v. Hygiene and communicable disease needs to be taken in to special consideration.

vi. There have been increase in the income level of the people but that needs to be properly utilised to reduce poverty.

vii. Lot of accidents and causality management needs to be done in the near future for safety from disease and accidents.

CONCLUSION

People in Dunai and Juphal vary interms of their socio-economic attributes. Income level, sex, literacy and religion definitely matters more relative to ethnicity, marital status, language and sickness in the family to the local people in Dolpa whether to participate in Yarshagumba collection or not (Annex I). An individual being a male instead of female is more likely to participate in Yarshagumba collection in Dolpa. Similarly, it is found that, local people out of Brahmin, Chhetri and Thakuri instead of other ethnicity are more likely to participate in the Yarshgumba collection activities in the region. Also, a local who has attended formal education is more likely to participate in Yarshagumba collection relative to those without formal education. Likewise, household having more kids is more likely to participate in Yarshagumba collection in Dolpa. A person relatively more experienced regarding Yarshagumba collection is less likely to participate . Similarly married respondents are less likely to participate in Yarshagumba collection relative to unmarried ones. Likewise, sickness in the family reduces the possibility of participation in Yarshagumba collection. A person being relatively rich is less likely to participate in Yarshagumba collection in Dolpa.

Similarly, there prevails resource conflict between people and VDCs regarding ownership and royalty of Yarshagumba collection. In addition, Yarshagumba collection has posed many challenges for conservation programs as well principally because thousands enter into protected regions for the collection in a haphazard way. It is very difficult to manage negative consequences of this activity. There has been increase in the mobility to collect Yarshagumba because of its ever growing demand and price. The influx of people from adjacent district is an indicator that people are poor in this region. In addition, there is a persistant conflict over the ownership of these high value resources. Yarshagumba collection has been emerging as an important source of livelihood to many Nepali people. There are different socio-economic factors determining the collecting behaviour of the people involved in this activity. Understanding the level of participation of different people by virtue of their socio-economic attributes remains instrumental in designing strategies to maximize the benefits from Yarshagumba collecting business. This can also help fulfill the need to enhance participation in this activity, specially of those who are not involved in it.

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APPENDES:I (Frequency table of independent variables vs dependent variable with chi-square results)

AGE					
Participation	Male	Female	Chi2 (1)	P-value	1 sided P
Yes	45	9	3.634	0.057	0.078
No	5	4			
ETHNICITY					
Participation	Br/Chhetri	Others	Chi2 (1)	P-value	1 sided P
Yes	29	25	0.5250	0.469	0.363
No	6	3			
MARITAL STATUS					
Participation	Married	Unmarried	Chi2 (1)	P-value	1 sided P
Yes	42	12	0.5815	0.446	0.401
No	8	1			
LANGUAGE					
Participation	Nepali	Others	Chi2 (1)	P-value	1 sided P
Yes	34	20	0.0457	0.831	0.573
No	6	3			
RELIGION					
Participation	Hindu	Other	Chi2 (1)	P-value	1 sided P
Yes	35	19	4.5341	0.033	0.030
No	9	0			
SICKNESS IN FAMILY					
Participation	Sickness	No sickness	Chi2 (1)	P-value	1 sided P
Yes	13	41	0.0046	0.94	0.604
No	3	6			
INCOME LEVEL					
Participation	High income	Low income	Chi2 (1)	P-value	1 sided P
Yes	11	44	2.6400	0.104	0.111
No	0	11			
LITERACY					
Participation	Literate	Illiterate	Chi2 (1)	P-value	1 sided P
Yes	40	14	1.2963	0.255	0.224

AGE					
Participation	Male	Female	Chi2 (1)	P-value	1 sided P
Yes	45	9	3.634	0.057	0.078
No	5	4			
ETHNICITY					
Participation	Br/Chhetri	Others	Chi2 (1)	P-value	1 sided P
Yes	29	25	0.5250	0.469	0.363
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Participation	Married	Unmarried	Chi2 (1)	P-value	1 sided P
Yes	42	12	0.5815	0.446	0.401
No	8	1			
LANGUAGE					
Participation	Nepali	Others	Chi2 (1)	P-value	1 sided P
Yes	34	20	0.0457	0.831	0.573
No	6	3			
RELIGION					
Participation	Hindu	Other	Chi2 (1)	P-value	1 sided P
Yes	35	19	4.5341	0.033	0.030
No	9	0			
SICKNESS IN FAMILY					
Participation	Sickness	No sickness	Chi2 (1)	P-value	1 sided P
Yes	13	41	0.0046	0.94	0.604
No	3	6			
INCOME LEVEL					
Participation	High income	Low income	Chi2 (1)	P-value	1 sided P
Yes	11	44	2.6400	0.104	0.111
No	0	11			
LITERACY					
Participation	Literate	Illiterate	Chi2 (1)	P-value	1 sided P
Yes	40	14	1.2963	0.255	0.224