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Determinants of Livelihood Choices Among Kuki Tribes in Tripura: An Empirical Analysis

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Abstract

The empirical study has been conducted to identify the determinants of livelihood choices among Kuki tribes. The study is also an attempt to identify the present livelihood pattern of surveyed households. The study stands on stratified multi-stage random sampling with the sample size of 105. A binary logistic model has been employed to deal with the objectives of the study. The empirical analysis found that agricultural activities are more popular among Kuki households. The logistic model revealed that age and gender of the head of the household significantly determine the livelihood option. Economic factors like land-man ratio, indebtedness and type of ration card are found significant with regards to the choice of livelihood. The model also explored that few basic infrastructures like availability of proper irrigation facility, good condition of the local road also significantly determine the choice of livelihood among Kuki tribes.

Keywords: Tripura, Livelihood, Kuki Tribes

Introduction

Over the last three decades, the determinants of livelihood sources among rural people have been focused by development researchers. The choice of livelihood or livelihood strategy is a combination of activities which ensures the means of survival of a household (DFID, 2000; Ellis, 2000). Different constraints influence the choice of income-generating activities of households and individuals in rural areas. The different socio-economic background causes to the diversification of livelihood choices in the same place. For instance, the land is a major contributing factor in the case of identification of livelihood source. The land endowment has a strong influence over participation in non-farm employment. Access of land among rural households does not compel them to incline towards non-farm sector while a landless or marginal household engages themselves in the non-farm sector to meet basic needs. Thus, the landholding size and share of the non-farm income out of the total income of the household are negatively associated with each other (Wandschneider, 2003; Abdissa, 2017; Hagblade et al., 2002). Although agriculture is considered the main source of livelihood in rural areas of developing economies, the transformative potential of non-agricultural livelihood options has been increasingly recognized over the past three decades (Rahman & Akter, 2014).

The tribal livelihood in India is a multidimensional phenomenon with a dynamic and complex nature. Since the ages, tribal people live into the lap of the forest as well as nature. Nature is like worship for them since the culture and economy of the tribals are highly associated with nature. This leads to a characteristic of isolation among tribal societies as compared to the mainstream society. Thus, the characteristic of isolation, which kept them away from their mainstream counterparts for a long time, cultivated an independent system of livelihood. In fact, there is a symbiotic relationship between tribal livelihood pursuits and natural resources like land, forest, mineral resources, etc. Almost 90 per cent of tribal populations in India were depending upon the land for their survival. Expectedly, the main source of tribal livelihood is agriculture, especially forest-based, in India which plays a vital role in the national economy. However, several factors like geographical location, ethnicity, educational qualification, and availability of resources, infrastructures along with social, cultural, ecological, economic and political factors determine livelihood pattern of tribal

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communities (Haldankar, 2016; Kumar, 2009; Haan & Zoomers, 2002; Surayya, et al., 2008; Oraon, 2012).

Tripura, a small state of North-East India which constitutes 30 per cent tribal population with total nineteen sub-groups, is also not beyond the traditional concept of livelihood of the Tribal people, as well as Kuki ethnic group. According to the 2011 census report, there are 11,674 Kuki tribes with only 1.2 per cent proportion of the total tribal population in the state (Census of India, 2011). This small ethnic group witnessed highest literacy rate out of the nineteen tribal ethnic groups. The Kuki tribes were living in the top of the hill and shifting cultivation (Jhum Cultivation) was the main source of livelihood (tripurainfo.com, 2013). Later, the Jhum cultivation was gradually reduced due to several reasons. Initially, the declination of Jhum land was insufficient with the consistently increasing number of Jhumias, which diverted them from their traditional practice. Moreover, the government of Tripura also had taken several initiatives for the resettlement of Jhumias by encouraging rubber cultivation along with other farm activities. Although the large scale of Jhum cultivators have been diverted towards rubber cultivation, lots of them emphasised towards other non-agricultural sources as a primary livelihood (Deb et al., 2019). Therefore, the study was undertaken to understand the present pattern of livelihood among Kuki tribes and the determinants of their primary livelihood choices.

Data and Methodology

The methodology adopted is quantitative to order to deal with objectives. The study completely stands on primary data.

Sampling Framework: To conduct the study, a multi-stage (3 stages) stratified random sampling procedure has been adopted for the selection of the target population from the universe. In the first stage, two districts namely Gomati and Khowai have been selected keeping in view the concentration of Kuki tribal people. Similarly, in the second stage two Rural Development Blocks namely Kakraban and Teliamura have been identified and in the final stage, Dhuptali Village Council[1] and Hawaibari Village Council have been selected from Kakraban RD block and Teliamura RD blocks, respectively. Total 105 Kuki households have been surveyed from two Panchayats and above this 53 households from Dhuptali Village Council and rest of 52 households from Hawaibari Village Council were taken.

Study Area: Khowai district covers an area of 1377.28 Sq.km. There are total six village councils under Teliamura R.D. block having 24521 scheduled tribes' people. The total geographical area of Gomati District is 2,966 Sq.km. The surveyed Kakraban R. D. block comprises a total of five village councils with 12047 scheduled tribe people (Census of India, 2011).

Analytical Framework: All prevalent sources of livelihood among Kuki tribes have been divided into two categories namely, Agricultural livelihood and Non-agricultural livelihood. Since, the dependent variable is dichotomous variable, a binary logistic regression model has been considered, keeping in view the dichotomous nature of the dependent variable, an appropriate model to meet with objective (Ömay, 2010). Besides, it fits for both continuous as well as categorical independent variables. The functional form of the binary logistic model may be written as equation 1.

$$Z_i = \ln\left[\frac{P_i}{1-p_i}\right] = \alpha + \beta X_{1i} + \gamma X_{2i} + \cdots + \delta X_{ni} + \varepsilon_i \quad (1)$$

Here, Zi is a log odds, α is constant, β, γ, δ are vectors of coefficients of independent variables (see Table 1), X_{1i}, X_{2i}, …X_{ni} and ε_i is an error term for i^{th} households or respondents. In the above equation, the only change in log odds of the dependent variable calculates by coefficients, not the change in the variable itself. Therefore, the logit equation may be converted into odds ratio by using the exponential function to make an easy interpretation. Now, the functional form of odds ratio may be written as equation 2.

$$\text{Odds ratio} = \left[\frac{P_i}{1-p_i}\right] = e^{(\alpha+\beta X_{1i}+\gamma X_{2i}+\cdots+\delta x_{ni}+\varepsilon_i)} \quad (2)$$

Here, odds ratio means the ratio of the probability that the household or respondent will choose agricultural activities as the source of livelihood to the probability that the household or respondent will choose non-agricultural activities as the source of livelihood. If the independent variable is dichotomous by nature then exponential of the respective coefficient gives the proportion of change in odds for the given independent variable and in case of

[1] Under Sixth Schedule area village council is equal to Gram Panchayat of Three tire Panchayat Raj System.

continuous independent variables both the coefficients and exponential of coefficients are associated with the effect of per unit change in the given independent variable to log odds and odds ratio, respectively. The sign of the coefficient of both types of variables indicates the direction of change. After reviewing available literature related to livelihood issues total 12 numbers of variables have been identified (see Table 1).

Table 1: Variable Description

Variables	*Measurement*	*Expected Sign (-/+)*	*Reference*
Demographic Determinants			
Age	Years	+	(Rahman & Akter, 2014)
Gender of head of the household	Dummy(1 if male, 0 otherwise)	+	(Rahman & Akter, 2014)
Year of schooling	Years	+	(Rahman & Akter, 2014)
Dependency ratio(by age)	Percentage	+-	(Ahmed, 2015)
Economic Determinants			
Land-Man ratio		+	(Ahmed, 2015)
Annual savings	Rupees	+/-	(Ahmed, 2015)
Indebtedness	Dummy(1 if yes, 0 otherwise)	+/-	(Khatun & Roy, 2012)
Type of ration card	Dummy(1 if APL, 0 otherwise)	+	
Infrastructural Availability Determinants			
Good road condition	Dummy(1 if yes, 0 otherwise)	+	(Saha & Bahal, 2010)
Irrigation facility	Dummy(1 if yes, 0 otherwise)	+	(Rahman & Akter, 2014)
Electric facility	Dummy(1 if yes, 0 otherwise)	+	(Rahman & Akter, 2014)
Well transportation facility	Dummy(1 if yes, 0 otherwise)	+	(Saha & Bahal, 2010)

Results and Discussions

Basic Profile

Largest sections of respondents belong to the age group of 37–47 years but interestingly prominent sections among non-agricultural respondents belong to 26–36 years age group (see Table 2). Not a single respondent above 58 years age has been found working into non-agricultural activities, rather almost 29.8 per cent of agricultural respondents reported about their age is 59 and above. Non-agricultural respondents are comparatively younger with a mean age 36 than agricultural counterparts with mean age 49. However, the overall mean age of respondents is 43. The gender distribution is indicating the dominance of male respondents regarding the participation over livelihood. However, the participation of female respondents, with almost 41.7 per cent, is comparatively better in the case of non-agricultural livelihood compared to their agricultural counterparts. An interesting similarity has been witnessed in terms of family size. In both categories of livelihood options, prominent numbers of respondents belong to 3–5 members' family, followed by 6–8 members' family. Mean family size is also similar for both categories.

Table 2: Basic Profiles

Category of Livelihood of Respondents			*Aggregate*
	Agricultural	*Non-Agricultural*	
Age Distribution			
Up to 25	0 (0)	2 (4.2)	2(1.9)
26-36	9(15.8)	23 (47.9)	32(30.5)
37-47	16(28.1)	18 (37.5)	34(32.4)
48-58	15(26.3)	5(10.4)	20(19)
59 & Above	17(29.8)	0 (0)	17(16)
Total	57(100)	48(100)	105(100)
Mean Age	49.4	36.4	43
Gender Distribution			
Male	42(73.7)	28(58.3)	70 (66.7)
Female	15(26.3)	20(41.7)	35(33.3)
Total	57(100)	48(100)	105(100)

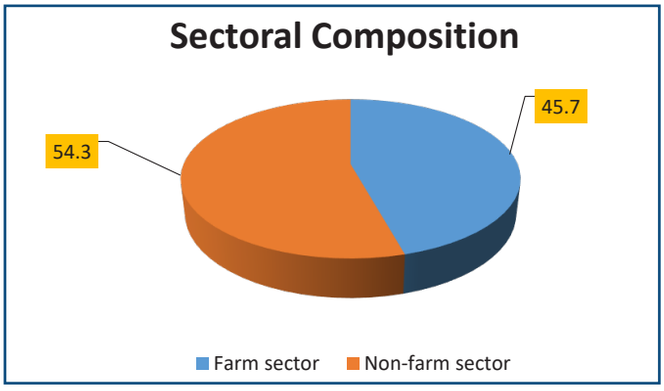
Category of Livelihood of Respondents			Aggregate
	Agricultural	Non-Agricultural	
Family Size			
Up to 2 members	2(3.5)	3(6.3)	5(4.8)
3-5 members	35(61.4)	27(56.3)	62(59)
6-8 members	18(31.6)	16(33.3)	34(32)
9-11 members	1(1.8)	2(4.2)	3(2.9)
12 & above members	1(1.8)	0(0)	1(1)
Total	57(100)	48(100)	105(100)
Mean size	5.24	5.1	5.2
Category of Ration Card			
Antodaya	6(10.5)	8(16.7)	14(13.3)
BPL	21(36.8)	28(58.3)	49(46.7)
Adhoc-BPL	1(1.8)	3(6.3)	4(3.8)
APL	29(50.9)	9(18.8)	38(36.2)
Total	57(100)	48(100)	105 (100)
Landholding Size			
Landless	6(10.5)	8(16.7)	14(13.3)
Marginal	51(89.5)	40(83.3)	91(86.7)
Year of Schooling			
No schooling	14(24.6)	25(52.1)	39(37.1)
1-5 years	20(35.1)	12(25)	32(30.5)
6-8 years	6(10.5)	1(2.1)	7(6.7)
9-12 years	17(29.8)	10(20.8)	105(100)
Mean	5.5	3.5	4.6
Land-Man Ratio			
Mean	3.1	1.02	2.15

Source: Field survey, 2017; Note: Figures in parentheses indicate per cent

More than 50.9 per cent of agricultural respondents are economically sound as they are above poverty line (APL) ration cardholder, whereas only 18.8 per cent of non-agricultural respondents have the same ration card. On the other side, the largest portion of non-agricultural respondents with almost 58.3 per cent proportion come under the below poverty line (BPL) category (see Table 2). Maximum respondents from both categories are having marginal landholding size and small proportions are found landless with almost 10.5 per cent and 16.7 per cent from agriculture and non-agriculture categories, respectively. Agricultural respondents are comparatively advance than their non-agricultural counterpart in case of mean year of schooling with 5.5 and 3.5 years, respectively (see Table 2) and in an overall the mean year of schooling is 4.6. Proportionally prominent numbers of non-agricultural respondents do not have any schooling with almost 52.1 per cent proportion and on the other side, the proportion of agricultural respondents is only 24.6 per cent. The prominent agricultural respondent group has a primary level (1–5 year of schooling) of education with 35.1 per cent proportion. Overall, largest numbers of respondents have no schooling with 37.1 per cent proportion, followed by 30.05 per cent proportion having only 1–5 years of schooling. Expectedly agricultural respondents have a high land-man ratio (3.1) as compare to their non-agricultural counterpart (1.02).

Livelihood Pattern of Kuki Tribes

More than half of respondents with 54.3 per cent proportion were engaged in agricultural activities, i.e. farm sector as their primary source of livelihood and rest 45.7 per cent of respondents were involved in non-agricultural activities, i.e. non-farm sector (see Fig. 1).



Source: Field survey, 2017; Note: Figures are in percentage form

Fig. 1: Sectoral Composition of Livelihood

Expectedly, the prominent numbers of respondents were daily wage labourers with 33.3 per cent (see Table 3) proportion since non-agricultural activities were found more popular among Kuki tribes. The rubber cultivation has emerged as the second popular source of livelihood with almost 24.8 per cent share and obviously, it is the most popular agricultural activities among the Kuki tribes. The third prominent livelihood source of Kuki tribe's is paddy cultivation with 21.9 per cent share (Table 3).

Table 3: Share of Different Livelihood Sources

Livelihood Sources	*Share (%)*
Daily Wage activity	35(33.3)
Business (Own shop)	13(12.4)
Rubber Cultivation	26(24.8)
Paddy cultivation	23(21.9)
Livestock Rearing	8(7.6)
Total	105(100.0)

Source: Field Survey, 2017; Note: Figures in parentheses indicate per cent

Business is the less popular source of livelihood among the Kuki tribes since it is evident that only 12.4 per cent (see Table 3) of Kuki tribes have their own business (shop). The livestock rearing has the least popular source of livelihood since only 7.6 per cent of households were involved in livestock rearing activities (Poultry, Piggery etc.).

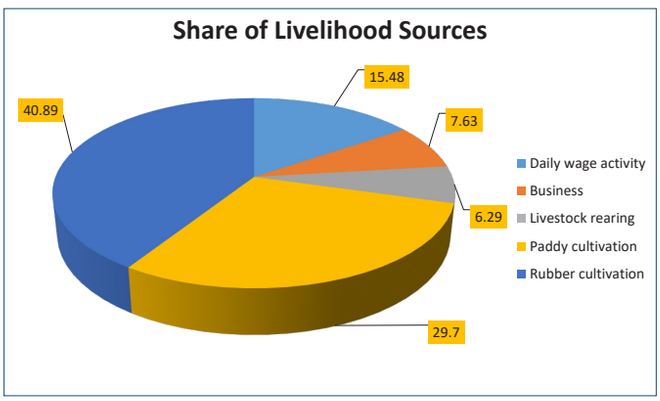
In aggregate, largest sections of respondents belong to Rs. 5001 to Rs.10,000 monthly earning group per month with almost 47.6 per cent. However, the variation reflects on the category-wise distribution of respondents. The prominent earner group among agricultural respondents is Rs. 10,001 to Rs. 15,000 with almost 24.6 per cent proportion whereas the prominent sections of non-agricultural sector belong to the immediate lower earning range (Rs. 5001 to Rs. 10,000) as compared to their agricultural counterpart with almost 81.3 per cent proportion. The second prominent agricultural respondents jointly belong to two earning groups Rs. 5001-Rs.10,000 and Rs. 15001-Rs. 20,000 per month.

Table 4: Income from Primary Sources of Livelihood Per Month

Range (Rs.)	*Type of Respondents*		*Aggregate*
	Agricultural	*Non-Agricultural*	
Up to 5000	0(0)	8(16.7)	8(7.6)
5001-10000	11(19.3)	39(81.3)	50(47.6)
10001-15000	14(24.6)	1(2.1)	15(14.3)
15001-20000	11(19.3)	0(0)	11(10.5)
20001-25000	9(15.8)	0(0)	9(8.6)
25001-30000	4(7.0)	0(0)	4(3.8)
Above 30001	8(14)	0(0)	8(7.6)
Total	57(54.3)	48(45.7)	105(100.0)
Min	7000	1600	1600
Max	51000	10500	51000
Mean	20143	7191	14222
Coefficient of Variation	0.59	0.27	0.77
t-test	t-value : 7.46** ; p=0.005 d.f: 103		

Source: Field survey, 2017; Note: Figures in parentheses indicate per cent; ** Significant at 5 per cent level

The monthly earnings from primary livelihood sources significantly differ between the two categories of respondents (t-value: 7.46; d.f:103) at 5 per cent level of significance. However, the co-efficient of variation is higher (0.59) among agricultural respondents as compared to their non-agricultural counterparts (0.27) for the same. Minimum earning of agricultural respondents is Rs. 7000 per month whereas the amount is only Rs. 1600 for non-agricultural respondents. Similarly, a huge gap has been witnessed in terms of maximum earning between both categories of respondents. Almost 63.2 per cent of agricultural respondents earns less than their own average earning. Similarly, in aggregate, the monthly earning of respondents is less than their own average monthly earning with almost 54.6 per cent proportion.



Source: Field survey, 2017; Note: Figures are in percentage form

Fig. 2: Monthly Income Share of Different Livelihood Sources

It was evident that rubber cultivation is the second prominent source of livelihood (see Table 4) while

surprisingly the occupation constitutes the largest share of the monthly income of Kuki households. The occupation shares almost 40.89 per cent proportion of the total income of all surveyed households (see Fig. 2). Similarly, way, the paddy cultivation has the third largest proportion among prevalent livelihood sources while the occupation comprises almost 29.7 per cent share on a total monthly income of Kuki households.

The daily wage activity shares only 15.48 per cent proportion and expectedly business activities constitute only 7.63 per cent proportion in the total monthly income of Kuki tribes (see Fig. 2). The most surprising thing evident from the above discussion is that the total farm sector constitutes almost 54 per cent proportion out of all livelihood sources while the sector shares almost 76.88 per cent proportion of the total monthly income of Kuki households. In that case, despite having the most prominent share of the non-farm sector in terms of livelihood sources, the income share (23.12 per cent) of the sector is very less.

Determinants of Livelihood Choices

Since the insignificant value of Hosmer-Lemeshow shows that there is no significant difference between the observed value and model fitted value, the fitness of the model may be considered as good.

Table 5: Results of Binary Logistic Model

Dependent Variable		*Agricultural / Non-Agricultural Livelihood*		
Variables	*B*	*Std. Error*	*p-value*	*Exp. (B)*
Constant	-28.04	10.269	0.005	0.000
Demographic Determinants				
Age	.201	.079	.011**	1.223
Gender of the head of the household	5.360	2.201	.015**	21.683
Year of schooling	-.033	.095	.730	.968
Dependency ratio	.004	.010	.685	1.004
Economic Determinants				
Land-man ratio	.559	.225	.013**	1.749
Annual savings	.010	.009	.262	1.010
Indebtedness	2.692	1.461	065***	14.765
Type of ration card	2.124	1.147	.064***	8.365
Availability of Infrastructure (Determinants)				
Good road condition	10.949	5.271	.038**	56.30
Irrigation facility	3.524	1.927	.067***	33.908
Electric facility	1.572	1.054	.136	4.814
Well transportation facility	-.336	14.725	.982	.715
Hosmer-Lemeshow's Goodness of Fit			= 1.906 Sig (0.98)	

Note: ** significant at 0.05 level; *** significant at 0.10 level

Demographic Determinants

Total four variables under demographic determinants namely, age, the gender of head of the household, year of schooling, dependency ratio have been added (see Table 5). Above this, only age and gender of the head of households witnessed as significant demographic determinants over the choice of primary livelihood source among Kuki respondents. Year of schooling and dependency ratio do not have any significant impact on the choice of primary livelihood among Kuki respondents.

The variable age is positively associated with the odds of agricultural livelihood choice. That means the likelihood to choice non-agricultural option as primary occupation is significantly higher for respondents with younger age. The reason behind the dominance of non-agricultural options among young respondents may be because of their less interest in the traditional livelihood practices. Similarly, the gender of the head of households also has positive significant influence over the livelihood choice. If the gender of head of the household is male, then the respondent of that household is 21.683 ($p<0.05$) times likely to choice agricultural options as the primary source of livelihood. The justification may be considered that a woman, as head of the household, is more comfortable to work within the premises of house since the working sphere for non-agricultural activities is not guaranteed to be within premises. Therefore, the probability of being

an agricultural respondent significantly increases with increasing age and if the head of the household is male.

Economic Determinants

Few economic variables like land-man ratio, indebtedness and type of ration card all have a significant positive association with odds of agricultural livelihood (see Table 5). Expectedly, the chance of choosing agricultural livelihood increases 1.749 times ($p < 0.05$) with more increasing land-man ratio. The reason is quite simple as land is the basic necessity for agricultural practices. Indebtedness also has a positive significant association with the choice of primary livelihood option among Kuki respondents. Microfinance institutions (like Bandhan, etc.) are very popular among rural inhabitants. They provide credit with easy terms and conditions among farmers. Moreover, the Kishan Credit Card also made it easier to access credit money for farming. Therefore, the probability of being an agricultural practitioner of a household having indebtedness is likely to increase 14.765 times ($p < 0.10$). Type of ration card is also has a positive relationship with the choice of primary livelihood option. If a household is APL card holder the likelihood of choosing agricultural option increases 8.365 times ($p < 0.10$). It seems that the subsidised food security from fair price shop leads the less interest of BPL or Antodaya cardholder households on agriculture.

Availability of Infrastructure (Determinants)

Availability of a few infrastructures like good road and irrigation facility is highly influential on the choice of primary livelihood among Kuki tribes (see Table 5). A location having good road condition significantly attracts inhabitant's towards agricultural livelihood. The road condition is critically associated with the marketing of agricultural commodities while it is not so important for any non-agricultural practice. It may be assumed that the good condition of road and well connectivity of a place with the nearest market significantly encourage the agricultural practice. The probability of being an agricultural practitioner for a Kuki respondent increases 56.30 times ($p < 0.05$) if his or her house or agricultural field is connected to the nearest market with good road. Irrigation facility is a prime condition for agricultural practice and therefore expectedly the co-efficient of the variable has a positive association with choice of primary livelihood. The likelihood of choosing agricultural activities increases 33.908 times ($p < 0.10$) because of the availability of irrigation facility in an area. However, the good transportation facility does not have any influence over the choice of primary livelihood. The justification behind the insignificance of that variable may be that marginal farmers' never prefer for any costly transportation facility. Rather, they depend on personal two-wheelers or pushing van (locally known as Thela Gari). The availability of the electric facility is also not significantly associated with the choice of primary livelihood option among Kuki tribes. The justification may be considered that the electricity is not always mandatory for marginal farmers. Therefore, the availability of electricity does not significantly influence the choice over primary livelihood option among Kuki tribes.

Concluding Remarks

It has been reflected from the above discussion that the farm sector dominates the livelihood pattern and expectedly the sector occupies a large portion of the total monthly income of Kuki households. The association of seven determinants has been identified over the choice of primary livelihood among Kuki tribes. The age and gender of the head of the household positively influence the respondents towards agriculture or allied activities. The senior citizens hardly change their traditional occupation and consequently, the tendency of being agricultural practitioner positively increases with the age of the respondents. Similarly, male-headed Kuki families prefer agricultural activities. Year of schooling, as well as education, does not influence the choice of primary livelihood option since the prominent numbers of respondents never enrolled in the school. Land size, as well as land-man ratio, definitely attracted the respondents towards agricultural practices. The positive co-efficient of indebtedness indicates that the tendency of being entrepreneur by receiving loan from the bank is still not prevalent among Kuki tribes. The positive co-efficient of the variable 'type of ration card' indicating food security highly determines the way of primary livelihood and that is why respondents unworriedly go through non-agricultural options because of having centainity of food security. Expectedly, the availability of infrastructure is one of the

basic conditions for agricultural practices in rural areas. In other words, sometimes infrastructure has less importance on non-agricultural options as compared to the agricultural activities. An interesting fact has been experienced from the study that dependency ratio, as well as the number of economically active members, in a particular Kuki family is least important in terms of choosing primary livelihood option.

Note: The paper has been presented in a national seminar on "Role of NGOs in Tribal Areas in Tripura" dated 24th - 25th January 2018 jointly organised by the Research and Development Cell, Holy Cross College, Agartala and Tribal Research and Cultural Institute, Agartala.

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