

Changing Livelihood Pattern of Tribal Farmers in Tripura: A Study on Kuki Tribes

Mrinal Kanti Deb, Arobindo Mahato & Joel Laltanpuia Darlong

During last two decades large scale of changes of livelihood pattern among Tribal farmers has been witnessed in Tripura. Especially, from Shifting (*jhum*) cultivation to Rubber cultivation or other farm activities. The study is an attempt to understand the changing pattern of livelihood among Kuki tribes and to measure the living standard of Kuki tribes keeping in view their changing livelihood pattern. The article also tries to understand the association between changing livelihood pattern and monthly income of respondents. The deal with objectives of the study before and after analysis has been done based on primary data with purposive random sampling. The study explored that after changing the livelihood pattern monthly income of respondents has been significantly increased along with overall living standard. The regression analyses found Rubber cultivation and Livestock rearing emerged as popular sources of livelihood as compare to Jhum cultivation.

Keywords: Tripura, Kuki Tribes, Tribal Livelihood, Jhum Cultivation, Standard of living.

Introduction

Tripura is a small state of North-East India, which constitutes 30 per cent tribal population with total 19 sub-groups. According to 2001 census report, there are 11,674 Kuki tribes with only 1.2 per cent proportion of total tribal population in the state (Census of India, 2011). This small ethnic group witnessed having highest literacy rate, with 73 per cent of its population, as compare to other tribal ethnic groups. The Kuki ethnic group of Tripura is habitat in five Districts namely, Unakoti, Dhalai, North Tripura, Gomati and Khowai District. They are concentrated in Kailashahar,

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Dharmanagar and Amarpur sub-division but of late they have spilled over Kumarghat, Ambassa, Taidu, Teliamura, Sunamura, Kanchancherra and Udaipur sub-division. The Kukis do not call themselves as Kukis. They call themselves as 'Hriem'. They are known as Kukis to the Bengali's and other people. The Cacharis called them Lushais.

Historical Background of Kuki Tribes

Due to lack of literature about Kuki tribes in Tripura, during the field study few narrative points have been considered as historical background of them in the state. During the field survey, little information has been gathered by Focus Group discussion (FGD)¹ by involving senior citizens. According to them, 'Lu' means head and 'Chai' means to cut. Hence the word Luchai means head hunters. That the Lushais used to hunt heads at the time of funeral of the chieftains as late as the middle of the nineteenth century is now a matter of recorded history. In primitive time they were known as Kirats to the plain settlers who came over to Tripura from East Bengal. In Chino Hills and generally on the Burma border all these clans are called Chins. The Kukis are also known as Darlong in Tripura. According to them, the Darlongs were constantly engage in fight with the Lushais and they would fight with their arms. As per Darlong dialect, 'Dar' means shoulder and 'Leng' means to cut. That they would cut the Lushais with the help of their strong shoulder and hence they were named "Darleng" corruption Darlong. The Darlong Kukis are also known as Hmar-mi meaning the men of the North and the Rokhum Kukis another section of the Kukis as Sim-mi means men of the South. The Kukis belong to the Mongoloid racial stock. Their language has been classified as belonging to the Austro-Asiatic group of Tibeto – Burman family. In spite of some differences existing between the Kukis and the Lushais, they are practically the same group of people with common racial stock and do not actually signify two different tribes. The Kukis are found to be very old inhabitants of Tripura.

Tribal Livelihood and Kuki tribes

Since the ages tribal peoples live into the lap of forest as well as nature. The culture and economy of the Tribal's are highly associated with nature. The nature is like worship for them. Nature provides food and livelihood to them. In fact there is a symbiotic relationship between tribal livelihood pursuits and natural resources like land, forest, mineral resources etc. Conceptually the term 'livelihood' denotes the means, entitlements, activities and assets for people's living, an effort to meet the various basic and economic necessities of life (Haan & Zoomers, 2002). The livelihood patterns of Kuki tribes were also quite similar with other primitive ethnic groups of Tripura.

The livelihood has a complex, multidimensional and dynamic phenomenon among tribal communities in India. This perception, however, varies with type of community, gender, age, education along with economic, social, cultural, political and eco

logical determinants (Kumar, 2009). Tribal population of Tripura are also not beyond that perception. Once upon a time large numbers of tribal peoples were shifting cultivators, locally known as *Jhumia*. In the year of 1955, according to estimation, there were 25,000 *Jhumia* families in Tripura. Almost 16,00,000 acres land was under shifting (*Jhum*) cultivation (Dasgupta, 1986). However, this scenario of *Jhum* cultivation was gradually changed due to several reasons. Consistently increasing number of *Jhumias* and consequently reduction of *Jhumland* primarily diverted *Jhumias* from their traditional practice. Moreover, since late nineteenth century restrictions were imposed on *Jhumias* by the then Maharaja (King). During partition of India, uncontrolled Bengali influx was highly encouraged by the then administration for plough cultivation in the plain areas. This initiative pushed *Jhumias* towards an unequal competition, which led to low income. Thereafter, huge numbers of *Jhumias* had to displace during a hydro-electric project in Dambur area under the then south district. This is how traditional *Jhumias* had to change their traditional occupation. Besides, from the side of governments several initiatives have also been taken over for their resettlements, especially by encouraging rubber cultivation along with other farm activities.

Objectives & Methodology

The study has been undertaken with the following specific objectives.

1. To understand the changing pattern of livelihood among Kuki tribes.
2. To measure the impact of changing livelihood pattern on living standard of Kuki tribes.
3. To measure the association between changing livelihood pattern and monthly income of Kuki tribes.

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

Sampling framework

In order to conduct the study purposive random sampling procedure has been adopted for the selection of target population from the universe. Purposively two districts, namely Gomati and Khowai have been selected keeping in view the concentration of Kuki tribes. Similarly, one block from each district namely, Kakraban R.D. block from Gomati district and Teliamura R.D. block from Khowai district and three Panchayats from each block have been selected. In total 105 numbers of households were covered with purposive random sampling method. Above this 48 Tribal farmer households from Gomati district and rests of 57 households from Khowai district were surveyed. The data has been collected through field survey by schedule.

Profile of study area

Khowai district covers an area of 1377.28 Sq.km. There are total 6 village council (Under Sixth Schedule area village council is equal to Gram Panchayat of Three tier

Panchayat Raj System) 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 total 5 village councils with 12047 scheduled tribe people (Census of India, 2011).

Hypotheses

To deal with above mentioned objectives following hypotheses have been formulated

- The monthly incomes of Kuki households have significantly increased after changing their livelihood pattern.
- The living standard of Kuki household's has significantly enhanced with changing livelihood patterns.
- At present rubber cultivation as primary source of livelihood has significant role behind increasing income of Kuki tribes.
- At present Livestock rearing as secondary source of livelihood has significant role behind increasing income of Kuki tribes.

Analytical framework:

To measure the impact of changing livelihood pattern before and after analysis has been applied. The respondents were asked about their previous (5 years back) income and availability of basic amenities.

Paired t-test

Paired t-test is used to examine the first hypothesis. In order to reduce error level income (5 years back) of households has been converted at current price level and then these converted values are compared with their (same households) present income by following formula,

$$t = \frac{\sum d}{\sqrt{\frac{n(\sum d^2) - (\sum d)^2}{n-1}}} \dots\dots\dots (1)$$

Here, d= sum of the differences.

Null hypothesis will be rejected, if the calculated t-value is more than tabulated value of t at 95 % confidence level. If the calculated t-value is less than the Table t-value or less than 2, then null hypothesis is accepted.

Composite Score

On the basis of few household amenities and assets (table 1) 'Standard of Living' has been measured by following framework. This framework will deal the second objective of the study.

Table 1

Variable	Component	Variable	Component
Type of house	Kutchha	Source of lighting	Kerosene
	Semi-Pucca		Solar
	Pucca		Electricity
Source of drinking water	Pond	Type of fuel for cooking	Wood
	Well		Kerosene
	Supply		LPG
Sanitation facility	No facility	Households have Television	Yes
	Open pit		No
	Kutchha	Households Have FAN	Yes
	Sanitary		No
Households have Two Wheeler	No	Households have Refrigerator	Yes
	Bi-cycle		No
	Motor Cycle/ Scooter		

Note: The table indicates about variables and their respective components.

In first step, all given scores to every variables have been calculated into standardised scores, which is generally known as z-score. The z-score can be expressed as

$$Z_{ij} = \frac{x_{ij} - \bar{x}_i}{\sigma_i} ; \dots\dots\dots(1)$$

Where, Z_{ij} = Standardized value of the variable i of respondents j,

X_{ij} = Actual value of variable i of respondents j.

\bar{x}_i = Mean value of variable i of respondents.

σ_i = Standard deviation of variable i of respondents.

In the second step, the z-scores of all variables from both categories of respondents and the average have been taken out for these variables which may be called as composite score (CS) for both districts (Smith, 1973).

This composite score (CS) has considered as living standard (LS) which may be algebraically expressed as:

$$\text{Composite Score (Standard of living)} = \frac{\sum Z_{ij}}{N} \dots\dots\dots (2)$$

Where, N refers to the number of indicators (variables), Z indicates z-scores of all variables i of respondents j. The positive values relating to the z-score of a respondent explain high level and negative values the low level of development in respect of housing and household amenities in the study area. This living standard (CS) has been categorised into three strata. The CS value below (-0.30) denotes ‘Poor’ stan-

dard, similarly the CS value (-0.30 to 0.30) denotes ‘Medium’ and the value (above 0.30) indicates ‘High’ standard.

Regression Analysis

To understand the association between changing livelihood pattern and monthly income of respondents following four multiple liner regression models have employed. These regression models will deal with the third objective of the study.

Model-1

The model includes monthly income of respondent (5 years back) as dependent variable and the then prevalent primary sources of income have been considered as independent variables.

$$[Y=a+b_1D_1+b_2D_2+b_3D_3+b_4D_4+\hat{a}] \dots\dots\dots (3)$$

Where, Y= Monthly income of respondents;

a= Intercept, a scale parameter;

b_is=Regression coefficients of respective independent variables (i=1 to 4)

D1= Intercept dummy (Jhum cultivation=1, otherwise 0)

D2= Intercept dummy (Lemon production=1, otherwise 0)

D3= Intercept dummy (Rubber cultivation=1, otherwise 0)

D4= Intercept dummy (Banana production=1, otherwise 0)

\hat{a} = Disturbance factor.

Model-2: The model includes present (2017) monthly income of respondent as dependent variable and present prevalent primary sources of income have been considered as independent variables.

$$[Y=a+b_1D_1+b_2D_2+b_3D_3+\hat{a}] \dots\dots\dots (4)$$

Where, Y= Monthly income of respondents;

a= Intercept, a scale parameter;

b_is=Regression coefficients of respective independent variables (i=1 to 3)

D₁= Intercept dummy (Rubber cultivation=1, otherwise 0)

D₂= Intercept dummy (Banana cultivation=1, otherwise 0)

D₃= Intercept dummy (Paddy cultivation=1, otherwise 0)

\hat{a} = Disturbance factor.

Model 3

The model includes monthly income of respondent (5 years back) as dependent variable and the then prevalent secondary sources of income have been considered as independent variables.

$$[Y=a+b_1D_1+b_2D_2+b_3D_3 +\hat{a}] \dots\dots\dots (5)$$

Where, Y= Monthly income of respondents;

a= Intercept, a scale parameter;

s=Regression coefficients of respective independent variables (i=1 to 3)

D₁= Intercept dummy (Firewood collection=1, otherwise 0)

D₂= Intercept dummy (Bamboo production=1, otherwise 0)

D₃= Intercept dummy (Mango production=1, otherwise 0)

\hat{a} = Disturbance factor.

Model 4

The model includes present (2017) monthly income of respondent as dependent variable and present prevalent secondary sources of income have been considered as independent variables.

$$[Y=a+b_1D_1+b_2D_2+b_3D_3 +\hat{a}] \dots\dots\dots (6)$$

Where, Y= Monthly income of respondents;

a= Intercept, a scale parameter;

s=Regression coefficients of respective independent variables (i=1 to 3)

D₁= Intercept dummy (Firewood collection=1, otherwise 0)

D₂= Intercept dummy (Livestock rearing=1, otherwise 0)

D₃= Intercept dummy (Mango production =1, otherwise 0)

\hat{a} = Disturbance factor

Results and Discussions

Basic profile

Most of the respondents were male with almost 71.42 per cent of proportion and rest 28.57 per cent are female (see table 2). Only 29 per cent of households were found with less than 5 members. Most of the household (72.38 per cent) constitutes with at least 5 members. Surprisingly only 21.39 per cent of respondents were illiterate (see table 2) and no one is found literate without formal education. Large number of respondents were formally educated and out of them prominent section of respondents, almost half (49.52 per cent) of total respondents, are found having elementary level of education. The proportion (21 per cent) of higher secondary passed respondents is almost similar to the proportion of illiterate. Only 8 respondents have been found to have graduation.

Only 39 per cent households were (see table 2) found to have APL (Above poverty line) ration card whereas more than half of households are under BPL (Below poverty line) and *Antodaya* category. Most prominent respondents belong to 33-41 age groups with 37.14 per cent of proportion, followed by second prominent age groups, 26-33 years old, with 23 per cent proportion (see table 2). Only 17 per cent

of respondents belong to most young age group i.e. 18-25 years. The participation of senior citizen respondents is very small with 9.53 percent of proportion. However, almost 40 per cent of respondents come under youth category i.e.18-33 year's age group.

Table 2: Basic Profile of Respondents

Gender Distribution		Family Size	
Male	75(71.42)	Less than 5 members	29(27.62)
Female	30(28.57)		
Aggregate	105(100)	5 and above members	76(72.38)
Ration Card			
APL	41 (39)	Aggregate	105(100)
BPL	49 (46.7)	Education	
ANTODAYA	15 (14.3)	Illiterate	22(21.39)
Aggregate	105(100)	Elementary	52(49.52)
Age Distribution			
18-25	18(17.14)	Higher Secondary	23(21.70)
26-33	25(23.80)		
33-41	39(37.14)	Graduate & above	8(7.39)
42-49	13(12.39)		
50 & Above	10(9.53)	Aggregate	105(100)
Aggregate	105(100)		

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

Changing Livelihood Pattern

Primary Source of Livelihood

In the year of 2012 i.e. 5 years back most prominent primary source of livelihood was paddy cultivation among Kuki tribes, followed by Jhum and Banana cultivation. Near about half (42.86 per cent) of households were dependent on Paddy cultivation (Figure 1) as primary source of livelihood. The second prominent primary source of livelihood was found both Jhum cultivation and Banana cultivation with 18.1 per cent proportion. Less proportion (11.42 per cent) of households was involved with lemon production and only 10 households (Figure 1) were found to have Rubber cultivation as their primary source of livelihood.

In the year of 2017, Five years later, surprisingly Paddy cultivation was found as most popular (Figure 2) primary source of livelihood with 44.76 per cent proportion. At present not a single household is involved with Jhum cultivation. The second

prominent primary source of livelihood is Lemon production with 27.62 per cent proportion, followed by rubber cultivation with 26.67 per cent proportion. Only one household has been found as Banana cultivator.

Figure: 2

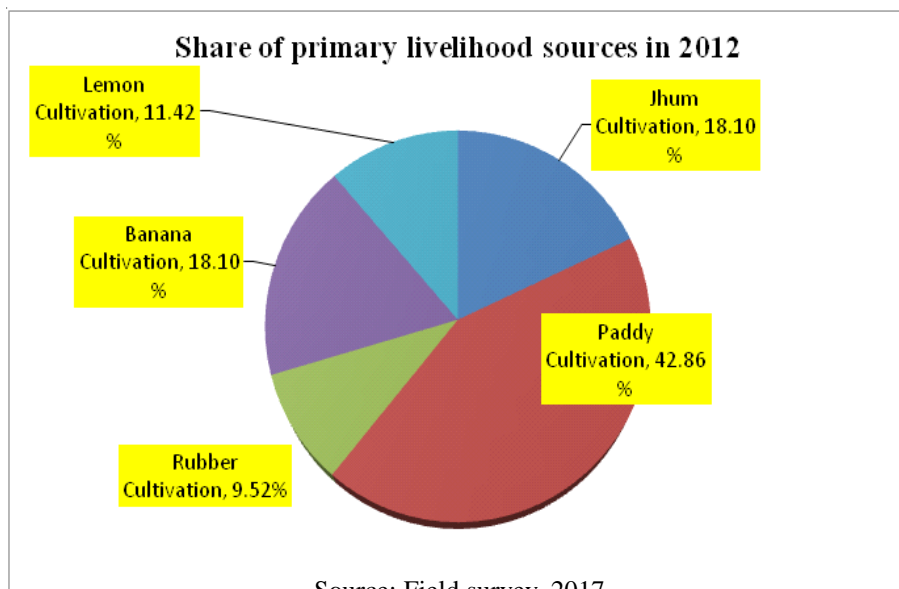
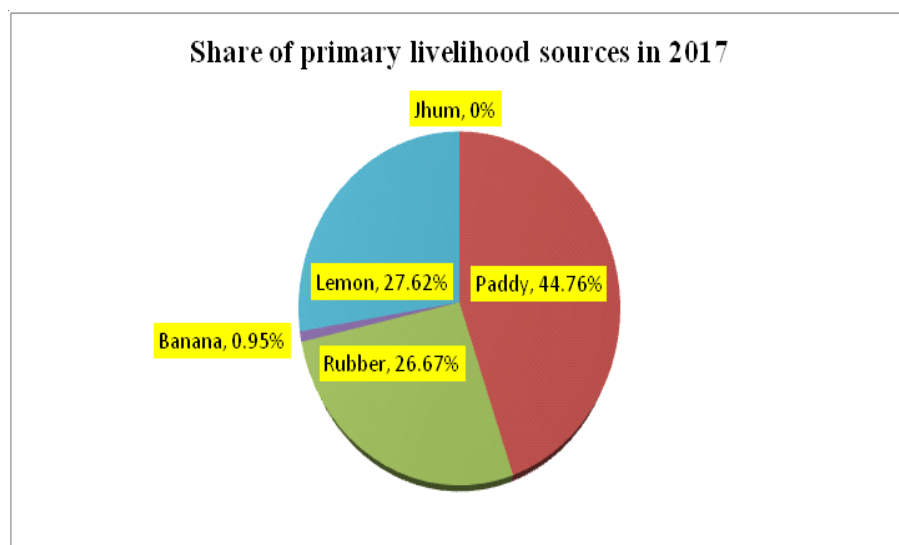


Figure: 2



Changes in primary livelihood pattern

A drastic change has been witnessed in case of Jhum cultivation or Shifting cultivation. Five years back 18 per cent of households were practitioner of that cultivation (Table 3). At present not a single household has been found, who practices Jhum. The proportion of Paddy cultivation, as primary source of livelihood, has increased 1.9 per cent from 42.86 per cent in 2012 to 44.76 per cent in 2017. However, since last 5 years Paddy cultivation is witnessed as most popular primary source of livelihood among Kuki tribes (Table 3).

Table: 3 Changing Primary Livelihood patterns

Primary Sources of livelihood	2012	2017	Changes (%)
Jhum cultivation	19(18.10)	0(0)	-18.10
Paddy cultivation	45(42.86)	47(44.76)	+1.90
Rubber cultivation	10(9.52)	28(28.67)	+19.15
Bananaproduction	19(18.10)	1(0.95)	-17.15
Lemonproduction	12(11.42)	29(27.62)	+16.20
Aggregate	105(100)	105(100)	100

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

Expectedly, during last 5 years highest growth (19.15 per cent) has been recorded in case of Rubber cultivation. Only 9.52 per cent of households were involved in Rubber cultivation, whereas at present 28.67 per cent of households are found to be involved with Rubber cultivation (Table 3). During last 5 years almost 17.15 per cent declination has been reflected for Banana cultivation among Kuki households from 18.10 per cent in 2012 to only 0.95 per cent in 2017. However, almost 16.20 per cent increasing trend of Lemon production (Table 3) among Kuki tribes is witnessed from 11.42 per cent in 2012 to 27.62 per cent households in 2017.

Despite of having huge changes in primary livelihood sources among Kuki tribes, share of few primary livelihood sources are remained same after Five years. For instance, in the year of 2012 total 45 households were involved in Paddy cultivation (Table 4) and surprisingly at present all of these households did not change their livelihood. Similarly, in case of Rubber cultivation and Lemon cultivation, five years later not a single household has been changed their primary source of livelihood.

All Jhum cultivators have been changed their primary livelihood source. Out of total 19 Jhum cultivators (in 2012), at present the largest section of Jhum cultivators, almost 57.9 per cent among them, became Rubber cultivator (Table 4), followed by 36.8 per cent Lemon cultivator. Only one household converted as paddy cultivator. Interestingly, more than half (52.6 per cent of them) of traditional Bananacultivators have been converted as lemon cultivator (Table 4) rather than diverting towards trendy Rubber cultivation. However, the second prominent group of traditional Banana cultivators, with 36.8 per cent proportion of them, became Rubber cultivator and only

one household has been moved towards Paddy cultivation instead of lemon. Ultimately, the popularity of Paddy cultivation remained almost same and Rubber cultivation became highly popular among Jhum cultivators as well as Kuki tribes.

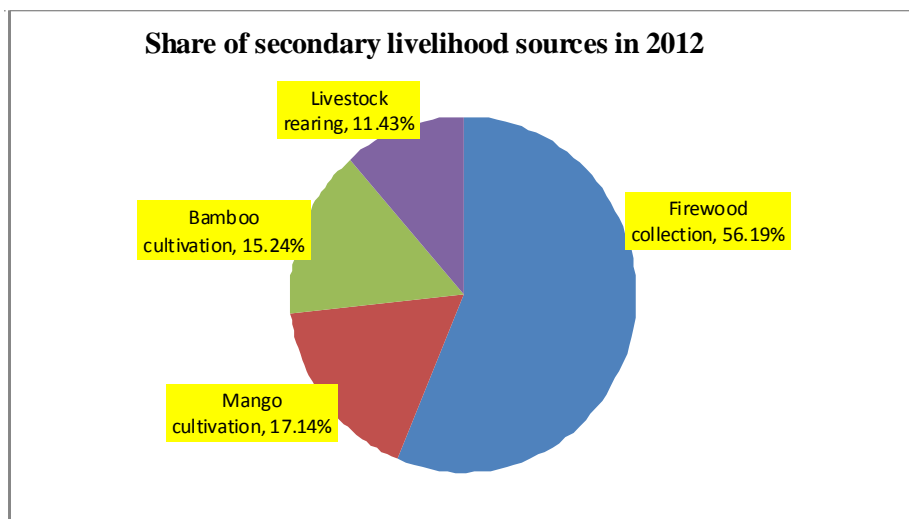
Table: 4 Cross tabulation of changing pattern of primary livelihood

Primary Livelihood Source at 2012	Primary Livelihood Source at 2017					Total (2012)
	Jhum cultivator	Paddy cultivator	Rubber cultivator	Banana cultivator	Lemon cultivator	
Jhum cultivator	0 (0)	1 (5.3)	11 (57.9)	0(0)	7 (36.8)	19(100)
Paddy cultivator	0 (0)	45 (100)	0(0)	0(0)	0(0)	45(100)
Rubber cultivator	0 (0)	0 (0)	10 (100)	0 (0)	0 (0)	10(100)
Banana cultivator	0 (0)	1 (5.3)	7 (36.8)	1(5.3)	10 (52.6)	19(100)
Lemon cultivator	0 (0)	0 (0)	0 (0)	0 (0)	12 (100)	12(100)
Total (2017)	0 (0)	47 (44.8)	28(26.7)	1 (1)	29 (27.6)	105(100)

Note: Figures in parentheses indicate per cent (Percentages have been calculated within primary livelihood source at 2012)

Secondary Source of Livelihood

Five years back, almost more than half (56.19 per cent) of Kuki households had to depend on Firewood collection as secondary source of livelihood (Figure 3). The second prominent secondary source of livelihood was mango production with 17.14 per cent proportion, followed by Bamboo cultivation with 15.24 per cent proportion (Figure 3). At that time Livestock rearing (like poultry, piggery etc.) was not much popular among Kuki tribes as only 11.43 per cent households reported about their involvement in Livestock rearing as secondary source of livelihood.

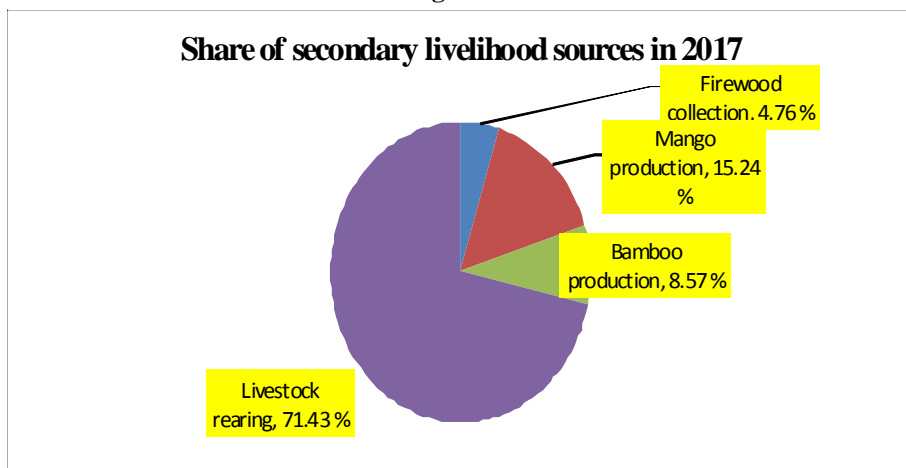


Source: Field survey, 2017

At present, Livestock rearing becomes most popular source for secondary livelihood out of all prevalent secondary livelihood sources among Kuki tribes. Large scale of

Kuki households with almost 71.43 per cent (Figure 4) proportion reported about their involvement on Livestock rearing as secondary livelihood source. Mango production has been witnessed as second prominent secondary livelihood source with almost 15.24 per cent proportion, followed by Bamboo cultivation with 8.57 % proportion. Firewood collection is now a least popular livelihood source among Kuki tribes with only 4.76 per cent proportion among all secondary sources.

Figure: 4



Source: Field survey, 2017

Changes in secondary livelihood pattern

Once Firewood collection was most popular and traditional secondary source, with 56.19 per cent proportion, of livelihood among Kuki tribes and now it became least popular source with only 4.76 per cent proportion (Table 5). During last 5 years, that source of livelihood witnessed a remarkable declination (51.43 per cent) among Kuki tribes. Rests of the secondary sources, like Mango and Bamboo production also witnessed a declination after 5 years. The share of the former slightly declined from 17.14 per cent in 2012 to 15.24 per cent in 2017 and the proportion of latter has been decreased (6.67 per cent) from 15.24 per cent in 2012 to only 8.57 per cent in 2017 (Table 5). Interestingly, 5 years later Livestock rearing got huge popularity with 60 per cent growth and emerged as most popular secondary source of livelihood with almost 71.43 per cent proportion.

At present Firewood collection lost its huge popularity as secondary source of livelihood. Out of 59 Firewood collectors almost 91.50 per cent Kuki households left that occupation and started Livestock rearing (Table 6). Expectedly, Livestock rearing could intact its traditional practitioner as no one left this occupation after 5 years (Table 6). Near about half of Bamboo cultivators with 43.80 per cent proportion have been shifted towards Livestock rearing. Only 11.10 per cent traditional Mango cultivators have been started Livestock rearing as secondary source of livelihood. How-

Table 5: Changing Secondary Livelihood patterns

Secondary Sources of livelihood	2012	2017	Changes (%)
Firewood collection	59(56.19)	5(4.76)	-51.43
Mango production	18(17.14)	16(15.24)	-1.90
Bamboocultivation	16(15.24)	9(8.57)	-6.67
Livestock rearing	12(11.43)	75(71.43)	+60.00
Aggregate	105(100)	105(100)	100

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

ever, almost 88.90 per cent traditional Mango cultivators did not change their secondary source of livelihood (Table 6). Therefore, still it is one of the popular sources of livelihood after Livestock rearing. Today Livelihood rearing has been emerged as most prominent secondary source of livelihood among Kuki tribes as it captured the farmers from every traditional secondary livelihood sources.

Table: 6 Cross tabulation of changing secondary livelihood patterns

Secondary Sources of livelihood at 2012	Secondary Sources of livelihood at 2017				
	Firewood collection	Livestock rearing	Bamboo production	Mango production	Total
Firewood collection	5 (8.5)	54 (91.50)	0 (0)	0 (0)	59(100)
Livestock rearing	0 (0)	12 (100)	0 (0)	0 (0)	12(100)
Bamboo production	0 (0)	7 (43.80)	9 (56.30)	0 (0)	16(100)
Mango production	0 (0)	2 (11.10)	0 (0)	16 (88.90)	18(100)
Total (2017)	5 (4.80)	75 (71.40)	9(8.60)	16 (15.20)	105(100)

Note: Figures in parentheses indicate per cent (Percentages have been calculated within secondary livelihood source at 2012)

Living standard of Kuki tribes

Housing condition of Kuki tribes did not change in large scale after Five years of livelihood change. At present almost 66.7 percent households live in Kutcha houses as compare to almost 97.1 per cent Kuki households in 2012 (Table 7). In the year of 2012 not a single Kuki household was able to afford Pucca house, however at present only 14.3 per cent households live in the same. Prominent numbers of families still live in Kutcha houses, followed by almost 19 per cent families having semi-pucca houses as compare to only 2.9 per cent of the same in 2012 (Table 7). After 5 years of changing livelihood pattern remarkable improvement on housing condition has not been witnessed. Surprisingly, two-wheeler was never popular as vehicle among Kuki tribes. For instance, almost 76.2 per cent families, in 2012, were without two wheeler vehicle and at now almost 43.8 per cent families don not have the same (Table 7). However, the standard of living of the Kuki tribes reflects in case of having motor cycle or scoter; Earlier (2012) only 4.8 per cent households were having the vehicle and presently 41 per cent households own at least one two-wheeler motor vehicle.

Previously pond was the most common source of water among the Kuki tribes. Earlier almost 47.6 per cent Kuki households had to collect their drinking water from pond and presently no body collects the drinking water from the same source (Table 7). The second common source of drinking water among Kuki tribes was 'Well' with almost 52.4 percent proportion and now it reduced up to only 12.4 per cent proportion of households (Table 7). Presently, largest number of Kuki households, almost 87.6 per cent, enjoy drinking water from Supply and previously the facility was nil among Kuki tribes. A large number of Kuki families with almost 72.4 percent proportion now enjoy electricity as source of lighting, whereas only 20 per cent families had that same facility in 2012 (Table 7). Five years back kerosene was most common source of lighting among Kuki tribes, solar facility was not available and now the second largest Kuki families enjoy solar facility with 21 per cent proportion (Table 7). However, only 6.7 per cent families still depend on kerosene as source of lighting.

Table 7: Living Conditions of Respondents

	2012	2017		2012	2017
Type of house			Households have Two Wheeler		
Kutchha	102(97.1)	70(66.7)	No	80(76.2)	46(43.8)
Semi-Pucca	3 (2.9)	20(19)	Bi-cycle	20(19.0)	16(15.2)
Pucca	0(0)	15(14.3)	Motor Cycle/ Scooter	5(4.8)	43(41)
Total	105(100)	105(100)	Total	105(100)	105(100)
Source of drinking water			Source of lighting		
Pond	50(47.6)	0(0)	Kerosene	84(80)	7(6.7)
Well	55(52.4)	13(12.4)	Solar	0(0)	22(21)
Supply	0(0)	92(87.6)	Electricity	21(20)	76(72.4)
Total	105(100)	105(100)	Total	105(100)	105(100)
Sanitation facility			Fuel used by households for cooking		
No facility	53(50.5)	1(1.0)	Wood	99(94.3)	32(30.5)
Open pit	16(15.2)	27(25.7)	Kerosene	4(3.8)	3 (2.9)
Kutchha	32(30.5)	30(28.6)	LPG	2(1.9)	70(66.7)
Sanitary	4(3.8)	47(44.8)	Total	105(100)	105(100)
Total	105(100)	105(100)	Households have Television	12(11.4)	68(64.8)
Households have Refrigerator	5(4.8)	37(35.2)	Households Have FAN	17(16.2)	82(78.1)

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

Five years back, more than half of Kuki tribes did not have sanitation facility. Only 3.8 per cent households could afford sanitary toilet (Table 7). At present prominent number of households, with almost 44.8 per cent proportion, have sanitary toilet facility, followed by Kutchha toilet with 28.6 per cent proportion of Kuki households. Surprising fact is that, only 2 per cent reduction has been witnessed in case of using Kutchha toilet among Kuki tribes from 30.5 per cent in 2012 to 28.6 percent in

2017 (Table 7). Only one household has been found without any toilet facility. Largest numbers of Kuki families have been shifted towards LPG (Liquid Petroleum Gas) for cooking purpose with almost 66.7 per cent proportion whereas earlier 94.3 per cent of them had been using wood for the same purpose (Table 7). However, still wood is common source of cooking purpose for almost 30.5 per cent households. Kerosene always remains a least popular source of cooking purpose among Kuki tribes. Television, a common source of entertainment, was reported to have by almost 64.8 per cent Kuki households as compare to only 11.4 per cent families in 2012 (Table 7). In 2012 only 4.8 per cent Kuki families were able to afford a refrigerator and now almost 35.2 per cent families have the appliance. Presently almost 78.1 per cent Kuki households have their own 'fan', whereas only 16.2 per cent families reported to have the same before 5 years (Table 7).

Five years back the prominent income group among Kuki tribes was up Rs. 5000 per month with 41 per cent proportion (Table 8). The second prominent income group was Rs. 5001-10000 per month with almost 34.3 per cent proportion, followed by the income group Rs. 10001-15000 per month with almost 11.4 per cent proportion. Only two respondents were found from each income range Rs. 25001-30000 and above Rs. 30001 per month (Table 8). At that time the minimum income was Rs. 3000 per month and maximum was Rs. 35,000 per month. In 2012, the average monthly income of Kuki tribes was Rs. 8852. Almost half of Kuki respondent's monthly income was less than their own average income (Table 8). Five years back almost an inverse relationship (Figure 5) has been witnessed between proportion of Kuki tribes and income range. The proportion of Kuki tribes declines with increasing range of income. However, the trend was not consistent.

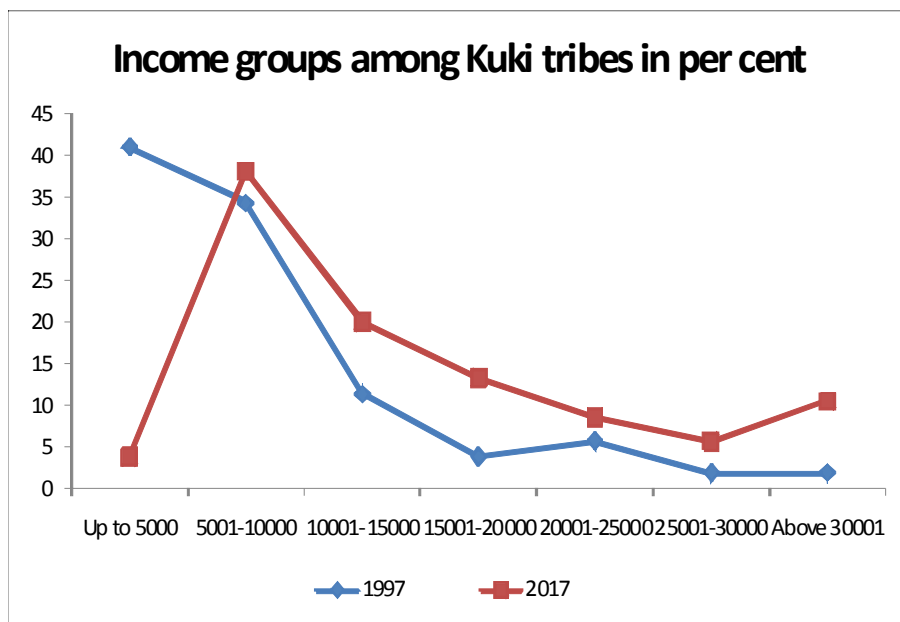
Table 8: Distribution of Monthly Income

Range (Rs.)		2012	2017	
Up to 5000		43(41)	4(3.8)	
5001-10000		36(34.3)	40(38.1)	
10001-15000		12(11.4)	21(20)	
15001-20000		4(3.8)	14(13.3)	
20001-25000		6(5.7)	9(8.6)	
25001-30000		2(1.9)	6(5.7)	
Above 30001		2(1.9)	11(10.5)	
Min		3000	4000	
Max		35000	55000	
Mean		8852.29	16373.33	
Coefficient of Variation		0.78	0.73	
Paired t Test				
Year	Mean income	t-value	Degrees of freedom	p-value
2017	Rs. 16149.52	7.20**	104	0.000
2012 [#]	11437.05			

Source: Field survey, 2017; Note: Figures in parentheses indicate per cent
 ** Significant at 1 % level. [#]Mean value has been calculated from respondent's income of 2012 at current price level.

Expectedly, average monthly income of Kuki tribes has been increased and paired t-stat indicates that it is statistically also significant (t-stat= 7.20, Dof=104, p=0.000) at 1 per cent level of confidence (Table 8). Therefore, the null hypothesis has been rejected i.e. the monthly income of Kuki tribes has been significantly increased after 5 years. Interestingly at present the co-efficient of variation was found slight less (0.73) as compare to 0.78 in 2012(Table 8). After Five years, large numbers of Kuki respondents with almost 38.1 per cent proportion lie between Rs.5001-10000 monthly income group. The second prominent income group is Rs. 10001-15000 per month with 20 per cent proportion, followed by the earner group having income 15001-20000 per month with 13.3 per cent proportion of them (Table 8). Still more than 61.8 per cent of Kuki respondent’s monthly income is less than their own average income per month. At present the minimum monthly income of Kuki tribes is Rs. 4000 and the maximum is Rs. 55,000. Currently, the proportion of Kuki tribes consistently decreases after the income range Rs.5001 to 10000 per month (Figure 5) and surprisingly it boosted at the income level above Rs. 30,000 per month.

Figure: 5



Source: Field survey, 2017

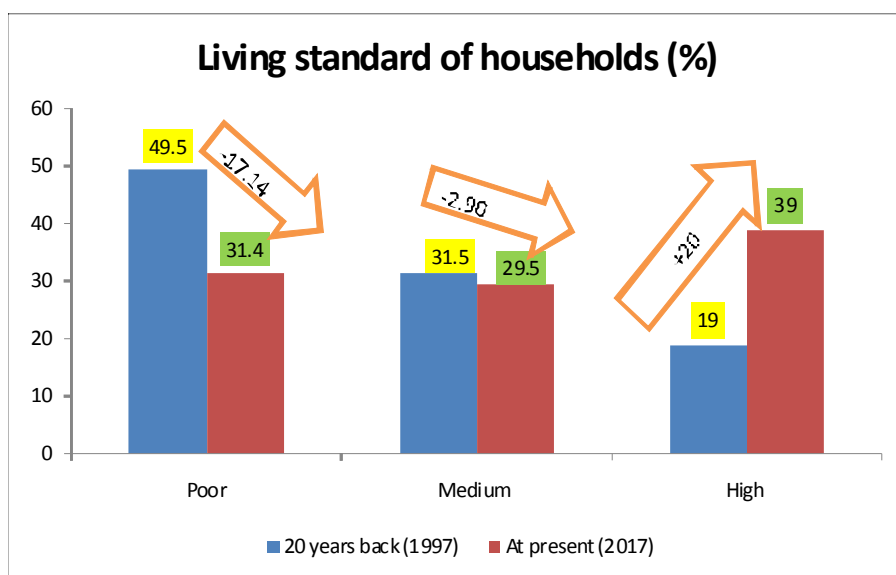
The living standard of Kuki tribes has been categorised into ‘Poor’, ‘Medium’ and ‘High’. Five years back, almost half of Kuki households were under ‘poor’ category as their living standard score was below -0.30(table 9). The second largest Kuki households were in ‘Medium’ category with living standard score between -0.30 to 0.30 with 31.5 per cent proportion. Only 19 per cent of them were in ‘High’ living standard with above 0.30 score (table 9).

Table 9: Category wise living standard of households

Living standard (Composite Score)		20 years back (2012)	At present (2017)
Category of living standard	Composite score	Percentage of households (%)	
Poor	(below -0.30)	52 (49.5)	34 (31.7)
Medium	(-0.30 to 0.30)	33 (31.5)	30 (29.3)
High	(A bove 0.30)	20 (19)	41(39)
Total		105 (100)	105(100)

Source: Calculated by authors; Note: Figures in parentheses indicate per cent

At present, the proportion of 'Poor' category Kuki tribes reduced into 31.4 per cent, followed by immediate close proportion (29.5 per cent) of Kuki tribes into 'Medium' category (Table 9). Expectedly, the large number of Kuki tribes lie into 'High' living standard category with 39 per cent proportion.

Figure 6

Source: Calculated by authors

The figure 6 clearly exhibits proportion of 'Poor' Kuki tribes has been reduced from 49.5 per cent in 2012 to 31.4 per cent in 2017 with 17.14 declination. The surprisingly the proportion of Kuki's under 'medium' living standard has slightly reduced. Only 2.9 per cent reduction is witnessed within 2012 to 2017 with almost 31.5 per cent and 29.5 per cent respective proportion (Figure 6). However, 20 per cent growth has been reflected in case of 'High' living standard category among Kuki tribes from 19 per cent in 2012 to 39 per cent in 2017(Figure 6).

Changing Livelihood Pattern and Monthly Income

To deal with third hypothesis of the study total 4 multiple linear regression models have been employed. In all these models monthly income of respondents has been regressed on their primary and secondary occupations.

Model-1

In this model, the monthly income of respondents in 2012 has been regressed on the then prevalent primary sources of livelihood among Kuki tribes (Table 10). The model exhibits that Jhum, Banana and Rubber cultivation have significant effect over their monthly income. The co-efficient of Jhum and Banana cultivation indicates significant negative effect over monthly income of Kuki tribes at 5 % and 1 % level respectively. Every one point increase of Jhum cultivation the income of Kuki tribes reduces almost Rs. 5882 per month. Similarly for Banana cultivation income of respondents decreases Rs. 815 per month. Only Rubber cultivation left positive significant effect over the monthly income of respondents at 1 % level. Every one point increase of Rubber cultivation their income increases Rs. 1800 per month.

Table: 10

Independent variables	Dependent variable: Monthly income in 2012		
	Co-efficient	t-test	p-value
Constant	10038.44	11.581	.000
Jhum Cultivation	-5882.12*	-3.697	.000
Lemon Production	-3105.11	-1.644	.103
Rubber Cultivation	1800.51*	4.251	.000
Banana Production	-815**	-2.049	.043

* Significant at 1 % level. **Significant at 5 % level.

Model-2

This model similarly represents present Monthly income of Kuki respondents as dependent variable (table 11). Therefore, monthly income of Kuki respondents regressed on popular primary sources of livelihood. The model exhibits at present only Rubber cultivation has significant effect on monthly income of respondents at 5 % level. The positive effect of Rubber cultivation indicating if rubber cultivation increases one point, the income of respondents also increases approximately Rs. 2354 per month (table 11). Therefore, the null hypothesis may be rejected.

Table: 11

Independent variables	Dependent variable: Monthly income in 2017		
	Co-efficient	t-test	p-value
(Constant)	12703.44	5.797	.000
Rubber Cultivation	2354.80**	2.260	.026
Banana Cultivation	1324.13	.441	.660
Paddy Cultivation	1938.70	1.62	.167

**Significant at 5 % level.

Model-3

This model represents effect of secondary livelihood sources on monthly income of Kuki respondents in 2012. Monthly income as dependent variable has been regressed on the then prevalent secondary sources of livelihood among Kuki tribes. The table 12 exhibits that three secondary sources namely, Firewood collection, Bamboo cultivation and Mango production had significant effect on monthly income at 1 % level. The model indicates every one unit of increase of Firewood collection, as secondary source of livelihood, income decreases approximately Rs. 13461 per month. Similarly, for every one unit increase of Bamboo cultivation, monthly income decreases approximately Rs.3012. Monthly income decreases by approximately Rs. 1454 for every one unit increase of Mango production (Table 12).

Table: 12

Independent variables	Dependent variable: Monthly income in 2012		
	Co-efficient	t-test	p-value
Constant	19750.00	12.38	.000
Firewood Collection	-13461.52*	-7.69	.000
Bamboo Production	-3012.70*	-4.28	.000
Mango Production	-2853.05*	-5.54	.000

*Significant at 1 % level

Model-4

The model represents the effect of presently prevalent secondary sources of livelihood on monthly income of Kuki respondents. The table 13 exhibits only Livestock rearing has positive and significant effect on monthly income at 5 % level. The model indicates for every one unit increase of Livestock rearing as secondary source of livelihood, monthly income of Kuki respondents' increases by approximately Rs. 1323 (Table 13). Rests of secondary sources of livelihood do not have any significant effect on monthly income of respondents. Therefore, null hypothesis may be rejected.

Table: 13

Independent variables	Dependent variable: Monthly income in 2017		
	Co-efficient	t-test	p-value
Constant	14644.44	3.686	.000
Firewood Collection	-6484.44	-.976	.332
Livestock Rearing	1323.77**	.630	.040
Mango Production	240.45	.194	.847

**Significant at 5 % level.

Conclusion

The Kuki tribes in Tripura has been undergoing astonishing changes in the last 5 years ago compared to the present age. Shifting cultivation in some form was being extensively practiced by Kuki tribes. Now large sections of Kuki tribes have been

shifted towards rubber cultivation and lemon production. However, Paddy cultivation kept intact its popularity among Kuki tribes but did not attract large number of farmers from other sectors like Rubber and Lemon. In case of secondary sources of livelihood, firewood collection lost its huge popularity and in large scale replaced by livestock rearing (Poultry, Piggery etc.). In spite of being a profitable income generating source, livestock rearing did not take place as primary source of livelihood. It is crystal clear that changing livelihood patterns among the Kuki tribes have brought a major change in development of their living standard. Despite of all these facts still near about half of surveyed Kuki households found to have BPL card. Behind changing livelihood patterns of Kuki tribes, government's initiative must be taken into account. Large scales of land have been allotted among Jhumia families in order to encourage them towards Rubber or lemon production. That is why at present proportion of Jhumia has found nil among Kuki tribes. Since, traditionally Kuki tribes were comparatively advance in literacy as well as education than other ethnic groups, new generation did not attract towards primitive source of livelihood. They have come across these changes to develop to meet their basic needs. It was not just a change about shifting from low productivity to high productivity, the Kuki tribes have changed their culture and tradition compared to the years back. However, a surprising fact has been reflected about housing type of Kuki tribes. For instance, despite of having lots of enhancement in case of several yardsticks of living standard still more than half of Kuki households did not change their traditional (Kutchu) housing pattern. During conversation respondents emphasised on their tradition and customs in terms of housing pattern. Five years later, only Rubber cultivation and Livestock rearing left significant impact over the monthly income of Kuki respondents.

Note

1. FGD (Focus Group Discussion) has been applied in order to deal the first objective of the study. A focus group is an effort to bring few individuals together in order to discuss a particular topic. A person acts as moderator (a chair) by providing required framework and structure of the discussion. He throws open-ended questions so that group discussion may take place among respondents (Kitzinger, 1994). Thereafter, the moderator will come out with major crux of the discussions. Moreover, it also taps into subjective experiences and are an efficient way to collect information's that describes, compares, or explains a social phenomenon because moderator allows participants to interact with one another and build on one another's comments.

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