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Agrarian change and well-being status of *Mara* tribe in Mizoram

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ABSTRACT

This study is focused on the agrarian change and well-being status among *Mara hill tribe* practicing Shifting Cultivation (SC) in *Saiha*, a remote Hill district in North Eastern Region of India. Using a mixed methods research design, 50 tribal households were interviewed with the help of structured interview schedule. The findings reveal transition in terms of aversion of the tribal youths from SC, declining dependency of the community on SC and fare share (37.16%) of total expenditure on children's education. Further, increased access to information gadgets like mobile phone, TV and radio are triggering material aspirations among the tribal community. The average monthly income of respondent households was about ₹ 10766 and 77.56% of the total income is contributed by agriculture and allied activities. Higher inclination was observed towards settled cultivation with high value horticultural crops, however, community ownership of land, lack of market access and higher technological gap in agriculture were impeding entrepreneurship. The study reveals that well-being of 93% tribal households were moderate or inconsistent. They are experiencing difficulties as on date and are also expected to continue with it in the near future. Hence, planning and implementation of development schemes focused on welfare and livelihood diversification need to be revisited to enhance overall well-being of the hill tribe who rely on SC for their livelihood.

Key words: Hill tribe, Northeast India, Shifting cultivation, Transition, Well-being

Shifting cultivation (SC) is mainly practiced by hill communities since the Neolithic period (13,000–3,000 BC) in the continents like Asia, Africa, and Latin America (Mazoyer and Roudart 2007). SC is also considered as a main agent of conversion of primary forests to secondary forests in the highlands (Schmidt-Vogt *et al.* 2009). In the last few decades SC systems have changed or are in the practice of conversion into other land use systems in Southeast Asia (Fox *et al.* 2009, Li *et al.* 2014). The meta-analysis of van Vliet *et al.* (2012) established that such region has undergone significant decline in SC and the drivers are economic structures, market development, population growth and policies (particularly SC management policies). In addition, Heinimann *et al.* (2017) envisaged that by 2030, SC may disappear from India. If at all such an event becomes reality there will be various issues of livelihood security of the communities dependent on SC. Nevertheless, there exists varied views on such remarkable transformation because of factors like market economy, land use policies etc. (Li *et al.* 2014).

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The driving forces behind this transition in India are entwined with several rehabilitation schemes that have been implemented by the State and Central Governments to control shifting cultivation such as Watershed Development Projects, Soil conservation schemes, SC Control Projects, New Land Use Policy Scheme etc. (Tripathi and Barik 2003). The government and pro-environment organizations are finding ways to replace SC mainly by adopting farm and nonfarm livelihood diversification strategies due to widespread documented negative consequences (Zaitinvawra and Kanagaraj 2008, Rai and Chutia 2014) of SC on environment.

Literatures are scanty about well-being status of people practicing shifting cultivation. There are pressing demands for updated and accurate information on SC and transition among the people depending on SC hence, the present study was undertaken to empirically examine the socio-economic status, household income and expenditure pattern, information access, preferred diversification choice, challenges and status of overall well-being of the tribal communities whose livelihood currently depends upon SC.

MATERIALS AND METHODS

Present study was carried out with 50 tribal households of six (6) village clusters from two (2) Community and Rural Development (C&RD) clusters, viz. Sangau and Tuipang in Saiha, Mizoram, North East India. The low human population density (40 people per KM2, Census

of India 2011) and a relatively high forest cover of about 86% (FSI 2017) are the reasons for purposive selection of this district for the study. Majority of the inhabitants are Mara people and constitute a distinct tribal group and historians consider them as one of the Mizo tribes/clans. Data was collected during 2016–17 using structured interview schedule. The survey schedule consisted of important socio-economic variables related to objective well-being like age, educational attainment, family size, media usage, income and household expenditure pattern. To ascertain the opportunities and challenges in SC system and to understand the benefits of ongoing rural development schemes in the study area, focused group discussion with key informants were also conducted in relation to well-being influence of different schemes.

Diversification preference was measured using 5-point Likert scale and challenges were assessed using 3-point Likert scale developed for the study. Cantril Self-Anchoring Scale (Cantril 1965) was used to measure respondents' subjective well-being as it measures well-being nearer to the end of the range indicating assessments of life or life appraisal (Diener *et al.* 2009). Further, the grouping pattern formed by Gallup (2009) was adopted for interpretation of results. Wherever applicable, results are interpreted through use of statistics e.g., frequency distribution, percentage, mean and standard deviation with standard error.

Table 1 Average monthly income and expenditure of respondent households

Income	Mean (₹)	SD	SE	CV (%)
Primary	8350 (77.56%)	5723.43	1180.87	1.46
Secondary	2416 (22.44%)	1781.46	341.67	1.36
Average income	10766	5293.57		
Expenditure				
Food	3072 (33.71%)	1317.70	434.45	2.33
Non-Food				
Education	3386 (37.16%)	3151.42	478.85	1.07
Clothing	920 (10.10%)	420.88	130.11	2.19
Religious ceremony	854 (9.37%)	557.40	120.77	1.53
Festival	230 (2.52%)	476.06	32.53	0.48
Maintenance of vehicle	160 (1.76%)	489.06	22.63	0.33
Expenditure on livestock	240 (2.63%)	484.45	33.94	0.50
Maintenance/ repairing of house	30 (0.33%)	156.82	4.24	0.19
Health & travelling	220 (2.41%)	321.98	31.11	0.68
Average expenditure	9136.00			
Saving	1630.00			

Figure in parenthesis indicates the percentage of total income/ expenditure

RESULTS AND DISCUSSION

Socio-economic well-being determinants of the respondents: It has been postulated that increased socio-economic status co-varies with increased levels of subjective well-being. In turn, subjective well-being has antecedence of physical and mental health (Nettle 2005). Therefore, socio-economic inequalities in well-being studies capture the degree to which well-being is (un) equally distributed in the population, by socioeconomic status (Weaver 2015).

It was found that majority of the respondents engaged in SC were from old aged group (50%) followed by middle aged group (44%). Maximum of the respondents (68%) had primary level education, only 28% were educated up to high school and above. Majority (84%) of the respondents had medium family size i.e. about 6 members per family. The majority of respondents (56%) lived in houses made of thatched roofs with mud walls while 42% had houses of clay-bricks or stone blocks with corrugated steel roofing. Out of total respondents half of them (52%) had dependency on SC in range of 75–100% whereas, about 38% respondents depended on it to the extent of 50–75%. Social participation of the respondents was found up to 94% and reported to be members of farmers club, NGO and community based organization.

Household income and expenditure pattern of respondents: Changes in material living standards and general welfare can be explained by investigating household expenditure and consumption pattern (Atkinson 1998) which are pivotal factors for monitoring and explanation of inequalities (Lewis 2014). The pattern of household income and consumption expenditure of respondents (Table 1) was found to be very low and highly unequal. As the share of expenditure on food was 42%, it may be inferred that the respondents have lower level of food insecurity (Table 2).

The results revealed that at the base year (2016), the average monthly income of the households was about ₹ 10766 with deviation of ₹ 5293.57 in the sampled district

Table 2 Agricultural diversification preferences of hill tribes

Item	Average score	Standard deviation	Rank
Spice crops	4.30	0.71	1
Vegetables cultivation	4.26	0.90	2
Fruits orchard	3.94	0.59	3
Integrated farming system	3.92	0.75	4
Small scale food processing unit	3.82	0.60	5
Vermi-composting	3.78	0.76	6
Agro-forestry	3.34	0.87	7
Low cost bamboo poly house with high value crops	3.24	0.80	8
Introduction of winter crops under zero tillage	3.18	0.80	9
Introduction of cover crops	3.06	0.84	10

wherein, agriculture and allied activities contributed about 78% of total monthly income. It is clear from Table 1 that expenditure on education (37.16%) takes away more than one third of tribals' household budget followed by food items (33.71%). Significant proportion of non-food expenditure was on clothing (10.10%) and religious ceremony (9.37%) and rest of the expenditure was on livestock, festival, health and travelling and other miscellaneous consumer services. The SD and SE value of average monthly income of sampled households was found to be very high, which means that there exists high variability in income distribution and expenditure pattern among the respondents.

Non-farm employment opportunities among the respondents: Shifting cultivation can improve income, enhance agricultural production, achieve food security, reduce income uncertainties and cope with environmental stress only through diversification and shifting to non-farm livelihood strategies as evidenced by empirical studies (Bezu *et al.* 2012, Hoang *et al.* 2014). It indicates that majority (54%) of the respondents could avail non-farm employment opportunities to augment or to supplement agricultural income mainly through labour market program (MGNREGA). Of total respondents 42% were engaged as wage labourers whereas, a small segment of the respondents reported having occupation such as vegetable vendor. The findings indicate limited diversified opportunity in non-farm livelihood options and validate the results on income that reveals only about 22% of total income contributed by secondary occupation.

Access to mass media and mobile phone by hill tribes: Individual subjective well-being is directly influenced by relative social environment of community as established by review of literature (Lohmann 2015). An individual aspire well-being and satisfies through his income in addition desires to have aspired levels. For any reason the aspirations are not met out, the subjective well-being faces lot of internal pressure. Such phenomenon is referred as "Satisfaction treadmill". Modern media has pivotal role to play under such circumstances particularly television influences material aspirations. Accordingly individual prepares to achieve income and satisfaction (Hyll and Schneider 2013).

It was observed that access to print media was poor in spite of higher literacy among the respondents possibly due to relatively higher cost involved in procuring printed resources like books and newspapers; however, 96% respondents have access to television which is followed by Radio (34%). One plausible reason for relatively higher usage of TV and Radio may be because they also serve as entertainment medium apart from being informative when compared to print media. The study reveals that about 98% of the respondents own/ use mobile phone. Near full penetration of mobile phones provides an opportunity to development departments to leverage ICT for reaching out to far-flung tribal hamlets.

Agricultural diversification preferences: Based on thorough review of relevant literature, a list of technological options, recommended by different scientific establishments for better management of SC was prepared and placed before the respondents. Focused group discussions were also conducted with key stakeholders to validate the response of the respondents.

Data reveals that spice crops (x =4.30), vegetables cultivation (x =4.26) and fruits orchard (x =3.94) were identified by the respondents as top three choices for agricultural diversification in SC area and ranked I, II and III respectively (Table 2). Other strategies like integrated farming system (x =3.92), small scale food processing unit (pickle jam/jelly, Ready To Serve (RTS) beverage, squash, candy etc.), vermi-composting, agro-forestry, low cost bamboo poly house with high value crops, introduction of winter crops under zero tillage and cover crops could be viable options for agricultural diversification and contribute to enhancing income in SC area as reported by the respondents. The reasons for preferences are easily comprehensible on the fact that the given tribal settings are endowed with vast natural resources with supporting climatic and edaphic factors which are conducive for fruit orchards, spices production and vegetable cultivation in the area.

Constraints towards settled cultivation and livelihood diversification: Among several bottlenecks, community ownership of SC land (x =2.96), poor lack of market access (x =2.92) and lack of organic weed management techniques (x =2.90) emerged as the most important challenges that hinders the different options of livelihood diversification (Fig 1). Lack of high yielding crop varieties well suited on SC land, absence of agricultural value chains and absence of role models in the vicinity were other important impediments as expressed by the respondents towards diversification of their livelihood and income enhancement.

Subjective well-being of the respondents: In regard to subjective well-being of the respondents, maximum (93%) of them were found as moderate or inconsistent. They are

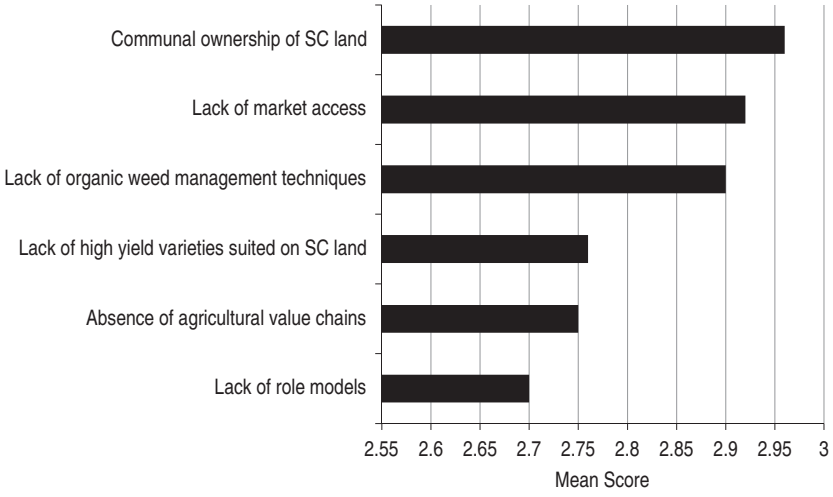

Fig 1 Constraints faced by hill tribes in settled cultivation and livelihood diversification.

either struggling in the present, or expecting more struggle in coming future. They are more likely to drink and smoke and are less likely to eat healthy food. However, about 6% reported well-being that is strong, consistent, and progressing. These respondents have positive views of their present life situation and they look for betterment of their quality of life in next five years. Negligible (1%) proportion of respondents perceived well-being that is at high risk. They have inadequate access to basic amenities of life e.g. food, shelter and clothing. These respondents have given poor ratings of their present life situation (below 4 in a scale of 10). They are less optimistic about their well-being in next five years (below 4 in a scale of 10).

The study observes that significant socio-economic and technological changes are leveraging transition and is impacting lives of hill tribes practicing SC. In such a situation, majority of them are experiencing difficulties in deriving livelihood from SC though the perceived desirable goal of transition for development in any society to bring equality with happiness. Government-led initiatives for livelihood diversifications are finding favours with the educated youth; however, concerns are being raised as to whether it is widening the rich-poor divide. The emerging heterogeneity in present level of income and well-being among the members of the community warrant immediate intervention to ensure inclusiveness and growth.

Adopting multi-pronged strategy with institutional and policy reforms in development approaches based on sound planning may usher in well-being among the tribal community, dependent on SC. Strengthening household perspective, distributional aspects of income, providing access to basic needs especially for the people living at the bottom of the pyramid and improving the quality of life need to be the focus of development administration. It is argued that enabling environment in terms of infrastructure (transport, markets, processing) and institutions (credit, extension, information) are to be revitalized to promote non-farm business opportunities in North Eastern India. This strategy would help capitalizing the transition and thereby securing the livelihood and well-being of the vulnerable community of the Himalayas.

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REFERENCES

Atkinson AB. 1998. *Poverty in Europe:(Jrjo Jahnsson Lectures)*. Wiley-Blackwell. Hoboken, New Jersey, United States.

Bezu S, Barrett C B and Holden S T. 2012. Does the nonfarm economy offer pathways for upward mobility? Evidence from a panel data study in Ethiopia. *World Development* **40**(8): 1634–46.

Cantril H. 1965. Pattern of human concerns. Rutgers University Press, New Brunswick, Canada.

Census of India. 2011. New Delhi: Registrar General & Census Commissioner of India. http:// censusindia.gov.in, accessed on 16/01/2017.

Diener E, Scollon C N and Lucas R E. 2009. The evolving concept of subjective well-being: The multifaceted nature of happiness, pp. 67-100. (Eds) Diener E. Assessing Well-Being. Social Indicators Research Series, vol 39. Springer, Dordrecht.

Fox J, Fujita Y, Ngidang D, Peluso N, Potter L, Sakuntaladewi N, Sturgeon J and Thomas D. 2009. Policies, political-economy, and swidden in Southeast Asia. *Human Ecology* **37**(3): 305–22.

FSI. 2017. State of Forest Report. Dehradun: Forest Survey of India.

Gallup G. 2009. *World Poll Methodology*. Technical Report. Washington, DC.

Heinimann A, Mertz O, Frolking S, Christensen A E, Hurni K, Sedano F, Chini L P, Sahajpal R, Hansen M and Hurtt G. 2017. A global view of shifting cultivation: Recent, current, and future extent. *PloS one* **12**(9): p.e0184479.

Hoang T X, Pham C S and Ulubaşoğlu M A. 2014. Non-farm activity, household expenditure, and poverty reduction in rural Vietnam: 2002–2008. *World Development* **64**: 554–68.

Hyll W and Schneider L. 2013. The causal effect of watching TV on material aspirations: Evidence from the "valley of the innocent". *Journal of Economic Behavior and Organization* **86**: 37–51.

Lewis J. 2014. Income, Expenditure and Personal Well-being, 2011/12. https://www.ukdataservice.ac.uk/media/455199/lewis.pdf, accessed on 12/7/2018.

Li P, Feng Z, Jiang L, Liao C and Zhang J. 2014. A review of swidden agriculture in Southeast Asia. *Remote Sensing* **6**(2): 1654–83.

Lohmann S. 2015. Information technologies and subjective well-being: does the Internet raise material aspirations?. *Oxford Economic Papers* **67**(3): 740–59.

Nettle D. 2005. Socio-economic status and subjective well-being. *Newcastle upon Tyne: New Castle University,* U. K., England.

Rai P K and Chutia B M. 2014. Assessment of ambient air quality status before and after shifting cultivation in an Indo-Burma hot spot region. *International Research Journal of Environmental Sciences* **3**(11): 1–5.

Schmidt-Vogt D, Leisz S J, Mertz O, Heinimann A, Thiha T, Messerli P, Epprecht M, Van Cu P, Chi V K, Hardiono M and Dao T M. 2009. An assessment of trends in the extent of swidden in Southeast Asia. *Human Ecology* **37**(3): 269.

Tripathi RS and Barik SK. 2003. Shifting cultivation in North-East India, pp. 317–322. *Proceedings on Approaches for Increasing Agricultural Productivity in Hill and Mountain Ecosystem*. (Eds) Bhatt *et al.* ICAR Research Complex for NEH Region, Umiam, Meghalaya, India.

Van Vliet N, Mertz O, Heinimann A, Langanke T, Pascual U, Schmook B, Adams C, Schmidt-Vogt D, Messerli P, Leisz S and Castella JC. 2012. Trends, drivers and impacts of changes in swidden cultivation in tropical forest-agriculture frontiers: a global assessment. *Global Environmental Change* **22**(2): 418–29.

Weaver F, Gonçalves J and Ryser V A. 2015. *Socioeconomic inequalities in subjective well-being among the 50+: contributions of income and health* (No. 15011). Institute of Economics and Econometrics, University of Geneva, Switzerland.

Zaitinvawra D and Kanagaraj E. 2008. Shifting Cultivation to Settled Agriculture: Rural Livelihood Patterns in Mizoram. *The Eastern Anthropologist* **61**(2): 201–26.