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COMMERCIALISATION OF TRADITIONAL KNOWLEDGE AND ITS IMPACT ON EMPLOYMENT GENERATION- A CASE STUDY OF MUGA SILK CULTIVATION IN UPPER ASSAM

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Abstract

Sericulture i.e., rearing of muga cocoon and spinning as well as weaving of muga silk attires has been an integral part of the indigenous economic activities especially of the rural masses in Upper Assam. Though both male and female folk of all sections of indigenous population of Assam have been engaged in different sericulture activities, the Tao-Ahom communities of Upper Assam have been predominant in the rearing and weaving of muga raw silk and attires, who in addition to their daily household activities use their leisure time and with the help of their traditionally inherited knowledge produce useful but most illustrious clothes. The activities not only help to increase their household income but also help many of them to generate employment opportunities to self, to household members and other people. The present paper made a humble attempt to study the impact of the commercialisation of indigenous knowledge with respect to the muga silk cultivation and rearing on the growth of employment generation of the respondents and his family members, and as well for other people in the vicinity.

Index Terms—Employment Generation, Muga Silk, Tao-Ahom, Traditional Knowledge, Upper Assam.

I. INTRODUCTION

Traditional knowledge, which is defined as beliefs, practices and knowledge of the traditional community. Predominantly, this knowledge is non-documented know-how, techniques, practices and innovation which is produced through local institutions to solve local problems, manage resources and deal with uncertainties in the environment as well as social interactions, is a significant contributor to the global knowledge base. However, indigenous knowledge is generally viewed as a subset of traditional knowledge, which is possessed and used by

indigenous communities. "Traditional knowledge system" has been an integral and popular source of value to natural resource management, agriculture, health care and farming, which not only promotes their livelihood options but also regressive to the feeling of alienation by the indigenous communities towards contemporary state sponsored developmental programs.

The entrepreneurial innovation becomes imperative for managerial strategists as the contemporary economic changes contain the development of markets for risk or venture capital. Consequently, the prevalence of Schumpeterian kind of competition has been fashioned up which will redesign the commercial landscapes, entirely.

In the new economy with development of markets for risk capital, entrepreneurial innovation has come to occupy the center-stage of academic and management focus. Rightly so, as it creates a potential for Schumpeterian kind of competition which can completely alter commercial landscapes. Thus, the nations, with a strong cultural milieu and institutions delivering entrepreneurial innovation, become wealthy and world leaders of inclusive growth. Regardless of entrepreneurial accomplishments on a global scale in IT and pharmaceuticals sector, India is still far from being epitomized as an "innovation-led" country. For achieving a long-term inclusive growth, we should look for opportunities where innovation based entrepreneurship can create the global products, so also ensured a growth strategy to reduce poverty and inequality. If we look around for a successful 'made in India' brand, we have to ensure the traditional knowledge as our forte. Many successful Indian products have their roots in our heritage, and are well respected, e.g., yoga, silk etc.
The basic aim of commercializing the indigenous knowledge and skill are to make traditional knowledge and its benefits available to large section of the society, to convert "tacit" knowledge to "explicit" knowledge, and to be a global player, apart from providing a sustainable livelihood to the poor indigenous people.

II. BACKGROUND OF THE STUDY

Muga silk handloom is not built for speed, replication and mass production, it is rather a complex socioeconomic instrument with a history of evolution that is best described as an expression of culture, skill and creativity of the traditional population of Assam, the *Tao Ahom*. Machines are used where speed, replication and scale are crucial to the economics of the businesses that deploy them, hand skills, whereas, thrive where inspiration and creativity are of prime essence. The business fundamentals being different as they are, puts machines at the "volume" end of a production spectrum and the handlooms at the "value" end. Fundamentally speaking, communities that rely on hand skills have to think "Value" not "Volume" and that is one principle the handloom communities would do well to remember and follow. Out of this key principle, flows another important dimension that carries the potential to make this line of separation even more visible by calling a product as "handmade" or "machine" made. This dimension, needless to say, would make sense only if there is something distinctly different in the value propositions these two definitions have to offer to an end consumer. We would be doing a great disservice and would be perpetuating a potentially harmful situation if the outputs from handloom facilities continue to be measured as a unit of "volume" and not as a unit of "value". This deep rooted perspective that abounds in many clusters is nurtured by

grants and subsidies that reduces the entire equation to grams of products produced, reducing handloom to just a commodity. This is because the *muga* commercialization can be opted for an instrument to the empowerment of indigenous communities depends on it.

Silk production has been embedded as an important part in the culture and commerce of Assam even in the Pre Vedic times according to the historians. Raw silk was exported to Rome during the reign of Kanaishka in 58 B.C. probably through Silk Route. Artisans engaged in silk production and weaving were engaged in silk production and weaving was patronized by emperors, kings, *jagirdars*, and other rich people throughout the Indian history. The *muga* silk is a unique monopoly in India especially in north east region. The *muga* silkworms are endemic to India and found in Brahmaputra valley and its adjoining hills in Assam. Rearing the silk worm is traditionally done by the *Tao-Ahom* people, which is an age old tradition of this region. It is even a customary that the bridal dress is made of *muga* silk woven by bride herself.

The *muga* silk is a commercial fabric and can be used in making a variety of fabric materials like *dupions*, plain silk, deluxe, satins, chiffon, chinos, crepe, and brocades. Comfortable furnishing materials are made from hand spun mulberry silk and mainly woven from *muga* silk. Some of the waste silk is hand spun into *matka*, *feshua* and *noil* yarns. Furnishings made from these yarns also have a good export market. The production of *muga* can be treated as one of the main source of livelihood of indigenous people of the Upper Assam regions. This dependency can be reflected from the following figures which show an upward trend in the production of silk in this region. (Table I)

TABLE I. YEAR WISE PRODUCTION OF SILK IN ASSAM (IN METRIC TON)

Year	*Eri*	*Muga*	Mulberry	Total	Change in Total	Changes in *Muga*
2001-2002	434.28	91.73	11.72	537.73	-	-
2002-2003	462.50	91.50	14.60	568.6	5.74%	-0.25%
2003-2004	942.50	186.00	8.035	1136.535	99.88%	103.28%
2004-2005	553.00	98.00	10.00	661	-41.84%	-47.31%
2005-2006	1243.00	196.50	10.00	1449.5	119.29%	100.51%
2006-2007	1237.00	194.45	10.00	1441.45	-0.56%	-1.04%
2007-2008	1468.00	182.50	9.86	1660.36	15.19%	-6.15%
2008-2009	812.00	101.00	10.00	923	-44.41%	-44.66%
2009-2010	820.00	89.00	8.35	917.35	-0.61%	-11.88%
2010-2011	810.96	113.28	11.40	935.64	1.99%	27.28%
2011-2012	1976.00	114.56	14.00	2104.56	124.93%	1.13%
2012-2013	1934.00	109.00	25.00	2068	-1.74%	-4.85%
2013-2014	2012.70	118.04	23.40	2154.14	4.17%	8.29%
2014-2015	2079.43	145.08	28.30	2252.81	4.58%	22.91%

(Source: Directorate of Sericulture, Government of Assam, Guwahati)

It is a well-known fact that the local inhabitants are the master of their own native skills and technology which others hardly acquired. Natural resources, raw materials and the skill required for cultivation are aplenty in the area in which they are stakeholders. As regards to the demand of the products are concerned, those are considered as highly demandable products in local, regional, national and international markets. Therefore, there exist a moderate degree of commercialization of the decades-old tradition / native knowledge that is used for production of raw *muga* silk and the techniques used in rearing the *muga* silkworm, weaving of *muga* attires, and marketing and distribution of *muga* silk etc. It is practiced in more than 19000 villages and provides employment to 3.6 lakh families. Assam accounts for the highest production of non-mulberry silk, *muga* and *eri* in the country - for which it is well known and famed. Further, Assam has the monopoly in the world in the production of *muga*, the "Golden Silk" as about 99 per cent of *muga* silk is produced in Assam. Assam has also achieved the right of 'Geographical Indication' for *muga* thread. The total area under silk worm food plants has been recorded a significant increase of 57.52 percent to 29229 hectare during 2014-15 from 18556 hectare in 2008-09. The total production of silk yarn, however, recorded marginal fall in 2012-13, but in next two years the production rises steadily. The decrease of production of *muga* silk yarn during the year 2012-13 was attributed to flash flood but the production was again pick up in next financial years.

III. LITERATURE REVIEW

Till today we do not have many detailed study, covering all the aspects of the sericulture especially on *muga*-culture of Assam. However, a few studies are also there on different sericulture activities of Assam and other parts of India conducted by Benchamin and Jolly (1987), Dutta (1983, 1988), Choudhury (1982, 1984), Ratnala et.al. (1990), Das (2002, 2006), Dookie (1984), Dey and Das (2007, 2007a), DoE&S, Govt. of Assam, Mali (1982), and Planning Commission, GoI (2001) who tried to analyse the problems, prospects and economic conditions of sericulture sectors. All of them stressed much on mulberry, *muga* culture and related cottage industries as a rich source of income and employment in Assam. It contributes more to the family income of those who adopt weaving in addition to rearing of raw silk. Therefore sericulture-entrepreneurship is very important from the point of employment and income generation, which increase the contribution of sericulture substantially. Nonetheless the poorer, those who even cannot take up weaving activities alongside rearing are also benefited and in spite of comparatively low absolute earning from sericulture, percentage of family income earned from sericulture is much more compared to those who have been involved in weaving. Many of the extreme poorer section can meet their subsistence. Of course it is clear that if they could be made more enterprising through the adoption of weaving activities they would be highly benefited.

IV. RESEARCH GAP AND RESEARCH QUESTIONS

The North-East India is always become a place of flabbergast, anonymous and clandestineness for everybody due to its geographical positioning and structure. The research made so far in the

field of the life-style of the indigenous communities of the NER is very much penitence and unsaturated. The same with respect to the studies for the IK and its importance in development of a sustainable livelihood for the indigenous masses of the Assam. The research studies what had already been conducted so far is related to the descriptive analysis of IK and its uses. But no study was conducted so far with respect to the most valuable aspects of IK viz., commercialisation of IK, impact of commercialisation, innovation and viability etc. In addition, no research activity has so far been carried out in this topography too. An effort was made for a comprehensive study of the impact of commercialization of indigenous knowledge, in the area of *muga* silk cultivation and weaving on the rise of employability in north Lakhimpur district in particular and Assam as a whole. So the present study tried genuinely to bridge this research gap and to find answers to these pertinent questions raised during the research endeavour.

V. OBJECTIVE OF THE STUDY

With the above backdrop, the present study make an humble attempt to study the impact of the commercialisation of indigenous knowledge with respect to the *muga* silk cultivation and rearing on the growth of employment generation of the respondents and his family members, and as well for other people in the vicinity.

VI. HYPOTHESIS

H_0: Commercialization of indigenous knowledge has no significant impact on the rise of employability in Upper Assam.

VII. RESEARCH METHODOLOGY

The present research work was analytical and descriptive in nature devoted in tracing out the impact of commercialization of indigenous knowledge about *muga* cultivation on the growth of employability in upper Assam. The Lakhimpur District of Upper Assam was selected as the areas of study for the reason that - till recent times, *Muga* silk production was quite common rural cottage industry in the Lakhimpur district, and the second largest area, after Sualkochi, to produce *muga* silk produces. And secondly, majority of the *muga* silk activities are carried by the *Tai-Ahom* communities which are mostly found in the Lakhimpur district of Assam. Accordingly, the primary data were collected from four villages from two blocks viz., Dhakuwakhana and Ghilamara Block of Lakhimpur district where the highest concentration of *muga* silk rearers are found.

1. **Period of Study:** 2010- 2016.
2. **Target Group:** *Muga* silk farmers and weavers, Middlemen in the distribution channel, Officials of the Silk and Sericulture Board, Local people and customers.
3. **Sources of Data:**
    a. Secondary sources: Reports, books, journals and internet sources.
    b. Primary Sources: Data had been collected through a schedule, administered over the target groups after it was pilot tested in the study area. Data were also

collected through focus group discussion, interviews and personal observations. Interview schedules were designed to collect primary data.

4. **Samples and Sampling**: For the present study the data were be mainly collected through primary survey by interviewing the respondents and also through observation and schedule method. A sample size of 200 respondents, selected randomly and as per convenience, was drawn from Lakhimpur district. Out of them, 150 (75%) *muga* silk cultivators (*Muga sungia*) are hailing from *Tai-Ahom* communities. *Muga Sungias* from the community of *Kachari, Chutia, Koch, Kalita, Jogi* etc. constituted the rest 25% samples. The criteria for selection of the rearers is that they must have at least a land sized 1 hectors, in the activities / business traditionally, do both *muga* rearing and weaving by the use of traditional appliances made of bamboo and biological method to control pest and predators during rearing period. Basically these traditional rearers used the traditional tools and equipments like - dry leaves Cocoonage (*Jali*), broom stick like straw or culms bundle (*Khorika*), oval / triangular / round shaped bamboo trays of varied sizes and designs (*chandali*, *chalani)*, bamboo made cocoon cage (*pera*), bow (*dhenu*), clay pellets (*batalu guti*), bamboo made baskets to keep clay pellets (*Khurung*), etc. during silk cultivations and rearing.
5. **Tools used for Analysis**: Descriptive and comparative analysis was used for analysis of the data collected. Statistical tools like descriptive analysis, ANOVA, Correlation and Regression Analysis were undertaken to study the impact of commercialisation of IK on employment generating capacity, with respect to the *muga* culture in Assam.

VIII. COMMERCIALISATION AND ITS IMPACT ON EMPLOYMENT GENERATION – AN ANALYSIS

"Weaving is an art compulsory to all the girls in the traditional household of the N E people"- Mahatma Gandhi told during Pandu session of Congress that Assamese women waived dreams in their clothes. It is indeed true to all the tribal women in this region. The different communities have different specialties in weaving. It has also very good contribution in the livelihood of the rural households. But due to the pressure of the machine-made, comparatively low priced apparels, the traditional clothes were losing their sheen. Sericulture is also the sector where mostly women folk are engaged. This will not only help the farm family to earn livelihood but also provide the much needed economic independence to the women of the family.

The data was collected from the 250 respondents in two phases, in 2011-12 and 2015-16, to test the changes in the employment generating capacity of the *muga* culture in the Lakhimpur district. After testing the normalcy, around 20% of the data (48) are rejected and two responses were discarded due to incomplete figures. The following results found from the test of Normality of the following parameters through Kolmogorov-Smirnov Tests. If the output shows that 'Sig.' (p) is greater than (or equal) to .050, it suggests that the data are probably not different to a normal distribution. Therefore, we can be more confident that the data are normally distributed. We can see that all the parameters are (probably) normally distributed as D(200) = 0.075, p = 0.200 for Employment man-day generated for self, D(200) = 0.980, p = 0.467 for Employment man-day

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generated for HH members, and D(200) = 0.645, p = 0.318 for Employment man-day generated for non- HH members (Table II).

TABLE II. TEST OF NORMALITY OF SAMPLE UNITS BY KOLMOGOROV-SMIRNOV TEST

Parameter	Statistics	df	Sig.
Employment man-day generated for self	0.075	199	.200
Employment man-day generated for HH members	0.980	199	.467
Employment man-day generated for non- HH members	0.645	199	.318

(Source: Primary data collected in the year 2016 and Analysis Thereafter)

The data of both the periods were put to various statistical tests (Descriptive and ANOVA) to find out the following inferences.

Present Status of Employment: The field study reveals that sampled *muga* silk weavers employ three kinds of worker viz. skilled, semi-skilled and unskilled and source of this manpower is family, village people and outsiders of the localities. The Table III shows that 55% of skilled, 12.35% of semi-skilled and 32.65% of unskilled manpower have been employed by the sample *muga* silk weavers in their activities. It indicates that the weavers employ maximum numbers of skilled manpower who have expertise in *muga* silk weaving, reeling, etc. The sources of this manpower are own family (60%), from the own village or from the outside of the villages nearby within 2 km radius (28%) and rest from outside the local areas (12%). Thus, *muga* silk weavers are generating employment opportunities to a family member, village people, and outsiders. It is also found that most of the workers are skilled labours. Weaving requires high level of skill, and they are paid high wages of Rs. 200-250 per day. Wages are fixed on the basis of their proficiency in weaving and reeling etc. For semi-skilled the daily wage is Rs. 150-200 and for unskilled worker it is Rs.100-150. It is also found that some weavers pay wages on piece rate basis for weaving and reeling activities.

TABLE III. KINDS AND SOURCES OF MANPOWER EMPLOYED IN *MUGA* BUSINESS IN 2015-16

Types of Workers	% of Total	Mean	SD	Sources	Max.	Mean	Uses of source
Skilled	55.00	5.65	5.573	Family Member	11	3.42	60.00%
Semi-Skilled	12.35	0.87	2.103	Own Village	5	2.81	28.00%
Unskilled	32.65	0.02	.140	Outside village	2	0.67	12.00%

(Source: Primary data Collected in 2016 and Analysis Thereafter)

Employment Creation for the Self: The Table IV, which analyzed and tabled the responses of two hundred sample *Muga* weavers with respect to average monthly hours for two financial years i.e. 2011-12 and 2015-16, indicates that the minimum and maximum monthly employment hours created for self (*Muga* weavers) are 45 hours and 320 hours in the year 2011-12, which grew to 90 hours and 330 hours in 2015-16, respectively. The increase percentages are 50% with

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respect to minimum monthly hours spent. The average monthly hours among all sample respondents grew from 186.22 hours to hours 240.14 in the last five years with a 28.95% increase. Putting the statistics into ANOVA, the following inference was drawn. From the Table V, it is found that the calculated F is 10.555 which is more than the critical table value. The significance value at 5% significant level (p) is 0.000 which indicates that the changes in two variables are statistically significant and the null hypothesis is rejected. It depicts the changes in working man-day generated by *Muga* weavers for self is statistically significant.

TABLE IV. AVERAGE MONTHLY EMPLOYMENT HOURS GENERATED FOR DIFFERENT PERSONS

FYs	Sources	Minimum	Maximum	Average	SE	SD
2011-12	Self	45	320	186.22	5.518	78.042
	HHs	60	210	114.05	2.922	41.318
	Others	22	46	36.32	.482	6.812
2015-16	Self	90	330	240.14	4.977	70.385
	HHs	76	360	163.19	4.517	63.881
	Others	25	120	54.37	1.504	21.274
Change	Self	50%	3.125%	28.95%		
	HHs	26.60%	71.42%	43.09%		
	Others	13.64%	160.87%	49.70%		

(Source: Primary data Collected in 2016 and Analysis Thereafter)

Employment Creation for Family Members: The responses of two hundred sample *muga weavers* with respect to average monthly employment hours created for family members in *muga* silk growing and weaving activities had been collected for two financial years i.e. for 2011-12 and 2015-16. Table IV indicates that the minimum and maximum monthly employment hours created for family members are 60 hours and 210 hours in the year 2011-12 which grew to 76 hours and 360 in 2015-16 respectively. The percentage increased from 26.60% to 71.42% with respect to minimum and maximum monthly employment hours created for the family members. The average monthly employment hours for family members grew from 114.05 hours to 163.19 hours in the last five years with 43.09% of the increase. Putting the statistics into ANOVA, the following inference was drawn. From the Table V, it is found that the calculated F is which 328.293 is more than the critical table value. The significance value (p) at 5% is 0.000 which indicates that the changes between average monthly employment hours generated for family members of two periods are statistically significant, which is attributed to the commercialisation of indigenous knowledge and skill; and thus, the null hypothesis is rejected.

Employment Creation for Others, not from Family Members: The respondents of the study had an opinion that the people from outside of their communities and vicinities are not skilled persons to handle the *muga* activities. Thus the rearers and weavers of the *muga* of Lakhimpur district uses very less number of employees from outside their vicinities. The employees are generally from their village of neighbouring village. In the FY 2011-12, they used an average of 36.32 man-days in a month whereas it increased to 54.37 man-days with a growth of 49.70% (Table IV). So the dependency on non-family members are only 40% whereas the labour hired

beyond their neighboring village is only 12% and maximum of only 2 persons, whereas a maximum of 11 and 5 persons are engaged from family and from own village (Table V). When the change in employment generating capacity for the persons other than self and family members was put to test for significance through ANOVA, the change is statistically significant at 10% significant level.

TABLE V. ANOVA TO TEST THE CHANGES IN AVERAGE MONTHLY EMPLOYMENT HOURS GENERATED FOR DIFFERENT PEOPLE DURING 2011-12 AND 2015-16

Sources of Employment	Between Groups			Within Groups			F	Sig
	SS	df	MS	SS	df	MS		
Self	41668.711	12	3472.393	117035.616	187	625.859	10.555	0.006*
HHs/ Family	325538.931	13	25041.456	14187.664	186	76.278	328.293	0.000*
Others	3599.962	4	899.990	86466.658	195	443.419	2.030	0.092**

** Significant at 5%; ** Significant at 10%*

(Source: Primary data Collected in 2016 and Analysis Thereafter)

Relationship between Income, Production (in amounts), Savings, Ploughing Back of Profit, and Area of Cultivation with the degree of Employability: The employment generating capacity of the commercial activities is generally based on various economic and non-economic factors. In this study we are not taking the non-economic factors into consideration as the data. Thus, only the enlisted economic factors (Investment, Ploughing Back of Profit, Income, Production, Savings, Areas of Cultivation), as derived from the triangulation study, were taken into account for the study as the affecting factors for the growth of employability in the *muga* silk activities in the Lakhimpur district of Assam.

This part of the analysis was taken up to find out the intergroup relationship between the four impacted factors- Investment, Ploughing Back of Profit, Income, Production, Savings, and Areas of Cultivation, on the employment generating capacity of the commercialisation of IK. The hypothesis tested in the first phase of analysis was under two through the regression and correlation analysis to find out the intergroup relationship as well the highest impacting or the most important factor for the employment generating capacity of the commercialisation of IK. The study sought to identify the relationships between the employment enhancing attributes (Investment, Ploughing Back of Profit, Income, Production, Savings, Areas of Cultivation) and *muga* weaver's employability, in order to analyze the differences in the attributes. Hypothesis for the present study, "*H_0: There is no relationship between the selected Muga weaver's employment enhancing attributes and the overall employment generating capacity due to commercialisation of indigenous knowledge*", was tested by using correlation analysis and multiple regression analyses.

A correlation coefficient measured the strength of a linear between two variables. In the present study, a correlation coefficient measured the strength of a linear between the overall empowerment of the respondents and six factors (Investment, Ploughing Back of Profit, Income, Production, Savings, and Areas of Cultivation). The correlation between overall empowerment and five factors was positive and was significant at the 0.01 level (2-tailed). The correlation between overall employment generating capacity and Income (Factor 1) was 0.470 ($p = 0.032$);

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the correlation between overall employment generating capacity (EGC) and production (Factor 2) was 0.623 (p = 0.000); the correlation between EGC and savings (Factor 3) was 0.305 (p = 0.000), the correlation between EGC and ploughing back of profit (Factor 4) was 0.313 (p =0.014), the correlation between EGC and area of cultivation (Factor 5) was 0.555 (p =0.000) and the correlation between EGC and investment (Factor 6) was 0.313 (p =0.014) (Table VI). Therefore, the study indicated that the correlation between overall employment generating capacity (EGC) and production or Area of cultivation and income was higher than that between employment generating capacity (EGC) and savings or ploughing back of profit or investment. These results revealed support for hypothesis that there seems to be a moderate correlation between employment generating capacity (EGC) and the selected ECG attributes.

TABLE VI. CORRELATION AMONG THE EGC AND ITS SIX AFFECTING FACTORS

Factors		Income	Production	Savings	Ploughing back of Profit	Area of Cultivation	Investment
EGC	r	0.470	0.613	0.305	0.346	0.555	0.313
	p	0.032	0.000	0.000	0.014	0.000	0.014

(Source: Primary data Collected in 2016 and Analysis Thereafter)

In order to further reveal support for hypothesis, the factors that influenced indigenous communities' overall EGC, the six orthogonal factors were used in a multiple regression analysis. The multiple regression procedure was employed because it provided the most accurate interpretation of the independent variables. The six independent variables were expressed in terms of the standardized factor scores (beta coefficients). The significant factors that remained in the regression equation were shown in order of importance based on the beta coefficients. The dependent variable, overall indigenous *muga* communities' levels of empowerment, was measured on a 5-point Likert-type scale and was used as a surrogate indicator of *muga* weavers' evaluation of the employment generating capacity. The equation for *muga* weavers' overall levels of empowerment was expressed in the following equation:

$$Y_S = f(X_1; X_2; X_3; X_4; X_5; X_6)$$

So, $$Y_S = \beta_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6$$

Where, Y_S = Degree of employment generating capacity (EGC) what the respondents think of; X_1 = Income; X_2 = Production; X_3 = Savings; X_4 = Ploughing Back of Profit; X_5 = Area of Cultivation; X_6 = Investment; and β_0 = constant (coefficient of intercept), B_1 ….. B_6 = regression coefficient of Factor X_1 to Factor X_6.

TABLE VII. REGRESSION ANALYSIS

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718[a]	.516	.018	106.436

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.

1	Regression	108794.663	6	18132.444	16.01	.014[b]
	Residual	218643.337	193	1132.8670		
	Total	327438.000	199			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	487.856	25.274		19.303	.000
	Income	9.012E-005	.000	.453	1.717	.004
	Production	.000	.000	.435	1.880	.002
	Savings	.001	.001	.072	.953	.342
	Ploughing Back of Profit	.937	.942	.073	.995	.321
	Areas of Cultivation	10.254	2.152	.495	1.258	.001
	Investment	.000	.000	.112	0.534	.127

a. Dependent Variable: Employment generating capacity

b. Predictors: (Constant), Investment, Ploughing Back of Profit, Income, Production, Savings, Areas of Cultivation

(Source: Primary data Collected in 2016 and Analysis Thereafter)

Table VII showed the results of the regression analysis. To predict the goodness-of fit of the regression model, the multiple correlation coefficient (R), coefficient of determination (R^2), and F ratio were examined. First, the R of independent variables (four factors, X_1 to X_6) on the dependent variable (*muga* weavers' overall levels of empowerment, or Ys) is 0.618, which showed that the indigenous community had a positive and high overall employment generating capacity (EGC) with the six dimensions. Second, the R^2 is 0.516, suggesting that more than 50% of the variation of weavers' overall levels of employment generating capacity (EGC) was explained by the six factors. Last, the F ratio, which explained whether the results of the regression model could have occurred by chance, had a value of 16.01 ($p = 0.014$) and was considered significant. The regression model achieved a satisfactory level of goodness-of-fit in predicting the variance of responding weavers' overall levels of empowerment in relation to the six factors, as measured by the above mentioned R, R^2, and F ratio. In other words, at least one of the six factors were important in contributing to indigenous business's overall levels of employment generating capacity.

In the regression analysis, the beta coefficients (β) could be used to explain the relative importance of the six dimensions (independent variables) in contributing to the variance in weavers' overall levels of employment generating capacity (dependent variable). As far as the relative importance of the four empowerment dimensions is concerned, Factor 5 (Areas of Cultivation, $\beta_5 = 0.495$, $p = 0.001$) carried the heaviest weight for indigenous communities under

study's overall EGC, followed by Factor 1 (Income, β_1 = 0.453, p = 0.004), and Factor 2 (Production, β_2 = 0.435, p = 0.002). The results showed that a one-unit increase in the Areas of Cultivation would lead to a 0.495 unit increase in Weavers' EGC, while other variables being held constant; and so on. In conclusion, only three dimensions (Areas of Cultivation, Income and Production) are significant. Thus, the results of multiple regression analysis reject the null hypothesis under study, that H_0: there is no relationship between the selected indigenous communities' EGC attributes and their overall levels of EGC. So, there is a relationship.

IX. CONCLUSION

The present research endeavour to correlate the employment generating capabilities of the *muga* silk cultivators of Upper Assam through commercialisation of indigenous knowledge and skill, was concluded with some thought-provoking inferences, which are listed below.

a) Though the contribution of *muga* culture to state GDP is not very significant the rural poor people earns a reasonable amount that fairly supplements their family income and especially the indigenous *Tai-Ahom* weavers are benefited in a significant way. Though *muga* culture has not been growing at a very faster rate due to low adoptability as a livelihood option, it is still surviving and growing at a slower rate as it is still providing something to the indigenous poor people where the masses lack in its alternatives. It contributes more to the family income of those who adopt weaving in addition to rearing of raw silk. Therefore *muga*-entrepreneurship is very important from the point of employment and income generation, which increase the contribution of *muga* culture substantially.

b) The analysis above earmarked three factors, viz., area of cultivation, income and production as the most important factors which impacted the employment generating capacities of the indigenous *muga* silk weavers and rearers in the Lakhimpur District of Assam.

c) If more emphasis would have been given to these above factors then the *muga* culture could have been considered as an alternative livelihood option for the indigenous people of Assam.

X. LIMITATIONS OF THE STUDY

The assumption that similar type of situation must be prevailing in all the areas of Assam and India is a major handicap of the present study. The time and cost constraint coupled with locational disadvantages is also another hindrance for the purpose. Although all attempts have been made to overcome such, the findings cannot be universally applied and further detailed study may be undertaken before implementing the findings. As it is a social science research, the views of the researchers may not be taken into granted as cent percent free from biasness. Furthermore, the study was based on the samples and sampling methods. Thus the intrinsic limitations of sampling were carried forward to the study.

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