Regional Variations of Agricultural Productivity in Rice Cultivation in Thoubal District of Manipur

P. Robinson Singh[i], L. Sunil Singh[ii]
[1] Paonam Robinson Singh, Department of Geography, Waikhom Mani Girls' College, Thoubal, Manipur, India-795138. paonamrobinson@gmail.com
[2] Dr. Lisam Sunil Singh, Department of Geography, Waikhom Mani Girls' College, Thoubal, Manipur, India-795138. sunillisam56@gmail.com

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Abstract

The study aims to examine the moderating role of organizational performance (OP) in the relationship between GHRM and social responsibility (SR) in the banking sector in Jordan. The population of the study consisted of all banks employees in Jordan, working at (808) bank branch; while the sample of the study included (500) employees selected using convenient random sampling method from the study population. For data collection, OP, GHRM and SR questionnaires were used. The results of the study showed that there is a statistically significant correlation (α=0.05) between the OP and SR; between the OP and GHRM; and between the SR and GHRM. The study also found that OP moderates the relationship between SR and GHRM among banks employees. In light of the results the study recommends the need for more consideration on GHRM practices in Jordanian banks as they may develop a positive reputation which may increase performance.

Keywords: Organizational Performance, GHRM, Social Responsibility, Banking Sector.

1. Introduction

The cultivation of land is the prime concern of agriculture. The production of crops is the achievement that depends on the physical and socio-economic conditions. For the development of agriculture in a region, agricultural productivity is one of the main components to be considered. Geographers in different parts of the world studied the regional variations of agricultural productivity with reference to agro-ecological conditions. The assessment of agricultural productivity is examined by considering crop-area and crop-yield as its main attributes in geography (Shafi, 1960; Bhatia, 1967; Singh, 1994 and Singh, 1997). Such study is also attempted by agricultural economics with different views on agricultural productivity based on the technological and institutional dimensions (Dhandekar, 1964; GopalKrishnan and Rao, 1964 and Narain, 1977).

There is a vast multiplicity of interrelated physical and non-physical factors on agriculture and all are not equally significant in influencing the regional variation and temporal changes of agricultural development. The distinctive regional characteristics are the decisive factors for the existing distribution at patterns of crops and their production (Singh and Dhillon, 1992). In spite of vast physical and agro-climatic conditions, India has a remarkable achievement by transforming the agricultural economy from strategic to growth during the

plan periods and further accelerated to modernization and self-reliance with the change in the availability of inputs and the technology concern through the Green Revolution programme, the production of crops increases. Besides, the achievement of a new agricultural landscape of self-reliance, the process of transformation has also led towards commercialisation of agriculture in the country (Shafi, 2006). Indian villages have a deep rooted relationship between land and people. Concentration of rural people are found over the intensively cultivated area where the irrigation facility is available. For instance in Punjab-Haryana region, farmers are sentimentally attached to the land, the farmers of the Gangetic plain are inherited with respect to agriculture and the coastal Andhra Pradesh is fortunate for the fertile soils to agriculture. Many areas of semi-arid plains and river bassins are facilitated with modern agricultural inputs and are self-sufficient in agriculture. In any eventually due to the whimsical nature of monsoon rains, the country is able to withstand by supplying the food items from one state to other.

Though the country is stable in agriculture, the North-eastern region is facing shortage of food largely one to traditional method of farming and the lack of agricultural infrastructural facilities. Almost all the eight states of North-eastern region of India, except Assam, are not self-sufficient in their production of rice which they eat every day for two meals. The Central Government of India, through the Food Corporation of India (FCI) supplies it in large quantum. Like rice, other agricultural commodities are also supplied from the rest of the country. As such, development of agriculture is very low in the hilly states of the North east India. The state of Manipur is also dependent on the agricultural resources of the Indo-Gangetic plain inspite of her two-third portion of agricultural workers to the total workers, and paddy field of more than 1.5 lakh hectares in the plain areas of the state.

Keeping in view of the above background, the present study focusses on a district called Thoubal district, located at the fertile valley of Manipur, which is considered the most advanced administrative unit in agriculture in the state to analyse the patterns of agricultural for rice cultivation in the district and interpret the characteristics of various attributes of agricultural productivity on the basis of average-yield as well as labour intensity in the study area.

Study Area

The study area, Thoubal district, is situated at the southern part of the valley of Manipur, between 24˚ 15’ N - 24˚ 45’ N latitudes and 93˚ 50’ E - 94˚ 10’ E longitudes covering an area of about 514 sq. km (about 2.3 percent to the total area of the state and 29 percent to the total area of the valley) with 422,168 persons in 2011. By and large, there are 87 rural villages contributing 270835 persons of its population to the district and more than 65 percent of them are engage in agricultural activities.

Physiographically, the study is characterised by almost flat land which comprises relatively elevated upland along the foot-hills on the east and low-lying areas on the southwest sides. The district is encountered of having a perfect drainage system of the Imphal River and its tributaries, the Thoubal River and Sekmai River, like other parts of the valley of Manipur, the study area experiences sub-tropical monsoon climate, more humid in summer and less humid

but mild cold during winter. As far as agricultural practices are concerned, the area is influenced tremendously by southwest monsoon branches during the rainy season. Rice is extensively grown all over the state as well as in the district, taking the advantage mainly from the monsoon rains. That is why agriculture in the district and the state is still on the game of monsoon wind.

The available alluvial soil mixed with the clay gives a very good support for the plant of paddy. The entire cultivated fields of the study area, either terrace or plain areas are suitable to grow rice in summer, otherwise during winter, they are mostly being kept as current fallow. The marshy and low-lying areas are however, being utilized for growing of paddy where humus peat soils and sediments brought down by streams are available.

Methodology and Data Collection

The salient features of the attributes and patterns of agricultural productivity of rice are interpreted at the village levels using the temporal data of area under rice cultivation and yield per hectare pertaining to 2014-2015. As per census record of 2011, 83 inhabited village of Thoubal district have been considered to explain the variation of agricultural productivity. The village-wise crop statistics were collected from various government offices such as District Agriculture Department, Sub-Divisional Collectors and Sub-Divisional Offices of the district. The village-wise agricultural workers were also collected from the census, 2011.

Land productivity is one of the attributes of agricultural productivity which can be expressed as the total agricultural output per unit of cultivated area. The average yields index of three types of rice crops that are grown in the study area, on the basis of seasonal and spatial conditions of cultivated land, namely "Aganphou" (early paddy of new exotic varieties grown in pre-monsoon seasons- April/May), "Phourel" (late land paddy of exotic varieties grown in rainy season- July/August) and "Taothabi" (low land paddy but traditional variety grown during the rainy season) are calculated by adopting a simple formula. The formula is

$$I_y = (A_1Y_1 + A_2Y_2 + A_3Y_3) / (A_1 + A_2 + A_3)$$

Where I_y is the average yields index of all three types of rice. A_1, A_2 and A_3 are the agricultural areas under three types of rice in hectare and Y_1, Y2, and Y_3 are the yields of rice in quintal per hectare.

As rice is the mono-crop being the major staple food grain among the cereal crops in Manipur and is cultivated in subsistence nature. Other agricultural crops are not significant in explaining the agricultural productivity patterns of the study area. Moreover, the relative price of rice may not show any effect on the variation of agricultural productivity at village levels.

The labour intensity is used as the ratio between the production of rice and labourforce used in rice cultivation in the district. It expresses the reciprocal relationship between agricultural workers and output collected from the available land as agricultural output per unit of agricultural labourforce i.e., labour productivity (production in quintal/hectare).

Findings

Cultivation of Rice in the District

On account of the favourable geo-environmental conditions, the entire study area is occupied predominantly by agricultural fields where rice is grown seasonally. Of the total area under rice cultivation of the valley portion of the state, the Thoubal district having about 29.71 thousand hectares of land under paddy fields accounted for 30 percent of the total area under rice cultivation of the valley portion of Manipur in 2014-2015. Paddy is cultivated from the early times in the area not only the vast tracts of fertile land where alluvial and clay soils predominate but the marshy and water-logging lands are also used for growing paddy. Nearly 1.75 thousand hectares of rice cultivated areas were reported to be under irrigated land in the district in the year 2010-2011. It also happened that during the pre-monsoon season, irrigation of the Thoubal River Dam gave more advantage to the farmers to cultivate paddy. But the onset of monsoon in the months of May and June, if downpour rain comes, destroys the standing paddy crops often. Both men and women take part in the cultivation of paddy. Before the arrival of monsoon, paddy field can be ploughed for which farmers are usually start ploughing from the day of "Punchami" i.e. the 5th February. Depending on the availability of water in the field that is usually represented by a plot of land called "Sangam" (i.e, one fourth of a hectare), farmers decide to follow either broadcasting or transplantation of paddy. Since the plots of land are so fragmented under individual ownership of land tenure, farmer prepare nursery plants of paddy at the selected sites of field, in case of the farmers are willing for paddy transplantation. Otherwise, the farmers opt for broadcasting which is to be followed after ploughing well the field either with water or without water. Generally, transplantation of paddy is considered the best as far as be expected return of crop-productivity is concerned.

For ploughing the field, men folks take the role responsibility women folks do the transplantation of paddy. Both men folks and women folks join together in weeding, cutting of ripen paddy crops with sickle harvesting at the threshing floor of bamboo mat by wooden implements and headlong transportation of harvested paddy grain from the thresh floor to the point where transport vehicle but in recent times the cutting of ripen crops and threshing has been replaced by the modern machines, threshers etc.

Regarding agricultural inputs, tillers i.e., power tillers and tractors is used by the farmers in the district along with the cattle drawn improved iron-ploughs and 12154 metric tonnes of chemical fertilizers was consumed during 2014-2015. The rice cultivated area in the district is dominated by HYV and Improved seeds. There is a trend of gradual increase of rice production during the 14 years in the district. In 2014-2015, the district produced 64.91 thousand tonnes of paddy as against 4.82 lakh tonnes in the state. The socio-economic and cultural life of the villages is depended on the rice cultivation which supports their rural economy. About 64.1 percent to the total population of the district lives in the rural area and 65 percent of the total population are engaged in agricultural activities in the district.

Patterns of Agricultural Productivity

Agricultural productivity may be expressed with reference to the agricultural products which are performed depending on the natural factors of land and human labour employed in the

operation of production processes. Modern agricultural inputs are no doubt very important for enhancing the land productivity but it is less significant in the district and the state as a whole. The district does not get the impact of "Green Revolution". The toil of the farmers significantly contribute to ascertain paddy production in this backward district. The agricultural workforce available for the cultivation of rice on the fertile soils of monsoon fed land and their persistence are note Worthing for rice production. The patterns of agricultural productivity can be studied on two main aspects, i.e. land productivity and labour productivity for the study area.

Land Productivity

As stated earlier in the methodology, the average yields of three types of rice-crops per unit of hectare indicate the land productivity that has been calculated for 83 inhabited rural villages of the Thoubal district. After calculating land productivity per hectare of agricultural land (i.e. average yield of rice crop per ha.) for each and every villages, the total number of villages have been classified into five categories mentioned in the Table. 1. The productivity values over and above the average land productivity of the district are categorised as high and very high and the reversal values are noted as low and very low categories in productivity. Fig.1, displays clearly that villages located on the western side along the low-lying areas are low in productivity mainly because of water-logged problem.

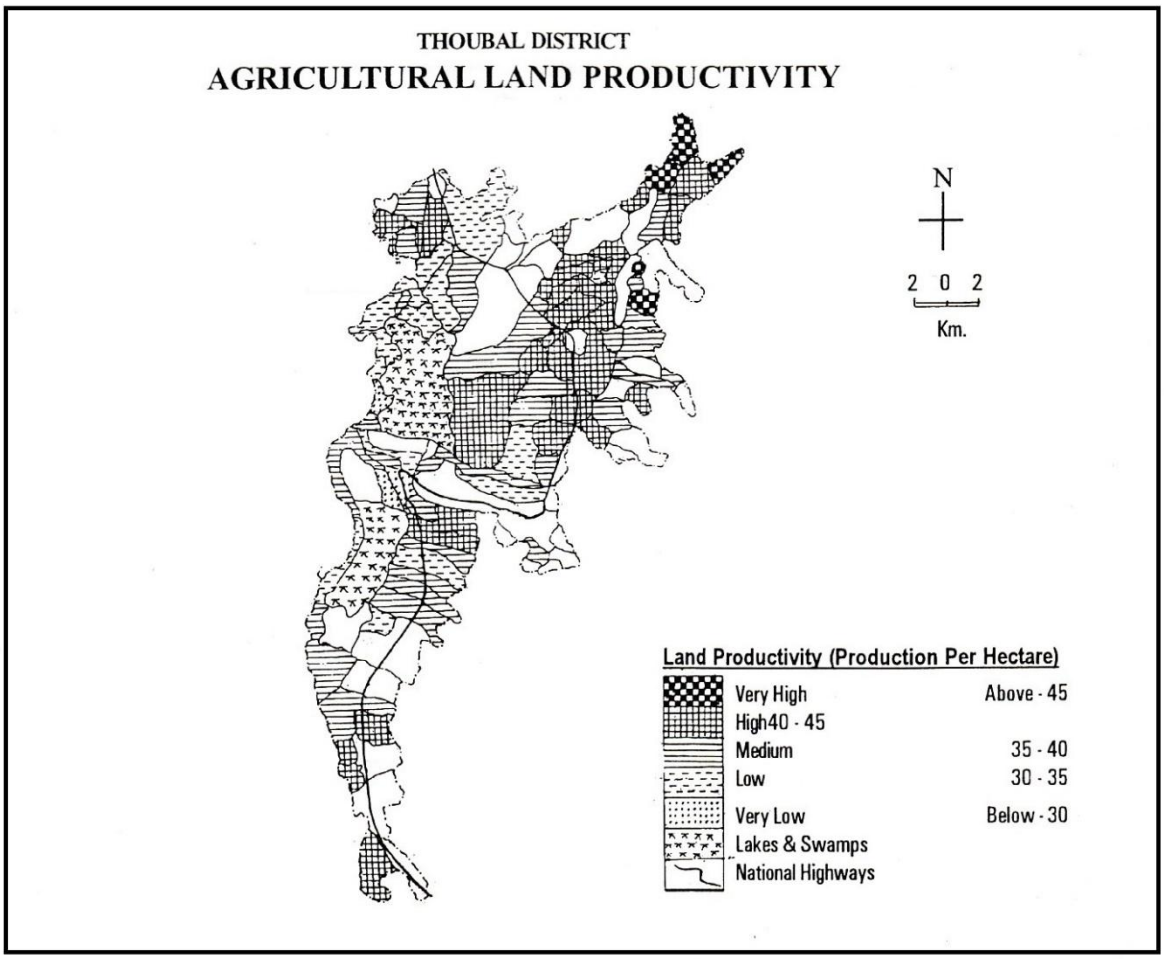

Fig.1. Agricultural Land Productivity

Table.1. *Agricultural land productivity for Rice cultivation in Thoubal District*

Categories	Area (in ha.)	Percent share of area to total area	No. of villages
Very High above 45	1134.92	3.82	5
High 40-50	11007.55	37.05	35
Medium 35-40	9138.79	30.76	23
Low 30-35	4875.41	16.41	17
Very Low below 30	3553.31	11.96	3
Total	**29710.00**	**100.00**	**83**

Source: Directorate of Economics and Statistics, District Agriculture Officer, Thoubal, Govt. of Manipur.

As stated in Table.1, 40 villages that are distributed on the north-eastern areas as well as along the river valleys have got high and very high categories of land productivity. They cover nearly 40 percent of the total cultivated paddy field. The medium category of land productivity (i.e. 35-40 qu/ha) belongs to 23 villages that are located at central and southern portions of the district. Of the total, 20 villages fall under low and very low categories of productivity covering about 29 percent of paddy field in the study area. It is observed that general patterns of land productivity is largely influenced by soils, climatic conditions and topographical features. The HYV rice of improved seeds such as Punsi, KD, Mingthondabi, Thoibiphou, Dharamphou etc. produced by hybridization in Manipur by the agricultural scientists are well suited to grow in the area. Like the rest of the valley, Thoubal district has low intensity of cropping and paddy is the only dominant crop, but cultivated by the farmers for subsistence. If the management of water harvesting for farming purposes along with other modern agricultural practice is strengthened, there is a good scope for enhancing the productivity level of various crops. Also the total production of rice in the district accounted as 64.91 thousand tonnes in 2014-2015 which is not sufficient for large population of 422,168 persons as well as the same case 4.82 lakh tonnes of rice production for about 28 lakh persons in the state.

Labour Productivity

Human labour in agriculture especially for rice cultivation in combination with modern infrastructure enhances crop production in the developing countries. It is also true that human element has played a major role in the development of agriculture in some states of the country like Punjab, Haryana, U.P. Manipur is dismally underdeveloped in agriculture largely due to the traditional method of Farming for rice-crop production. It will be interesting to examine the intensity of agricultural labour force in the district since labour is a facto for getting higher productivity of rice-crop. In fact, rice-culture is a labour intensive. By engaging more labour in the cultivated field, one can expect high yield. The requirement of labour at the time of monsoon onset is tremendous and virtually all men and women of rural areas are to engage fully in the paddy cultivation. Because the actual preparation of field for transplantation and broadcasting of paddy will be completed when monsoon starts pouring rain-water on the fields. Farmers of Thoubal district are mostly marginal and small land-

holders being below 4 hectares of cultivated land. Such farmers grow crops only for their own consumption as they do not participate in market transaction and may be labelled as subsistence cultivation (Epstein, 1983). However, when household is in need of some cash to meet their minimum requirements, a small proportion of crops is to be sold just to provide the basic meal (Singh, 1995).

Agriculture in the rural areas of Manipur is based on family affair. Family labour is common everywhere for paddy cultivation. The small farm unit called 'Sangam', and the fragmented distribution of such farm units/plots of land need immensely family labour. But for want of quick completion of certain farming operation such as transplantation of paddy, seedlings, weeding and harvesting, causal labour is being employed by paying wages on daily basis. The proportion of such hired labour in the total workforce is comparatively low in the area. So, the production of crop in relation to the agricultural workers may indicate the efficiency of farming in the backward areas. The ratio, so-obtained between the member of workers and production of rice-crop is very important because Thoubal district, by and large is densely populated with agriculturists. The high productivity per labour is a good indication of agriculture performance in the district. In the state where there is subsistence farming, the number of workers actually employed in the cultivation of paddy plays a vital role for increasing the productivity.

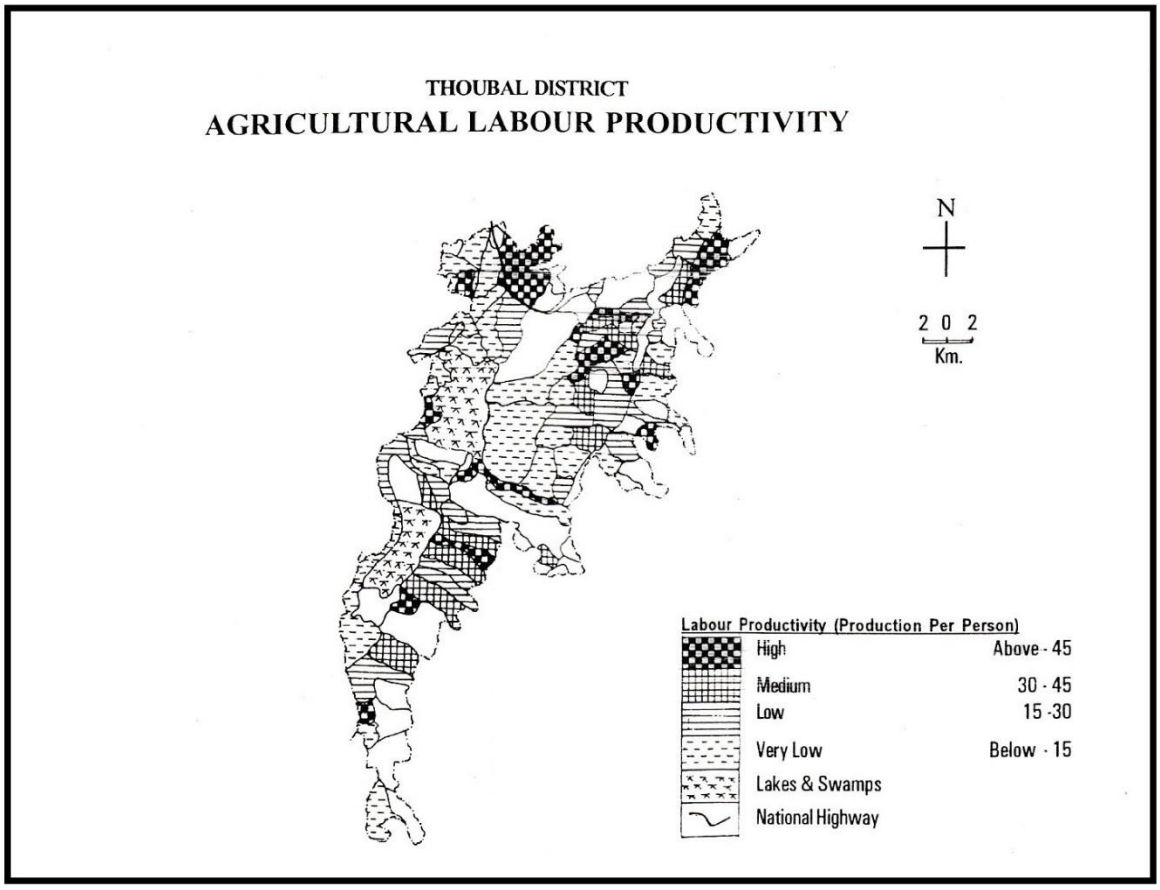

Fig.2. Agricultural Labour Productivity

Table.2. ***Agricultural labour productivity for Rice cultivation in Thoubal District***

Categories	Total Area (in ha.)	Percentage share of area to total area	No. of village
High above 45	4379.25	14.74	17
Medium 30-45	6135.11	20.65	14
Low 15-30	8782.27	29.56	19
Very low below 15	10413.35	35.05	33
Total	**29710.00**	**100.00**	**83**

Source: Directorate of Economics and Statistics, District Agriculture Officer, Thoubal, Govt. of Manipur.

Table 2. Reveals precisely that the study area has four groups of villages for rice production (in qu/ha) per agriculture worker. Seventeen villages fall under high category indicating that those villages such as Kangyambem, Leirongthel, Chandrakhong, Phanjakhong, Pallel etc. get relatively higher yields in the production of rice in quintal/hectare. Similarly fourteen villages are in medium category showing proportionately good ratio between the output and worker. Of the total 83 villages, 31 villages are extending over 35 percent of area to the total available cultivated land in the district. However, 52 villages get below the average ratio of labour productivity reflecting that the district is poor in the efficiency of rice farming. The clear picture of the distribution of labour productivity is shown in Fig.2, wherein villages located at the plain and upland parts of the district gat mostly either medium and higher levels of labour productivity. The villages disperse in and around of marshy lands in the southern and western sides of the district are found low in production per labour.

Since the production of rice can be increased by using fertilizers, insecticides, machines etc. the district has future prospects for agriculture by regulating the supply of irrigation water from the Thoubal river dam and Sekmai barrage. As such, with the available labour the level of productivity of rice-crop may be improved and agriculture sufficiency will raise in the area.

Conclusion

Thoubal district being the part of the valley of Manipur is an agriculturally dominated area of the state and therefore, the economy of the district largely depends on the cultivation of rice. The total area under rice cultivation was 29.71 thousand hectares which accounted for 30 percent of the rice cultivated area of the valley portion of Manipur. Nearly two-third of its population were engaged in agriculture. In spite of favourable physiographic and agro-ecological conditions, it is observed that the paddy cultivation in the district is still practised with traditional method of farming. Like the rest of the valley, Thoubal district has low intensity of cropping and paddy is the mono-crop. The total production of rice, 64.91 thousand tonnes in 2014-2015 was not enough for 422,168 persons in the district as same as 4.82 lakh tonnes of rice for 28 lakh population of the state. The gap between the size of population and the food grain production shows food deficiency in the district. In 2010-2011, 1.75 thousand hectares of paddy field was reported under irrigation and 178 power tillers and

tractors were used in the agricultural practices in the district. Farmers used about 55.9 kg of chemical fertilizers per hectare and 16.78 thousand hectares were brought under HYV seeds of rice in the district. It shows that the application of yield-enhancing technology packages is low in 2010-2011 however slight increase was observed in the next couple of years in the agricultural practices in the study area. Thus, the agricultural productivity in respect of land as well as labour productivity is recorded low in the district. However, by adopting double and triple cropping pattern with the application of modern technology and water harvesting management, there is a scope for enhancing the agricultural productivity in the district.

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[i] Paonam Robinson Singh, Department of Geography, Waikhom Mani Girls' College, Thoubal, Manipur, India-795138. paonamrobinson@gmail.com

[ii] Dr. Lisam Sunil Singh, Department of Geography, Waikhom Mani Girls' College, Thoubal, Manipur, India-795138. sunillisam56@gmail.com