

**IMPACT OF EDUCATION AND TECHNOLOGY ON CHANGING  
SCENARIO OF OCCUPATION AND LIVELIHOOD IN PARTICULAR  
REFERENCE TO THE SANTAL TRIBE IN JAMDA BLOCK OF  
MAYURBHANJ DISTRICT**

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**Abstract**

*The aim of the present study is to explore the current impact of education and modern technology on the ongoing changing pattern of occupation and livelihood of Santals resides in Jamda block of Mayurbhanj district in Odisha, in the same time the researcher tried to explore the current change of their educational scenario in tribal areas of the particular sample area. To gain an in-depth understanding of the topic, descriptive survey type of research design employed with 50 households from Jamda block were divided into two groups i.e. 25 female and 25 male households. Two groups were interviewed with one set of schedule to study their perception regarding their changing pattern of education current livelihoods. To justify the title of the topic we framed two objectives along with same number of research questions. The findings of the study were that: For improving the livelihood condition of the tribals, there is need to first improve the production and productivity of their agriculture –both settled and shifting. This can be done by providing them with improved agricultural inputs such as seeds, fertilizers and agricultural implements and improvement in agrarian technology and practices. Their income can also be increased by restoration of the land alienated from them and by increasing the productivity of forests by plantation of degraded forest, facilitating the tribes in collection of such products and by ensuring them a proper return for such product by organizing their marketing.*

**Keywords:** *Education, Technology, tribal, Santal, Jamda block, Occupation, livelihood, and Mayurbhanj district etc.*



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## **Introduction**

There are more than five hundred tribes and subtribes in various parts of our country. Out of them the Santals constitute one of the largest proto-Austroloid aboriginal tribes of India. Though, their uniqueness of language, traditions and culture drew the attention of number of administrator, anthropologist, ethnologist, social scientist and researcher from India and abroad. Very little work has been done on the Santals of Mayurbhanj in special reference to

their occupation and livelihood. An humble attempt is made to study the migration and settlement of the Santals in Mayurbhanj state in a broader historical perspective.

The way of standard of living and common custom of each indigenous group of people is exceptional and is related to the utilization of particular natural resource and concentrated to specific type of activities. They had been collecting their essential need and resources from forest without causing any damage to it. The forest provides them with food and livelihood. But due to changing pattern of environment their common habits also change day to day. Livelihood may be referring to group of requirement which is essential for active and healthy life and it is change from time to time due to requirement of people. Primitive's societies fully depend on nature and their surrounding environment. Today society made artificial way of alternative culture for better living as well as create various type of organized working sectors for their development. In spite of this, numbers of communities are not enjoying such kind of facilities due to their lack of education as well as their lack of awareness. Due to the development, environment are facing various type of fatal problem which is directly or indirectly create by man and affect on man. Livelihood are the way of living in way population fulfill their requirement, or get all kinds essential commodities, opportunities for a living.

Livelihoods are mainly a mixture of various sources of economic activities, changeable over period. Livelihoods constitute various type of working opportunities for each number of households and it is usually even for each working member during the time of one year. A 'livelihood' is a system in which way people get working opportunities (may be self employed, permanent working opportunities, temporary, seasonal as well as govt. services) and get money for maintained their life style. The livelihood is the way that always remove the poverty, increase the income of people, reduced the level of dependency ratio, lead to decreased the illiteracy as well as make the socio-economic well planning societies. Social development and well being are the combination of factor which including sufficient amount goods consumption, overcome various problems which is directly or indirectly affects human being which may be related to basic service, amenities, health, occupation, social discrimination, economic discrimination gender bias achievement and many other services, Livelihood is the common method of how people make a way of life and whether their occupation are more vibrant or vulnerable over time. Livelihood refer to stable and socially secure condition in term of access to existing resources, ownership of properties, secure occupation, secure income as well as household's assets and various things. Therefore, it is referring to occupation protection rather than just food security, which are the mainly based

on rural households because attainment of food security is just one of the objectives of livelihood security. When people or household has considered livelihood security only if there is a basic services is essential that could lead secure future. Actually livelihoods means combination of works comes from a mixture of sources and activities, changeable by day to day.

Households obtained their livelihoods from multiple sources; alteration measures are estimated to influence them in a number of ways. These evaluations offer a detailed problem description and discussion of the causation of various types of environmental pressures and thus supply required information for reducing environmental impacts. Environmental change refer to physical changes as well as it is also things to changes of each and everything likely various types of species. Literacy is one of important factor which is the greater instrument of socio economic development. Level of higher education and literacy enhance greater awareness and lead to upgrading of quality of life. Due the development of Hydro power project are occurred large destruction environment and loss of the unique culture and religious practices of the Lepchas.

### **Review of related studies**

Here, an attempt is made to review the findings of the studies related to focus on the traditional agriculture practices and modern-agriculture practices, the use of advanced technology in cultivation, and the impact of education and modern-agriculture practices on the living conditions of the santal, etc. According to **Kalhon (1976)** , modernization of agriculture started with planning in the fifties, but extensive development of agriculture have taken place in the middle sixties. The introduction of new technology, popularly known as, “*Green Revolution*”, has been launched with miracle seeds, chemical fertilizer, pest control measures, water management techniques, mechanization etc. the process of modernization has brought about structural change in the phase of agricultural development in India. Commercial farming is became a common practice in the place of subsistence farming. The adaptation of new technology has led to increased production and productive in the farm. According to **Bhagat (1968)** has stated that in his paper to examine the economics of tractor use in Ludhiana, Sangurur and Bhatinda district of Punjab. He found that the use of tractors did not affect the cost of cultivation of wheat per maund. More ever he observed that the cultivators have been inclined to use tractors more extensively even though the use of tractor does not necessarily result in reduced cost of cultivation. **Agarwal (1983)** explained, three sources of differentiated agricultural production process from one another is the sources of energy are the main source of energy which is used for the performing agricultural operation.

Use of such mechanized techniques could result in a socially undesirable displacement of human labour, i.e. human, animal, and mechanical. He defined sources and its related set of implementable procedure that as an advanced techniques, and also alternative techniques or implementations of new techniques useful and attract fully to any cross-section of farmers. This modern technology leads to increase agricultural output. **Mohanty (1999)** described that the impact of modernization patterns in the agrarian economy in rural setting, brings prosperity to the region. The small and poor peasants have failed to cope with the new developmental situation, and additionally it become incompatible to larger amount of land holders due to certain obvious reasons. **Paul (2005)** stated that agricultural modernization has been primarily viewed to raise the level of income, standard of living and lifestyle of the tribal people. The modern technology has also been taken into consideration. Due to adaptation of modern technology, the people use advanced technology instead of bullock plough, and till their land in less time, introduction of pump sets make easy to the irrigation of their dry land. With the introduction of pesticides people, including tribal used them, instead of organic manure, and similarly pesticides available everywhere at anytime. **Paul (2005)** The other type is static type of changes or mechanization which aims at reducing the drudgery of certain operations which have to be performed either by human labour or combined efforts of human being or animals such as lifting water for irrigation, threshing, winnowing, grinding and mixing livestock food, hauling rice and selling maize cobs, these can be done by or performed by machine. Shifting cultivation is a primitive farming technique known by different names in different tribal communities of Orissa.<sup>3</sup> Increased population pressure has not discouraged the shifting cultivators much, mainly because of the non-suitability of 'better' farming and multi-cropping (mixed cropping of ten to 20 varieties) which have proved to be more productive and agriculturally viable for tribal people. Different estimates of shifting cultivation in Orissa carried out by different agencies and experts suggest that around 11 tribal communities follow this practice, constituting around 30 percent of the total tribal population of the state (**Government of Orissa:1960– 61;1971–72**). However, estimates of the extent of shifting cultivation in terms of area contain wide variations and thus it is difficult to assess with any degree of certainty their relative reliability. The crop cycle, crop quality and quantity depends on the cultivation cycle and distance of *podu* patches. This type of crop diversity ensures conservation of minerals of the soils, checks damage from pests and diseases, ensures food grains for couple of months, conserves soil nutrients and acts as an insurance against total crop failure, unlike under mono-culture systems **Pathy,(1987)**. There is no doubt that over the decades the growth of

population, restricted government forest policies, commercial plantation, deforestation, land alienation, non-availability of suitable hill slopes and availability of viable livelihood alternatives have reduced the cycle of shifting cultivation and its production substantially **Mohapatra, (1968)**. **Pathy (1987)** points out that cash crops are more or less of equal importance to staple crops because in many cases in tribal societies crops are found mortgaged even before they are harvested. It has been observed that the shifting land is community land, where the individual households are given usufructuary rights over a patch of land. However, over time, as a result of increasing pressure on land, a tendency towards heritable rights in shifting land has emerged. As a result, tribal people have moved from cultivating shifting patches to cultivating permanent patches. Although they have been cultivating the same patches for years, together with back up social support, the Revenue Department of the State Government still considers them to be encroachers on forest land, even in areas where there has been no forest for the past couple of decades. In this regard **Fernades et al. (1984)** write:, ‘in this marginalized stage a large section of tribal cultivators instead of living from forest as earlier, now live on forest’. As *podu* cultivation did not supplement their subsistence, and forest encroachment prevented them from engaging in collecting forest products they have been forced to look for other sources of income from outside the region as migrant wage labour in irrigated areas inside and outside the state. The relationship of tribal people and forest resources has been symbiotic in nature. The life-way processes of Orissa’s tribal people are reflected in their economy, religion, polity and social institutions, which cannot be understood without understanding various aspects of the forest surrounding them (Behura, **1990; 1996; Mallik and Panigrahi, 1998**). In this context **Saxena (1995)** points out that ‘Protected forest (demarcated or un-demarcated) is invariably classified as non-forest area in the Record of Rights (ROR) prepared and maintained under the Orissa Survey and Settlement Act and in function issued by Revenue Department (G.O. No-4898 of 1966) for reservation of Government land for specific purposes in rural areas. There is dual control of both the departments over such land/forests and virtually no management exists. Most of the Protected Forests are either declared as such under subsections 4 of section 33 of the Orissa Forest Act 1972 or deemed to be Protected Forests under sub-section 4 at section 81. Box 1 describes the realities on the ground regarding the issue of the status of forest villages in Orissa.

### **Significance of the study**

Livelihood refer to stable and socially secure condition in term of access to existing resources, ownership of properties, secure occupation, secure income as well as household's assets and various things. Therefore, it is referring to occupation protection rather than just food security, which are the mainly based on rural households because attainment of food security is just one of the objectives of livelihood security. When people or santal household has considered livelihood security only if there is a basic services is essential that could lead secure future. Actually livelihoods means combination of works comes from a mixture of sources and activities, changeable by day to day. Households obtained their livelihoods from multiple sources; alteration measures are estimated to influence them in a number of ways.

Generally one of the major problems of the Santal regions is low standard life style. Most of the Santals are dependent on agriculture and hunting for their livelihood. Primitive occupational structure, superstitious belief and as the society is very conservative, it results their life style is very backward. But new technology and spread of education can improve life style of the Santals in Jamda block of Mayurbhanj district.

### **Objectives of the study**

*The study was designed to fulfill the following objectives:-*

1. To highlight the spread of education and impact of technology changed whole system of the Santal life in particular reference to living condition.
2. To find out the appropriate remedial measures.

### **Research Question**

Following are the issues or research questions upon which the analysis will be based on:

1. How the spread of education and modern technology changes the current livelihood style of santal in Jamda block of Mayurbhanj district?
2. What are the probable measures to solve the current problem and eradicate these from the root?

### **Methodology of the study**

#### **Methodology**

Descriptive survey method used in the study as the investigators tried to get information about more than one variable also with better understanding of perceptions of stakeholders (Hittleman and Simon, 1997). Through this method information about conditions, situations and events that occur in the present can be obtained (UNESCO, 2005). Therefore, in the present study the investigator used this method to explore all possibilities to highlight, measure the impact and effectiveness of integration of education and modern technology for

the tribal up-liftment and better livelihood, Also the problems and its eradication from the root to achieve Millennium Development Goals.

### **Sample**

To gain an in-depth understanding of the topic, descriptive survey type of research design employed with 50 households from Jamda block were divided into two groups i.e. 25 female and 25 male households. Two groups were interviewed with one set of schedule to study their perception regarding their changing pattern of education current livelihoods.

### **Sampling strategy**

Multistage stratified random sampling technique was employed for selection of various subjects of the study namely; blocks, clusters, schools. Holton & Burnett (1997) states that: “ultimate function of stratification is to organise the population into homogeneous subsets and then select appropriate number of elements from each. It permits the use of different sample designs for different portions of the population”

### **Tool for the present study**

The present study employed interview schedule to interview their perception regarding their changing pattern of education current livelihoods. The researcher was interviewed one to one households to know their perception regarding current education and technology and its impact on their current living condition.

### **Statistical Techniques Use**

Quantitative data analysis: It is a powerful research form, emanating in part from the positivist tradition. It is often associated with large scale research, but can also serve smaller scale investigations, with case studies, action research, co relational research and experiments, so percentage wise calculation made to justify the objectives.

### **Analysis and interpretation**

#### **Impact of Education and Modern Technology vs. Current changing livelihood**

*The Santal society has changed for spread of education. Mainly govt. Policy (Sarba Shikhsa Avijan, Mid-day-meal Project, RMSA, and govt. awareness programmes) are influence them. Now a days as-well-as technology has developed so it effect on the Santal society.*

Sl. No	Extent of Impact	Number of Respondents				Total
		Male		Female		
		Yes	No	Yes	No	
1.	Current education and technology helps to understand the modern agriculture system fully	20(80%)	5(20%)	19(76%)	6(24%)	50(100%)
2.	Impact on your present economic condition	22(88%)	3(12%)	18(72%)	7(28%)	50(100%)
3.	Impact on your present health treatment of you and your child	16(68%)	9(36%)	20(80%)	5(20%)	50(100%)
4.	Impact on your sanitation style and daily habits	22(88%)	3(12%)	18(72%)	7(28%)	50(100%)
5.	Impact on your savings in bank	23(92%)	2(08%)	19(76%)	6(24%)	50(100%)
6.	Impact on your child's education	17(68%)	8(32%)	18(72%)	7(28%)	50(100%)
7.	Impact on your traditional occupation	15(60%)	10(40%)	13(52%)	12(48%)	50(100%)
8.	Impact on your environment and surroundings	18(72%)	7(28%)	17(68%)	7(28%)	50(100%)
9.	Impact on your daily earning	21(84%)	4(16%)	18(72%)	7(28%)	50(100%)
10.	Impact on your food and drinks	14(56%)	11(44%)	15(60%)	10(25%)	50(100%)
11.	Impact on your religious beliefs and practices	10(40%)	15(60%)	11(44%)	14(56%)	50(100%)
12.	Impact on your fairs and festivals	13(52%)	12(48%)	14(56%)	11(44%)	50(100%)

On the basis of above table it is clear now the current education system and modern technology have the influence on the livelihood of santal tribal of Mayurbhanj. Amongst the twelve categories near about 08 (eight) categories draw their attention that the education and technology have the great influence, but in next 4 categories like regarding their religious beliefs, fairs and festival, food habits and traditional occupation both the intervention have not enough influence as the other eight. After all it is clear that the education and technology have the positive impact on the developmental lifestyle of Santal tribal in Mayurbhanj district. These impacts we may describe in following paragraph:

*In the district the Santals are practicing various traditional norms, values, cultural practices in their effort to adjust with the nature and environment available at the particular area. Anthropologists have time and again demonstrated the symbiotic relationship between the Santal economy, culture and society with their ecology at the given time and space. For education is argued to have exposed the tribal to non-tribal and often urban way of life. The*



*impact can be seen in the field of culture, language, traditions, occupation, and customs and so on. Given such knowledge base, it would be of much interest to understand the impact of seasonal migration on the Santals.*

New technology and advancement of research has changed agriculture pattern of the Santal in the Jamda block. The tribal people are depending on rainfall for agriculture. The Santals have been deeply influenced by modern technologies and agriculture practices in terms of uses fertilizers, pesticide, modern equipment and others necessary instruments in the field of agriculture practices. At the place of destination, these migrants learn about various modern methods of agriculture. The Santals use the traditional form of economy and its sole objective to sustain their livelihood through subsistence agriculture through modern technology. But now-a-days occupational structure has changed. There are many type of work. As for example - any type of service (govt. and private),small and big shop etc.

The Santals use the traditional form of economy and its sole objective to sustain their livelihood through agriculture. Hence their economy is often called under developed, if not primitive. This economy is also based on custom and tradition. There are specific custom stressing participatory function and specific role to be played by each member of the family and community. The Santals economy is predominantly forest based and they also take care to preserve the ecological balances with the nature sustain their livelihood. But exposure to modern economic practices teaches them to exploit the nature and consume its products. As a result, the traditional tribal leaders often face a dilemma while accommodating modern influences.

The system of education is the heart of any community. On the other hand the education is the backbone of any society. As education spread among the people it enables them to educate themselves and their community so that they can develop a utilize methods exploits the situation in the society for their own development. In this way Santals are also changing their education of their child sue to positive impact of education in their society. Education is the key to the future for the emerging nations. Without education modernisation can not be possible beyond imitation and duplication, without education the individual can rarely improve the quality of his/her life, without education, he cannot contribute his full potential to the task of nation building. When one considers the high rate of literacy in the developed countries, one is tempted to conclude that a prerequisite for social, economic and political development is the eradication of illiteracy and the universalization of education. Here researcher found the Santal's education scenario is changing day by day due to the advancement of educational facilities and current technology merged in education.

The present spread of education and technologies have also impact on health sector of the Santals in Jamda block. Health is one of the important things of human life. The millennium development goals had also emphasized “health for all”. This goal has become important in view of the poor health status of many Santal men and women at Jamda in Mayurbhanj district this is due to advancement of education. On the other hand, this people continue to rely on age old practice of herbal medicines which is sustainable given their closeness to nature and forests. But on a large scale, diseases caused by polluted water (sanitation) and lack of nutrients remain untreated. It is here that Santal’s see a new role of modern medicines to cure their ailments and serious type of diseases. The access to modern medicines available at district hospital at Mayurbhanj has helped many of them to regain lose health conditions and increases their life span. This is certainly an improvement given the negative impact of such practices on the Santal life and society. These education spread and modern technology therefore feel the need to change to psychic of the tribal elites and aged persons towards the modern medicines and develop strategy to ignore the practice of black magic, sorcery for leading for healthy life.

***Probable measures to solve the current problem***

**Diversification of Employment and Livelihood**

Santal of Mayurbhanj diversify their occupation out of distress caused by seasonal fluctuations in demand for their goods, services and labour and also because of the seasonal variations in availability of raw materials and opportunities. The occupational diversification is also their strategy to minimize risks associated with fluctuations in earning from different activities. They engage themselves in a wide range of activities starting from agriculture to collecting forest products, hunting and different forms of employment in mining, manufacturing and retail trade.

The Report on 5th Economic Census of Odisha, 2005, states that 86.92 percent of STs are engaged in “agriculture services” category under agricultural activities, whereas only 9.91 percent of them are involved in “livestock rearing” and a small 3.34 percent in “fishing activities”. The Census 2001 also reveals a similar story in almost all the districts of Odisha the majority of Adivasi workers are engaged in the agriculture sector. In tribal dominated districts, however, a larger proportion of tribal workers are engaged in agriculture sector than in the non-tribal dominated districts. More than 90 percent of the tribal workers of tribal dominated districts of Malkangiri, Nabarangpur and Gajapati, Mayurbhanj are engaged in agriculture sector; in none of the non-tribal dominated districts they constitute such a proportion of the workforce. It is a non-disputed fact that the workers use agriculture as a

residual sector of employment and, therefore the incidence of disguised unemployment is very high in this sector. We, therefore, find that the districts where a larger percentage of workers of all social groups are engaged in non agricultural occupations (or agricultural occupations) also have a larger percentage of tribal workers engaged in such occupations.

### **Settled Agriculture**

Field study reveals that Adivasis in Odisha in general Santals in particular mainly depend upon settled agriculture for their subsistence. They mainly cultivate food crops for self-consumption. They have very little surplus which they sell in the market and buy other essential items. They cultivate cereals (rice, ragi, maize and millets etc.), vegetables (cucumber, brinjal, tomato, ladyfinger, radish, pea, and bean etc.), pulses and oilseeds (green gram, *til*, blackgram, *arhar*, groundnut, Niger mustard, sesame etc.). Apart from these crops, fruit bearing trees such as mango, jackfruit and banana are also cultivated. These crops are grown in appropriate land, for example, rice is grown on ancestral or sharecropped low lands as they are more suitable for growing rice, whereas, millets are grown in “padar lands” (dry lands) and vegetables on high lands and kitchen gardens. Apart from these, livestock production is also among the important sources of their agricultural livelihood. With above scenario the govt. should provide proper facilities and loans, service to save their settled agriculture so then their problem may some how minimised and it will help for development of their current economic condition which will be influencing their livelihood.

### **Shifting / Podu Cultivation**

Generally Santal's finds “Shifting cultivation” also known as “podu chas” as viable and sustainable in the ecological zone where they live. It is a traditional cultivation practiced by some of the Adivasi communities of Odisha since the past also in large scale by Santals. Like in some other parts of the world, their social, cultural and religious practices also revolve around this form of cultivation. Every year approximately 5,298 sq.km. of land in Odisha is cultivated using this method. So to sustain their livelihood the government should help them with proper resources and education for their occupational development. In the same time the govt. should also keep in the mind these situations when providing tribal land to the industry purposes.

### **Cropping Pattern**

Cropping pattern of Adivasis in general Santal of Odisha in particular suggests that as subsistence farmers, they mainly cultivate cereals such as paddy and millets on 82 percent of their gross cropped area while the other communities cultivate these in about 76 percent of their gross cropped area. Among the cereals, they mostly raise dry land crops as the area

lacks irrigation facility and the lands have low fertility and low moisture retaining capacity. Paddy is grown by them on 73 percent of the gross cropped area while other communities grow it on less than 2 percent of their gross cropped area. For this condition the govt. should provide proper irrigation facilities and fertilizers in appropriate cost, so then their cropping pattern may sustain.

### **Major Findings**

The major findings of the study reveal

1. For improving the livelihood condition of the tribals, there is need to first improve the production and productivity of their agriculture –both settled and shifting. This can be done by providing them with improved agricultural inputs such as seeds, fertilizers and agricultural implements and improvement in agrarian technology and practices.
2. Their income can also be increased by restoration of the land alienated from them and by increasing the productivity of forests by plantation of degraded forest, facilitating the tribes in collection of such products and by ensuring them a proper return for such product by organizing their marketing.
3. In agricultural sector due to presence of middle man, they do not get faire price for their own products because various unique type of production produced by tribal people which is specially made by forest products.
4. The spread of education and technology has helped them to adoption about new method of agriculture, cooking style and food habits, language, dress pattern, accustomed to ready-made clothes, aware to political mobilisation and also medi-system etc.
5. They understand the need of education for their children, get exposure to modern health practices and could doubt superstitious practices and witchcraft and sorcery performance by the priests and ojha.
6. The rural non-farm sector has become a major source of livelihood for the poor households. It has become a primary source of income and employment for many of tribal households.
7. Some tradition patterns are still flow at present time but lots of changes comes in livelihood pattern of tribal people.
8. The forests have a special significance in the lives of Santal's of Mayurbhanj district. Forest is considered to be the most important source of livelihood for them during food crisis. The forests cover a huge chunk of area in major tribal dominated districts. It supplements both their consumption and income.

## **Conclusion**

From the above discussion, it is clear that spread of education and modern technology has several direct and indirect impacts on the traditional culture, tradition and social norms of the Santals. The impact is evident in their day-to-day activities. The spread of education and technology has helped them to learn about new method of agriculture, cooking style and food habits, language, dress pattern, accustomed to ready-made clothes, aware to political mobilisation, learn habit of savings etc. Migration to cities and towns, understand the need of education for their children, get exposure to modern health practices and could doubt superstitious practices and witchcraft and sorcery performance by the priests and ojha

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