

Tribal Livelihood and Land Use Change: A Geographical Study in Bundwan Block, Puruliya

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Abstract

Each indigenous community's way of life and heritage is distinct, and it is linked to the use of certain natural resources and types of work. They have been gathering materials from the forest without harming it. Food and livelihood security are provided by the forest. The forested tracts have been the natural choice of the primitive people from the very dawn of the human civilization. In India, tribal people have been compelled to relocate to the forest regions in order to live in isolation from the plains inhabitants while remaining in peace with nature. They have a complex interaction with environment and living beings in order to maintain their livelihood within a restricted ecological balance in their habitat. Tribal groups live in close contact to biodiversity rich areas, thus they have a unique perspective on biodiversity. This paper aims, to provide a comprehensive introduction about the forest tribe relationship.

Key Words: Primitive people, livelihood security, Indigenous knowledge, Biodiversity, Sustainable Livelihood

Introduction

Until recently, the forest has played an essential role in serving rural community subsistence needs and maintaining ecological balance. Over 53 million tribal people in India, or roughly 60% of the rural population, rely on the forest for their daily needs. Empirical studies show that tribal people are highly dependent on forest for their subsistence even in this age of scientific and technological development (Saha and Sengupta, 2014). A major share of the rural economy is supported by forests. For millennium, trees and forests have been among the some available resources to rural inhabitants. They provide different kinds of benefits: *jobs* and *income* often needed to supplement inadequate returns from agriculture; *produce* such as fuel wood, food, fodder and building poles for the home

and -a range of environmental benefits, without which other productive activity like agriculture could have been impossible (Biswas, 1994). West Bengal's population is multi-cultural and multi-lingual, with around 40 tribal tribes. *Santal* are one of West Bengal's major tribal tribes, with populations in the districts of Birbhum, Bankura, Puruliya, Maldah, Midnapur, and 24 Parganas. They are mostly found in *Rarh* Bengal's arid sub-tropical areas. Forest resources are abundant in the Puruliya district. The Puruliya district's Bundwan Block has been chosen to explain the close man-nature interaction between forest resources and Santali lifestyle. It also sheds insight on this social group's traditional knowledge and cultural practises for forest protection and preservation.

Area under Study

Bundwan CD Block is considered as the area under review. Geographically the area extends from 86°25'20 east to 86°40'27 east and from 22°42'30 north to 22°57'30 north. Bundwan Block is located in the southern part of the Puruliya district. The Block is under the Bundwan Police Station. Bundwan CD Block is surrounded by Manbazar II CD Block in the north in the south the study area cover by Golmuri-Jugsalai and Ghatshila Blocks of Singhbhum district of Jharkhand, Ranibandh CD Block of Bankura district, and Binpur II CD Block of Paschim Medinipur district on the east, It is located 61 km from Puruliya town, which is the district headquarters Puruliya. The study area has an area of 351.25 km².

The area under review is situated in the Bagmundi–Bandwan Upland being a part of Ranchi Peneplains. The highlands rise very steeply from 600 meters but the slope becomes moderate above 500 meters; there appears an uplift peneplains surface (Bhaya and Chakrabarty, 2016). Topographically the Block may be divided into three divisions. The hilly region is located in the central part and some parts in the south-east corner of the Block having elevation more than 300 m. The plateau region is located in the south-western, north-western and north-eastern part of the Block having elevation less than 200 m and in between them high land is located (District Statistical Handbook, 2011).

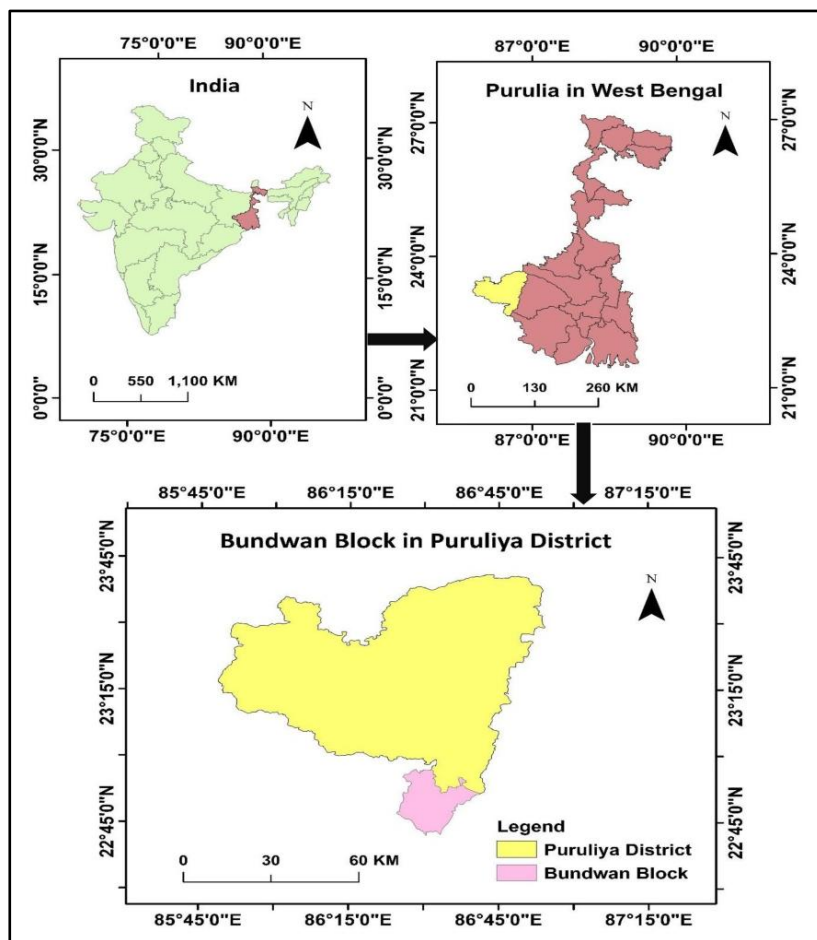


Fig 1. Location of the Study Area

Objectives

The area has been selected for most of the people of this area use forest product for different purpose and they are mostly dependent on NTFP. This study area shows the most intense and practical appearance of forest-tribe interaction in Puruliya district. The focal objectives of the current study are enunciated below –

1. To establish the relations between forest resources and the status of livelihood of tribal forestinhabitants.
2. Highlights the significance of forest resources in the economy, food habits, material culture, ethno-medicine and other religious necessities of the tribal people.
3. To highlight the implication of forest resources in the economy, material culture, food habits, ethno-medicine and other socio religious requirements of the tribal people.
4. To find out the land use changes in the Bundwan Block and its impact on the peoples livelihood.

Materials and Methods

Secondary data and information are mainly collected from different Govt. and non-Govt. published records, reports, drafts, gazetteers, maps, books and journals which are closely related to the present work. Major secondary data sources are:

- a) Topographical Map by Survey of India.
- b) Landsat 5 Thematic Mapper, and Landsat 8 OLI TIRS data of different dates have been used.
- c) *Mouza* Maps are collected from District Land and Land Reform Office.
- d) Secondary data have been collected from various books, District Gazetteer, District Census Handbook, Block Development Office, Survey of Rural India, Statistical handbook.

The data on various purposes relevant to the objectives of the work have been generated from the intensive and rigorous field study at different *mouzas*. Primary data have been collected from field visits, with structured questionnaire schedule and by oral interviews.

The entire work can be divided into many phases and their interconnection is the outcome of this paper. The methodology consists of following steps:

1. Books, journals, research report (published and unpublished), census report have been studied to formulate the conceptual issues.
2. Collection of available data and maps (Census Data, *Mouza* and PS map, Toposheet, Satellite Image) from different sources and primary data has been collected through field visit.
3. Identification of the problem.
4. Identification of the general land-use pattern and land-use classification has been done which include agriculture, water body and door to door perception survey was conducted.
5. Visual interpretation of satellite imagery to delineate land-use and forest cover area.
6. Preparation of various thematic maps and diagram (using various software mainly Arc GIS of version 10.2.1, Erdas Imagine of version 14.00, Google Earth explorer, Microsoft office etc.)
5. Preparation of land use, land cover change map and their interpretations have made to fulfill the objectives.
6. Final conclusion and findings are made to make more feasible development of the area.

Result and Discussions

Rural Livelihood and Changes in Livelihood

The aboriginals of the area under review generally eat twice a day and an adding of third meal is of rare incidence. The daily menu consists of boiled rice and curry. They are starting in day by eating musty rice, onion, chilly and vegetables and after end of day in night they are eat boiled rice, greens, and *dal*. They are domesticating animal such as goat, pig, cow, buffalo, and sheep for the flesh, which have been eaten by them. They flesh of wild animals such as rats, snakes, rabbits and different type of birds relished by them. During scarcity they eat millets, fruits, roots, tubers, flowers. The chief beverage of the *santhals* is a sort of rice brew (*Handia*). They likewise drink inebriating alcohol refined from dried blossoms of *Mahua*.

Culturally the tribes of the area are lagging behind as compared to the State's culture. The aboriginals of the Bundwan Block have practiced traditional culture. The functioning dress of ancestral essentially comprises of *Kopni* a limited segment of fabric passed between the legs attached to a string would adjust the join. At different occasions, he wears round his midriff a short piece of material (*Dhuti*). An ancestral lady for the most part dresses herself with a bigger part of fabric (*Sari*). But recently tribal boys are wears shirt and pants and girls are wears frock, salwar, tiaras. It is clear from the study that the traditional culture of Bundwan now somehow is shifting to modern culture.

Bundwan is a tribal Block in which most of the villages are tribal villages, having more than 54% of tribal population to the total population. These tribal communities are not economically sound which is reflected in their housing conditions. It is evident from the field study that 52.5% of the total families of the Block has *kaccha* house and *Semi-Pucca* and *Pucca* houses are 27.5% and 20% respectively. *Kaccha* houses roof mainly build by thatches or tally. In rainy season their ground floor come to wet which create unfavourable condition for them. An interesting fact is that most of the *kaccha* houses are designed by their own idea and cultural aspect.

Good communication facilities are the indication of well develop area and it can also be more developed area. But the area under review has lack in communication system. The area is mainly connected with some metal and un-metalled (made with mud) roads among the villages. It is obvious from the field survey that half of the population accounting 53% of the total are somehow satisfied with the condition of roads. It is also observed from the study that 30% of the inhabitants are not

satisfied with the communication system and 17.5% are satisfied as they reside beside the main roads.

In the study area main sources of the drinking water are tube wells and wells. According to the villagers the quality of the water is not so good and depth of these sources in summer is very lower. It is observed from the field that 12.5% of the villagers are satisfied with the supply and water supply system as the tube wells which are situated near to houses of the inhabitants. Out of the rest 32.5% of the villagers are moderately satisfied with the supply of water. And the rest 55% are not satisfied with the supply and availability of water which is evident in the diagram. In dry season when the wells are dried up that creates immense water crisis in the area. In that time people have to travel 1 to 2 km away from home to collect the water.

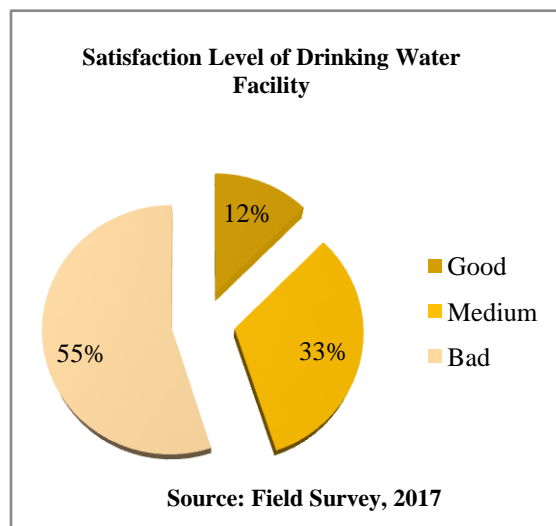


Fig 2. Satisfaction level of Drinking Water

Fuel is an important life sustaining material. The major fuel materials which have been used in the area under review are timber, leaves, cow dung, kerosene and gas. It is evident from the field that maximum families are using wood and dry leaves as a fuel for cooking. They collected these materials from the nearby forest. In summer season they store it for the coming rainy season. When they collected wood, dry leaf from the forest, they faces governmental and local political problem. In the study area 85% families are using forest timber as fuel, 7.5% uses kerosene, 5% uses dung and 2.5% uses gas.

Electricity supply in the Block is now good. According to sample survey most of the villages have been electrified within last two years. It is evident from the field that 47.5% families have

electricity connection but interesting fact is that out of this 20% of the inhabitants are not using electricity as for reduction in electricity bill. , 52.5% families have no electricity,

The education facility of the area under review is very bad. Education plays an important role in influencing the quality of human resources(Siddiqui and Naseer, 2004) as it is the media of exchanging ideas, thoughts and beliefs over time and space. Educational backwardness is a crucial factor liable for the economic, social, cultural, and political drawbacks of the region. As per sample survey 53.30% are illiterate and 46.69% are literate in the area under review. In the study area ICDS centre and Govt. primary school is there. Out of 46.69% of total literate population 25.55% have primary education, 11.91% have upper primary education, 4.40% have qualification M.P. exam, 2.64% have qualified H.S. exam. and 2.20% have higher studies.

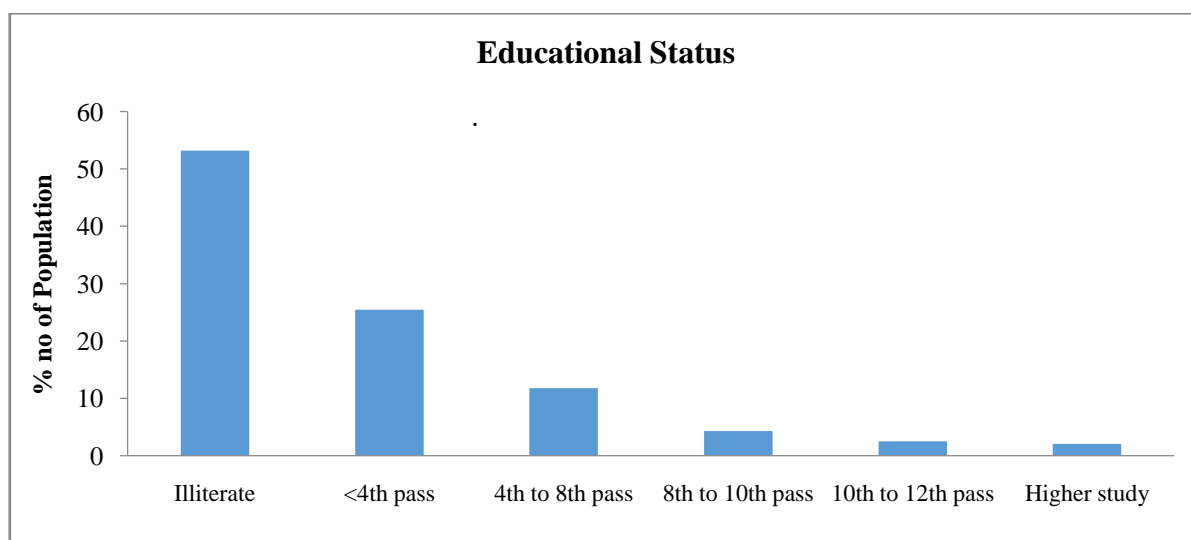


Fig 3. Education Status

Source: Field Study, 2017

It is evident from the field that 92.5% household of those villages having no toilet facilities and 7.5% have toilet facilities in their home they are open toilets which are injurious to health. They used to take bath from the tube wells, small ponds in public places. In summer season the ponds are dried up.

According to the field survey the study area has medical clinic or health Sub-Centre are few. The hospital is at least 5-9 km. away from the villages. People of the villages are faces various problems in health care-

1. Distance from health centre.
2. Transport facility is inaccessible.
3. Ambulance services only for pregnant women, in general cases or serious cases they faces various problem.

4. Lack of doctors and nurses.
5. Lack of money.

The land holdings in the area under review are very small. It is evident from the field that 20% of the total inhabitants are landless. 27.5 % of inhabitants have less than 1 acre of land, 22.5% have lands in between 1 to 2 acres and only 12.5% of the inhabitants have more than 3 acre of land.

Land Use of the Study Area

Land use refers to "the total of arrangements, activities, and inputs that people undertake in a certain land cover type" (FAO, 1997a; FAO/UNEP, 1999). It sometime may be natural or sometime artificial. Land use pattern develops in relation to human needs and purpose like residential, commercial, and industrial, roads, parks etc. over a particular parcel of lands. The existing land use of Bundwan Block has been studied with the help of Landsat 5 and Landsat 8 satellite images. It is obvious from the study that the Municipal area is predominantly residential which is characteristic of a highly urbanized area.

Temporal Changes in Land Use

It is obvious that the land use changes with the passage of time and space. Landsat 8 OLI TIRS and Landsat 5 Thematic Mapper Satellite imageries of 1990 and 2015 have been used to detect the changes in physical and cultural elements of Bundwan Block. Major land use classes which have been identified in the area are water bodies, vegetation cover, and built-up area, agricultural land and bare lands. Population growth, human interferences and urbanization are the main responsible factors of land use alteration. The current work classified the area into three major land use classes, namely, i. Built-up area, ii. Vegetation cover and iii. Water bodies. The changes have been minutely computed with the help of Erdas Imagine software of version 14.00 and Arc GIS software of version 10.2.1. The temporal changes in the land uses have been evaluated below.

Built-up place is a cultural characteristic of land use, specially the concretized a part of the area. The trend of the idea that folks that once lived inside the woodland centre areas but they're moving increasingly to wooded area outer land that has a large impact on land use. Built-up area includes the transport networks, buildings and other constructions. It is evident from the land use classifications of different years that the areal coverage is increasing day by day. It is clear from map that the built-up area is increased to 58.90 km² in 2015 from 51.84 km² in 1990. This is clear from

the study that there is a positive growth in areal coverage and the growth rate is also positive but it shows a lesser trend.

Vegetation cover assumes a vital part in earthbound biophysical measure and is identified with various approaches to the global environment. In the present analysis the vegetation front of the city have been distinguished by administered arrangement strategy for various years satellite symbolisms. It is observed from the classification report that the area of vegetation cover of the city has seen a decreasing trend from 1990 to 2015. It is seen from the analysis that the vegetation cover is decreased to 80.86 km² in 2015 from 110.88 km² in 1990 that is indicating a negative growth rate. It is evident from the study is that the deforestation rate is very high rather than afforestation as a result growth rate is negatively low. In recent time vegetative area is encroached by the increasing population.

It is obvious that 3/4 of the earth's area is covered with water. This water is distributed all over the planet in several forms and sizes, called water bodies. These water bodies varies in size, right from gigantic ones like oceans and seas to the small ponds. The present area under study is not an exceptional one; the city is covered by rivers, canals, ponds and marshes. It is evident from the study that the areal coverage of the water bodies of the city is decreasing with alarming rate. It is seen that the area is decreased to 2.58 km² in 2015 from 13.89 km² in 1990 that is indicate a negative growth rate. The major reason for this decrease in areal coverage of water bodies are the conversion of water bodies into built-up area.

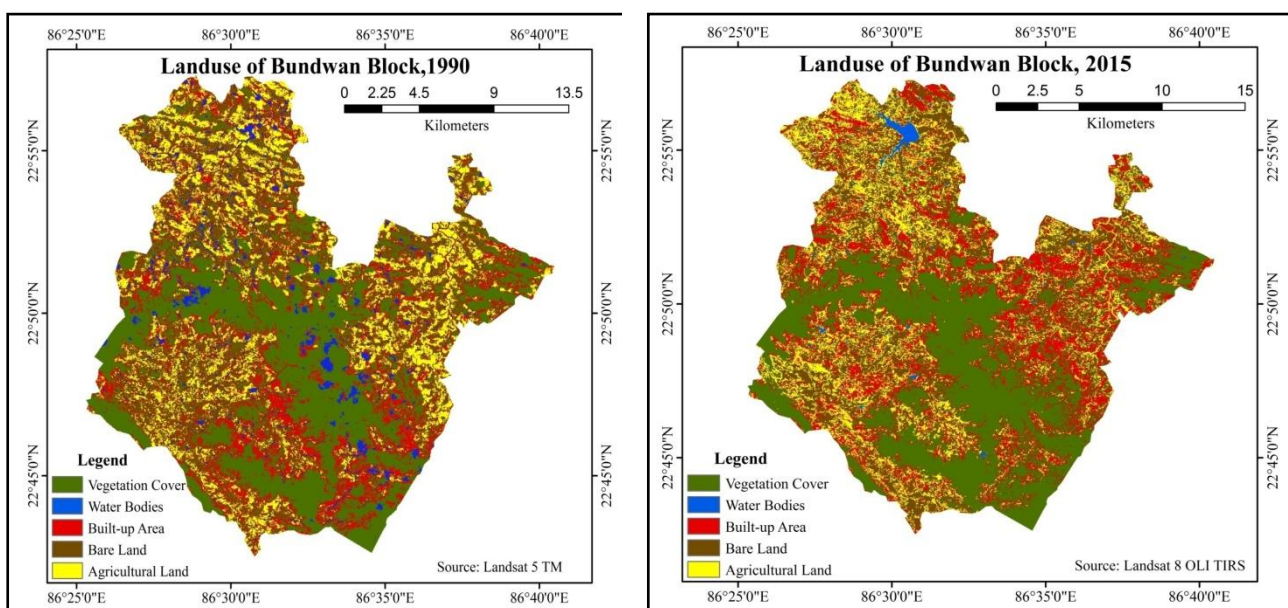


Fig 4. Landuse of Bundwan Block, 1990 and 2015

Effect of Landuse Change on Ecology

It is observed by the field survey that the study area was a rounded by the deep forest in early period but now some forest officers illegal activity are accelerate forest degradation and it is a bad impact of ecology. Many sacred trees are extinct; those trees are tribal beliefs and ritual. Otherwise many organism was lived in the forest for their food and habitant purpose but due to chopping trees they are loss habitants dispersed others place or migrants.

Effect of Landuse Change on Economy

It is observed that the study area local people are engaged in the past basically NTFP, for living of life. It is only main economic activity in pre period but due to forest officers' nasty behaviour and not owing the appropriate value of the forest product so they are change their economic activity replaces to agricultural activity or labourers. So this area is changes in agricultural land and mining land.

Effect of Landuse Change on Social Life

It is observed that the study area early period people, forests, trees and non-timber forest products to a large extent provided livelihood to native deprived communities in the study area, the major limitation faced in pursuing these livelihoods was the domination of the poor by the "forest guard" who often prevented and prohibited villagers from gathering fuel wood. More than eighty percent of the villagers in the study area were directly reliant on on non-timber forest products from local forest while others make secondarily use, that is, many household taken forest product such as mushroom, fuel wood and other items when necessity occurs. Out of the total inhabitants twenty percent reported that they using forest medicinal plants for medical treatment of disease. However, the first-aid is always performed using forest medicinal plants for the inhabitants of the forest area. The forest resources in the form of non-timber forest products perform vital role in defending the socio-economic and ecological safety net of the forest inhabitants. The study tells that nearly all of the forest- inhabitants depend on the different forest products other than non-timber product. But recently change in land use in study area we observed forest area to agricultural field so their livelihood and food, dress, medical facilities now are also changes.

Summary of the major Findings

The main findings of the present work are as follows:

1. Within the residents the main problem is the economic problem. There are no such employment opportunities as well as no such industrial development. With a short portion of land their agricultural productivity is very low. There are lacks of facility of daily work.
2. There are no such transport facilities the distance of nearest town is minimum is 9 km. that is Bundwan Block area villages. They have to go to Bundwan Bazar on foot or Auto. So they faces various problem specially student, pregnant women, older person.
3. When the people of the village go to the forest for collecting woods, honey, dry leaves, *Sal* leaves , they faces Govt. and local problem. But these accessories are the basic needs of these villagers.
4. Electricity problem is the major problem of this area. Maximum people cut their line due to huge electric charge. Half of the families of the village have no electricity so the educated members specially school or college students faces various problem.
5. During cultivation, there are no irrigation facilities in draught situation. In the time of grow of the crop if rainfall is insufficient they faces various problems with the agricultural problem.
6. Drinking water problem within the area is a major problem. During summer season the level of ground water fall into high depth. So in this time water problem is serious to them.
7. There are no such implementations of Governmental project properly in this village. Old life pension not get the entire older person. MGNREGA is not properly activated in this village. So there is huge number of jobless people.
8. Housing problem is another type of problem among the villagers within the village.
9. Less availability of daily work is also an issue in the selected area.

Conclusion

Considering all the explanations and the major findings it may be shortened that the *Santhal* tribe of the Bundwan forest part is closely related with the physical setting thus maintaining intimate association with the forest resources. The tribal people of the study area have a greater degree of dependency on the presence of forests, or we can state that the forests have direct impact upon the culture and economy of the tribal societies. The non-tribal portion of the society has less dependent on forests and they are not related to forests directly, this interrelationship indicates that the change of forest should have more implication on the development discourses helpful to the tribal population

inhabited in the study area. However to progress their life through forest, some essential actions may be adopted by any Govt. and as well as non-Govt. organizations through balanced developmental plans formulated and implemented with holistic approach.

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