

Asian Resonance

Relationship between Deforestation and Settlement in the Madhupur Subdivision of Jharkhand, India

Abstract

Present paper searches the causes and impact of deforestation with some remedial measures of Madhupur Subdivision (MSD), Jharkhand. Recent natural forest cover of the Peninsular India as well as the MSD is not the original climax forest. Anthropogenic influences have been greatly responsible for modification of this region. Deforestation is one of the main causes of environmental pollution, it may Global and local. The study of deforestation has been made for a period of 1914-2011. It reveals that forest coverage decreases from 23.03% to 6.95%. The present study aims at determining the causes and consequences of deforestation. That is why environmental condition has been largely affected both physically and socio-economically. "Deforestation is caused by a number of factors" –Chattopadhyay, S.(1985). Soil erosion, climatic variability, siltation, bank erosion, gully erosion, scarcity of water are increasing day- after- day, on the other hand, settlement and human interference also increases. The author has suggested some remedial measures to mitigate the situation.

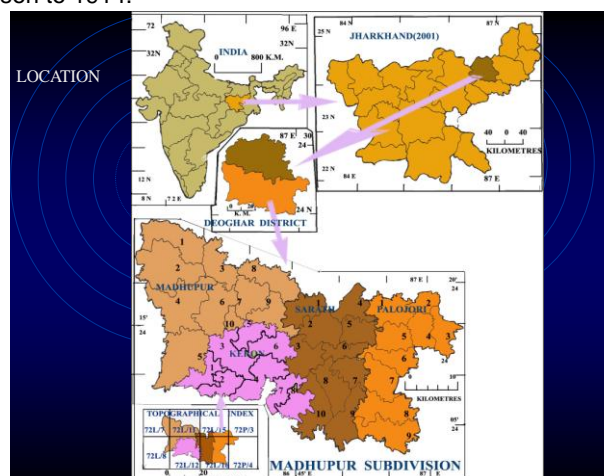
Keywords: Deforestation, Environmental Impact, Settlement, Livelihood, Afforestation, Sustainable Development

Introduction

Forests play an important role to maintain environmental condition. It has a many-faceted ecological role to play directly or indirectly over human life in a variety of ways, but deforestation is a serious problem to maintain livelihood. The National landuse and wasteland development Board (1986) revealed that about 1.5 million hectare of forests is known to disappear annually. The 1952 National Forest Policy had proposed to increase this to 33% of the total land of the country. According to Forest Research Institute 2001, Indian forest coverage is about 76.8 million (23.38% to the geographical area). The quality and quantity of forest is also degrading day- by- day as the population pressure on them. The present study aims at determining the causes and consequences of forest degradation as well as environmental impact over the Madhupur Subdivision. We know that this region belongs to old Santhal Parganas where most of the lands were covered by natural forest. But now rate of deforestation is increasing. Presently, Forest cover area of the MSD is only 6.95%. (2011) in comparison to 1914.



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This paper highlights the following facts:

1. To demarcate recent forest coverage areas
2. To identify the areas where deforestation are made
3. To demarcate recent settlement areas
4. Find out the causes of deforestation and
5. Impact of deforestation over physical and social environment of the MSD.

scatteredly distributed all over this area. Waste land can be converted into this Settlement area if Government can motivate this. Government wasteland near habitation could be settled under the 'Tree patta' scheme with the rural poor, so, that afforestation on wasteland could be proclaimed.

Tools and Variables (Methodology)

The study is based on the indian topographical maps at scales of 1:250000 & 1:50000 for terrain conditions, forest cover, settlement area determination etc. On the other hand the study is based (1991 & 2011) on hallowise (revenue unit) data area. The village wise & Block wise data in the Census Hand books (1971-2011) are also incorporated. Field Studies helped in an understanding of practices being followed by the Forest department.

1. Statistical techniques are applied for analyzing correlation and justification of forest cover area with slope and settlement for better understanding
2. Some information about forest was collected from Websites and different journals and different thematic maps are prepared with the help of toposheet and census data.

General Information About the Study Area

Area

MSD, a part of the Chotanagpur Highlands is mainly a dissected upland of granites and ancient crystalline rocks. It represents an erosional surface with residual hillocks and boulders. This region extends from 86°24' N E to 87°05'E longitudes and from 24°02'N to 24°24' N latitudes. It comes under the Deoghar District in Jharkhand (Fig. 1). It occupies an area of 1372.5 Sq. Km. comprising of four blocks namely Madhupur, Keron, Sarath and Palojori. The Ajay is the main river in Madhupur Erosion surface. The Pathro and Jainti are the main tributaries of the Ajay. In the study area, rainfall is uneven and inadequate. Past experiences show that the Deoghar upland has never been balanced throughout the area in terms of availability from the monsoon rain. Forest coverage is very scanty. Forest types and their distribution in this region are mainly of four types such as Protected forest; Reserved forest, Open forest and Mixed jungle. As a whole the area accounts for 6.95% (2011) to total area under forest but there are temporal and regional variations (Table-1). Among the four Blocks, Madhupur covers a larger portion (91.70sq.km.) The open mixed jungle, open scrubs or mixed jungle specially of Sal forest are seen mainly in Jarnuwan, Bahadurpur, Monshmari, Chikaiya and Mathura villages of Madhupur Block. In the southeastern portion of Keron (Nawadih, Bara & Gobindpur villages) open mixed jungles are conspicuous. Near the Phuljori pahar and the Patharda Pahar, mainly open scrubs and bamboo trees are found. Forest of the Madhupur Subdivision comes under the classification of the Dry peninsular Sal type. There are very low remaining patches of old forest, scattered over

Hypothesis

Deforestation is the major problem now-a-days and also in my study area. Being a tribal dominating area, tribal and also local needy people (BPL) lose their basic Income source due to forest lost. Most of the cases these areas converted into settlement area. In MSD waste land is interfluvial upland tracts with poor quality of trees and other natural vegetation. The prominent species is Sal (*Shorea robusta*), locally called "Sarjour" in Santhali, quality of which varies. Rare Sal is mainly observed in two forest ranges, located in the northern and western parts of this Subdivision, but even in these protected forests Sal trees over one metre in girth are very rare now

The main trees accompanying sal are Sakhua (*Shoreradensta*), Pair (*Buchanania Latifolia*), Asan (*Terminalice fomentosa*), Kendu (*Diosoyros molanozylon*), Bija, Palas (*Butoa frondosa*), Mahua (*Bassia latifolia*), etc. At places Sima I (*Salmaline malabaricum*), Ber (*Ficus bengolonsis*), Babul (*Acacia arabica*), Khajur, Mango (*Mangifera indica*), Bel (*Angle*)

Discussion and Result

Changes in forest coverage: The National Forest policy recommends 33% of forest cover for a plain region and at least 66% for hilly & uplands. But this Subdivision has only 6.55% (2011) forest coverage. In 1914 the area under forest coverage (Source: Toposheets of this areas which was published by the Survey of India in 1914) was 22.97 % (316.147 sq.km.) and it reduced to 8.95% in 1976-77 and further reduced to 8.56% to the total geographical area in 1991 (Fig-3 & Table-1). In the case of vegetation types, decreasing nature is prominent. Palojori and Sarath Blocks have lost more than 80% forest coverage. On the other hand, most of the lands under forest cover of Keron Block (more than 75%) are decreasing. Deforestation at a large scale has been observed near Bunchi, Paharpur, mathurapur & northwestern part of the Madhupur Subdivision. Because of these decreasing nature some plant species have lost their identity i.e. Kendu, Babul, Bel, Palas, Kazam, Piar, Mahua, etc. Therefore, it can be said that, forest coverage in this region gradually decreases and it is more prominent after 1970's.

Causes of Deforestation

Main causes of change are appended as follows: "It is reported that the rapid loss of forests has been due to profitable & wasteful use of forest by the people"- Sachichidananda (2004). In the MSD

1. Most of the forest cover areas were converted into settlement areas (Fig 2 & 4). It is mainly prominent in the western part of Madhupur Block, eastern, southern and western part of Keron Block and major portion of Sarath & Palojori Block because of population pressure. From the year 1914 - 2001 correlation co-efficient is (R) 0.9859143 that's means highly positive correlation between them. (Table- 2 & Fig. 4).
2. We know that slope is an important factor for vegetation growth. Here, most of the forest cover areas were situated at steep to moderate slope zone (20° -2.05°). Steepness, loose soil structure, coarse soil texture and lack of knowledge of local

people increases deforested land from 1914.(Table- 2 & Fig. 4)

3. Rugged topography, climatic variability, soil loss, destruction of forest coverage area committed earlier is the important cause for damage and deforestation particularly in the period between 1970's to 2011.
4. People of this region are quite ignorant about the utility of forest products and effect of deforestation. Actually they do not know how much wealth they are losing every day for their ignorance. Most of the local people belong to below poverty line. They use forest product as fuel and many people maintain their livelihood by selling forest products such as Neem leaves Sal leaves, log of Sal and Neem, fruits of Ata, Bel, Akasmani etc. Different types of grass and some kinds of herbs, used for ayurvedic medicinal purposes. So, it is one of the important causes for deforestation
5. The government has not taken any effort to maintain forest coverage and forest products in organized way, particularly in this Subdivision. In some pockets of the MSD Government has started afforestation programme without proper planning. So, lacking of organization capacity and knowledge, forest scenario was changed. All the mentioned causes are responsible for change of forest coverage.

Impacts of Deforestation

Forest loss is very dangerous to environment as well as human life. Effects of deforestation give rise to physical and socio-economic hazards. In this region, (Table- 1) deforestation (71.49%) leads to negative environmental impacts over physical landscape and socio-economic condition, which are listed as follows:

1. Different types of soil erosion such as rill erosion, gully erosion, sheet erosion are increasing due to destruction of some species such as Sal, Bamboo, Neem, Mahua, Sabai grass etc. in the western and eastern parts of this Subdivision.
2. Most part of this Subdivision, average maximum temperature increases due to lack of forest coverage. Soil moisture also reduces in some parts of Madhupur & Keron Block, which affects market gardening.
3. Water table also falls below desired level in summer and winter, all over the MSD.
4. We know that, this region is tribal dominated, who earn their livelihood by selling forest products such as rope making, bidi making, sal plates, honey, saw milling, neem stick, sal stick, different types of

herbs etc, Deforestation hampers their source of income, which finally leads to involve them in criminal activities.

5. Various medicinal plant species and herbs are destroyed by deforestation mainly in the eastern and southeastern part of Palojori, Sarath and Madhupur Blocks.

Remedial Measures

1. In keeping with the National Policy, attempts should be made in forest loss to introduce the process of succession through planting.
2. Joint forest management programmes and empowerment of the local people in decision making will be beneficial and encourageable.
3. Many scrublands can be implemented for Sabai grass generation because it has some economic value to local people.
4. Social forestry programme encourages to a reorientation of focus towards forestry. This programme has started near Patharda area, near LA OPALA glass factory of Madhupur with the help of local people, but very insignificant. Large-scale extension is needed.
5. At the time of field verification, it was observed that, two local businessmen are collecting forest products (season wise) from the villager, which is being used for the purpose of interior decoration. Mainly Akashmani, fruits, Ata, Bel, different types grasses are collected for this purpose. Under this business at least 60-65 persons (mainly females) are engaged on daily wages (per day Rs.110/-). It is an important source of income for the local people. Initiative should be taken by the Government to organize procurement of forest product and to arrange co-operative for selling forest product to any market center such as Kolkata, Ranchi, Patna, Asansol etc.
6. Actually we know that, only conservation programme cannot get success without the willing support and co-operation of local people. Therefore, forest education needs to be part of general school syllabus. According to Jawaharlal Nehru 'a noble tree, which has taken long time to grow and spread out in all its majesty is cut down by careless hands. There should be a strong feeling among our people to prevent this vandalism. If such cutting down becomes unavoidable, should develop a convention that it should be replaced immediately by planting two trees'. It will promote afforestation and finally gives this to sustainable development of this region.

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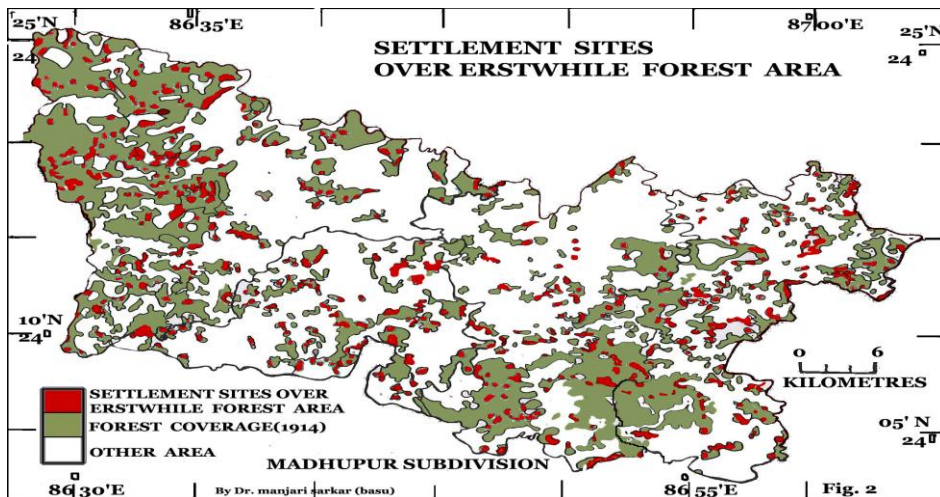
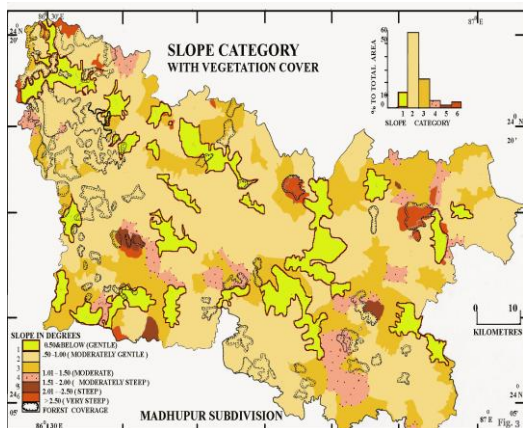
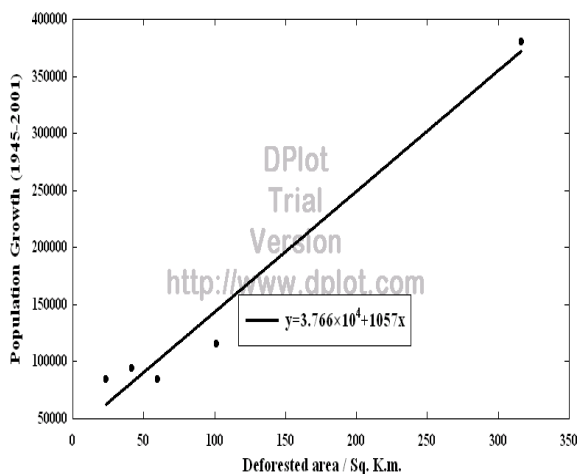


Table-1: A Comparative Picture of Block-Wise Forest Coverage and Deforestation

Name of Blocks	Total area (sq. km.)	Forest- 2011 (Sq. Km.)	Forest-1914 (Sq. Km.)	Defores- ted area (Sq. km.)	% of defore- station to total forest (1914) area
Madhupur	493.2	31.84(2.31%)	133.20	101.36	32.06
Keron	258.4	13.73(1.00%)	36.88	23.15	07.32
Sarath	317.9	30.34(2.21%)	72.05	41.71	13.19
Palojori	303.0	14.21(1.03%)	74.01	59.80	18.91
Total	1372.5	122.85(6.55%)	316.147 (23.03%)	226.02	71.49

Correlation between deforestation & population Growth



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