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MINING AND DEFORESTATION
An Analysis of Rural Lives and Livelihood of Mining Area of Odisha

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Abstract

Deforestation is occurring in unprecedented proportions and over an exceptionally short period of time. In many countries including India tropical forests are disappearing quickly as an economic resource. Deforestation is a particular threat to approximately 2000 million people, often referred to somewhat inaccurately as the indigenous people who live in or around the forests, who are among the poorest of the poor and who risk losing their livelihood as a result of logging and deforestation. Soil erosion ensues from overuse of land that has been stripped of its vegetative cover for purposes of settled agriculture, as the topsoil is washed away by rainwater or by wind and the productivity of the land is progressively reduced. For the poor living in or near the forests it is the breakdown of biological diversity that is destroying their livelihood. In recent years the destruction of such communal lands through mining and other so called developmental activities often sponsored by the government, and overuse caused by greed of elites and corporate houses have increased and encroached on the income earning possibilities of the poor. In view of the above context the paper is an attempt to evaluate the impact of mining and deforestation on the livelihood of the local communities in the mining regions of Odisha. It has also highlighted the changing pattern of livelihoods in the region. Furthermore, the paper has explored issues like migration and movement in reference to mining, deforestation and industrialization. The study has found that two mining blocks of Odisha provides two different types of picture of industrial development and related issues of livelihood, environment and protest movements in the state.

Keywords: *Livelihood, environment, poverty, mineral based Industries, social movement.*

Introduction

The forests of India play a crucial role in meeting a wide diversity of needs for millions of people. In India forests are indispensable for ecological, social, economic and cultural reasons. For these people, forests are an important source of livelihood and means of survival. The nature and degree of dependence on forests vary across population groups. The long association of the tribal communities with the forests and mountains are culturally significant. In addition to that, their lower levels of socio-economic development have resulted in a higher dependence of these hill and tribal communities on the forest for a livelihood as compared to the other population groups. Moreover, a number of small tribal groups are completely dependent on the forest for their livelihood. But now the destruction of forest lands and eviction from the forest areas is main concern of the people in and around the forest.

It is evident from the national and state level environmental statistics that forest cover is declining. In most states meagre change can be seen in the very dense forest regions. But moderate forest regions are changing rapidly¹ (table-1). The role of state in the destruction of forest is evident, because of developmental projects like hydro power projects, mining, defence, railways etc (table-2). With the growth of the industrial and service sectors there is a decline in the primary sector share in the GDP. But it is not accompanied by corresponding decline in its share of the workforce. The data shows that the proportion of agricultural workers (cultivators and agricultural labourers) in the total workforce, is still more than 50 percent of the total workforce (Census, 2011). So the pressure of poor people, the residual not absorbed by the fast growing sectors and remains on land and forest (Singh 1998). In this era of globalization, land does matter for people especially those are poor and downtrodden, because neither industry nor non-agricultural activities in rural India have been able to provide livelihoods to millions of rural workers. It is this failure that generated conflicts in several regions in the issues of the poor's access to land, water and forests (Das 2008).

In view of the above facts this paper tries to evaluate the impact of mining and deforestation on the livelihood of the local communities in the mining regions of Odisha. The paper would also try to highlight the changing pattern of livelihoods in the region. Furthermore, the paper would like to explore the issues like migration and movement in reference to mining, deforestation and industrialization.

Forest and Livelihood of the Poor

Throughout the history, penurious people have depended on a resource base far larger than their own, the so-called commons, to gather fruit, firewood, fish, game and other resources. It is useful to distinguish between open access resources, like air or water of the sea and common property resources like a parcel of land managed jointly by a community. For example, in the dry land regions of India, the poor are said to gather one-fifth of their annual income, along with numerous non-marketed goods, from the harvest of natural products from land that had been protected from overuse by traditional management regimes controlled by local communities (Shiva 1991, Gadgil and Malhotra 1994, Gadgil and Vartak 1994). In recent years the destruction of such communal lands through privatization, often sponsored by the governmental agencies, and the overuse caused due to population pressures have increased and encroached upon the income earning possibilities of the poor.

Available Data (table-1) shows that forest areas are decreasing. The declining forest area dooms the poorest sections of the society. Deforestation is a particular threat to approximately 2000 million people, often referred to somewhat inaccurately as the indigenous people who live in or near the forests, who are among the poorest of the poor and who risk losing their livelihood as a result of logging and deforestation. For the poor living in or near the forests it is the breakdown of biological diversity that is destroying their livelihood (Singh 1998, Meher 2003, Meher 2007, Das 2008). The vulnerable are often the users of marginal resources and also the most dependent on the common resources of the community in which they live. Hence these groups are hard struck by deforestation, soil erosion and other negative impacts on the environment. .

Data also reveals that from 1980-2003 total 103558 projects have been approved and 872791.991-hectare offorestland were transformed into non-forestry areas. Highest (99253.742 hectare) forest land was destroyed for defence projects (in 152 projects) and second highest for irrigation (82197.573 hectare) and third for mining (80070.403 hectare)². Although the data presented above are little old but fact remains same that apart from defence and irrigation, mining and mining related industries are responsible for the destruction of the forest land in several parts of the state. In the State of Environment Report, 2009 Ministry of Environment and Forest also highlighted the fact that overuse of the resources and big industrial projects have adversely affected our ecosystem day by day³.

In rural areas forest are used as common property and several studies have found that Common Property Resources (CPRs) have been a major source of livelihood and security for the poor and other marginalized sections like the women in resource paucity areas (Jodha 1986, Jodha 1990, Jodha 1991, Shiva 1991, Jodha 1995, Beck and Ghosh 2000, Beck and Cathy 2001, Shylendra 2002, Meher 2003, Padhi and Panigrahi 2011, Jodha, Singh et al. 2012). By the estimate, CPRs currently add some US \$ 5 billion a year to the incomes of poor rural households in India, or about 12 per cent to household income of poor rural households (Beck and Ghosh 2000). In addition to that study by Beck and Ghosh (2000) in several areas of West Bengal shows that CPRs are of significantly greater importance to the poor than the non-poor households. Data shows that households' fuel wood consumption in rural forest area in India. In India the per capita consumption of fuel wood is 635 kg average in a year and 226 million people depend on the forest for the fuel wood according to 2006 data (table-3). Data also reveals that in some poor states high number of population depend on forests as compared to high income states.

In the recent decade because of Liberalization, commoditization, marketisation and agricultural intensification, poor are deprived from the CPRs which they were using before. In addition to that most of the land less tribal and rural poor use forestland for their agricultural activities and collection of Non Timber Forest Products (NTFPs) for the cash income. But the policies for the developmental projects like construction of the big dams in the river valleys and establishment of large industrial set up in the forest areas where raw material is available cheaply and easily have negative impact on the forest dwellers and the environment as well. The destruction of forest and accessibility to forest land matters for the poor as their economy fully depends on the forest. So the destruction of forests over the past few decades has deprived tribals and non-tribal (those who are living in or around forest) from their source of livelihood. Rapid deterioration and decline of CPRs like forests, grazing lands and water bodies has put the livelihoods of the poor at risk. It has also resulted in their impoverishment, indebtedness, land alienation and in several cases conflicts (Shiva 1991, Nadkarni 2000, Firdos 2005). Although lack of local level environmental statistics makes it difficult to measure accurate trends of the destruction of forest, but national and state level data clearly points out how forests are destroyed for the development projects, which are main source of livelihood of the schedule tribes of Odisha and India (see table-2).

Data and Method

For this project a field study was undertaken in different areas surrounding Joda mining town of Keonjhar district and Lanjigarh town of Kalahandi district of Odisha. These two places have unique significance because Joda is one of the oldest mining regions of the state and the Lanjigarh is a bauxite mining site and is facing an on-going struggle against bauxite mining and mining refinery in the region. Most of the people living in these regions are scheduled tribes and forest economy plays a major role in both these areas. Primary data is collected via an interview inquiring about the livelihood and environment of these two regions. Total 80 sample households were chosen purposively for the interview through interview schedule in both the regions. Apart from that some in-depth interviews were also done for the purposes of qualitative data gathering (5 people from each region purposively chosen and interviewed for this purpose).

Mining, Deforestation and Livelihood: Case of Odisha

Odisha is a state in the eastern coast of India and is one of the most resource-rich States in the country. The State is endowed with vast natural resources, mineral, marine, agricultural and forest wealth. The State has a recorded forest area of 58,136.87 Sq.Kms. According to the State of Forests Report (2009) the actual Forest and Tree cover in the State is 53,290 Sq.Kms. which constitutes 34.23% of the state's geographical area. Of this, 48,855 Sq.Kms is the Forest cover which constitute 31.38% of the State's geographical area and 4,435 Sq.Kms is the tree cover being 2.85% of the state's geographical area⁴. However it is important to note that, according to the State of Forests report, 2009 of the Forest Survey of India, there has been actually an increase of 100 Sq.Kms. in the forest cover in the State in the few years. Thus, while the recorded forest area constitutes about 37.34% of the total Geographical area of the State, actual forest cover exists over only 31.38 % of the geographical area while National Forest Policy has mandated that 33% of geographical area of the state should be under forest cover. These forest regions of the state are home to the tribal people which constitute 22 percent of the state population. Forests serve as major livelihood resources for tribals and people living in forest fringes as they provide various kinds of Non Timber Forest Produce (NTFPs). They follow a traditional livelihood system which is based on the shifting cultivation and collection of edible forest produce. In social terms, the traditional livelihood system was based on customary, usufructuary rights of tribal communities over land and forests. The survival of tribal communities critically depends on land and forest resources (Shiva 1991, Beck and Ghosh 2000, Padhi and Panigrahi 2011).

After independence, as part of national development, the state of Odisha has built some major mega hydroelectric cum irrigation projects⁵, mineral based industries⁶ and mining projects⁷. A rough calculation shows that, since Independence, Odisha has set up 190 such projects, which have deforested 24,124 hectares of forestland, the basic source of livelihood of the tribal people (Das 2008, Padhi and Panigrahi 2011). All these projects have had an immense impact on tribal livelihood, community life and political structures (Meher 2003, Meher 2007, Das and Samal 2008, Debaranjan 2008, Sahu 2008, Padhi and Panigrahi 2011). In Odisha especially after the liberalization of Indian economy, in order to bring about economic development the state has launched a massive programme of industrialisation. In 2005 the state government has signed 43 Memorandum of Understanding (MOU) with various corporate houses for setting up industrial units in different parts of the state (Mishra and Maitra 2007). The setting up of these industrial units has generated conflicts in several regions of the state. Although conflicts related to natural resources are not new in Odisha⁸ but the ongoing movements are different as they have incorporated tribal and backward masses against the industrial establishments, as well as the state. These movements have also attached political angles to them as the political parties are watchful of the situation to drive political mileage out of it.⁹ This study discusses and analyses the situation of industrial development, livelihood and environment in the two mining regions of Odisha. First one is Joda block of Keonjhar and Lanjigarh block of Kalahandi district of the state. These two places are known for its rich minerals and forest. Keonjhar is one of the mining districts with the largest concentration of iron ore in the state and Kalahandi is known for the largest deposit of bauxite in the state. In addition to that these two districts are also quite known nationally and internationally for the acute poverty, hunger and tribal population. But the case of Joda and Lanjigarh provides two different pictures of industrial development and related issues of livelihood, environment and protest movement in the state.

Case of Joda

The study in the Joda and Lanjigarh block has found that these two places are very different from one another in terms of the livelihood and peoples attitude towards the changing livelihood pattern. In and around Joda city most of the people are engaged in mining and mining related industries. Almost all indigenous population of the area are scheduled tribes and belongs to Bhuya and Munda community. The primary economy of these communities were forest and agriculture like any other tribal community of Odisha, before the setting in of the mining industries. The history of mining and mining related industries in Joda and Keonjhar is not very recent. Very recently upto 2002 most of the villagers around Joda city were dependant on forest and agriculture but after 2002 the heavy flow of Foreign Direct Investment (FDI) in the mining sector and the demand for mineral in the world

market has changed the scenario. Presently there are 101 (all types of mining including Iron Ore, Manganese Ore, Chromites, Bauxite etc.) mining working in the Joda mining circle. Most of the indigenous population are working in these mining and related industries. Due to the impact of the mineral sector the livelihood pattern has changed in the area. Data collected during the field work shows that most of the people are earning their livelihood from either doing job in the industry or from selling timber (mostly used for fuel wood). Presently villagers of this region are not willing to collect and sell the Non timber forest products for the cash income. It is also evident from the data that there is a significant impact of the mining industries on the life style and living conditions of different communities of this specific region. People of the area also have the opinion that this sector has significant impact in their changing living condition. Analysis of both qualitative and quantitative data reveals that mining sector had an economically positive impact on the communities living in and around Joda city. Most of the people from different tribal communities have partially or totally left agriculture and forest as their livelihood and depend upon the jobs in the mining sector.

Although villagers around the Joda area are not dependent on forest and agriculture primarily but still they use forest and forest products for their day to day life. Most of the villagers collect their fuel wood from the nearest forest, although they are of the opinion that now it takes more time to collect fuel woods from the forest because of deforestation. Data also suggests that most of the people agree that mining industries are responsible for the large scale deforestation in this region. Most of the respondents stated that before mining near their village they had a village forest but now most of the village forests come under the lease areas. Therefore they are not allowed to enter into the forest of the lease area. In Joda most of the respondents do not have any idea of the water they use for the irrigation purpose has been affected or not because of mining. But some of them have stated that the stream water has reduced significantly, which they used for horticulture purposes. So they are going to face a serious problem of irrigation in the future. Most of the respondents are not aware of the reduced stream water because they have stopped agricultural activities for the last one decade and for drinking and other purposes they are using pipe water and tube wells provided by different mining companies. However, the study observed that most of the households in the village stopped collecting and selling forest products for commercial purposes but were using different forest products for household purposes.

Case of Lanjigarh

The case of Lanjigarh is very different from Joda. Agriculture and collection of minor forest products is the primary activity of the people in this region. Since agriculture is not in a position to meet their basic subsistence needs, almost all households supplement this by collecting minor forest produces and non-timber fuel wood from the forest, which they consider as their main subsidiary occupation. Exactly mining has not started in this place because of the people's protests regarding the proposed mining site (Niyamgiri hill). But Vedanta aluminum industry has stated its refinery plant in this area and presently it is procuring minerals from neighboring states like Jharkhand and Chhattisgarh for the production. This place is the home of one of the most primitive tribe called JarniaKhond/DongriaKhond. These names are related to their place of living, those Khonds who are living near stream (Jharna) are called Jarnia and those Khonds who are living in the hill call themselves Dongria (in their dialect dong means hill). Other than these communities there are other communities living in and around the hills, they are mainly KutiaKhonds and some of Scheduled caste population.

As stated above for their livelihood they fully depend on the forest of the Niyarmgiri. Almost all of the communities living in this area depend on the stream water coming from Niyamgiri for their agriculture. Apart from that some of the communities use stream water for their household use and drinking purposes. Almost all the sample population stated that they have their village forest and they use timber, bamboos and other forest products for their household use. In addition to that most of the sample population of the study collect and sell NTFP in the nearest weekly market which is their main cash income. Apart from selling NTFP for the cash they also exchange forest products with other products, which they do get in the hill. In this place very few people are working in the mining industry and most of them are displaced population that got their job as part of the rehabilitation package.

As far as distance to the nearest forest and legal restriction to the forest area is concerned, most of the sample respondents agree with the fact that as compared to the last ten years there is an increase in the distance of forest from their home. For the household use, they collect fuel wood from the nearest Niyamgiri forest and most of the respondents stated that still they spend same time compared to ten years before. Although there is an increase in the distance of the forest from their home but the legal restrictions are almost the same. An old woman respondent stated that, when she was young she had seen her mother-in-law as well as the other people of her village getting arrested by the forest officials because they were cutting timber from the nearest forest. The

study observes that because of the protest most of the sample population is aware of their livelihood in relation to their environment, mainly the Niyamgiri hill and forest. Most of the sample population believes that the mining will destroy the forest and it will lead to the shortage of water from the stream. So their irrigation will be affected and they will lose their primary livelihood. The study observes that in this place almost all the communities depend upon the forest for their livelihood directly or indirectly. Destruction of forest will destroy their primary livelihood and it might create unintended and devastating consequences.

Discussion

From the above analysis of data from two different places of Odisha we have seen how the livelihood of the Joda region changed from forest based livelihood to industry. In Lanjigarh also it is in the process of changing but the attitude of the population is very different towards industry. However if we look at other aspects of the life in these regions the study has observed that the concept of unemployment is most discussed in the Joda region than Lanjigarh. In Joda almost all the people have left their primary occupation, which is agriculture and now employed in different industries. Apart from the seasonal unemployment, many people lose their jobs when the mining or mining related industries are closed down due to one or the other reason. For example in the last few years most of the mining industries have been closed by the government of Odisha because of the allegations of wide spread corruption and illegal mining. At the time of fieldwork it was observed that most of the respondents were disappointed with the government because they are unemployed. This unemployment situation also has other effects like rise of petty criminal activities in the area. Government officials of the area strongly believe that unemployment is the major reason of the rise of criminal activities in the area in the last few years.

On the other hand in Lanjigarh the situation of unemployment is not much discussed among the local population, because they do not consider themselves as unemployed since they are involved in agriculture in the rainy season and the rest of the time they devote to the cultivation of different variety of vegetables and other horticulture items. Apart from that they also collect NTFP like sal leaf, honey etc. and sell these products in the market as part of their additional occupation. People of this place have a sustainable livelihood practice in which future generations are not insecure for a job. But in Joda the younger generation is quite insecure about their future livelihood because they are unwilling to go for agriculture and they do not have forest to use for their future livelihood and they

are fully dependent on jobs for survival. The after effects of these practices are that many people in the studied village have migrated to nearest big cities for their survival.

Summary and Conclusion

From the above analysis and discussion it is evident that the forest sector plays an important role in the state economy, culture and livelihood of large number of forest dependent poor. These forest resources are used as common property by the dependents. A shortage of proper environmental statistics makes it difficult to measure accurate trends of the forest dependents at the local level. But it is clearly evident from the above-cited studies that the forest economy is the one of the most pivotal sectors for the poor people living around the forest. This study also found that though most of the people in the Joda region are working in the industries but still they are dependent on forest and use it for their household use. The analysis of the data reveals that industrialization in the forest regions is destroying both forest and forest based livelihood system. In addition to that the study also observes that the insecurity in the society regarding livelihood is much higher in industrial sector than in forest sector. So there is a need to strengthen both the sectors simultaneously. Though it is a challenge for the government to strengthen both the sectors side by side but only by the collective intervention of civil society, business houses and the government this might become a possibility. Strengthening both the sector could help to avoid the future job insecurity among younger generations and can lead to the stoppage of the other social problems facing these regions. The sustainability issue could also solve the problem of food security in the poor regions of the state and can help in the development of these states as well.

¹Data refers to Lok Sabha Starred Question No. 185, dated on 12.03. 2008 and Centre for Science and Environment "The State of Forest Report 1997". Original Source; Forest Survey of India, Dehradun.

²See table -2 for more information regarding project wise destruction of forest.

³State of Environment Report, 2009, Ministry of Forest and Environment, P-15

⁴To see more about the classification of the Odisha's forest in Sq.Kms see table-4. To see more on Odish's Forest resources refer to Odisha State of Forests Report (2009).

⁵Dams like Hirakud (1948), Balimela (1963), Machhkund (1949), Upper Kolab (1978), Indravati (1978), Mandira, Rengali (1973) and Subarnarekha.

⁶Public and private industries like Rourkela Steel Plant (1950), National Aluminum Company at Angul (1985), Hindustan Aeronautics Ltd (1962). Rajgangpur Cement (Dalmia) (1950-51), Bhasker Textiles (Birla) at Jharsuguda (1984), Orient Paper (Birla) at Brajaraj Nagar (1939), TATA Refractories (TATA) at Belpahar (1958), Indian Aluminium (Birla) at Hirakud (1958), IDCOL Cement (government), at Bargarh (1968), J K Paper (Singhania) at Rayagada (1951), Ferro-Chrome (IMFA) at Theruvali, and Alind Conductor (government) at Hirakud.

⁷The iron mining in Keonjhar, Joda and Barbil , the bauxite mining project at Koraput (1986) were also done to supply the raw materials to these mineral based industries and projects on cement, dolomite and limestone were established.

⁸ If we look at the history of modern Odisha we will find several movement against developmental projects after independence but this movement generated a national as well international interest due to several reasons, which is a different part of the broader study.

⁹ During the fieldwork it was observed that all the mainstream political parties (except Biju Janata Dal) are mobilizing masses for their political gain. They have been organizing meeting and rallies and their national as well as state leader are participating in the meetings. If we analyze the speeches of the leaders of the political parties it seems that they have sympathized with the native population and support their struggle against Vedanta.

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Annexure: Tables

Table-1

Types of Forest cover in India
All are in million hector area (mha)

Types of Forest	1995 (mha)	1997 (mha)
Dense Forest	38.5	36.75
Open Forest	24.39	26.13
Mangrove Forest	0.45	0.48
Total	63.89	63.34

Source: CSE, 1997. The State of Forest Report, 1997, Forest Survey of India, Dehradun

Table-2

PROJECT-WISE DESTRUCTION OF FOREST AREAS		
FOR DEVELOPMENTAL PROJECTS IN INDIA		
(1980-2003)		
Project Category	Number of Cases Approved	Area Diverted (In Hectare) During 1980-2003
Hydroelectric Projects	202	57945.302
Thermal Power	17	3340.127
Transmission Lines	1361	22496.702
Irrigation	1691	82197.573
Railways	98	5421.274
Roads	2241	14824.279
Defence	142	99253.742
Mining	1010	80070.403
Dispensary/ Hospitals	18	56.261
Schools	95	2309.254
Drinking Water	1209	936.591
Others	2274	503940.485
Total	10358	872791.991
Source : Rajya Sabha Unstarred Question No. 395, dated 05.12.2003.		

Table-3

STATE-WISE ANNUAL HOUSEHOLD FUELWOOD CONSUMPTION IN FORESTED RURAL AREAS IN INDIA (During 1996,2001 & 2006) (Per capita consumption : Kg., Population : Million, Consumption : Million Tonne)							
States/UTs	Average Per Capita Annual Consumption	Projected Population Dependent on Forest			Total Annual Consumption		
		1996	2001	2006	1996	2001	2006
Andhra Pradesh	190	33.2	36.9	40.9	6.3	7	7.8
Arunachal Pradesh	423	0.8	0.9	1	0.3	0.4	0.4
Assam	338	7	7.8	8.6	2.4	2.6	2.9
Bihar	369	13.3	14.7	16.3	4.9	5.4	6
Himachal Pradesh							
Hill	689	2.6	2.9	3.2	1.8	2	2.2
Plain	550	0.6	0.7	0.8	0.3	0.4	0.4
Jammu & Kashmir	949	6.5	7.2	8	6.2	6.8	7.6
Karnataka	406	9.3	10.3	11.4	3.8	4.2	4.6
Madhya Pradesh	576	30.4	33.7	37.4	17.5	19.4	21.5
Maharashtra	318	11.6	12.8	14.2	3.7	4.1	4.5
Manipur	1320	1.5	1.6	1.8	2	2.1	2.4
Meghalaya	712	1.6	1.8	2	1.1	1.3	1.4
Mizoram	1159	0.4	0.5	0.6	0.5	0.6	0.7
Nagaland	1299	1.1	1.2	1.4	1.4	1.6	1.8
Rajasthan	391	4.1	4.6	5.1	1.6	1.8	2
Sikkim	1182	0.4	0.4	0.4	0.5	0.5	0.5
Tripura	814	2.6	2.9	3.2	2.1	2.4	2.6

Uttar Pradesh							
Hill	652	1.8	2	2.2	1.2	1.3	1.4
Terai	514	2.2	2.5	2.8	1.1	1.3	1.4
Plain	592	4.1	4.6	5.1	2.4	2.7	3
West Bengal	563	8.6	9.5	10.6	5.6	6.2	6.9
Dadar & Nagar Haveli	370	0.1	0.1	0.2	0.1	0.1	0.1
Gujarat @	146	4.4	4.9	5.4	0.6	0.7	0.8
Haryana @	51	1.3	1.4	1.5	0.1	0.1	0.1
Kerala @	150	9.7	10.8	11.9	1.5	1.6	1.8
Odisha \$	523	14.6	16.2	17.9	7.6	8.5	9.4
Punjab @	91	0.9	1.1	1.2	0.1	0.1	0.1
Tamil Nadu @	172	8.3	9.3	10.3	1.4	1.6	1.8
UTS @	91	0.7	0.8	0.9	0.1	0.1	0.1
All India	(Av. 635 Kg)	184	204	226	78	87	96

Note: @: NCAER Data. \$: ORG Data

Source: Forestry Statistics India 2000, Indian Council of Forestry Research & Education.

Table-4
Classification of the Forest in Sq.Kms in Odisha

Reserved Forests	26329.12 Sq.Kms.
Demarcated Protected Forest	11,687.80 Sq.Kms.
Undemarcated Protected Forest	3,838.78 Sq.Kms.
Unclassed forest	20.55 Sq.Kms.
Other forests under the control of Revenue Deptt.	16261.34 Sq.Kms.
Total:	58,136.870 Sq.Kms.

Source: Activities of Forest and Environment Department 2009-10, Government of Odisha

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Institute for Governance, Policies & Politics (IGPP) is a think tank initiative of Vivek Manthana Foundation (VMF), which is dedicated for public policy research and analysis. It will operate independently and it is committed to providing public policy research, analysis and advice. It intends to develop initiatives to help government understand various issues and challenges and make informed choices for better policy and governance. As IGPP is envisaged as a research and policy focused institution and engage different stakeholders like academic, civil society, government, industry and international development agencies to pursue its objective of high quality interdisciplinary research on different issues of governance and public policy. The prime goal of the institute is to contribute towards effective policy design, implementation and governance mechanism with respect to focus areas on specific issues.

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About the contributor

Dr Sarada P. Das works as a Fellow at the IGPP. Dr. Das's research interests revolve around the environment, livelihood and developmental state. His current research looks at sociology and politics of environmental regulation and governance in India.

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