Shifting Cultivation in Orissa, INDIA : Draw-Back for Forest Conservation

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1. INTRODUCTION:

Amidst the mountains, deep forests and wild animals, people in group live by hunting and gathering the fruits and roots. They are called tribals since the dawn of civilisation. Though they live in wild but their hearts are simple. Their old customs and tradition sometimes prove great loss to the nation. In order to cultivate the land, they clear the forested part by firing. They believe that the ash mixed soil will give more seeds to them. This sorts of innocence destroys a good number of extinct animals and huge forest resources of national importance from the ecological point of view. The

process of cultivation of land by burying the forested area is known as the shifting cultivation.

2. SHIFTING CULTIVATION IN ORISSA :

Shifting cultivation means hill cultivation. It is known also as 'slash and burn' and 'bush fallow' agriculture. The process of cultivation is same but it is variously termed from place. It is known as RAME by the Kondhas, BRINGA by the Bhuinyas in north Orissa, PODU-GUDIA or DONGARCHA in the south and DEDHI in Sambalpur. It is called TAILA in the lees undulating land of the districts of Puri and Cuttack and GORA in upland areas of Mayurbhanj, Keonjhar and Bonai.

Mooney, H. F. (1958), Forest Advisor in Orissa and subsequently as Conservator of Forests, had carried out a survey on shifting cultivation and found that 32,691.2 sq. km. which is about one-fifth of the total land surface in the state is affected by shifting cultivation. The estimated affected area, the tribes involved and their numbers are given in Table 1. The tribes' numbers can indicate the activity of the shifting cultivation and its scales. Because draught animals and manuring are absent, the shifting cultivations are generally carried on by the use of human labour only, employing dibble

Fig. 1 State of Orissa

Table 1 Shifting Cultivation in Orissa 1958

Name of the district.	Area in Sq. Km.	Name of tribes	Population
Keonjhar	1177.6	Shuyhans	20,000
		Juangs	8,000
Sundargarh	768.0	Bhuyans	10,000
		Kolas	1,000
Dhenkanal	256.0	Bhuyans	2,000
Sambalpur	1049.6	Bhuyans	7,000
		Kondhs	8,000
SOUTH ORISSA			
Kalahands	5120.0	Kondhas	111,000
		Kutias	1,300
		Kamaras	1,600
		Bunijas	5,400
Ganjam	11520.0	Kondhas	206,000
		Seoras	95,000
		Jatapas	600
Koraput	12900.0	Kondhas	176,500
		Saoras	52,500
		Jatapas	15,200
		Parajas	145,700
		Gadabas	34,800
		Koyas	28,000
		Others	3,800
Total	32691.2		933,500

Table 2 Tribal population of the Affected area on 1981 Census

Name of the district	Area in Sq. Km.	S.T. Pop-ulation	% to the total population of the district
Bolangir	8913	280381	19.22
Dhenkanal	10827	194060	12.26
Ganjam	12556	253034	9.48
Kalahandi	11772	418871	31.28
Keonjhar	8303	499567	44.82
Mayurbhanj	10448	912320	57.67
Koraput	26961	1371550	55.27
Phulbani	11094	279276	38.94
Sambalpur	17516	620555	27.21
Sundargarh	9712	685756	51.26

Source-Census Report 1981

sticks or hoes as Husain says in his book (1979). Therefore, it is meaningful for us to consider the tribal population of those scheduled

Table 3 Forest Area in Orissa

Districts	1956-57	1975(LANDSAT)
Bolangir	1873.92	1853.39
Balasore	189.44	532.8
Cuttack	1725.95	1311.27
Dhenkanal	5130.83	2150.10
Ganjam	6343.62	4914.02
Kalahandi	5096.96	3696.21
Koraput	10240.00	0973.49
Keonjhar	3842.56	3441.36
Mayurbhanu	6815.6	2443.25
Puri	2889.22	2506.09
Phulbani	4864.00	3362.21
Sambalpur	6127.82	3678.9
Sundargarh	5762.56	3721.5
Total	60902.47	44684.67

Source : C. C. F. Orissa

districts according to the 1981 census in Table 2.

3. DEFORESTATION DUE TO SHIFTING CULTIVATION:

Before discussing the deforestation due to shifting cultivation, we need to outline the spatial and temporal distribution of forest resorces of the state in Table 3. Forest area in most districts is decreasing from 1956-57 to 1975 except Balasore and Koraput districts. Even though the ways to estimate Forest Area (FA) is different between 1975 (LANDSAT), it my be certain that the forest area was decreased during 17 to 18 years due to shifting cultivation as shown in Table 3.

Now let us consider the area deforested due to shifting cultivation comparing Table 1-2 with Table 3. We can estimate the increase of Shifting Cultivation Area (SCA Sq. km) from Table 1 (1958) Table 2 (1981), and express the spatial increase as $dSCA = SCA(1981) - SCA(1958)$. On the other hand, the decreasing area of forest (FA) between

Fig. 2 Relation between dSCA (=SCA₁₉₈₁ - SCA₁₉₅₈) and dFA (FA_{1956.57} - FA₁₉₇₅)

SCA: Shifting Cultivation Area,
FA: Forest Area, DH: Dhenkanal,
SA: Sambalpur, SU: Sundargarh.
GA: Ganjam, KA: Kalahandi,
KE: Keonjhar,

Table 4 Areas under shifting cultivation (ERTS-1 Imagery, 1978)

Name of districts Area under shifting cultivation (Sq. Km)

Bolangir	17.95
Dhenkanal	51.21
Ganjam	216.80
Kalahandi	58.61
Keonjhar	406.38
Mayurbhanj	73.03
Koraput	306.51
Phulbani	209.95
Sambalpur	417.81
Sunbargarh	81.90
Total	1840.18

1956-57 and 1975 can be calculated from Table 3 and we express it as dFA = FA (1956-57) - FA (1975). Fig. 2 shows the

relation between dSCA and dFA, in which we find dFA in proportion to dSCA roughly.

According to Mooney (1958), total area affected by shifting cultivation is 32,691.2 Sq. km, as shown in Table 1. But in fact area more than that have been affected. Next we present another data recieved by ERTS-1 IMAGERY (BAND-5) regarding the area which is supposed to be affected by shifting cultivation in Table 4. Because BAND-5 is responding to the moisture in plants or soils, ERTS-1 Imagery can manifest the moisture condition near the earth surface in the area under shifting cultivation.

Shifting cultivation is practised in all the states of India where tribes dominate. This is mostly seen in the North-eastern states and states of the central India. In tribal population, Orissa ranks first, Assam ranks second (Assam ranks first) which is revealed from Table-5.

4. IMPACT OF SHIFTING CULTIVATION:

Practice of shifting cultivation has a far dimensional impact on a nation that is economy on one hand and natural landscape on the otherhand.

A good number of valuable species are burnt along with the extinct animals, which means a great loss to the state economy.

Due to this deforestation a good quantity of area comes under direct controle of me-

Table 5 Area affected by shifting cultivation in different States of India

State	No. of tribal community	No. of tribal house-holds	Tribal Population	Total area in Sq. Km.
Assam	9	194,000	970,000	204.8
Orissa	20	200,000	1,000,000	160.0
Bihar	5	23,000	115,000	311.60
Manipur	3	36,000	183,000	216.00
Tripura	10	19,000	95,000	467.60

ICAR, Shifting Cultivation in India, 1958

Table 6 Area under gully erosion

District	%of the district under gullies	Area in Sq. Km.
Phulbani	2	220.16
Puri	1	102.40
Cuttack	1	107.52
Sambalpur	1	174.08
Dhenkanal	1	107.52
Mayurbhanj	1	102.40
Koraput	1	253.44
Balasore	1	64.00
Total :		1131.52

Source : Ahmad Enayat (1973)

chanical weathering and mass wasting by which soil erosion takes place. Let us go through those areas affected by soil erosion (Table-6).

Regarding the cause and effect analysis, shifting cultivation is the cause and gully erosion is the effect. Due to this the entire ecosystem or the natural environment is disturbed by the creation of imbalance in the natural system.

5. MEASURES TO CHECK SHIFTING CULTIVATION

—CONCLUSION:

First of all these people are to be made regarding the natural environment through Adult Education Camps.

Secondly, they are to be shown the process and the yield of Wet cultivation.

Thirdly, under the various tribal welfare scheme like Saora Development Agency, Juang Development Agency, Plantation of seedlings are going on the barren lands. These can act as a boon to their economy and can check the soil erosion.

Fourthly, their attention from shifting cultivation is being diverted through schemes like Goatry, Sericulture etc.

Lasting, under the Swedish International

Development Agency (SIDA) some financial helps have been provided to create new woodlots, which is giving employment to the tribals. This social forestry scheme is now very much popular among all and gaining momentum.

It is the duty of all conscious people to protect their own environment and to inject the same feelings among the poor fellows who are engaged in illegal cutting of woodlots.

Their life is simple. If we take initiatives to make them conscious regarding their natural environment, they will create a new horizon in the permanent of history. And the change will be for the part of mankind.

REFERENCES :

1. Sinha, B.N. (1981): Geography of Orissa, N.B.T. New Delhi, pp.30-31
2. Bose, N.K., (1982): Some Indian Tribes, N. B. T., New Delhi, pp. 35-52
3. Ahmad Enayat, (1978): Soil Erosion in India, A.P.H., Bombay-1. p. 80.
4. ICAR, (1956): Shifting cultivation in India, p. 45.
5. Mooney H.F., (1958): A Note on Shifting Cultivation in Orissa, p. 35.
6. Husain, M., (1979): Agricultural Geography, New Delhi, pp. 62-74.

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インド Orissa 州における移動農業

——森林保全に対する障害——

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移動農業は“Slash and burn”農業とか“bush fallow”農業としても知られて居り、森林破壊の最大原因の一つともなっている。インドにおける移動農業の影響力は Tribe（種族）の数や人口数でわかる。

Orissa 州における移動農業（焼畑農業）は、現在もなお増え続けて居り、このことが森林保全にとって障害となっていることを、各種統計資料を用いて考察した。

その結果、一部、LANDSAT 画像解析による資料をも使い、移動農業面積の増加地域と森林面積の減少地域がほぼ対応する傾向にあることがわかった。

同様の現象は、インド各地でも見られ種族の数や人口数からみても Orissa 州がとりわけひどく、森林破壊に伴ないガリー侵食などもまねいている。

これらの環境破壊を解決するために、成人教育キャンプや耕作栽培、養蚕などを進めたり、社会的経済的な森林計画を検討しつつある。