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95

INSTITUTIONAL PLURALISM: CASE OF SWIDDENERS IN ORISSA

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Amalendu Jyotishi*

Abstract

Conventionally, shifting cultivation has been interpreted as an inefficient and destructive practice. More recently, shifting cultivation has been viewed as an inflexible static system (institutionally) ill-suited for adapting to changes. This view holds that it slows agricultural production and causes ecological degradation. Keeping this in view, the present paper tries to identify various institutional forms, including customary institutions, property rights structures, market and technology at the micro level and the forest policies at the macro level which are influential towards decision-making in land use choice.

Introduction

From the Neolithic period shifting cultivation has been a widespread form of land use that varies in character through space and time (Conkline, 1961). Though it is difficult to comprehensively define shifting cultivation due to its varying characteristics, it is generally observed as a system of cultivation in which temporary fields are cleared, burned and subsequently cropped for fewer years than they are fallowed¹. The practice of shifting cultivation is widespread in South-East Asia, sub-Saharan Africa and Latin America in varying nature and extent, embracing different types of topography, demographic features, and also ethnic and ecological diversities. The form of practice also varies in terms of cropping pattern, frequency of land use, tools and methods.

Conventionally, shifting cultivation has been interpreted as an inefficient (economically) and destructive (ecologically) form of cultivation. More recently, shifting cultivation has been viewed as an inflexible static system (institutionally), ill-suited for adapting to changes brought about

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by modernity. This later view, as illustrated in the World Bank study (1992), holds that it slows agricultural production and causes ecological degradation.

Shifting cultivation and population growth are conventionally seen as ecological villains destroying the forested landscape. It is always perceived that growing numbers of poor people use a nomadic style of cultivation which results in shorter fallow periods. The solutions typically are defined in terms of population control and the introduction of standardised, intensive agriculture. The key issue here is how various groups construct definitions of deforestation in order to establish that this form of cultivation is destructive². In particular, this shows how there has always been a standard approach to establish a nexus between population, shifting cultivation and deforestation. State policies, specifically the forest policies, as institutional rules, had an undesirable impact on the livelihood of the shifting cultivators. The introduction of the forest policies (to gain greater control over the forest resources) failed to perceive the relationship between farming and forestry. Subsequently the forest laws were modified to gain more administrative control over the forest resources. This resulted in further marginalisation of the shifting cultivators who were dependent on this form of agroforestry.

Swidden cultivation being an age-old practice in the forested and hilly tracts of the tropic, and being primarily practised by indigenous groups, it has developed under institutional set-ups, distinctive from the mainstream society. There are a few different aspects which underscore the institutional face of swidden. First, land use choices vis-à-vis changing property rights structures and labour sharing arrangements are two of the important institutional forms that have undergone changes. Second, integration with market and forms of integration is another institutional structure which differentiates swidden practitioners from others. Third, changing technology both in the form of the make of tools and kind of tools is one of the institutional faces which depicts the economic interface with institutions. Fourth, changing norms that are developed with 'in-built flexibility' is one of the analytically complex changes to be noted in the institutional facets of shifting cultivation.

State Policy and its Impact on Swiddeners

Most of the tropical countries where shifting cultivation is practised were also under colonial rule during the course of their history. The colonial governments in all these colonies, in a very systematic fashion evolved the state policy. In fact, most of the colonial governments in Africa and south Asia have considered swidden as unplanned, aimless, nomadic, unproductive, and uneconomical in the utilisation of land and labour and destructive of environment (Whittlesey, 1937). One of the important driving forces to stop swidden may be to ensure timely and efficient tax revenue

collection. Swidden was generally practised by scattered, extended family groups, with members living in temporary shelters near their fields as harvest approached. In the eyes of the colonial officers, swidden encouraged tax evasion and, it made collection more difficult and time consuming³. So, one of the state policies was to settle the swiddeners near major transportation routes. The other driving force was to ensure and procure the necessary labour force for logging and for timber needs for ship-making and building railway tracks. The intention was clear - i.e. to enhance trading of the valuable commodities to the colonising countries.

Introduction of modern communication systems starting with the railways in India after the second half of the 19th century required more sleepers as well as landmass for making the tracks. This meant a greater need for timber and hence more cutting of forest. The obvious attempt therefore was to streamline the forest management system to the advantage of the colonial government for the purpose of acquiring more forestland to exploit to meet the immediate need of the Imperial Railways. For the first time in 1855 colonial India saw the beginning of a systematic forest policy, when the then Governor General, Lord Dalhousie issued a memorandum on forest conservation. Dietrich Brandies, a German botanist was appointed as the first Inspector-General of forest in India for organising a forest department for 'scientific' exploitation of forest resources. Rules and regulations were framed to manage the forest resources. This gave birth to the first forest act of 1865. However, gradually the state exerted more control over the forest resources in order to produce the basic raw materials for the industries. Like land, forest also became a source of revenue for the imperial power. Subsequent forest laws were modified to these advantages.

Forest Act of 1865. The Forest Act of 1865 provides power to the government to declare any land cover with trees or jungle as government forest by notification (Nath, 1991). However, the existing rights of individual or communities were not touched by the Act. Certain restrictions were also put on the collection of forest produce by the forest dwellers. Timber like teak was declared as state property and trades on such timber was restricted. The first attempt of managing the forest by the state was confronted with the rights and liberties of the people. It adversely affected the forest dwelling communities, specifically, the tribal communities.

Forest Act of 1878. Looking at the profitability and growing commercial need of the forest, the Act was further amended by the Forest Act of 1878. This Act for the first time divided the forest into (1) reserve forest, (2) protected forest, and (3) village forest. It curtailed further the rights of the individual over the forest. Laws were made more stringent over cutting trees for timber purpose. The Act of 1878 wielded the state with heavy power of encroaching on the right of individuals on the forest

and stroked at the root of the food and fodder habit of the tribal population and other forest dwellers who were solely dependent on the forest as a source of their living (Nath, 1991).

First forest policy resolution of 1894. The first forest policy resolution was promulgated in 1894 with a stated objective of administrating the forest for the benefit of the 'public'. One of the important components in the resolution was that it made provision for relinquishing land for agricultural use while at the same time forbidding cultivation of small patches all over the forest areas and any other action that would reduce the forest below the minimum need. The provision directly hindered the swiddeners who cultivated the forestland in rotation. This was in fact, a formalisation of colonial attitude towards shifting cultivators that it is a destructive form of agriculture with damaging effects on forest.

Forest Administration in Orissa till Independence

Forest administration started in Orissa more than a century ago in 1883-84 while it was a part of the Lower Province of Bengal. For the first time forest were declared as Reserved Forest (RF) under the section 19 of the Indian Forest Act 1882. The total area of RF in Angul was 691.5 sq. km. (RCDC, 1996). The tenants were permitted to collect firewood, brushwood and thorny bushes for domestic consumption purpose on payment of 4 annas (25 paise). By 1888-89, there was 968.6 sq. km. of RF from which 725 sq. km. was in Angul Subdivision and rest 243.4 sq. km. in Khurda Subdivision. The extent of Protected Forest (PF) was about 850 sq. km. In 1891-92 Orissa Forest Division was divided into two namely, Angul and Khurda with RF 725 and 303 sq. km. respectively.

In 1912, the province of Bihar and Orissa were created clubbing together parts of Bengal Presidency and Central Provinces. Out of seven forest divisions in this newly formed province, three were in Orissa having a total of 1920 sq. km. of RF and 2769 sq. km. of PF under its administration. On 1st April 1936 the new Orissa province was reorganised bifurcating the Orissa-Bihar province and merging Koraput, Ganjam and Baliguda Subdivision of Phulbani district from Madras Presidency. The new Orissa province areas of RF and DPF including reserve land were 3628.5 sq. km. and 1510 sq. km. respectively.

The forests of Ganjam were brought under forest administration in 1850, but regular reservation and forest settlement did not start until 1885-86. By 1900 almost all the forest blocks were reserved under the Madras Forest Act of 1882. In 1901, attempts were made for a regular and systematic working plan for the Ganjam forests, which were earlier subject to revenue felling only. Thus, prior to the merger of the ex-princely states with Orissa in January 1948, there were nine forest divisions with RF of 3615.6 sq. km., DPF of 541.3 sq. km. and reserved area of 3286.7

sq. km. In total 7443.6 sq. km. of demarcated area. In 1948, twenty-five feudatory states merged with Orissa. Later the two states namely Sareikela and Kharsuan were given to Bihar. The ex-state of Mayurbhanj merged into Orissa in January 1949. After the merger, the RF areas including the DPFs and the reserved land totalled 26332.5 sq. km.

Each of these ex-states was having separate forest administration. Systematic forest management started in Mayurbhanj during 1897 whereas, forest management appears to have started in other ex-states during 1910. The Indian Forest Act of 1927 was extended to most of these ex-states after their merger. However, forest areas of Koraput, Ganjam and Baliguda subdivisions of Kondhmal districts were administered under the Madras Forest Act of 1882.

There are no authentic records of management of these forests, but the ex-rulers exploited these forests to get the maximum revenue. The Orissa Preservation of Private Forests Act, 1947 was extended to many of these ex-Zamindari forests. The Maharaja of Jeypore owned the forests of Koraput district, excluding small areas belonging to the Makhasadars and Inamdars. These Makhasadars and Inamdars were tenure holders under the Maharaja. Almost all the forests had been declared RF under the provision of the Madras Forest Act of, 1882. The ex-Zamindars of Ganjam district did not have any working plan or schemes for management of the forests. Between, 1944-50, for about six years the forests of Paralakimedi ex-Zamindari were administered by the DFO, Paralakemidi.

Status of Forests in Post Independent Orissa

In March 1959, when the Forest Enquiry Committee appointed by the Government of Orissa submitted its report, the total forest area of the state were shown as 65,677.7 sq.km. The Forest Enquiry Committee, in its report observed that the forest area constituted about 42 per cent of the total land area of the State. Most of the unreserved, khesra forests, undemarcated protected forests, unreserved land and open forests including that of the ex-Zamindari areas were only barren land and hills without vegetation and were subject to shifting cultivation and unauthorised dry cultivation. They had estimated that the real forest area therefore was not to be more than 38, 850 sq. km. or 25 per cent of the total land area.

Till 1972, there were two forest Acts in the State. The Madras Forest Act, 1882 was in force in the district of Ganjam, Koraput (undivided) and Baliguda and G.Udayagiri Taluks of Kandhamal district. The IFA 1927 was applicable to the other parts of Orissa. The physical status of the forest could not be updated in the Forest Department records. Thus, it was difficult to rely on the official figures. In spite of all the adverse

opinions of various committees and experts the legal status of the forest remained almost unchanged in FD records. A comparative picture of the forest area from 1959 to 1993 is given below.

Table - 1: Legal Status of Forests in Orissa in 1959

	<i>in sq. kms.</i>
1 Reserved Forests	
'A' class	20,619.09
'B' class	1,865.44
2 Reserved Land	2,495.02
3 Demarcated Protected Forests	537.83
4 Undemarcated Protected Forests, unreserves, unreserved land, khesra forest and unclassed forests	19,840.25
5 Ex-Zamindari Forests	
a. Reserved land, Zamindari zapti or reserved, protected land and protected forests	8,060.25
b. Khesra forests, open forest, unreserves and gramya jangal	12,072.35
6 Private Forests	187.64
GRAND TOTAL	65,677.76

Source: Forest Enquiry Committee Report, 1959

Table - 2: A Comparative Status of Forest Areas in Orissa

(in sq. km.)

Sl.No.	Year	RF	DPF	UDPF	Total
1	1959	24,979	538	39,973	65,489
2	1969	24,166	562	42,733	67,461
3	1985	28,311	19,625	7,848	55,784
4	1990	27,087	16,113	13,967	57,167
5	1991	28,586	16,675	14,293	59,554
6	1993	27,087	16,113	13,967	57,167

Note: RF: Reserved Forest, DPF: Demarcated Protected Forest, UDPF: Undemarcated Protected Forest

Source: (1) Forest Enquiry Committee, 1959; (2) 5th Five-Year Plan; (3) Statistical Outline of Orissa, 1991; (4) Orissa Forests, 1990, PCCF Office; (5) State of Forest Report, 1991, Forest Survey of India and (6) Orissa Forests, 1993, Statistical Branch, PCCF Office. (Cited in RCDC, 1996)

Forest areas cleared for shifting cultivation in tribal dominated districts were perceived as a constant problem. In fact, there were various provisions made in forest Acts and Rules. However, looking at the figures on deforestation caused by different sources we get a different picture. Both from table-1 and table-2 we observe that more and more forest area was reclaimed as Reserved or Protected forest. This also means that the colonial attitude towards forest and forest dwellers continued even in the post independent period. We also observe in table-2 that there was a decline in total forest area between 1969 and 1985. This decline in forest area is often casually attributed to the practice of shifting cultivation. However, we observed that most of the deforestation is due to river valley projects and resettlement of the displaced people (table-3). In fact, shifting cultivation does not figure in the whole process of deforestation. Even if we attribute the miscellaneous purpose to shifting cultivation only, the figure stands to be meagre in the whole process of deforestation.

Table - 3: Deforestation since 1947 to 1984

(Area in sq. km.)

Purpose	RF	DPF	UDPF	Total
River Valley Projects and Resettlement of DPs	397.52	288.08	1170.16	1855.76
Industrial Purpose	31.49	2.84	0.15	34.48
Capital Conservation	7.79	13.14	—	20.93
Minor Irrigation Projects	11.3	—	0.11	11.41
Public Purpose	30.57	0.20	49.47	80.24
Roads	0.23	—	—	0.23
Railways	24.10	0.10	—	24.20
Miscellaneous Purpose	39.79	4.28	2.65	46.72
Total	542.79	308.64	1222.54	2073.97

Source: Status of Orissa's Environment, 1994, CPSW, Bhubaneswar.

Even after enactment of the Forest Conservation Act 1980, forestland was diverted for non-forestry purpose. The figures below show that a major chunk of forest was converted due to various other purposes as against the specified ones. The other purposes may also include shifting cultivation. Though shifting cultivation was perceived to be a destructive practice and various rules were framed to control this, there was no political will to get a proper extent of shifting cultivation in Orissa, nor was it even identified separately by the Forest Department. This led to precarious arbitrariness on shifting cultivation's role in destroying forest.

Table - 4: Non-forest Use of Forest Area during 1980 to 1993*(in Ha.)*

Purpose	RF	DPF	UDPF	Total
Irrigation	5842.213	23.98	—	5866.193
Mining	3713.986	—	—	—
Roads	156.797	44.918	1.971	203.686
Railways	1200.115	—	—	1200.115
Power transfer and pipe line	589.245	824.002	—	1413.247
Others	4789.795	94.761	384.633	5269.189
Total	16292.151	987.661	387.494	17667.306

Source: Status of Orissa's Environment, 1994, CPSW, Bhubaneswar.

Shifting cultivation (Podu) was permitted in the forest rules of Bamra, Bonai and Keonjhar to the Kondh, Bhuyan, Juang and a few other aboriginal tribes. In Phulbani, Ganjam and Koraput only Scheduled Tribes were allowed to practise this. Podu was permitted in Chandragiri, Paralakimedi, Malia and Thumba Mutha under certain conditions, but in the unreserves of Baliguda it was freely practised. It was prohibited in Pondakhhol and Chakapad Khandam. In the ex-estates of Ganjam and Koraput, shifting cultivation was prohibited inside the reserved land but allowed in the unreserves with the permission of the collectors.

The Partially Excluded Area Committee recommended that Podu cultivation should be abolished as quickly as possible. The Committee also recommended levying taxes upon Podu cultivation (RCDC, 1996). Provisions were made in the IFA 1927 to control shifting cultivation. These laws were made more stringent in the OFA 1972. Section 10 of OFA 1972 refers to the 'Podu cultivation'. It has been made clear in subsection (1) that claims relating to the practice of shifting cultivation in any land under section 4 shall not be admitted. But the FSO has been provided with the authority to recommend excluding that area or a part thereof from the area thus demarcated for the declaration of a RF. Like IFA 1927, in OFA 1972 the pledge to abolish 'Podu cultivation' has been repeated. Under section 10 (3) of OFA 1972, it is said that the practice of shifting cultivation shall in all cases be deemed a privilege subject to control, restriction and abolition by the state government.

A comparison between Tables - 5 and 6 shows that during the last three decades the area under shifting cultivation has increased by 4010 sq. km. However, the number of people depending upon this form of cultivation has declined by 2,21,488. This in spite of the fact that the number of people depending upon 11,655 sq. km. 'Podu' area in Balliguda

and Paralakimedi subdivision were not accounted in the Forest Enquiry Committee Report. This provokes us to hypothesise that there is a lot of arbitrariness involved in such quantification. One factor for such change may be due to migration. But, migration stands to be a poor explanation for two reasons. First, the time gap between the two time points is too high to explain any feature of migration. Second, the composition of population is not changing along with the changes in area. For example, there is a drastic increase in area affected by shifting cultivation in Koraput, whereas, the population change is not responding to the change in area. Similar is the case with Phulabani, (table - 5) classified as Khariar, Ganjam and Kondhamal. Another incidental point is that if the area under shifting cultivation is increasing without much improvement in the technology and if the population depending on it is declining, it should have reflected in the increasing shifting cycle, which is not so according to many studies, including the current one.

Table - 5: Area Covered by Shifting Cultivation as in 1959

District & Subdivision	Area affected (in sq. km.)	Population	Tribes
Koraput	1,295	4,55,200	Kondh, Saora, Koya, Jatapa, Paraja, Gadaba & others
Balliguda & Paralakemidi	11,655	—	—
Khariar, Ganjam, Kondhamal	518	3,03,000	Kondh, Saora, Jatapa, & others
Kalahandi	16,317	1,12,300	Kondh, Kutia
Sundargarh & Kolha	777	11,000	Bhuiyan, Erange and Kolha
Keonjhar	1,1912	8,000	Bhuiyan, Juang
Sambalpur	1,062	15,800	Bhuiyan, Kandh
Dhenkanal	259	2,600	Bhuiyan
Grand Total	33,074	9,27,900 (2,805 persons per 100 sq.km.)	

Source: Forest Enquiry Committee Report, 1959

Table - 6: Area under Shifting Cultivation as on 1990

District	Area affected (in sq. km.)	Per - cent	Popula- tion	Tribes
Koraput	11,528.07	31	3,40,000	Kondh, Saora, Koya, Bonda, Didayi, Gadaba
Ganjam	2,980.11	08	79,000	Lanjia Saora
Phulbani	8,435.20	23	1,95,000	Kondh
Kalahandi	1,323.50	04	33,000	Kondh
Sundargarh	2,270.06	06	15,000	Paudi Bhuiyan
Keonjhar	2,527.73	07	28,000	Paudi Bhuiyan, Juang
Sambalpur	6,852.44	18	12,000	Kandh
Dhenkanal	1,167.00	03	4,400	Bhuiyan
Grand Total	37,084.11		7,06,412 (1,904 persons per 100 sq.km.)	

Source: Pattnaik, 1993.

According to the Forest Enquiry Committee Report maximum amount of land under cultivable waste category has been reclaimed for agricultural purpose. This also shows that there has never been exorbitant pressure on the forest for agricultural reclamation. This also can be true for shifting cultivation. Therefore, it is essential to find the cause of deforestation elsewhere. The following data shows the area reclaimed for agriculture.

Table - 7: Area Reclaimed for Agriculture

(in sq.km.)

Year	Permanent	Cultivable waste	Forest area
1959-60	54,390	24,605	65,677
1984-85	87,740	4,030	59,550
1989-90	94,450	5,170	54,760

Source: Forest Enquiry Committee Report, 1959 and Statistical Outline of Orissa, 1991

Summary of the Forest Policies

The official bias in favour of settled arable cultivation led to a deep conflict between the government and shifting cultivators. The British believed that tribals were very inefficient cultivators. To cite an example, Erskine described the entire district of Mandla in Madhya Pradesh as a large jungle with patches of cultivation. The hill people were described as wild, roaming and ignorant, most having only hatchets and no draught cattle, incapable

of engaging in productive agriculture on account of their material poverty (Rangarajan, 1996). Moreover, the very method of practice of shifting cultivation brought tribal people in conflict with the government's interest in timber. To cite an instance, between 1860 and '62 alone, about 15,000 logs were required for the Jabalpur branch of the Great Indian Peninsula Railway and over 1,00,000 trees were felled (Rangarajan, 1996). The attitude of the colonial government in India towards shifting cultivation is clear from the Royal Commissions Report, 1928. It is stated that all shifting cultivation should be brought under control with a view to the practice being entirely stopped, whenever it is productive of harmful results (Madan and Smith, 1928).

The ecological changes in the landscape of the tribal inhabited areas were not merely due to the internal dynamics of the system of agriculture per se, rather can be attributed to the external pressures. Ecological changes were often a consequence of social changes. The transition to a more rigid separation of farm and forest as legal and administrative categories, failed to recognise the interlinkage between both in a tribal economy. This resulted in undesirable consequences on the forested landscape. Tribals were isolated from the right on their forest in order to protect it for commercial exploitations. The forest laws on the one hand stopped people from entering into the reserve area for cultivation, and on the other hand more and more forests were taken into the government's control by declaring them as reserved forests. The ban on shifting cultivation on government forest had only led to its concentration in Zamindari and Feudatory jungles, where both cultivable and forestlands were marginal. Therefore, the concentration of a large population on a limited marginally forested landscape started showing all the ill effects on the ecology in general and forest landscape specifically, which is often attributed to swidden. This in later stage further established the myth that increasing population resulted in shortening in the fallow and hence halting the regeneration of forests.

There were twenty-five feudatory states, which merged in Orissa in 1948. The concentration of shifting cultivation in most of those ex-Zamindaris and states reveals that there was shifting concentration of swidden to those areas. However, the impact of such changes was different among different tribal communities.

Hong (1992) observed that the despoliation of their physical environment and the negative attitude towards these shifting cultivators have threatened their very existence. In many regions of South-East Asia, shifting cultivators have been displaced from their natural environments, deprived of their livelihood and they suffer extreme deprivation and cultural alienation. European administration reinforced and extended the systems of private ownership of land and state control of the public domain. The incompatibilities between the loosely administered pre-European land

systems and shifting cultivators land systems were greatly increased and made more emphatic. The results have often been the restriction of territorial ranges of shifting cultivators' societies to the point where maladjustment becomes severe and shifting cultivation began to exhibit all the faults that are commonly ascribed to it as a system (Spencer, 1966).

Other Institutional Aspects of Swidden

To look into the institutional aspects of shifting cultivation, we studied five villages in southern part of Orissa. The typology and selection of villages were based on various indicators, including the topographical features (slope and altitude), distance from the road, communities, shifting cycle, other associated forms of agriculture, and ecological zones. Five villages were chosen from three different regions, namely Niyamgiri, Baflamalli and Mahendragiri. The communities that practice shifting cultivation in these regions are Dongria Kondh, Paraja and Saura. The villages have differences in the shifting cycle, cropping pattern, topography and other associated forms of agriculture. Few important aspects of these villages are highlighted table 8.

Table- 8: Village-wise Various Indicators

Village	Bh. Jodi	Sakota	Gandli	B. Singh	Kalinga
1. Community	Paroja	D Kondh	D Kondh	Saura	Saura
2. Total HH	29	21	26	32	17
3. Population	136	84	116	148	77
4. Total Geographical Area	420.84	560.07	866.49	358.275	234.41
5. Plain Land	58.5	66.92	15.06	11.4425	20.155
6. Wasteland	333.75	470.07	825.01	268.2425	107
7. 5 as percent of 4	13.90	11.95	1.74	3.19	8.60
8. 6 as percent of 4	79.31	83.93	95.21	74.87	45.65
9. Shifting cycle	8	10	7	6	6
10. 'R' value	25.00	20.00	28.57	33.33	33.33

Note: 'R' value is the land use intensity as described by Ruthenberg (also see the note i)

Source: Based on the Records of Rights of each Village from the Revenue Department and Field study of the Researcher.

Land Use Choice vis-à-vis Norms and Customary Institutions, Property Right Structures and Labour Sharing Arrangements

Swidden is use of forestland where property rights are ill defined; mostly because it is in the encroached forest area where the state claims the ownership right. But the prevalence of swidden suggests that these cultivators have established their users' right over the land. Though in practice land is used by individual households, the community decision plays an important role in choosing the part of the forest that has to be cleared and cultivated, and also in assigning different plots to different households of the community. Singh (1996) observes the role of the village council of Mizoram for allotment of plots through the lot system. She also observes that the importance of collectivity is embodied in the mandate of the village council to regulate shifting cultivation. The village council restricts the individual decision-making, which may lead to degradation of land as well as forest. Xu et al (1999) recognise the importance of customary institutions for the sustainable management of land resources. In a study in Yunan, China, they observe that these customary institutions structured the attitude of the villagers, the social relationships, and even technology in such a way as to ensure secondary generation of the fallow fields, protect forests from over exploitation, and secure cultivating swidden fields through labour exchange.

We also observed in Orissa during the course of fieldwork that the property right structure, as well as the labour sharing arrangement varies according to the type of land use. In a long fallow system, where the user's right is weak, the same plot of land after a shifting cycle need not necessarily be cultivated by the same household. The arrangement in cultivation is made according to the convenience of the patches of land chosen. Similarly, in labour sharing, strong parametric norms are followed, where all the households in the village are represented for clearing, cutting and harvesting of the crops. On the other hand, when the shifting cycle is shorter, the user right on the land becomes stronger as the same plot of land is cultivated by the same household. The parametric norms are weak as not all the village joins together for clearing and cutting and harvesting. Rather few households join according to their convenience. There are other instances also as to how the norms are becoming weak (or changing) over a period of time. Change in property right structure and labour-sharing arrangements according to the type of land use is given in the table 9.

Table-9: Status of Property Rights and Labour Use in Different Types of Land Use

TYPE OF LAND USE		PROPERTY RIGHT STRUCTURE	LABOUR USE
Old Growth/Virgin Forest		Open access Use and Extract up to the Need	Family Labour
Long Fallow Swiddening	During Cultivation	Weak User's Right	Sharing of Labour for Cultivation (Strong Parametric Norms)
	During Fallow	Open access Use to the Need Extraction is Restricted	NA
Short Fallow Swiddening	During Cultivation	Strong User's Right	Sharing of Labour for Cultivation (Weak Parametric Norms)
	During Fallow	Open access Use upto the Need Extraction is Restricted	NA
Perennial		Strong User's Right In a few Cases Ownership Right	Conditional Mutual Sharing Exchange at Socially Acceptable Value and as per Requirement
Permanent		Strong User's Right In Cases Ownership Right	Conditional Mutual Sharing Exchange at Socially acceptable Value and as per Requirement

Note: This table is based on the personal field observation of the researcher.

It is also important to identify the changes in the strategic norms (by individual households or collectively) with the changing parametric norms. To site an instance, in one of the studied villages, during the course of fieldwork, we found that the swiddners are harvesting their crops and taking them to their respective houses without the involvement of the community. They leave some crop standing in the field just to maintain the norm of collective harvesting. This strategy can be attributed to the weakening of the parametric norm of collective harvesting. One of the causes of weakening of the parametric norms may be due to the huge cost incurred by the households to maintain the rituals in terms of sacrificing animals and arranging feast for the community after harvesting. The more the harvest, higher is the cost in terms of sacrificing a bird or a goat/sheep or buffalo.

Integration with Market and Forms of Integration

Empirically, the main forms of integration in the economy as identified by Polanyi (1977) are reciprocity, redistribution, and exchange. As a form of integration, reciprocity describes the movement of goods and services (or the disposal over them) between the corresponding points of symmetrical arrangements; redistribution stands for a movement towards a centre and out of it again, whether the objects are physically moved or only the disposition over them is shifted; and exchange represents a vice-versa movement between the dispersed and random points under a market system. Exchange, in order to serve as a form of integration, requires the support of a system of price-making markets. Three kinds of exchange should therefore be distinguished: the merely locational movement of 'changing of places' between the hands (operational exchange); the appropriational movements of exchange, either at a set rate (decisional exchange) or at a bargained rate (integrative exchange). In so far as exchange at a set rate is in question, the economy is integrated by the factors that fix the rate and not by the market mechanism. Even, price-making markets are integrative only if they are linked up in a system which tends to spread the effect of prices to markets other than those directly affected (Polanyi, 1977).

It is apparent that different patterns of integration assume definite institutional support. However, forms of integration do not represent 'stages' of development. Several subordinate forms may be present alongside the dominant one. Tribal societies practice reciprocity and redistribution, while archaic societies are predominantly redistributive, though to some extent they may allow room for exchange. Conversely, in the course of human history, markets have played a part in the economy; although never with an institutional comprehensiveness comparable to that of contemporary industrial societies. Hence, shifting agricultural system as a form of integration which is largely performed by the tribal groups, (historically) cannot be understood in a market form of exchange alone. A meaningful understanding of Polanyi is important because he recognises the importance of institutions in economic behaviour.

To be part of the market economy one must have something to offer and in return something to receive. The market can then operate in a bargained rate of exchange if such interactions are frequent and continuous. In this context, one observes two prominent markets among the tribal communities⁴ of the studied area, namely, Labour market and product market (specifically agricultural and forest produces) as seller⁵. Though two other markets, namely, land market and credit market are present in the studied villages, interaction in these markets are neither frequent nor continuous, at least from a household (as a unit) point of view. Similarly, dependency on the anonymous market as a buyer is frequent only for daily consumption needs (grocery, etc.) by these people.

However, dependency is observed though infrequently but in regular intervals on few other items like cloth, cattle and tools and implements.

As we have observed in the field, reciprocity is one of the dominant forms of labour sharing in shifting cultivation, whereas it is not so in case of other land use for agricultural purposes. Such arrangements might have evolved due to the presence of manually driven labour scarce economy to ensure participation of labour. Though redistribution is grossly absent in its comprehensive form, however, it is observed only in case of joint families, where land is not divided among the family members. In such case, there is jointness in production specifically on swidden land and the harvest is redistributed among the various component families of the joint structure.

In case of the product market, exchange at a set rate is dominant. A few crops sold to fix buyers (local traders) at a set rate gives rise to a monopsony kind of market. In another instance, it was observed that products like ginger, turmeric, tamarind and jackfruit are leased out to the petty traders of the region at a set rate before harvesting. This forms another type of distress market. Sometimes, this market is also interlocked with the credit market. Broadly the characteristic of the market structures can be put in five different categories, namely: 1. Price sensitive monopsony 2. Non-responsive monopsony 3. Leasing at a set rate 4. Leasing at a bargained rate 5. Co-operative bargained rate.

In the price sensitive monopsony market, though the price is set by the local trader, it is influenced by the market condition, specifically, the supply condition. This rate varies for different times of the same year and for different years. For example, the price of the agricultural product is low at the time of harvesting and it gradually increases over months. On the other hand, in the non-responsive monopsony market, the price does not respond to whatever may be the supply condition, and it is also not much influenced by the demand and supply situations outside the locality.

Leasing at a set rate normally occurs in a distress situation, when the producer wants credit for some purpose. Therefore, this type of market in the studied area is often interlocked with the credit market. In such instances, the moneylender in return leases the harvest of the land or specific fruit-bearing tree at a predetermined rate, independent of the quantity of the output. Leasing at a bargained rate occurs when the owner or the producer bargains the price, usually after the harvest. This arises due to shortage of labour in the family to perform various other agricultural activities or due to the hectic process involved in transporting and marketing the products.

Co-operative bargained rate prevails in two of the five studied villages where villagers formed co-operatives through Self Help Groups

and they buy various products like broom, tamarind and turmeric, etc., and market these products themselves at a bargained rate. A clear typology of market is given in table 10.

Table-10: Typology of Markets Existing in the Studied Villages

Typology of Markets	Present in Village	Products
Price Sensitive Monopsony	All	All agricultural products and specifically Oil seed and Pulses
	2	Firewood
	3	Pineapple, Plantains
Non-responsive Monopsony	2 and 3	Jackfruit, Pineapple, Plantain and Forest products like firewood, leaves etc.,
Leasing at a Set Rate	2	Turmeric, Ginger
	3	Turmeric, Ginger, Jackfruit, Pineapple
	4	Tamarind
Leasing at a Bargained Rate	2	Turmeric, Ginger
	3	Turmeric, Ginger, Jackfruit, Pineapple
	4	Tamarind
Co-operative Bargained Rate	4	Broom, Rope
	5	Broom, Rope, Turmeric, Tamarind

Note : The names of the Villages are numbered in the following order: 1- Bhramarjodi, 2- Sakota, 3-Gandli, 4- Kalinga, 5-Badamasingh.

This table is based on the personal field observation of the researcher.

Technology and Institution: Kind of Tools vis-à-vis Make of Tools

Technology serves the dynamics in the production system associated with complex institutional structures. Shifting cultivation system is considered as one of the primitive agricultural practices in the forest-farming continuum where use of implements is limited and simple. In fact, the axe and the machete are the main tools. It generally appears that the method of practice and the tools used depend on the agricultural system that is prevalent. As there is advancement in the system of agriculture, the method of practice as well as tools change. However, not all kinds of

technical changes are linked to changes in a particular agricultural system. As Boserup (1965) describes a swiddner practice, the shifting cultivation method may use a stone axe, a crude iron axe made by the village blacksmith or a factory made steel axe. It must be noted that there may be narrow range of choices for kinds of tools when a particular agricultural system is given, but this does not exclude the possibility of wide range of choices between more or less efficient makes of one particular kind of tool. In fact, each system of cultivation can be practised with the help of very primitive or much more advanced makes of tools. This distinction between the 'kind of tool' (linked to the system of agriculture) and the 'make of tool' (which is unconnected with the system of agriculture) leads us to consider four basic types of agricultural changes:

1. Neither change in the make of tools nor in the kind of tools.
2. Agricultural communities change over from one kind of tool to another, e.g. from digging stick to hoe to plough, but continue to use primitive makes of these tools produced by the cultivators themselves or by the village blacksmith.
3. Communities change to better make of tools, but without changing kind of tools. For e.g., Indonesia which in recent decades replaced stone axes by factory made axes, continues to practice shifting cultivation without hoe or plough.
4. Communities change not only from one kind of tools to another, but also gradually change over from home-made tools to tools made by artisans or factories in the towns.

Such analysis of tools is essential in order to observe the change in the mobility pattern and its wider implication in the social change dynamics. In two villages among the Dongria Kondh tribe namely, Sakota and Gandli, it was observed that both *kind of tools* as well as *make of tools* were relatively primitive. The economy here is predominantly based on shifting cultivation and forests. Though few families own bullocks, they hire them out to the nearer villages where paddy cultivation is prominent. The *make of tools* are also confine to the local blacksmith. Among the Parojas in Bhrahmarjodi village there is both change in make of tools as well as *kind of tools*. In this village also shifting cultivation is predominant. However, the tools used for shifting cultivation now are replaced by the one made in the factory. The role of the local blacksmith is now confined to repairing of the tools. In two other villages, among the Sauras, (Kalinga and Badamasingh) it was observed that both *make of tools* and *kind of tools* are advanced. In fact, they have started using the plough even in the slopes. In these two villages, unlike the other three studied villages, chemical fertiliser use also has come into existence.

Conclusion

This paper attempted to observe the various institutional factors related to shifting cultivation. In the first section the forest policies of the state and their impact on the shifting cultivators are analysed. The colonial forest policies were intended for commercial exploitation of forest and these policies were carried forward in the post-independent period also by reclaiming more and more land in reserve and protected categories. One strong observation that comes to the forefront is that more than the internal dynamics of shifting cultivation, it is external pressure due to state policies that have created maladjustment in this form of cultivation. This is because the State policies failed to understand the linkages between farm and forest, i.e. agroforestry nature of swidden and strong segregation of both, created maladjustment in swidden.

The second section discusses various localised institutional factors that determine the stagnation, vis-à-vis mobility of this group of people. However, there is a varied condition in the prevalence of market, property right structures and technology. Even norms are also changing, at least in practice, due to various internal and external forces. With these set of observation one can at least say that shifting cultivation cannot be generalised as a uniform practice and hence cannot generally be attributed as an institutionally stagnated form of practice. The presence of ill defined property rights, flexible strategic norms due to weakening of parametric norms, distorted market and multi-directional technological change shows the plurality involved in swidden as a production system and raises debate on the mode of production.

Notes

- 1 A relatively simple and appropriate criterion is the relationship between crop cultivation and fallowing within the total length of one cycle of land utilisation. Shifting cultivation can be modeled as follows. Let 't' be the year in the cropping and-fallow cycle, while $t=1$ is the year of initial clearing and first year of cropping, where t' is the final year of cropping; and t'' is the final year of fallow and of the crop-fallow cycle. Based on this, several alternative definitions are possible, Allan's land use factor $L = t'' / t'$ (Dvorak, 1992); Ruthenberg's R value i.e. $R = (t' / t'') \times 100$ (Ruthenberg, 1976). and Boserup's land use intensity i.e. t' / t'' (Dvorak, 1992) are most commonly known. Allan defines shifting cultivation as the practice when $L > 10$, Ruthenberg uses $R < 33$ to distinguish shifting cultivation from semi-permanent farming. For semipermanent farming he takes $33 < R < 66$.
- 2 One source of definition provided by WRI (World Resource Institute) is: The term deforestation describes a complete change in land use from forest to agriculture, including shifting cultivation and pasture or urban use. It does not include forest that has been logged and left to regrow, even if it is clear-cut (WRI, 1996 and Angelson, 1995). The definition entails a contradiction since forest opened by shifting cultivation often

would be secondary forest, previously used for the same purpose and then left fallow. Thus, temporary clearing by logging is not classified as deforestation, whereas temporary clearing by shifting cultivation is included. Much confusion arises because a proper distinction is not made between permanent and temporary conversions, between conversions and alterations, or between deforestation and forest degradation. FAO distinguished deforestation and forest degradation as follows: 'Deforestation... refers to the transfer of forest land to non-forest uses and includes all land where the forest cover has been stripped and the land converted to such uses as: permanent cultivation, shifting cultivation, human settlements, mining, building dams, etc.' Degradation, on the other hand, refers to 'reduction in the extent and quality of forest cover due to such factors as: indiscriminate logging, inappropriate road-making methods, forest fires, etc.' (Rao, 1989 cited in Fox et al, 1999). It is notable that FAO defines deforestation both as a change in land cover (i.e., loss of forest cover) and a change in land use (i.e., converted to other permanent uses). Studies show that traditional swiddening does not entail permanent conversion but only temporary use of forestland (Fox et al, 1999; Xu et al, 1999; Angelson, 1995). Hence, to include the cleared area that regenerates into secondary forests after shifting cultivation as deforestation will lead to an overestimation of deforested area. In fact, some estimates suggest that the swidden area is more or less stagnant even after 40 years and the share of shifting cultivation in deforestation is negligible (Fox et al, 1999; Xu et al, 1999). However, land cover change has been observed from a fairly homogeneous forest cover (closed and open canopy) to a highly heterogeneous and fragmented cover of secondary vegetation. If a substantial portion of forest is regenerating into forests, the rate of felling of primary forest is an over estimate of the overall net rate of change in forested area. Hence, there is every chance that such tainted observation (unclear definition and uncertain estimates) will widen the scope of biases against the practice of shifting cultivation.

- 3 Similar observations are also stated by Jarsoz (1993) about *Tavy* in Madagascar; Rangarajan (1996) about *Bewar* in central India; Pouchepadass (1995) about *Kumri* in South Canara district of South India; and Saldhana (1990) about *Rab* and *Dalli* in Tahna district of Maharashtra, India.
- 4 The shifting cultivators and tribal community is alternatively used here as in the studies area shifting cultivation is practiced only by the tribal communities.
- 5 The analysis raises interesting feature of development of market institutions. Though market never developed in a comprehensive form of exchange at a bargained rate baring few commodities, one can hypothesise that in the earlier phases of development reciprocity was dominant in both labour as well as product market. Exchange then took place only in barter form instead of being via monetary unit, where the valuation of money itself differed in its meaning. One striking point here is that, money played a role in these economies only after the land settlement, when the land revenue was collected in money units as against the earlier practice of paying the rent in kind. I am grateful to the anonymous referee for bringing out this point in his/her remarks.

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