

Small Farmers' Suicide in Odisha

B B MOHANTY, PAPESH K LENKA

The changes in Odisha's agriculture made paddy production a losing proposition, especially for the small farmers who leased in land. Substantial decline in farm income caused by exploitative land lease arrangements, denial of access to a regulated market, crop failures, increased cost of cultivation, and indebtedness pushed these farmers into severe economic hardship and an inhospitable social environment, which ultimately led to their suicides.

Over the last two and a half decades, the spate of farmer suicides across states in India has emerged as one of the core issues of concern in the area of development research and policy debates. These suicides, initially confined to the developed states like Maharashtra, Punjab, Andhra Pradesh and Karnataka, have now spread to backward states like Odisha. However, the body of literature on agrarian distress and farmer suicides have mainly analysed experiences of the developed states. The available studies, though varying in style and temper, by and large subscribe to the view that the farmers who commit suicide are mostly the small farmers, and they attribute these suicides to loss of farm income and indebtedness (Vasavi 1999; Mohanty 2001, 2005; Deshpande 2002; Mohanty and Shroff 2004; Mishra 2006; Sridhar 2006; Sidhu et al 2011; Shah 2012). These studies, however, rarely address the critical question as to why the small farmers experience a decline in farm income and remain indebted.

Nevertheless, a few of them (for example, Mohanty and Shroff 2004; Mohanty 2005) argued that decline of farm income of these farmers was caused by the rising cost of cultivation, crop loss, lack of desired skill and knowledge on modern farming and the price risk associated with agricultural markets. However, such an explanation, as is based on the experiences of developed states, may not fit in neatly to the situation of a backward state like Odisha, where the social background of the farmers, their agricultural practices and level of integration with the market are different. Additionally, the existing studies have overlooked the role of more significant structural changes in agriculture, like changes in control and use of land and agricultural marketing in the context of neo-liberal reforms.

Moreover, several studies report that in Odisha there is a considerable leasing in activity among the small and marginal farmers (Mohanty and Bahidar 1993; Sarap 1998; Swain 1998; Mearns and Sinha 1999). The report of the Agricultural Census (2010–11) also highlights that Odisha has emerged as the largest state of leased-in holders in the country in terms of area and next to West Bengal in terms of the number of holdings. Hence, an analysis of the terms and conditions of land lease arrangements assumes importance while explaining the economic hardship and distress of the small farmers in the context of recent changes in agricultural practices. Against this background, the present study makes an attempt to analyse the causes of small farmers' suicide in Odisha, who account for over 87% of farmer suicides there (NCRB-ADSI 2015: 285).

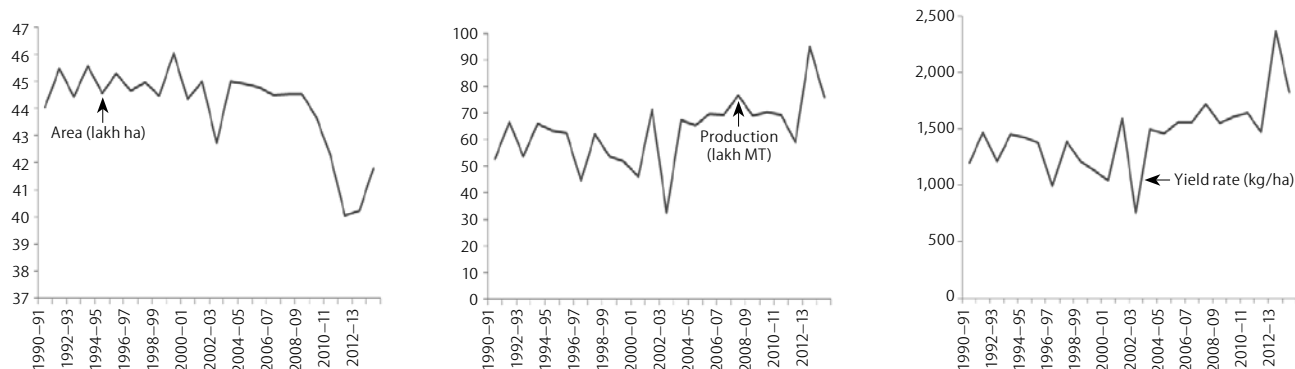
Recent Changes in Odisha's Agriculture

Odisha's agriculture is overwhelmingly dependent on small farmers. As per the estimates of the Agricultural Census (2010–11),

The authors thank the anonymous reviewer for comments and suggestions. They are also thankful to Harekrushna Biswal and Abhaya Biswal for their assistance during fieldwork.

B B Mohanty (bibhutimohanty@hotmail.com) and Papesh K Lenka (papeshkumar@gmail.com) are with Pondicherry University, Puducherry.

Figure 1: Area, Production and Yield of Paddy in Odisha



Source: Agricultural Statistics of Odisha, relevant issues.

more than 90% of the landholders were small (including marginal holders), with a share of over 70% of the total operated area. The share of these farmers to total output is more than 72% (NCEUS 2008: 54). The agriculture of the state is characterised by backward technology, cultivation of foodgrains, especially paddy, low productivity and poor investment and capital formation. As it is mainly dependent on the vagaries of the monsoon, crop failure is the frequent visitor. With this background, the Government of Odisha enthusiastically endorsed the neo-liberal project, introduced in the country in the 1990s.

In tune with the neo-liberal reforms, the state for the first time in its history took a revolutionary step by announcing a bold agricultural policy in 1996 setting the agenda for higher growth to make the farm sector more competitive, commercial and export-oriented. The state agrarian policy was revised in 2008, laying stress on new marketing strategies, mechanisation, and agro-based industries. The policy was reformulated in 2013, which widened further the commercial basis of agriculture. Many relevant schemes like National Food Security Mission (NFSM), System of Rice Intensification, National Horticulture Mission, and e-Pest Surveillance were implemented. Emphasis was laid to enhance the growth of cultivated area and productivity of paddy. Initiatives were made for effective implementation of the Seed Replacement Ratio by providing certified hybrid seeds at a subsidised cost, which was supported by the integrated pest management. A new mechanism was designed for direct procurement of paddy from farmers through the instrumentation of minimum support price (MSP) since the implementation of decentralised procurement of paddy in 2003-04. Web-based application for the Paddy Procurement Automation System (P-PAS) was introduced across the state where all transactions at paddy procurement centres (*mandi*) were done online.

The impact of these new measures led to the enhancement of area and yield of paddy considerably. The state won the Kishi Karman award from the Union Ministry of Agriculture consecutively for many years since 2013 for paddy production. However, the widespread cultivation of new high-yielding varieties (HYVs) of paddy accompanied by increasing mechanisation necessitated the application of high doses of agricultural inputs, which ultimately enhanced the cost of cultivation and production of paddy substantially. To go

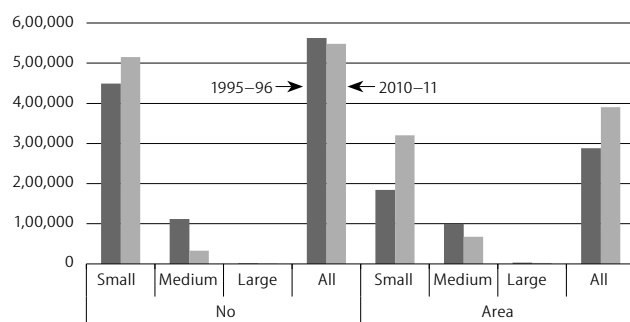
by the reports of the Commission for Agricultural Costs and Prices, the per hectare cost of paddy cultivation increased from ₹9,842 in 1995-96 to as high as ₹43,662 in 2012-13. Similarly, its per quintal cost of production went up to ₹1,148 in 2012-13 as against ₹304 in 1995-96. On the contrary, the MSP, which was fixed to protect the interest of farmers in situations of price falls in the market, remained marginally higher than the cost of production, leaving a slender profit. The MSP for common paddy during the year 2013 was ₹1,250 per quintal as against the cost of production of ₹1,148. Although the MSP was determined according to the rise in input costs, the cost of inflation with regard to other necessary commodities a farmer purchases from the market was hardly taken into consideration. A recent estimate by the Odisha University of Agriculture and Technology indicated that high input cost for paddy leaves little for farmers, making paddy cultivation mostly non-remunerative, and a slim profit margin gets wiped out if monsoon becomes erratic or any other disaster strikes. It revealed that while a farmer spent ₹1,225 on per quintal paddy, the MSP for paddy remained fixed at ₹1,250 in 2012-13 (Barik 2015). Apart from this, the production and yield of paddy followed an irregular pattern as the state frequently experienced natural disasters and adverse climatic conditions (Figure 1).

In response to the decline in profitability and the risk associated with paddy cultivation, the large farmers switched over to high-valued crops like fruit crops. The area under paddy, which was covering 69% in 1995-96, came down to as low as 47% in 2010-11 among the large farmers. On the other hand, the small and medium farmers continued to cultivate paddy increasingly (Table 1), largely due to their smallholding size and lack of necessary working capital required for the cultivation of fruits and other high-valued crops. To supplement farm income, the small farmers leased in land increasingly. Of the total leased-in holdings in the state, the share of smallholders comes to 94% in 2010-11, as estimated by the Agricultural

Table 1: Size-class-wise Cropping Pattern in Odisha

Size Class	Paddy		Food Grains		Oilseeds		Fruits		Cropping Intensity	
	1995-96	2010-11	1995-96	2010-11	1995-96	2010-11	1995-96	2010-11	1995-96	2010-11
Small	72.45	76.83	92.69	93.87	4.11	3.26	0.30	0.33	132.03	124.08
Medium	73.82	77.72	91.72	92.45	4.77	3.62	0.59	0.79	123.31	119.40
Large	69.38	47.32	81.89	54.25	4.55	2.18	11.25	41.01	111.24	109.71
All	72.92	76.37	91.85	92.59	4.41	3.32	0.85	1.39	127.23	122.50

Note and Source: Same as Figure 2.

Figure 2: Share of Leased-in Holder and Area Operated in Odisha

Small includes marginal and medium includes semi-medium holders.
Source: Agricultural Census of India, State Tables, relevant years.

Census. Between 1995–96 and 2010–11, the practice of leased-in holdings increased substantially among the small farmers both in terms of area as well as number (Figure 2). As regards the terms and conditions of leased-in practice, more than one-third of the total leased-in area in the state (4,05,515 hectares) was covered under fixed money or produce contract according to the estimate of the Agricultural Census 2010–11. Given the erratic pattern of paddy production, which is mainly conditioned by the vagaries of monsoon, this kind of fixed tenure in all likelihood would have affected the farm income of the leased-in holders adversely in the event of crop loss.

To increase their farm income, the small farmers enhanced cropping intensity (Table 1), use of agricultural machinery and application of inputs.¹ However, the rise in the cost of cultivation and decline in profitability pushed these farmers to the perpetual deficit. Recent data on average monthly income and consumption expenditure reveal that while the higher land-owning farmers received a large amount of income from cultivation, the small farmers' income was abysmally low, far below their consumption expenditure.² The National Commission for Enterprises in the Unorganised Sector (NCEUS 2008: 12) also noted the substantial margin between consumption expenditure and the estimated income among the small farmers and presumed that these deficits were plugged by borrowing or other means.³ It is also reported by National Sample Survey Office (NSSO) (70th round) that a large majority of marginal and more than one-third of the smallholding agricultural households were BPL (below poverty line) cardholders in the state.⁴ To state precisely, though with this limited information it is difficult to conclude that loss of farm income led to their suicides, a matter of fact is that the small farmers remained in a state of perpetual economic hardship. The analysis of suicide cases will substantiate the nature of socio-economic hardship of the small farmers and the reasons for their suicides in more detail.

To study suicide cases, we have selected the district of Bargarh, which reported the highest number of farmer suicides in the state, attracting nationwide attention.⁵ It is also considered the "rice bowl" of Odisha.

Brief Background of Bargarh

Bargarh emerged as one of the most prosperous pockets through intensive cultivation of paddy in the aftermath of the construction of the multipurpose Hirakud dam, which has been

irrigating nearly 3,12,000 acres of land in the district since 1956. The perennial irrigation brought a kind of revolution in paddy cultivation, especially in Bargarh, Barpali, Attabira and Bheden blocks of the district. In the post-dam period, Bargarh was covered under Intensive Agricultural District Programme (IADP) and the package programme operated from 1962. Agricultural inputs like seeds and fertilisers were provided at free of cost in the beginning through Primary Agricultural Cooperative Societies (PACS) to encourage *dalu* paddy (summer crop). However, the programme largely benefited big farmers (Baboo 1992; Mohanty 2000). Moreover, initially the native small farmers were reluctant to grow paddy in summer with the fear that the paddy flower would turn stale in hot summer (Baboo 1992: 91). The Telugu farmers, who migrated to Bargarh from the East Godavari district of Andhra Pradesh at the time of the construction of Hirakud dam and purchased land at a throwaway price from the native settlers, were the first to go for the summer paddy cultivation. To carry out paddy production on a large-scale basis, these farmers leased-in land by *kar* (kind) and *chhidol* (cash) on fixed-term basis as against the earlier practice of share tenancy called *bhagidi* (in which the gross output was divided equally between the landlord and the tenant after deduction of input costs). They initiated innovative commercial paddy cultivation in the district and consequently emerged as rich farmers (Panda and Mohanty 1991; Baboo 1992; Mohanty 2000). The success of the Telugu farmers motivated the native large holders to go for commercial paddy cultivation.

The small farmers, however, who did not have the required resources for modern farming preferred to lease out their small holdings to the rich Telugu farmers against a fixed produce to secure their subsistence requirement (Baboo 1992). The Small Farmers Development Agency (SFDA), which was launched in 1974–75 in the district to uplift the lower rungs of peasantry, served the interest of the big farmers as they enrolled themselves as small farmers and appropriated a lion's share of the programme colluding with lower-level bureaucrats (Mohanty 2000: 67). Similarly, the subsidised formal credit facilities, which were expanded through PACS, Land Development Bank and other agencies, benefited mostly the large farmers as the lending policy was relative to the proportion of landholdings (Sarap 1991). In a nutshell, the large farmers were the major beneficiaries of the state-sponsored subsidised schemes for agricultural development, and the small farmers were at the receiving end.

The agriculture of the district witnessed significant changes, especially in terms of productive technology and marketing during the post-reform period. A series of schemes like NFSM and Rashtriya Krishi Vikas Yojana (RKVY) were implemented in the district not only to expand the area under paddy production but also to enhance the intensity of its cultivation to bring in a quantum jump in rice production. As a part of RKVY, a new programme like Bringing Green Revolution to Eastern India (BGREI) was introduced in the district in 2011–12. The area under paddy, which was covering 2,93,815 hectares in 1993–94, increased to 3,25,530 hectares in 2013–14. New advanced HYVs were supplied by government as well as private agencies, and the area under paddy was entirely covered under them. The

use of advanced agricultural machineries increased noticeably across the categories of farmers, especially among the small farmers. The use of tractors and pumpsets per hundred hectares, which was only 6.55 and 4.25, respectively, in 1996–97, went up to 26.77 and 7.76 in 2011–12 among the small farmers, which is much higher than the other categories of farmers.⁶

Strategic interventions like the adoption of recommended package of practices, line sowing and line transplanting, use of micronutrients, soil-test-based fertiliser application and use of weedicides and pesticides were made. Besides, other important programmes like the e-Pest Surveillance and Pest Management were introduced to take up regular surveillance of major pests for minimising the possibility of pest infestation. Elaborate demonstrations were organised both by private and governmental agencies to motivate the farmers for adopting the new practices through propaganda like “Learning by doing” and “Seeing and harvesting is believing” (GoO 2016: 94). The private input dealers and agents of various companies came to the door step of the farmers to provide inputs on terms of post-harvest repayment. In recent years, Bargarh witnessed a mushrooming growth of input shops and market complexes by private dealers in addition to the government extension services. As many as 458 pesticide licence holders were operating in the district as of 14 December 2017 (GoO 2017). This motivated particularly the small farmers to increase their application considerably, who were earlier unable to apply high doses of inputs as credit facilities from formal as well as informal agencies were limited to their small landownership position. The per hectare fertiliser consumption for small farmers, which was only 128 kilograms (kg) in 1996–97, increased to as high as 347 kg in 2011–12, which is even higher than for the large farmers (339 kg in 2011–12).⁷

However, in the last few years, the district experienced crop loss of considerable magnitude many times mostly due to pest attack.⁸ In Bargarh, 418 villages in 2010 and 797 villages in 2011 experienced crop loss to the extent of 50% and above. Recently, many small farmers set their crops on fire on acres and acres of paddy fields as they failed to control pest attack with all efforts. The Telugu farmers, who were earlier undertaking large-scale paddy farming by taking land on lease from the native farmers, started leasing out their own land and switched over to trade, commerce and other economic activities.⁹ Many of them who had owned land in the dry belt shifted to the cultivation of horticultural crops. Some of the native large holders also followed these practices.

Analysis of Suicides

Of the 22 farmer suicides reported in 2015–16 in Bargarh, the present study covered 21 cases spread across 21 different villages. The remaining one case was not included in the analysis as it took place in the previous agricultural year and was caused reportedly by the prolonged illness of the victim. As the suicides covered in the study relate to the year 2015, data were collected for the agricultural year 2014–15. It was found that all the suicide victims were small farmers. They owned minuscule holdings and were mainly the cultivators of leased-in land on a fixed-term basis, either cash or produce. As the study

intends to examine the impact of land lease arrangements on the socio-economic hardship of the suicide victims, an equal number of small farmers who were mostly the owner cultivators were selected as reference cases from the respective villages having similar characteristics in terms of cultivated area, types of crops grown and family size.

Landownership: About 66% of the cultivated land of the deceased farmers was leased-in land (Table 2). A majority of these farmers took land on lease from the large holders, mostly the Telugu landlords, who were moneylenders, input dealers and traders. On the other hand, the reference farmers were the owner cultivators. Their average landholding was 1.26 hectares as against only 0.79 hectares of the deceased farmers. Only four of the farmers belonging to the reference group leased-in small patches of land, which comes to 12% of their total cultivated area. Though a large proportion of the cultivated area of both categories of farmers was irrigated, the area under irrigation

Table 2: Landholding and Agriculture of the Deceased and Reference Farmers

Particulars	Deceased Farmers	Reference Farmers
Average land owned (hectares)	0.79	1.26
Average land leased-in (hectares)	1.52	0.13
Average land leased-out (hectares)	0.01	0.36
Average land cultivated (in hectares)	2.30	1.03
Percentage of leased-in to total cultivated land	65.80	12.17
Percentage of cultivated land irrigated	78.76	69.85
Average gross cropped area (hectares)	10.85	4.44
Cropping intensity	190.46	174.53
Percentage of area under paddy	92.49	90.78
Percentage of area under pulses	3.34	4.49
Percentage of area under foodgrains	95.83	95.27
Percentage of area under oil seeds	1.49	1.78
Percentage of area under other crops	2.68	2.93
Percentage of area under HYVs paddy	100	100
Per hectare application of chemical fertilisers for paddy (kg)	356.04	346.03
Per hectare application of pesticides for paddy (ml)	1,997.15	1,776.19
Per hectare production of paddy (kg)	3,315.55	3,269.66
Per hectare average yield of paddy (kg)	3,288.35	2,996.39
Per hectare cost of cultivation for paddy (₹)	60,874.85	57,299.00
Per hectare gross income from agriculture (₹)	36,885.01	32,142.83
Per hectare amount (₹) paid to the landlord for leased-in land	29,504.65	2,919.19
Average amount paid to the landlord (₹)	44,747.95	3,960.43
Percentage of the amount paid to landlord to total gross income	29.88	7.27
Per hectare net income from agriculture (₹)	-53,494.49	-28,075.36
Average net income from agriculture (₹)	-2,17,210.87	-38,088.91
Percentage of farmers reported crop loss mainly due to pest attack	33.33	38.10
Percentage of farmers reported crop loss mainly due to bad weather	9.52	14.29
Percentage of farmers reported crop loss mainly due to improper doses of inputs	19.05	14.29
Percentage of farmers reported crop loss mainly due to poor quality of inputs	23.81	9.52
Percentage of farmers reported crop loss mainly due to application of inputs at inappropriate time	9.52	14.29
Percentage of farmers reported crop loss due to other reasons*	9.52	9.52
Per hectare loss of expected income due to crop failure (₹)	41,475.74	40,605.90
Average loss of expected income due to crop failure (₹)	1,68,409.52	55,089.62

* Include causes like damage of crop by animals, theft of crop, delayed harvesting, problems of water management, etc.

Source: Field survey.

was relatively greater among the deceased farmers mainly due to the higher proportion of leased-in irrigated land.

Cropping pattern and input use: The deceased as well as the reference farmers were mostly the paddy growers. More than 90% of their cropped area was covered under paddy, which was entirely dependent on improved HYVs, that were doubly and trebly grown in a year. The greater yield potential of these varieties, as propagated by both private and government agencies, motivated the farmers to adopt them extensively. It was reported that many private seed companies like Rallis India and United States-based Bayer regularly organised appealing programmes at the village level and showed the yield potentials and other qualities such as pest resistance, less water requirement, etc, of these varieties of hybrid seeds and highlighted the success stories of their adoption through video visuals.

The adoption of these improved varieties of seeds compelled the farmers to invest more in agriculture in terms of fertilisers, pesticides, and other inputs. Widespread and competitive publicity of pesticide application through field-based demonstrations in the villages by important manufacturers like Dhanuka Agritech, PI Industries, DuPont and Krishi Rasayan, coupled with a liberal supply of pesticides on credit by the local distributors, encouraged the farmers to go for high doses of these expensive pesticides. Moreover, many of the local pesticide dealers were large landholders who leased out their land to these small farmers; some of these dealers provided inputs with the condition that paddy would be sold to them after harvest at a pre-fixed price, which was usually lower than the market price prevalent at the time of harvesting. As these farmers mostly cultivated leased-in land on fixed-term basis, in order to get higher return they increased their cropping intensity. The higher cropping intensity among the deceased farmers is also attributable to the greater proportion of leased-in land under irrigation. Compared to the reference farmers, the deceased farmers applied higher doses of fertilisers and pesticides. This in turn enhanced the cost of cultivation for the deceased farmers. While the cost of cultivation of the deceased farmers was ₹60,875 per hectare, the corresponding figure for the reference group was ₹57,299. The higher cost was not only due to higher doses of inputs, but also due to the purchase of a greater proportion of inputs from private agencies. More than 70% of the deceased farmers purchased inputs from private dealers/agencies on credit. Though the government agencies provided inputs at a subsidised cost, the deceased farmers could not avail the benefit as they were not owners of the cultivated land. It was reported that many of the large landholders who leased out land received these subsidised inputs against their landownership and sold them to the small farmers at a higher price. About 33% of the deceased farmers purchased these subsidised inputs from their respective landlords at market price.

Crop loss: Despite huge investments in paddy cultivation, more than one-third of farmers of both reference and deceased groups experienced and reported a substantial decline in farm income owing to crop loss caused by widespread pest attack,

poor quality and improper doses of inputs. Crop loss due to poor input quality was more among the deceased farmers (Table 2). Though a majority of them recovered their cost of cultivation, none from either group realised their expected income. The per hectare loss of expected income was as high as ₹40,606 for the reference farmers and ₹41,476 for the deceased farmers.

Though this loss was similar for both categories of farmers, the net income was abysmally low for the deceased farmers, which was not only due to their higher cost of cultivation but mainly for the payment of produce and/or cash to the landlords against the leased-in land. It was reported that about 80% of their per hectare gross income went to the landlords (Table 2). In case of majority of the deceased farmers, the landlords had taken amounts in advance while leasing out their land. In the event of crop loss, the farmers alone bore the hardship and the landlords did not provide any remission (Cases 1, 2, 3 and 4). In case of post-harvest payments, farmers who were unable to pay the fixed amount of produce or cash for the leased-in land in a particular season due to crop loss or other exigencies, paid the pending amount with interest while settling the amount in the next season. On the contrary, the reference farmers, being the owner-cultivators, remained in a better position. Besides, their position as landowners enabled them to avail credit facilities from the Agricultural Cooperative Societies, which provided crop insurance on a nominal premium amount, thereby securing their income in case of crop failure. It was reported that more than 80% of the loan amount taken from the cooperatives was waived for nearly 81% of farmers in the reference group due to crop insurance.

Marketing: A significant proportion of loss of agricultural income of the suicide victims was also caused by the paddy marketing policy which was biased heavily in favour of owner-cultivators. The farmers usually sell their marketable surplus paddy to state government agencies (regulated market) and/or to middlemen/traders. The price offered in the regulated market is always higher than that in the informal market as the former is based on MSP fixed by the government from time to time. Of the two types of paddy (Common and Grade-A), the government offers a higher price for Grade-A paddy. However, it was reported that paddy produced by the small farmers was mostly of the common variety and the procurement price per quintal for this type was fixed at ₹1,410 as against ₹1,450 for Grade-A paddy in 2015–16. Besides, in case of common variety, 5 kg to 8 kg of paddy were deducted per quintal for the presence of foreign particles and moisture content.

In order to sell paddy in the regulated market, farmers were required to register in the P-PAS at their respective PACS/Societies within the prescribed timeline. After due verification of their paddy-cultivated land records and identity by the revenue inspector, permission was accorded for paddy procurement. However, paddy could be procured from unregistered farmers only after the purchase of paddy from all the registered farmers were made. These unregistered farmers were also required to register in the meantime and their land record and bank account details were verified before purchase was made.

As the provision for paddy procurement is based on recorded ownership of land, the deceased farmers were deprived of this facility as they were mostly leased-in holders. Though three of these farmers wanted to register themselves in the P-PAS against their small patches of land, they were unable to do as their land records were with the moneylenders against loans on mortgage. There were also instances where the deceased farmers could not register themselves due to disputes on their landownership (Box 1, Case 1). Though recently the state government permitted the leased-in holders to sell their marketable surplus of paddy with the consent of the registered landowners, the landlords hardly gave consent (Case 1). Often, these large landowners concealed information on their leased-out land and claimed themselves as owner cultivators to avail the benefits provided by the PACSS. Many of them had registered themselves in the P-PAS for the paddy procurement process and allowed traders and middlemen to sell paddy on their card on a commission of ₹50 to ₹100 per quintal. It was reported that only four of the deceased farmers sold their paddy to PACSS through their landlords' P-PAS registration. However, the amount was credited to the landlords' account and the deceased farmers received money as per the open market price. In two cases, the landlords also retained a part of the payment as advance for the next crop. In all these instances, the deceased farmers had to bear the cost of packaging, loading and unloading, as well as transportation charges. In case of two unregistered deceased farmers who went to sell their paddy through late registration finally returned with disappointment as the

cooperative officials demanded a cut on the plea that they would receive the paddy backdated as the deadline was over. Ultimately, most of the deceased farmers had to sell their paddy to the middlemen and in some cases to the landlords at a lower price (Table 3).

Indebtedness: The cultivation of leased-in land restricted the access of the deceased farmers to the formal credit agencies like cooperatives and banks. It was found that only 48% of the deceased farmers took loan from formal agencies as against the 86% of the reference farmers. The amount of loan taken by the deceased farmers was far below than that of the reference farmers in terms per hectare as well as

Table 3: Information on Agricultural Marketing

Particulars	Deceased Farmers	Reference Farmers
Percentage of farmers registered in PACSS to sell paddy	19.05	66.67
Percentage of farmers sold paddy to PACSS	19.05	66.67
Average amount of paddy sold to PACSS (kg)	2,909.29	5,140.06
Percentage of amount of paddy sold to PACSS to total marketed amount	21.78	71.22
Percentage of farmers sold paddy to middlemen	28.57	4.76
Percentage of farmers sold paddy to landlord	23.81	9.52
Percentage of farmers sold paddy to input dealers	28.57	19.05
Average amount sold to private agencies (kg)	10,442.82	1,306.07
Average amount lost caused by selling to private agencies (₹)	38,495.56	3,008.46
Percentage of loss of average income due to sale of paddy to private agencies	20.45	5.45

Source: Field survey.

BOX 1

Case 1

M, 52, who owned 0.75 acres of land, had leased-in 5.7 acres of land on fixed-term cash payment from a landowner who stays in Sambalpur town. As the leased-in land was irrigated and of good quality it had a greater demand in the lease market. To get this land on lease, M paid ₹50,000 in advance by borrowing from his son-in-law, assured that the landlord would permit him to sell paddy on his P-PAS. Though many farmers experienced crop loss due to pest attack, M had a reasonably good harvest. When he contacted his landlord to sell paddy through P-PAS, the latter kept him waiting till the deadline for registration for procurement was over and later allowed his relative to sell paddy, who was a trader. He also could not sell the paddy produced in his own land through P-PAS because the land record was with his elder brother. Post the registration date, prices in the open market declined drastically. Realising a huge loss, M stored paddy and waited, expecting the price to shoot up, but it steadily declined. Storing huge quantities of paddy became a risky option as monsoon set in. He was stressed. His wife and daughter too blamed him for this mismanagement and inability to pay back his son-in-law the borrowed amount. M killed himself.

Case 2

G, 39, had taken 3.5 acres of land on lease for paddy cultivation on terms of giving 10 packets (75 kg each) of paddy per acre each season. Though earlier he cultivated paddy of a local variety in his own land (0.85 acre), after leasing land, he switched over to a new HYV (RIL 666) following an orientation programme in the village organised by a local dealer, who provided inputs on credit. He also borrowed ₹21,000 from a village moneylender to meet other cultivation expenses, like tractor and labour charges. But crop failed due to pest attack; he sold his milk cow to repay the moneylender. When the landlord demanded his share of paddy, G requested him to postpone it to the next season. But the landlord insisted on instant settlement failing which he would take back his land. G was greatly disturbed and tensed. He kept away from village functions and activities and rarely talked to others. Finally his wife sent G to her father's house for a change, but this could not help him. After three days, he came back home and on the same day the input dealer came and asked for repayment of the dues. G committed suicide.

Case 3

A, 45, was initially cultivating paddy in his 2 acres of land. In the locality, he was known for his hard work and farming expertise. Impressed by his skill and enthusiasm a Telugu landowner offered him 4.2 acres of land on lease on fixed-cash-payment basis without any advance payment, along with a credit of ₹28,000 in instalments to meet the cultivation expenses. After kharif season, when A requested the landlord to postpone the payment of prefixed amount of cash due to crop loss, the landlord insisted to mortgage his one acre of land to renew the leased-in contract for the next season. He borrowed again from another moneylender an amount of ₹25,000 and cultivated paddy with the hope of recovering his mortgaged land. When crop failed again he felt helpless and ended his life.

Case 4

K, 51, leased in 5.7 acres of land in 2013. Before taking land on lease he managed his household by cultivation of his own land (1.3 acres) and running a betel shop. He had also made a small saving. Meanwhile, a Telugu landlord was looking for a tenant to lease out fertile irrigated land. K approached him and got the land on lease on fixed-term basis at the rate of ₹14,000 per acre in a year (for two agricultural seasons). He grew paddy and invested his small saving in cultivation. But every season his returns were meagre and insufficient to meet family expenditure. In 2014, he borrowed ₹38,000 from a moneylender for cultivation. To his surprise, farm income declined further than the previous season and to settle the debt he sold his betel shop. Crop failed for two more consecutive seasons. K's debt accumulated and he became a defaulter for the third time. Angry, the Telugu landlord humiliated him in public. Seeing K's miserable condition, his father-in-law took K's wife and children to his house. K hanged himself.

Case 5

S, 42, a small farmer, cultivated 4.6 acres of land (1.2 acres owned and 3.4 acres leased-in). He grew paddy in 4.35 acres of land and groundnut in 0.25 acres, which was his own land. Initially, he cultivated paddy and vegetables. After his wife's death in 2013, S had to look after his two young daughters alone as he was staying separately from his parents. He was always concerned about educating his daughters and making them employable in government jobs. He admitted his elder daughter in an English medium school and spent ₹15,000 on admission, of which ₹9,000 was borrowed from a relative. In order to repay the borrowed amount and to meet his daughter's education expenses, he decided to lease in more land and work hard. When his returns were far below his expectations, he moved his daughter from the English medium school to a local vernacular school. This made S unhappy, and he also faced criticism from fellow villagers for adventuring to make his daughter English-educated. With disappointment he ended his life.

average loan (Table 4). While the per hectare and average loan of the deceased farmers was only ₹917 and ₹4,024 in case of farmers in the reference group, the figure went up to ₹36,649 and ₹49,721, respectively. Some of the deceased farmers who had already mortgaged their land with private moneylenders could not avail these credit facilities. It was found that many large farmers who had leased out their land took high amounts of subsidised credit from these agencies and lent the amount to their tenants at an exorbitant rate of interest. Though farmers of both the categories borrowed from formal agencies for agricultural purposes, the farmers in the reference group invested a significant amount (34%) in non-agricultural purposes like buying milch cows and poultry and other petty businesses. It was observed that loans from formal agencies were not considered burdensome by the farmers in view of less interest, facilities of repayment in instalments and possibility of loan waiver in case of crop loss. Many farmers, particularly belonging to the large holding group, who did not require credit facilities, borrowed from these agencies to make profitable investments and remained as wilful defaulters.

The deceased farmers were largely indebted to informal agencies (95%) with per hectare and average loan of ₹11,134 and ₹48,876, respectively. More than 40% of the suicide victims had borrowed money from their landlords. It may be noted that a considerable proportion of loan (27%) from informal sources was made by the suicide victims to repay the pre-fixed amount to the landlord against their leased-in land in order to ensure the trust of the landlord for the renewal of the contract for the next crop. Though some of the farmers from reference group were also indebted to private moneylenders, the extent of their indebtedness was relatively much less in average as well as per hectare terms. Many of them also borrowed for non-agricultural purposes. The extent of borrowings from private agencies by the deceased farmers went up to 27% of their total value of

Table 4: Indebtedness to Formal and Informal Sources

Particulars	Deceased Farmers	Reference Farmers
Percentage of farmers who took loans from formal agencies	47.62	85.71
Per hectare loan from formal agencies (₹)	916.59	36,648.99
Average loans taken from formal agencies (₹)	4,023.81	49,721.32
Percentage of farmers who took loans from formal agencies for agricultural purposes	100	100
Percent of loans taken from formal agencies for agricultural purposes spent on non-agricultural purposes	14.20	34.06
Percentage of outstanding loan amount from formal agencies to total value of assets	0.97	6.90
Percentage of farmers who took loans from informal agencies	95.24	28.57
Percentage of farmers who took loans from the landlord	42.85	4.76
Per hectare loan from informal agencies (₹)	11,133.53	1,193.00
Average loan taken from informal agencies (₹)	48,876.19	2,142.86
Percentage of farmers taken loan from informal agencies for non-agricultural purposes	9.52	23.81
Percentage of outstanding loan amount from informal agencies to total value of assets	12.67	0.28
Percentage of outstanding loan from both formal and informal agencies to total value of assets	31.64	17.18
Average amount of loan taken from both formal and informal sources (₹)	52,900.00	51,864.18

Source: Field survey.

assets, which was much higher compared to the reference farmers. Given their minuscule landholdings, the deceased farmers found it difficult to dispose of their land to discharge the liabilities. So, while one of the deceased farmers sold two of his milch cows, the other sold jewellery (gold chain), which he had purchased a year back for his daughter's marriage after selling a small patch of land. One of the reference farmers who had taken land on lease also sold a small patch of land (0.33 decimal) which he had already mortgaged with a Telugu trader to settle the outstanding loan with a trader as well as the fixed amount due for leased-in land. Taken together, the total outstanding loan from both the formal and informal agencies covers 32% and 17% of the value of assets of the deceased and reference farmers, respectively.

The above discussion infers that loss of agricultural income of the deceased farmers was not only caused by crop loss but also significantly by exploitative land lease arrangements and consequent denial of access to regulated market and indebtedness. Looking at the reasons of suicides (Table 5), as attributed by their family members, it is found that while 38% of the farmers committed suicide due to their inability to pay the lease contract amount of cash/kind, 29% of the farmers killed themselves mainly due to loss of income caused by problems in paddy marketing. Indebtedness also led to suicides of a significant number of farmers (19%). However, the problems in marketing and indebtedness are mainly the resultant effects of land lease arrangements. Therefore, it can safely be argued that directly or indirectly suicides were largely caused by land lease arrangements. The case studies provide farm evidences in this regard (Box 1, Cases 1,2,3,4 and 5, p 56).

Table 5: Reasons for Suicide

Reasons	Percentage
Inability to pay the landlord the amount (cash or kind) as per leased-in contract	38.10
Loss of agricultural income due to problems in paddy marketing	28.57
Indebtedness to moneylenders and input dealers	19.05
Crop failure	9.52
Family disputes	4.76
Total	100.00

Only the main reasons of suicide as reported by the family members of the victims.
Source: Field survey.

Viewed sociologically, these suicides were caused by the unusual difference between aspiration and the achievement of the small farmers. Having witnessed the prosperity of the Telugu farmers through paddy cultivation in leased-in land, many of the deceased farmers enthusiastically took land on lease and went for extensive paddy cultivation aspiring to improve their economic condition. Believing that adoption of advanced varieties of HYVs and application of high doses of agricultural inputs would tremendously enhance the productivity and farm income, these farmers increased their application relying on credit liberally provided by the landlords, traders, input dealers and moneylenders. However, they remained in a state of despair when their farm income declined beyond their expectation (Cases 1, 2, 3, 4 and 5). They were unable to pay the landlords the fixed amount for the leased-in land and had to reduce expenditure on clothing, children's education, social functions and other household items. A few of them had to reduce their expenditure even on food. It not only affected

their economic position but also their social status in the village (Cases 2, 4 and 5). Emile Durkheim (1952: 208–09) in his classic work on suicide indicated that when social wants exceed the possible means for attaining them, the individual remains in perpetual danger of suffering from the disproportion between his aspirations and achievements, which ultimately generates disappointment and feelings of failure that lead to the growth of the “suicidogenic impulse.”

Non-farm sources of income: The farmers in the reference group managed the crisis because of their significant non-farm sources of income and relatively better farm income owing to cultivation of owned land. Nearly 86% of them had income sources like dairy, poultry, petty businesses, salaried income, etc, as against only 24% among the deceased farmers (Table 6). On an average, each farmer from reference group had at least one member engaged in non-farm activities. More than 38% of them derived income from sources like grocery, tea, betel and cycle-repairing shops, whereas about one-third were engaged in dairy, milk selling and poultry. While the income from these non-farm sources was ₹27,426 for the farmers of reference group, it was only ₹2,643 for the deceased farmers.

Table 6: Details of Non-farm Sources of Income

Particulars	Deceased Farmers	Reference Farmers
Percentage of farmers having non-farm sources of income	23.81	85.71
Average number of family members engage in non-farm activities	0.24	1.10
Percentage of farmers having income from dairy and poultry	19.05	33.33
Percentage of farmers having income from petty businesses (grocery, tea, betel and cycle-repairing shop)	4.76	38.10
Percentage of farmers having salaried jobs like marketing agent of input dealers, salesman in local business centres and worker in rice mills.	–	14.29
Average income from non-farm sources (₹)	2,634.06	27,425.95

Source: Field survey.

Table 7: Social Characteristics

Particulars	Deceased Farmers	Reference Farmers
Family size	3.71	4.38
Percentage of nuclear family	90.48	47.62
Percentage of divorced/separated/unmarried/single farmers	9.52	4.76
Percentage of farmers belonging to the age group of 60 and above	14.29	14.29
Percentage of earning members	32.05	40.36
Percentage of farmers who were head of their households	90.48	85.71
Percentage of farmers who experienced family dispute on agricultural loans, land leased-in and other agricultural reasons	66.67	14.29
Percentage of farmers having disputes with moneylenders/input dealers and landlords	33.33	4.76
Percentage of farmers having disputes with relatives related to borrowing for agricultural activities,	9.52	--
Percentage of farmers who avoided village functions and community activities owing to non-payment of dues of the moneylenders, input dealers and landlords	57.14	9.52
Percent of farmers having conflicts in the family due to non-agricultural reasons	14.29	23.81
Percent of farmers having conflicts with other farmers in the village relating to water management	28.57	38.09

Source: Field survey.

Social environment: A comparison between the social characteristics of the deceased and the reference farmers indicated that the deceased farmers were living in a state of loneliness with stress and tension. The conditions of new agricultural production made the social environment inhospitable as they strained the relationships of farmers at different spheres of social life, leading to social isolation. More than 66% of the deceased farmers experienced conflicts and quarrels with family relating to terms of leased-in land, borrowings and other agricultural related issues (Table 7). Many of them also had conflicts with landlords, moneylenders and input dealers on issues of non-payment or delayed payment of the claimed amount, as well as with the fellow farmers on water management. It was observed that the landlords hardly took any responsibility to resolve the conflicts relating to water management on their leased-out land and it was largely left to the deceased farmers to manage the situation on their own. This unpleasant situation developed a sense of isolation and withdrawal symptoms among the suicide victims. More than 57% of the deceased farmers did not attend village functions and community activities during their last two months to avoid criticisms and embarrassment (Case 2). According to Durkheim (1952: 244–45), suicide occurs when the ties binding the individual to others are slackened and there is absence of adequate social integration. He also stated that the greater the social isolation, the lesser does the individual participate as a social being, as a result of which their life lacks purpose and meaning, and they experience a loss of direction, sense of apathy and finally, absence of attachment to life itself. The immunity to suicide, which is more among the people who belong to large families as argued by Durkheim (1952: 155–56), was also absent among the deceased farmers as they were mostly from nuclear families and many of them were separated and unmarried.

Conclusions

The recent changes in the conditions of agricultural production led to a kind of crisis, particularly with regard to paddy cultivation in terms of increased cost of cultivation, indebtedness and declining farm income. Though the large holders switched over to other profitable economic activities, the small farmers continued to cultivate paddy keeping in view the prosperity of the erstwhile Telugu farmers. Aspiring to enhance their level of subsistence and expecting a higher return, they leased in lands, increased cropping intensity and application of inputs by borrowing heavily from landlords, input dealers and moneylenders. The severe economic hardship caused by loss of farm income due to exploitative land lease practices and credit relations, bottlenecks in paddy marketing, crop failure and increased cost of cultivation pushed them to the edge. In addition, the new agricultural activities also made the social environment inhospitable for them. With disappointment and despair they committed suicides. Only the small farmers who cultivated their own land and had some non-farm sources of income with relatively better social conditions were able to withstand the crisis.

NOTES

- 1 Looking at the input use data for the years 1996–97 and 2011–12, it is found that the small farmers were much ahead of large and medium farmers in terms of use of advanced machinery like tractor, power tiller and pumpsets. For example, the use of tractor and pumpsets per 'oo' hectares of gross cropped area was 35 and 16, respectively, in 2011–12 for small farmers, whereas for large farmers it was only 4 and 3, respectively. In terms of use of pesticides, fertilisers and farmyard manure, the small farmers were also ahead of others. The per hectare fertiliser consumption was 158 kg for small farmers as against 116 of the large farmers in 1996–97. However, in 2011–12, their per hectare fertiliser consumption was marginally lower than the medium and large farmers. For details see, *Input Survey Report 1996–97 and 2011–12*.
- 2 Average monthly income from agriculture and consumption expenditure per agricultural household is presented below:

Size Class	Net Receipt from Cultivation (₹)	Total Consumption Expenditure (₹)	Percentage of Income from Cultivation to Total Consumption Expenditure
<0.01	82	2,745	2.99
0.01–0.40	582	3,974	14.65
0.41–1.00	1,180	4,270	27.63
1.01–2.00	2,191	4,609	47.54
2.01–4.00	4,460	5,392	82.72
4.01–10.00	9,817	8,506	115.41
10.01+	1,23,231	8,073	1,526.46
All classes	1,407	4,307	32.67

Source: Some characteristics of agricultural households in India, NSS 70th round, January–December 2013, No 569.

- 3 It is estimated that while the difference between monthly average income and consumption per farmer household in case of marginal farmers was ₹677 for small and medium farmers, it was ₹609 and ₹232, respectively. See, NCEUS (2008: 59).
- 4 Size-class-wise proportion of BPL ration cardholders among agricultural households in Odisha (%) is as follows:

<0.01	0.01-0.40	0.41-1.01	1.01-2.01	2.01-4.01	4.01-10.01	10.01+	All Classes
60.9	48.9	53.1	39.4	33.3	7.7	–	48.8

Source: Some characteristics of agricultural households in India, NSS 70th round, January–December 2013, No 569, p A-371.

- 5 On 10 September 2015, Congress party leader Rahul Gandhi led the Chasi Bachao Padayatra (save farmer march) from the houses of suicide victims of Debahal village of the district (*Hindu*, 1 February 2016). Later, on 19 November, the chief minister of Odisha, Naveen Patnaik, also addressed the Chasi Samabesh (farmers' convention) in the Sohela block of Bargarh (*Telegraph India*, 20 November 2015). Recently, Prime Minister Narendra Modi also addressed the Krishak Samavesh (farmers' rally) on 21 February 2017, where he raised the issue of rising farmer suicides in the district (*Samaja*, 21 February 2017).
- 6 Per 'oo' hectare use of Machinery in Bargarh is given below:

Size-Class	Tractor		Power Tiller		Pumpsets	
	1996–97	2011–12	1996–97	2011–12	1996–97	2011–12
Small	6.55	26.77	0.24	2.50	4.25	7.76
Medium	3.14	9.81	0.02	1.98	4.55	7.72
Large	2.60	3.97	0.11	0.36	3.81	2.52
All	4.51	19.34	0.12	2.23	4.39	7.58

Source: *Input Survey*, District Tables (1996–97 and 2011–12).

- 7 For details see, *Input Survey*, District Tables (1996–97 and 2011–12).
- 8 For details see, Odisha Agricultural Statistics (2013–14: 111).
- 9 It was reported that of the 64 Telugu farmers in 21 suicide reported villages, more than 67% (43 farmers) leased out their land and shifted to profitable non-farm activities like input dealership, rice and paddy trading, and construction contractors in the last six to seven years. Some of them undertook other businesses in nearby urban centres.

REFERENCES

- Baboo, B (1992): *Economic Exchange in Rural India: A Comparative Socio-cultural Study in Orissa*, Delhi: Manak Publications.
- Barik, S (2015): "High Input Cost for Paddy Cultivation Leaves Little for Farmers in Odisha," *Hindu*, 2 November, Bhubaneswar.
- Deshpande, R S (2002): "Suicide by Farmers in Karnataka: Agrarian Distress and Possible Alleviatory Steps," *Economic & Political Weekly*, Vol 37, No 26, pp 2601–10.
- Durkheim, E (1952): *Suicide: A Study in Sociology*, London: Routledge & Kegan Paul.
- GoO (2016): *Odisha District Gazetteers-Bargarh*, Gopabandhu Academy of Administration, [Gazetteers Unit] General Administration Department, Government of Odisha.
- (2017): District Wise Pesticides License Holder Details-Bargarh as on 14 December, Directorate of Agriculture and Food Production, Government of Odisha, viewed on 14 December 2017, http://agrisnetodisha.ori.nic.in/Pesticide_License/District/Pest_lic_DistrictReport.aspx.
- Mearns, Robin and Saurabh Sinha (1999): "Social Exclusion and Land Administration in Orissa, India," World Bank Policy Research Working Paper No 2124, November, SSRN, <https://ssrn.com/abstract=636207>
- Mishra, S (2006): "Farmers' Suicides in Maharashtra," *Economic & Political Weekly*, Vol 41, No 16, pp 1538–45.
- Mohanty, B B (2000): "Agricultural Modernisation in Rural Orissa: Land Transfer and Ownership Pattern," *Sociological Bulletin*, Vol 49, No 1, pp 63–90.

- (2001): "Suicides of Farmers in Maharashtra: A Socio-economic Analysis," *Review of Development and Change*, Vol 6, No 2, pp 146–89.
- Mohanty, M and B K Bahidar (1993): *Odisha Daridra Kahinki? [Why Is Odisha Poor?]*, Cuttack: Odisha Book Store.
- Mohanty, B B and S Shroff (2004): "Farmers' Suicides in Maharashtra," *Economic & Political Weekly*, Vol 39, No 52, pp 5599–06.
- Mohanty, B B (2005): "We Are Like the Living Dead: Farmer Suicides in Maharashtra, Western India," *Journal of Peasant Studies*, Vol 32, No 2, pp 243–76.
- NCEUS (2008): A Special Programme for Marginal and Small Farmers, National Commission for Enterprises in the Unorganised Sector, Government of India, New Delhi.
- NCRB-ADSI (2015): National Crime Records Bureau in Its Recent Report on "Accidental Deaths & Suicides in India," Government of India, New Delhi.
- Panda, P and B B Mohanty (1991): "State Peasant Relationship in Orissa," *The Eastern Anthropologist*, Vol 44, No 3, pp 253–64.
- Sarap, K (1991): *Interlinked Agrarian Markets in Rural India*, New Delhi: Sage Publications.
- (1998): "On the Operation of the Land Market in Backward Agriculture: Evidence from a Village in Orissa, Eastern India," *The Journal of Peasant Studies*, Vol 25, No 2, pp 102–30.
- Shah, E (2012) "A Life Wasted Making Dust: Affective Histories of Dearth, Death, Debt and Farmers' Suicides in India," *The Journal of Peasant Studies*, Vol 39, No 5, pp 1159–79.
- Sidhu, R S et al (2011): "Farmers' Suicides in Punjab: A Census Survey of the Two Most Affected Districts," *Economic & Political Weekly*, Vol 46, Nos 26–27, pp 131–37.
- Sridhar, V (2006): "Why Do Farmers Commit Suicide? The Case of Andhra Pradesh," *Economic & Political Weekly*, Vol 41, No 16, pp 1559–65.
- Swain, M (1998): *Peasant Agriculture and Share Tenancy in Orissa: Examining Neoclassical and Marxist Approach*, New Delhi: Commonwealth Publishers.
- Vasavi, A R (1999): "Agrarian Distress in Bidar: Market, State and Suicides," *Economic & Political Weekly*, Vol 34, No 32, pp 2263–68.

EPW E-books

Select EPW books are now available as e-books in Kindle and iBook (Apple) formats.

The titles are

- Village Society** (ED. SURINDER JODHKA)
(<http://www.amazon.com/dp/B00CS62AAW> ;
<https://itunes.apple.com/us/book/village-society/id640486715?mt=11>)
- Environment, Technology and Development** (ED. ROHAN D'SOUZA)
(<http://www.amazon.com/dp/B00CS624E4> ;
<https://itunes.apple.com/us/book/environment-technology-development/id641419331?mt=11>)
- Windows of Opportunity: Memoirs of an Economic Adviser** (BY K S KRISHNASWAMY)
(<http://www.amazon.com/dp/B00CS622GY> ;
<https://itunes.apple.com/us/book/windows-of-opportunity/id640490173?mt=11>)

Please visit the respective sites for prices of the e-books. More titles will be added gradually.