



Why Farmers QUIT?

*A study on
Farmer Suicides in Odisha*

Research and editorial support

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FOREWORD

Farmers' suicides are nothing new in India. But, it is a comparatively newer phenomenon in Odisha, the state that thought that it was immune to farmers' suicides till the last decade of the 20th century. Paddy being the major crop in the state, it was believed that paddy farmers did not have to commit suicide. But, farmers did commit suicide, in the 1990s and in the first decade of this century. In fact, 2015 saw an unprecedented number of farmers' suicides in Odisha when more than 200 farmers killed themselves.

Why did the farmers kill themselves? While civil society and the media started coming up with reasons for farmers' suicides, as per established arguments of crop loss due to drought, debt burden, the pressure to repay, poverty and lack of safety nets, the state government came out with a different set of reasons like family quarrels, failed love affairs, disabled children, disease burden of family members, insanity and impotency. The thrust of the government argument was that those who committed suicide were farmers, but they did not commit suicides for reasons related to farming.

To understand if farmers' suicides were just a desperate reaction to events like droughts and crop loss or there were more fundamental roots, the Indo-Global Social Service Society (IGSSS) took up a study on farmers' suicides through its local partner the Baitarani Initiative. This study explores whether it is a failure of the state in providing relief to the farmers or its policies which have driven them to such a desperate situation in a slow and steady manner. The study is also aimed at developing a comprehensive understanding of farmers' suicides in Odisha, through the cases of 30 farmers, who either committed suicide or attempted it.

This report tries to provide compelling queries and experiences that were gathered during the process of this study. A few weeks into the study, we were compelled to ask ourselves: Is this an enquiry into suicides by a few farmers or is it also a narrative of a large section of the farmers who have been in the same/worse plight than the ones who committed suicide. A large number of farmers have been contemplating giving up farming, running away from the challenges that they are pitted against and may have even contemplated suicide, but, were strong enough not to take the drastic step. A large section of the farmers want to give up farming, but have not been able to do so as they are not left with any other options for livelihood.

One of the most arduous parts of the field investigation was doing an input-output analysis of the crops cultivated. After getting the figures right for expenditure and income, the figure that we got for returns from cultivation was mostly wrong. Rather, we could not find a logical explanation as to why a farmer should toil so hard, arranging inputs and capital, and be anxious about flood, drought and pests, only to get a meagre profit, or even lose money, for every acre of land that he/she cultivated? While the mathematics in most of the cases do not lead to reasonable returns even in an ideal situation, the farmers have their own logic. Many a times the farmers justify that they eke out some profit as the labour component is from their own family. Some even say that they get food for the family in return, even though the price paid for this is much more. Another answer was that through farming, we create opportunities of working on our own crop, and not as a wage labourer on someone else's field. If not farming what else can we do - this was another refrain.

Farmers, in general, and small and marginal farmers, in particular, have been forced into an agricultural practice that they are not quite able to carry forward. In the prevailing situation, input

intensive farming is not their cup of tea. Small holdings, no irrigation, inadequate arrangement for institutional credit, ever minimum support prices, ineffective safety nets, inadequate extension services, incomplete knowledge of new farming and, over and above, an exploitative market, cripples the farmers on all fronts.

One size does not fit all. May be the new input intensive agriculture with all its imperfections is not working for the small and marginal farmers. In a state where small and marginal farmers (SMFs) account for more than 90 per cent of the holdings, they should have been at the centre of agricultural planning by design. But unfortunately this is not the case. SMFs are being forced to fit into the design of new agriculture. It is time that the state and agricultural scientists think of out of the box solutions to put these farmers in the driver's seat for agricultural growth. The state also needs to play an effective role in enacting SMF sensitive policies, creating an enabling environment, protecting the farmers from an overpowering market and providing safety nets for climate change uncertainties; else, the farmers will continue to quit farming and give up on themselves.

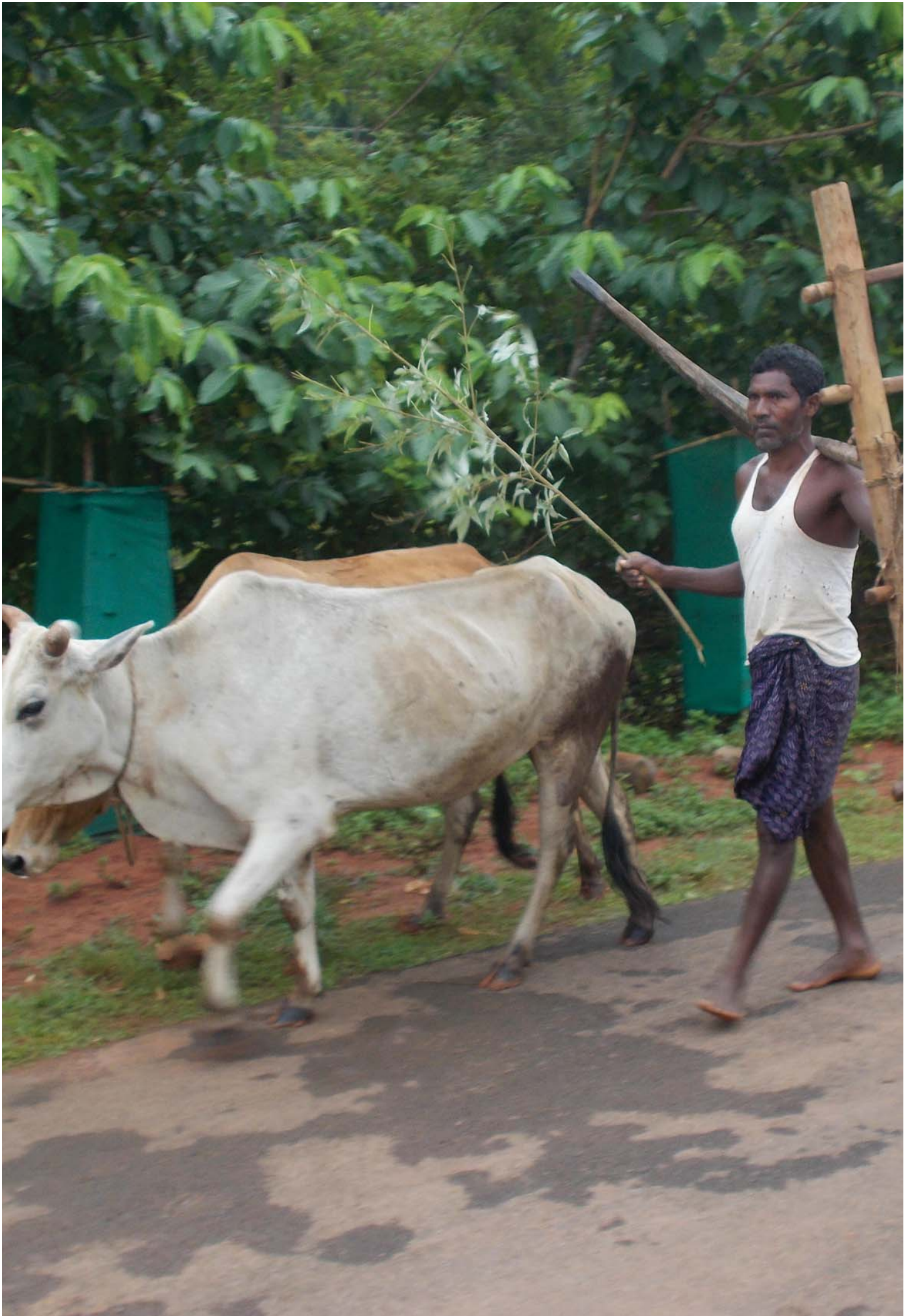
Pranab R. Choudhury

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CHAPTER-I: BACKGROUND

'More than 3600 farmers, including 474 women, have committed suicide in Odisha in the last 15 years between 1999 and 2013,' the State Agriculture Minister Pradeep Maharathy told the Odisha Assembly on 21st August 2015. A report in the *New Indian Express* said, 'According to government records, between 1997 and 2008, 3,500-odd farmers killed themselves. In 2009, some 40 farmers in the western Odisha districts of Sambalpur and Bolangir committed suicide. According to the National Crime Records Bureau, five farmers killed themselves in 2014. The most farmer suicides in a year took place in 1998, when 418 farmers killed themselves across the state.'¹ In 2015, more than 200 farmers committed suicide as per other media reports. Suicides started as a trickle in August. After that the numbers increased to scores. On 6th November 2015, newspapers reported that 8 farmers committed suicide in a day'² Just six days earlier, the toll was six.

1.1 History of farmer suicides in Odisha

Two decades back, while farmer suicides were being reported from states like Maharashtra and Andhra Pradesh, Odisha did not seem to be on the scanner of probable sites for this phenomenon. Farmers in Maharashtra, Andhra Pradesh and other states were into cash crops like sugarcane and cotton and had huge debt burdens. On the contrary, the farmers in Odisha were into paddy cultivation and their outstanding loans were very low. But this assumption was proven wrong. During the first decade of the 21st century, quite a few farmers' suicides were being reported mostly from the drought prone districts in the state -- Sambalpur, Bolangir, Kalahandi and Bargarh -- in its western part. Distress sale of paddy caught the attention of the media only after the farmer Babu Rao self-immolated in front of the district collector, Bargarh when his grievances were not heard. This was also the time when suicides by cotton farmers in Kalahandi and Bolangir districts came to the fore. But in 2009, a severe drought, accompanied by a caterpillar pest attack, took a heavy toll on the farmers. More and more news about farmers' suicides started appearing in the media. More than 50 farmers committed suicide in the year (418 suicides, as claimed in the State Assembly, could be a misleading figure). Most of the farmers were paddy cultivators. Such a high number caught the attention of the vernacular and national media. The role of SHGs and microfinance institutions was questioned for the first time as, in many cases, it was reported that coercion by SHGs and microfinance agencies had worked as a trigger for the farmers to end their lives. Two years later, 2011 also proved to be a drought year leading to farmers' suicides. This time questions were raised about the tenancy system in the state.

Till this time, most of the suicides were restricted to western Odisha; 2015 saw the most widespread drought in the state, when 27 of the 30 districts were affected. This time, farmers consumed pesticides or hanged themselves all over. Farmers' distress was no more restricted to the hinterland. Even farmers from the coastal areas started killing themselves. However, in 2015 too, the maximum number of farmers who killed themselves were from western Odisha.

1.2 Farmers died, but not for farming

There have been different interpretations of the farmers' suicides by stakeholders in the state.

¹ Farmer suicide: Why have Odisha's farms turned into killing fields for those who till them, *The Indian Express*, December 2015, 2015

² Gotie Dinare 8 chasinka atmahatya, *The Sambad*, November 6, 2015

While the Government feels that it is difficult to attribute to this phenomenon to only farming and have cited other reasons and evidences, media, civil society and farmer leaders attribute the agrarian crisis to this spate of suicides in 2015. State Special Relief Commissioner on 29th October 2016, has informed that the 41 reports of farmers' suicides received by Government from across the state, were found to be cases of 'mainly family disputes and excessive liquor consumption'. Government of Odisha does not feel that the suicide by the farmers is linked to crop failure. (Drought Assessment Report, SANDRP).

The administrative officers, Members of the Legislative Assemblies (MLAs) and ministers, accept that farmers have committed suicide. But in the same breath, they add that the farmers killed themselves for reasons other than crop loss or loan burdens due to farming. The reasons cited by them include family quarrels, failed love affairs, disabled children, disease burden of family members and insanity. The suicide of a young unmarried farmer, who was about 20 years old, was blamed on his 'impotency.' In these reasons for committing suicide, one could see a conspicuous absence of causes related to crop loss or loan burden.

The governments, whether at the Centre or at the State, have always responded to farmer suicides with official bipartisan statements that largely seem to reflect the views of the establishment. Statements by Agriculture Ministers in two different years in the state assembly are the same. Agriculture Minister Pradeep Maharathy, while informing the Odisha assembly on 21st August 2015, on the phenomenon of farmers' suicides over last 15 years, quickly added that the farmers had not committed suicide because of crop loss or loan burden, but for other reasons like family feuds, failure in love affairs and alcoholism. On 24th July 2015, Union Agriculture Minister Radhamohan Singh, while responding to questions in the Rajya Sabha, also used the same words to explain farmers' suicides in India.

The nature of these denials is nothing new in Odisha. Earlier they were the same reasons being touted for starvation deaths and now they are being given for farmers' suicides. Starvation deaths were blamed on diseases, consumption of contaminated food items and other reasons. But time and again, enquiries proved that these were not accurate representations. The 1996 National Human Rights Commission and a report filed by the Kalahandi District judge endorsed the same. The judicial report was prepared by the order of the Supreme Court of India in 1989. Even in 1992, a report by Baidyanath Mishra (District Judge) was filed with the High Court of Odisha that showed that the state government's claims on starvation deaths were incorrect. All of these aside,, the denials raise a more fundamental question as to what can be termed as farmer's suicide. Further, can a farmer's suicide be labelled as such only after there is clinching proof that he committed suicide only because of crop loss or a debt burden? This has led to a definitional issue of who is a farmer? Is it a person who does only farming, does not mix farming with his family, who does not borrow for the illness of his/her family members, does not have any consumption loans even if the return from agriculture is not enough for his family to survive? That is asking for too much from the farmers and amounts to saying that the farmers are not supposed to have families and, if they do, they should not be spending on health, festivities, education of their children.

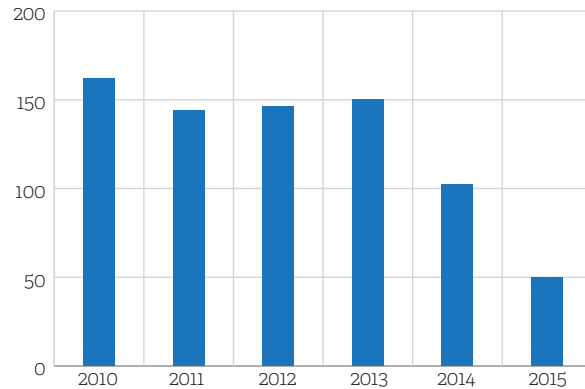
1.3 Denial Institutionalized

The National Crime Records Bureau (NCRB) publishes information on suicides. However, farmers, despite accounting for more than half of the households, did not figure as an independent category. Rather the information on suicides by farmers was provided under self-employed persons as 'Farming/Agriculture' (Table 1). This category excluded agricultural labourers in statistics till 2013. The Accidental Deaths and Suicides in India (ADSI) 2014 report states, 'Nowadays the problem of

TABLE 1: FARMER SUICIDES IN ODISHA

Year	Male	Female	Total
2010	145	17	162
2011	136	06	144
2012	121	25	146
2013	143	07	150
2014	98	04	102
2015	43	07	50
Total	686	66	752

Source: Various ADSI reports, NCRB

FIGURE 1: NUMBER OR SUICIDES AS PER ADSI REPORTS

farmers' suicides is of vital concern that needs to be addressed by the government.' Considering the paramount importance of the issue, the NCRB, for the first time has collected detailed data on farmer suicides.' So 'farmer' and 'agricultural labour' started figuring as a category for interpretation of suicides only as recently in 2014.

The information from various years has been collected from the ADSI reports. But it is not specified whether the data provided for 2010 to 2013 is only for farmers or agricultural labour. We have taken suicides in the farming sector as including both farmers and agricultural workers. What Figure 1 shows is that there was a sudden slump in the number of suicides from the year that they started being treated as a special section in the ADSI report. According to the ADSI report, during 2015, there was a drop of 51 per cent in the number of suicides in the farming sector, as compared to 2014. These statistics however do not seem to be in tune with the ground reality. As per media reports, there has been a sudden increase in farmer suicides in Odisha, but the ADSI report shows that there was a drop in the number of suicides (Table 2). Are the farmers being denied even a number in the statistical records of the country?

TABLE 2: SUICIDES IN THE FARMING SECTOR

Year	Farmer or cultivator			Agricultural Labourers			Total		Total
	Male	Female	Total	Male	Female	Total	Male	Female	
2014	5	0	5	93	04	97	98	04	102
2015	23	0	23	20	07	27	43	07	50

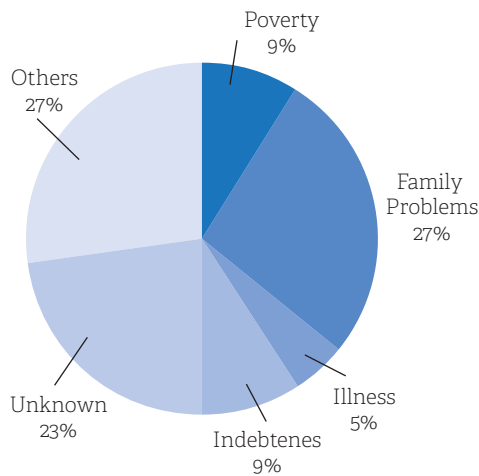
Source: ASDI (NCRB) 2014 and 2015

As per Table 2, during 2014, all the farmers had their own land, whereas during 2015, 18 farmers had their own land and the rest were tenant farmers. While the overall suicide rates in the farming sector reduced by 51 per cent as compared to 2014, in the case of farmers, it increased to 460 per cent.

During 2015, 56.7 per cent of the farmers who committed suicide were marginal farmers, 30.4 per cent were small farmers and only 13 per cent were medium farmers. Put together, 87.1 per cent of suicide victims belonged to the small and marginal farmer's group. But, in 2014, all the 5 farmers were small farmers. Hence, details about farmers who committed suicide reveals that it was mainly small and marginal farmers who were the victims.

Regarding the causes of death in 2015, out of 23 farmers, no one died due to crop failure, 9 per cent died due to poverty and only two (9 per cent) died due to indebtedness (Figure 2). Family problems

FIGURE 2: REASONS FOR COMMITTING SUICIDE



Source: ADSI reports

support system. They blame changes in climatic conditions and other extreme natural events for this declining situation as well. In most of the cases, poverty is identified as a major reason. Many of the farmers who committed suicide were either small and marginal farmers or tenants. The tenants bore the brunt of crop loss most, but they were not entitled to the government's relief packages as they did not have land rights. Another argument is that agriculture, especially paddy cultivation, with its present returns, has become non-remunerative for farmers. Access to capital is a major issue as farmers have to borrow money from informal sources at high interest rates and they are also coerced when they are unable to pay back the amount. Poverty among the farmers forces them to go for more consumption loans, with increasing influence of consumerism, which in turn increase their burden and make them more vulnerable.

Sri Lingaraj Pradhan, Convenor of the Paschima Odisha Krushak Samanwaya Samiti, and a well-known farmer leader in the state, says that the rate at which the cost of inputs like seeds, fertilizers, water, labour and pesticides have increased has not been matched by the selling price of paddy. The government's failure, in procuring paddy from the farmers at the proper time, has compelled the farmers to distress sell their produce. Recurrent natural calamities have also weakened the farmers. Reduction of subsidies by the government and banks/ cooperatives not extending loans to them have compelled the farmers to take loans from moneylenders and SHGs at high interest rates, forcing them into a debt trap. These developments pushed the farmers towards suicide.

Saroj Mohanty, spokesperson of Paschima Odisha Krushak Mahasangha, an organization working for farmers' interests in western Odisha, the hot bed of farmer suicides, opines that the institutional arrangements, developed with much hype during the post-reform era, have failed the farmers in the area. In his assessment of farmer suicides in western Odisha, in 2009, he pointed out that it was small and marginal farmers who were committing suicide. Most of them were into share-cropping arrangements with either fixed or variable rents. Lack of irrigation forced farmer suicides as most of those who committed suicides were from rain-fed areas. Poor farmers who were mostly below the poverty line (BPL) borrowed money from moneylenders or non-governmental agencies and were not able to take the pressure of returning these loans. Government institutions, created to protect and promote the interests of farmers, were not effective in supporting them.

were reported being responsible for suicide by 27 per cent of the farmers while two undefined factors 'Others' and 'Unknown Cause' accounted for 50 per cent of the deaths.

1.4 Why farmers commit suicide? Voices of Non-state Actors'

While state attributes personal problems like family quarrels, consumption loans, health issues and education of their children as reasons for farmers' suicides, the media and the civil society feels somewhat differently and attributes the same to lack of irrigation facilities (created to counter moisture stress and a drought situation), socio-economic situation of farmers and declining agricultural trends and, overall, an inadequate

Akshaya Kumar, State Coordinator of Nabanirmal Krushak Sangathan, blames the existing policies for the present plight of farmers. Government policies have served only one purpose: discouraging farmers from farming. Programmes like the Green Revolution had many flaws in its implementation like adequate and imperfect credit facilities and no arrangements for irrigation. For everything, the price used is the maximum retail price, but for farmers, it is minimum support price (MSP), and, this too, is not administered properly.



CHAPTER-II: CONTEXT, FRAMEWORK AND METHODOLOGY

2.1 Context of the study

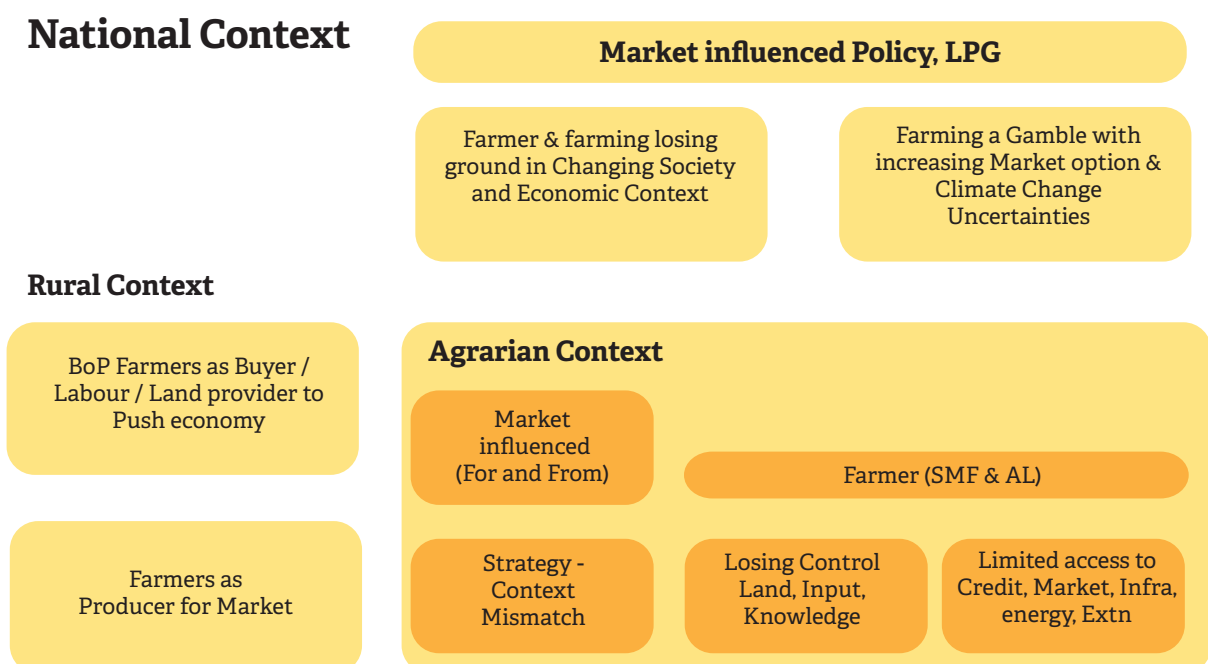
Odisha experienced widespread drought during the 2015 Kharif (monsoon) season which resulted in an increase in the number of farmer suicides. Different explanations were provided by different stakeholders for farmer suicides. The media identified crop loss and debt burden as the prime reasons for the suicides. The government's explanation was that the farmers were killing themselves for reasons other than crop loss or debt burden because of agriculture. While political parties, civil society, the media, farmers' organization and citizens were engaged in intense debates, many questions remained unanswered.

2.1.1 Study on farmer suicides

This study is an attempt at developing a comprehensive understanding of farmer suicides in Odisha and was done in response to the high number of suicides reported in 2015 under the broad canvas of an agrarian crisis. The study's broad aims are:

- Studying 30 cases of farmer's suicides and analysing their possible aspects - farming technology, land tenure, access to credit, extension and insurance, marketing and impacts of climate change.
- Suggesting an inclusive and holistic roadmap to address the agrarian crisis in general and the fast increasing farmers' suicides in particular.

FIGURE 3: LOCATING SMALL AND MARGINAL FARMERS IN THE OVERALL CONTEXT



2.2 Framework of the study

Based on our understanding and reading of farmer suicides, we looked at farmers' suicides more as the manifestation of an agrarian crisis. Calling it a farming crisis, we thought it could be attributed to some intentional and inadvertent changes sweeping across society at different levels (Figure 3). Isolating small farmers and agricultural labourers, who were the victims, might miss out the larger influencers. At the national level, the post-liberalization policy changes around farming, *vis-à-vis* other sectors of the economy, as well as the increasing influence of the market on policy, has had its impact on farmers and farming.

Of late, rural India is being viewed as a consumer base, using the famous bottom of the pyramid (BoP) theory. While this positions farmers more as buyers of consumer products as well as of increasing options of agri-inputs, the LPG (Liberalisation Privatisation Globalisation) regime also advocates pushing them out of farming and rural areas as labour in other sectors. Indirectly, the process is also vacating and converting farmlands with the argument of profitability for alternate uses or the most competitive use. On the other hand, the role of farmers, as producers of food, is not well respected and protected and they continue to be exploited in the market, even as MSP (minimum support prices) and other protections fail to serve their purpose.

In the agrarian context, we see again the influence of the market as farmers are increasingly being found to buy inputs from and selling in the market. This has been a big transition from farming for food (along with fuel, fodder and fibre) production, rural livelihoods and also impacts local culture. This influence has led to a drastic change in the choice of crops and cropping patterns, input-use, energy-use, perception of yields and returns, mode of farming and attitude and practice towards nature and farming. While such changes sweep the farming sector, we feel that the strategy of the state's research and extension apparatus is probably missing in the Indian farming contexts, which largely consist of small farms with reliance on an unpredictable monsoon. These farms exhibit wide diversity in terms of agro-biodiversity, cultural practices and food and consumption systems, along with adaptation strategies, over generations. This is quite different from the context where market-based or green revolution based agriculture worked. The shift from resilience focused, culture-linked farming adapted to local ecosystems, has faced serious challenges in shifting to surplus and profit oriented agriculture.

At the level of small farmers and agriculture labourers, we see a crisis in terms of their losing control and sovereignty over their seeds, inputs, land and knowledge systems, while they try to adopt the shift in agricultural practices. Their struggle becomes more ominous when policies, required to smoothen the transition in terms of assured access to credit, market and infrastructure, remain lacking or are completely absent.

Our hypothesis of the study has been framed around this understanding of a mismatch between the context and strategy around small-scale farming influenced by the LPG and market-driven regime, making small farmers lose control and become more vulnerable. We also submit that the uncertainties have been growing, not as a result of climate change, but more because of farmers' knowledge-limitations in adapting to the change with new-agriculture and also their increasing confusion about chaotic market options and choices.

2.2.1 Hypothesis

- **Market led and market based agriculture** adopting a crop-commodity, scale, efficiency, grain-productivity, high-external input approach at the cost of biodiversity, integrated farming, low external inputs, local knowledge and inputs, farmer-control and subsistence farming is **making small and marginal farming highly risky and these farmers more vulnerable.**

- **Market-led and market-based agriculture in the context of SMFs requires a different approach and enabling environment** (financial inclusion, an inclusive market, infrastructure and enhanced access to land are not available/accessible **due to lack of policy provisions or poor/lack of implementation of existing policies**).
- **Climate change adds more uncertainties**, particularly in certain agro-ecological and socioeconomic contexts, and with **already reduced resilience** (for example, with reducing ecological farming, knowledge and collective action and farmers control) coupled with **inadequate enabling** (for example, lack of support in terms of market, credit, insurance and infrastructure) and **chaos** (with fast-expanding market options), the SMFs are more exposed to stress and are being forced to quit.

The study addresses the following research questions.

Research Question 1: To see if SMFs are located within the broader policy context and situation around rural areas, population and development and around mainstream agricultural development strategies and understand how their vulnerabilities in terms of losing control and limited access are linked to national, rural and agriculture contexts.

Research Question 2: Whether the farmers quitting agriculture is a manifestation of a bigger agrarian crisis, which itself is a complex situation requiring holistic appreciation? Whether there is an inherent causal link between the agrarian crisis and the farmers quitting with the market, that is, whether the agrarian crisis is fuelled by a market-based and lead approach in agriculture and whether farmers quitting is leading to the release of land and labour for the market in the name of more profitable and economically-efficient use?

FIGURE 4: LINKING THE MARKET TO THE AGRARIAN CRISIS AND FARMERS QUITTING

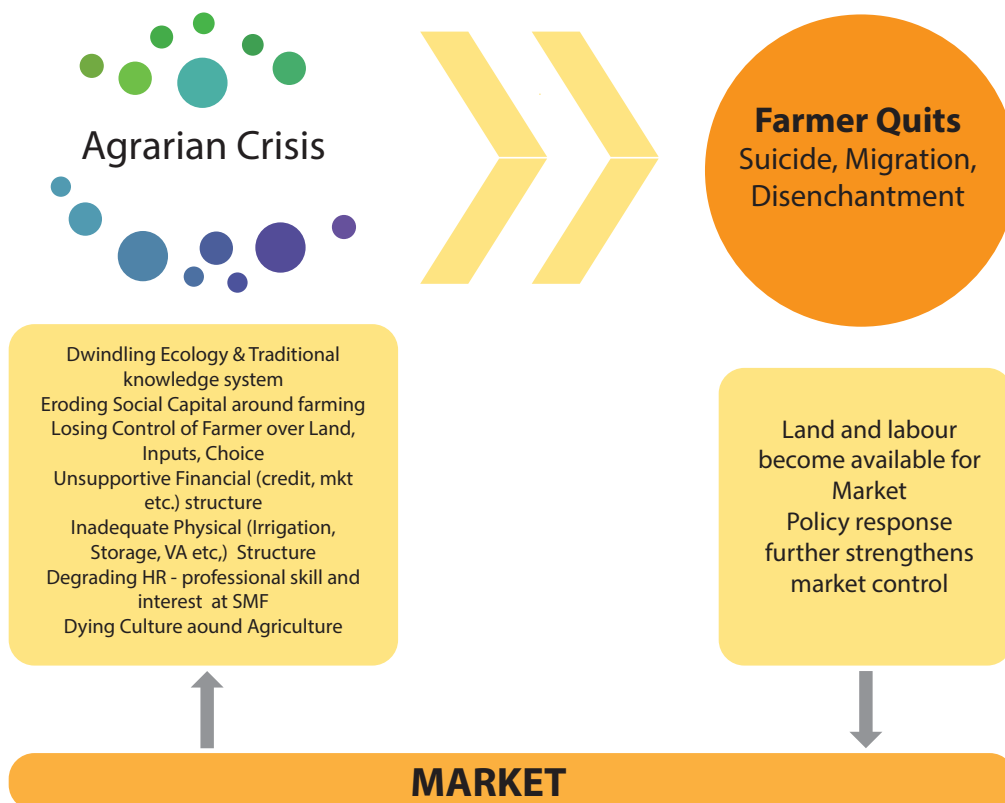


FIGURE 5: MULTIDISCIPLINARY APPROACH TO THE FARMING CRISIS

Research Question 3: Whether the agrarian or more appropriately 'farming-crisis' requires a multidisciplinary and holistic diagnosis? Therein, how a different management and governance of different disciplines and resources have fuelled this crisis (Figures 4 and 5).

2.3 Methodology

2.3.1 Data collection framework

A hybrid methodology was used to collect the data. We combined qualitative and quantitative methodologies to collect and analyse primary and secondary data from a wide range of stakeholders, as the objective was to get a 360 degree view from multi-stakeholder perspectives. We combined the multidisciplinary framework to collect information from different stakeholders and sources (Table 3).

TABLE 3: DATA COLLECTION FRAMEWORK

	Information Circles	Field Data Points	Field Stakeholders	Secondary Review
Political	Land tenure	Tenancy incidence and terms Size of land Type of land	Sharecroppers, land owners, revenue inspector (RI)	Agricultural Census: SF & M; Tenancy Bhulekh: Village land ownership Census: Cultivator: Labour ratio
	Seed	Seed use and replacement trends	Farmers, Assistant Agriculture Officer (AAO)	Literature Review: per cent share of market-seeds, hybrid, GMO
		Types of seeds needed by farmers and the types supplied	Farmers, AAOs	Agricultural dept. statistics, seed procurement and supply policy of the state
		Seed sources	Farmers, AAOs	Literature Review: Local, market and government sources, trends, growth of seed companies
		Seed sharing and seed bank	Farmers, AAOs	Literature Review: Traditional/ community seed banks, indigenous land races, agro-biodiversity conservation
		Seed type, quality and timeliness	Farmers, AAOs	Literature Review: Type, quality and timeliness of supply of seeds vis-à-vis the needs of the agro-ecosystems; past experiences
		Seed research	Farmers, AAOs, CRRI, OUAT	Literature Review: Political economy of seed research: hybrids, transgenic, terminator genes; role of seed market
		Policy support/ Entitlements	Kisan Credit Cards	Farmers, banks
	Soil Health Cards		Farmer, AAOs	Soil map of the state, soil quality of different agro-climatic zones
	Online farmer registration		Coops, farmers	Websites and reports: Schemes and coverage
	BPL/NFSA Cards		Sarpanches	Websites and reports: Schemes and coverage
	Biju Krushaka Kalyan Yojana		AAOs, farmers	Websites and reports : Schemes and coverage
	Crop compensation		Farmers, RIs	Websites and reports : Schemes and coverage
	Insurance		Banks, farmers	Websites and reports : Schemes and coverage

	Information Circles	Field Data Points	Field Stakeholders	Secondary Review
	Subsidies	MSP and sale centres	Farmers, cooperatives, agents	Websites and reports : Schemes and coverage
		Compensation to the deceased	Farmer families, sarpanches	Websites and reports : Schemes and coverage
		Wages through MGNREGS	Farmer groups, sarpanches	Websites and reports : Schemes and coverage
		Govt. response to drought	Farmer groups, AAOs, sarpanches	Websites and reports : Schemes and coverage
		Pump/drip/ sprinklers, seeds, horticulture, farm mechanization	Farmers, AAOs	State agriculture policy and different scheme documents
Social	Collective action-traditional	Traditional practices, present status	Farmers, NGOs	Literature Review: History of such actions and present status
	Collective Action-Modern- Farmers' clubs, SHGs	Incidence and status of formal groups, influence	Farmers, AAOs, banks	Websites and reports: Schemes, coverage, growth and experience
Ecological	Crops and varieties	Farmers, AAOs	-	Agricultural statistics, trends
	Fertilizer use	Farmers, AAOs	-	Agricultural statistics, trends
	Pesticide use	Farmers, AAOs	-	Agricultural statistics, trends
	Cropping pattern	Farmers, AAOs		Agricultural statistics, trends
	Cropping Intensity	Farmers, AAOs		Agricultural statistics, trends
	Farming	Farmers, AAOs		Agricultural statistics, trends
	Traditional farming practices Present practices	Farmers, AAOs		Agricultural statistics, trends
	Alternate practices – SRI, sustainable agriculture Impact of climate change on agriculture	Farmers, AAOs		Agricultural statistics, trends
Economic	Credit	Farmers, banks, coops		Banking density, SHG density, Kisan Credit Cards' coverage, insurance coverage
	Insurance (crop, health, RKVY)	Farmers, banks, coops		Websites and reports: Schemes, coverage
	MSP market	Farmers, banks, coops		Price fixation criteria, paddy purchase policy
	Input market	Farmers, suppliers		Market penetration, coverage

	Information Circles	Field Data Points	Field Stakeholders	Secondary Review
Cultural	Traditional practices	Farmers, NGOs		Literature Review
	Present status	Farmers, AAOs		Literature Review
	Culture-Agriculture relationship	Farmers, NGOs, AAOs		Literature Review
Human	Migration	Farmers		Literature Review, reports, websites: Trends in migration
	Training of the farmers	Farmers, AAOs, ATMA, KVK		Reports, websites: Types of training, coverage and trend
	Presence of village agricultural workers	AAOs, VAW		Govt. reports: Density and vacancies; changing job responsibilities
	Labour	Farmers		Literature Review: Changing demand and availability, innovations
Physical	Sharing of work	Farmers		Literature Review: Changing demand and availability, innovations
	Irrigation			MI Census: Irrigation data AAO : Bore well data
	Storage, cold storage,			Cooperation department reports, Govt. plans, Economic Survey
	Value addition			Census

2.3.2 Sampling

The number of farmer suicides in a district can be considered as a measure of the degree of failure of the farmers' coping capacities. Based on the number of farmers who have committed suicide in a district, a proportional number of deceased farmers were identified for the case studies. As the preliminary information for 156 farmers was collected, we also worked with 30 farmers for exploratory casework. Roughly 20 per cent of the farmers were chosen from a district, with a reasonable rounding off. As the study looks at the agrarian crisis, agro-climatic zones were also taken as a criterion for sampling. For the districts where the number of suicides was less than three, the farmers were chosen to ensure that all the agro-climatic zones were represented fairly (Table 4).

TABLE 4: SUGGESTIVE SAMPLES FOR THE STUDY

District	No. of Suicides	Sample	Agro-climatic Zone (AZ)	
Bargarh	24	5	9	
Bolangir	13	3	9	
Mayurbhanj	9	2	2	
Keonjhar	9	2	2	
Balasore	8	1	3	
Sambalpur	7	1	9/1	

District	No. of Suicides	Sample	Agro-climatic Zone (AZ)	
Dhenkanal	7	1	10	
Cuttack	7	1	10/4	
Nuapada	7	1	8	
Sundergarh	6	2*	1 (1 farmer added for AZ criterion)	
Angul	6	1	10	
Jajpur	6	1	3	
Nawarangpur	6	1	6	
Kalahandi	5	1	8	
Koraput	5	1	6	
Khordha	5	1	4	
Kendrapada	4	1	4	
Bhadrak	3	1	3	
Sonepur	3	0	9	
Ganjam	2	0	4/5	
Boudh	2	0	9	
Nayagarh	2	0	4	
Jagatsinghpur	2	0	4	
Deogarh	2	0	1	
Jharsuguda	2	0	9	
Gajapati	1	1*	5	added for AZ criterion
Rayagada	1	1*	5	added for AZ criterion
Malkangiri	1	1*	7	added for AZ criterion
Puri	1	0	4	
Total	156	30		

The sampling covered 22 districts and all 10 agro-climatic zones in Odisha. Agro-climatic zone 9, the Western Central Table Land, had the highest number of samples as it accounted for about a quarter of the farmer suicides (Table 5).

TABLE 5: REPRESENTATION OF AGRO-CLIMATIC ZONES

Agro-climatic zone No	Agro-climatic zone	Sample size
1	North Western Plateau	2
2	North Central Plateau	4
3	North Eastern Coastal Plain	3
4	East and South Eastern Coastal Plain	3
5	North Eastern Ghat	2
6	Eastern Ghat High Land	2
7	South Eastern Ghat	1
8	Western Undulating Zone	2
9	Western Central Table Land	9
10	Mid Central Table Land	3

During the identification of the specific farmers, care was taken to look into the following aspects:

- Land ownership and tenancy
- Irrigated and completely rain-fed areas
- Progressive and traditional farmers
- Source of loans for farmers
- Odisha government report on occurrence of droughts
- Socioeconomic profile (Socio-economic Caste Census (SECC), BPL, Cultivator, Agriculture Labourer Ratio etc.)

2.3.3 Limitations

The study looks at the crisis of farmers' suicides through the individual struggle of 30 farmers who committed suicide. Getting information from the bereaved families was not easy. Details regarding loans and interest rates were difficult to get from a farmer's family and from the FGDs, as taking loans is a private affair. In some cases, government officials and other stakeholders had a bias when they explained that the suicide was not a farmer suicide primarily because the government took such a position.

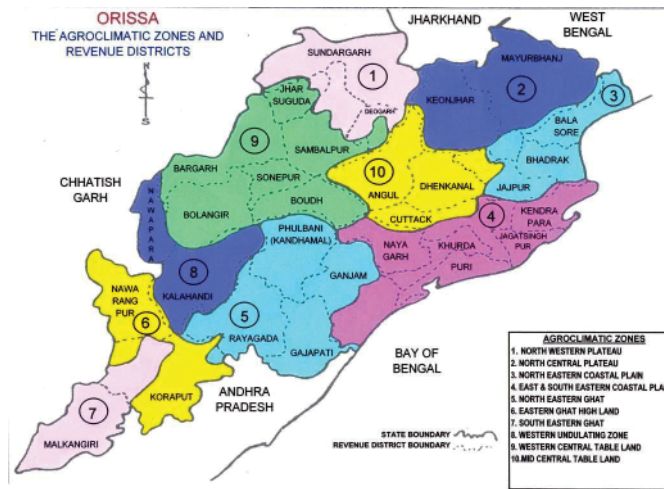


CHAPTER-III AGRICULTURE IN ODISHA

3.1 Odisha’s agricultural resources and agro-climatic zones

Odisha is spread over 1,55,707 square km and has four distinct land types -- Northern Valley area, Eastern Ghats, Central Table Land and the Coastal Plains - which provide diversity in land types to encompass a larger agricultural diversity. The climatic conditions, land type, extent of rainfall and the local topography have shaped the 10 agro-climatic zones (Figure 6). Odisha receives enviable average annual rainfall of 1451.2 mms, which varies from district to district. Eighty per cent of the rain is received during the south-eastern monsoon in four months (June-September). Even though the quantum of rainfall is quite high, its distribution during the monsoon period is highly uneven and erratic.

FIGURE 6: AGRO-CLIMATIC ZONES IN ODISHA



3.2 The agriculture sector

There has been a structural shift in Odisha’s economy, particularly in terms of a sectoral shift, from agriculture to the industry, and service sectors in recent times. In 2014-15, the broad agriculture, industry and service sectors (as per CSO classifications) contributed about 15.4, 33.4 and 51.2 per cent to Odisha’s GSDP (Table 6). Agriculture’s contribution to GSDP has been on the decline. Starting from a contribution of 58.3 per cent in 1950-51, it declined to 15.4 per cent in 2014-15. The sector provides employment and sustenance, directly or indirectly, to more than 60 per cent of the population. However, the sector suffers from frequent natural shocks like cyclones, droughts and flash floods affecting growth trends. Despite wide annual variations in its growth, the agriculture sector grew robustly in real terms at 2004-05 prices, at a rate of 12.30 per cent during 2012-13. This was followed by a negative growth rate in 2013-14, mainly because of the cyclonic storm Phailin and flash floods in October 2013. However, as per advance estimates, the agriculture and animal husbandry sector expects to grow at 1.97 per cent during 2014-15 (GOO, 2016).

TABLE 6: CONTRIBUTION OF AGRICULTURE TO GSDP

Year	Agriculture	Industries	Services
1950-51	58.3	15.1	26.6
1980-81	41.3	23.0	38.7
1990-91	32.2	22.6	39.2
2012-13	17.47	24.23	58.28
2014-15	15.4	33.4	51.2

Source: Various Economic Survey Reports of Govt. of Odisha

3.3 Agriculture governance

The agriculture sector³ has been promoted by the state as a priority sector because of its high potential in employment generation, inclusiveness and sustainable growth. The state government has been pumping in more money into agriculture. The state's budgetary provisions for agriculture grew from INR 343.46 crore in 2005-06 to INR 10,903.62 crore in 2015-16, with a separate agriculture budget for the last three years. But agriculture's rate of growth has been erratic. Farm growth was 12.3 per cent in 2012-13, followed by a negative growth of 18.12 per cent in 2013-14 due to cyclone Phailin and flash floods. According to the National Sample Survey Organization (70th Round), the average monthly income of a farmer's family in Odisha was INR 4,976, which is well below the national average of INR 6,426. Natural calamities have been a recurrent feature — of the last 55 years of the state's history, only 15 have been free of disasters. Regulated market cooperatives hardly work and very few farmers get the minimum support price for paddy (INR 1,410 per quintal), even though they spend about INR 22,000 per acre for cultivating the crop (GOO, 2016).

BOX 1: PIONEERING INITIATIVES IN THE AGRICULTURAL SECTOR HIGHLIGHTED BY STATE

- Was the first state to confer **'industry' status to agriculture**
- One of the first states in the country to put forth a **special budget on agriculture**
- Changing the name of the Department to **Department of Agriculture and Farmers' Empowerment** in February 2016.
- Formulation of the **State Agriculture Policy, 2013**
- Among the few states in the country to have an **Agriculture Cabinet** to look into the growth of cultivation and find ways to overcome hurdles being faced by small farmers
- The food grains production during 2014-15 reached an all-time high of 118 lakh metric tonnes, surpassing all previous records
- The state was awarded with the prestigious 'Krishi Karman Award' by the Government of India four times in five years
- Risk coverage through health insurance under the Biju Krushak Kalyan Yojana covering 57.5 lakh farm families
- Establishment of a gene bank for conservation of traditional and farmers' varieties
- Online registration and monitoring of major agri-inputs
- In December 2015, the state took an initiative to identify sharecroppers for payment of compensation for crop loss on the basis of a field inquiry and verification by a village-level committee as there is no database on sharecroppers
- Planning to introduce a land leasing legislation soon to safeguard the interests of sharecroppers

³ The Agriculture sector includes agriculture, animal husbandry, fisheries and forestry sub- sectors.

3.4 Occupational dependence on agriculture

Out of a population of 4.2 crore (Census, 2011) the size of the workforce is 175.42 lakh. Of this, 32.8 lakh (18.7 per cent) are cultivators and 24.21 lakh (13.8 per cent) are agricultural labourers. Put together, this accounts for 32.5 per cent of the population. The workforce (both cultivators and agricultural workers) deriving employment from agriculture constituted about 65 per cent of the total workforce of Odisha in 2001, which declined to 62 per cent in 2011. The agriculture sector also employs child labour (GOO, 2016a). Small and marginal farmers constitute about 83 per cent of the farming community (Table 7).

TABLE 7: CONTRIBUTION OF AGRICULTURE TO LIVELIHOODS IN ODISHA

	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11
Percentage of population in Rural areas	93.7	91.6	88.2	87.0	85.0	83
Percentage of workforce engaged in Agriculture	73.8	77.4	74.7	73.0	72.5	70.5
Percentage of Cultivators to Main workforce	56.8	49.2	46.9	44.3	52.0	46.7
Percentage of Agricultural Labourers to Main Workers	17.0	28.3	27.8	28.7	61.0	76.8
Per Capita Availability Of Cultivated Land (Ha)	0.39	0.38	0.31	0.18**	0.17	0.15

Source: Performance of agriculture in Odisha: inter-temporal and spatial variations, Planning Commission Document and Census Reports for 2001 and 2011)

Most of the population in the rural areas is primarily dependant on agriculture. The percentage of cultivators to main workers decreased from 56.8 per cent in 1960 to 44.3 per cent in 1990. In contrast, the percentage of agricultural labourers to main workers increased from 17 per cent in 1960 to 29 per cent in 1990. Thus, within a span of three decades, the ratio of agricultural labourers to cultivators increased substantially. The same trend continued with a decline in the number and percentage of cultivators (from 29.7 to 23.4 per cent) at the cost of an increase in agriculture labourers (35 per cent to 38 per cent) during 2001-11; this is in line with national trends.

This is primarily due to an increase in landlessness or near landlessness on account of population growth and sub-division of landholdings among legal heirs. The total number of households in the state is 96.56 lakhs. Odisha had 4,45,450 landless households (Status of Land Ownership in Odisha, UNDP, 2008). As per the Socioeconomic and Caste Census (2011), in rural Odisha, 54.28 per cent of the households (47,105,71) did not have any land.

3.5 Cultivable land and landholdings

The total cultivable area of Odisha is 64.09 lakh hectors (41.16 per cent) and the cultivated area is 61.8 lakh hectares. About 40.17 lakh hectares of cultivable area has acidic soil and approximately 4 lakh hectares of area demonstrates salinity. Apart from this, about 3 lakh hectares is waterlogged. Of the total cultivated land, high land is 29.14,000 ha (47.15 per cent), medium land is 17,55,000 ha (28.4 per cent) and lowland 15,11,000 ha (24.45 per cent) (Agricultural Statistics, 2013-14).

There are 46.68 operational holdings in Odisha, of which, 72.15 per cent are marginal holdings (less than one ha) that account for 39.62 per cent of the total cultivable land; 19.69 per cent of

the holdings are small (between 1-2 ha) holdings and these make up about 30.87 per cent of the agricultural land in the state. Taken together, small and marginal farm holdings are 91.84 per cent, accounting for only 70.49 per cent of the agricultural area. The average landholding in the state is only 1.03 ha. While in 1971 the average agricultural landholding was 1.9 ha, this has been on a decline on a continuous basis. During 2001, the average landholding of agricultural land was 1.2 ha (Table 8).

TABLE 8: DISTRIBUTION OF LANDHOLDINGS⁴

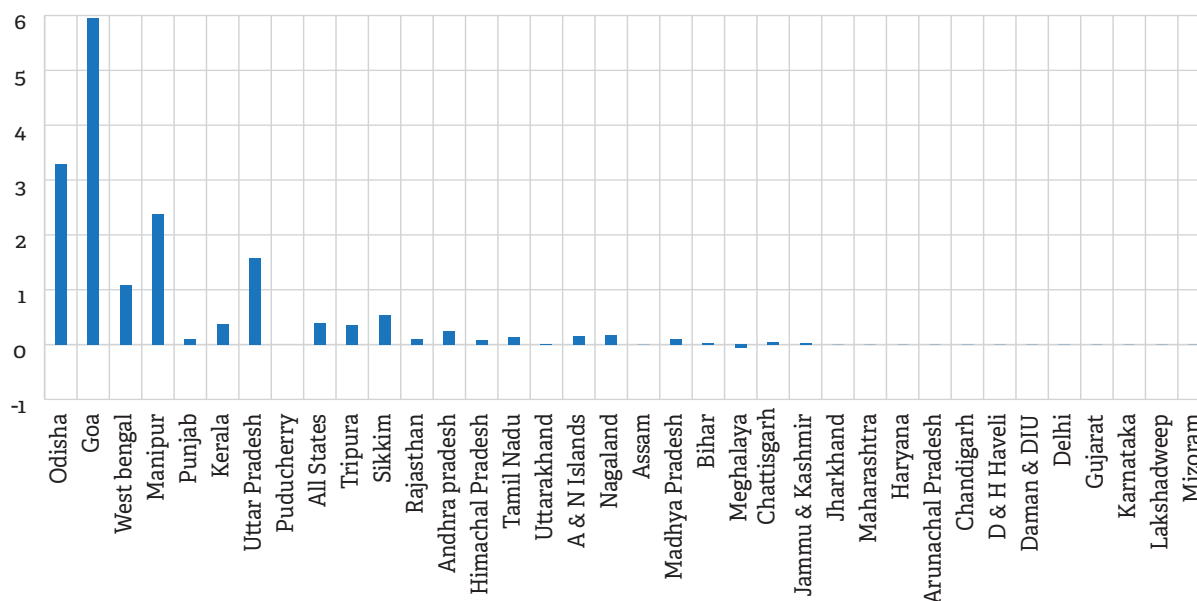
Farmers	No. (Lakh)	% of Holdings	Area (Lakh ha.)	per cent of Area
Marginal (< 1 ha)	33.68	72.15	19.22	39.62
Small (1-2 ha)	9.19	19.69	14.98	30.87
Semi Medium (2-4 ha)	3.11	6.66	9.19	18.94
Medium (4-10 ha)	0.64	1.37	3.81	7.85
Big (> 10 ha)	0.06	0.13	1.32	2.72
Total	46.68	100	48.52	100

Source: Agriculture at a glance (Agriculture Department's website)

3.6 Land tenure, tenancy and sharecropping

Odisha has 4,661,262 landless households (54% of the total households) as per SECC (2011). While SECC (2011) reports 36 per cent of the households as landless, who are deriving a major part of their incomes from manual casual labour, an interpretation of the Agriculture Census (2000-01) and Census (2001), indicates landlessness to be 39 per cent. The Annual Report (2014-15) of RDM (Revenue and Disaster Management) Department, Government of Odisha, however, reported 4 per cent (1,49,266 families identified as homesteadless and 1,73,056 as landless) (Figure 7).

FIGURE 7: PERCENTAGE OF WHOLLY LEASED-IN AREA (SOURCE: AGRICULTURE CENSUS, 2010)

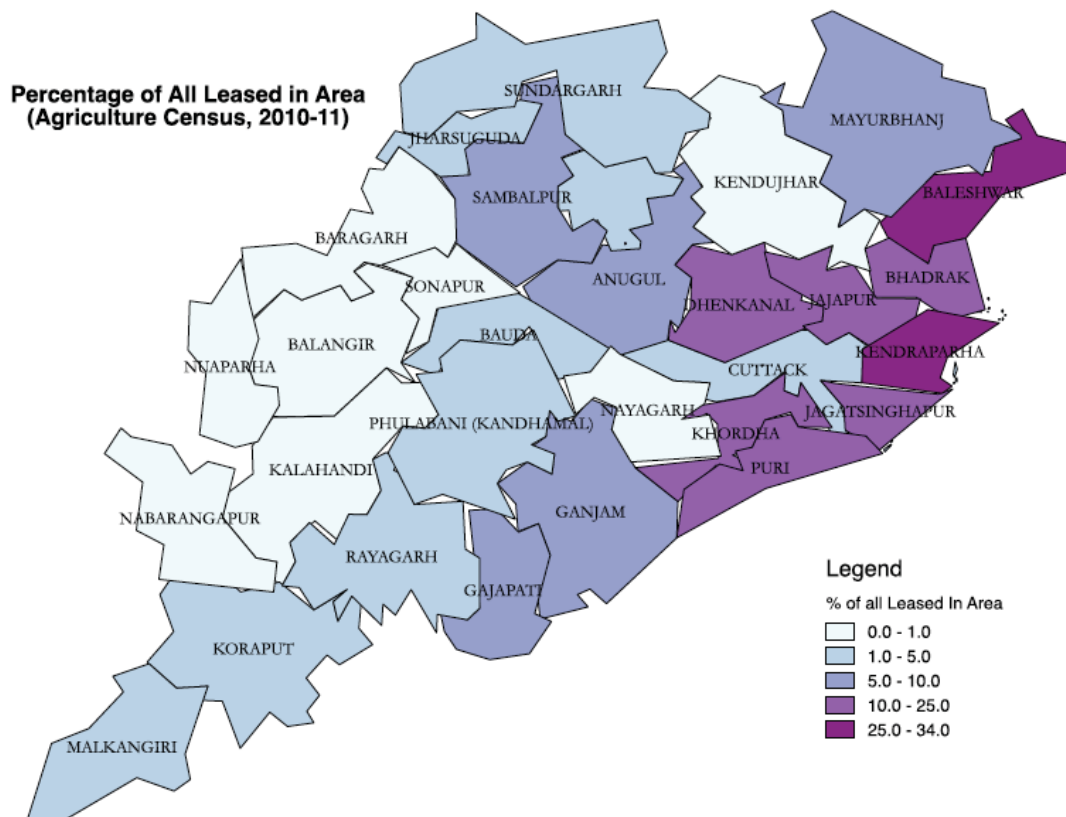


⁴ GOO (2016b) Agriculture at a Glance, Department of Agriculture and Farmer's empowerment. Available at: [http://agriodisha.nic.in/pdf/Agriculture_At per cent20_A_Glance_New.pdf](http://agriodisha.nic.in/pdf/Agriculture_At%20per%20cent20_A_Glance_New.pdf).

There are different estimates of tenancy in Odisha; these are higher than what is officially reported in the Agriculture Census, showing that tenancy continues to remain concealed. The Agriculture Census' figures put tenancy in the state at about 3.3 per cent, which is the second highest behind Goa, in terms of wholly leased-in area (Figure 7). However, tenancy varies widely among districts, with coastal districts reporting more tenancy (Figure 8).

Mishra (2011) reported that 22 per cent of the rural households in Odisha had leased-in land while NIRD (National Institute of Rural Development) put this figure at 27 per cent. Mishra (2011) further indicates that as per best available estimates, on an average, around 20 per cent of the farm households participated in the land-lease market and that over 80 per cent of the leasing activity was by small and marginal farmers. However, a recent report states that in approximately 80 per cent of the farm land, sharecroppers did the farming. Around 50 per cent of the people involved in agriculture were sharecroppers.⁵ The issues of sharecroppers are a matter of concern in the context of increasing agriculture production and equity in the development of the state.

FIGURE 8: DISTRICT-WISE PERCENTAGE OF LEASED-IN AREA (SOURCE: AGRICULTURE CENSUS, 2010)



Both the lessors and lessees predominantly come from the marginal and small farm category. The terms and conditions of tenancy contracts are inequitable and regressive in nature and favour the lessors. Contracts are oral, unrecorded, insecure with high rents and characterized by the absence of input cost sharing. Though tenancy is legally forbidden in the state, its prevalence suggests that in a specific socioeconomic context, tenancy seems to play a useful role by providing means of livelihood to the landless and land-poor peasants. (Swain, 1999).⁶

⁵ <http://www.dailypioneer.com/state-editions/bhubaneswar/sorting-out-sharecropper-issues-vital-to-boost-state-agriculture.html>.

⁶ www.dspace.gipe.ac.in/xmlui/bitstream/handle/.../av-1999-sep-4-abs.pdf.

3.7 Crops and cropping patterns

The gross cropped area in Odisha is 87.94 lakh ha. The cropping intensity is 167 per cent. Paddy is the principal crop cultivated both in the kharif (monsoon) and rabi (winter) seasons. The crop distribution, as per cent gross cropped areas, is paddy (76.4 per cent), pulses (12.2 per cent), oilseeds (5.2 per cent), cash crops like sugarcane, potatoes and chillies (2.0 per cent) and others (4.2 per cent) (Ghosh and Kumar, 2010).⁷ Paddy constitutes more than 90 per cent of total production of food grains and continues to be the dominant crop in Odisha, though in terms of acreage, there has been a gradual shift from paddy to cash crops. Rice productivity has been slowly increasing and was 18.21 quintals/ha in 2013-14 which is less than the national average (GOO, 2016a). Maize and finger millets (ragi) are important coarse cereals, jowar (sorghum), bajra (pearl millet) and small millets are also grown in the state to a lesser extent. These crops are mostly grown in tribal districts during the monsoon season in un-irrigated uplands with poor management practices and more as subsistence crop. The area under ragi is showing a declining trend due to diversion of traditionally ragi growing areas to cotton, maize vegetables and pulses.

Arhar (split red gram), moong (green gram), biri (black gram), kulthi (horse gram), gram, field pea, cowpea and lentils are the pulses grown in the state. They are grown mainly in the uplands during the kharif season predominantly in inland districts and in rice fallows during the rabi season, mostly in coastal districts under available moisture conditions. Mung and biri are also grown as the third crop in summer under irrigated conditions. Post-monsoon rains mostly govern the rabi coverage of pulses in rice fallows. The land under pulses has more or less remained the same.

Groundnut, sesame, castor, mustard, niger, sunflower, safflower, soyabean and linseed are the oilseeds grown in the state. Of these, groundnuts, sesame, mustard and niger are the major ones. Now, sunflower is also gaining popularity. These crops are grown in the uplands during the kharif season and in river beds and rice fallows during the rabi season. Coverage under oilseeds has been fairly constant hovering around 8.5 lakh ha. But there have been fluctuating trends in production and productivity from 2002-03 onwards, with aberrant weather conditions taking a toll. Of late, oilseeds have also shown a constant decline. Cotton is covering more and more space at the cost of jute, the other fibre crop traditionally cultivated in Odisha. Overall the total area under kharif crops declined from 6135.87 thousand hectares to 5824.54 thousand hectares. This paints a grey picture of agriculture in Odisha.

3.8 Irrigation

Out of 61.8 lakh hectares, till 2013-14, the potential created for kharif irrigation was 33.53 lakh ha (54.25 per cent). But irrigation potential has been created for the rabi season only for 26.73 per cent of the land (16,51,786 ha). Percentage share of irrigated area under principal crops in Odisha was 28.30 per cent as against an all India share of 44.90 per cent (GOO, 2016a). As per the Socioeconomic and Caste Census (2011), in rural Odisha, 62.6 per cent of the land was rain fed and 19.80 per cent of the land had assured irrigation for two crops. Utilization of the irrigation potential for the kharif crop was only 67.21 per cent, for rabi it was 76.73 per cent and overall it was 70.35 per cent.⁸ The wide gap between the potential created and utilized is because of tail-end issues, inefficiency of the conveyance system and unsustainability of irrigation sources. Annual investments in the irrigation sector in Odisha have remained consistently high as compared to many other states. Scaled against 10 major Indian canal commands, by output impact per ha of irrigated area, the

⁷ Souvik Ghosh and Ashwani Kumar (2010). 'Performance of Irrigation and Agricultural Sector in Orissa: An Analysis of Missing Links', *Indian Res. J. Ext. Edu.* 10 (2), May.

⁸ <http://www.dowrorissa.gov.in>.

Mahanadi command ranked the last. Also, in output per unit of water in the above canal commands, Odisha was at the bottom of the list with 14 kilograms per ha cm (Selvarajan et al., 2001).⁹

Reforms related to the people's participation in irrigation management and drainage measures have been a major focus since the last decade to address the problems related to the operation and maintenance of irrigation systems and low irrigation efficiency (Tanwar, 1998).¹⁰ Despite some initiatives since the mid-1990s, the impact of the reforms has not been fully realized (Paroda and Mruthyunjaya, 2000).¹¹

3.9 Status of agriculture

The state agriculture policy focuses on increasing the seed replacement rate (SRR) and production of certified seeds. Quality seed multiplication is organized through agricultural farms by the Odisha State Seeds Corporation and Registered Seed Growers Department. Under the seed village scheme, registered seed growers are supplied foundation seeds and the seed produced in their fields are certified by the Orissa State Seed Certification Agency. In 2008-09, for which figures are available, about 47,800 MT of certified seeds (including 36,000 MT for paddy) was supplied by the state. The seed replacement rate has been around 15 per cent in paddy and on an average less than 20 per cent for all other major crops.

Fertilizer consumption in Odisha during 2013-14 decreased to 57.11 kg/ha as against 58.74 kg/ha during 2012-13 (GOO, 2016a). The average fertilizer consumption in the state was 57.11 kg per ha as against the national average of 125.39 kg per ha. The nine bio-control laboratories in the state in addition to the one established by the Government of India are centres of rearing, multiplication and supply of locally adopted parasites and pathogens to the farmers. Integrated pest management demonstration-cum-training for crops like rice, maize and cotton is also taken up to popularize the practice of IPM under central and centrally sponsored schemes. Annually, around 45,000 lakh bio-control agents are produced covering 9,500 hectares of different crops under biological control. The increased emphasis on IPM (Integrated Pest Management) methodologies has led to stagnation in case of pesticide consumption in the state. The consumption of technical grades of pesticides has slowed down at 149 g a.i./ha during 2008-09. Coverage of the area under HYV (High Yielding Variety) paddy as well as yield rates have been increasing, with some oscillation during 2010-14. In 2008-09, power consumption in the agriculture sector was 1.3 per cent.

The field functionaries of the Agriculture Directorate are mandated to coordinate with financial institutions to collect loan applications from the farmers for providing credit to them. The crop loans disbursed to farmers is increasing, though it needs to increase a lot more. In 2008-09, about INR 26,140 million in credit was disbursed.

The Rashtriya Krishi Bima Yojana (RKBY) was introduced in the state from the rabi season 1999-2000. Both loanee and non-loanee farmers have been covered under this scheme. It is compulsory for loanee farmers and optional for non-loanee farmers. The crops covered under this scheme are paddy, maize, groundnut, jute, niger, split red gram and cotton during the kharif season and paddy, groundnut, mustard and potatoes during the rabi season. During 2008-09, about 7.7 lakh farmers were covered under RKBY, out of whom 1 lakh got compensation of about INR 387 million.

⁹ s. Selvarajan (2001). 'Sustaining India's irrigation infrastructure', *Policy Brief 15*, NCAP, New Delhi, p. 4.

¹⁰ B.S. Tanwar (1998). 'Water management through people's participation in India', The Tenth ICID Afro-Asian Regional Conference on Irrigation and Drainage, Indonesia.

¹¹ R.S. Paroda and Mruthyunjaya (2000). *NARS in the Asia Pacific Region: A Perspective*. Bangkok: The Asia Pacific Association of Agricultural Research Institutions.

The state Agriculture Department's field organization is supported by the non-plan budget of the state government. Strategic interventions for increasing production and productivity of various crops and watershed development programmes are supported by budget provisions mainly under various centrally sponsored plan schemes. Budgetary support in the form of back-ended subsidies for investments on private LIPs (deep bore well, dug wells, shallow tube wells and surface lift points) under Jalanidhi-I & II and capital investment subsidy on commercial agro-enterprises, agro service centres and several other important programmes are provided under the state plan. For a holistic development of agriculture and allied sectors, the flagship scheme Rashtriya Krishi Vikas Yojana (RKVY) is being implemented in the state from 2007-08. Several central sector schemes are being implemented in the state including the National Mission for Sustainable Agriculture (NMSA), National Mission on Oilseed and Oil Palm (NMOOP) and the National Mission on Agriculture Extension and Technology (NMAET). Four sub-missions namely Sub-Mission on Agricultural Extension (SMAE), Sub-Mission on Seed and Planting Material (SMSP), Sub-Mission on Agricultural Mechanization (SMAM) and Sub-Mission on Plant Protection and Plant Quarantine (SMPP) under the National Mission on Agricultural Extension and Technology (NMAET) and the Prime Minister Krishi Sinchayee Yojana (PMKSY) are being implemented in the state. Horticultural development activities are mainly taken up under a comprehensive scheme, Mission for Integrated Development of Horticulture (MIDH). The National Horticulture Mission is being implemented under MIDH. This mission is now implemented in 24 districts in the state. Except area expansion under fruit crops all other NHM initiatives are being implemented in all districts in the state. The government has launched a scheme for development of horticulture in six non-mission districts, Bhadrak, Boudh, Jagatsinghpur, Jajpur, Kendrapada and Jharsuguda under the state plan. Several other strategic interventions in horticulture are also supported by the state plan. An ambitious watershed development programme is supported under the Integrated Watershed Management Programme (IWMP).

State Plan Schemes

- RIDF-Jalanidhi
- Strengthening/Infrastructure development for training residential centres, labs, implementation factories etc.
- Management of acid soils
- Input subsidy
- Popularization of agriculture implements
- Refresher training for extension functionaries
- New agriculture policy
- Promotion of rice intensification

Centrally Sponsored Plan Schemes

- Work plan (macro management mode)
- Rice development
 - Ragi development
 - Sugarcane development
 - Farm mechanization

- Intensive Cotton Development Programme (ICDP)
- Jute Technology Mission Mini Mission-II
- ISOPOM (Integrated Schemes of Oilseed, Pulse, Maize & Oil Palm)
- Support to State Extension for Extension Reforms (ATMA)
- National Project on Management of Soil Health & Fertility (NPMSHF)
- National Food Security Mission (NFSM)
- NFSM (Rice)
- NFSM (Pulses) Rashtriya Krishi Vikas Yojana

Central Plan Schemes

- Promotion and strengthening of agriculture mechanization through training, testing and demonstration
- Support to state extension programmes for extension reforms – AGRISNET
- National project on promotion of organic farming
- Development and strengthening of infrastructure for the production and distribution of quality seeds
- Agriculture clinics/agri-business centres.
- Strengthening and modernization of pest management

These schemes are implemented through departmental field functionaries posted at the grassroots level and, at a higher level, in coordination with Panchayati Raj Institutions.

3.10 History of drought in Odisha

Floods, droughts and cyclones visit the state regularly with varying intensity. Due to frequent occurrence of these natural calamities, there is always reduction in the yields of kharif rice, the major crop of the state. Similarly, in drought years, there is considerable loss in the production of pulses and oilseeds both during kharif and rabi seasons. Table 9 gives the frequency of natural calamities over the years.

TABLE 9: EXTREME EVENTS AND IMPACT ON PADDY PRODUCTION IN THE STATE

SL. No.	Year	Normal Rainfall mms	Actual rainfall mms	Kharif rice production (in lakh MT)	Remarks
1	1961	1502.5	1262.8	36.99	-
2	1962	1502.5	1169.9	36.32	-
3	1963	1502.5	1467.0	42.47	-
4	1964	1502.5	1414.1	43.59	-
5	1965	1502.5	997.1	31.89	Severe drought
6	1966	1502.5	1134.9	35.37	Drought
7	1967	1502.5	1326.7	34.43	Cyclone and flood
8	1968	1502.5	1296.1	38.48	Cyclone and flood

SL. No.	Year	Normal Rainfall mms	Actual rainfall mms	Kharif rice production (in lakh MT)	Remarks
9	1969	1502.5	1802.1	38.39	Flood
10	1970	1502.5	1660.2	39.13	Flood
11	1971	1502.5	1791.5	33.76	Flood, severe cyclone
12	1972	1502.5	1177.1	37.35	Drought, flood
13	1973	1502.5	1360.1	41.91	Flood
14	1974	1502.5	951.2	29.67	Flood, severe drought
15	1975	1502.5	1325.6	42.74	Flood
16	1976	1502.5	1012.5	29.58	Severe drought
17	1977	1502.5	1326.9	40.5	Flood
18	1978	1502.5	1261.3	41.89	Tornados, hall storm
19	1979	1502.5	950.7	27.34	Severe drought
20	1980	1502.5	1321.7	40.31	Flood, drought
21	1981	1502.5	1187.4	36.63	Flood, drought, tornado
22	1982	1502.5	1179.9	27.07	Flood, drought, cyclone
23	1983	1502.5	1374.1	47.63	-
24	1984	1502.5	1302.8	38.5	Drought
25	1985	1502.5	1606.8	48.8	Flood
26	1986	1502.5	1566.1	44.56	-
27	1987	1502.5	1040.8	31.03	Severe drought
28	1988	1502.5	1270.5	48.96	-
29	1989	1502.5	1283.9	58.4	-
30	1990	1502.5	1865.8	48.42	Flood
31	1991	1502.5	1465.7	60.30	-
32	1992	1502.5	1344.1	49.76	Flood, drought
33	1993	1502.5	1421.6	61.02	-
34	1994	1502.5	1700.2	58.31	-
35	1995	1502.5	1588.0	56.48	-
36	1996	1502.5	990.1	38.27	Severe drought
37	1997	1502.5	1403.0	57.51	-
38	1998	1502.5	1277.5	48.85	Severe drought
39	1999	1502.5	1435.7	42.75	Severe cyclone
40	2000	1502.5	1035.1	41.72	Drought, flood
41	2001	1482.2	1616.2	65.71	Flood
42	2002	1482.2	1007.8	28.26	Severe drought
43	2003	1482.2	1663.5	61.99	Flood
44	2004	1482.2	1256.7	58.84	Moisture stress
45	2005	1451.2	1497.7	62.49	Moisture stress
46	2006	1451.2	1682.8	61.96	Moisture stress/flood

SL. No.	Year	Normal Rainfall mms	Actual rainfall mms	Kharif rice production (in lakh MT)	Remarks
47	2007	1451.2	1583.2	68.26	Flood
48	2008	1451.2	1525.5	60.92	Flood, moisture stress
49.	2009	1451.2	1362.6	62.93	Flood, moisture stress/pest attack
50	2010	1451.2	1293.0	60.51	Drought, un-seasonal rains
51	2011	1451.2	1327.8	51.27	Flood, drought
52	2012	1451.2	1391.3	86.81	Drought in Balasore, Bhadrak, Mayurbhanj and Nuapada districts
53	2013	1451.2	1653.1		Cyclone Phailin and flood
54	2014	1451.2	1536.9		Flood and cyclone Hud Hud

Source: 2009 to 2012 – OSDMA report, 2013, Agricultural Statistics 13-14; 2014 (IMD sources)

3.10.1 The drought of 2015¹²

Odisha, which was yet to recover from the onslaught of two cyclones, Phailin (2013) and Hud Hud (2014), in two consecutive years was also affected drought in 2015. The Meteorological Department predicted that everything would be normal. But the south west monsoon arrived one month late. The average rainfall in June was higher by 8.4 per cent. In subsequent months, the average rainfall in the state was deficient in July (-9.3 per cent), August (-25.1 per cent), September (-4.5 per cent) and a deficit of 77.9 per cent in October, 2015. The cumulative average rainfall in the state from June to October was less by 16.1 per cent of the long term average rainfall. In the span of about 154 days in five months, 119 days of a dry spell was experienced in the state. Agricultural operations were seriously impacted and crop loss seemed imminent. The state government declared a drought, based on the reports received from the district collectors, as per the provisions of Odisha Relief Code. Though the declaration was done in two phases, altogether 26 districts (Angul, Balasore, Bargarh, Bolangir, Boudh, Cuttack, Dhenkanal, Gajapati, Ganjam, Jajpur, Jharsuguda, Kalahandi, Kandhamal, Keonjhar, Khordha, Koraput, Mayurbhanj, Nabarangpur, Nayagarh, Nuapada, Puri, Rayagada, Sambalpur, Subarnapur and Sundargarh), were declared drought affected.

According to government records, 29,176 villages of 3,832 Gram Panchayats under 235 blocks in 28 districts were affected by the drought. The total crop area affected was 15,35,902 hector that lost over 33 per cent of its crops.¹³

3.10.2 Response by the government¹⁴

In the wake of this drought, the Government of Odisha announced the following measures for farmers:

- Agriculture input subsidy to be provided to small and marginal farmers who had sustained crop losses of 33 and above @ INR 6,800 per hectare of land in rain-fed (non-irrigated) areas and INR 13,500 per hectare of land in areas under assured irrigation. Agriculture input

¹² Assessment of Drought, Actionaid, and Notification by Revenue & disaster Management Department, Government of Odisha No 4519/R&DM (SR), dated 7/11/2015)

¹³ Notification by Revenue & disaster Management Department, Government of Odisha No 4519/R&DM (SR), dated 7/11/2015

¹⁴ Advertisement by PR Dept of Govt of Odisha, published in Sambad, November 6, 2015.

subsidy will also be provided to farmers other than small and marginal farmers, at the same rates, subject to a ceiling of two hectares per farmer. For perennial crops, the assistance shall be provided @ INR18,000 per hectare. The assistance shall be provided to the actual cultivators.

- Farmers affected by drought in the kharif season to be provided fresh finance for rabi cultivation.
- Short term kharif loans to be converted to medium term loans in drought affected areas, in case of 50 per cent and above crop damage. The rate of interest on short term loans will be applicable for converted medium term loans.
- Fifty per cent remission in respect of cess on land revenue to be given to farmers where the crop loss was 33 per cent or more.
- Tuition fees and examination fees in government and aided schools and colleges in the drought affected areas to be waived.
- 40,000 pump sets to be provided through the Odisha Agro-Industries Corporation with 50 per cent subsidy limited to INR 15,000 to the farmers with priority to rain-fed areas.
- Steps to be taken to energize deep bore wells for 13,000 farmers.
- Four lakh pulse mini kits, one lakh oilseed mini kits and 5 lakh vegetable mini kits to be supplied to the farmers for the rabi programme.
- MGNREGA: The state government to provide 50 days of additional work over and above the 150 days announced by the Government of India in drought affected areas. Further, as a pro-poor and pro-labour measure, an additional 30 per cent of wages to be paid to the labourers engaged in MGNREGS in drought affected districts as drought allowance.
- Development of private land of the affected farmers can be taken up as a component under MGNREGS as an additional relief measure.
- Food assistance @1 kg per adult and 500 grams per child to be provided to people in dire need of immediate sustenance, as assessed by the collectors.
- The Panchayati Raj Department to take steps to create large water tanks through MGNREGA.



CHAPTER-IV: STUDY FINDINGS

The study of farmer suicides had a sample size of 30 farmers from 20 districts representing different agro-climatic zones. An analysis of the data collected provided the following information regarding the farmers.

4.1 Profiles of the farmers who quit

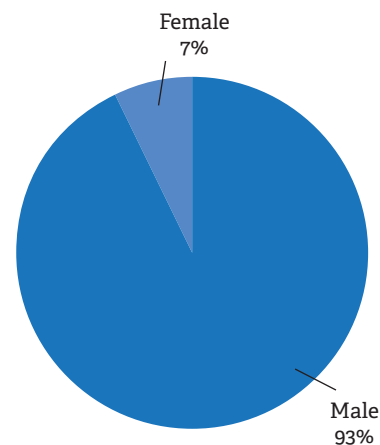
4.1.1 Gender

Out of the total sample of 30 farmers, only 7 per cent were female farmers and the remaining 93 per cent were males (Figure 9). This may not be representative of the sex ratio among total farmers who committed suicide because, during sampling, the women farmers were chosen deliberately to incorporate their dimensions in the survey. The proportion of farmers committing suicide is also not representative of women in the farming sector. Agriculture in Odisha is still dominated by males. Perhaps this is also reflected in the gender profile of the sample of suicide farmers.

The efforts of the state government to include women in the records on rights of land have not made much of a dent in the sphere of male dominated agriculture. In the FGDs and discussions with SHGs and groups of women, it was mentioned that women had more roles to play in older forms of agriculture. Women took the inputs like seeds and fertilizers to the field, took care of the animals at home, worked in the field and helped in harvesting and post-harvest operations. But with input intensive farming taking centre stage, the role of women had diminished to a great extent. At the same time, 'women members in the family were used by farmers to access credit from SHGs and microfinance institutions as they were members of these institutions. They are also used for mobilizing resources from the homes of their in-laws in case of need. But, with respect to taking decisions about agricultural operations, predictably enough, they did not have much of a say. The women did not even know how the expenses were used for repayment/application for loans. That is why most of the women members of the deceased farmers were not in a position to explain how the money borrowed was actually being spent. But while it came to repayment of loans to SHGs and microfinance institutions, it was the women in the family who had to bear the brunt as these institutions built pressure on them. The women found themselves sandwiched between the institutions exerting pressure to pay and their husbands who were not in a position to pay back the loans.

But there are different situations as well, with respect to participation of women in agriculture. In Mayurbhanj, 80-90 per cent of the farming operations are carried out by women and they lead the farming operations in the region. After the ploughing is done in the field by menfolk, the rest of the farming operations are taken over by women in the family. The reason ascribed for this is mostly

FIGURE 9: GENDER OF FARMERS WHO COMMITTED SUICIDE



BOX 2: REMATI MAJHI: PAID THE PRICE OF BEING A WOMAN!

Remati Majhi was married to Umashankar Majhi of Dhamnapada in Boden block in Nuapada district. Umashankar had two and half acres of land that he had been cultivating for a decade after the demise of his parents. Remati was a partner in the real sense. After ploughing and sowing the seeds, Umashankar migrated out to Surat. In his absence, Remati carried forward the rest of the agricultural operations with hired labour. Sometimes Remati also went out with Umashankar to work. This was nothing new in Dhamnapada as a substantial number of men migrated after sowing paddy. Women folk managed the families in the absence of their husbands and also continued with cultivation activities. Women were quite well-versed with the agricultural operations, seeds, fertilizers and also pesticides. At times they even applied fertilizers and pesticides on their own. So for Remati, it was nothing new.

In 2015, Umashankar mortgaged one and half acres of his land and purchased a pair of bullocks with INR 10,000. He planted paddy in the remaining 2.5 acres of land and set out for Surat. Before leaving, he borrowed INR 10,000 from a trader and gave it to Remati for meeting the household expenses as well as application of fertilizers to the crop. Remati spent about INR 5,000 for agricultural operations as well as household expenses. She even communicated this to her husband who was irritated. After this, he stopped calling his wife.

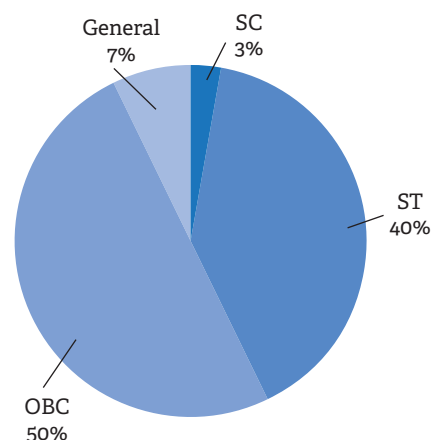
After two months of this incident, Umashankar returned from Surat. She was not at home when he came. She had gone to her father's place. On the same day she also returned from her father's place. On that day, both of them had a big fight over the excessive expenditure. The next day while her husband had gone to the market, she went to the forest with her daughter to fetch fuel wood. While collecting wood, she hanged herself in a tree in the forest. Remati, was helping her husband in all aspects of life, was a farmer too in his absence, but did not have the independence to take decisions on spending on her own and paid the price for that. Was it the price of being a woman?

the liquor habit of the menfolk. Similarly, in western Odisha, as in Nuapada, women have shown a lot of interest in agricultural training. The women said that they want to be part of the agricultural training conducted by the government. But they are not allowed to do so by the menfolk. In western Odisha, one of the high points for the women is the seasonal migration of the menfolk, when they can contribute their bit to the family economy by taking care of the crops or even cultivating the entire crop in the absence of their husbands.

4.1.2 Social categories of the farmers who committed suicide

The largest number of farmers who committed suicide belonged to the Other Backward Classes (OBCs). While 50 per cent of the sample farmers belonged to OBCs, 40 per cent belonged to the Scheduled Tribes (STs) category; 7 per cent of the farmers belonged to the General category (GEN). Only 3 per cent belonged to Scheduled Castes (SCs) (Figure 10).

FIGURE 10: SOCIAL CATEGORIES OF SAMPLE FARMERS

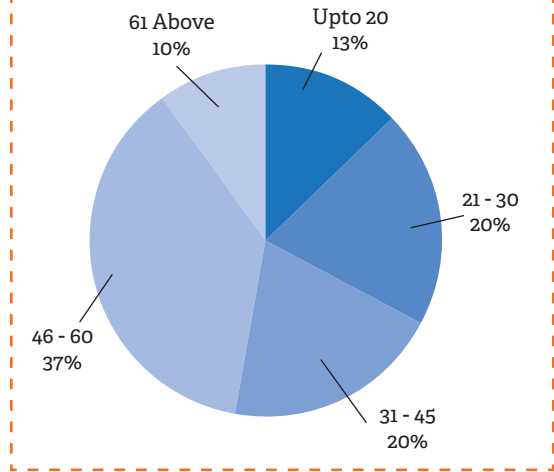


The reasons for a majority of the farmers who committed suicide belonging to OBCs could be that traditional caste groups, that constituted the farming community, have been put in OBC groups, though others also have got into agriculture in the changed situation. But a majority of the famers traditionally engaged in agriculture, or who were compelled to continue with agriculture, are from OBCs, so the suicides were mostly taking a toll on farmers who were traditionally into agriculture.

4.1.3 Age of the farmers

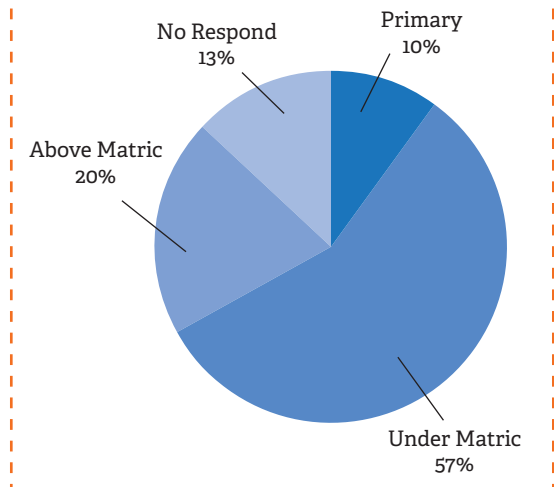
From the information gathered during the case studies, it was found that most of the farmers (37 per cent) who committed suicide were in the age group of 46-60 years (Figure 11). Normally, this is the age group during which the farmers have many other obligations like education of their children, marriages of sons and daughters and also health issues in the family. In Odisha’s context, the family is totally dependent on its head for all the expenditures. The age groups of 21-30 and 31-45 years accounted for 20 per cent of the suicides, each from among the sample. In 13 per cent of the cases, the age of the farmers was less than 20 years. Normally people in this age group are involved with farming operations but they are not at the helm of agricultural operations and are not involved with its financial aspects. There are deviations only in cases where there is no elder man in the family or the young have come forward to take up agriculture. Only 10 per cent of the farmers were above 61 years of age.

FIGURE 11: AGE OF THE FARMERS



Looking at family responsibilities in the age groups provides valuable insights. In the age group of 46-60 years, 82 per cent were the head of the family, 9 per cent were women managing the family in the absence/neglect of the husband. As the head of the family, these farmers had the primary responsibility of managing the house. Apart from this, they also had other responsibilities like daughter’s marriage, education of children and medical treatment of family members. Both Rabindra Mahali of Ostara Kendrapara, and Asarpi Pradhan of Sansahajbahal, Bargarh, had married their daughters and, in the process, had incurred heavy loans. Similarly, Harihara Budhia of Kadalipali, Bargarh had tried to get his daughter settled with a government job and, in the process, lost more than INR one lakh. While Biswanath Naik of Ranagundi, Jajpur, was overburdened with the costs of treatment for his mother and wife; treatment for brain malaria in Raipur increased the loan burden for Kalahandi farmer Pita Nag by another 50,000 rupees. Similarly, Tarani Bariha of Biripali could not pay the examination fees for his son. Sudam Biswal of Dabardhua, in Angul district, had a huge electricity bill pending and that acted as the trigger .

FIGURE 12: EDUCATION LEVELS OF THE FARMERS



BOX 3: FARMER CONSUMES POISON AFTER FAILING TO GET HIS DAUGHTER A JOB

Harihara Budhia (47) of Kadalipalli, (GP Lehenda, Block Barapali) in Bargarh district had three daughters and his wife to look after. He had three acres of irrigated land and had two crops of paddy from it. His family economy got the first jolt when his elder daughter was married. For marriage expenses, he had to mortgage 1.5 acres to avail INR 1.5 lakh in loan.

After the marriage of his elder daughter, Harihara was very keen on getting his other daughters educated and wanted them to get jobs. He did not have a son and maybe he wished that his girls would take care of him and his wife in their old age.

Harihara incurred huge debts for cultivation as well as the education of his daughters. His overall loan burden was about INR 4.39 lakh. He had borrowed from the State Bank of India (INR 29,000 in 2011 that had grown to INR 79,787), Union Bank (INR 80,000), United Bank (INR 70,000) and Cooperative Bank (INR 60,000).

Harihara's second daughter Sasmita passed the +3 exams and the youngest was admitted in +3 classes. As Sasmita passed her graduation, Harihara was eager to get her a government job. That is where he fell into a racket that promised a government job to his daughter for INR 1 lakh. As reported by the villagers, he gave this amount to a middleman. Sasmita was given a laptop to work on as a data entry operator in Barpali Post Office. But later on, the post master revealed that it was not a government job.

So the job that Harihara's daughter got was neither a government job nor a secure one. Despite his efforts, Harihara was not able to get back the money that he had paid to the middleman. He was not able to tell others how he had been cheated. He was incurring losses from agriculture. During the previous rabi season, the paddy crop in his field was infested with pests (*chakada*) and all his efforts to contain it failed. Due to this pest attack he was able to harvest only 9 quintals of paddy from one and half acres of land. For the kharif season of 2015, Harihara had prepared the bed for the seedlings but that also was infested with the same pest.

On the morning of 19th July 2015, Harihara left for his field to spray pesticides in the seedling bed. He was to bring mushrooms for lunch on his return. The villagers found him in his field near the seedling bed half dead. He was rushed to Barpali hospital and later to VSS Medical College Hospital at Burla, but to no avail. Harihara's dream of seeing his daughters independent remained unfulfilled. He left behind a suicide note that is with the police now. Will any one read that and act?

4.1.4 Education of the farmers

Detailed information regarding the qualifications of the farmers could not be shared by family members of the deceased farmers. So efforts were made to know the educational qualifications of the farmers in three categories – up to primary, under matric and above matric (Figure 12). Only 20 per cent of the farmers had education above matriculation. The maximum number of farmers (57 per cent) belonged in the under matric group. Primary pass farmers were 10 per cent; in the case of 13 per cent of the farmers, family members and friends could not say give details about the farmer's educational qualifications.

4.1.5 Size of the family

The average size of the families of the deceased farmers (including the deceased) was 5.46; 34 per cent of the famers had 4/5 persons in the family and 33 per cent had 6/7 members in the family;

17 per cent had 3 members in the family. Only 13 per cent farmers had large families having 8-10 persons (Figure 13).

4.1.6 Position of the farmers in the family

How the farmers who committed suicide were positioned in the family was an important aspect to locate the kind of responsibilities bestowed on them - 54 per cent of the farmers, covered under the study, were the head of the family, having the responsibility of running the family; 30 per cent of the farmers were elder sons. As the father grew old, even in his presence, it was normally the elder son who held the reins of the family (Figure 14). Seven per cent of the suicide victims were wives. One of them was cultivating land and running the family in the absence of her husband who was working outside (migration). On the other hand, another woman farmer was cultivating as her husband was not very active in farming. In 91 per cent of the cases, the farmers were directly or indirectly heading their families or farming operations. In case of another one, a younger son wanted to strengthen the family economy through farming. In another family, the middle son was financing the farming operations of the family.

4.1.7 Farming option or compulsion?

Most of the farmers, directly or indirectly, had the responsibility for the families. Did they choose farming as an option or had they taken to this occupation out of compulsion? (Figure 15)

Among the farmers studied, 20 per cent had no option other than agriculture. The reason for this was 'not having other skill sets' beyond agriculture. So they had taken to farming irrespective of their liking or disliking it. In case of 53 per cent of the sampled farmers, the family occupation of farming was shifted from the older generation to them and the deceased farmers had accepted it naturally. Contrary to popular belief that now a days no one is interested in taking up farming, 27 per cent of the deceased farmers had taken to farming out of interest or choice. Interestingly they had opportunities/possibilities other than agriculture to choose from. Either they saw possibility in agriculture or were partly involved with agricultural operations.

4.1.8 Economic conditions of the farmers

Of the 30 cases, 73 per cent farmers belonged to BPL (Below Poverty Line) categories while the others had no BPL cards (Figure 16). Most of those who did not have BPL cards were qualified to have at least one as per the information provided by them.

FIGURE 13: FAMILY SIZE

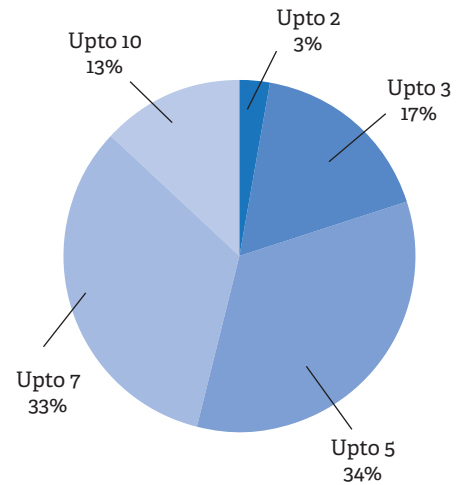


FIGURE 14: POSITION OF THE FARMER IN THE FAMILY

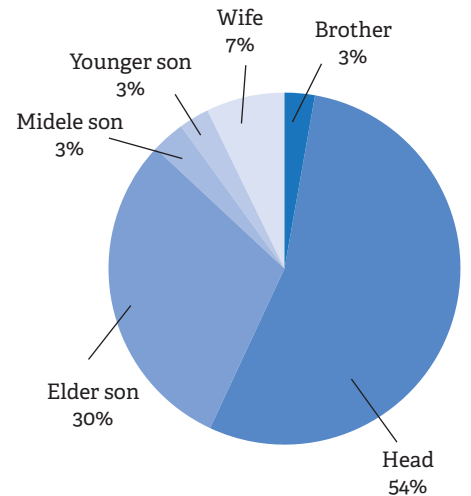
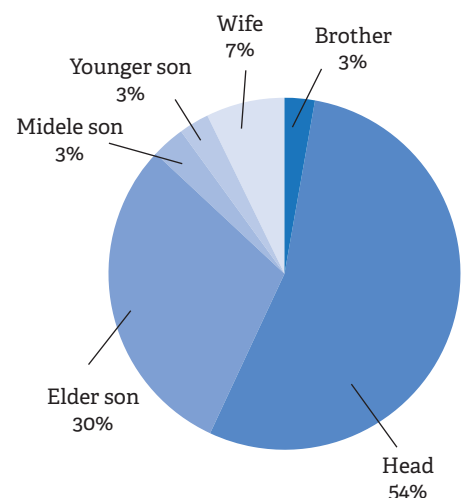


FIGURE 15: REASONS FOR CHOOSING FARMING



4.1.9 Sources of income

The income sources of the farmers were diversified. While cultivation was the main source of family income for all the farmers, daily labour was the source of income for 21 (70 per cent) farmers; 37 per cent of the farmers had collection of minor forest produce as a supplementary source of income (Figure 17). In the case of five farmers (16.7 per cent), either they or other members of the family were migrating out to earn more for the family. In 16.7 per cent of the cases, family incomes were supplemented with a family member doing the job of a driver or doing some petty business. Apart from this, one member each among the 30 had a government job, private job or worked for an enterprise. So the farmers were depending on multiple sources of income for their survival. In most of the cases, the income from other sources was ploughed into farming.

FIGURE 16: ECONOMIC PROFILES OF THE FARMERS

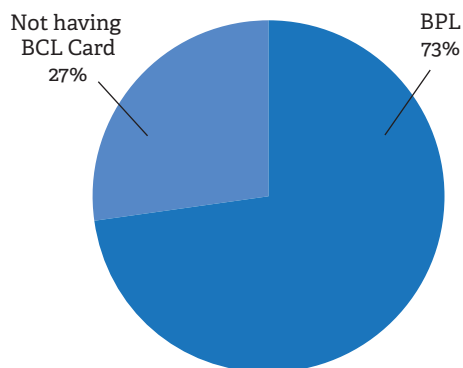
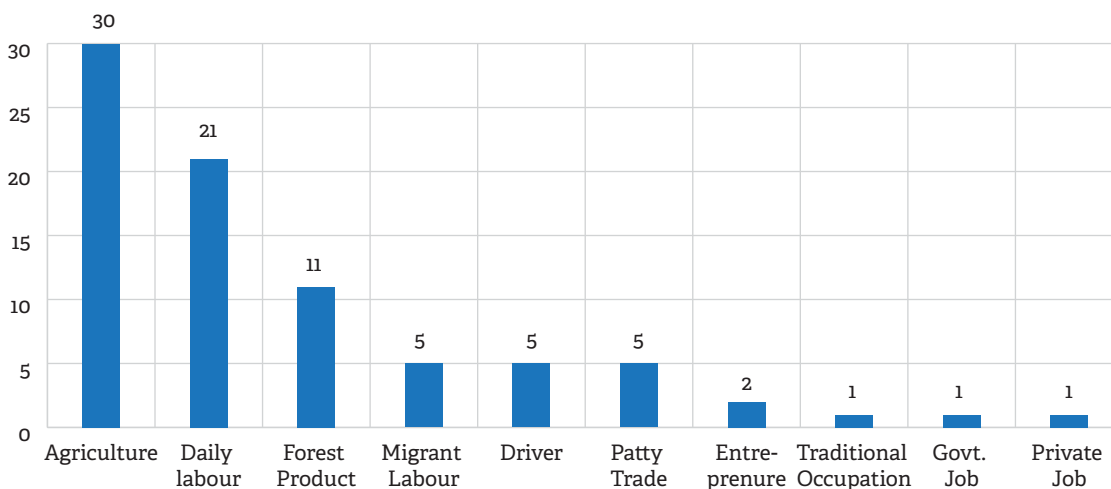


FIGURE 17: SOURCES OF INCOME

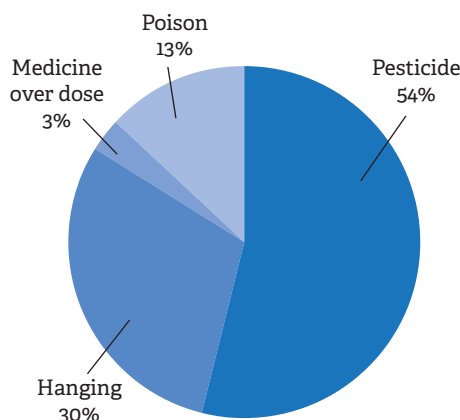


4.2 Suicide patterns

4.2.1 Mode of suicide

More than half of the farmers (54 per cent), committed suicide by consuming pesticides that they used for crop protection (Figure 18). The reason for this could be the easy availability of the pesticides. Hanging was used by 30 per cent of the farmers. Thirteen per cent of the farmers consumed poison, other than pesticides, and 3 per cent took a medicine overdose to kill themselves.

FIGURE 18: MODES OF COMMITTING SUICIDE



4.2.2 Period of suicide

The study tried to figure out the period of the suicide – the particular month and the stage of the crop therein. A majority of the farmers studied committed suicides in October (40 per cent) and November (43.3 per cent) accounting for a total of 83.3 per cent of the suicides (Figures 19 and 20). Why October and November? Linking the time of suicide with the stage of the crop provides an insight into the timing. Only 10 per cent of the farmers committed suicide after the crop was harvested, a time where the farmer has to deal with moneylenders and other liabilities; 40 per cent of the farmers killed themselves when the crop was in the panicle stage and 46.7 per cent of the farmers when it was between panicle initiation and harvesting. The explanation provided by fellow farmers in the FGD was ‘a farmer plants his hopes in the field’. From panicle stage, the farmer knows about the returns from the field. And much before the harvest, the farmer is sure of the amount of crop that he will be taking to his harvesting yard. Then he starts making all sorts of calculations as to how much he will keep, how much to pay for the fertilizers and pesticides, how much he will be able to pay back the moneylender. When the farmer realizes that with the expected crop he cannot manage, his hopes sink and he takes the drastic step. Sometimes, burnt crops or pest ravaged crops also have a strong impact on the farmers.’

4.2.3 Primary reasons for suicides

As farmers’ suicides are increasing, the reasons ascribed to such a drastic step by the farmers are crop loss due to droughts or pest attacks, debt burden and family issues. Our study tried to know the primary reasons for the suicides. Crop loss was identified as the reason in 30 per cent of the cases (Figure 21). In 23 per cent of the sample farmers, the primary reason for suicide was the debt burden. Family quarrels were identified as the primary reason for 13 per cent of the suicides. Apart from these reasons, daughter’s marriage or concern for daughters and health problems of family members were responsible for 10 per cent of the deaths.

In 7 per cent of the cases, worry about children’s education (paucity of money being the reason) was a reason for committing suicide. Because landless or marginal farmers do not have enough money to provide proper education to his/her children, sometimes they fail to pay the examination fees or fees for filling forms. This also could be seen as the helplessness of a father not being able to pay

FIGURE 19: TIME OF SUICIDE

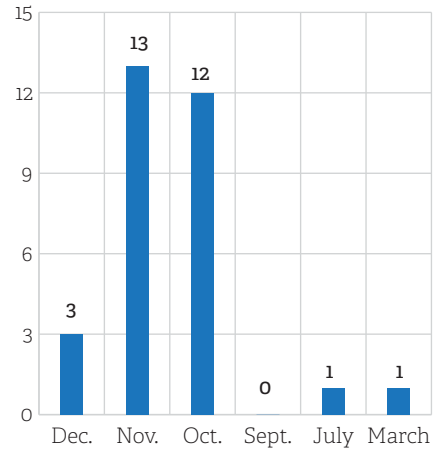


FIGURE 20: PHASE OF CROPS AT THE TIME OF SUICIDE

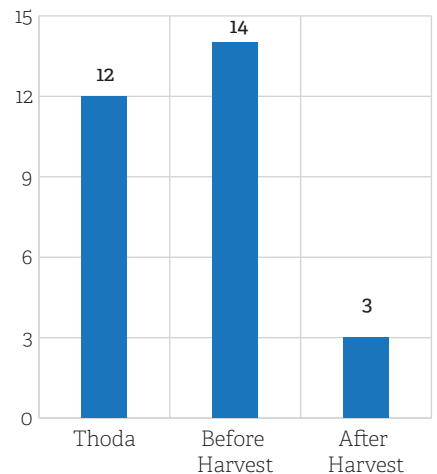
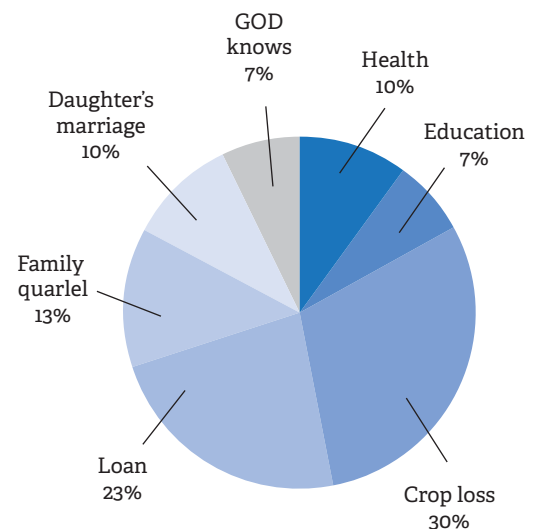


FIGURE 21: REASONS FOR COMMITTING SUICIDE



BOX 4: UNABLE TO PAY SON'S EXAM FEES, TARANI TAKES HIS LIFE

Inability to arrange INR 2,000 for filling up the form for the +2 exam for his only son triggered Tarani Bariha to commit suicide. Tarani Bariha (46) was a landless farmer in Biripali village under the Rengali Gram Panchayat in Sohela block in Sambalpur district. Tarani had his wife Subuni and 19-year-old son Ajit Bariha who was a student of +2. As Tarani did not have any land of his own, he had to depend on multiple sources to survive. He had taken two acres of land on lease and was cultivating it. He also worked in the stone crusher as a labourer. His wife also worked as a wage labourer. During the kendu (*Diospyros melanoxylon*) leaf season the family plucked kendu leaves to supplement their family income. His college going son Ajit also worked, as an assistant to masons, to supplement the family income. Tarani's family also had a job card under MGNREGS.

Tarani had cultivated two acres of land, one and half acre of paddy and half an acre of green chillies. The land owner was not to take any rent as the sharecropper bears the responsibility of helping the land owner in protecting his crop, looking after the cultivation and working in the field at the time of need against wages. Tarani had not borrowed any money for cultivation. The cultivation costs were met from their earnings from wage labour and kendu leaf plucking etc. Due to dry spells, the paddy crop had dried up. And the green chilly crop, that was cultivated with the help of water from the crater, created due to stone quarrying, had wilted as the crater did not have water due to a drought. This was worrying Tarani. But, for him the real worry was when his son asked him for INR 2,000 to fill up the forms for the +2 exams. Tarani tried to arrange the money. But with no crop to be harvested, he could not arrange it. His wife says, 'He was really worried about arranging the money. Time and again he would say from where will he organize 2,000 rupees? Sometimes he even cursed himself for being a father who could not even provide for the exam fees. Our son was our only hope. We do not have any land, so we were hoping that our son will study and get a job. But that was not to be.'

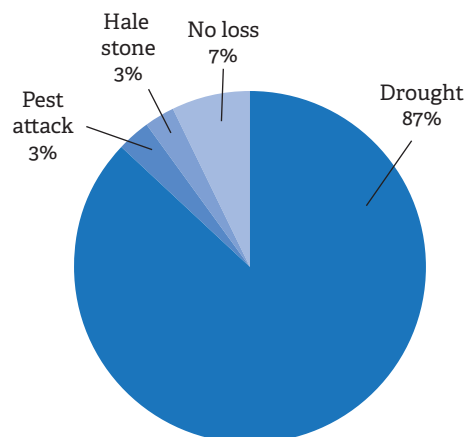
Perhaps the agony of his helplessness overpowered him and Tarani consumed pesticides. Immediately after consuming poison, he told his family members what he had done. He was taken to Sohela Hospital and then the district headquarters hospital only to die the next day morning. Tarani died without any loan burden for his son but with the remorse that he could not organize money for his exams.

the fees for the education and loss of face before his off springs leading to depression. In 7 per cent of the cases, the family members could not figure out why the farmer committed suicide and that is why the answer was 'God knows.'

4.3 Crop loss and reasons

All the suicides did not take place due to crop loss (Figure 22). In 7 per cent of the cases, there was no crop loss, but two farmers committed suicide. The cause of death for most of the farmers (87 per cent) was drought (dry spell or moisture stress). Pest attacks were responsible for crop loss for one

FIGURE 22: REASONS FOR CROP LOSS



farmer and, in another case, a hailstorm was responsible for crop loss.

4.4 Land

4.4.1 Land cultivated by the farmers

The 30 farmers studied cultivated 152.4 acres of land, making the average area cultivated by each farmer 5.08 acres. Out of the total land cultivated, 86.16 acres was own land of the farmers. On an average, the farmers owned 2.87 acre of the land each. These farmers altogether leased-in 66.3 acres of land at an average of 2.21 acres. So out of the total land cultivated by the famers 56.6 per cent was their own land and the rest 43.4 per cent was leased-in land.

4.4.2 Irrigation facilities

Seventy-seven per cent of the farmers in our study had their own land. But most of the land was not irrigated, and was instead rain-fed. The land leased out to this group of farmers was un-irrigated land. Only 13.2 per cent of the farmers' own land was irrigated. About 90 per cent of the leased land was rain-fed (Figure 23).

4.4.3 Type of farmers as per ownership

With respect to land cultivated, the farmers can be divided into three categories - landless sharecroppers and farmers having own land but also taking land on lease and those who have cultivated only land owned by them (Figure 24). The largest group was of those having land but at the same time also having additional leased-in land for cultivation - 47 per cent of farmers who committed suicide belonged to this category. Only 23 per cent of the sample farmers were landless who had leased-in land; 30 per cent of the farmers cultivated only the land owned by them.

4.4.4 Landholdings

With respect to land ownership there were four categories of farmers in the sample – landless (no private land), marginal (below 2.5 acres), small (between 2.6 to 5 acres) and medium (more than 5 acres) (Figure 25). Among the deceased farmers, 23 per cent were landless and 40 per cent were marginal farmers. Combined together, the landless and marginal farmers constituted 63 per cent of the farmers who committed suicide or attempted it. This confirms the popular belief that most of the farmers

FIGURE 23: IRRIGATION FACILITIES

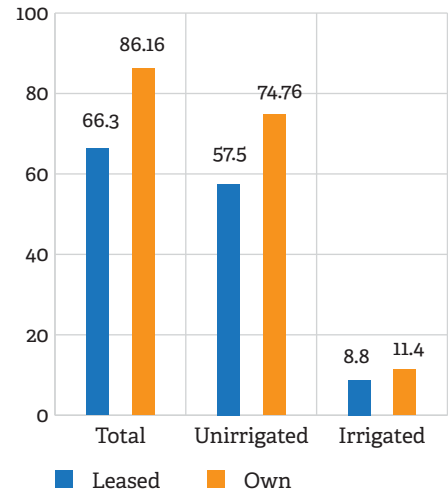


FIGURE 24: TYPES OF FARMERS

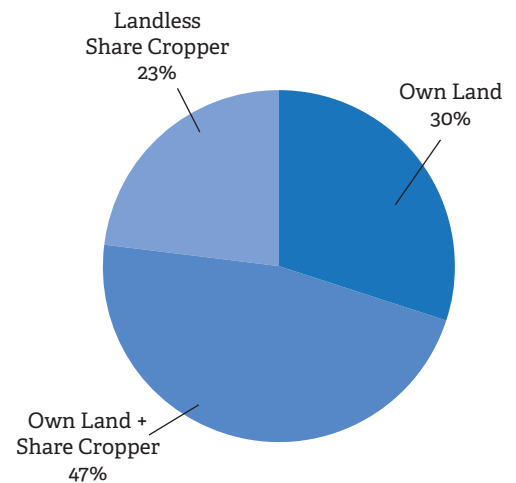
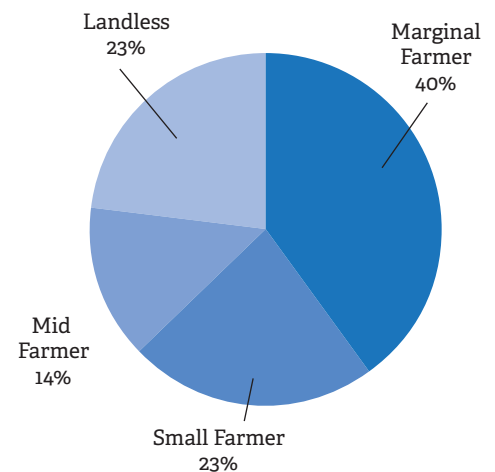


FIGURE 25: LANDHOLDING PATTERNS



committing suicide are landless or marginal farmers. At the same time, among the sampled farmers, 23 per cent were small farmers and 14 per cent were medium farmers. Together they constituted 37 per cent of the sample, implying that more than one-third of the deceased farmers decided to kill themselves despite having above average land holdings.

4.4.5 Land leased-in

Out of 30 cases studies 30 per cent farmers did not take any land on lease (they cultivated their own land), 30 per cent farmers took less than 2 acres on lease and 30 per cent took 2-5 acres of land on lease (Figure 26). Only 10 per cent of the farmers had leased-in more than 5 acres of land.

4.5 Agriculture practiced

4.5.1 Crops cultivated

Paddy is the main crop of Odisha. All the 30 farmers in our study cultivated paddy; 30 per cent of the farmers cultivated vegetables along with paddy (Figure 27). The districts where vegetables were taken up as an additional crop (and sometimes as the main cash crop) were Cuttack, Jajpur, Keonjhar (two farmers) and Angul and Bargarh (three farmers). Ten per cent of the farmers had taken up cotton as an additional crop; this was mostly in western Odisha. The farmers cultivating cotton were in Bolangir and Rayagada districts. Only 6.7 per cent of the farmers belonging to these two districts took up pulses as an additional crop or as an inter-crop. At least 14 farmers (47 per cent) cultivated a crop other than paddy.

4.5.2 Changes in cropping practices

Farmers were univocal in the FGDs that input costs had gone up substantially. More than 60 per cent of the farmers were of the opinion that input costs had doubled over the last one decade or so while 10 per cent of the farmers were of the opinion that input costs had become three times more. The increase in input costs was because of increased rates of fertilizers and pesticides and an increase in wages. As the cost of inputs increased, the return from agriculture also reduced substantially.

4.5.3 Agricultural practices

The farmers mostly practice input intensive farming. Different parts of the state are at different levels of adoption of input intensive farming (Figure 28). But only parts of these practices have been adopted like application of chemical fertilizers, use of high yielding and hybrid seeds,

FIGURE 26: LEASED-IN LAND DETAILS

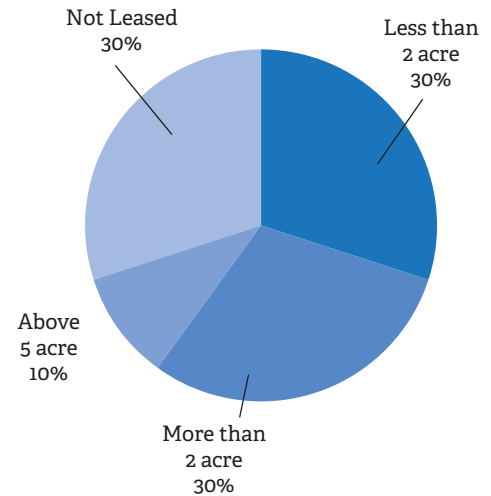
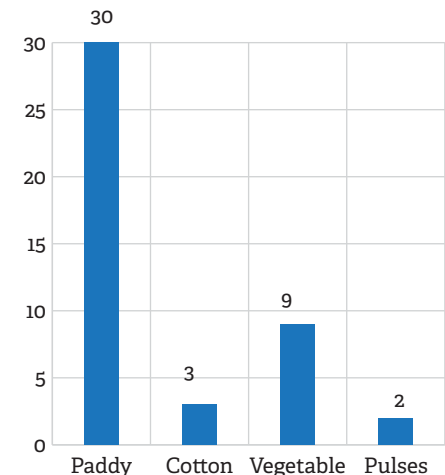


FIGURE 27: THE CROPS CULTIVATED



transplantation of paddy and use of machines. The farmers are aware that, in the long run, chemicals and pesticides are not good for their land and they also know that the cost of cultivation has sky rocketed with new agriculture. But the prime motivation for these farmers for adopting input intensive farming is the increase in yields in comparison to traditional agriculture. However, the farmers also admitted that the necessary preconditions for cultivation of modern agriculture were not in place. Twenty-three farmers said that, due to the absence of required facilities, modern agriculture could not be practiced in totality. Very few farmers - only 10 per cent - felt that modern agriculture was practiced by them in totality. But the rest (90 per cent) felt that modern farming was not being practiced in totality. They felt that irrigation, capital for agriculture, support and handholding by the Agriculture Department were some of the missing links along with the issue of pricing of paddy and marketing support.

4.5.4 Reason for adopting intensive agriculture

Regarding reasons for adopting input intensive agriculture, the farmers in the FGDs cited more production or yield as the prime reason. In 21 cases, the farmers mentioned this as the reason for adopting input intensive agriculture. In only three villages, Jamjuri and Jampada in Bolangir district and Kaparanda in Sundergarh district, the farmers said that about 80 per cent of them in their villages were still practicing traditional agriculture (not only in terms of seeds) to a great extent. Other reasons cited for adopting input intensive agriculture (cited in five villages) included it taking lesser time (lesser duration of HYV crops and lesser time taken for field preparation due to use of tractors) . Use of lesser labour and an early planting period were the other reasons cited for adopting input intensive farming.

4.5.5 Seeds

Traditional seeds were not cultivated by a majority of the farmers studied. Till a decade back, traditional seed varieties of paddy were used by the farmers. Even for HYV varieties of seeds, only 20 per cent of the farmers kept their own seeds or got them by exchanging seeds/paddy with other farmers. They had to depend on either the government or the market for the seeds in 80 per cent of the cases. The dependence on the market was about 30 per cent while the rest of the seeds were provided by the government (Figure 29).

Depending on the market or the government for seeds led to their importance, but what was of concern to the

FIGURE 28: VARIOUS AGRICULTURE PRACTICES

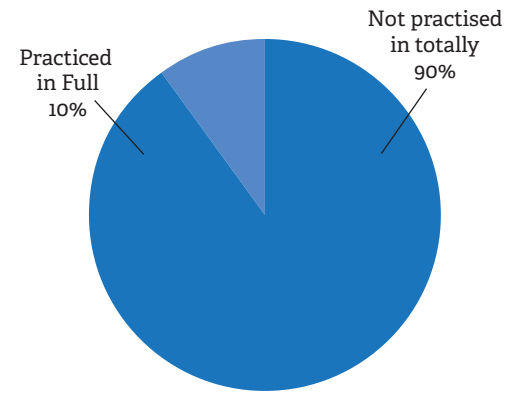


FIGURE 29: SOURCING OF SEEDS

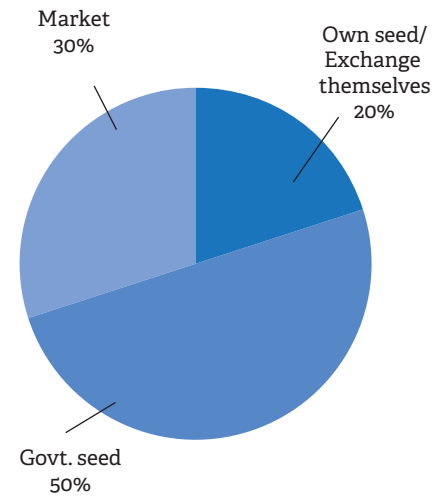
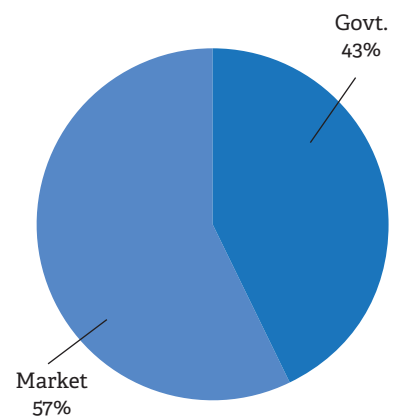


FIGURE 30: TIMELINESS OF SEED SUPPLY



farmers, was the timeliness of seed supply. And neither the government nor the market fared well on this front. While the government was successful in providing the subsidized seeds to farmers at the time of need, only in 43 per cent of the cases, the market fared a little better as it was able to provide farmers with seeds in time in 57 per cent of the cases (Figure 30).

4.6 Capital

How did farmers fund agricultural operations? 33 per cent of the farmers depended on local moneylenders for finance. Banks (13 per cent) and cooperatives (17 per cent) accounted for 30 per cent of the farmers' loan requirements. Only 11 per cent of the sample farmers did not borrow. SHGs provided loans to 8 per cent of the farmers; 6 per cent of the farmers had also borrowed from microfinance institutions (Figure 31). Advance against the crop to or the assurance to migrate accounted for 4 per cent of farmers' funding credit requirements. Relatives and the neighbours accounted for 4 per cent of the loans and they did not charge any interest for this. Many of the farmers had borrowed from multiple sources.

It should be noted that all the borrowings made by the farmers was not for cultivation alone. A major chunk of the loans were also for consumption, meeting various requirements of the family, health contingencies and education.

It was not possible on the part of the research team to segregate the loans taken for of agriculture and for other purposes. It also was not possible to get the year-wise and source-wise breakup of the loans primarily because the farmers who had borrowed were not there and family members had little idea about the loans that he/she had taken.

4.7 Cost of paddy cultivation

The cost of cultivating one acre of paddy (kharif) ranged between INR 9675 in Nabarangpur district to INR 28,700 in Khurdha district. In Bhadrak district, the average cost of cultivation of one acre of land was INR 16,787. In Dhenkanal, Keonjhar, Angul, Jajpur and Khurdha, the cost of cultivation of one acre of paddy was more than INR 20,000. What should be noted here is that these are the districts which are industrialized or very close to industrial sites (Bhadrak is close to Dhamra) or urban centres (Khurdha is close to Bhubaneswar). Dhenkanal, Keonjhar, Angul and Jajpur are industrialized districts. The labour component of the cost of cultivation is high here. On the other hand, for districts like Gajapati, Malkangiri, Sundargarh, Nuapada, Mayurbhanj and Kalahandi, the cost of cultivation was between INR 10,000 and INR 15,000. For the rest of the districts, the cost of cultivation was between INR 15,000 and INR 20,000 per acre (Figure 32).

FIGURE 31: SOURCES OF FUNDING AGRICULTURAL OPERATIONS

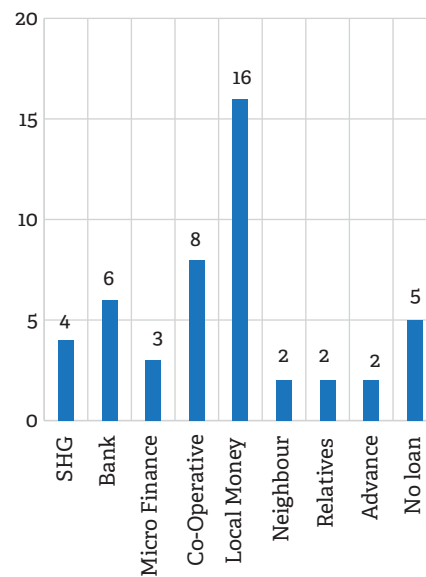
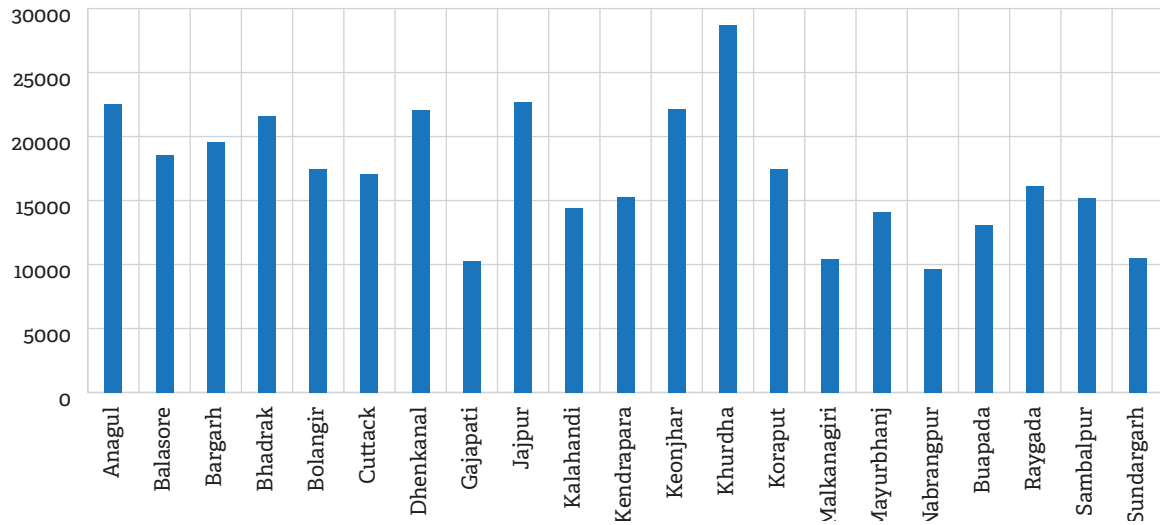


FIGURE 32: CULTIVATION COSTS

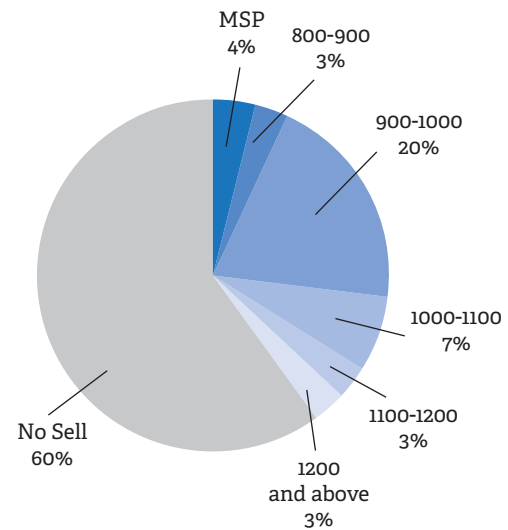


4.8 Return from agriculture

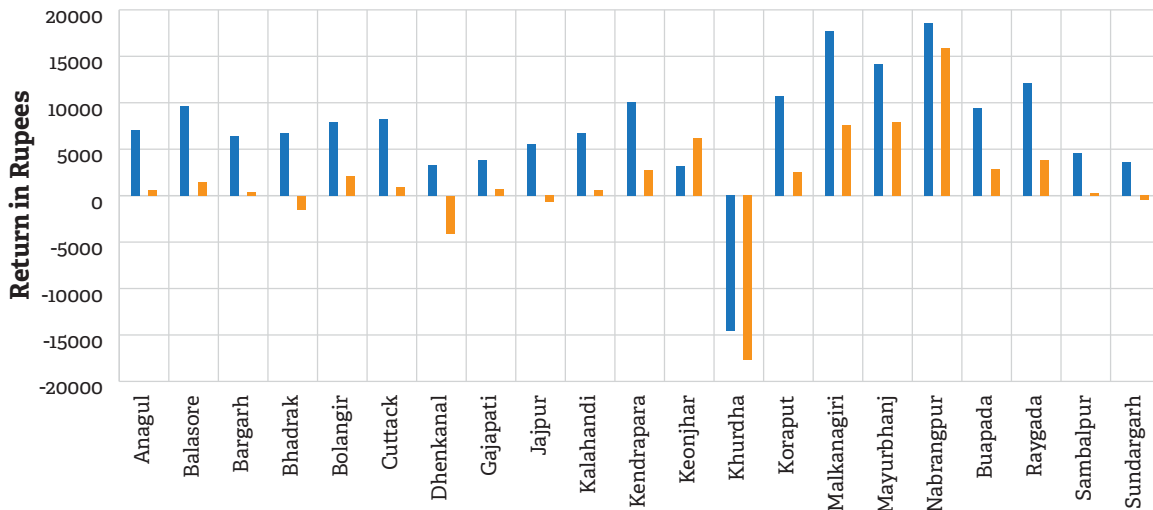
4.8.1 Return from agriculture (for the farmers)

The return from agriculture was not the same for tenant farmers and those having their own land. Farmers who had their own land had the option of selling their produce in a mandi (wholesale) or in the open market. On the other hand, the tenants did not have the option of selling their produce in the mandi and they sold it in the open market. A majority of the small and marginal farmers sold their produce in the open market. The cost of paddy in the open market varied between INR 900 per quintal in Malkangiri district to INR 1,280 per quintal in Nabarangpur district, the average price being INR 1,050. Only in 4 per cent of the cases, the farmers sold their produce at MSP and in 36 per cent of the cases, the produce was sold as per prevailing market prices. Sixty per cent of the farmers did not sell their produce as the quantum was very less. While the MSP in 2015 was INR 1,410, the average sale price was INR 1,050 (25.5 per cent less) (Figure 33).

FIGURE 33: SELLING PRICE FOR PADDY



The return from agriculture has been calculated on two counts: if a farmer sold his produce at the minimum support price and if a farmer sold it in the open market price. The net return from an acre of paddy was the highest in Nabarangpur followed by Malkangiri, Mayurbhanj and Raygada. It can be observed that the cost of cultivation for these districts was on the lower side.

FIGURE 34: NET RETURNS FROM PADDY (PER ACRE AS PER MSP AND LOCAL MARKET)

The return from one acre of paddy was substantially low in almost all the districts barring Nabarangpur and Mayurbhanj, Malkangiri and Keonjhar, if the farmers sold their produce as per the prevailing market prices. In Khordha district, the return from agriculture was negative for both selling it at MSP or at market prices. The average return per acre of paddy was INR 7,546 when sold at MSP and INR 2,024 at local prices (Figure 34).

The return from agriculture was calculated in situations where there was no flood, drought, moisture stress or pest attack which is an ideal situation for farmers. Any such mishaps cut down the returns from agriculture.

4.8.2 Returns from agriculture (for tenant farmers)

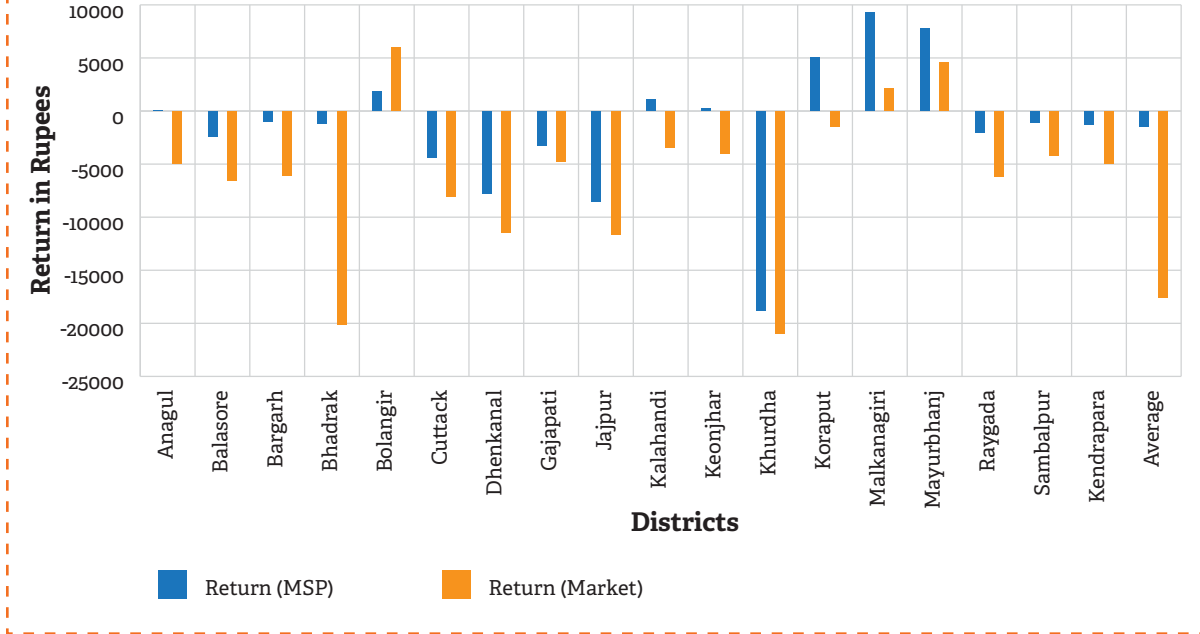
Tenant farmers had to share their crops with land owner as per the different practices prevailing in the area. The returns have been calculated accordingly for both the situations – a farmer selling paddy at MSP and selling it at the prevailing market price. But the chances of a tenant farmer being able to sell his produce (paddy) at MSP were very bleak and so the returns from cultivation are practically the returns as per the market price.

Other than Malkangiri, Mayurbhanj, Koraput and Bolangir, the returns from agriculture were negative for both the market price as well as MSP. In Kalahandi and Keonjhar, the returns from paddy cultivation were positive (though abysmally low) but the returns were negative if the produce was sold at local prices (Figure 35).

For tenant farmers it was very difficult to get good returns from agriculture (paddy) as they had to share the crop or pay for the land. This leads to a very basic question –

Why do the tenants take land on lease and cultivate it if the net returns are negative? This question has two answers – first the calculation of the cost of cultivation includes the labour component that farmers actually do not spend as most of it is family labour. So chances are, that in a good crop, there might be a small return. For some of the sharecroppers, it is difficult to work in others' fields as labourers for a living. It is always more honourable to work in one's own fields. Some of the farmers turned sharecroppers gave a somewhat different response: What else can a farmer do other than cultivation, whether on his/her own land or on someone else's land?

FIGURE 35: RETURNS FOR TENANTS (MSP AND MARKET PRICE)



4.8.3 Cost-benefit analysis

A cost-benefit analysis of the kharif crop in different parts of the state had wide variations (Table 10). The following cost benefit analysis was prepared as per the average cost of cultivation of paddy at INR 16,787 and an average yield of 18.34 quintals as the basis of a cost benefit analysis that is representative of the state. Accordingly the CB for village Patanda, that is nearest to these average values, was chosen. The expenditure for cultivation of one acre of paddy in this village was INR 17,100 and the yield was 18.34 quintals.

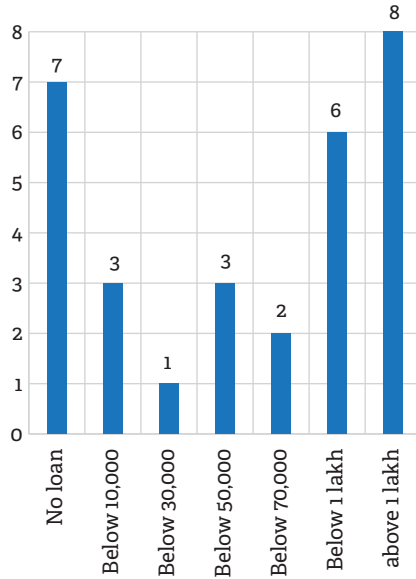
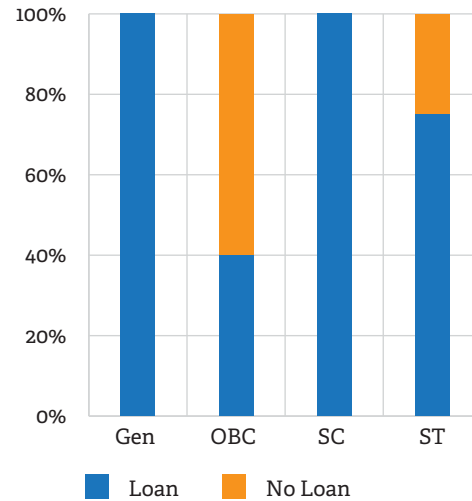
TABLE 10: COST-BENEFIT ANALYSIS

Head	Quantity	Cost (Labour) (Rs)	Cost in Rs (Mechanized)
Seeds	40 kg	1250	1250
Fertilizers	150 kg	2750	2750
Pesticides	1.25 litres	600	600
Labour	34 person days	8500	4800
Cultivation		4000	8500
Total		17100	16900

Total yield of 18.34 quintals if sold in the mandi @ INR 1410 (2015 MSP) fetches INR 25,859.40. After the expenditure is deducted, the Net return is INR 8,759.40. If it is sold in the open market @ INR 1,000, then the return comes down to INR 1,210 only. This cost benefit is appropriate only with the precondition that there are no extreme weather conditions or pest attacks.

4.9 Farmers' indebtedness

Barring seven farmers in the sample, the rest of the farmers were indebted to different extents -26.7 per cent had more than INR 1 lakh in loan (which was later passed on to their heirs), 20 per cent of

FIGURE 36: LOAN STATUS OF FARMERS**FIGURE 37: SOCIAL CATEGORY AND INDEBTEDNESS****BOX 5: MUKKA MADKAMI - TOO YOUNG TO WITHSTAND THE PRESSURE**

Mukka Madkami had cultivated paddy in two acres and sesame on one acre of land. Due to a dry spell, the upland, on which Mukka had cultivated his crop, was infested with grass and weeds and he lost both the crops. Mukka was worried about the survival of his family that also included his mother and three sisters, of which two were of marriageable age. He had a loan of about INR 10,000 which was a huge amount for him considering his income sources. He used to share his worries with his mother. His mother consoled him and advised him to wait for a better time. But Mukka had another blow. His mother fell sick and he had to spend around INR 3,000 for her treatment. As per the villagers, he could not face the problems of the loans, no crop and the pressure of running the family and getting his sisters married. He hanged himself.



the farmers had outstanding loans between INR 70,000 to INR 1 lakh. The average loan burden was INR. 72,271 against an average 5.08 acres of area cultivated (Figure 36).

What is disturbing is that 10 per cent of the farmers had less than INR 10,000 as loan and they still committed suicide. A closer look at the farmers who had less than INR 10,000 in loans each, had other triggers for suicide. Like in case of Mukka Madkami in Malkangiri, or Remati Majhi, where loan money, coupled with other problems, triggered the extreme events.

4.9.1 Social category-wise loans

While all the farmers in the general category and SC farmers were indebted, indebtedness among OBC farmers was at 60 per cent. Only 30 per cent of the ST farmers were indebted (Figure 37).

4.9.2 Indebtedness and age group of farmers

Comparing the indebtedness of the farmers by age group reinforces the argument that family responsibilities had a bearing on the loan burden and a farmer's suicide. The age group of 46-60 years had the highest indebtedness at INR 1,30,280 followed by the age group of 60 years and above. However, the average loan amount in

the up to 20 years age group seems to be high at INR 88,250 but this is due to the value contributed by Pabitra Bariha's loan of more than INR 3 lakh, a large chunk of it incurred by his father (Figure 38).

4.9.3 Reasons for indebtedness

As per inputs from the farmers, crop loss was a big contributing factor for their indebtedness. Crop loss contributed to 76.7 per cent cases of indebtedness. This was followed by 'other reasons' including social functions like marriages and festivals and consumption (Figure 39). For 6.7 per cent, reasons for indebtedness were expenses on health and education.

Fellow farmers were asked if the farmer who committed suicide was expecting more than what reality could offer. This question was debated upon in the FGDs; 63 per cent fellow farmers felt that the farmer who had committed suicide had very high expectations (Figure 40). But, in 37 per cent of the case, the consensus among the fellow farmers was that may be the deceased farmer aspired more than what his/her ground realities could offer which led to a situation of despair.

4.9.4. Interest that the farmers pay

Farmers meet their credit requirements by borrowing from SHGs, microfinance institutions, local moneylenders, traders, cooperative banks and other banks. They pay different rates of interest for these loans. The interest rates for borrowing from SHGs are mostly 3 per cent per month, implying an annual interest rate of 36 per cent. There are deviations in villages like Deuli (Mayurbhanj, Raghampur (Keonjhar), Ranagundi (Jajpur), Khanadahar (Balasor), Shankulei (Dhenkanal), Kundabai (Mayurbhanj) and Nuniapali (Bolangir) where the interest charged by the SHGs is 24 per cent per annum. But in Titakpada in Keonjhar, the interest charged was as high as 48 per cent per annum. Borrowers have to pay the interest amount every month.

Microfinance institutions in different places charge 18 per cent interest annually. The loan amount is calculated in advance and converted into weekly instalments that the farmer has to pay. Microfinance also offers another facility that if either the husband or the wife dies before the repayment of the loan, then the loan amount is waived.

Local moneylenders charge between 4 and 10 per cent as monthly interest (annually it works out to 48-120 per cent)

FIGURE 38: AGE GROUP-WISE INDEBTEDNESS

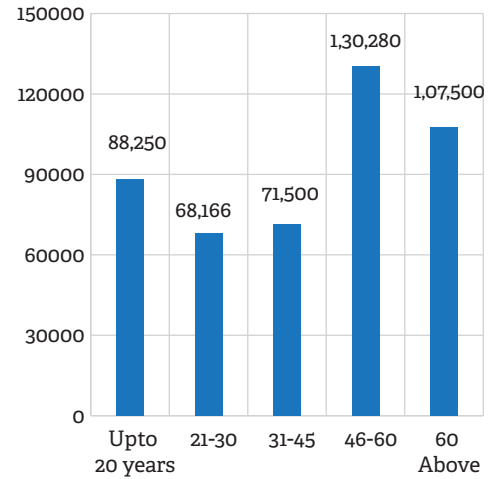


FIGURE 39: REASONS FOR INDEBTEDNESS

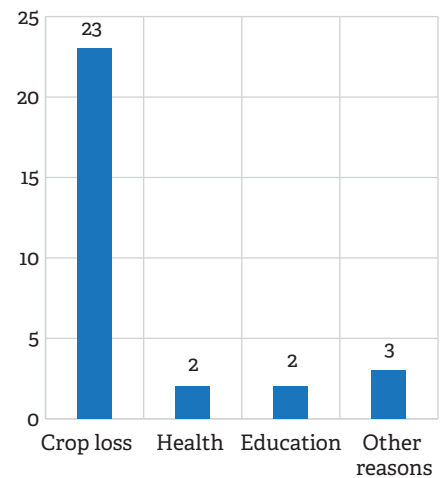
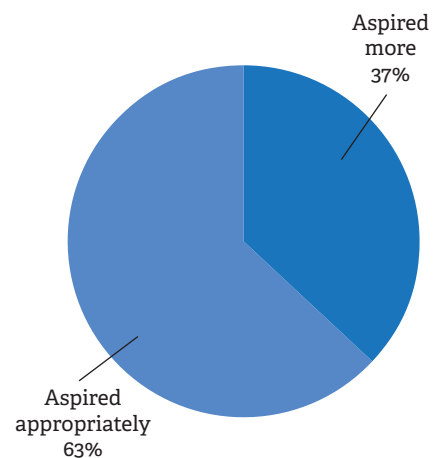


FIGURE 40: FARMERS' ASPIRATIONS



for the loan amount. But in a majority of the cases, the annual interest rate was 36 per cent, which is equal to the rate charged by SHGs.

Cooperative banks charged a farmer 5 or 7 per cent as annual interest. If the repayment was made in time, then the farmer was returned 3 or 5 per cent of the interest. Hence, a farmer had to pay only 2 per cent interest. If a farmer defaulted then the interest rate was increased to 13 per cent per annum. Though the interest burden was lesser with cooperative banks, many stayed away from them, especially the landless and families where mutation had not been done, and, so, they did not have proper documents required for a loan. They also faced inordinate delays in the sanctioning of a loan, the interference of middlemen and corruption.

4.10 Farmers' entitlements

Only 30 per cent of the farmers who had committed suicide had Kisan Credit Cards that entitle them to get credit from banks. Most farmers had PDS cards under National Food Security Act (NSFA) (86.7 per cent) and 73.3 per cent farmers had BPL cards (Figure 41). Further, 63.3 per cent of the farmers were enrolled under the Biju Krushak Kalyan Yojana and 6.7 per cent of the farmers had job cards under the MGNREGS. Only 23.3 per cent of the farmers had insured their crops.

4.11. Marketing the agricultural produce

4.11.1 Registration to sell under MSP

The government has created a mechanism of MSP for farmers to sell their agricultural produce. This starts with the registration of the farmers. Only 17 per cent of the farmers were registered to sell their paddy under MSP. Twenty-three per cent of the farmers had not registered while 23 per cent (sharecroppers), had not registered as they were not eligible. Though the Food and Civil Supplies Department has created provisions for the registration of sharecroppers or tenant farmers, the study team did not come across any instance where the sharecroppers had registered or sold their produce under MSP (Figure 42).

4.11.2 How farmers sell paddy

The study found out that 57 per cent of the farmers did not sell paddy (Figure 43). Only 3 per cent of the farmers

FIGURE 41: FARMERS AND ENTITLEMENTS

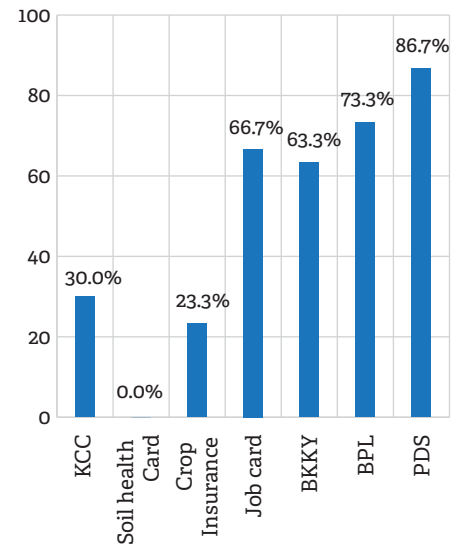


FIGURE 42: ACCESS TO MSP

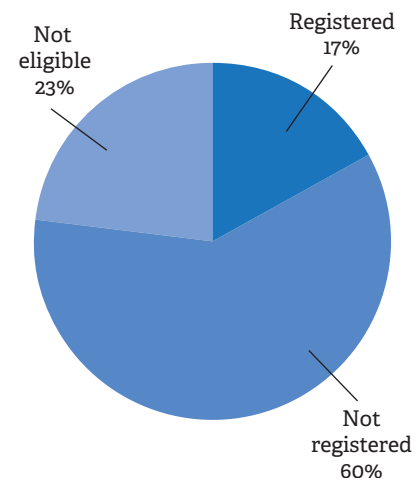
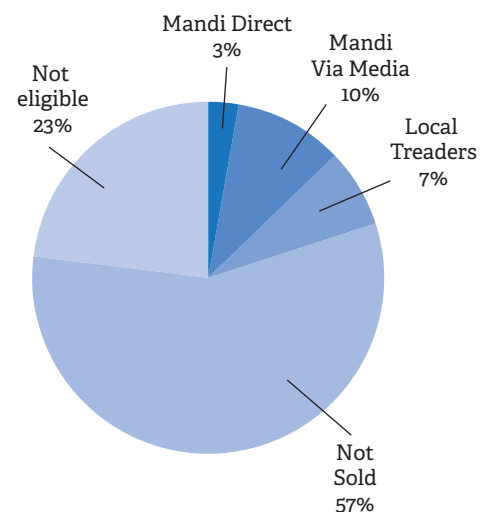


FIGURE 43: PADDY SELLING STATUS



reported that they had sold their produce directly in the mandi or at the Paddy Procurement Centre, though another 10 per cent had sold it in the mandi through land owners or traders who procured the produce at much lower rates from the farmers. Twenty-three per cent of the sharecroppers sold their paddy to local traders or through other avenues. So about 80 per cent of the farmers were not able to use the safety net of MSP and about 30 per cent of the farmers sold paddy to local traders who could be fertilizer dealers or even a front for owners who procured the paddy.

4.11.3 Reasons for not selling in a mandi

Despite the arrangement by the state government, the farmers did not prefer to sell their produce in the mandi because of various reasons including the long wait to sell paddy, the cumbersome process of registration and delayed payments. Transportation was another obstacle for many farmers (Figure 44).

4.12 Insurance

Out of the farmers studied 23 per cent had crop insurance while 23 per cent were not eligible for Insurance as they were landless sharecroppers who did not have the documents required for crop insurance. More than half the farmers (54 per cent) did not insure their crops even though they were eligible to do so (Figure 45).

The main reason for not getting crops insured was no/ low level of awareness regarding insurance among the farming community. Insurance was discussed during the FGDs. In one village, the members did not respond to this issue (Figure 46). In 54 per cent of the villages, the members expressed ignorance about insurance schemes, the processes to be followed and the benefits of insurance. Forty-three per cent of farmers in the villages had taken insurance in varying degrees for the kharif season of 2015. But the members present in the meeting said that almost all the farmers had not continued the insurance for the 2016 kharif crop as they had not received the insurance money even after a year for kharif 2015. Farmers taking loans from banks or cooperatives had continued with the insurance as that was a must for getting a loan.

4.13 Missing collective effort

The farmers were asked in the FGDs about mutual cooperation between themselves. In 63.3 per cent of the

FIGURE 44: REASONS FOR NOT SELLING IN THE MANDI

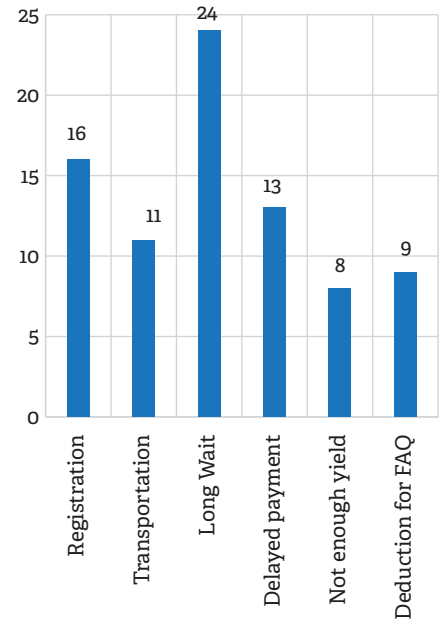


FIGURE 45: CROP INSURANCE STATUS

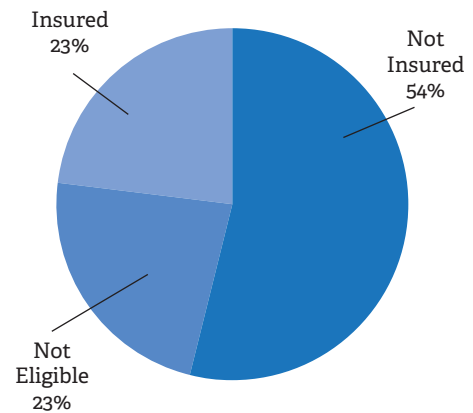
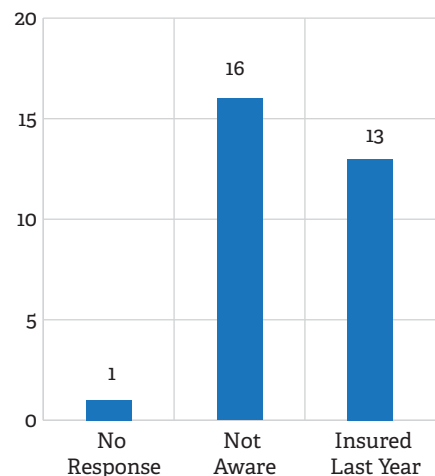


FIGURE 46: REASONS FOR NOT INSURING



FGDs, the collective opinion was that mutual support among the farmers was reducing. In the rest of the FGDs, the opinion was that mutual support was the same as before. The farmers opined that presently there was no dependence on other farmers for agriculture. In the older days, a farmer depended on others for many things like sourcing seeds of a particular variety, either to purchase or to exchange, for ploughing and labour needs during various agricultural operations and for other purposes. The present agriculture changed this. Nowadays, farmers mostly depended on the government or the market for seeds or they used their own seeds. Exchange of seeds had reduced substantially now. For agricultural operations, ploughing was almost a forgotten thing. As the tilling is done with tractors or power tillers, fellow farmers were not depended upon. Agricultural operations have become almost simultaneous, and hence there is no question of exchange of labour.

But the farmers did interact with each other. When asked if they were aware of the plight of the farmer in the village who had committed suicide, about 60 per cent of the groups replied that they knew of the plight of the farmer. Could they have done anything to prevent him from taking this extreme step? Only in two groups the response was, 'May be.' They agreed that the loan could not be paid back, but may be they could have given good advice to the farmer? Some farmers admitted that they could not have helped the situation. 'What help could we have provided? *All of us are in the same boat. May be some of us have other support or the hope that things will improve in the next year. Who knows some of us in this group also may do the same next year?*' they said.

4.14 Government response to the drought

The government announced a slew of interventions and relief measures during and after the drought. But whether a village will be entitled to such benefits depends on the concerned GP/ village being declared as drought affected. Crop cutting has to be done before the declaration. The study team found that crop cutting which leads to a declaration of drought, input subsidies, insurance and also access to other government schemes was not done in all the villages.

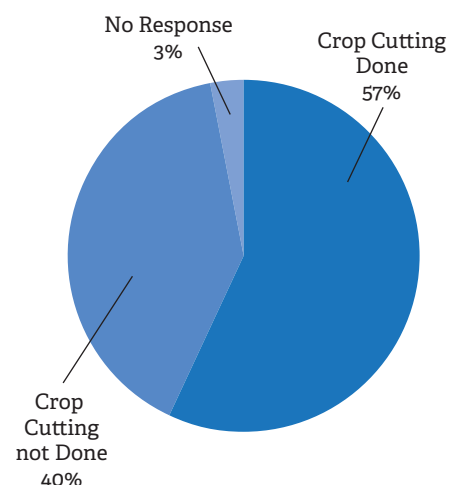
4.14.1 Crop cutting

From the FGDs, it was found that crop cutting was done in 57 per cent of the villages. In 40 per cent of the villages, no crop cutting was done. In 3 per cent of the cases, the villagers could not give a proper answer. As the GP is the unit of assessment of yield, and also the unit for declaration of drought, this might be the reason for so many villages being left out of crop cutting (Figure 47).

4.14.2 Drought declaration

Only in 70 per cent of the villages in the study, the villagers said that their villages had been declared drought affected. In 27 per cent cases, the response was that a drought had not been declared. The concerned villages fall within the districts of Mayurbhanj, Balasore, Bhadrak, Keonjhar, Malkanagiri, Bargarh and Cuttack. But this response could be because of lack of awareness about

FIGURE 47: STATUS OF CROP CUTTING



the declaration as the GP is the unit of assessment and many a times this information does not percolate down. For instance, in the FGD in Sukruli village in Mayurbhanj, the villagers said that they had received input subsidy and this was possible only when drought had been declared (Figure 48).

4.14.3 Input subsidy

The Government of Odisha had declared input subsidy for the small and marginal farmers who suffered 33 per cent or more crop loss due to the drought @ INR 6,800 per ha for rain-fed land and INR 13,500 per ha for irrigated land. For the other farmers, the limit for input subsidy was fixed for a maximum of 2 ha of land (Figure 49).

In the FGDs, 33.3 per cent of the villagers said that they had received the input subsidy and the same proportion reported that they had not; 6.7 per cent reported that input subsidy had been promised to them and 23.3 per cent of the villages reported that they had received the input subsidy partially.

Both for declaring a drought and provisioning of the input subsidy, neither the panchayat functionaries not the Agriculture Department staff members we interacted with could provide reliable information regarding the villages and the extent of crop loss.

4.14.4 Bore-well energization

Only one village, Chhuriapalil in Bargarh district, reported that bore well energization had been done after the drought. But the problem for the farmers was that, due to low voltage, the pumps could not be operated. There were four bore wells in the village. In Jampada village in Bongomunda district too, the bore wells had been provided with generators as an alternative to electricity connections, but the pumps were not working for unknown reasons.

4.14.5 Supply of pump sets

Out of the 30 villages in the FGDs, only four villages said that pump sets had been provided to the farmers - Jharjhari in Sambalpur, Tikarapara in Keonjhar and, Biripali I Bargarh and Patanda in Cuttack district. The rest of the groups reported that they are not aware of this scheme. In most cases, the government schemes were a sort of a secret known only to the people close to the people in power or in-charge of the scheme.

4.14.6 Pulses kits, oilseeds kits and vegetable kits

The government declared that four lakh pulses kits, one lakh oilseeds kits and vegetable kits will be provided to the farmers so that in case of crop loss they can take up their cultivation.

FIGURE 48: DROUGHT DECLARATION

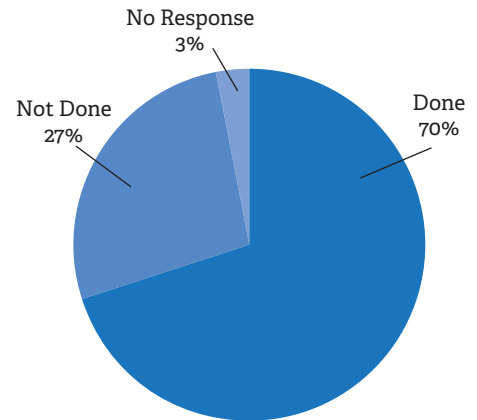
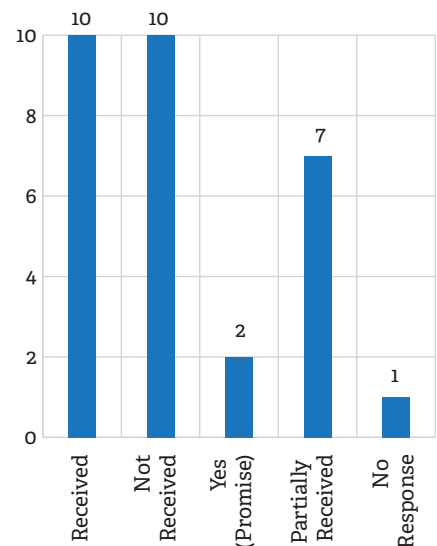


FIGURE 49: INPUT SUBSIDY



Out of the 30 villages studied, only in one village each, the farmers reported that oilseeds kits and vegetable seeds kits had been distributed (Tikarapara village in Keonjhar and Kundabai village in Mayurbhanj respectively) (Figure 50). But the distribution of pulses kits was much better. Out of 30 villages, 19 (63.3 per cent) villages reported that these had been distributed. But in most of the villages, the complaint was that the kits came late.

Most of the farmers in the FGDs expressed ignorance about the government's declaration about the distribution of the kits. Perhaps this was the reason that they had not tried to get the kits from the officers in charge. In practice, the distribution of kits is a regular programme of the Agriculture Department under the promotion of particular crops or seeds.

4.14.7 MGNREGS

The Mahatma Gandhi National Rural Employment Generation Scheme is seen as a means of assuring incomes to unskilled workers in villages. When there was a drought, the central government declared that instead of 100 days of work, 150 days of work will be assured. The Odisha government added another 50 days to this making the numbers of assured work days 200. Over and above this, the Odisha government also promised to provide 30 per cent extra wages to job card holders and it also declared that under MGNREGA, water tanks will be provided and water conservation will be done (Figure 51). Individual farmland development was also to be prioritized under the scheme. But in practice, this did not happen in the study villages to the extent that it was expected in a drought year. However, some work was undertaken in 50 per cent of the villages, mostly road work. But in about 17 per cent of the villages, water tanks or check dams were made under the programme - Namangarh (Gajapati), Jharjhari (Sambalpur), Nuniapali and Jamjuri in Bolangir district and Titakrapara village in Keonjhar. Only in one village in Gajapati, land development work on individual land had been taken up.

4.14.8 Waiver of fees

Only in four villages, the villagers said that they had benefitted from the waiver of examinations and tuition fees as promised by the government (Biripali, Sahajbahal and Sirabahal in Bargarh district and Patanda in Cuttack district).

FIGURE 50: DISTRIBUTION OF KITS

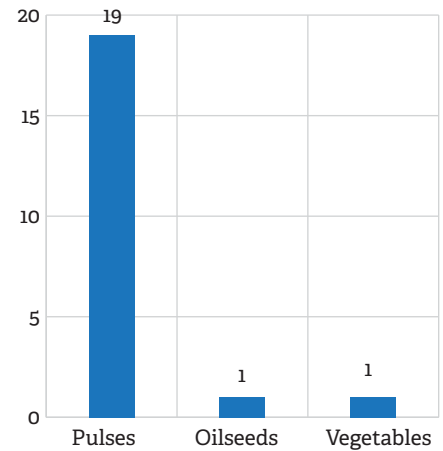


FIGURE 51: IMPLEMENTATION OF MGNREGS

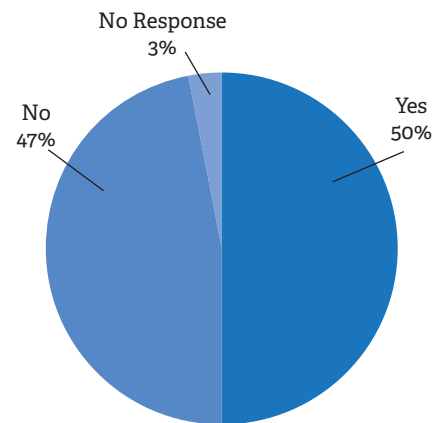
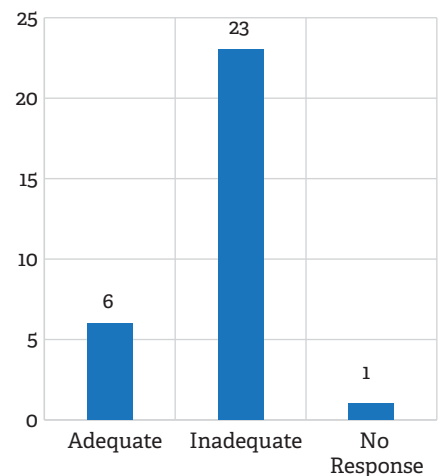


FIGURE 52: PERCEPTIONS ABOUT THE GOVERNMENT'S RESPONSE TO THE DROUGHT



4.14.9 Perceptions of the government's response to the drought

Was the government response adequate in at the time of the drought? The general perception among the villagers in the FGDs was that the government response was not adequate -76.7 per cent of the groups said that the response was inadequate while only 20 per cent felt that the government had responded adequately. The farmers' complaint was that though the government made a lot of declarations, not much happened in practice (Figure 52). Once it was known that a drought was inevitable, the first step taken by the government should have been using all possible sources of water to save the standing crop. Though the government declared that lift irrigation points or bore wells would be energized, this did not happen. These points should have been in working condition, whether drought struck or not. That apart, even in an emergency situation, the bore wells or lift irrigation points did not work to save the standing crop. Pulses kits were not provided to many farmers. Wherever they were, the kits were provided very late when they were of no use to the farmers.

BOX 6: CLUSTER BORE WELL: THE NOWHERE PROGRAMME

Under the cluster bore well programme, in Jampada village under Bongomunda block in Bolangir district, about ten bore-wells were dug in 2014. The programme subsidizes the total cost of the bore wells, electrification and pump sets up to 90 per cent of the cost while the rest is borne by the farmers. While the Lift Irrigation Corporation did the rest of the work, the bore wells were not provided with electric connections. Instead, the concerned farmers were provided with a generator set each, the use of which was demonstrated to the farmers. When the farmers tried to lift water, the generators would start but the pump would not lift any water. No one knew whether the generator was not providing enough power for the pumps or there was a problem with the pump sets. The farmers reported the problem to the concerned department. 'The submersible pumps that have been attached to the pump sets are not working. People are saying that the pumps are China make and could not be repaired. That is the reason for the problem. The government staff has not taken any initiative to fix the problem. And the farmers also have started forgetting that they have bore wells,' said Chaturbhuj Nag, a farmer in the village.

CHAPTER-V: ANALYSIS OF THE FINDINGS

5.0 Summary of the findings

- **Social categories:** A majority of the farmers who committed suicide were OBCs, who traditionally constituted the farming community.
- **Education:** A majority of the farmers (57 per cent) who committed suicide were under-matric.
- **Family size:** Average family size of the farmers who committed suicide was 5.46 persons; 34 per cent of the farmers had 4/5 members in their families and 33 per cent had 6/7 members in the family. So the farmers had to fend for comparatively large families.
- **Compulsion or choice?** More than half the farmers (53 per cent) had taken to agriculture naturally as a continuation of the family occupation. But what is worrying is that 27 per cent of the farmers had taken to agriculture out of choice and had dreams of turning around their family economy with agriculture.
- **Economic conditions:** 73 per cent of the farmers' families had BPL cards. While the remaining 27 per cent did not have BPL cards, many of them were qualified to be BPL families.
- **Multiple income sources:** The farmers were dependant on more than one income source. While for all of them farming was a source of income, for 70 per cent of these families daily labour/ wage earnings were another source of income. For 36 per cent of the farmers, forest produce was supplementary income. This implies that agriculture is not a stand-alone occupation and it can only be sustained with support from other sources of income.
- **Age:** Age-wise the largest group of farmers (37 per cent) belonged to 46-60 years group, an age group when farmers take full responsibility for the families.
- **Family responsibilities:** 54 per cent of the farmers who committed suicide were the heads of their families and 30 per cent of them were elder sons in their families. A majority of the farmers who committed suicide had the responsibility of their families.
- **Time of suicide:** More than 80 per cent of the farmers committed suicide before the crop was harvested.
- **Reasons for suicide:** The primary reasons for suicide were crop loss (30 per cent), drought (23 per cent) and family responsibilities like daughter's marriage, children's education and health issues.
- **Reasons for crop loss:** Drought was identified as a major reason for crop loss (87 per cent).
- **Land ownership:** 23 per cent of the farmers who committed suicide were landless.
- **Size of land cultivated:** Average size of land cultivated by the farmers was 5.08 acres with average own land of 2.87 acres and average leased-in land of 2.21 acres.
- **Leasing-in:** 43 per cent of the land cultivated by the farmers who committed suicide was leased-in.

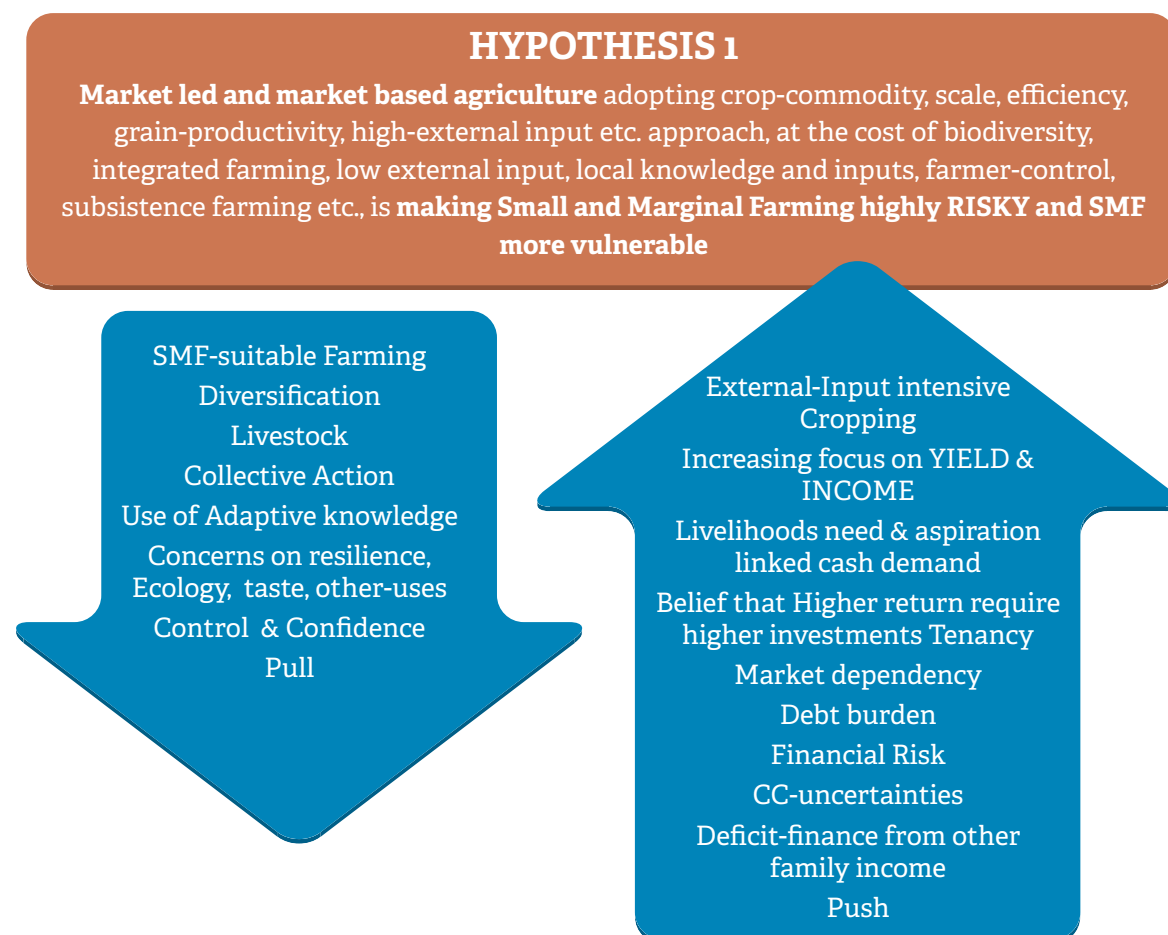
- **Landless and marginal farmers** constituted 63 per cent of the farmers who committed suicide.
- **Crops cultivated:** All the farmers cultivated paddy. Out of them 30 per cent cultivated vegetables as the second crop.
- 47 per cent **crop substitution** was practiced by the farmers.
- **Incomplete practice:** 90 per cent of the farmers felt that they were not practicing external input intensive agriculture in totality.
- **Yield** was the deciding factor for the farmers choosing external input intensive farming, though they were aware that the local seed varieties were more adaptive to local conditions.
- Mostly **HYV and hybrid** seeds were cultivated by paddy farmers.
- The farmers depended on the government and external market for 80 per cent of the seeds.
- Both the market and the government succeeded only half the time in the **timely supply of seeds**.
- Local moneylenders still met most of the **credit needs** of the farmers.
- The **loans** taken by the farmers were used for multiple purposes both agricultural production and consumption.
- **Loan burden:** 24 per cent of the farmers did not have any loans but still killed themselves; 10 per cent of the farmers had less than INR 10,000 as loans.
- More than a quarter of the farmers had loans of more than INR 1 lakh.
- Crop loss was mostly blamed for the **indebtedness of the farmers**.
- The prevailing **price of paddy** in the market was less by 25 per cent as compared to MSP.
- **Availing MSP:** Only 3 per cent of the farmers sold their produce directly in the mandi; 7 per cent sold it through middlemen.
- **Return from cultivation** of one acre of paddy sold under MSP was INR 7,546 and it was INR 2,024 if sold at the prevailing market price.
- Only a small proportion of the farmers were benefitting from MSP.
- **Government response:** One-third of the villages reported that they had not received any input subsidy and 23.3 per cent reported that they had received it partially.
- **Bore well energization** was done only in one study village. Non-working generator sets were provided and low voltage rendered the bore wells ineffective during the time of the drought.
- 13 per cent of the villages reported that **pump sets** had been provided by the government
- 63.3 per cent of the villages reported that **pulses kits** had been provided to them, but the delay in their supply rendered them ineffective. In only one village each oilseeds and vegetable kits were provided.

- **MGNREGS work** was taken up in 50 per cent of the villages. Though most of the work was road construction, in 17 per cent of the villages, water tanks or check dams were also constructed. Only one village reported that land development had been taken up on individual land in their village.
- **Inadequate government response:** 76.7 per cent of the FGD groups opined that the government's response to the drought was not adequate.

5.1 Agriculture in transition

Agriculture in Odisha is in transition (Figure 53 and Table 11). Traditional farming is giving way to modern ways of agriculture. Adoption of input intensive agriculture is at different stages in different parts of the state. If in some parts, the farmers have restricted themselves to only using chemical fertilizers and pesticides, in other parts, the farmers are using transplanters and combine harvesters. Even within one village, different farmers are at different levels of adoption. But once one sees beyond the maze of indicators of input intensive agriculture, like use of high yielding and high breed seeds, chemical fertilizers, pesticides, farm mechanization and generation of surplus, one thing that comes to the fore is that the market is the new entity that is making substantial inroads into the farming system and disintegrating it. Earlier, a farmer was self-sufficient, either within his household or in the village, for almost all the inputs, but now he has to them from the market and he is also dependent on the market to sell the surplus generated. This is true of all the areas of the state.

FIGURE 53: SHIFTING CONTOURS OF AGRICULTURE



5.1.1 Traditional agriculture

During a discussion on traditional farming, the farmers said that in the older days (of traditional farming) a variety of seeds were used for paddy cultivation. Different seeds were used for different types of land. There were seeds for upland, low land, mid-land, acidic soil and the land getting flooded. The seeds were chosen as per weather conditions. There were also considerations for scented paddy, paddy for puffed rice, flattened rice and early variety paddy to address periods of food shortage or even certain varieties for festivities. Either the farmers had their own seeds or they exchanged seeds with fellow farmers who had the desired variety.

Dependence on the outside world was limited. Most of the inputs were generated at the farmers' level. They got the manure from cow dung and crop residue. The dung was from the cattle population. Livestock was fed straws and other waste. Bullocks provided power and cows provided milk. Those rearing poultry and goats also got protein. They had an integrated system of farming. Agricultural fields as well homesteads and household were integrated units. They cultivated paddy, black gram, green gram, split red gram etc. All the farmers did not cultivate all the crops but they bartered different products with other farmers.

The farmers cultivated the known varieties of seeds. Even if they did not know the varieties well, over a period of time they learned the art of making the most of their experience and knowledge about the local weather ecology and land types. The seeds to be used were decided as per the land and the manure also varied from land to land. Different types of manure were produced using different combinations of crop residues.

In the older form of agriculture the crop was produced for a farmer's own consumption. Only a small portion of the surplus produce was sold. Most of the requirements were met from a farmer's own system. In case of need, mutual cooperation and exchange of labour took place. (Figure 53 and Table 11)

Almost all the farmers we interacted with in the FGDs said that production from traditional seeds and practices was very low, nowhere comparable with new agriculture. But at the same time, they also complained that modern farming needed more investments while in the older form most of the inputs were generated by the farmers themselves. It was primarily the lure of higher production that tempted the farmers to adopt new farming. However, at the same time, the FGDs could not provide proper answers regarding the returns from traditional farming and modern farming. From an input-output analysis of paddy, it was found that though the yields from modern farming were almost double compared to traditional farming, the returns from modern farming were not that high. Average yields from traditional paddy cultivation were 7.5 quintals per acre while from input intensive farming it was 17.6 quintals or about two and half times more. The investments for traditional paddy cultivation were only INR 4,323 as against INR 17,495 for modern farming. The net return from traditional paddy cultivation was a meagre INR 741 as against INR 8,175 from modern cultivation.

TABLE II: MISMATCHED STRATEGY AND POOR ENABLING AUGMENTING VULNERABILITY HYPOTHESIS II

Market lead and market-based agriculture in the context of SMF require a different approach and enabling environment (viz. financial inclusion, inclusive market, infrastructure, enhanced access to land, are not available/accessible, due to lack of policy provisions or poor/lack of implementation of existing policy.

- Mismatch of mainstream agriculture paradigm for SMF – scale issue
- Unavailability of enabling environment around credit and irrigation access
- Continued and increasing tenancy and landlessness
- Reducing Agriculture Extension-support, with decreasing staff, increasing demand and increasing duty-diversions
- Exclusive, unresponsive MSP and exploitative market
- Increasing cost from mainstream-mechanization in small farms
- Missing strategic promotion of Collectives/cooperatives
- Policy to push SMF out of farming on efficiency-ground while NSSO and CC-debate show evidence to the contrary

5.2 External input intensive farming: Yield the new mantra

External input intensive farming made inroads into the traditional farming system through the application of chemical fertilizers. The government took up campaigns to promote Green Revolution agriculture. One of the old farmers narrated an anecdote about how the staff members of the Agriculture Department used to apply fertilizers clandestinely and, when the crop was lush green, they would tell the farmers that chemical fertilizers were applied by them. Due to the application of fertilizers, the yield increased. But still the farmers resisted chemical fertilizers as they believed that the soil would degrade due to their use. But over a period of time, farmers competed with each other in applying chemical fertilizers. Now the farmers believe that the more fertilizers you apply the more yield you get.

After fertilizers, it was seeds that the farmers changed after the government started programmes on this. High yielding varieties were cultivated and yields increased. The farmers were aware that the high yielding varieties were giving much more than the traditional ones. But these seeds were not tolerant to moisture stress, droughts and flood conditions. Pest attacks also increased. There were more pests and diseases or pest attacks were more frequent. So in came pesticides.

After input intensive farming, a lesser number of varieties were being cultivated and in some cases, mono-cropping of a single variety of paddy in the whole village was also done. This needed the labour force, at one go, in the entire village. In the absence of agricultural labour, mechanization crept in. Seeds, fertilizers, pesticides and mechanization meant that the cost of cultivation kept increasing. Farmers, who were meeting all the expenses from their own sources earlier, now had to depend on external sources for credit for cultivating their land.

While the government campaigned for changing the inputs, the arrangements on the ground had their imperfections and could not meet the credit needs of the farmers. That is why exploitative

local moneylending still ruled the roost, charging exorbitant interest rates. SHGs and microfinance institutions were no exceptions, though the interest rates were a bit less. Increased capital costs, increased risks due to lack of life saving irrigation, extreme events, lack of support from agricultural extension, coupled with imperfections in marketing arrangements, made a perfect recipe for the farmers to lose hope and quit.

5.3 Exclusive, unsupportive MSP

There have been efforts by the Food Supplies and Consumer Welfare (FSCW) Department to administer MSP in Odisha. The department has come out with very elaborate arrangements for the procurement of paddy from farmers. The Food and Procurement Policy for the kharif marketing season (KMS) 2015-16 outlines the arrangements¹⁵.

As per the policy the following things should happen at the farmers' level:

- A farmer should apply for registration for selling paddy at MSP with the Primary Agriculture Cooperative (PAC) along with identity proof and the details of land owned by him/her.
- After digitization of the information at the PAC level the Revenue Inspector of the locality will verify the land details.
- Based on the assessment of the Agriculture Department on per acre yield of rice for the previous five years, information and the size of the family of the farmer the amount of paddy the farmer can sell will be determined. For each member of the family, three quintals is deducted to determine the total amount of paddy that can be sold by a farmer.
- The district administration with the help of PAC will do IEC activities for the farmers on the fair average quality (FAQ) of paddy. As per the 2015 norms, the price for the common grade of paddy was INR 1,410 per quintal and INR 1,450 for Grade A paddy.
- Efforts will be made to procure paddy from small and marginal farmers at the beginning of the season.
- Paddy will be procured between 15th November 2015 and 31st March 2016 for kharif paddy.
- The farmers are intimated about the date of purchase at least seven days in advance.
- Farmers should sell only FAQ standard paddy and sale of non-FAQ paddy below MSP will not amount to a distress sale.
- If the paddy brought by the farmers is not FAQ the farmers can improve the quality with facilities at PAC or take back the paddy to improve the quality and come on another date.
- The farmers are paid the cost of paddy within three days. But the payment should not be delayed beyond seven days.

¹⁵ Food Supplies and Consumer Welfare department Guideline - Reference no 19648/09-61-69/2015, Bhubaneswar dated the 05.10.2015)

The policy decisions taken by the concerned department regarding ensuring MSP to the farmers seems to be a near perfect arrangement. But the reality is somewhat different from this and there are still some challenges to be faced.

The farmers that we interacted with said that the whole MSP programme had a lot of implementation level issues.

The problems for farmers start from registration, to be able to sell the produce in the mandi, or PAC, to avail minimum support price. Many of the farmers do not get registered due to various reasons or due to the machinations of vested interests. During e-registration of farmers, the villagers of Ostara and Kendrapara found that in the drop down menu their village was not mentioned. So the farmers could not register their names. The farmers also alleged that, at the registration stage, there were chances of impersonation like some cases which had been reported or even failure to register due to technical reasons. A case was reported in the *New Indian Express* (22.12.2016)¹⁶. Jogeswara Sahu of Kudasinga village in Bolangir district had applied for manual registration to sell paddy at MSP. But later on, it was found that his name had not been registered with Kudasinga PAC as 25.8 acres of his land has been registered in the name of his nephew. It was alleged that there was an unholy nexus between PAC authorities and Jogeswar's nephew. The PAC secretary is yet to take a call on this. Jogeswar had a good harvest this year from the seven acres of land he cultivated. As per government norms for Bolangir he should have been able to sell 84 quintals of paddy@ INR 1,470 per quintal. But as his entire land was registered in his nephew's name he had to sell his harvest at the market price that was INR 400 less than the MSP. This irregularity can very well cost Jogeswar a loss of more than INR 33,000 if he has to sell the entire permissible amount in the local market. This is not a lone case as there were news reports in the Odia daily the Prameya of many cases of false registrations in western Odisha.

This problem existed in 2015 and even before that. That is the reason why the FCS Department has been coming out with different government orders. This year too (2016-17), many cases have been reported where the actual farmer has been unable to register because someone else has used his land details and got registered. In Jujumura block in Sambalpur, district registration issues show how blatantly the rules and provisions are being violated. In village Budhiakat, under Kansar GP Shivilal Har (11.87 acres), Jagal Har (27.81 acres) and Prasanna Barla (15.65 acres) had cultivated their ancestral land and when went to Jujumura cooperative society to register to sell paddy. They were informed that their land had already been registered. Someone claiming that he had sharecropping rights over the land of these three farmers (that amounts to more than 55 acres) had registered himself but these farmers had neither given their land for sharecropping nor given any consent letter. The District Collector has assured them that he will be looking into the matter (*Pramaya* 24/12/2016).

Why do such problems arise with respect to registration? As per the existing arrangement, the paddy is to be purchased at the PAC or other procurement centres from specified dates. For each PAC, a target is fixed. Paddy can be procured only from farmers who are registered. After procurement, PAC gives the paddy to the mills identified by the Food Supply and Consumer Welfare Department. The farmers allege that though the government has laid down elaborate and transparent norms for the registration and sale of paddy, the nexus between the millers and some of the PAC officials subverts the process. Selling the paddy to get the MSP is made cumbersome and harassing to ensure that the farmers do not sell the paddy in the mandi and instead sell it to traders who are mostly fronts for millers. The difference in the rates offered by traders and MSP could be between INR 200 to INR 400 per quintal. That means a lot of profit for the miller-PAC

¹⁶ Balangir farmer fails to sell his produce, The New Indian Express, December 22, 2016

officials nexus. Many things are tried to compel farmers to sell paddy to millers or traders. First they are dissuaded or harassed so that they do not register. The procurement process is delayed. The farmers are made to wait at the procurement centre for hours and days together. And in the name of FAQs, certain quantity of paddy is deducted. Finally, payments are delayed.

The Food Supplies and Consumer Welfare Department is categorical in mentioning, 'Effort will be made to procure paddy from the small and marginal farmers at the beginning of the season' because SMFs are desperate to sell. But, in practice, the opening of the procurement centres is delayed. This year though, the procurement centres were to be opened from 15th November, till the last week of December many of the procurement centres had not been opened as per media reports. These were not stray cases. Delay in opening of the mandis resulted in a demonstration by farmers in the operational area of Jayapatna and Mangalurmandi (*Dharitree*, 12/12/16). This was in the earlier days of the procurement season. There are also reports of distress sale of paddy in Kendrapara district due to an inordinate delay in opening the market yard. As late as 22nd December 2016 (the *New Indian Express*), it was reported that the Odisha State Civil Societies Corporation will procure 35,000 tonnes of paddy in the district from 30 December. The farmers in urgent need of money sold their paddy to traders at much lower prices. Delays in the opening of procurement centres were reported from across the state this year. Last year too, the same situation had prevailed.

Small and marginal farmers, who are desperate to sell their produce immediately after the harvest, sell it to traders because of such delays. This offers some advantage to farmers like paddy being lifted from their doorstep, immediate payments being made, no costs of transportation, no delays at the procurement centre and no deduction in the name of fair average quality (FAQ).

If farmers do not sell their produce to traders and decide to sell it in the mandi, then they will have to wait till procurement starts. Then the farmers have to transport the paddy to the procurement centre or mandi. Many of the farmers who do not have a substantial quantity of produce are either not interested in selling it or prefer to sell it to the local traders. Some of the reasons for not selling the produce to PAC include:

- Did not have enough yield
- Problem in registration; not used to the e-registration
- Mandi is far from their village
- Long wait at the mandi (80 per cent of the farmers said this)
- A quarter of the farmers did not opt to sell in the mandi because of the long wait/delay in getting the payment

5.3.1 Other issues pertaining to MSP

Only 34 to 38 per cent of the paddy produced is being procured by the Government of Odisha (Table 12). That means between 62-66 per cent of the paddy produced is being utilized or sold locally. This is the case with those registered. And only a small fraction of the farmers are registered.

TABLE 12: PADDY PROCUREMENT AT MSP

Year	Total Paddy production in lakh MT	Procurement Target fixed	Procurement target as per cent of production
2014-15	98.33	37.30	37.93
2013-14	115.35	37.3	34.35
2012-13	94.97	31.27	32.92

Source: Food Odisha Portal of Food Supplies and Consumer Welfare Dept

Bumper crop or crop loss, the target for procurement of paddy/rice from the farmers under the MSP programme remains more or less the same, as the state government has to procure rice for NFSA and for the national pool. In a drought year, the farmers produce less. But the target for selling is marginally less as it is decided by the average of last five years and the current year. So the farmers may not sell the amount of paddy that he/she is entitled to. During a crop loss/drought, a farmer hopes that next year he/she will be able to recover the loss. The next year, even if the crop is a bumper one, a farmer does not get the opportunity to sell all his/her produce as the saleable yield is not as per actual production as it is decided over a five year average. So a farmer's hope of compensating for the loss in the drought year is not fulfilled.

Looking at the coverage of the farmers under MSP, the number of cultivators registered for 2015-16 was 7,68,692. Considering that there are 55 lakh cultivators in Odisha (Former Agriculture Minister, Dr Damodar Rout, Edit page article, *Sanchar*, 30/12/2016), the coverage of farmers under MSP is barely 13.98 per cent. Landless cultivators do not figure here for obvious reasons. Those cultivators who had registered had a surplus of 48,41,129 MT (after deducting three quintals for each family member for food security) out of which only 29,709,80 MT was procured for the kharif season and 3,681,53 MT for the rabi season under the MSP programme. Put together, the procurement for both the kharif and rabi seasons was 33,391,33 MT of paddy or 69 per cent of the surplus of the farmers who had registered. Here it should also be mentioned that Food Supplies and Consumer Welfare Department, which claims to have digitized the total process of procurement, provides the same figures for 2012-13, 2013-14 and 2014-15 for the number of farmers registered, surplus etc.

5.4 Arrangement for sharecroppers

In the food and procurement policy for the KMS 2015-16, the FSCW Department provides an option for sharecroppers to sell their produce. Section 7:7.2 of the policy says: 'Share-croppers (bhag-chasi) shall be allowed to sell their marketable surplus paddy with the consent of the concerned recorded tenant. The facility for registration is already available to sharecroppers. For such consent, Collectors may consider new processes like community meeting in the village, as was practiced in Ganjam in KMS 2014-15, to ease the paddy purchase from sharecroppers. Revenue and Disaster Management Department has been requested to initiate steps to put in place institutional mechanisms like lease or contract farming to recognize sharecroppers so that they do not have to collect the consent letters of the land owners at the time of harvest in every season. Registration of sharecroppers, through system of Joint Liability Groups, assisted by Banks, under agricultural loans, will be made without insisting on consent letter.'

So to be able to sell their produce the sharecroppers have to take the consent of the land owner, which is very unlikely. During the study, the team also sought opinions of sharecroppers and land owners about the new arrangement proposed by the state government regarding the agreement to be reached between the sharecroppers and farmers. The groups rejected this saying this was

not going to happen as the land owners were apprehensive that this may be a ploy to alienate them from their land. The Odisha Tenancy Act makes tenancy illegal, though in another section it also talks of tenants. Many of the sharecroppers even wished that there was no such legislation as this will create a situation where the land owners will not trust them and so will not provide land on lease. In such an environment, the sharecroppers getting consent from land owners and being able to sell the produce is not likely to happen. The option of community meetings initiated by the Ganjam collector seems to be an effective option, but this has not been implemented in the areas that the study team visited. Registration of JLGs assisted by the banks also seems to be a remote option as this concept has not evolved and or been implemented in Odisha. There was also a mention of the 'provisions in place for the registration of the sharecroppers.' But the sharecroppers knew of no such provision.

5.5 Crop insurance

Extreme weather events like droughts, long dry spells, floods and pest attacks affect agricultural production and farm incomes. With changes in the weather pattern, farmers have become more susceptible to loss as the frequency and severity of extreme events has been increasing. With new technology in agriculture, the amount of investments has increased and so has the magnitude of loss to the farmers in the eventuality of crop failure. In this context, the role of insurance against any losses cannot be overemphasized. Agricultural insurance is considered an important mechanism/safety net to effectively address risks to output and income resulting from various natural and manmade events.

Both the insurance schemes being implemented in the state -- the National Crop Insurance Programme (NCIP) and the Weather Based Crop Insurance Scheme (WBCIS) – are under the area approach so if a land owner wants and pays for the premium amount, he/she can get the crop (which actually belongs to the sharecropper) insured. In case of crop loss in the area, the insurance amount goes to the account of the land owner.

Payment of insurance claims has been a nagging problem in the state. Compensation for crop loss in kharif 2013 due to Phailin and the devastating flood that followed was delayed up to October-November 2014. For this crop around 13 lakh farmers were covered against a premium of INR 85.57 crore. Out of this, 3,73,126 farmers were entitled to get claims of INR 393 crore rupees. But till the first week of October 2014, the compensation had not been paid to the farmers. The reason for delayed payments given by the Agricultural Insurance Company of India Ltd. (AICL) was a delay in release of the state government's share of money for the insurance due to the Puja holidays. The 2015 kharif crop claim settlements also fared no better. Till the first week of December, the farmers had not received their claims for crop losses. On 23rd September 2016, Cooperation Minister Damodar Rout informed the assembly that the crop insurance will be paid to the farmers within two weeks. But despite this declaration the farmers did not receive their claims. The reason for this is given in the letter that Chief Minister Navin Pattanaik wrote to the Union Agriculture Minister on 26 October 2016 that reads, 'I would be grateful if you would accord your approval to the delayed submission of the crop yield data for Kharif-2015 season and provide the Government of India share of Rs 795.31 crore immediately, so that claims could be released to 11.61 lakh farmers who are eligible for receiving insurance claims, pertaining to Kharif-2015.'

The National Crop Insurance programme is based on yield data of the area. Hence, the crop cutting/crop estimation has to be done by the state agency and the data given to the insurance company. Crop cutting delays the process of paying the farmers. There are also other issues associated with it. But State Minister for Cooperation and Excise presented another set of problems for the delay

on the floor of the assembly: 'The delay was mostly due to contradictory reports. However, the government is taking steps to provide insurance amount to affected farmers within two weeks (The New Indian Express, 24 September 2016).

5.6 Facilitation of irrigation

Irrigation is a precondition for input intensive farming as cultivation requires everything to be done in a controlled conditions. But most of the land cultivated by farmers who committed suicide was not irrigated. Rainfall agriculture is what most of the farmers practiced; placing them in a high risk zone with growing thirsty crops, investing huge amounts of money and finally, in case of moisture stress, facing crop loss.

5.7 Credit

Input intensive farming has increased the need for credit. As per the findings of our study, only 16.7 per cent of the farmers did not borrow and organized capital themselves. But this does not necessarily mean that agriculture was self-sustained in these cases because the farmers were dependant on multiple sources of income like wage labour and other members also earning. Apart from this, the famers also ploughed in the advances taken from paddy traders or that taken from migration contractors for their crops. Local moneylenders still dominated the credit scenario. Institutional credit from banks and cooperatives has a long way to meet the increased credit needs of the farmers. Tenant farmers are completely out of the purview of institutional credit. Those who have land either have loans pending against them or find banks and cooperatives difficult to handle. Some of the farmers even took the help of the middlemen and parted with sizeable chunks of money. The practice of 'khatabadala' is prevalent (a farmer goes to the bank only to theoretically pay back the loan to the bank and he/she is advanced a loan of little higher denomination. Practically the loan is paid back to the bank, so it is no more an NPA, but the farmer ends up with the higher loan amount against him/her). This arrangement also makes the farmers complacent about repayment at the cost of pending and increasing loan burdens.

The government declared that, in case of a crop loss, short term loans will be converted to medium term loans at the same rate of interest. The farmers in the FGDs opined that this was not of much benefit as they had to pay the loan back any way. Rather, the bank would earn further interest on the money lent. Only the waiver of loans would help the farmers tide over the situation.

The role of SHGs and microfinance institutions has also been in discussion for the last few years. It is alleged that the SHGs build tremendous pressure on a defaulting person or families. But while gathering information on the farmers who had committed suicide, none, not even the family of the deceased, were forthcoming in saying anything about the SHGs or the pressure that they has built. The SHGs avoided the research team.

5.7.1 Credit for health, education and consumption - not a farmer's problem?

While assessing the credit aspects of farmers, it should be kept in mind that the entire loan was not taken only for meeting agricultural need. A major chunk of the loan was used for consumption purposes as well. The families of the farmers being a part of the assessment process also admitted that all the credit was not for agriculture only.

The government has accused the farmers of having accumulated debt due to health, medical and other purposes. At least in a couple of the FGDs, the research team faced counter questions from

the farmers – is not the loan by a farmer for health emergencies in the family a loan? Is not the loan taken for the education their children a loan? Is the farmer to borrow only for agriculture in case of need and is he not supposed to meet the other requirements of his family? Is the farmer as per the definition of the state a lone entity without his/her family and even if he can have a family is he not supposed to finance their health, education etc.? After all the major source of income for a farmer family is farming only. If not from farming or a loan from which source is the farmer supposed to meet these requirements? The state has introduced capital intensive farming, but does not take enough care to ensure proper credit to keep this agriculture running.

5.7.2 Indebtedness of small and marginal farmers: The bigger picture

The National Sample Survey Organization's (NSSO) 59th Round Report gives an insight into the indebtedness of the farmers. As per this report the estimated number of farmer HH in Odisha was 42.34 lakh. Out of this 47.8 per cent of the farmers were indebted (the national figure is 48.6 per cent). Out of the indebted households 23.3 per cent were Scheduled Tribes, 14.2 per cent were SCs and 44.1 per cent were OBCs and 18.5 per cent belonged to the 'Others' category. If the distribution of indebted households by holding size is looked into then 90.9 per cent of the indebted farmers were either small or marginal farmers (23.5 per cent having 0.01 to 0.4 ha, 46.5 per cent having between 0.41 to 1.0 ha and 20.6 per cent having 1.01-2 ha of land). This shows the plight of the small and marginal farmers in Odisha.

5.8 Agony of women farmers

Women have a larger share of woes as in the present agriculture context they do not have much say in farming operations and their participation has reduced substantially. In the SMF families, where farmers had to migrate, as agriculture could not sustain them, the women had to take the burden of farming operations in addition to managing the family in the absence of the husband. Women farmers who have committed suicide were managing agricultural operations on behalf of their husbands.

Women also play a difficult role in borrowing money from SHGs and MFIs. In case the interest and the principal are not paid in time, the pressure mounts on the women. But she cannot transfer this pressure to male members and largely suffers alone. If she does, then it leads to family quarrels. At times, family quarrels end in the suicide of the farmer. And in such cases, the women have to live with the accusing eyes of family members and villagers, saying 'you are the culprit.'

5.9 Tenancy

Only 30 per cent of the farmers under study tilled their own land. The remaining 70 per cent of the farmers took land on lease; 23 per cent of the landless farmers completely depended on leasing-in of land and 47 per cent of the farmers increased their cultivated area with leased-in land. Tenancy arrangements were informal in nature and primarily based on word of mouth. Tenancy arrangements varied across the state. Even in the same district, or the same village, there were different arrangements. Land tenancy is a practice that gives roots to old feudal practices. In Kendrapara district, the land owner is referred as 'Raja.' In some places the Raja may be called a Zamindar or a Gauntia (western Odisha), but the equation remains the same. Some of the features of tenancy include:

- The landowner shares only half the cost of fertilizers and pesticides. Sometimes irrigation expenses and the produce are shared fifty-fifty (Kendrapara, Baleswar, Bolangir (Belpada), Dhenkanal).

- The net profit is shared equally by the landowner and the tenant after the deduction of the cost of cultivation that is borne by the farmer (Bongomunda (Bolangir), Rayagada).
- In case of the rabi crop the landlord is given only one-third of the produce (Kendrapara).
- Lease amount – Sanja in Sundergarh about Rs 2,500 for each acre.
- Landowner takes one share and the tenant two or they just give 3-4 bags of paddy (Khordha, Angul, Bolangir-Agalpur, Malkanagiri).
- In case of Mayurbhanj, the owners takes half of the share in case of crop loss.
- Four quintals to landowner is the total cost paid by the tenant.
- Total cost by the tenants and half of the produce for the landlord (Gajapati, Cuttack).
- 70:30 arrangement for sharing the produce.

While in most of the cases the tenants invested in the cultivation, worked in the field and shared a substantial portion of the produce with the landowner, they were left with little net returns. In case of a crop loss:

- The tenant does not get compensation for the crop loss or input subsidy.
- Is not able to sell the produce at the PAC as he/she is not registered as he/she does not have the land. In 2015 and 2016 the government made provisions that the tenant also can register for MSP with the condition that he should get the consent of the landowner something that hardly any landowner gives. Rather, this provision has been misused by vested interest groups to register fake farmers.
- Sharecroppers do not have access to insurance as that is also based on land titles.

Time and again, tenancy has been identified as a major area of concern. The legal position of the tenants or sharecroppers is a matter of grave concern. The Orissa Land Reforms Act, 1960 mentions in Chapter II (Raiyats ad Tenant) various rights of the tenants. But Section 6 (Rights of Raiyats and Prohibition of Letting) practically denies all their rights. This section also rules out any scope for enumeration or registration of the tenants by the government, let alone realization of their rights. As per the OLR Act, except some privileged ryots, like persons with disabilities, minors, widows or persons of armed forces, there is a ban on land leasing.

In the context of tenants not being eligible for compensation for crop loss due to natural calamities and also not being able to avail of the benefits of MSP, the Revenue and Disaster Management Department vide its letter no RDM-LRB-MEET- 0009-2015 IB311/R&DM dated 30/04/2016 has come out with a proposal for introducing land leasing. As per the proposed mechanism during land leasing the landholder and the lease will be allowed to sign an agreement that need not necessarily be registered. The agreement will have the terms and conditions of leasing like sharing of inputs, outputs and relief assistance. A copy of this will be made available to the Revenue Inspector. Based on this a sharecropper can avail loans from banks and will also be entitled to various crop related entitlements like subsidized inputs, MSP and insurance.

During the study, the farmers said that no landowner will get into an agreement with a sharecropper. First of all, because the landowners feel that they might end up losing the land to the sharecropper. The second reason is that taking land on lease is a compulsion for a sharecropper, barring certain

instances where the landowner has the compulsion. In the present context, a landowner is getting all the benefits like input subsidy, MSP, subsidized inputs and insurance without really cultivating the land. Then why should he get into complications? The other issue is that of securitization. A banker on condition of anonymity asked, 'Why should the banks lend to the sharecroppers against the leased land? In case of default what is the mechanism for recovery? Can the bank auction the leased land? If that can happen then it will be breach of trust of landowners. Most probably this arrangement will end up making the banks poor as the government prefers to follow a populist approach.' The state government has initiated a process of consulting the landowners. It is learnt from media reports that very soon a new law will be enacted.

This arrangement has further criticisms. First of all, the bankers ask that if they loan out money based on the agreement between a sharecropper and the land owner, and if the sharecropper fails to repay, then how will the bank recover the loan? On the other hand, there are also apprehensions that this arrangement may lead to leasing-out of land to companies for commercial agriculture or for industrial agriculture. This is a matter of great concern for sharecroppers as these companies might offer better packages and may take large stretches of land depriving the farmers.

5.10 Resultant Vulnerabilities

5.10.1: Agricultural extension and technology transfer

Agricultural extension is key to the success of the green revolution or input intensive farming. The extension wing has played an important role in getting this agricultural practice on the ground. But as now more farmers are trying to avail these services, its extension seems to be on the back foot. The farmers allege that they are not getting the needed support from the department. Village agricultural staff members hardly visit their villages or fields. On the other hand, the agriculture extension wing has a grouse that at present it is understaffed with many of the positions lying vacant. Over and above this, the workload of delivering different schemes and reporting to higher authorities has increased manifold. This leaves extension workers with less time for farmers.

5.10.2 Reduced control

Over the years, farmers have been losing control over the agricultural process. External dependence on seeds from the market or the government and dependence on the market for different agri-inputs has taken away the control that they had earlier. Earlier the farmers had control over what they did – a knowledge that was based on the understanding of the local ecology, climate change and the inputs that were used. But now everything is new to a farmer. Too many options in the market have also not allowed the farmers to at the least have a thorough understanding of the inputs and plant behaviour of different inputs.

5.10.3 Enhanced vulnerabilities

Over these years the vulnerabilities of the farmers, especially small and marginal farmers are on the rise because:

- Use of chemical fertilizers has increased the incidence of disease and pest attacks.
- The HYV seed varieties in place of traditional varieties which are resistant to pests, extreme events like flood and moisture stress are being cultivated for increasing yields but this has increased the chances of crop loss.

- The cost of cultivation has gone up exposing the farmers to the risks of borrowing more and servicing the interest along with the loan.

5.10.4 Climate change uncertainties

Farmers allege that the climate has changed and the weather is not behaving in a predictable way. Knowledge about local weather conditions is no longer relevant. (Table 13) There has been a shift in rainfall. This has substantial impact on paddy farming. Nowadays, in most of the places, it is raining heavier over a lesser number of days. This is perhaps the reason why the moisture in the post kharif land cannot be retained and this affects the cultivation of pulses like black gram and green gram in residual moisture conditions.

- Farmers are alleging that the frequency of drought has increased in recent years. Thunderstorms have also increased.
- The farmers put the blame for increased incidence of diseases and pests on climate change.
- There have been limited efforts by the state for promoting of climate resilient agriculture, though the state government has come out with Climate Change Action Plan for agriculture.

TABLE 13: CLIMATE CHANGE UNCERTAINTIES ADDING TO VULNERABILITIES

HYPOTHESIS III

Context of climate Change adds more uncertainties, particularly in certain agro-ecological and socioeconomic contexts, and with already reduced RESILIENCE (e.g. with reducing Ecological farming, Knowledge and Collective Action, Farmer control etc.) coupled with inadequate ENABLING (e.g. lack of support in terms of market, credit, insurance, infrastructure etc.), and confusing CHAOS (with fast-expanding market option), with SMF are more exposed to stress and forced to QUIT

- Increasing incidence of climate variability, frequency of drought, incidence of disease and pests
- Poor and delayed implementation of shock absorbing mechanism (insurance, crop-subsidy)
- Adaptive knowledge system getting redundant with increasing CC and fast-changing cropping elements
- Efforts in the direction of Climate Resilient Agriculture are again looking at same kind of solutions

5.11: Government interventions

The Government of Odisha prides itself for its disaster management. But the drought of 2015 was not handled properly by the state government. Two weeks into the monsoons it was predicted by the Met Department that this will be a drought year. But the government failed to take early steps to at least make provisions for saving irrigation. It was at late as November that the government declared that all efforts were being made to energize 13,000 lift irrigation points to save the crops. Perhaps some of the points were energized, but a majority of the irrigation points were dysfunctional as before. Similarly, there is also a running scheme of having subsidized bore wells. Under this scheme, cluster bore wells (four bore wells for four farmers within 200 mts) with pump sets were set up. But during kharif 2015, at least two such bore wells in the study area were found not functioning because the farmers were not able to operate the pumps due to minor snags.

Jampada village in Bongomunda block in Bolangir district and Chhuriapali in Sohela block in Bargarh district (for low voltage) are two examples of the infrastructure existing but not working properly.

In the context of an imminent drought, the Agriculture Department advises the farmers to go for short duration paddy. But the farmers in many places did not get the short duration paddy either from the government or from the market.

5.12 Policy-practice gap

As has been mentioned earlier, in many cases, the government came out with proper policies but their implementation was wanting.

5.13 Return from agriculture and the price fixation mechanism

The returns from agriculture, especially paddy, are very low. According to Orissa University of Agriculture Technology (OUAT), till 2011-12, the cost of cultivation for one acre of land in Odisha was INR 1,4439.26 and given the MSP for paddy at INR 1,110, farmers were getting INR 16,650 per acre. Thus the net profit was around INR 2,000. 'Paddy cultivation during the kharif season has become non-remunerative. The earning margin per acre of paddy cultivation ranges from INR 2,000 to INR 5,000 depending on the weather condition, land fertility and wage components,' said S. K. Tripathy, head of department of agricultural economics of OUAT's College of Agriculture. He argues that while the present cost of cultivation per acre is estimated at INR 17,000, a farmer gets a yield of around 15 quintals of paddy per acre of land which fetches him around INR 20,000. OUAT arrived at a calculation that a farmer was spending INR 1,225 per quintal of paddy while the MSP for paddy was fixed at INR 1,280 leaving a slender profit (*The Hindu*, 02/11/2015). This margin is in an ideal condition of no drought, no flood, no pest attack and no crop loss. But farmers in Odisha rarely have such a year.

Considering this the price fixation for paddy and agricultural commodities should be re-looked at. While fixing the prices of agricultural commodities many parameters are taken into consideration like not hiking input costs and not leading to price rise of food products to safeguard the interests of different stakeholders. If the return from cultivation of paddy is only INR 60, with productivity at 15 quintals, what should be the area cultivated to ensure that a farmer is not below the poverty line? Do the farmers have that much of land? These things should be taken into consideration while fixing the price of not only paddy but also other agricultural produces.

CHAPTER-VI: RECOMMENDATIONS

6.1 Getting the basics right

6.1.1 SMFs to be at the centre of agricultural programmes

In Odisha, small and marginal farmers constitute about 90 per cent of the farming community. Hence, the orientation of agricultural development should be centred around SMFs. The present agricultural development approach is letting down SMFs. The state government should reformulate external input intensive farming to make it suitable for SMFs and an enabling environment needs to be created for this.

6.1.2 SMFs as a part of poverty alleviation and the food security agenda

Small and marginal farmers make substantial contributions to food production in the country. They are also a part of the food insecure community. That SMFs are a part of the problem and the solution for food insecurity/security needs to be recognized. They should be made an integral part of poverty alleviation and food security programmes.

6.1.3 SMF sensitive land policy

Land reforms are an urgent need for the small and marginal farming community. The Odisha government has taken some initiatives in this regard. But the present arrangements of formalizing land leasing need to be changed to ensure that the sharecroppers also get the benefits of input subsidy, insurance, compensation and selling of produce. At this stage there are apprehensions about the changes that land owners are not willing to formalize land leasing on one hand and the risks of diversion of huge chunks of land to agri-enterprisers for industrial farming. Land reforms of a more fundamental nature to provide land to agricultural land poor people need to be taken up urgently.

6.1.4 SMF sensitive market reforms

SMFs are losing out because many of them do not have land rights for the area cropped by them. Along with land reforms, the state government should bring in reforms in the procurement policy to ensure MSP to such farmers. The government has initiated some action in this direction by bringing in changes in the food procurement policy. But here, rather than a right to market their produce, they are at the mercy of land owners for consent letters. Community involvement and the JLG route need to be focused on. One of the problems that SMFs face in marketing their produce and also procuring from the market is the issue of scale. Collectivizations of SMFs, production of niche market produce and innovative logistics management are some of the areas that can be improved to address this issue.

6.1.5 SMF-first approach in agriculture research and extension

Agriculture extension needs to focus on SMFs and should work towards developing farming systems that are not only suitable to SMFs but which are also lucrative enough. With less land, the

approach could be more intensive engagement of farmers in their land and integration within and outside the system to make itself sustainable.

6.1.6 Ecological farming

Keeping in view the different ecological niches, appropriate local crops need to be promoted. Promotion of agro-biodiversity, adaptive-practices and linking the agricultural system to emerging niche-markets will go a long way in this direction.

6.2 Building an enabling environment

Apart from policy measures, there is also the need for creating an enabling environment to bring SMFs centre stage.

6.2.1 Revival and promotion of collectivization around SMFs

Revival and promotion of collectivization around SMFs is an urgent need to provide farmers with the advantages of scale, collective bargaining and institutional support to link with credit institutions, extension services and the market.

6.2.2 Ensuring financial inclusion

SMFs need to have access to credit, insurance and the formal banking system through appropriate and adequate provisions.

6.2.3 Revisiting the MSP fixation criteria

Price fixation for agricultural produce needs to be looked at. Presently, the prices fixed for agricultural products are not remunerative for farmers, especially small and marginal ones. While fixing prices for the produce, many factors are taken into consideration to ensure that the food prices do not soar. On the other hand, the returns to farmers are found to be non-remunerative. Despite efforts by the government, the prices of agriculture products are soaring. So the whole price fixation mechanism needs to be revisited and the prices should be fixed in such a manner that farmers find the incentive to cultivate for market sale.

6.2.4 Reinforcing public services and restoring local social safety nets

A welfare state has the mandate to deliver public service entitlements to its citizens. While the state has a fairly elaborate list of such services, their implementation needs to be improved vastly. The Odisha Right to Public Services Act (2012) brought in accountability in the delivery system. However, under the Department of Agriculture, the only provision which comes under this act for farmers is Soil Health Cards to be delivered within 45 days. But in our sample, none of the farmers had access to this card. There is scope for adding a range of agricultural services under this act along with reinforcing institutional mechanisms to enhance service delivery. Considering their vulnerabilities, small farmers have to be treated as a special category, where all safety net programmes have to be compulsorily converged to augment their resilience and shock absorbing capabilities.

6.2.5 Enabling enhanced information access and feedback loop through use of IT & GIS

Advancements in information, mobile and geo-spatial technologies provide immense scope to integrate services, enhance efficiency, augment connectivity and empower small farmers. While the state has initiated some services, like SMSes and e-registration, a lot can be done to strategically support small farmers and small farming.

6.3 A small step

For all these things to happen, a baby step in this direction could be a pilot action research with a group of small and marginal farmers. A multidisciplinary team can work with the farmers to:

- Install an institutional mechanism of a **Small-Farmer-Watch System (SFWS)** through direct physical contact (village volunteer/CRP) and virtual contact (IT/SMS) for regular monitoring, communication and developing a feedback loop among farm-stakeholders (farmers, extension workers, researchers, district administration and PRIs) of the status/plight of small-farm and farmers in terms of:
 - Meteorological parameters (GOO has installed thousands of automatic weather stations from which data can be easily disseminated)
 - Supply and uptake of public schemes/services including demand-supply situation of credit, inputs and insurance
 - Market triggers
 - Advisory and problem-solving services

Facilitate formation of **SHF collectives** by rationalizing with small and marginal farmers about the agrarian crisis and need for reviving farm-social capital and

- Taking up initiatives to link them to network and institutions for convergence and better service demand and delivery.
- Promoting farmer to farmer extensions through institutions like Farmer Field Schools
- Promotion of evidence-based advocacy to reform tenancy in favour of small farms and also increased focus on them in public-funded research, extension and marketing systems.
- Enable a **Farming Institutional Ecosystem Innovation (FIEI)** of farmer-researcher and extension agents for:
 - Helping in scouting and blending technologies (indigenous and modern) through participatory technology development
 - Promoting agro-ecological and sustainable farming practices
 - Iterative processes of technology refinement and assessment for developing small-farm friendly technologies to help small-farming become more resilient
 - Piloting promotion of niche and green marketing of small farm bio-diverse crops with limitations of small surplus in line with SDG 12- Sustainable Production and Consumption and Sustainable Food Systems.





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