



# Responsible Land Governance: Towards an Evidence Based Approach

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TITLE OF THE PAPER

## Impact of land rights and titles on agriculture in tribal villages in India

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## **Abstract**

The paper examined the status of land rights (land title) and its impact on the agricultural productivity and food security in tribal (indigenous people without land rights) villages in a backward district of Telangana state in India. The study is an outcome of an intensive field survey of 36 tribal villages without land rights and another 24 non-tribal villages adjacent to the tribal villages with land rights as control group in Warangal district of Telangana state in India by interviewing 714 tribal and 479 non-tribal farmers.

Overall, in tribal villages (without land rights and titles by households), farmers mostly follow low-input and low-output cultivation for subsistence purpose. The share of uncultivated land was higher, out migration from the villages was also higher. Agriculture is mostly primitive, with less adoption of improved technology compared to non-tribal villages with proper land rights and titles. Tribals without land rights and titles are not able to benefit from government as well as private institutions in getting credit, farm extension, seed and other inputs. Whereas in non-tribal villages with land rights, government organisations are pro-active in providing all support. The two flagship programmes (MGNREGA public works programme and Public Distribution System (PDS) ) are working both in tribal and non-tribal villages, but the effectiveness was less in tribal villages. Food security indicators are better in non-tribal compared to tribal villages.

There is a need for increasing effectiveness of land rights and titles among the tribal villages and indigenous people in India for increasing investment in land, agricultural productivity and for increasing effectiveness of government programmes to reduce poverty and increase food security.

**Key Words: indigenous population, tribals, India, agriculture, land rights, productivity, governance**



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## Introduction

Many economists have argued that indigenous land rights in the Third World lead to inefficient resource allocation. Inefficiencies are thought to arise because indigenous land rights are ambiguous, are communal, and are afforded insufficient protection in legislatures - resulting in tenure insecurity which in turn leads to inferior investment incentives, undersupply of credit, and constraints on efficiency-enhancing market exchanges (see, e.g., Domer, 1972; Johnson, 1972; World Bank, 1974; Reddy and Bantilan, 2012); Reddy and Bantilan, 2013). The results in this paper reinforce importance of land rights and investment in low income environments. They also reinforce the importance of understanding the determinants of rights as well as their consequences. Given the importance of investment in agriculture to long-term poverty alleviation, role of the government in increasing the agricultural productivity, providing extension services and other support services like credit, insurance were also examined. Developing land rights is often offered as a feasible intervention, especially in Asia (Besley, 1995, p. 936). In this paper we have examined the impact of land rights (titles) and agricultural practices of tribal population compared to non-tribal population by taking a case study of Warangal district of Telangana state of India by constructing proper counterfactual, the findings are unambiguously indicates that the holding land rights are important for increasing agricultural productivity and access to support services provided by both public and private institutions. Here we treat tribal agriculture and lack of land rights (titles) synonymous as most of the tribals don't have proper land titles.

## Historical background of tribal land rights

Most tribes live in forest areas without proper connectivity, the tribal farmers practice less input and less output agriculture. Historically, the economy of most tribes was subsistence agriculture and gathering. Tribal members traded with outsiders for the few necessities they lacked, such as salt and iron.

Tribal (indigenous) communities were alienated from holding land titles since long due to unfair land ownership laws in the tribal hinterlands. The Forest Rights Act (FRA) 2006 was enacted to correct the "historical injustices" done to the tribals under the Indian Forest Act, 1927, which gave the government arbitrary power to take over forest land without proper rehabilitation and resettlement of the traditional inhabitants. However, poor implementation and widespread corruption in granting land titles has only increased the alienation of tribals, especially in the Maoist, or Naxalism-affected areas. Even after the



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existence of the FRA 2006 it failed to help tribal farmers. The FRA was enacted to remedy the exclusionary nature of the 1927 act, wherein forest land was divided in “Reserved” and “Protected” categories that greatly limited human occupation. Forests in India are home to over 250 million people, whose primary source of livelihood is forest produce. But under the 1927 act, reserved and protected forests couldn’t be used for farming or livestock grazing. This led to mass encroachment by traditional forest dwellers, who were then subjected to legal action in the form of eviction, fines and arrest.

After a period of dissent and social unrest, the government decided to grant land ownership titles to locals based on how long they had been there. Now with the FRA, 2006, private property for cultivation by tribal farmers was recognized, however with proper documentation proof that the farmers were cultivating the same land in the past for their livelihoods. This system raised the importance of the Patwari (keeper of land records). But as the tribals didn’t have any means of proving the period of occupation, the system became corrupt, vesting all the power in the hands of one person, the Patwari. However, now government was empowered village communities (Gram Sabha) to issue land titles and grievance redressal under the act instead of granting infinite powers to forest officials.

However, there was poor public awareness about these changes pertaining to power given to village communities for sanctioning land titles to reduce the chances of rejection. It makes community rights stronger, too. The FRA merely provides for land ownership titles to forest dwellers who have occupied and farmed the land. These titles cannot be sold but can be passed on within a family. As a result of this restriction land sale market were not developed and land prices were 1/10th of the adjacent non-tribal villages, new investments are not coming and farmers are using rudimentary and old agricultural practices. It is an urgent need for increasing tribal farmers income through increasing productivity, providing services, credit, fertilizers and extension systems.

With this background, this paper examined the status of land rights (land title) and its impact on the agricultural productivity and food security in tribal (indigenous people without land rights) farmers (treatment) compared to non-tribal farmers(with land rights) in a backward district of Telangana state in India. Land rights and titles to tribals in India is debated and it is documented that the land titles to tribals are generally not exists (Banerjee and Iyer, 2005; Mearns 1999; Mearns and Sinha 1999).The study is an outcome of an intensive field survey of 36 tribal villages without land rights and another 24 non-tribal villages adjacent to the tribal villages with land rights as control group in Warangal district of Telangana state in India by interviewing 491 tribal farmers and 256 non-tribal farmers in the tribal



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villages (where tribal population is more than 50% of the population) and 223 tribal and 223 non-tribal farmers in the non-tribal villages (where tribal population less than 50% of the population) adjacent to the tribal villages. So our total sample comprising 1200 farmers with 714 tribal and 479 non-tribal farmers. The study examined the land tenure practices, land rights and titles, farm practices, agricultural productivity, effectiveness of government support in alleviating poverty and increase food insecurity. The study results shows that, in tribal villages, there was no land titles for tribals, the lack of land rights and titles have had highly negative impact on the agricultural investment, productivity and household food security. In India all agricultural institutional support is based on the land titles, hence, if the tribal farmers lack land titles, they are automatically out of the reach of the most if not all the government support. Government as well as private institutions are not reaching to the farmers to provide credit, farm extension, seed and other inputs. The share of uncultivated land was higher, permanent and temporary distress migration from the villages was also higher. Farmers without proper land rights and titles mostly follow low-input and low-output cultivation for subsistence purpose. Agriculture is mostly primitive with less adoption of improved technology.

Whereas in non-tribal villages with proper land rights and titles on their name, farm sector is more productive. They followed high-input and high-output agriculture. Their linkages to both input and output markets are at higher level. Government and other support structures are pro-active in providing all support. Even though, the two flagship programmes MGNREGA public works programme and Public Distribution System (PDS) are working in both the tribal and non-tribal villages, but the effectiveness was less in tribal villages. Food security indicators are better in non-tribal villages with land rights and titles compared to tribal villages without land rights and titles.

## **Objectives of the paper**

1. To understand the land rights, tenure and land titles among tribal compared to non-tribal villages
2. To understand the impact of land tenure systems (land rights and title) on the farmers agricultural practices, investments and profitability among tribal farmers compared to non-tribal farmers
3. To understand the impact of land rights and titles in getting the benefits from the government programs in reducing the poverty in tribal and non-tribal villages
4. To suggest action plan to improve land rights and titles for increasing agricultural incomes and food security



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## Data and methodology

For analytical purpose we have selected Eturnagaram, Kothagudem and Tadvai mandals (sub-district administrative unit) for intensive field survey for the year 2015-16. From each we have selected all villages with tribes population more than 50% to 90% of the total population for intensive study. In this group total 36 villages were selected for intensive study. For comparison purpose we have also selected 24 adjacent non-tribal villages to these tribal villages as control group. From each village, we have selected 10% of the tribal farmers from the tribal villages and one-third of the tribal sample as control group (non-tribals). We have ensured that in each village a minimum of five tribal and non-tribal samples exists for data collection. We have also collected data from 24 non-tribal villages adjacent to tribal villages as control villages. In these villages, sample size of the tribal and non-tribal farmers were equal with 223 farmers each group. Hence our total sample comprises 60 villages (46 tribal and 14 non-tribal villages) with 491 tribal farmers in tribal villages and 223 tribal farmers in non-tribal villages and 256 non-tribal farmers in tribal villages and 223 non-tribal farmers in non-tribal villages. Totally 1200 farmers. The mandals (cluster of villages) selected for the study are Eturnagaram, Kothagudem and Tadvai are shown in the figure 1.

We have examined the landholding size, type of tenure, land rights and titles and their impact on farm investment, agricultural practices, livelihoods strategies, government and private sector support in development for both tribal (without land titles) and non-tribal (with land rights and titles on their names) farmers separately. In addition to the intensive field survey, we have conducted number of focus group interaction in both tribal and non-tribal villages to understand the changes happened during the last five decades.



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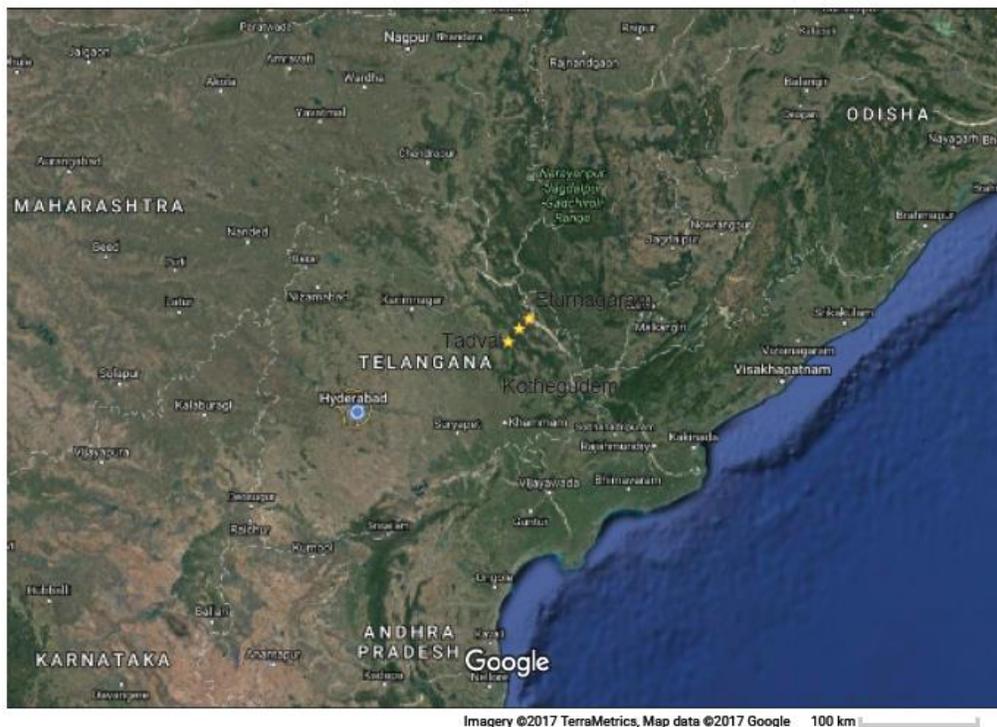
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Figure 1. World Map showing selected mandals for field survey



Google Maps Google Map showing study areas





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**Table 1. The selected tribal villages (mandals) in the Warangal district for study**

<b>Eturnagaram Mandal</b>	<b>Kothagudem Mandal</b>	<b>Tadvai Mandal</b>
1. Mallyala	1. Murraigudem	1. Lingala
2. Thupakulagudem	2. Karnegandi	2. Oorattam
3. Ekkela	3. Narsugudem	3. Narsapur
4. Dodla	4. Bakkachintalapadu	
5. Kannaigudem	5. Madigudem	
6. Kanthanpalle	6. Polaram	
7. Kondai	7. Kamaram	
8. Gangugudem	8. Kundampalle	
9. Pedda Venkatapur	9. Katrainam	
10. Chalpaka	10. Durgaram	
	11. Eshwaragudem	
	12. Kothapalle	
	13. Thimmapur	
	14. Karlai	
	15. Dubbaguda	
	16. Ootla	
	17. Yerravaram	
	18. Musmi	
	19. Govindapur	
	20. Jangamvaniguda	
	21. Sadireddipalle	
	22. Kothagudem	
	23. Pegadapalle	

## **Results**

### **Age distribution of sample farmers**

Average age of farmers was about 46 years. All of them are male farmers except 2.35% of the farmers who happens to be female. Average education level of the sample farmers is only about 5 years of school education. However, the education level of non-tribal farmers was 9 years of school education. The sample villages (both tribal and non-tribal) are located in remote mandals of the district with little educational infrastructure and rural-urban linkages.

### **Land titles**

Majority of tribals in the tribal as well as non-tribal villages don't have secured land titles for their lands. However, non-tribals have land rights for their lands both in tribal and non-tribal villages. Only 35% of



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the tribals in the tribal villages were having land rights/titles on their name in 2000s, while more than 95% of the non-tribals have land rights/titles on their name in non-tribal villages. It shows stark differences in holdings of land titles even now after the FRA, 2006.

**Table 2. Holding of land titles in tribal and non-tribal villages**

Year	Tribal farmers in tribal villages	Non-tribal farmers in non-tribal villages	Tribal farmers in non-tribal villages	Non-tribal farmers in tribal villages
1970s	5%	50%	15%	35%
1980s	10%	60%	20%	30%
1990s	15%	75%	35%	30%
2000s	35%	95%	35%	45%

## Cultivated area

The large tracts of land were remained uncultivated for the decades especially in tribal villages (Table 3). As a result, share of fallow land in total cultivable land in the tribal villages increased over the years. In some of the tribal villages, more than 50% of the cultivable land was not cultivated. As in these villages land inequalities were very high during 1970s, only 5-6% of the large landlords owning more than 75% of the village land (non-tribals). Some lands are occupied by the Left-Wing Extremists leaders and distributed to the vulnerable and landless households. However, these landless tribal households could not able to cultivate these lands due to fear of landlords and also due to lack of credit, assets and also due to land property rights.

**Table 3. Share of fallow lands in total cultivable land of the farmers**

Year	Tribal farmers in tribal villages	Non-tribal farmers in non-tribal villages	Tribal farmers in non-tribal villages	Non-tribal farmers in tribal villages
1970s	7%	8%	7%	8%
1980s	18%	12%	16%	14%
1990s	50%	10%	45%	20%
2000s	25%	8%	20%	12%

## Landholding status and irrigation

In the tribal villages farmers don't have land rights, titles on their name, when compared to non-tribal villages, where land rights exist. The average landholding size was 3.73 acre per household. Average landholding size was little higher in case of tribal villages. Of the total operating holdings, 60.7% was irrigated in non-tribal villages, while only 5% of land was irrigated in case of tribal farmers in tribal



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villages. Although, there was some perennial source of irrigation, the irrigation infrastructure is limited and mostly capture by the non-tribal farmers.

Tube well irrigation was dominant source of irrigation for non-tribal farmers especially in the non-tribal villages (60% of the non-tribal farmers own tubewells in non-tribal villages; while it is almost negligible among tribal farmers in tribal villages). However, irrigation through village tanks are common among tribal and non-tribal farmers in both tribal and non-tribal villages. The tube well and dug well irrigation was exclusively in non-tribal villages. Number of tube-wells was higher among non-tribal farmers (three per households) than tribal farmers (less than 0.2 per household).

## **Cropped area**

Paddy, cotton and chillies are predominant rainy season crops in non-tribals among non-tribal villages, where as sorghum, maize and rainfed paddy was predominant crops among tribal farmers in tribal villages. The non-tribal farmers mostly cultivate commercial crops like cotton and fetched higher profits and in term they are investing in agriculture for more profits. But the tribal farmers were mostly in to subsistence farming with low-input and low-out cultivation to meet their food requirements. Average cropped area was 1.88 acre. The share of marginal farmers was 78.5% in the sample (who own less than 2.5 acre) among both tribal and non-tribal villages.

## **Tenancy and share cropping**

Historically, in Telangana districts, Jameendhari system prevailed. Hence, there was a highly skewed distribution of landholdings. Hence, in this part, there is high incidence of tenancy farmers (21.1%) which comparatively higher than national average (only 4.3%). However, only 4% of the farmers are leasing-in land for cultivation in tribal villages as there were no proper land rights (titles) in these villages, whereas land-lease market is well developed in non-tribal villages (more than 20% of the farmers were leasing-in land) with land rights. In the tribal villages most of the leasing-in is by non-tribal farmers from the tribal and to grow commercial crops with higher investments. However, the land rent was very nominal.

Share of tenants was lower among tribals (only 17.5% in tribal villages) than non-tribal (22.3% in tribal villages) farmers. As the tribal farmers owned landholding size was low, they are leasing-in land for cultivation. Again, leasing-in land was higher among cotton farmers (commercial crops) than paddy



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farmers (subsistence crops). Main constraint in increasing leased-in land for paddy was availability of irrigation facilities as it requires irrigation almost every alternative day.

The average distance from house to the nearest market was 20 km, but due to lack of good roads and connectivity, it takes more than an hour to travel this distance. Because of the poor infrastructure (roads, rural warehouses, and transport facilities), the government employees and other service providers are reluctant to go to these villages to disseminate new technology, procure farm harvest, distribute seed and provide credit and insurance facilities etc. Hence most of the farmers are unaware about the on-going government programmes.

## **Ownership of assets and livestock**

About 99% of the farmers have their own houses, while only 5.5% of the farmers have farm houses. 57% of the farmers had pumpsets (mostly in non-tribal villages). In tribal villages only 2% of the farmers have pumpsets, that too owned by the non-tribals. About 10% of the households had tractors (all in non-tribal villages). Only 0.4% of the households had tillers. In tribal villages, farmers unable to drill tube-wells, as government ban the drilling of tube-wells in these forest/tribal scheduled areas to conserve local forest and climate and also government institutional support like credit, input and technical support is not exists in these tribal villages.

The number of livestock per household is one of the indicators of the sustainable agriculture in rural India. Most of the farmers depend on the livestock (cattle plus buffaloes) for cultivating the land as well as to travel and also to milk. The figures in table 4 shows that over the years, number of livestock per household decreased in both tribal and non-tribal villages. Although in both the villages number of livestock reduces, the reduction was steeper in the non-tribal villages. It was also noticed that the tribal farmers have more livestock than non-tribal farmers in both tribal and non-tribal villages. However, the tribal farmers mostly grow indigenous breeds with less milk yield, whereas non-tribal farmers are rearing hybrids with higher milk yield. Again, tribal farmers (and tribal villages) lack the necessary market infrastructure to link to bid dairy processing units, this is discouraging tribal farmers to make milk production in large scale.

About 28% of the farmers own bullocks, only 8.9% own cows, about 9.76% own adult-he-buffalo, 27% own adult-she-buffalo. Farmers prefer bullocks for cultivation, while buffalo for milk purpose. Some farmers mainly belongs to Yadav community owned goats on commercial scale (6.24% of the farmers).



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Most of the tribal farmers also feel that the regular income coming from sale of milk and meat from goats helped them to meet their daily cash requirements and also investment requirements in agriculture.

Farmers prefer goat over sheep as they suite to local environment and goat meet fetches higher price compared to sheep.

**Table 4. Livestock population per household**

Year	Number of cattle per household (tribal villages)	Number of cattle per household (non-tribal villages)
1970s	3	3
1980s	4	2
1990s	2	1
2000s	2	1

## Change in input use

In most of the villages paddy is the major crop, followed by maize and sorghum for subsistence. However, most of the tribal farmers don't have the land rights (land titles) until now. All the land of the tribal villages are community forest land, tribal families cleared forest land for cultivation ranging up to 5-10 acre per household with the permission of the village community during the last four to five decades. However until now, they don't have land titles on their name. As they don't have land titles on their names, banks and other formal institutions were not providing credit and other institutional support for cultivation. Farmers use very low level of inputs like fertilizer, pesticides and irrigation. Most of the farmers don't use bore wells/groundwater for irrigation, as in these tribal villages there was no permission to dig bore wells, although water table is just about 50 feet. Only source of water is rain and local village tanks in the tribal villages. On the other hand, in the non-tribal villages farmers(both tribal and non-tribal farmers, although utilization by the tribal farmers is less) use modern inputs intensively to increase they farm profits. More than 95% use fertilizers, 100% farmers used improved paddy variety, 30% of the farmers used herbicides.

**Table 5 . Use of modern inputs by farmers**

Input	% of the farmers used (in tribal villages)	% of the farmers used (in non-tribal villages)
Fertilizer	20%	95%
Improved rice variety	40%	100%
Pesticides	0%	80%
Herbicides	0%	30%
irrigation	10%	100%



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The distance to different input and output markets from the tribal villages in comparison with non-tribal villages is given in table 6. Only a few tribal villages are connected with roads that too dirt roads. A dirt road or track is a type of unpaved road made from the native material of the land surface through which it passes. Dirt roads are suitable for a narrower path for pedestrians, animals, and possibly small vehicles.

**Table 6. Distance input and output market from the farms**

<b>Input</b>	<b>% of the farmers used (in tribal villages)</b>	<b>% of the farmers used (in non-tribal villages)</b>
<b>Fertilizer</b>	34 km	Within 5 km
<b>Improved rice variety</b>	55 km	Within 5 km
<b>Pesticides</b>	55 km	Within 5 km
<b>Herbicides</b>	150 km	Within 5 km

## **The frequency of interaction with public and private development agencies**

In the tribal villages, it was noticed that the mandal (above village for a cluster of 30-40 villages) level agricultural officers and other administrative officers were never visited these tribal villages in the past one year. It means they have not got any benefits from the government agencies for agriculture, medical and food security. The government officers depend on the local input dealers (like fertilizer shop owner and pesticide dealer for information dissemination and for maintaining rapport with farmers. Where as in the non-tribal villages, local agricultural officer maintain regular contact with farmers(non-tribal farmers) and distribute subsidised seeds, fertilizers, farm machinery. This more intensive care by local administration to non-tribal compared to tribal villages is the more market-orientation of non-tribal farmers and proper law-and-order and existence of land and other private property rights.

## **Membership in organisations/institutions**

Political organisation of the farmers in tribal villages was always at higher level, which were its roots in farmers movements (kisan) in the past. However, there after there was no significant movement of organisations except the left-wing extremists in these tribal villages. However, in non-tribal villages, recently local self-help group movement among women (86% of the farmer-households had SHG membership) is taking predominant role in all socio-economic and political organisational forms at village level. The cooperative movement is also strong with 12% of the sample farmers have membership in cooperatives.



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## **Management practices of paddy cultivation in tribal villages**

In the tribal villages the rainfed paddy was predominant compared to irrigated paddy cultivation in non-tribal villages. In the tribal villages where tribal population is more than 70%, most of the tribals belongs to local Lambadi, Koya tribes(local ethnic groups). Here still farmers practice shifting cultivation (cutting forests and cultivating land for 2-3 years, then move to other areas and cut forest and cultivate the land for 2-3 years). Although water table is just near about 50 feet below the ground, government has not permitted to dig tube/bore wells in these villages. Hence farmers depend on the rain and also a few farmers also depend on the tank (local pond) for irrigation. Here the cost of cultivation was low as they use limited fertilizers and pesticides compared to the non-tribal villages. Farmers told that the biggest risk for paddy cultivation was again drought and unseasonal rainfall. But there were no effective steps in alleviating these risks from government. Farmers are not aware of any insurance scheme in these tribal villages. Many farmers are also not eligible to take loans from commercial banks, as they don't have land records. In all the villages, loan weaver scheme was implemented and government deposited 25% of the loan amount in to the farmers accounts and rest will be deposited in three installments.

## **Management practices of paddy cultivation in non-tribal villages**

In the non-tribal villages, non-tribal farmers grow paddy on irrigated lands. The depth of water table was less than 60 feet in most of the selected villages. Farmers use both tube well/tank water for irrigation. As in these villages, government functionaries are well attending their duties. They are adopting *sona-masoori* variety (fine rice for domestic consumption) and BPT (coarse rice varieties BPT-1001 and BPT-1010) for market. The average paddy yields were 60-65 quintal/ha which was more than state and national average. They are incurring cost of about USD 1154/ha, while they are getting about USD1308 to USD 1385/ha as gross returns with a net profit of about USD 154/ha. The sale price of fine rice (sonamasoori) was about USD 21.5/quintal, while 1010 it was USD 18-20/quintal. Most of the farmers sell their coarse paddy to government procurement agencies like Food Corporation of India (FCI) at the minimum support price (MSP). Farmers perceive that the biggest risk in paddy cultivation was drought and unseasonal rainfall both in tribal and non-tribal villages.



### **Availability of Anganwadi worker (child care workers)**

The local anganwadi (child care workers) worker stays in the mandal headquarter and comes to the tribal village monthly once to distribute food (Reddy *et al.*, 2016). As per the government norms, anganwadi workers should stay in the villages. Whereas in non-tribal villages these workers stay in the villages and give basic health care and nutritious food for both tribal and non-tribal children equally. Typical Anganwadi centre provides basic health care in Indian villages. It is a part of the Indian public health care system. Basic health care activities include contraceptive counselling and supply, nutrition education and supplementation, as well as pre-school activities. The centres may be used as depots for oral rehydration salts, basic medicines and contraceptives.

### **Availability of ASHA worker**

One of the key components of the National Rural Health Mission is to provide every village in the country with a trained female community health activist ASHA (Accredited Social Health Activist). Selected from the village itself and accountable to it, the ASHA will be trained to work as an interface between the community and the public health system. Following are the key components of ASHA. However, in the tribal villages even ASHA workers are staying outside the villages (mostly in mandal head quarters).

### **Public Distribution System (PDS)**

However, one positive aspect is that the Public Distribution System (PDS) was working nicely even in the tribal villages. As case study we have taken a tribal village Govindapur (tribal village) of Kothagudem for estimating the benefits due to PDS. Under the Public Distribution System (PDS), state government provide access to basic food at subsidised prices to the ration card holders through fair price shops. The allotment of different ration cards to households in the village is based on each household's income level. The white cardholders (Below Poverty Level (BPL) card holders) are those households who own less than 2.5 hectare of land. There are other category of households falling above the poverty line (APL) know as green cardholders and not eligible for some of the subsidised items. Disabled, widows, and person above the age of 65 years would also fall under BPL and are eligible to get 10 kg rice for a month under Annapurna program on free of cost. Household who do not own any land fall under BPL are also eligible to get 35 kgs of subsidised rice per a month for Rs 1 per kg through Antyodaya Anna Yojana program. This program provide food security to all the households residing in the village, earlier there are many loopholes in the



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program with lot of corruption, but with increased transparency through well-tracked computerised system reduced level of corruption significantly. The state government is responsible for distributing subsidised grains, sugar, edible oil and kerosene through Fair Price Shops (FPS) in the village.

Until the 1990s, there was no targeting, even though rationing meant that the FPS was not always present or fully stocked. Besley et al. (2005) found that both belonging to SC/ST and access to political representation affected access to programmes for public goods provision or receipt of BPL (Below the Poverty Line) cards. Only one household reported any purchase at a FPS in 1976, while in 2009, almost 90% of the households are beneficiaries from the FPS. For discussion, we have given the benefits from this programme from a typical tribal village Govindapur of Kothagudem (tribal village) in table 7. Even though only Govindapur village had 672 households residing in the village, under PDS 712 white card (Below Poverty Line cards) and 21 pink card (Above Poverty Line cards) families taking subsidised rice, kerosene and sugar. Under Antyodaya Anna Yojana (AAY) additionally 48 households are benefiting from PDS. The benefit per month per household was estimated as Rs.947 per month (table 7).

**Table 7. Benefits per household per month under Public Distribution System(PDS) system in tribal villages**

S.No.	Item	Quantity per card holder	Consumer price(Rs.)	Open market price(Rs)	Card holder benefit (Rs./month/household)
1	Rice	35 kg	35	875	840
2	Kerosene				
3	Sugar				
4	Red gram dal	1kg	50	73	23
5	Palm oil	1 liter	40	58	18
6	Whole wheat flour	1kg	16.5	25	9
7	Wheat	1kg	7	18	11
8	Sugar	½kg	6.75	17	10
9	Salt(iodized)	1kg	5	14	9
10	Chilli powder	¼kg	20	35	15
11	Tamarind	½kg	30	40	10
12	Turmeric powder	100gms	10	12	2
	Total		200	667	947



### **MGNREGS in a tribal village**

Mahatma Gandhi National rural Employment Guarantee Programme (MGNREGA) is an Indian labour law and social security measure that aims to guarantee the 'right to work (Reddy et al., 2014; Reddy et al., 2014a)'. It aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. It is also one of the flagship programmes of the government, and its effectiveness was reasonably good even in tribal villages (Reddy, 2015).

As case study we have taken a tribal village Govindapur (tribal village) of Kothagudem for estimating the benefits due to MGNREGA. It was observed from the focus group discussion that the MGNREGS has enabled many rural poor in tribal village Govindapur (tribal village) of Kothagudem to get concrete wage employment and incomes during summer and other seasons. In the village, the percent of population having job card was increased cumulatively, but at slower pace (Table 8). The number of females with job cards was higher than men due to outmigration of men in the village. Similar to other villages the activities taken up include cleaning bushes, channels and closing open wells, making field bunds and planting saplings.

It was reported that the predominant positive effect of the scheme is that they were able to realize incomes and savings and purchase durable goods for the house. Besides, borrowing from non-institutional sources has come down drastically reflecting their improved income position. About 50 acres of waste land in the village has been brought under cultivation as a result of land development under the scheme. The kind of change that is observed in the village over a period of time is something remarkable.

**Table 8. Percent of population having job cards under MGNREGA in tribal village**

<b>Year</b>	<b>Female</b>	<b>Male</b>	<b>Total</b>
<b>2006-07</b>	9	7	7
<b>2007-08</b>	20	18	18
<b>2008-09</b>	31	29	30
<b>2009-10</b>	50	44	46
<b>2010-11</b>	67	60	62
<b>2011-12</b>	75	69	71
<b>2012-13</b>	83	77	79



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**Table 9. Benefits to the farmers and agricultural labourer due to MGNREGA**

Item	Tribal village	Non-tribal village	State average
Average person days of employment per household	85	30	64
Average wage per person day(Rs)	3	2	3
Average annual MGNREGA earnings per household (Rs)	256	74	166
MGNREGA earnings as % of poverty threshold income (1 USD per capita/day)	14	4	9

Table 9 shows the benefits due to MGNREGA for households who participated in the MGNREGA public works programme. The wage income from public works constitutes about USD 256 in tribal villages compared to only USD 74 in non-tribal villages. Overall, the impact was not significant in non-tribal villages with poverty reduction potential of only 4% compared to tribal village of 14% and state average of 9%.

## Impact on food security

The perceived food insecurity was much higher during and after the years of tribal both among tribal and non-tribal (Table 10). However, the tribals were perceived to be more food insecure throughout the years. The food insecurity is risen from 18% in 1970s to 26% by 1990s. However, in the recent years, food insecurity was reduced to 18%, mainly due to the implementation of large scale employment guarantee programmes and also due to the supply of subsidies food to the population below poverty line(BPL).

**Table 10. Perceived food insecurity in tribal villages**

Year	Non-tribal	Tribal
1970s	5%	18%
1980s	15%	20%
1990s	5%	26%
2000s	8%	18%

## Sand mining on the river beds



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Tribal areas spanning across the Godavari River. The sand on the river beds are highly demand from the construction industry. The contractors had been paying a meagre Rs. 45 per cubic metre to mine the sand. They pay a total of Rs.800 to Rs.1,200 per lorry load which they sell at Rs.12,000 to Rs.15,000 in Warangal, and Rs.25,000 and beyond in Hyderabad. Mostly local administration overlooks this gross exploitation of local resources from the tribal community.

## **Policy implications**

Overall, in tribal villages (without land rights and titles by households), farmers mostly follow low-input and low-output cultivation for subsistence purpose. The share of uncultivated land was higher, out migration from the villages was also higher. Agriculture is mostly primitive, with less adoption of improved technology compared to non-tribal villages with proper land rights and titles. Tribals without land rights and titles are not able to benefit from government as well as private institutions in getting credit, farm extension, seed and other inputs. Whereas in non-tribal villages with land rights, government organisations are pro-active in providing all support. The two flagship programmes (MGNREGA public works programme and Public Distribution System (PDS) ) are working both in tribal and non-tribal villages, but the effectiveness was less in tribal villages. Food security indicators are better in non-tribal compared to tribal villages.

There is a need for increasing effectiveness of land rights and titles among the tribal villages and indigenous people in India for increasing investment in land, agricultural productivity and for increasing effectiveness of government programmes to reduce poverty and increase food security.

Overall, effectiveness of government programs is less in tribal villages, but slightly increased over the period especially in implementation of public works programmes and public distribution system for paddy. It is the result of improvement in (i) transparency and governance improvement in government programs management at all levels and (ii) increased awareness about the programs at grass root level even in tribal villages.

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## Annexure 1. Sample size in the tribal villages (treatment villages)

Mandal	Village	No of House holds	Total Population Person	ST Population (%)	Literacy Rate (%)	Sample (ST households)	Sample (other households)	Total sample
Eturnagaram	Mallyala	101	409	83	55	8	5	13
	Thupakulagudem	176	601	80	52	14	5	19
	Ekkela	90	295	80	41	8	5	13
	Dodla	124	419	73	16	9	5	14
	Kannaigudem	116	369	73	56	8	5	13
	Kanthanpalle	175	581	68	38	12	6	18
	Kondai	214	822	56	44	12	9	21
	Gangugudem	68	242	55	49	6	5	11
	Pedda Venkatapur	111	442	52	48	6	5	11
	Chalpaka	276	992	51	45	14	13	28
Kothagudem	Murraigudem	75	258	90	40	9	5	14
	Karnegandi	58	200	90	58	9	5	14
	Narsugudem	46	181	87	49	9	5	14
	Bakkachintalapadu	40	145	86	26	9	5	14
	Madigudem	341	1466	86	53	29	5	34
	Polaram	113	458	86	52	10	5	15
	Kamaram	191	669	82	56	16	5	21
	Kundampalle	66	221	82	57	8	5	13
	Katrainam	66	232	82	57	8	5	13
	Durgaram	89	321	81	43	8	5	13
	Eshwaragudem	53	206	80	60	8	5	13
	Kothapalle	241	893	78	42	19	5	24
	Thimmapur	144	466	77	55	11	5	16
	Karlai	222	878	77	48	17	5	22
	Dubbaguda	100	328	77	44	8	5	13
	Ootla	176	751	76	38	13	5	18
	Yerravaram	69	212	75	44	7	5	12
	Musmi	439	1639	73	50	32	12	44
	Govindapur	672	2768	68	46	46	21	67
	Jangamvaniguda	313	1009	66	43	21	11	31
Sadireddipalle	298	1230	62	65	18	11	30	
Kothagudem	690	4059	60	67	41	28	69	
Pegadapalle	190	726	51	57	10	9	19	
Tadvai	Lingala	172	682	84	46	14	5	19
	Oorattam	79	321	76	48	8	5	13
	Narsapur	190	722	73	52	14	5	19
		6584	26213	70	51	491	256	755