TRIBAL AND NON-TRIBAL FARMERS' LAND RIGHTS AND FOOD SECURITY PROMOTION IN TELANGANA

A. Amarender Reddy, Sandra Ricart and Tim Cadman

INDIAN COUNCIL OF AGRICULTURAL RESEARCH, NEW DELHI, INDIA,

UNIVERSITY OF ALICANTE, SPAIN, AND GRIFFITH UNIVERSITY,

NATHAN, BRISBANE, QUEENSLAND, AUSTRALIA

ABSTRACT This article examines and compares the status of land rights and their impacts on agricultural productivity, food security and well-being in a set of tribal and non-tribal villages in Telangana. Based on an intensive field survey, the research confirms that tribals without formal land rights remain largely unable to benefit from government support and access to private institutions in terms of getting credit and farm extension, whereas in non-tribal villages, government organisations are pro-active in providing such support. These findings confirm the need to increase the effectiveness of land rights and title documentation in India's tribal villages to protect local people's investments in land, enhance agricultural productivity and strengthen the long-term effectiveness of government programmes, which include avoidance of migration to the big cities.

KEYWORDS: *agriculture, food security, India, land rights, MGNREGA, Telangana, tribals, well-being*

Introduction

Understanding how land rights, well-being and food security outcomes interact is crucial in rural societies of India, with rising populations and growing pressure on natural resources, especially land and water (Pattenden, 2017; Rao, 2006). The Indian agricultural sector has undergone considerable changes since the Green Revolution in the mid 1960s (Kannan, 2015). Though the introduction of specific technologies proved successful in irrigated areas, dryland crops and remote rural regions were left out of the process, which created increased regional disparities in rural incomes. Agriculture as a way of life, a tradition, which for centuries has shaped the thinking, outlook, culture and economic life of the people of India (Shankar & Maraty, 2009), remains a critically relevant focus for many Indians' well-being even today. Contextual factors

at local level, be they shifts in micro-policies or changes in livelihood opportunities driven by markets and state actions, are playing a major role in shaping tribal and non-tribal farmers' opportunities (Gugushvili, 2016; Usami & Rawal, 2012), but they also pose considerable risks.

The key objectives of the research for this article were to understand the system of land rights, tenure and land titles among tribal compared to non-tribal villages. Examining the status of land rights and titles and their impact on agricultural productivity and food security for tribal farmers in India compares indigenous people without secure land rights to non-tribal farmers with defined land rights, focused on a backward district of Telangana state in India. The impact of security of land rights and associated titles on agricultural practices have been scrutinised to understand its implications on tribal and non-tribal people's food security and well-being. The study treats tribal agriculture and lack of land rights and titles as synonymous, since most tribal farmers involved in this study do not have secure land titles. In addition, the article aims to investigate the impact of land tenure systems on farmers' agricultural practices, investments and profitability, comparing tribal and non-tribal farmers.

The article first outlines the wider global and national context of this field of research and then discusses the data collection methods. The results, presented under four major headings, focus on local social and technical issues related to security of tribal and non-tribal land rights, agricultural management practices and their interactions with government programmes, issues of food security and land rights and rural well-being. The conclusions indicate significant progress but stress that insecurity of tribal land rights remains a problematic issue.

Global and National Debates on Tribal Land Rights

Over the past decades, the international community has begun to focus its efforts on tribal people and their forms of indigenous knowledge (Magni, 2017). Earlier, this attracted only occasional attention, mainly related to discrimination and attempts to assimilate 'tribal' and 'subordinated' communities into the modernised majority (Inman, 2016). Many studies continue to argue that indigenous land rights in the developing world lead to inefficient resource allocation (Deininger et al., 2009; Doyle, 2009). Claimed inefficiencies also arise because indigenous land rights are ambiguous, communal and lack sufficient legislative protection (Erni, 2015). Tenure insecurity in turn leads to inferior investment incentives, undersupply of credit and constraints on efficiency-enhancing market exchanges (Reddy & Bantilan, 2013; Veettil et al., 2013). While it was earlier reported that land rights and titles to tribal land in India generally do not exist (Banerjee & Iyer, 2005; Mearns, 1999; Mearns & Sinha 1998), studies like Besley (1995), Besley et al. (2016) and Kalle & Kasi (2016) showed that developing land rights can be a feasible intervention in the Global South.

The economy of most tribes, focused on subsistence agriculture and sustainable gathering of forest produce, was based on customary forms of land tenure

(Radcliffe, 2017). Following Independence in 1947, Indian states enacted a series of land reforms intended to improve equity in land distribution and efficiency in agricultural production. These reforms included measures abolishing intermediaries, prohibiting or strictly regulating tenancy and maximum landholding ceilings, with excess land redistributed to the poor. Tribal (indigenous) communities were largely ignored and were over time alienated from holding land titles, mainly due to unfair land ownership laws imposed in the tribal hinterlands through colonial intervention and the imposition of the 'eminent domain principle' by the postcolonial government (Government of India, 2015). More recently, the Forest Rights Act (FRA) of 2006 was promulgated to correct the 'historical injustices' (Satpathy, 2017) to tribals under the Indian Forest Act of 1927 and various other enactments, wherein forest land was divided into 'reserved' and 'protected' categories that greatly limited human occupation (Vijayabaskar & Menon, 2018). The earlier dispensation had offered vast arbitrary powers to the government to take over forest land without proper rehabilitation and resettlement of the traditional inhabitants (Satpathy, 2017). Under the 1927 Act, reserved and protected forests could not be used for farming or livestock grazing. Inevitably, this led to mass encroachment by traditional forest dwellers who simply needed to ensure their survival but were often criminalised through eviction, fines and arrests. The FRA of 2006 claims to grant enhanced rights to forest peoples in lands that they have occupied or used, often for generations (Sigamany, 2017). Under this new law, private property for cultivation by tribal farmers was recognised. However, in a customary orality-based system, such bureaucratic intervention caused evidence problems. Formal requirements of proper documentation made it difficult for many farmers to prove that they or their family had been cultivating the same land in the past for their livelihood (Ashley & Carney, 1999). The new system vested critical powers in the hands of the keepers of land records (*patwari*). As most tribals could not prove their period of occupation, this system became corrupt. The government then empowered village communities (*gram sabha*) to issue land titles and operate grievance redressed mechanisms under the FRA instead of granting exclusive powers to forest officials. However, poor implementation and widespread corruption in granting land titles under the FRA have increased the alienation of tribal lands, especially in Maoist or Naxalism-affected areas.

The land rights and food security nexus is increasingly recognised as important, globally as well as on domestic fronts, since global supply, income growth and access are not keeping pace with increasing populations in developing countries (Pradhan et al., 2018). Food security became a major challenge facing the globe. In 2017, India ranked 100 out of 119 on the Global Hunger Index, which rates nations' nutritional status based on indicators of undernourishment, child wasting, stunting and mortality. In fact, when analysing global food security, many policy analysts focus on India as an 'ideal' case study, because it is home to a third of the world's poor and nearly one quarter of the world's undernourished population. India has a long history of problems in feeding its huge population; food insecurity is still identified as one of its biggest challenges, and it maintains one of the most expensive and extensive food subsidy

programmes (Yu & Bandara, 2017). Accordingly, India offers a potentially unique example in the development of models and mechanisms by which nutritional needs can be addressed sustainably (Ritchie et al., 2018). Food security of the poor will be at risk due to disproportionate population growth and limited arable land (Roul et al., 2015).

In fact, in certain regions of India, like Bihar and Odisha, and also in Telangana, low agricultural productivity and output and high poverty rates leave millions undernourished, especially in rural areas. Since India has been unable to achieve population growth rates below 1 per cent per annum, widespread poverty remains a major challenge. Insufficient caloric intake, poor health, low agricultural productivity and low income are perennial forces in the vicious poverty cycle (Varadharajan et al., 2013). To address this situation, the ‘right to food’ concept was complemented by notions of ‘freedoms and capabilities’ (Pritchard et al., 2014). India’s constitutionally mandated rights-based approach to food security has been further strengthened by the National Food Security Act of September 2013. Furthermore, food grain production and consumption have been heavily influenced by government interventions, with the overriding objectives to secure food grain self-sufficiency and providing subsidised food grains to the main undernourished regions of the country (Bandara, 2013). In this context, though, tribal farmers appear to have remained largely in the shadow of official policies.

Data and Research Methods

The case study was conducted in several remote sub-district administrative units (*mandals*) of the Warangal district in Telangana, the newest state of India, created from parts of Andhra Pradesh in 2014. An intensive field survey and focus group meetings were carried out in 2016. The sample villages, both tribal and non-tribal populations, are part of a rural population of about 95 per cent in this district, which has little educational and economic infrastructure. In each chosen *mandal*, data was collected randomly from villages with a tribal population of between 50 and 90 per cent. For purposes of comparison, 24 non-tribal villages adjacent to the selected 36 tribal villages were selected as a control group. In the control villages, the sample sizes of the tribal and non-tribal farmers were equal, with 223 farmers in each group. Hence our total sample comprises 60 villages, 36 tribal villages without land rights and 24 non-tribal villages with land rights as a control group. The sample for the tribal villages was divided into 491 tribal and 256 non-tribal farmers, while the sample for the non-tribal villages consists of the same number of 223 tribal and non-tribal farmers, respectively. Our total sample was thus formed by 714 tribal and 479 non-tribal farmers from tribal and non-tribal villages.

The study involved face-to-face interviews only with the 491 tribal farmers and 256 non-tribal farmers from the selected tribal villages. The selection of households depended on practical factors, such as availability and willingness to be interviewed. This intensive field survey has been useful for analysing the land tenure and cultivated

ownership, holding size, irrigation patterns, existing infrastructures, land rights and titles and their impact on farm investment, main agricultural practices, livelihoods strategies and government and private sector support for both tribal and non-tribal populations. In addition, focus group meetings were conducted in both tribal and non-tribal villages to better understand the perceived and actual changes in land rights and food security issues during the last five decades. These focus group meetings were conducted before canvassing the individual study participants in each village. The primary data collected from the interviews, the main issues of concern expressed by the local farmers, were then cross-checked with the information collected in the focus group meetings. Separate focus group meetings were conducted for tribal and non-tribal communities, wherever possible, with women and men in separate groups.

The results obtained from the sample survey were divided into four main topics: (a) social and technical issues at local scale, (b) management practices promoted as a key point of the national political framework and definitely applied to a specific case study, (c) food security perceptions as well as (d) land rights and rural well-being.

Local Social and Technical Issues

The average age of the sample farmers was about 44 years for tribal and 48 years for non-tribal farmers. About 80 per cent of respondents among tribal farmers and 95 per cent of non-tribal respondents were male. The most common education level presented by tribal farmers in the sample is only about five years of schooling, while for non-tribal farmers, it was about nine years. The average literacy rate was 48 per cent, with values differing between 16 per cent in Dodla and 67 per cent in Kothagudem. Only 17 of the 36 villages had literacy rates higher than 50 per cent, and 12 of them were located in Kothagudem *mandal*, indicating significant microlevel differentiations.

Regarding land titles ownership, most tribal farmers (without differences between tribal and non-tribal villages) do not have secured land titles for their land. However, the non-tribal population has land rights for their lands both in tribal and non-tribal villages. Table 1 compares the current situation of land titles with respect to the past

Table 1 **Land Titles in Tribal and Non-tribal Villages (1970–2016) (in %)**

Year	TV		NTV	
	TF	NTF	TF	NTF
1970s	5	35	15	50
1980s	10	30	20	60
1990s	15	30	35	75
2016	35	45	35	95

Source: Field study and government revenue department land records.

Notes: TV—tribal villages, NTV—non-tribal villages, TF—tribal farmers, NTF—non-tribal farmers.

situation, according to data obtained from secondary statistical sources like government revenue department land records, which were then cross-checked with villagers during focus group interactions. The table shows how although about one third of tribal farmers in the tribal villages had land rights/titles on their name in 2016, this percentage represents seven times the land titles rights existing in 1970. This situation is clearly different in non-tribal villages, in which non-tribal farmers promoted a sustained increase in ensuring land titles (from 50 per cent in 1970 to more than 95 per cent in 2016), while tribal farmers experienced an increase in land rights availability only from 15 to 35 per cent. It is necessary to emphasise that in tribal villages, both tribal and non-tribal farmers presented a similar percentage in 2016, although non-tribal farmers suffered a decrease in land titles between 1980 and 1990. On the other hand, the situation in non-tribal villages is clearly different. While the land titles ownership of tribal farmers is practically total, non-tribal farmers have stagnated and present the same situation as seen 25 years ago. This confirms the stark differences in holdings of land titles, even ten years after the promulgation of the FRA.

Regarding cultivated land, large tracts of land have remained uncultivated for decades, especially in tribal villages. As a result, and according to interviews with local people, the share of fallow land in the total cultivable land in tribal villages has increased over the years, as indicated in Table 2 below. In some tribal villages, more than half of the cultivable land was not cultivated. In these villages, land inequalities were very high during the 1970s, with only 6 per cent of large landlords claiming more than 75 per cent of the village land in non-tribal villages. Some lands were occupied at that time by left-wing extremist leaders, to be distributed to vulnerable and landless households. However, these landless tribal households often could not cultivate these lands because of fear of landlords and also due to lack of credit, assets and above all the absence of secure property rights. According to the survey, and noting how both tribal and non-tribal villages have very similar initial values of fallow lands, the passing of time shows particular tendencies to ensure the maintenance or increase of fallow lands in both contexts. That is, fallow lands increased significantly in tribal villages, although with particular differences between tribal farmers and non-tribal farmers.

Table 2 **Share of Fallow Lands in Total Cultivated Land by Farmers (in %)**

<i>Year</i>	<i>TV</i>		<i>NTV</i>	
	<i>TF</i>	<i>NTF</i>	<i>NTF</i>	<i>TF</i>
1970s	7	8	8	7
1980s	18	14	12	16
1990s	50	20	10	45
2016	25	12	8	20

Source: Field survey.

Notes: TV—tribal villages, NTV—non-tribal villages, TF—tribal farmers, NTF—non-tribal farmers.

In the first case, the increase of fallow land to 25 per cent of the total cultivated land multiplies the value of 1970 by three times and a half, while the increase of fallow lands for non-tribal farmers is less significant, breaking the tendency promoted between 1980 and 1990. In non-tribal villages, the main increase of fallow land is practised by tribal farmers, though more cautiously than would be expected from the tendency until 1990, while the share of uncultivated land is the same as what existed 40 years ago in the case of non-tribal farmers.

Examining the connections between landholding status, irrigation and cropped areas, it was found that in the tribal villages where farmers do not have land rights or titles in their name, the average landholding size was a little higher than in non-tribal villages, where it was about four acres per household. Of the total operating holdings, 61 per cent was irrigated in non-tribal villages, while only about 5 per cent of the cultivated land was irrigated by tribal farmers in tribal villages. Although there were some perennial sources of irrigation, this irrigation infrastructure is limited and mostly captured by non-tribal farmers. Tube well irrigation was the dominant source for non-tribal farmers, especially in non-tribal villages. In fact, tube well and dug well irrigation were exclusively found in non-tribal villages. About 60 per cent of non-tribal farmers own tube wells in non-tribal villages, while this asset is almost completely absent among tribal farmers in tribal villages. However, irrigation through village tanks is a common praxis and is shared among tribal and non-tribal farmers in both tribal and non-tribal villages. The number of tube wells (average three per household) was much higher among non-tribal farmers than tribal farmers (less than one per household on average). According to consulted farmers, paddy, cotton and chillies are the predominant rainy season crops of non-tribal farmers in non-tribal villages, whereas sorghum, maize and rain-fed paddy were predominant crops for tribal farmers in tribal villages. The non-tribal farmers mostly cultivated commercial crops like cotton, which yielded higher profits. These farmers were also further investing in agriculture to obtain more profits, while tribal farmers mostly engaged in subsistence farming with low-input and low-output cultivation patterns to meet their own food requirements. The average cropped area was about two acres. The share of marginal farmers, who own less than two and a half acres, was 78 per cent in the sample among both tribal and non-tribal villages.

Historically, in Telangana districts, different tenancy and share cropping arrangements coexist, although the *Jameendhari* system (known elsewhere in India as *zamindari*) prevailed, with a highly skewed distribution of landholdings. Hence, in this locality, and according to the Farmer Situation Assessment Survey conducted in 2013 (Government of India, 2015), there is a high incidence of tenancy farmers (21 per cent), comparatively much higher than the national average of 4 per cent. However, only 3 per cent of farmers are leasing in land for cultivation in tribal villages, as there were no proper land rights/titles in these villages, whereas the land-lease market is well developed in non-tribal villages, where more than 20 per cent of farmers were leasing land. According to informal opinions expressed in the focus groups, in the

tribal villages, most of the leasing-in occurs by non-tribal farmers from tribal farmers. They grow commercial crops with higher investments, and notably, the land rent was very nominal. In addition, the share of tenants was lower among tribal (only 17 per cent in tribal villages) than non-tribal farmers (22 per cent in tribal villages). As the landholding owned by tribal farmers was low, some are leasing in land for cultivation. Leasing was higher among cotton farmers for commercial crops than paddy farmers for subsistence crops. The main constraint for increasing leased-in land for paddy was the availability of water, as this crop requires irrigation almost every alternate day.

Regarding infrastructures and field tools, the average distance from the house to the nearest market was 20 km, but due to the lack of good roads and connectivity, it takes more than an hour to travel this distance. Because of this poor infrastructure of roads, rural warehouses and transport facilities, government employees and other service providers are reluctant to go to these villages to disseminate new technology, procure farm produce, distribute seeds and provide credit and insurance facilities. In fact, one of the main complaints expressed during the focus group sessions was that most farmers remain unaware about ongoing government programmes. In addition, while examining ownership of assets and livestock, it has been possible to verify that almost every farming family has its own home, while some farmers (about 5 per cent) also have small farm sheds on their farm land to rest in between farm work and also to store fertilisers and farm equipment. About 57 per cent of the farmers had pump sets, mostly in non-tribal villages, while in tribal villages, only 2 per cent of farmers had pump sets, and these were owned by non-tribals. About 10 per cent of households, all in non-tribal villages, had tractors, and less than 1 per cent had tillers. One of the main issues addressed by the interviewed farmers is how, in tribal villages, farmers are unable to drill tube wells, as the government banned the drilling of tube wells in these forest and tribal scheduled areas to conserve local forests and the microclimate.

The number of livestock per household is an important indicator of sustainable agriculture in rural India. Most farmers depend on bovine cattle plus buffaloes for cultivating the land as well as for travel and milking. Table 3 below shows that over the years, livestock numbers per household have decreased in both tribal and non-tribal

Table 3 Average Number of Cattle per Household/Village Type

<i>Year</i>	<i>TV</i>	<i>NTV</i>
1970s	3	3
1980s	4	2
1990s	2	1
2000s	2	1
2016	3	1

Source: Field survey.

Notes: TV—tribal villages, NTV—non-tribal villages.

villages. Notably, the reduction is steeper in non-tribal villages. It was also noticed that in 2016, tribal farmers had more livestock than non-tribal farmers in both tribal and non-tribal villages. However, tribal farmers mostly keep indigenous breeds with less milk yield, whereas non-tribal farmers are rearing hybrids with higher milk yields. Again, tribal farmers and tribal villages lack the necessary market infrastructure to link into dairy processing units, which discourages tribal farmers from milk production on a larger scale, according to most opinions shared in focus group sessions.

While about 28 per cent of farmers own bullocks, only 9 per cent own cows, about 10 per cent own adult he-buffaloes and 27 per cent own adult she-buffaloes. Farmers prefer bullocks for cultivation and buffaloes for milk. Nearly 6 per cent of farmers, mainly from the Yadav community, owned goats on a commercial scale, but those numbers are not included in Table 3. Most tribal farmers felt that the regular income from the sale of milk and meat from goats helped them meet their daily cash requirements and permitted investment in agriculture. Farmers prefer goats over sheep, as they are better suited to the local environment, and goat meat fetches higher prices.

Change in the use of inputs was observed in the interviews. During the last four to five decades, tribal families have cleared forest land for cultivation, ranging from five to ten acres per household, with the permission of the village community. In most villages, paddy is the major crop, followed by maize and sorghum for subsistence. However, as most tribal farmers do not have land rights and land titles until now, the land of the tribal villages continues to be treated as community forest land. Since banks and other formal institutions do not provide credit and other institutional support for cultivation without collaterals, tribal farmers use very low levels of input of fertiliser, pesticides and irrigation techniques. Most farmers also do not use borewells and groundwater for irrigation, as in the tribal villages, as noted, permission to dig borewells is not granted, though the water table is at just about 50 feet. The only sources of water in tribal villages are, therefore, rain and local village water tanks. In non-tribal villages, both tribal and non-tribal farmers, though utilisation by the former is less, use modern inputs intensively to increase their farm profits. Table 4 below provides details, indicating the majority use of fertilisers and pesticides by farmers in non-tribal villages, while the

Table 4 Use of Modern Inputs by Farmers (in %)

<i>Input</i>	<i>TV</i>	<i>NTV</i>
Fertiliser	45	95
Improved rice variety	45	90
Pesticides	25	80
Herbicides	0	10
Irrigation	20	60

Source: Field survey.

Notes: TV—tribal village, NTV—non-tribal village.

use of herbicides is less relevant. However, in tribal villages the use of additives is less common, and no herbicides are used.

Regarding markets and development agencies, the distances to different input and output markets from the tribal villages in comparison with non-tribal villages are considerable. Only a few tribal villages are connected with roads, basically unpaved small roads made from local materials. Most farmers consider such dirt roads suitable for pedestrians, animals and possibly small vehicles, but at certain times of the year, they are difficult to use. It was also noticed during fieldwork that at the *mandal* level, a cluster of 30–40 villages, agricultural officers and other administrative officers never visited these remote tribal villages in the past one year. This means these villagers have no benefits from government agencies for agriculture, medical and food security. The government officers depend on local input dealers, such as fertiliser shop owners and pesticide dealers, for information dissemination and maintaining any rapport with farmers. By contrast, in the non-tribal villages, local agricultural officers maintain regular contact, mainly with non-tribal farmers and distribute subsidised seeds, fertilisers and farm machinery. This more intensive care by the local administration for non-tribal compared to tribal villages relates to the market orientation of non-tribal farmers, but it also reflects that such farmers have fully recognised land and other private property rights. Furthermore, the political organisation of farmers in tribal villages of Telangana was always at a higher level, with roots in the farmers' movements of the past. During the time of the Nizam, the Muslim king who ruled Telangana between 1700 and 1948, farmers were oppressed with high taxes on agricultural incomes, against which there were numerous farmers' movements/strikes demanding reduction of taxes and proper implementation of land rights. However, thereafter, there was no significant activity of organisations, except involvement with left-wing extremists in many tribal villages. In non-tribal villages, recently the self-help group (SHG) movement among women (86 per cent of the farming households had SHG membership) has been taking a predominant role in all socio-economic and political forms of organisation at village level. The cooperative movement is also strong, and 12 per cent of the sample farmers were members of cooperatives.

Management Practices and Interaction with Government Programmes

Concerning costs of cultivation and crop insurance, in tribal villages, rain-fed paddy was the predominant crop compared to irrigated paddy cultivation in non-tribal villages. In tribal villages, where the tribal population is more than 70 per cent, most people belong to local *Lambadi* and *Koya* ethnic groups. Here, many farmers still practise shifting cultivation by cutting forests and cultivating the land for 2–3 years and then moving to another area. As noted, though the water table is just about 50 feet below the ground, the government has prohibited digging or drilling of tube wells or borewells in these villages. Hence, farmers depend on rain and a few farmers use the local pond

(tank) for irrigation, and the cost of cultivation is low. As noted, they also use limited fertilisers and pesticides compared to non-tribal villages.

Farmers in both tribal and non-tribal villages said that the biggest risks for paddy cultivation were drought and unseasonal rainfall. However, no effective steps were taken in alleviating these risks through support from the government, and most tribal farmers were not fully aware of insurance schemes. As noted, many farmers are ineligible for loans from commercial banks, as they do not have land records. In all villages, a loan waiver scheme was implemented, and the government deposited 25 per cent of the loan amount into the farmer's accounts, and the rest would be deposited in three instalments. But this facility is unavailable to farmers who have no recorded property rights. In non-tribal villages, non-tribal farmers grow paddy on irrigated lands. As the depth of the water table was less than 60 feet in most of the selected villages, farmers used both tube wells and tank water for irrigation. As in these villages, government functionaries are attending their duties well, farmers are adopting a fine rice for domestic consumption, the *sonamasoori* variety, and also produced coarse rice varieties—BPT-1001 and BPT-1010—for the market. The average paddy yields were 60–65 quintal/ha, which was more than the state and national average. Farmers are incurring costs of about US\$1,154/ha but are getting about US\$1,308–1,385/ha as gross returns, with a net profit of about US\$154/ha. The sale price of the fine rice (*sonamasoori*) was about US\$21.5/quintal, while for BPT-1010, it was US\$18–20/quintal. Most farmers sell their coarse paddy to government procurement agencies like the Food Corporation of India at the minimum support price. Given that the biggest risk in paddy cultivation was drought and unseasonal rainfall, the Government of India introduced the Prime Minister Crop Insurance Scheme (Prime Minister *Fasal Bhima Yojana*) in 2015. Under this scheme, it is compulsory for farmers who took loans from formal credit sources like commercial banks to take out crop insurance with a subsidised premium rate, 2 per cent of the sum assured. About 60 per cent of non-tribal farmers have access to formal credit and use this crop insurance scheme. However, for non-loaned farmers, this scheme is optional. As most tribal farmers are unable to get loans from formal sources, they are generally reluctant to pay the premium insuring their crops, while a few educated large non-tribal farmers who do not take loans from formal sources make use of this optional facility.

One positive aspect observed during the fieldwork and through the sample survey and interviews is that the Public Distribution System (PDS) was working well even in tribal villages. The selected case study is the tribal village of Govindapur of Kothagudem *mandal* for estimating the benefits due to PDS, under which the state government provides access to basic food at subsidised prices to ration card holders through fair price shops (FPS). The allotment of different ration cards to households in the village is based on each household's income level. White cardholders signify the status of Below Poverty Level (BPL), and there were 495 cardholders from those households that own less than 2.5 hectares of land. Another category of households known as pink cardholders signifies the status Above the Poverty Line (APL), and such people are not eligible for some of the subsidised items. Disabled persons, widows above 40 years

of age and persons above the age of 65 years would also fall under the BPL category and are eligible to get 10 kg of rice per month under the *Annapurna* programme free of cost. Households that do not own any land and fall under the BPL category are also eligible to get 35 kg of subsidised rice per month through the *Antyodaya Anna Yojana* programme, which thereby provides food security to all households residing in the village.

Earlier, there were many loopholes in the programme with lots of leakages, but increased transparency through a well-tracked computerised system has significantly reduced the level of corruption. The state government is also responsible for distributing subsidised grains, sugar, edible oil and kerosene through the 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. (2004) found that both belonging to the Scheduled Caste/Scheduled Tribe category, and access to political representation affected access to programmes for public goods provision or receipt of BPL cards. Only one household reported any purchase at a FPS in 1976, while in 2009, almost 90 per cent of households were beneficiaries of the FPS. The benefits of this programme are illustrated with the example of a typical tribal village, Govindapur of Kothagudem *mandal*, in Table 5 below. Even though Govindapur had 672 households under the PDS, 712 white card-holding BPL families and 21 pink APL card-holding families were taking subsidised rice, kerosene and sugar. Under the Antyodaya Anna Yojana scheme, an additional 48 households were benefitting from the PDS.

Table 5 Benefits per Household per Month under Public Distribution System (PDS) in Govindapur Tribal Village

<i>Item</i>	<i>Quantity per cardholder</i>	<i>Consumer price (in ₹)</i>	<i>Open market price (in ₹)</i>	<i>Cardholder benefit (in ₹). per month per household</i>
Rice	35 kg	35	875	840
Red gram dal	1 kg	50	73	23
Palm oil	1 litre	40	58	18
Whole wheat flour	1 kg	16.5	25	9
Wheat	1 kg	7	18	11
Sugar	½ kg	6.75	17	10
Iodised salt	1 kg	5	14	9
Chilli powder	¼ kg	20	35	15
Tamarind	½ kg	30	40	10
Turmeric powder	100 g	10	12	2
Total		200	667	947

Source: Field survey.

Two significant changes may be mentioned here. Supply of sugar has been withdrawn from ration shops, as the subsidy on sugar from the central government to state governments was stopped. Supply of kerosene from the PDS was discontinued, since most consumers shifted from kerosene to LPG gas for cooking. This was supplied by state-run oil companies on subsidy for each household separately. Every household is entitled to 12 cylinders of 14.2 kg each at subsidised rates in a year. There was a subsidy of ₹86/cylinder, with a subsidised price of ₹419 as against the market price of ₹564.

Further, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) of 2005 and the related scheme Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) are important Indian social security measures that aim to guarantee the right to work (Reddy et al., 2014a, b, 2016). They also seek 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. This has become one of the flagship programmes of the government, and its effectiveness was reasonably good even in tribal villages (Reddy, 2015). The selected case study for estimating the benefits due to MGNREGA is the same tribal village of Govindapur of Kothagudem mandal as presented above. It was observed from focus group discussions that the MGNREGA has enabled many rural poor persons in this village to obtain wage employment and reasonable income during the summer and other lean seasons. The percentage of people with a job card increased cumulatively, but at a slow pace, from an average of 7 per cent in 2006 to an average of 79 per cent in 2013. The number of females with job cards was higher (up to 83 per cent) than that of men (down to 77 per cent), mainly due to outmigration of men in the village. Similar to other villages, the activities taken up include making field bunds, designed to prevent the rapid downflow of water, and thus replenishing groundwater, and planting saplings.

It was reported in the focus group sessions that the predominant positive effect of the scheme is that cardholders were able to realise incomes and savings and could purchase some durable goods for the home. Besides, borrowing from non-institutional sources has come down drastically, reflecting the improved income position. About 50 acres of wasteland in the village has been brought under cultivation as a result of land development under this scheme. This positive change observed in the village over a period of time is quite remarkable. The study also compared the benefits of MGNREGA in tribal villages with non-tribal villages, finding that the benefits due to MGNREGS for households participating in the public works programme differed significantly between tribal and non-tribal villages. The average annual person/days of employment per household was 85 in tribal villages and 30 in non-tribal villages, with a state average of 64 days. The average annual wage income from public works constituted about US\$256 in tribal villages compared to only US\$74 in non-tribal villages and a state average of US\$166. Overall, the MGNREGA impact was, thus, far less significant in non-tribal villages with a poverty reduction potential of only 4 per cent, compared to 14 per cent for tribal villages and a state average of 9 per cent.

The additional employment opportunities provided through MGNREGA not only augmented the incomes of tribal farmers but also helped to increase their bargaining power in the labour market.

Food (In)security

An important FAO-led report on food insecurity (FAO et al., 2017) highlights that India alone is home to 190.7 million people subject to hunger, 14.5 per cent of its total population. Asking farmers about this question, the perceived levels of food insecurity were much higher in tribal villages compared to non-tribal villages. Among the non-tribal population, the percentage of perceived food insecurity was 5 per cent in the 1970s and the 1990s, with a higher level of 15 per cent during the 1980s and a fall to 8 per cent during the 2000s, as indicated from the field survey along with focus group interactions and cross-checked with local ration shop dealers working under the PDS system. However, the tribal population was always perceived to be more food insecure throughout these years. Their food insecurity percentage rose from 18 per cent in the 1970s to 20 per cent in the 1980s and reached 26 per cent by the 1990s. Many of the official development schemes promoted by the government, including PDS, were not reaching these tribal villages earlier due to fear of conflicts, bad road transport systems, lack of public or private transport connection and the poor law and order situation. Food security was also badly affected by the shift from subsistence cereals cultivation to commercial crops, like cotton, following the privatisation and liberalisation policies of the 1990s. However, in recent years, this percentage of perceived food insecurity among tribals fell to 18 per cent. This appears to be mainly due to the implementation of large-scale employment guarantee programmes, as shown above, and also due to the supply of subsidised food to the BPL population.

Land Rights and Rural Well-Being

Land reform usually refers to redistribution of land from the rich to the poor. More broadly, it includes regulation of ownership, operation, leasing, sales and inheritance of land (Jenkins, 2013). In an agrarian economy, such as India, with great scarcity and an unequal distribution of land, coupled with a large mass of BPL rural population, there are compelling economic and political arguments for land reform (Ghatak & Roy, 2007). Unsurprisingly, this received top priority on policy agenda at the time of India's independence. Economists argue that a well-functioning property rights system is essential for economic development and that failure to develop formal title systems to property is obstructing capitalist development and food security in developing countries (Miceli & Kieyah, 2003). The benefits of land reform based on land rights and titling programmes in developing countries have been widely debated in policy circles (Besley et al., 2016). Proponents of such programmes argue that land titles promote investments in land improvement and more efficient allocation of land and use of

inputs, while critics may not promote land investment and indigenous property rights systems, doubting they could evolve in an efficient manner in response to population pressure, changes in technology and commercialisation (Pender & Kerr, 1999).

The research results reported in this article demand a reassessment of earlier negative perspectives of tribal land rights and reinforce the importance of land titles and prudent investment also in low-income environments. In addition, the FRA merely provides for land ownership titles to forest dwellers that have occupied and farmed the land, and it can prove this. However, these are not absolute freehold rights. These titles cannot be sold to outsiders but can be passed on within a family. As a result of this restriction, and according to opinions expressed during focus group sessions, the land sale market has remained undeveloped, with land prices in tribal villages merely a tenth of those in adjacent non-tribal villages. New investments were not made, and farmers keep using rudimentary and old agricultural practices. There is now an urgent need for increasing tribal farmers' income through increasing productivity, providing services, credit, fertilisers and extension systems.

Sustainable food security depends on a number of physical, social, economic and political factors both countrywide and worldwide (Mozumdar, 2012). To increase agricultural productivity in the tribal and non-tribal villages of Telangana, it is necessary to understand the obstacles of agricultural production as well as productivity growth in agriculture in that region. Inadequate access to water and difficulties for promoting irrigation investment, insufficient access to credit from public administration and private markets, underdeveloped rural infrastructures and, above all, limited land rights are known to be major constraints in ensuring food security (Ivanic & Martin, 2008; Maingwa et al., 2010). According to the obtained results, some of these issues related to food insecurity are reported in most tribal and non-tribal villages analysed in this study. The resulting vulnerability could be addressed by promoting three broad approaches, namely providing social safety nets, intervening to reduce food prices and ensuring supply by maintaining stockpiles. Actually, there could be another reason for why the perceived levels of food insecurity have come down. As is known from many parts of India, illegal sand mining in river beds offers a local form of informal employment which may offer an additional lifeline to many families, also in some of the study villages.

Conclusions

The findings unambiguously indicate that holding land rights remains an important pre-condition for increasing agricultural productivity and promoting access to support services provided by both public and private institutions. More accurately, the results obtained through this study show how in tribal villages, where there were no land titles for tribal populations, the lack of land rights and titles has had highly negative impacts on agricultural investment, productivity and household food security. In India, all agricultural institutional support is based on formal land titles. Hence,

if tribal farmers lack such land titles, they are automatically cut off from almost all forms of government support. Governmental as well as private institutions are also not reaching out to such farmers to provide credit, farm extension, seeds and other inputs. As a result, the share of uncultivated land in tribal villages was higher than in non-tribal villages, and permanent and temporary distress migration from these villages was also higher. Farmers without proper land rights and titles mostly follow low-input and low-output cultivation for subsistence purpose, with less adoption of improved technology, whereas in non-tribal villages with proper land rights and titles, the farm sector is more productive and entrepreneurial. In fact, where farmers followed high-input and high-output methods of agriculture, their linkages to both input and output markets are also at higher levels, and government and other support structures are seen to be pro-active in providing such farmers extra support.

Such results can no longer be seen in isolation, though, as the two flagship programmes, the MGNREGA, as a public work programme, and the PDS, as a subsidised source of food security, are also showing significant impacts in both tribal and non-tribal villages. Overall, however, there still remains an urgent need for increasing access to land rights and titles among the tribal villages and indigenous people of rural India to assist them in increasing their investments in land and agricultural productivity. Improvements in transparency and accountability, and hence of governance improvement in government programme management at all levels, as well as a reflection of increased awareness about these programmes at grassroots level, even in tribal villages, can be noted. As this local field study shows very clearly, this kind of progress will offer additional synergies for increasing the effectiveness of the various government programmes to reduce poverty, increase food security and, maybe above all, to keep the local tribal populations away from India's already overcrowded major conurbations. However, without securing property rights to tribal people, one important anchor connecting them to their locality will be missing.

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A. Amarendra Reddy holds a PhD in Agricultural Economics and is a Principal Scientist (Agricultural Economics) with the Indian Council of Agricultural Research (ICAR) in New Delhi. Earlier, he worked as Director, National Institute of Agricultural Extension Management (MANAGE), Hyderabad and in numerous other capacities. [e-mail: amarendra.reddy@icar.gov.in].

Sandra Ricart is currently a Post-doctoral Researcher and Assistant Professor in the Interuniversity Institute of Geography at the University of Alicante in Spain. She holds a PhD in Experimental Sciences and Sustainability (Geography) from the University of Girona, Catalonia, Spain. Her main research interests are human-nature coupled systems, farmers' behaviour and perception, water management, food security and climate change adaptation measures. [e-mail: sandra.ricart@ua.es].

Tim Cadman is a Senior Research Fellow at the Institute for Ethics, Governance and Law of Griffith University at Nathan in Australia and is also an Adjunct Research Fellow at the University of Southern Queensland. He holds a PhD from the University of Tasmania in Australia and specialises in environmental-social governance, environmental politics and policy, climate change and sustainable forest management. [e-mail: t.cadman@griffith.edu.au].