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NREGS AND INDIAN AGRICULTURE: OPPORTUNITIES AND CHALLENGES

D. Narasimha Reddy

1. INTRODUCTION

1.1 The Expectations

The National Rural Employment Guarantee Scheme (NREGS) is acclaimed as the world's largest public works programme. Based on its vast potential for creation of work and productive works, very high expectations are raised in terms of creation of employment that would protect the poor from hunger and poverty, reduction of rural-urban distress migration, changing power relations in rural areas, empowering *Panchayat Raj* institutions, and augmentation of rural water and land resources (Dreze, 2004) that would not only improve agricultural productivity, but also have accelerator and multiplier effect on rural resource regeneration and rural livelihoods (Shah 2009).

Of these multiplicity of expectations, one of the major areas of concern, as much as an aspiration, relates to the impact of NREGS on agriculture. The influence of NREGS on agriculture including farming, as much as farmers, may be analysed in terms of three broad dimensions, viz., agricultural labour market; assets created with a bearing on agriculture; and works on private lands of the poor peasant community, especially marginal-small farmers, in terms of changes in their asset position, costs and returns, and overall household income including wage income. Given the magnitude of the Scheme and the diversity of the agrarian conditions in the country, it is not surprising that though almost five years have passed since the launch there are not many systematic and comprehensive studies on the impact of NREGS on agriculture. But there have been sporadic reports, mostly in the popular media, on the effect – often the adverse effect – of NREGA on agricultural labour supply, wages, and costs of cultivation. There are also a few field based studies. The evidence is in bits and pieces from different parts of the country with diverse agro-climatic conditions. Until a series of more systematic studies are made on the impact of NREGS on agriculture in different regions with different agro-climatic conditions, one way of answering the questions relating to agriculture is to pool the existing evidence for a nuanced reflection. And this paper is an attempt in that direction.

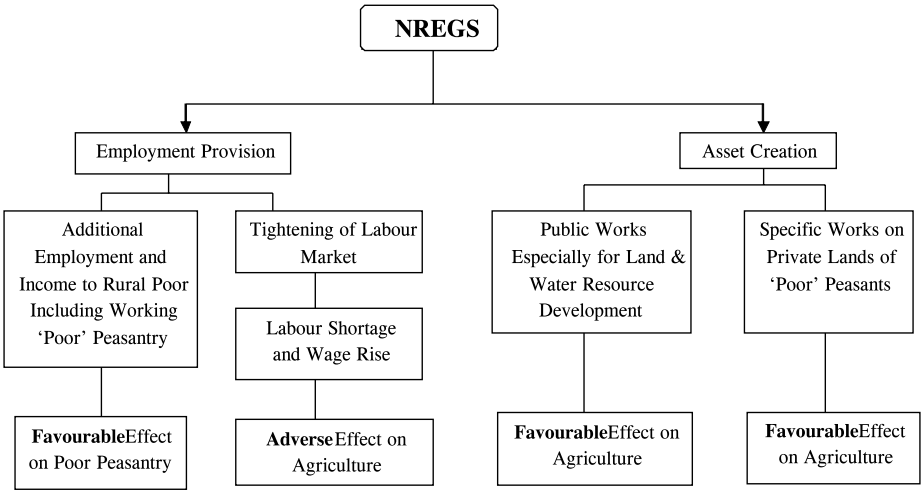
1.2 Objectives of This Paper

The main objectives of this paper are to examine the available evidence on the impact of NREGS on: i) agriculture in terms of agricultural labour market; ii) the creation and augmentation of rural water and land resources, the resulting changes in irrigation, area cultivated and agricultural productivity; and iii) the farming community, especially those

belonging to SCs, STs, and other marginal and small farmers. It may be helpful, to begin with, to spell out each of these aspects in all their ramifications (see Fig. 1), and to analyse them to the extent the available evidence permits.

First, the influence of NREGS on labour market would cover a range of issues that include labour supply and demand in agriculture, especially in the peak-season, agricultural wages, in general, and male-female differentials, responses to labour shortage in agriculture in terms of mechanisation, adjustments in working days, including dual-mode that combines two activities in one day, evolving a calendar of NREGS work to adjust to peak season demand for agricultural labour, and shifts in agricultural wage system from daily wage to piece rate or contract work. Second, the influence of NREGS on the rural water and land assets would be in terms of creation of new water harvesting works, improvement in the existing works like bunding and desilting, and soil conservation and plantation on the common lands. Third, the influence of NREGS works in the form of irrigation, land development, and horticulture on private lands of certain category of the farming community, especially SCs, STs, and marginal and small farmers.

Figure 1
Expected Linkages Between NREGS and Agriculture



1.3 The Approach

The study is based entirely on secondary sources except a brief case study of a village. But, as yet, there are no large scale studies or surveys like the NSS on NREGS to provide systematic secondary sources of data. As a result, this paper, by and large, depends on the scattered published and unpublished studies and reports, including some press reports relevant for the purpose. The methodologies of these studies or reports vary vastly from a few systematic surveys, focused on an aspect of NREGS, to opinion surveys, or mere impressionistic observations. A great deal of caution is needed in teasing out any reliable

interpretations. Often, the paper adopts the method of a descriptive review, except for Andhra Pradesh for which a few systematic studies, with data on some aspects of NREGS and agriculture linkages are available. And, hence, a separate section on Andhra Pradesh, while the rest of the evidence from other parts of the country is treated as another section. The paper is divided into four sections. The second section documents available observations on the impact of NREGS on agriculture, based on the available evidence from different parts of the country. The third section deals with the evidence available from Andhra Pradesh. The fourth and last section puts forth the concluding observations.

2. NREGS AND AGRICULTURE: EVIDENCE FROM ACROSS THE COUNTRY

2.1 NREGS and Agricultural Labour Market

The search for information on the impact of NREGS on agricultural labour markets leads to some evidence on labour shortage, changes in wages, mechanisation, peak season adjustment of work, or adoption of NREGS calendar and migration. The available information, however, is sketchy and uneven across the regions. The implementation experiences also vary widely. Yet some broad trends could be discerned. With the exception of a few well endowed regions, the pre-existing labour market in agriculture is characterised by surplus labour, low wages, high male–female wage differentials, and non-implementation of statutory minimum wages. The introduction of NREGS, with minimum and equal wages for male and female workers, did bring about not only an increase in the overall agricultural wages but also reduction in the male–female wage differentials. For instance, wage increases were reported in a number of states right from Punjab and Haryana to Gujarat to West Bengal (Banerjee and Saha, 2010). Even in tea gardens of Silchar wage hikes are attributed to NREGS impact. That higher wages in the NREGS will divert workers from agriculture and create shortages of labour in agriculture is a theoretically valid proposition, but the extent to which it will happen is an empirical question (Papola, 2005). This question assumes importance, especially in the context where substantial underemployment still does prevail in rural areas. The earlier Maharashtra experience, with the Employment Guarantee Scheme, did put upward pressure on agricultural wages but there was no clear evidence of shortage of labour (Acharya, 1990; Datt, 1994). In agriculturally well endowed regions, the level of agricultural wages was higher even before the launching of NREGS and peak season labour demand was met by seasonal migration of labour from labour-surplus regions. The impact of NREGS on wages in such areas was not much, except in pockets where the migrant labour flow declined.

There have been a number of reports on labour shortage, not only in agriculture but also in non-agricultural activities that depend on rural casual labour. There are reports from many states like Andhra Pradesh, Punjab, Haryana, U.P., and Tamil Nadu that after the introduction of NREGS there has been shortage of labour during harvesting of crops like wheat and rice.[2] Labour shortage is also reported during peak paddy sowing season in Punjab,[3] and apple harvesting season in Himachal Pradesh.[4] There are reports as to how with shortage

of labour, the bargaining power of migrant labour in Punjab had increased to the extent of not only raising wages but also improving working conditions. One report reads: 'Besides the TV, cooler, freshly cooked food, and accommodation, the labourers are now welcome to live in the houses of farm owners and not in some dilapidated tube well room out in the farm. Wages have gone up three-fold. Farmers say seasonal wages have increased from a mere Rs 700 to Rs. 2,000 to Rs. 2,500 per acre, in just about two years.'[5] While farmers of these regions tend to blame implementation of NREGS in labour surplus states like Bihar, U.P, and Jharkhand, the Commissioner of Punjab Agriculture has a different explanation: 'Earlier, the labour force used to come to Punjab sometime by March-end, at the beginning of the harvesting season, and would stay put till paddy sowing was complete by July-end. This assured them ample work for nearly four months. But increased mechanisation of farm operations, especially in wheat production, has reduced the duration of employability for them and predictably of the workforce has shown a dwindling trend since the past six years or so.'[6]

2.1.1 Agricultural Mechanization

There are also reports that labour shortage is sought to be met by mechanisation. Farmers in the Gangetic belt of U.P. are reported to have resorted to mechanised harvesting of the wheat crop in many villages.[7] The use of combined harvesters for paddy harvesting in Puducherry is also attributed to labour shortage resulting from the implementation of the NREGS.[8] Mechanisation of sugarcane harvesting in Maharashtra and provision of heavy subsidies to harvesting machines, beginning with this year, are also shown as a consequence of NREGS.[9] In Andhra Pradesh, Tamil Nadu, and Karnataka, mechanisation of paddy transplantation is promoted by providing subsidies on the machines.[10] Even in West Bengal, there was resort to mechanisation to beat rising labour costs (Babu et al., 2011). An interesting report on the significant rise in the tractor market in India in recent years cites shortage of agricultural labour as one of the explanations.[11] There is a danger that these reports could be read as if the NREGS is responsible for mechanisation of Indian agriculture. It is a fact that introduction of combined harvesters, sugarcane harvesting machines, and paddy transplanters have long preceded NREGS. Some of these mechanisation processes themselves, as observed by the Commissioner of Agriculture of Punjab cited above, disturbed the stable stream of labour supply. However, there is no gain saying that tightening of the agricultural labour market along with state policy of subsidising machinary has been hastening agricultural mechanisation, especially in agriculturally better endowed regions.

2.1.2 Adoption of NREGS Work Calendar

One of the consistent and more sensible responses across the country is to manage peak season agricultural labour demand by suspending NREGS work during peak farming seasons of sowing, transplanting, and harvesting. Such measure would not only help farmers to avoid labour shortage but would also help workers to get more days of employment by way of peak season agricultural employment as well as lean season NREGS work. There

are instances of a number states where the *Panchayats* were allowed, by mutual consent between farmers and agricultural workers, to work with a calendar that avoids NREGS work in peak season and ensures it in the lean season.[12] Such a calendar is desired even in the context of tea gardens in West Bengal, as one executive observed: 'The Government would do well, and it would be a win-win situation for all, if they keep NREGS work between November and March when we do not need the workers. That way, even workers can make more money' (Bhagat, 2010). The recent initiatives by the Union Ministry of Agriculture and the Planning Commission appear to be towards making such an NREGS calendar as an official part of implementation.[13]

2.1.3 Migration

The NREGS, by ensuring work for hundred days at assured minimum wage at the place of residence, is expected to have a substantial impact on distress migration. Though there are no studies yet estimating the extent of decline in distress migration as a result of NREGS, there are a number of studies which gathered the impression of participants on the impact of NREGS on migration. The responses vary from state to state and between districts within a state. The available responses from these surveys from Uttarakhand (Singh and Wauriyal, 2008), Andhra Pradesh and Karnataka (Kamath, 2008), Tamil Nadu (IITM, 2009), and Sikkim and Meghalaya (2009) show, by and large, there has been a decline in distress migration.

A study of select villages of Dhenkanal (Orissa), Bastar (Chhattisgarh), Khunti and Gumla (Jharkhand) districts shows that earlier due to lack of employment opportunities within the villages, there was outmigration to agriculturally more advanced states like Punjab and Haryana (Banerjee and Saha, 2010). The marginal and small farmers depended mostly on wage labour, with very little earnings from the low yields in agriculture. The commencement of NREGS works has ensured not only employment in their native places, but also afforded them an opportunity to save for investment in their farming that has resulted in higher yields. As a result, though migration has not stopped entirely from these regions, the incidence of seasonal outmigration has come down.

A study with a specific focus on the impact of NREGS on Scheduled Tribes in Kandhamal and Koraput districts of Orissa shows that distress migration declined by 72.5 per cent among males and by 45.5 per cent among females. And, also, the average duration of migration declined from 69 days to 23 days per worker (Rao et al., 2011). But a study of Purulia and Jalpaiguri in West Bengal shows marginal impact of NREGS on distress migration and the average number of days of migration declined by about 10 per cent (Babu et al., 2011). A study of five districts in Bihar finds that there was not much of incidence of migration in Siwan and Begusarai. And, in Madhubani, with an incidence of as high as 50 per cent migration, only 11 per cent felt that there was any impact of NREGS (Rao and Dheeraja, 2010).

There are interesting instances of return migration of marginal and small farmers of Barmer district of Rajasthan, who migrated to neighbouring Gujarat, Punjab and Haryana as wage-labour due to water scarcity and depletion of groundwater (Paliwal, 2011). In Barmer district, 47,779 *tankas* (small well like structures made of concrete, cement, and sand) and

other water works were constructed under NREGS to collect rain water which improved the groundwater table that enabled crop cultivation. The improved water supply has brought the farmers back to agriculture.

Of course, migration is not a linear phenomenon nor is its outcomes binary, like good or bad. The impact would depend on the nature and context of migration. One study shows that improved irrigation facilities, soil conservation, an increase in area cultivated, and crop diversification resulting in more employment reduced migration by 60 per cent in Sidhi district of Madhya Pradesh (CSE, 2008). Reports from Dungarpur, Udaipur, and Rajsamand districts show that rural men continue to migrate to factory work in Mumbai, Udaipur, and Gujarat. In all these cases, the wages in these activities are higher than that of NREGS and the duration of employment is also for longer periods. These can hardly be called distress migration. From these households, while men migrate for high-wage and relatively long duration non-agricultural work, women and the elderly remain in the village to take to NREGS work which certainly is an addition to overall household income. But to call this as a 'failure to curb distress migration' is misleading.[14]

That NREGS impacts distress migration is evident in the reports from non-farm activities like textiles, jute mills, and a large number of small and medium enterprises (SMEs). The textile industry is dependent on migrant workers, especially from Uttar Pradesh, Bihar and Orissa. Since schemes like NREGS provide livelihood to workers nearer home, it discourages labour migration from catchment areas to production centres. But this cannot be read as the cause for labour shortage, but does add to the difficulties in mobilising 'additional workforce' needed in this sector. The growth projections of the textile industry suggest that the workforce needs would increase from the current level of about 35 million to 47 million by 2015. Most of the workers earning about Rs 7,000 a month are migratory in nature. They move from the agricultural sector to cities after the sowing season for half of the year, and get back to village when the harvest season starts. The NREGS is seen as discouraging labour migration from rural to urban areas.[15] But, there is no evidence that migration for work that ensures higher wages and longer duration was discouraged by NREGS. The Secretary General of Confederation of Indian Textile Industry (CITI) observes that the problem in the textile industry is not losing workers, but the industry is not getting additional workers, especially skilled workers. 'The challenge will be to find enough workers and to train them. Though the training needs are neither complicated nor time consuming, the magnitude of the requirements would make it a herculean task.'[16] Within the textile industry, it is claimed that jute mills in West Bengal pay the maximum daily wages with a fresher getting Rs 227 per day and a skilled worker Rs 404. These wages are two to four times NREGS wages. But yet, it is claimed that shortage of labour in jute mills is due to NREGS which discourages workers to migrate.[17] Similarly, the Indian Industries Association (IIA), Ghaziabad Chapter, also consider NREGS as the cause for labour shortage in small and medium industries.[18] But there is evidence from field studies, as we shall see, that migration for high wage employment, especially male members of the households, has not declined due to NREGS.

2.2 NREGS Works and Agriculture

Since the thrust of NREGS works is on land and water conservation, the expected impact would be substantial augmentation of agricultural production and productivity. The NREGS works on soil conservation and land development, renovation and construction of minor irrigation structures like tanks, ponds, percolation tanks, and farm ponds, for harvesting and augmenting storage of rain water, and undertaking of plantation and horticulture crops, and these are likely to contribute to an increase in area cultivated, irrigated area, improved quality of soil, and result in improved agricultural productivity. However, given the diversity of agrarian conditions and the limited technical capacity of implementing agencies like *Panchayat Raj* institutions, the quality and usefulness of these works are often called into question. The second problem is the evaluation of the contribution of these works to improved productivity, since direct measurement of such contribution, particularly at the micro level to the exclusion of the effects on the contiguous basin or even watershed, are fraught with problems. At the same time, one may have to steer clear of the extremes, in the name of 'scientific assessment', that are being witnessed in the evaluation of NREGS. For instance, a team of scientists assessing the contribution of NREGS works in Chitradurga district of Karnataka bring in allegedly heavy but inappropriate conceptual load like 'environmental services', and agricultural and irrigation 'vulnerability index', and 'carbon sequestration' (Tiwari et al., 2011). With their methodology of rapid scientific appraisal and their dependence on oral sources of data on water storage level, it would have been much more sensible to narrate whether the design and location of the works were proper, whether there was any storage and percolation augmentation as reflected in the water table, along with the information on area cultivated and irrigated. Instead, assuming an extreme scientific posture in measurement of the impact on the basis of flimsy methodological and database would naturally invite severe criticism (Kumar et al., 2011). But strangely, the critique itself lands in the other extreme of science by insisting that the authors should have quantified the total economic benefits (in terms of the positive and negative externalities) against the investments made for the NREGA (Kumar et al., 2011). The critique overlooks the fact that NREGS is a social protection programme, where the investment is not based on the expected financial returns but benefits of employment and the physical assets created. Benefit cost analysis may not be a relevant method of impact assessment in this context.

This paper, as pointed out earlier, confines to the available reports, and treats these as broadly indicative of the impact of NREGA works on quality of land, area cultivated, irrigation facilities, cropping pattern, and overall agricultural production and productivity. A fairly large study by the Centre for Science and Environment (Mahapatra et al., 2008) covering 12 districts across nine states flags the development potential of the NREGA. The study sets out with the background of Maharashtra EGS in Ahmadnagar, a district with 400–500 mm rainfall. Over the years, the district experienced large amounts of investment on farm ponds, contour trenching, compartment bunding, building of over 1,000 check dams, and about 70,000 water harvesting structures. Of the district's total area of 1.7 million hectares, roughly eleven per cent was brought under soil conservation works. In many

cases, land which was barren was revived under own cultivation. Agriculture is booming and labour is short. Area under crops increased and crops diversified. A marked increase was recorded in the water table by five metres between 2003 and 2007. The case of the village Hiware Bazar receives special attention. The village experienced reverse migration. In 14 years, average household income increased 16 times and, out of 216 households, 54 are millionaires. And now there is no demand for EGS work, since most of them are busy with their own agricultural work. The study contrasts this experience with the Bundelkhand region where such a potential for NREGS water harvesting and conservation exists but is yet to get due priority. In contrast, NREGS in Ranga Reddy district in Andhra Pradesh, where water conservation account for 67 per cent of NREGS works, and in Tsunami affected Nagapattanam in Tamil Nadu where 1,172 out of 1,406 works are relating to tanks, ponds and channels with a view to increase the water holding capacity and to bring back normalcy into agricultural work, have had a lasting impact. Another study (CSE, 2008) focuses on two districts, Naupada in Orissa and Sidhi in Madhya Pradesh. In Naupada, 15 per cent respondents reported change in crop mix and about 15 per cent reported increased water availability. There was also an increase of 18 per cent in area sown due to NREGS works. In Sidhi, 55 per cent of respondents reported an increase in the area cultivated, and about 79 per cent reported increase in water availability. Another study of four districts across four states shows wide variation in the degree of utility of the works executed under NREGS. In Anantapur (AP), out of a sample of 16 percolation tanks and farm ponds, 13 were in use. In Yewatmal (Maharashtra), out of 24 percolation tanks and farm ponds, only 14 were in use (Kareemulla et al., 2010).

There are reports on the revival of water bodies and canals under NREGS. In Hanhat panchayat of Lohardaga district of Jharkhand, farmers hardly had any crop for three years, but when renovation of a six-kilometre long canal was done under NREGS, a large number of farmers in three villages could raise crops.[19] In the barren district of Barmer in Rajasthan, NREGS has brought about substantial improvement in water resources (Paliwal, 2011). As pointed out earlier, 47,779 *tankas* have been constructed under NREGS. During the months when it does not rain, government water tankers fill them. Also a dilapidated *poshal nari* (man-made pond) built 40 years ago was refurbished under NREGS. This 33 hectare pond with about 10 metre depth built in the middle of sand dunes in Nagarda village was drying up. Its base was thickened with more layers of black soil which prevents seepage. The revival of this pond serves around 10,000 people and their livestock in 14 villages. Beginning with 2011, Rajasthan government is augmenting allocation up to 40 per cent of total NREGS funds for water harvesting, restoration of traditional water bodies, and de-silting of water bodies like ponds and lakes. In Assam, there are an estimated 3,000 natural water bodies spread over one lakh hectares and the government proposes to clear them of water hyacinth under NREGS.[20]

There are a number of reports on proactive promotion of diverse varieties of horticulture crops under NREGS across the country. Since NREGS envisages investment in promoting horticulture in private lands of the SC, ST, and small-marginal farmers, and since in the

earlier EGS in Maharashtra, horticulture had a lasting impact, many governments have taken up this programme. The U.P. government plans to extend banana plantation in one lakh acres that would benefit 1.5 lakh farmers.[21] In Assam, plantation of Citrus trees on the plots of Indira Awas Yojana (IAY) houses and in the unutilised lands (through self-help groups) is promoted under NREGS.[22] In Bongaigaon district of Assam, 1,000 of SC, ST, and below poverty line (BPL) families are targeted for involvement in cocoa cultivation under NREGS.[23] A range of horticultural crops have been taken up under NREGS and, in Gadag district, the choice of horticulture is *sapota* trees (Ghanashyam, 2008).

2.3 NREGS and Farming Community

Besides providing employment and creation of public assets that would improve agro-ecological conditions in the countryside, NREGS also provides for investment on private lands of SCs, STs, BPL families, beneficiaries of IAY, and land reforms, if the individual land owner is a job cardholder and also works under the Scheme at least for 20 days in a year. It aims at provision of irrigation facility, horticulture plantation, and land development facilities on these individual land holdings. This is expected to benefit a large number of rural households, since a very high proportion of agricultural labour households in India actually own lands. The proportion of agricultural labour households owning land is as high as '50 per cent in Rajasthan and Madhya Pradesh, 60 in Orissa and Uttar Pradesh and over 70 in Chhattisgarh and Jharkhand. And if we focus on *Adivasis*, the proportion shoots up to as high as 76–87 per cent in Chhattisgarh, Jharkhand and Rajasthan' (Shah, 2009). The NREG Act was amended in 2008 and the scope of eligible categories of workers on whose land NREGS works can be taken up has been expanded to include small and marginal farmers.[24]

Small and marginal farmers account for about 80 per cent of all landholdings and operate about 40 per cent of all cultivated land, which means that of the 142 million hectares of land under cultivation in the country, about 57 million hectares are under small and marginal farmers. If at least half of the small and marginal farmers participate in the job scheme, then about 28 million hectares of private lands of the poor peasantry is likely to come under NREGS. Most of these small and marginal farmers rely heavily on wage employment, often due to lack of capacity to invest and improve their own lands. The NREGS works on these lands, which have been starving for investment, is likely to improve productivity and enable small and marginal farmers to gradually move towards full time farming. The available evidence does show that substantial proportion of participants in NREGS do have land. A study in a few Rajasthan villages showed that 46 per cent of participants in the job scheme were from those self-employed in agriculture. In Rajasthan, it transpires that the proportion of participation of those with some land is much higher than those without land. In fact, of the total participation in the NREGS, the share of those with land is more than the share of households with land in the total households in the villages studied (Gaiha et al., 2009). However, the available information also suggests that there is variation in the participation of the landed with the variation in agro-climatic conditions. For instance, a study of five districts with different agro-economic conditions in Tamil Nadu shows that in

highly irrigated deltaic region of Thanjavur district, 93 per cent of participants in NREGS are landless, whereas, in drought-prone Cuddalore district, 35 per cent have land (IITM, 2009). And, in Thanjavur, no one with two acres or more participates in the Scheme, whereas in Cuddalore farmers with four to ten acres also participate. Agroclimatic differences are also reflected in the beneficial effects that NREGS could have on farming community. A study of Hoshiarpur (Punjab), Sirsa (Haryana) and Sirmur (Himachal Pradesh) shows that in semi-arid Sirsa district 62 per cent of *Panchayats* reported increase in agricultural productivity and in the hilly Sirmur three-fourth of the respondents felt the same way. But in agriculturally saturated Hoshiarpur 87 per cent reported that NREGS did not have any impact on irrigation and agriculture (CRRID, 2009).

Though detailed studies on the impact of NREGS works on individual lands of the poor peasantry are yet to come, the evidence trickling down from different parts of the country suggests that there has been a positive effect on agricultural productivity and on the conditions of small and marginal farmers. A study of 12 blocks across three states, viz., Jharkhand, Chhattisgarh, and Orissa (Banerjee and Saha, 2010) bring out the positive impact of NREGA on the incomes of small and marginal farmers and on the investment and productivity of crops grown in most of the study regions. One study village did not have any irrigation facilities and paddy cultivation was entirely dependent on rainfall. Before the advent of NREGA, the marginal and small farmers had a meagre income from crop cultivation and depended primarily on labouring out in various agricultural and non-agricultural activities. They could hardly save anything to invest in agriculture and as a result got very low yields. However, according to Bannerjee and Saha (2010):

With the implementation of the NREGA, farmers (marginal and small farmers in particular) have additional income to invest in agriculture. In other words, in addition to consumption expenditure, a portion of the income earned through NREGA was invested in agriculture. Expenditure in agriculture was primarily in the form of purchase of chemical fertilizers and high yielding varieties of seeds. This has resulted in an increase in crop yield in the study regions. The increase in paddy yield is in the range of 50-55% in the study regions of Chattisgarh, and 90-100% in the study regions of Jharkhand" <End quote>

The authors observe that the increase in crop yield has reduced the livelihood vulnerability of the small and marginal farmers, and that their livelihood security can be further improved if extension services and complementary inputs like irrigation are provided in these regions.

3. NREGS AND AGRICULTURE: EVIDENCE FROM ANDHRA PRADESH

3.1 NREGS and Rural Labour Market in A.P.

One of the major impact of NREGS in rural Andhra Pradesh, as in many other parts of the country, is on the labour market. Based on the reports of focus group discussions (FGDs) spread over a fairly large number of villages (77), Table 1 presents some broad indicators of the change in the rural labour market as a result of NREGS. These indicators have to be interpreted in all their nuances to the extent the FGDs could capture them.

Table 1
Impact of MNREGS on Rural Labour Market in Select Villages in Andhra Pradesh 2008-09*

(Number of Villages)

Indicator	*Increased*	*Decreased*	*No Change*	*No Clear Response*	*All Villages*
1. Agricultural Wages	70	Nil	2	5	77
2. Peak Season Shortage of Agricultural Labour	62	Nil	6	9	77
3. Male–Female Agricultural Wage Differential	Nil	71	Nil	6	77
4. Migration (a+b)	Nil	51	20	6	77
a) Villages with Migration Before NREGS	Nil	51	4	Nil	55
b) Villages with no Migration Before NREGS	Nil	Nil	12	Nil	12

Note: *The evidence is based on reports of Focus Group Discussions (FGD) of 77 villages (*panchayats*) spread over 8 districts (Chittoor, Nalgonda, Medak, Ranga Reddy, Adilabad, Karimnagar and Kurnool). These FGD reports are part of the two projects: Galab., et.al. (2008) and Reddy. et.al. (2009)

3.1.1 Agricultural Wages

At the time of the fieldwork during 2008–09, the NREGS minimum wage for both male and female workers was Rs 80. In some of the villages in the state, the male agricultural wage was equal or marginally more than the NREGS wage but the female agricultural wage level was much lower in almost all the villages. The introduction of NREGS increased the demand for labour in rural areas and resulted in an increase in agricultural wages as well. The rise in female agricultural wages, which were at much lower level, was much steeper than the rate of increase in male wages. As a result, the difference between male–female agricultural wages declined substantially in almost all villages (71) for which information is available.

3.1.2 Shortage of Labour and Changes in Working Day

Even before NREGS, in peak agricultural season, labour shortage was experienced in many villages. Of course, there were a few dryland villages where it was shortage of work, rather than shortage of labour, that continues to be a problem. But after NREGS, 62 out of 68 villages reported increase in labour shortage. However, out 77 villages, only two villages reported that there was any decline in area under cultivation due to rise in wages or shortage of labour in the peak season. In Kupanagar village, there has actually been increase in the area cultivated in the last two years due to NREGS investment in fallow and rainfed lands of SCs. A number of strategies are being adopted to meet the changing labour market situation, which in turn is also leading to many changes in the nature of rural, and, especially agricultural, labour markets. Six villages reported labour being brought from outside the village by paying transport charges in addition to wages. In three villages, wages were paid in advance to ensure labour supply in the peak season for agriculture. There has been a growing tendency towards piece rate or contracting out of agricultural work rather than employing labour on daily wages.

Agricultural workers reported better bargaining power, better treatment at the farm, visible change in the form of respect, and less of pressure at the place of work. Besides rise in wages, in most of the villages, workers have been able to negotiate reduced duration of agricultural working day. And the growing shift towards piece rate or contract work on agriculture facilitated the change in the working day. In parallel, there has been increasing tendency in the NREGS working day to begin early in the day, by seven in the morning, and terminate by one in the afternoon. There are instances where the workers take to agricultural work in the afternoon, often on their own farms, after attending the NREGS work in the forenoon. There is in emergence, in some villages, a dual mode of work in a given day with NREGS work in the forenoon and agricultural work in the afternoon. The latter mostly on own farms. Such adjustments appear to soften the shortages of agricultural labour. And, the very working day is being redefined due to changes in the labour market brought about by NREGS.

3.1.3 NREGS Calender

Though there are reports elsewhere about mechanisation of agriculture as a response to labour shortage, there is no such perceptible change towards mechanisation as a response to NREGS in the villages of the eight districts discussed here. But there is a widespread demand by farmers for stopping NREGS work during the agricultural peak season. In fact, a number of *Gram Panchayats* have evolved, through mutual negotiation, work calendar that avoids NREGS work during the local agricultural peak season. Such adjustment is seen as a mutually beneficial measure that helps farmers to avoid labour shortage in the peak season and workers to get NREGS work in the lean season, and, thus, increase the overall days of employment in a year.

3.1.4 Migration

Of the 77 villages reported in Table 1, in 12 villages, there was no migration before or after NREGS. Of the remaining, in four villages there was not much change in the migration situation even after the job scheme and in six other villages there was no clarity in the information recorded. In the rest of the 55 villages, there were varying degrees of decline in migration. Most of the decline is in distress migration, but not in the emerging process of movement towards higher paying and relatively high productivity non-agricultural jobs, and, often, rural to urban mobility. At least four villages reported complete stoppage of distress migration. Some villages in districts like Ranga Reddy reported a decline in long distance distress migration to Mumbai and Pune. This is similar to the decline in migration from drought prone Mahabubnagar district, which was well documented elsewhere (Sainath, 2008). In many other villages, the participants in discussions observed that there would be further decline in distress migration if NREGS work is provided for longer periods at a time and if wages are paid without much delay. Their arguments were well reasoned. They were conscious of the costs of migration, including raising informal loans at high interest rates to meet the expenses of mobility, high rents and fuel costs at the destinations, the ordeal

of having to live in sub-human conditions, and the risk of their children missing a chance to go to school.

The non-distress type of migration from these villages, which is not affected much by NREGS, is of three types. One is the migration of male members of the households for high paying, non-agricultural work for relatively longer durations. For instance, from the villages of Kurnool district, which borders Karnataka, male members of the households migrate to Bellary to work in construction, mining, and other activities. The second type of non-distress migration that continues, even after NREGS, is rural to rural migration from dryland areas to fertile areas for agricultural work. For instance, from *Mandals* like Aspari in Kurnool district, entire household members migrate to Guntur district during June–August to work in the *mirch* (chilli) and tobacco fields, where each migrating couple make as much as Rs 500 per day. These families return during September–October to their own villages to work in agriculture and some, even in NREGS. The third type of continuing migration is – strictly speaking not migration – daily commuting to neighbouring towns. For instance, in Kurnool district members of some rural households commute to neighbouring towns like Allagadda to work in shops and other establishments where the wages are high. Interestingly, some work in NREGS in their villages in the forenoon and commute in the afternoon to nearby towns to work in odd jobs, including vegetable and fruit vending.

3.1.5 Additional Worker and Additional Employment Effect

One question often raised is, if there were to be substantial increase in employment under NREGS, what would be the impact on agriculture? Would there be shortage of labour for agriculture? Or, decline in the area cultivated due to shortage of labour? The experience of Kuppanagar village, which we shall discuss more, later, suggests that though initially there were signs of shortage of labour, over the past three years there have been interesting developments in the working hours and the working day. Gradually, there has been shift in the daily work schedule of NREGS works. It is now increasingly tending to be confined to the forenoon. With it, there is also a tendency on the part of workers who are engaged in the forenoon to take up either agriculture wage labour or own farm work in the afternoon. As observed earlier, many workers earn NREGS wages in the forenoon and also earn on agriculture in the second half of the day, thereby doubling their day into two working and earning days. This is hard work, but preferred by many workers since there is substantial increase in income. This is a clear additional employment effect. The other factor contributing to the additional worker effect is the inducement of relatively higher wages for women in NREGS compared to agriculture. Some women, from certain social groups who did not perform wage labour, are participating in NREGS work. It is because of being 'government' work and not work for a contractor or a landowner which carried a social stigma for certain social communities. Thus, the additional employment and additional worker effects together appear to keep labour supply to agriculture not greatly disturbed.

3.1.6 NREGS Minimum Wages

In the first phase of NREGS, the minimum wage fixed was Rs 80 per day. It was increased in Andhra Pradesh to Rs 100 in 2009. Since the NREGS wage is calculated on the basis of work done at the schedule of rates, the minimum wage level is only indicative and the wage level could be higher or lower depending on the turnover of work. But in Kuppanagar, a village that is used as a case study, the average wage level obtained has always been higher than the minimum indicated. Even in the earlier years when the minimum wage was Rs 80, Kuppanagar workers logged wages ranging from Rs 93 to Rs 126. The result of the household survey shows the average rate of Rs 103 in 2009–10. In Kuppanagar, as in other places in the state, work is allotted to a group calibrating the quantity equivalent to the schedule of rates that would fetch minimum wage to each member. Often, some members of the group do not turn up, yet the remaining ones complete the total allotted work and this increases the average wage to a level higher than the indicated minimum wage. Wherever workers are formed into Shrama Shakti Sangams (SSS), as in Kuppanagar, there is better motivation to work as a team and complete the work allotted, even if some members do not turn up. The result is that the average wage is higher than the minimum wage. The average wages are paid equally to men and women. The average NREGS wages logged by Kuppanagar workers are higher than local agricultural wages, especially for women. The impact of NREGS wages are felt in two ways. First, overall agricultural wages have increased. Male wages in agriculture increased from Rs 80 before NREGS to the present level of Rs 100, and female agricultural wages increased from Rs 50 to Rs 80. The male–female wage gap has declined substantively. The hours of agricultural work have also declined and they are invariably half a day work at the wages mentioned above. The net impact on agriculture is higher wage costs.

The responses in the group discussion reveal an interesting pattern. Regardless of the social group, most of the NREGS workers are also small and marginal farmers and they too feel the impact of rising agricultural wages on their farms, but marginally, because of two reasons. First, their earnings, especially those of women, from NREGS are substantial. Second, they have substantial gains by way of improved productivity of their land due to NREGS land development works on their private lands. Therefore, the small and marginal farmers do not complain much about rising wages. The landless workers acknowledge rising agricultural wages. Their main complaint is about the steep rise in prices of essential commodities.

The response of relatively bigger farmers, normally non-participants in NREGS, is about the rising agricultural wages. Interestingly, in many villages, they do not complain about the NREGS as such, since most of them benefited from rise in water table resulting in increased water levels in their wells and bore wells due to NREGS works, especially due to desilting of tanks and ponds and construction of a number of percolation tanks. These relatively bigger farmers have been repeatedly making a plea that half of their agricultural work and wages could be shared under NREGS. Paradoxically, they have developed a vested interest in NREGS, hoping their wage costs would be shared under the Scheme. And, the political forces appear to be nursing this hope!

3.2 NREGS Works and Agriculture in A.P.

The extent to which assets created under NREGS could benefit rural development, in general, and agriculture, in particular, depends on not merely the resources available but on the extent of the commitment of the State as reflected in guidelines on prioritising and planning, and the ability of the local governments in identifying the works that would help in the realisation of larger objectives of resource improvement according to the prioritised works and prioritised social groups. In Andhra Pradesh, in the initial years, except for prioritising minor irrigation tanks, there was no clear direction or guidelines on what type of works should be taken up on priority. And this reflected is in Table 2 which shows that either in terms of employment created or wages paid, in the first three years, there was a certain lack of clear direction, except in the case of minor irrigation. In the first three years, the very vague and diffuse categories like Water Conservation and Harvesting and Others together accounted for 80 per cent (2006–07) to 63 per cent (2008–09) of the employment

Table 2

Employment and Wages Paid Under Different NREGS Works in Andhra Pradesh

Category-wise Person Days ('000)

Year	*Water Conser-vation and Harvesting*	*Drought Proofing*	*Provision of Irrigation Facilities*	*Renovation of Traditional Water Bodies / Desilting*	*Flood Control*	*Rural Connecti-vity*	*Others*	*Total*
2006-07	28 (42)	6 (8)	- (-)	8 (12)	- (-)	- (-)	24 (38)	(100)
2007-08	56415 (28)	2923 (1)	7526 (4)	45506 (23)	3682 (2)	3947 (2)	79979 (40)	(100)
2008-09	69624 (31)	1414 (1)	20516 (9)	51047 (22)	1277 (1)	8093 (4)	75401 (32)	(100)
2009-10	73226 (19)	1152 (Negl.)	134248 (34)	118645 (30)	645 (Negl.)	7056 (2)	55114 (15)	(100)
2010-11	59115 (17)	2991 (1)	1042238 (31)	92406 (27)	1768 (1)	18222 (5)	60583 (18)	(100)
Category-wise Wages Paid (Rs Lakh)								
2006-07	23193 (43)	5298 (10)	- (-)	5671 (10)	- (-)	- (-)	19699 (37	(100)
2007-08	49760 (29)	2393 (1)	6680 (4)	39324 (23)	3377 (2)	3337 (2)	66148 (39)	(100)
2008-09	62747 (32)	1249 (1	18022 (9)	42230 (22)	1166 (1)	7209 (4)	62866 (31)	(100)
2009-10	67929 (19)	1116 (Negl.)	123172 (35)	105505 (30)	596 (Negl.)	6060 (2)	49060 (14)	(100)
2010-11	58749 (18)	3141 (1)	100088 (30)	90289 (27)	1749 (1)	18060 (5)	57875 (18)	(100)

Source: http://nrega.ap.gov.in (25-07-2011).

Note: Figures in parenthesis show percentage

generated under NREGS in Andhra Pradesh. Only in the case of minor irrigation tanks there was clarity by way of priority, right from the beginning. But by 2009–10, may be due to a long a period of learning process, there has been clarity in prioritisation and the priorities are clearly in favour of works that would have direct benefit to farming and SC, ST, and other small and marginal farming community. The two categories of works, viz., Provision of Irrigation Facilities, which specifically addresses the needs of the poor peasantry and Renovation of Traditional Water Bodies, which together would have a favourable impact on agriculture, acquire top priority. These two types of works together accounted for 64 per cent of employment generated in the state in 2009–10 and 58 per cent in 2010–11.

3.2.1 Renovation of Minor Irrigation Tanks

The Government of Andhra Pradesh saw a great opportunity in NREGA in operationalising their own long pending programme of restoration of minor irrigation tanks. Soon after the launching of the first phase of NREGA in June 2006 in 13 districts of Andhra Pradesh, restoration of minor irrigation works received special attention. In October 2006, at one of the earliest meetings of the State EGS Council, chaired by the Chief Minister, decided that at least one minor irrigation tank in each *Gram Panchayat* shall be taken up for comprehensive restoration in the 13 districts in the first phase of NREGS.[25] Instructions were issued for conducting awareness programmes at the village level and to identify a tank in each village for restoration. The process of identification of the tanks, planning and preparation of the estimates, and execution was to be carried on by the Department of Rural Development in coordination with the *Panchayat Raj* and Irrigation and Command Area Development departments.

The tank restoration under the NREGS acquired certain political flavour, and was designated as *Indiramma Cheruvu* programme. The priority accorded to the programme by the state government was reflected in the interest evinced by the Chief Minister in extending the programme to the second phase districts of the NREGS, and taking up second tank in *Gram Panchayats* where the first one was completed in the first phase districts.[26] There was convergence of funds from the irrigation department and NREGS to comprehensively restore minor irrigation tanks with a command area of less than hundred acres and by June 2008, 12,500 tanks were taken up for strengthening of bunds, closing of breaches, repairs to sluices, weirs, feeder and field channels to stabilise 10.50 lakh acres of *ayacut*.[27]

By the middle of 2011, as Table 3 shows, 61,257 tanks, each with an *ayacut* of less than 100 acres were brought under the NREGS linked tank restoration programme and an estimated 30 lakh acres of *ayacut* under these tanks were claimed to have been stabilised. The average size of the tanks restored is about 50 acres. Though the estimated expenditure was much higher, the actual expenditure incurred was about Rs 2,431 crore, which works out to an average of Rs 3.95 lakh per tank or Rs 7,900 per acre of *ayacut* stabilised. Considering the fact that over the years there had been neglect of tank maintenance, resulting in unattended breaches, erosion of bunds, and silting up of tank beds, feeder and field channels that drastically eroded the area under tank-irrigation, the tank restoration under NREGS is

likely to be a big boost, not only to surface irrigation but also in augmenting ground water resources due to improved percolation and rise in water table. To assess the irrigation efficiency of the minor irrigation tanks restored under the Scheme, a detailed survey was initiated by the government.[28] The evaluation is expected to provide information about the extent of *ayacut* irrigated by each tank, before and after restoration, which may provide the extent of irrigation impact of the NREGS linked tank restoration.

Table 3

Repair and Restoration of Minor Irrigation Tanks* Under NREGS in Andhra Pradesh (2011)

Physical and Financial Aspects	*Planned*	*Completed as on 25/07/2011*
Number of Tanks (No.)	62085	61527
Expenditure (Rs Lakh)	527364	243076
Ayacut (acres)	3005059	Stabilised

Source: http://nrega.ap.gov.in (25-07-2011).

Note: *Under a programme entitled *Indiramma Cheruvu*.

3.2.2 Watershed Development

Another area of great opportunity for natural resource development is seen in the convergence of NREGS and Watershed Development Programme. To avoid duplication and optimum utilisation of resources, works to be taken up under NREGS and Watershed Development Programme were separately demarcated. Works which involve materials and machines were earmarked exclusively for watershed funds, while all other works as per the Watershed Action Plan could be taken up with NREGS funds. As a result, there are visible signs of improvements in water storage, percolation, and improvement of groundwater table in many locations in the state.

3.2.3 Horticulture

The convergence between NREGS and Horticulture Department is another area where there has been direct benefit to small and marginal farmers belonging to different socioeconomic categories eligible for works under NREGS. Since most of the work being taken up under NREGA in AP pertains to development of land of the specified type of farmers, horticulture on their lands is expected to generate sustainable incomes. All costs, including labour and material costs, for plantation and maintenance of the same for three years are to be met from NREGS funds, while the implementation is done through the Department of Horticulture, which is also the agency for implementing works under National Horticultural Mission. Here, again, priority is accorded to the 'poorest of the poor' farmers and detailed horticulture development plans are prepared for each district. For instance, the plan for 2010–11 envisaged covering an area of about 79,000 hectares at a cost of about Rs 500 crore.[29] Table 4 provides basic information on the progress made in horticulture plantation under the NREGS in the state.

Table 4
Horticulture Plantation Under NREGS in Andhra Pradesh
(Since Inception up to 25 July 2011)

Particulars	*Coverage*
Number of works	91,731
Number of farmers	1,40,255
Area in which work commenced (acres)	7,42,090
Estimated Expenditure (Rs Lakh)	185434

Source: http://nrega.ap.gov.in (25-07-2011).

The state also took a number of other initiatives towards convergence of NREGS with other agencies. One such is the AP Drought Adaption Initiative (APDAI) with a focus on improving production system on farms with pilot projects integrated with NREGS. A project for the development of common lands by way of rejuvenating degraded common lands was launched in two districts involving NREGS funds and as many as 24 NGOs providing facilitating cost. A biomass based watershed project for improving biomass in drylands through 'multi-tier' tree species was launched in Mahabubnagar district under NREGS with the technical support of an NGO, BAIF. Similar agreements have been reached between Integrated Tribal Development Agency (ITDA) and Coffee Board for coffee plantation and with Rubber Board for rubber plantation in East Godavari agency areas and the cost is shared by NREGS, ITDA, and the respective Boards. A Coordination Committee is formed at the state level with representation to various institutions like ICRISAT, CRIDA etc. to provide technical support to the NREGS. The impact of these initiatives is expected to be substantial on agriculture in the state but the progress made is yet to be assessed.

3.3 NREGS and Farming Community in A.P.

One of the major justification for public works, in contrast to cash transfer as a social protection measure, is that these works not only generate employment but create assets which would benefit the community as a whole. The nature of NREGS works are such that there is a built-in bias in favour of agriculture due to emphasis on conservation and development of land and water resources. Of particular importance to agriculture is the NREGS provision of irrigation facility, horticulture plantation and land development on private lands of SC, ST and BPL households, or beneficiaries of land reforms and IAY, and its later extension to small and marginal farmers, (hereafter referred to as – EGS eligible farming communities). This provision has far reaching significance, especially to the SC farming community in Andhra Pradesh.

Like many other states, small and marginal farmers constitute 80 per cent of farmers in Andhra Pradesh. More importantly, about 12.5 per cent of the area under cultivation is state assigned land to the poor, either out of ceiling surplus land or government land. But much of the assigned land has been of very poor quality requiring substantial investment if it were to be brought under plough. But most of these assignees could not afford such investment. Often, the state assistance for improvement of these lands was inadequate.

A sample survey of 800 beneficiaries of land assignment under land reforms in two districts of Andhra Pradesh shows that at the time of assignment only in 17 per cent of the

cases, the land assigned was cultivable, in about 26 per cent of cases it was all shrubs and bushes, and in 66 per cent it was barren and rocky (Rani and Rao, 2012). Considerable amount of investment had to be made to bring them under plough. Only in those cases where institutional support like that of Scheduled Tribes Development Corporation investments could be made for land development and provision of irrigation facilities, the land could be cultivated. And in most of the other cases, either the assigned land was kept fallow or used for growing some rain-fed crops or, in some cases, even abandoned. The Government of Andhra Pradesh saw the opportunity afforded by the provision of NREGS works on the lands of the EGS eligible farming communities and initiated steps to prioritise these works in the shelf of works planned for implementation under the Scheme.

<Para>Of the nine categories of works provided under the NREG Act, the fourth, 'Provision of Irrigation Facility …" alone refers to works on private lands of certain eligible farming communities. The Government of Andhra Pradesh specified the fourth category of works into four projects,[30] viz., i. EGS Land Development Project (EGS-LDP) to treat fallow and low productive lands of the eligible farmers with priority to SC and ST farmers; ii. Horticulture and Plantation Project (H&P); iii. Irrigation Facilities Project (IFP); iv. Sustainable Agriculture Project (SAP) and spelt out the nature of works to be taken up and priority to be assigned in selecting the farmers for implementation. The participation of self-help groups (SHGs) was enlisted in identifying lands of the poorest of the poor with special emphasis on the land of SC and ST households. The Andhra Pradesh government has developed an ambitious plan to develop 2.5 million acres of assigned land belonging to SC, ST, small and marginal farmers under the NREGS at a cost of around Rs 7,000 crore. The new works strategy evolved by the middle of 2010 emphasised completion of these works on 'saturation basis' as could be observed from the following part of the guidelines: a. Land Development in the lands of SC/STs and Small and Marginal Farmers shall be taken up on a 'saturation basis.' The Land Development includes various water conservation and water harvesting structures.[31] Table 5 provides a larger picture of the efforts of the state in bringing to record a strategy of project and works planning with the highest priority accorded to the development of the lands of the eligible farming community. About 32 lakh NREGS works are planned for execution in the private lands. Even if each of the work is likely to improve farming in at least one acre of land, the impact on the farming and poor peasantry would be substantial. The sustained priority assigned to the works on the private land of the poor peasantry is revealed by the fact that the 'fourth category' of works alone account for almost a third of the total NREGS expenditure in recent years. Table 2 shows that substantial

Table 5
Social Group-wise Prioritized NREGS Works on Eligible Private Lands in Andhra Pradesh as on 25/07/2011 (Number of Works)

Status	*SC*	*ST*	*SC + ST*	*Others*	*Total*
1. Number of works in shelf	383579	360926	977	557734	1303216
2. Number of works in sanction /start up	561547	243669	1254	484511	1290981
3. Number of works in progress	204305	132505	2237	308426	647473

Source: http://nrega.ap.gov.in (25-07-2011)

proportions of NREGS expenditure in A.P. is on land and irrigation development on the lands of the poor. The benefits to the poor peasantry and agricultural production are likely to be substantial but it still remains to be systematically assessed.

The NREGS provision for works on the private lands of the eligible farming communities has the effect of augmenting incomes of these communities by reinforcing their wage income and by enabling them to earn income from self-employment from their own improved land. The available evidence shows that a substantial portion of wage work in rural areas has been performed by the poor farming households. The results of an intensive micro-study of three villages in Andhra Pradesh shows that 16 to 48 per cent of the total hired work is performed by mostly poor and lower-middle peasants (Ramachandran et al., 2010). Another study of three villages shows that of those participating in NREGS works, about 50 per cent have land and 20 per cent are those usually self-employed in agriculture (Jha, et al., 2008). There is a substantial participation of small and marginal farmers in the NREGS work. A large survey of six districts in Andhra Pradesh shows that farmers' participation in NREGS works ranges from 41 per cent in Kadapa to over 70 per cent in drought prone Mahabubnagar and Anantapur (Table 6). The NREGS participation of even large farmers goes with areas dependent on dry and rainfed agriculture. Improving the lands of the poor farmers may help them to move to own cultivation.

Table 6
Landholding Status of Households Working in NREGS in Select Districts of Andhra Pradesh (2007-08) (%)

District	*Landless*	*Marginal*	*Small*	*Medium*	*Large*	*All*
1. Mahaboobnagar	20.6	43.7	26.2	9.5*	-	100
2. Kadapa	58.9	32.8	6.9	1.3*	-	100
3. Karimnagar	57.0	10.1	11.3	11.9	9.6	100
4. Ranga Reddy	52.4	17.1	11.0	12.0	7.5	100
5. Anantapur	25.7	19.8	18.6	17.8	18.0	100
6. Vijayanagaram	38.7	25.6	17.8	12.6	5.3	100

Source: Galab et al. (2009) and (2010).

* Includes both medium and large holders.

3.3.1 NREGS and Private Lands of the 'Poor' – A Case Study

Drawn from a larger study of the author (Reddy, 2011), the case of Kuppanagar village in Medak district of Andhra Pradesh is presented here with specific focus on NREGS works on the private lands of eligible farming communities. A sample survey was conducted in the village, and Table 7 gives the details of the caste and class distribution of the sample households. The *Panchayat* has been pro-active in identifying NREGS works on the private lands of special category social groups, especially those of SC households. Table 8 shows the NREGS development works on the private lands of SCs and others. Given the fact that SCs constitute almost one-fourth of the population of the village and that most of them have some land, though mostly dry and uncultivable, one the lasting way of improving their economic

Table 7
Caste and Class (Size of Land Holding) Based Classification of Sample Households (Kuppanagar)

Caste	*Landless*	*Marginal*	*Small*	*Semi-Medium*	*Medium*	*Large*	*All*
SC	9	6	14	13	8	Nil	50
OBC	2	3	4	5	5	-	19
Others	4	4	4	7	4	-	23*
All	15	13	22	25	17	0	92

Source: Reddy (2011).

*20 households of these Others belong to the Muslim community which is also mainly agriculture dependant. Upper castes under Others in the village constitute a very meagre proportion.

Table 8
NREGS Development Works on Private Lands Under Progress in Kuppanagar During 2010-11*

Type of Work	*Community-wise Beneficiaries*				*Total Expenditure (Rs. Lakh)*	*Average per Household (Rs.)*
	SC	*OBC*	*Others*	*All*		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Tank Silt Application	103	13	1	117	13.08	11,178
2. Deep Ploughing in Hard Soil	100	16	7	123	2.21	1,800
3. Development of Fallow/Dry-lands	103	-	-	103	61.12	59,337
4. Open Wells	4	2	-	6	2.48	41,358

Source: Mandal Computer Centre, Jarasangam, Medak District, A.P.

*These works are approved and being implemented by the *Panchayat* for the years 2010-11 and 2011-12.

condition is to make their lands more productive. Since most of them lack resources for investment, NREGS works on private lands has come as a boon.

What remained as unproductive pieces of assigned land are turning into productive agricultural assets. Application of tank silt to fallow or barren land enriches the soil, makes the land productive and ensures good crop even under rain-fed conditions. In developing of fallow lands, one of the important works undertaken in some of these dryland areas is the removal of over grown *prosafis judiflora* with stumps. Most of the assigned lands, when left fallow due to lack of resources for development, turn into wild growth of *prosafis* which, once it sets in, becomes very difficult to clear unless completely rooted out, a task which needs about Rs 40 thousand per acre and is beyond the means of poor farmers. No wonder that removal *prosafis* overgrowth is one of the much sought after work by the poor farmers.

Table 9 shows the beneficiaries under the NREGS work on private lands and SCs get top priority in these works. The preponderance of SC households benefiting from the NREGS in the village is because of two reasons. One is that most of the SC and other poor households in the village were assigned land out of two large tracts which were largely barren. Second, there were clear guidelines from the state that priority should be accorded to SC and ST lands in undertaking land development on private lands and special efforts were made through SHGs to list the lands of the SC households in a large number of villages for inclusion on priority in the shelf of projects prepared by the *Panchayats*.[32] The state government's ambitious

initiative in this regard could be gauged from the following part of the follow up guidelines circulated: '... prepare the land inventory of SC/ST lands in all the villages in the state and (to) identify all the possible works in these lands with the objective to achieve an annual income of Rs. 25,000 per acre. The first and second priorities of projects were given as land development project in fallow and cultivable lands of SC/ST farmers. *After saturation of the land development works in SC/ST lands* [emphasis added] then other project shall be identified to meet the demand of the labour budget of the habitation'.[33] Table 10 shows that beneficiaries included are from marginal to medium size farmers. Semi-medium or medium in dryland conditions does not indicate a better resource position. In Kuppanagar, many of the SC households are also semi-medium and medium size landholders but much of the land is of low productivity, requiring substantial investment to make it productive. Most of these households responded that they now had an opportunity through NREGS to raise good crops on their lands for the first time. Table 11 shows the type of NREGS works on the private lands of the sample households. Most of them obtained the benefit of tank silt application to their lands. In fact, the results of tank silt application, by way of increased crop yields, had a visible impact and has created a very high demand from the SC and other eligible households for this programme and the *Panchayat* responded by according high priority to the same.

Table 9

Households Benefiting From NREGS Works on Private Lands in Kuppanagar

Community	*All Households*	*Landless Households*	*Households with Land*	*NREGS Private Land Improvement Work**	*Extent of Land Covered (Acres)*	
					Total	*Average per Household*
SC	50	9	41	38 (93%)	62	1.6
OBC	19	2	17	8 (47%)	14	1.8
Others	23	4	19	8 (47%)	14	1.8
All	92	15	77	54 (70%)	89	1.6

Source: Reddy (2011).

*Households with land benefiting from NREGS improvement of private lands, Figures in parentheses are percentages to Households with land.

Table 10

Size-Class of Holdings and NREGS Works on Private Lands in Kuppanagar

Size of Holdings	*Number of Households with Land*	*Households under NREGS Private Land Works*	*Total Extent of Area Covered (Acres)*	*Average per Household (Acres)*
Marginal	13	7	6	0.9
Small	22	18	30	1.7
Semi-Medium	25	16	32	2.0
Medium	17	13	21	1.6
Large	-	-	-	-
All	77	54	89	1.6

Source: Reddy (2011).

Table 11
Type of NREGS Works Completed on Private Lands of Sample Households

Type of Work	*Marginal*	*Small*	*Semi-Medium*	*Medium*	*All Total*
Tank Silt Application	7	16	15	10	48 (89%)
Levelling and Bunding	-	1	1	2	4 (7%)
Horticulture	-	-	-	1	1 (2%)
Other Works	-	1	-	-	1 (2%)
All Works	7	18	16	13	54 (100%)

Source: Reddy (2011).

One of the interesting external outcomes of the state government proactive initiation of measures to identify the lands of the SC, ST, and other poor farmers' households through a series of systematic guidelines was the increased participation of these households in the meetings of the *Panchayat*. Earlier, when there was no priority for works on private lands, the poor farmers hardly evinced any interest in the deliberations of the *Panchayat*. With the guidelines from the state to identify the lands of the poor, and to prioritise NREGS works in their favour, the passive indifference to *Panchayat* meetings turned into active involvement. This process towards more democratisation of decision-making at the grassroots level has also turned as people's mobilisation in favour of more of NREGS works.

4. CONCLUDING OBSERVATIONS

4.1 NREGS, Labour Market and Agriculture

One of the clear evidences on the impact of NREGS on agriculture relates to labour market. Agricultural wages have increased across the country, and the rate of increase in the female agricultural wage has been much higher than on male wages and male–female differentials in agricultural wages have declined substantially. The tightening labour market has offered better bargaining power to agricultural labourers, better treatment at the place of work, and ability to negotiate the duration of the working day. But the terms of wages are increasingly tending towards piece rate contracts. The peak period labour shortages in agriculture, which are confined to certain regions, are resulting in a number of changes in working hours, working day, and NREGS work calendar. The ongoing process of agricultural mechanisation is being hastened but not widespread. A more sensible response to peak season agriculture labour shortage is the negotiated NREGS calendar that avoids implementing works during agricultural peak and provides developmental works during the lean season. And, such a time schedule is welcomed by farmers as well as workers across the country.

There is no evidence that there has been marked decline in the area cultivated either due to rise in agricultural wages or shortage of labour. On the contrary, there are counteracting forces by way of additional worker effect by drawing certain social groups into the 'government employment' of NREGS wage-work and the additional area effect by making the some of the fallow lands of the poor more productive. But there is clear evidence that rise in wages is one of the contributing factors, along with other rising input costs, to increasing cost of cultivation. While SC, ST and other small and marginal farmers, who are also participants

in the NREGS, were not affected much or, in many cases, gained substantially, the better off farmers could face the rising costs partly through mechanisation. But the worst affected are the small and marginal farmers who are neither participants in NREGS work nor beneficiaries of works on their private lands. This section of the small and marginal farming community may not be small and could face a serious crisis. In this context that the Planning Commission's proposal to make the Scheme more farmer-friendly by extending the coverage to some of the agricultural operations,[34] if designed properly, may address the problems of excluded small and marginal farmers.

One of the salutary effects of NREGS on poor rural households is the drastic reduction in distress migration. But there is no reason to share the apprehension, as expressed by some (Farrington et al., 2007), that the Scheme 'may discourage them from moving to more economically dynamic areas.' Just as in favour of decline in distress migration, there is equally strong evidence to show that migration for higher wage work, that lasts for relatively longer period in a, year remains unaffected and possibly would improve if skill formation and activities that would improve human resource development are also brought under the NREGS.

4.2 NREGS Works and Agriculture

Since most of the works under the Scheme are for land and water resource development and conservation, theoretically, these works are expected to have lasting impact on agriculture. However, given the magnitude of the Scheme and the diversity of the agrarian conditions in rural India, the benefits to agriculture are likely to be linked to the appropriateness of the choice of works to different regions, the quality of design, and the competence and commitment in their effective execution. The evidence mustered in this paper does suggest that works like tank restoration, silt application to degraded land, percolation tanks, farm ponds, rooting out of *prosafis* growth, and deep tilling, do have a visible impact on agricultural productivity. And, there is no room for believing, as some feel (Sjoblom and Farrington, 2008), that these works are prone to being taken over by wealthier sections of society or that these are poorly implemented, leading people to think that NREGS is no better than any other government schemes that had little impact on poverty. The field experience in Andhra Pradesh suggests that most of the works under implementation are much sought after by the people. There is vast scope for learning from the mutual experience of success. There is no reason why strategising works on the private lands of the SC, ST and small and marginal farmers, which is an overwhelming success in Andhra Pradesh, could be a non-starter in Tamil Nadu or Punjab. It is unfair on the part of the National Advisory Council (NAC) to criticise that all NREGS works so far have been like 'relief' works rather than being productive works (NAC, 2011). But, that does not mean that works implemented in Andhra Pradesh are appropriate in all locations and are technically perfect. In spite of the efforts of the state government, most of the *Panchayats* are technically ill equipped. The situation in other states may not be any the better. There is much justification in the criticism that 'A key constraint to building high quality assets is the lack of technical support to communities

as input to planning MNREG works (e.g., through resource mapping exercises) as well as the storage of technical staff in designing and supervising works. A large number of works, particularly those related to water conservation, remain incomplete, either due to lack of technical support to GPs or the onset of monsoons" (World Bank, 2011). At the same time, one has to realise that technical capabilities do not exist so that these could be simply allocated as they do with the financial resources, but have to be created to suit the diversity of needs. There is need for broad regional resource specific typologies for planning land development, water harvesting and conservation works, and for adoption with suitable local level modifications (Bassi and Kumar, 2010). Reference to these limitations is not meant to digress from the beneficial effects of NREGS on agriculture, but is only to draw attention to efforts needed if the vast positive potential has to be realised substantially.

Notes

1. By an amendment to Schedule I and II of the National Employment Guarantee Act in March 2007, the name of the programme was changed to National Rural Employment Guarantee Scheme (Gazette of India No. 231, dated 6 March 2007). By a further amendment on 7 January 2010, the name of the Act and Scheme was renamed the Mahatma Gandhi National Rural Employment Guarantee Act and Scheme respectively. NREG, NREGS, and MNREGS are used interchangeably in this paper.
2. "Government nulls 'lean period' for rural job scheme in harvesting season", *Financial Express*, August 11, 2008.
3. *The Tribune*, April 24, 2010.
4. http://greenworldinvestor.com/2010/07/17
5. "Punjab Farmers Reap Bitter NREGA Harvest" *Times of India*, June 13, 2010.
6. "Aspirations within Misery: Labour Shortage in Agriculture", *Sanhati*, August 5, 2008.
7. "NREGS lures labourers away from fields", *The Pioneer*, May 4, 2010.
8. 'Labour shortage affects paddy harvest', *The Hindu*, September 23, 2010.
9. 'Sugar mills go high-tech to beat labour shortage' *Business Standard*, August 14, 2011.
10. "Farmers of Tamil Nadu, Andhra show the way", *The Hindu*, June 6, 2011.
11. http://www.researchandmarkets.co/research/d5e163/indian_tractor-ind
12. *The Financial Express*, August 11, 2008 and *The Asian Age*, July 18, 2011.
13. "Agriculture Ministry wants MNREGA labour glitch uprooted", *The Pioneer*, July 24, 2011.
14. A very detailed report on how male members of the household migrate to high paying factory work and women and elderly take to NREGS is reported as "MNREGS fails to curb distress migration in parts of Rajasthan", *Business Standard*, August 14, 2011.
15. D.S. Rawat, Secretary General, ASSOCHAM in *India Infoline News Service*, June 26, 2011.
16. D.K. Nair, Secretary General, Confederation of Indian Textile Industry (CITI) in *SME Times*, April 28, 2011.
17. *Fibre 2 Fashion* (online) August 14, 2011.
18. *SME Times*, May 7, 2011.
19. *Times of India*, April 1, 2011.
20. *Times of India*, July 7, 2011.
21. *Indian Express*, March 1, 2011.
22. *The Telegraph*, July 2, 2011.
23. *Times of India*, August 3, 2011.
24. The para 1 of Schedule I of the NREG Act was amended on 18 June 2008 to include small and marginal farmers, as defined in the Agriculture Debt Waiver and Debt Relief Scheme, 2008, as eligible for the works on individual land.

25. G.O. Rt. No. 1720 of the Irrigation and Command Area Development (MI.IV) Department dated 30 December 2006.
26. At the State NREGS Council meeting on 28.9.2007, the Chief Minister suggested extending the tank restoration programme to phase II districts and taking up of the second tank in each village in the phase I districts. Steps were initiated to this effect by the Department of Rural Development (Circular dated 27.11.2007).
27. A statement "Best Practices in NREGS-AP" issued by the Commissioner of Rural Development, Govt. of A.P. dated 11.6.2008.
28. The Commissioner of Rural Development, Govt. of AP initiated a detailed survey of the minor irrigation tanks restored under the NREGS (Circular No. 71/EGS dated 20.06.2010). The results are awaited.
29. The G.O.Ms.No. 51, PR&RD (RDII) Dept. dated 1.2.2010 lays down clearly the area, costs and the share of funds from NREGS and Dept. of Horticulture, Govt. of AP.
30. There were detailed instructions in two tranches of circulars specifying projects under each category and type of works under each project (Circular No. 653/EGS/PM(T)/2008 dated 6.10.2008 and 1.11.2008).
31. This is part of the guidelines issued under the MNREGS-New Works Strategy by the Commissioner of Rural Development, Govt. of A.P. (Circular No. 1192/EGS/PM(T)/2010 dated 6.9.2010).
32. D.O. Letter No. 770/IKP-EGS/2009 dated 31.10.2009 and Circular Memo No. 1187/EGS/PM(T/08 dated 4.11.2009, Commissioner of Rural Development, Govt. of A.P., Hyderabad.
33. Circular No. 1192/EGS/PM(T)/2010 dated 28.9.2010, Commissioner of Rural Development, Govt. of A.P., Hyderabad.
34. It is reported that the draft proposal by the Planning Commission submitted to the Ministry of Rural Development suggests rechristening the Scheme as MNREGS-II so as to cover agricultural activities like sowing, harvesting, soil and compost preparation, irrigation and allied activities like tending livestock. It is also proposed that to begin with the farm activities will be allowed under the revised Scheme only in 2000 backward blocks, with a goal of putting back small-marginal farmers on their own farms. (*The Pioneer*, August 19, 2011 and *Tehelka*, August 20, 2011).

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