

SUBJECT IV
REVIEW OF ELEVENTH PLAN-IMPLEMENTATION AND IMPACT
STUDY AT STATE/DISTRICT LEVEL WITH SPECIAL REFERENCE
TO AGRICULTURE AND RURAL DEVELOPMENT

Impact of NREGS on Rural Livelihoods and
Agricultural Capital Formation

K. Kareemulla*, Shalander Kumar*, K.S. Reddy*, C.A. Rama Rao* and
B. Venkateswarlu**

I

INTRODUCTION

The National Rural Employment Guarantee Scheme (NREGS) came into existence after the enactment of a Parliament Act 'National Rural Employment Guarantee Act' (2005) in September 2005. The scheme was launched on 26th February from Anantapur in Andhra Pradesh. The scheme initiated in 200 districts was subsequently enlarged twice to cover all the 593 rural districts of the country. The scheme has now been re-christened as Mahatma Gandhi National Rural Employment Guarantee Scheme. The goals of the scheme are strong social safety net for the vulnerable groups by providing a fall-back employment source, growth engine for sustainable development of an agricultural economy, empowerment of rural poor through the processes of a rights-based law and new ways of doing business, as a model of governance reform anchored on the principles of transparency and grass root democracy (Government of India, 2008).

The primary objective of the scheme is to provide 100 days of guaranteed wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work. The scheme has a systematic approach with regard to identification of works, issue of job cards to the eligible and execution of works, provision for social audit and transparency in payment among others. The scheme in the last four years of its existence has brought in a noticeable change in the rural areas with regard to employment opportunities, nature of works, systems and procedures in work opportunities.

Agricultural employment growth rate of 0.40 per cent during 1993-94 to 2004-05 and that of rural non-agricultural employment growth rate of 3.52 during the same period (Planning Commission, 2010) indicate that the rural areas did not provide

*Principal Scientists and **Director respectively, Central Research Institute for Dryland Agriculture, Santoshnagar, Hyderabad – 500 059.

The partial financial support received from the National Centre for Agricultural Economics and Policy Research (ICAR), New Delhi to conduct this research is gratefully acknowledged.

adequate opportunities for the population. Hence, a scheme like NREGS has a great potential to fill this gap.

Many studies have documented the processes followed in NREGS implementation (Dreze, 2009, Ambasta *et al.*, 2008). Change in the consumption pattern and purchase behaviour of household durables among employment beneficiaries were reported (IAMR, 2008). Similarly, socio-economic issues, especially on the level of women participation in the scheme have also been studied (RTBI, 2009). NREGS activities, apart from providing employment and income, provided multiple environmental services such as, increased ground water recharge, increased water percolation, enhanced water storage in tanks, increased soil fertility, reclamation of degraded lands and carbon sequestration (Raveendranath *et al.*, 2009). However, none of these impact studies focused on the nature of assets created in the scheme and their use by the beneficiaries for productive purposes (AFPRO, 2009, Joshi *et al.*, 2008).

Therefore, the present study was conducted in four major states of the scheme implementation which also happened to be the major rainfed states with a specific focus on the use of soil and water conservation structures for agriculture, besides the impact on livelihoods of the employment beneficiaries. This paper is presented in seven sections with the first section being introduction followed by study methodology, overview of NREGS, scheme progress in study districts, results of micro-level studies, impact of works on agriculture and conclusions/recommendations.

II

METHODOLOGY

The study was conducted in four states, viz., Andhra Pradesh, Karnataka, Rajasthan and Maharashtra, as these are key states in terms of implementation of the scheme, besides being states with large rainfed areas. For the survey and field work, one district from each of these states was selected based on the lead in the implementation of NREGS, i.e., the number of works as the criterion. From each such selected district, three mandals/ blocks were further selected randomly. At the next stage, from each of the selected mandal/block, two gram panchayats (GPs) were selected adopting the same criterion (Table 1). At the GP level, employment beneficiaries, farmers (both beneficiaries and non-beneficiaries) and work sites were selected and studied using pre-tested questionnaires as per the sample framework given below.

Similarly, secondary data was collected from the websites www.nrega.nic.in and from the scheme implementing state line departments. The data was analysed using growth rates, averages, percentages for before and during the NREGS situation. The benefits due to various structures with productivity and environmental gains were estimated taking into account the actual use of such assets, say use for supplemental

irrigation, groundwater recharge, in-situ moisture conservation, prevention of soil loss/erosion. The data provided by the farmers was coupled with the estimates on environmental services (Kareemulla *et al.*, 2007, Singh *et al.*, 1992). Although, the life span of these assets varies from 5-30 years, only annual benefits are indicated.

TABLE 1. STUDY SAMPLE FRAMEWORK

Sample unit (1)	Number per sample village (2 per block) (2)	Number per mandal/block (3 per district) (3)	Number per district/state (1 per state) (4)	Total (4 states) (5)
Employment beneficiary				
- Men	5	10	30	120
- Women	5	10	30	120
Beneficiary farmers* (<5 acres)	6	12	36	144
Non-beneficiary farmers (>5 acres)	6	12	36	144
Work-sites				
- Farmers	6	12	36	144
- CPRs	3	6	18	72

*As per norms of NREGS.

III

OVERVIEW OF THE SCHEME

The scheme in its four years of existence has spent about Rs. 1.3 lakh crores. The annual growth rate in budget allocation was widely varying with a high of 144 per cent during 2009-10 compared to the previous year (Table 2).

TABLE 2. YEAR-WISE BUDGET ALLOCATION FOR NREGS

Year (1)	Amount (Rs. crores) (2)	Annual growth rate (per cent) (3)
2005-06	11000	
2006-07	11700	6.4
2007-08	12000	2.6
2008-09	16000	33.3
2009-10	39100	144.4
2010-11	40100	2.6

Source: <http://indiabudget.nic.in>.

The scheme has provided employment to 5.25 crore households at an average of 54 person days on a cumulative basis during the four years of its implementation. The weaker sections, viz., SC & ST accounted for 51 per cent of the total employment provided under the scheme. Similarly, women obtained 49 per cent of the wage opportunities with their male counterparts getting the remaining 51 per cent. This indicates that the scheme is able to infuse greater social and gender equity in rural areas. Women got higher opportunities in employment in states like Kerala (88 per cent), Tamil Nadu (83 per cent) and Rajasthan (67 per cent). The catchy 100 days

guarantee has been fulfilled only in 13 per cent of the households at the national level. Across the states, Tripura, Andhra Pradesh and Rajasthan have been able to ensure this promise for larger number of households (Table 3).

TABLE 3. STATUS OF EMPLOYMENT PROVIDED UNDER NREGS DURING 2006-2010

State (1)	Cumulative No. of households provided employment (2)	Total employment (lakh person days) (3)	Per cent of SC/ST (4)	Per cent of women (5)	Per cent of households getting 100 days employment (6)
Andhra Pradesh	6158493	4044	39	58	23
Assam	2137270	735	43	28	6
Bihar	4127330	1137	47	30	7
Gujarat	1611280	585	54	47	6
Himachal Pradesh	497336	285	42	46	10
Jammu and Kashmir	337356	128	35	7	6
Karnataka	3535351	2002	25	45	13
Kerala	931221	319	22	88	4
Madhya Pradesh	4722409	2623	64	44	13
Maharashtra	591517	274	59	40	4
Rajasthan	6428366	4461	49	67	23
Tamil Nadu	4373257	2391	62	83	13
Tripura	576001	458	59	41	37
Uttar Pradesh	5480434	3563	58	22	15
West Bengal	3465105	1543	51	33	2
Chhattisgarh	2025845	1042	54	49	8
Jharkhand	1702599	842	59	34	8
Uttarakhand	522304	182	30	40	4
Orissa	1394118	552	55	36	6
India	52477628	402115	51	47	13

Source: www.nrega.nic.in.

3.1 Number of Works

Almost 21 lakh works have been accomplished in the four years of NREGS implementation. The NREGS works are mainly concentrated in states like Andhra Pradesh (26 per cent) and Uttar Pradesh (17 per cent) (www.nrega.nic.in).

3.2 Type of Works in Study States

Water conservation and water harvesting followed by land development were the major work categories in Andhra Pradesh, Karnataka and Maharashtra, whereas, provision of irrigation followed by rural connectivity comprised of the major work categories in Rajasthan (Table 4).

TABLE 4. SHARE OF DIFFERENT WORKS ACROSS STUDY STATES

		<i>(per cent)</i>				
Work category (1)	Type of works (2)	Andhra Pradesh (3)	Karnataka (4)	Maharashtra (5)	Rajasthan (6)	India (7)
Rural connectivity	Rural connectivity, etc.	2.9	5.4	3.4	22.5	15.9
Flood control and protection	Drainage in water logged areas, construction and repair of embankment	0.8	4.3	3.3	0.9	3.6
Water conservation and water harvesting	Digging of new tanks/ponds, percolation tanks, small check dams	35.2	22.8	68.8	12.4	29.0
Drought proofing	Afforestation and tree plantation	4.0	8.1	5.7	2.4	4.8
Minor irrigation works	Minor irrigation canals, others, etc. to be indicated separately	14.1	6.2	0.4	3.1	6.6
Provision of irrigation facility	SC's and ST's, beneficiaries of land reform, IAY's, small and marginal farmer	9.2	21.0	5.8	47.5	16.2
Renovation of traditional water bodies	Desilting of tanks/ponds, desilting of old canals, desilting of traditional open well	6.6	4.5	5.2	8.9	7.1
Land development	Plantation, land levelling, etc.	27.1	23.5	7.5	2.3	15.0
Others	Any other activity, approved by MRD, etc. to be indicated separately	0.0	4.1	0.0	0.0	1.8
	Total works (No.)	532673	38549	10613	87023	2084505

Source: www.nrega.nic.in.

IV

PROGRESS OF NREGS IN SELECTED DISTRICTS

4.1 Climate and Agriculture in Study Districts

The sample districts in the study states were primarily chosen based on the maximum number of works. Majority of these districts fell into semi-arid climate category. The incidence of drought was more frequent in Udaipur (25 out of 100 years) followed by Anantapur (24 out of 100 years) compared to 18 years each in Bellary and Yevatmal districts, which naturally affects the rural livelihoods, especially, by way of malnutrition and poverty, ultimately leading to out migration (Gore *et al.*, 2010).

Two of the study districts, viz., Yevatmal and Anantapur had comparatively lower cropping intensity (105 and 106 per cent) indicating agricultural backwardness compared to Bellary (127 per cent) and Udaipur (146 per cent) (ICAR-ICRISAT Database, 2008). A scheme like NREGS with soil and water conservation works is expected to address this problem by way of bringing in resilience in cropping systems.

4.2 Number of NREGS Works

Among the sample districts studied, Anantapur topped the list with maximum number of completed works (74929) which was about 14 per cent of the total works completed in Andhra Pradesh. Bellary accounted for 56 per cent of the completed works in Karnataka (Table 5).

TABLE 5. DISTRICT WISE PROGRESS OF NREGS WORKS IN STUDY STATES (2006-10)

District (1)	Completed works (2)	District's share (per cent) (3)	Total no. of works in the state (4)
Anantapur , Andhra Pradesh	74929	14	532673
Bellary, Karnataka	21588	56	38549
Udaipur, Rajasthan	22622	26	87023
Yevatmal, Maharashtra	724	7	10613

Source: www.nrega.ap.gov.in

4.3 Type of Works

Water conservation works (56 per cent) dominated in Anantapur followed by land development (29 per cent) (Table 6). On the other hand, provision of irrigation facilities (62 per cent) dominated the work types in Bellary district, while drought proofing and renovation of traditional water bodies accounted for majority of the works in Yevatmal district. In Udaipur district land development was the major work category.

TABLE 6. TYPE OF NREGS WORKS ACROSS STUDY DISTRICTS

SWC Works (1)	<i>(per cent)</i>			
	Anantapur (2)	Bellary (3)	Udaipur (4)	Yevatmal (5)
Water conservation / harvesting	56	3	8	19
Drought proofing and plantation	3	3	3	32
Micro and minor irrigation works	1	5	-	-
Provision of irrigation facilities	4	62	7	-
Renovation of traditional water bodies	3	1	5	32
Land development	29	5	39	1
Rural connectivity	3	12	13	6
Flood control and others	0	9	25	10
Total number of works	74929	21588	22622	724

Source: Records of scheme implementing departments.

4.4 *Modus operandi of Works Identification and Implementation*

Generally, works to be carried out under NREGS, are identified at the grassroots level. Depending on the sphere of work, viz., under the purview of Gram Panchayat, Mandal/Block Panchayat and District Panchayat, the works are categorised and reserved in the shelf of works. Proposals of such works related to community or individuals are prioritised in the Gram Sabha and then sent to mandal/block which will be finally approved at the district level by the implementing agency. For instance, in Andhra Pradesh, the District Water Management Agency (DWMA) is the nodal agency for implementing the NREGS works while in the other three states, viz., Karnataka, Maharashtra and Rajasthan, the Zilla Panchayat is the nodal agency. The line departments like PWD, forests, minor irrigation are involved for planning and executing the works in community/government lands, especially in states like Rajasthan and Maharashtra. However, in Andhra Pradesh almost all the works are directly executed by DWMA with their field staff with active involvement of the Gram Panchayats. The ground level technical supervision is done by the staff of the mandal/block Panchayats with the help of field assistants. It was observed during the field studies that in view of the heavy work load, there is inadequate supervision leading to less than optimum quality NRM structures. In some cases the supervising staff did not have necessary technical qualification. Hence, necessary training should be provided to such staff before implementing different works and by placing qualified engineers.

v

RESULTS OF THE MICRO LEVEL STUDIES

The site and household study was conducted in four purposively selected states, namely, Andhra Pradesh, Rajasthan, Maharashtra and Karnataka. Anantapur, Udaipur, Yevatmal and Bellary districts, respectively represented the selected states in the sample. A comparative status and impact of NREGS on the livelihood and utility of NRM measures implemented across the study villages in the selected districts of four sample states is presented and discussed in this section.

5.1 *Profile of Employment Beneficiaries*

The farmers outnumbered the employment beneficiaries in the study districts with exception of Yevatmal, where landless dominated the job seekers under the NREGS (Table 7). This indicates that the scheme has been particularly useful to the resource poor farmers who otherwise might have remained unemployed after attending to their own farm operations. Among the farmers' category, the marginal and small farmers took advantage of the scheme for augmenting their livelihood sources. Only in agriculturally distressed districts like Anantapur and Yevatmal even other farmers (>2 ha) participated in the NREGS as wage earners.

TABLE 7. NREGS EMPLOYMENT BENEFICIARY PROFILE IN THE STUDY DISTRICTS

Particulars (1)	<i>(n = 60 per district)</i>			
	Anantapur (Andhra Pradesh) (2)	Bellary (Karnataka) (3)	Udaipur (Rajasthan) (4)	Yevatmal (Maharashtra) (5)
Average family size	4.3	5	4.5	4.8
Landless (No. and per cent)	23 (38)	29 (48)	41 (68)	1 (2)
Marginal/small farmers (No. and per cent)	31 (51)	31 (52)	16 (27)	59 (98)
Others farmers (No. and per cent)	6 (11)	0	3 (5)	0

5.2 Migration Status

One of the major concerns in rainfed areas, especially that are typically drought prone, is distress seasonal migration. Schemes that provide local opportunities for manual work like NREGS are expected to bring down the level of such migration. It was noted that in almost all the study districts, the migration level has come down drastically due to the implementation of NREGS (Table 8). The reduction in migration was the highest in Anantapur. The number of family members engaged in migration was higher in districts like Anantapur and Udaipur, which also came down in the NREGS period. Accordingly, the income from migration was less in the NREGS period compared to the pre-NREGS period.

TABLE 8. IMPACT OF NREGS ON DEGREE OF MIGRATION

Particulars (1)	<i>(n = 60 per district)</i>							
	Anantapur		Bellary		Yevatmal		Udaipur	
	Before (2)	After (3)	Before (4)	After (5)	Before (6)	After (7)	Before (8)	After (9)
Percentage of households in migration	55	13	30	12	12	8	47	15
No. of family members in migration	1.3	0.3	0.3	0.1	0.4	0.3	1.1	0.6
Income from migration	14791	10877	25222	17714	7813	6502	12214	7452

5.3 Household Employment and Share of NREGS

The number of days in employment for the wage seekers was the highest in Anantapur district with 107 person days per main worker. The share of NREGS employment was also highest (27 per cent) in Anantapur district followed by Yevatmal. Employment obtained in NREGS per household was the highest in Udaipur district compared to the other three districts. Nevertheless, other wage opportunities including non-farm and non-agriculture employment dominated the share of employment for the households (Table 9).

TABLE 9. SOURCE WISE HOUSEHOLD EMPLOYMENT STATUS

District (1)	Per person			<i>(Person days)</i> Per household	
	NREGS (2)	Other works (3)	Self employment (4)	NREGS (5)	Total (6)
Anantapur	29 (27)	50 (47)	28(26)	52	182
Bellary	15(16)	67(70)	13(14)	66	207
Yevatmal	25 (25)	55(55)	21 (21)	46	180
Udaipur	44(23)	94(49)	53(28)	94	422

Note: Figures in parentheses are percentages.

5.4 Gender and Employment Pattern

Women obtained employment in NREGS more or less on par with their male counterparts in all the study areas. Similarly, opportunities for them in rural areas were on par with that of men, except in Udaipur (Table 10). Because of assured minimum wage rates, women are getting equal wages depending on the work output.

TABLE 10. EMPLOYMENT PATTERN ACROSS GENDER IN THE STUDY VILLAGES

Source of employment (1)	Anantapur		Bellary		<i>(No. of days/household/year)</i> Yevatmal		Udaipur	
	Men (2)	Women (3)	Men (4)	Women (5)	Men (6)	Women (7)	Men (8)	Women (9)
NREGS	63	64	34	38	51	40	46	42
Other outside employment	53	55	30	30	18	16	61	45
Household job including agriculture	143	125	127	128	139	127	96	92

5.5 Household Income vs. NREGS Earnings

The annual household income was the highest (Rs.62,357) for the wage seekers in Bellary district while it was the least (Rs.25,893) in Yevatmal district. Agricultural wages was the major source of livelihood in three out of the four study districts with an exception in Anantapur where NREGS wages accounted for the major share (33 per cent) of family income (Table 11). This indicates that the scope for NREGS

TABLE 11. COMPOSITION OF HOUSEHOLD INCOME OF RURAL LABOUR

Source (1)	<i>(Rs. and per cent per year)</i>			
	Anantapur (2)	Bellary (3)	Udaipur (4)	Yevatmal (5)
Crops	11779 (27.5)	14093 (22.6)	4546 (14.2)	5438 (21)
Small ruminants	1499 (3.5)	499 (0.8)	288 (0.9)	0 (0)
Dairy	171 (0.4)	935 (1.5)	160 (0.5)	2330 (9)
Bullock hiring	300 (0.7)	374 (0.6)	288 (0.9)	0 (0)
Agricultural wages	10665 (24.9)	32924 (52.8)	10596 (33.1)	11134 (43)
Non-agricultural wages	4155 (9.7)	5862 (9.4)	10244 (32)	3107 (12)
NREGS wages	14263 (33.3)	7670 (12.3)	5890 (18.4)	3884 (15)
Total income/year	42833 (100)	62357 (100)	32012 (100)	25893 (100)

works is higher in districts with agricultural labour opportunities. NREGS wages accounted for a share of 12-18 per cent in the other three study districts. In Udaipur district non-agricultural labour, especially construction work in the nearby urban areas provided a considerable share of family income compared to the other three districts.

5.6 Utility of NREGS Wage Earnings

Based on the survey of wage earners of NREGS, the data was obtained on the purposes for which the wages were used (Table 12). It was learnt that ensuring food security was the major objective across all the districts. Considerably higher share of wage earners (60 per cent) in Udaipur reported use of the NREGS wages for that purpose. The other major uses of NREGS wages were education of the dependents and family health. Some of the wage earners have even gone for savings (13 per cent) in a distressed district like Yevatmal which also happens to be the poorest in terms of household income. This probably indicates that the propensity to save is better in a poor district compared to a relatively rich district, at least among the rural labour. The NREGS wages played a crucial role in the survival and food security of the beneficiary households because these wages were available when they did not have access to other source of employment locally.

TABLE 12. USE OF NREGS WAGE EARNINGS

Purpose (1)	<i>(per cent households)</i>			
	Anantapur (2)	Bellary (3)	Udaipur (4)	Yevatmal (5)
Food security	32	27	60	33
Education	18	20	8	5
Health	13	12	20	7
Debt repayment	8	12	2	8
House construction	7	8	0	13
Purchase of household assets	3	5	0	5
Clothing	7	9	6	12
Purchase of land	5	1	0	3
Savings	7	7	3	13

Majority of the works taken up under NREGS are related to NRM and are mostly soil and water conservation works. It may be noted that the works basically resulted into assets for the agricultural community which in a way add to the capital formation in agriculture. These works are planned by the line departments like District Water Management Agency (DWMA) in Andhra Pradesh, Panchayat Raj departments in the other three states with technical backstopping from the departmental engineering staff. However, the works are executed by the local communities under supervision

by these line departments. Based on the field visits at the ground level, the technical soundness and utility of these interventions was evaluated by the multi-disciplinary study team. The summary of such evaluations across the four study districts is presented hereunder (Table 13).

TABLE 13. SUCCESS RATE OF WORKS ASSESSED AT THE SITE LEVEL

Name of the work (1)	<i>(No. of works)</i>							
	Anantapur		Bellary		Udaipur		Yevatmal	
	Total works (2)	Works in use (3)	Total works (4)	Works in use (5)	Total works (6)	Works in use (7)	Total works (8)	Works in use (9)
Checkdams, earthen dams	-	-	9	8	6	6	22	22
Farm ponds/percolation tanks	16	13	2	2	-	-	24	14
Open wells	-	-	-	-	14	14	2	2
Renovation of tanks	3	3	2	1	-	-	-	-
Earthen/stone bunds	17	17	-	-	2	2	-	-
Gully plugs	-	-	-	-	2	2	-	-
Bush clearance	3	3	4	4	-	-	-	-
Irrigation channels	-	-	9	9	10	8	-	-
Plantations	7	6	-	-	6	4	2	0
Land levelling	-	-	-	-	12	5	-	-
Roads/drainage	4	4	3	3	2	2	4	4
Others	4	4	-	-	-	-	-	-
Total	54	50	29	27	54	43	54	21

6.1 Anantapur, Andhra Pradesh

Farm ponds and earthen field bunds dominated the NRM works in the study villages. Some of the farm ponds, especially made in black soils, are being put to use for purposes like supplemental irrigation to crops (sunflower, chickpea, etc.) and some are serving as dugout/seepage wells. In order to convert most of these structures into durable farm assets, certain alterations like proper pitching for the inlet/outlet and some lining, say with silt in the case of ponds in red soils; matching the catchment area with the pond size are required.

6.2 Bellary, Karnataka

Soil and water conservation works formed the majority of the NREGS works in Bellary. There are also a few cases where the NREGS support was being utilised to lay pipelines to convey irrigation water to private properties and a few cases where some soil and water conservation structures were being taken up where their need could be questioned. Some more supervision and technical backstopping is needed so that the works do not turn out to be superfluous.

6.3 *Yevatmal, Maharashtra*

The major NRM interventions done as part of NREGS in the study villages of Yevatmal district are farm ponds, cement plugs (a type of check dam) and earthen dams. Almost half of the man-made farm ponds lacked technical touch, as a result of which, they are not being utilised by the farmers. Nevertheless, the design and size of the farm ponds are optimal given the soil and rainfall pattern in the region.

6.4 *Udaipur, Rajasthan*

Land leveling, formation of field channels and open wells are the three major NRM works carried out as part of the NREGS in Udaipur district. Wherever the crops are grown in the elevated areas, and are not supported by rains, lifting water and irrigating them from the valleys is a costly affair especially for the resource-poor farmers. After the introduction of NREGS, water harvesting structures, especially check-dams were built along the natural drains in the valleys. The water collected in these structures was lifted and put in the field channels for irrigating the field crops. The lifting of water and distribution is managed by the community. The maintenance charges of the lift irrigation are borne by the farming community, whereas the initial investment for pump set comes from the Irrigation Department. Similarly, wherever there is a technical feasibility for digging open wells in the farmers' fields, the same were carried out in the NREGS. Open wells would be very useful assets for the farmers. Field channels with cement and bricks were made connecting water harvesting structures (checkdams) or traditional village tanks through main canals.

6.5 *Benefits from SWC Works of NREGS*

An attempt is made in this section to estimate the annualised benefits from various structures/assets created under NREGS which have predominantly agricultural importance. The annual benefits for these assets were estimated taking into account the location, impact area, life of the assets, actual use of assets by the beneficiaries, environmental services like soil loss prevention, etc. The total benefits from such assets were worked out for each of the study districts by multiplying the net benefit from each unit of the asset with the total number of assets. The data for the same was generated from the case studies. The total annual return was then related to the expenditure incurred under the scheme so far to arrive at the annual return over investment (ARI). Among the four districts studied, the ARI was the highest in Anantapur district (4.3 per cent) followed by Yevatmal (2.4 per cent) indicating that the soil and water conservation works carried out under NREGS are yielding better returns in districts with lower cropping intensity (Table 14). As the expertise of the implementing agencies and the community awareness increases over a period of time, the asset quality is likely to improve, resulting in higher benefits.

TABLE 14. ESTIMATED ANNUAL BENEFITS OF MAJOR SOIL AND WATER CONSERVATION STRUCTURES CREATED UNDER NREGS

District (1)	Type of work										Annual return over investment (per cent) (10)	
	Water conservation/ harvesting (2)	Minor irrigation (3)	Renovation of traditional water bodies (4)	Water conservation (5)	Land development (6)	Irrigation facilities (7)	Assets created			NREGS expenditure - 2006-09 (Rs.lakhs) (9)		
							Farm pond (2)	Open wells (3)	Tank desilting and bund stabilisation (4)			Check dams/ earthen dams/ cement plugs (5)
Anantapur	12530		671		6489	895						
Total No. of structures												
Per unit net benefit (Rs.)	1200		11250		7200	950						
Total benefit (Rs.lakhs)	150.4		75.5	0	467.2	8.5			16500	701.6		4.3
Bellary	74		25	74	124	1535						
Total No. of structures												
Per unit net benefit (Rs.)	950		18000	12000	900	1550						
Total benefit (Rs.lakhs)	0.7		4.5	8.9	1.1	23.8			6100	39		0.6
Yevatmal	869			1464	46							
Total No. of structures												
Per unit net benefit (Rs.)	1680			800	1300							
Total benefit (Rs.lakhs)	14.6		0	11.7	0.6	0			1100	26.9		2.4
Udaipur		909		568	4429	795						
Total No. of structures												
Per unit net benefit (Rs.)		3600		24000	1800	1200						
Total benefit (Rs.lakhs)		32.7	0	136.3	79.7	9.5			33400	258.3		0.8

6.6 Convergence of Schemes

In the era of multiple schemes and multi agency development, it is natural to expect that the strengths of the schemes and competencies of the implementing departments are complemented with the desired benefit of quality and durable outputs and outcomes. The NREGS is implemented in Andhra Pradesh on a convergence mode by involving Andhra Pradesh Micro Irrigation Project (APMIP), National Horticulture Mission (NHM) in respect of plantations work, where the drip irrigation and quality planting material are provided in these respective schemes while the pitting for the plants is done under NREGS. This is reflected by higher coverage of households (30 per cent). Similarly in states like Tripura (19 per cent), Assam and West Bengal (10 per cent each), the convergence level was significant (Table 15).

TABLE 15. CONVERGENCE LEVEL OF NREGS WITH OTHER DEVELOPMENT SCHEMES IN STATES

State (1)	Per cent of households with convergence under land reform/ Indira Awaas Yojana
	(2)
Andhra Pradesh	30
Arunachal Pradesh	9
Assam	10
Bihar	7
Jammu and Kashmir	3
Karnataka	2
Maharashtra	1
Rajasthan	1
Tripura	19
Uttar Pradesh	6
West Bengal	10
India	7

Source: www.nrega.nic.in

VII

CONCLUSIONS AND RECOMMENDATIONS

NREGS which was primarily aimed at guaranteeing employment for the rural poor has been able to generate assets in the rainfed areas mainly on account of concentration of the scheme in such areas. Majority of the works identified under the scheme pertain to creation of soil and water conservation structures that have a bearing on the production capacity of such lands. The present study which was conducted at micro level in four major states of NREGS implementation, viz., Andhra Pradesh, Karnataka, Maharashtra and Rajasthan brought out the following lessons.

- The employment beneficiaries are both landless and farmers indicating that the resource poor farmers are also willing to get employed in public schemes to augment their livelihood sources.
- Introduction of a large scale scheme like NREGS has significantly brought down the migration levels in rural areas, thus, retaining the rural labour for use in the local areas. As the major possible works in the villages get exhausted, new and innovative works need to be found out not only to retain the rural labour, but also to provide productive employment.
- The beneficiary households utilised earnings from NREGS for purposes like food and health security, education, repayment of debts, construction/purchase of house, etc. This indicates that the rural poor only need opportunities for them to participate and grow to come out of the vicious cycle of poverty and lead a decent and dignified life.
- Given the degraded nature of resources in the rainfed regions of the country, the type of NRM works implemented in the study areas match the corrective steps required to improve their status. However, the success of these measures will largely depend on adequate technical supervision and greater farmer involvement in turning them into productive assets. In fact, the NRM works like farm pond done under NREGS should be taken up as a package, facilitating the provision of water lifting, micro irrigation, planting material, etc. in convergence with other schemes like NHM.
- Some good success stories of proper utilisation of NREGS assets were seen in the case of farm ponds in Andhra Pradesh and Maharashtra and in respect of open wells in Rajasthan. It is imperative that the implementing agencies upscale such successful models.
- A wide variety of works have been done under NREGS. The utility and sustainability of such works need to be ensured by evolving institutional mechanisms as is practiced in watershed development. Further, wherever convergence has been adopted in implementing the NRM works, the equity of stakeholders need to be ensured, otherwise, the ownership and care of such assets by the stakeholders cannot be assured.
- The quality and maintenance of assets need more attention in the coming years so that the investments made would not go futile.
- While the scheme anyway achieves its primary objective of employment guarantee, the assets created are generally seen as a by-product. In order to make the scheme more accountable, these two facets have to be seen as two sides of the same coin. Therefore, the impact assessment of the scheme works

need to be integrated into the scheme to make it more accountable and useful. Ultimately, the creation of guaranteed employment under NREGS should become a by-product and creation of productive assets as prime objective of the scheme in the long run.

- The rural labour markets have been influenced by the massive NREGS and have had a decisive impact on agriculture, which needs to be studied in depth to bring out the labour availability and implications on cost of cultivation.

REFERENCES

- AFPRO (2009), "Infrastructure Development and Beyond: Exploring the Scope for Sustainable Livelihood – Support under NREGA - A Study of Schemes in Chainpur Block, Gumla District, Jharkhand", Action for Food Production, p.36.
- Ambasta Parmatesh, P.S. Vijay Shankar, and Shah Mihir (2008), "Two Years of NREGA: The Road Ahead", *Economic and Political Weekly*, Vol.43, No.8, February 23-29, pp. 41-50
- Dreze, Jean (2009), "NREGA is not Artificial Employment", *Civil Society*, May 2009, pp.7-8.
- Government of India (2008), *The National Rural Employment Guarantee Act 2005 (NREGA)*, Operational Guidelines, Third Edition, Ministry of Rural Development, New Delhi, p. 194.
- Gore, P.G., Thakur Prasad, H.R. Hatwar (2010), *Mapping of Drought Areas Over India*, NCC Research Report of IMD, Pune, p.22.
<http://indiabudget.nic.in>
- Institute of Applied Manpower Research (IAMR) (2008), *All-India Report on Evaluation of NREGA: A Survey of Twenty Districts*, Prepared with Financial Support and Research Inputs from Programme Evaluation Organisation (PEO), Planning Commission, Delhi. p.24.
- ICAR - ICRISAT Database (2008), *District Level Database*, ICAR-ICRISAT Collaborative Research and Development Project, February, 2008.
- Joshi, Varsha, Surjit Singh and K.N. Joshi (2008), *Evaluation of NREGA in Rajasthan*, Institute of Development Studies, Jaipur, Monograph, p.79.
- Kareemulla, K., S.K. Dhyani, R.H. Rizvi, R.S. Yadav and Munna Ram (2007), *Agroforestry for Rural Development: A Cooperative Experience*, National Research Centre for Agroforestry, Jhansi, p. 91.
- Planning Commission (2010), *Data Tables – Statistics*, [www.planning commission.gov.in](http://www.planningcommission.gov.in).
- Ravindranath, N.H., V.R. Ramakrishna Parama, M.S. Mohan Kumar, Joyashree Roy, Narayanan, Sandhya Rao, H.I. Somashekhar, Rakesh Tiwari, B.K. Mohan Kumar, Harshad Parate, Murari Varma, Indu K. Murthy, Sumedha Malaviya, Ananya S. Rao and Asmita Sengupta (2009), *Environmental Services, Vulnerability Reduction and Natural Resource conservation from NREGA Activities - Case Study of Chitradurga District*, Indian Institute of Science, Centre for Sustainable Technologies, Bengaluru.
- RTBI (2009), *Evaluation of National Rural Employment Guarantee Act in Cuddalore, Dindigul, Kanchipuram, Nagai, Thiruvallur*, RTBI, Indian Institute of Technology, Chennai, p.115.
- Singh, G.B., P. Narayan, L.S. Bhushan and I.P. Abrol (1992), "Soil Erosion Rates in India", *Journal of Soil and Water Conservation*, Vol.47, No.1, pp. 97-99.
www.nrega.nic.in