



A majority of the permissible works being carried out under MGNREGS relate to building of assets aimed at enhancing rural water security. The present study attempts to assess how durable these assets have been and how effective MGNREGS has been in helping improve rural water security. The results based on a case study in the state of Madhya Pradesh show that despite the restrictions imposed on non-use of any machinery for construction of structures and several other limitations, the water structures that have been built are of a reasonably good quality and hold a great promise in improving rural water security. There are, however, some impediments in converting water available in these structures into utilisable water. Successful mediation through appropriate intervention strategies can not only enable beneficiary farmers to use the available water more productively, it can also enhance more productive utilisation of MGNREGS money invested in asset creation.

Water Policy Research

HIGHLIGHT

Efficacy of Employment Generation Programs in Providing Water Security

An Assessment of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in Madhya Pradesh

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EFFICACY OF EMPLOYMENT GENERATION PROGRAMS IN PROVIDING WATER SECURITY AN ASSESSMENT OF MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE SCHEME (MGNREGS) IN MADHYA PRADESH¹

Research Highlight based on a Malik and Sharma (2012)²

THE EMPLOYMENT GUARANTEE SCHEME: MGNREGS

To enhance the livelihood security of the households in rural areas of India, the Government of India introduced in 2006 a massive rural employment guarantee scheme - MGNREGS. The MGNREGS is empowered by an Act of Parliament of India – the National Rural Employment Guarantee Act (NREGA) 2005. The objective of the Act is to enhance the livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage-employment in every financial year to every household whose adult members volunteer to do unskilled manual work. The NREGA Act indicates both - the kinds of works that may be taken up for this purpose and the manner in which these works are to be executed. A large number of works permissible under the program have a bearing on some aspects of water- availability, use, conservation, harvesting, flood control, renovation of water bodies etc. Keeping in view the fact that NREGA is essentially an employment generating program, the Act stipulates that the ratio of wage costs to material costs should be no less than the minimum norm of 60:40. The Act strictly prohibits the use of machinery for construction of works. The Act also prohibits use of services of Contractors for execution of works.

Implementing a program of the dimension of MGNREGS through the length and breadth of the country is a great institutional and governance challenge. A number of very useful studies undertaken have attempted to assess the working of the program in generating employment, problems associated with fixation and disbursement of wages, financial leakages in program implementation etc (IAMR 2008; NCAER 2009; CBGA: 2006; CRRID 2010;

IITM 2010). Very few attempts however have been made to assess the quality and efficacy of infrastructure that is being built and in assessing the likely capability of these structures in providing livelihood opportunities on a sustainable basis (Bassi and Kumar 2010; CSE 2008; IWMI 2010). Thus not much is known about such issues as – location specific appropriateness about choice of works, quality of works undertaken, their likely sustainability, impact on (water) resources, utilisation of the created resource and benefits emanating to the intended beneficiaries from use of such assets/ resource. If the quality of assets being built through provisioning of employment opportunities is not of reasonably good quality, the key aim of providing livelihood opportunities on a sustainable basis would become erroneous. Since a large number of works being executed under the program have a strong bearing on various aspects of water-availability, reliability, conservation etc., the present study attempts at making an assessment of the efficacy of water related structures, that have been built as part of MGNREGS, in making water available to the beneficiaries and in providing water security on a durable basis. The study specifically aims at analysis of the following issues:

- With emphasis on manual work, can MGNREGS deliver structures of reasonably good quality which are durable and could ensure sustainable water security? Are beneficiary farmers satisfied with the quality of structures being built under the program?
- Has the construction of these structures led to increased and/ or more reliable availability of water to farmers? Are the works being undertaken under the

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²This report is available on request from p.regghu@cgiar.org

program sufficient enough on their own to ensure flow of intended benefits to the envisioned beneficiaries?

- Have the farmers been able to utilise the water made available from these works? If not what constrains the farmers from using this water? What supplementary investments are required/ have been made by such beneficiaries to enhance private/ common benefits from the constructed structures?

The study makes an assessment of the above issues by focussing on one of the Indian States of Madhya Pradesh, located in central part of the country.

MGNREGS in Madhya Pradesh

A perusal of the allocation of total expenditure under MGNREGS amongst broad groups of permissible works in the State of Madhya Pradesh suggests that the State has been spending about two-thirds of the total MGNREGS funds on water related works (Table 1). From amongst the various water related works, the most important activity accounting for the largest proportion of water related expenditure has been the provision of irrigation facilities

on farms of individual farmers belonging to marginalized sections of the society eligible under the MGNREGS criterion (such as farmers belonging to Scheduled caste and Scheduled tribe, beneficiaries of land reform and Indira Awas Yojana (IAY), small & marginal farmers etc). For the present study we focus on this most important activity.

The study is based on detailed primary data collected from a sample of 155 beneficiary farming households selected randomly, following an appropriate sampling scheme, from two blocks each from Mandla and Jhabua districts of Madhya Pradesh during the year 2010-11. All the sampled farmers, so selected, were entitled, as per MGNREGS eligibility criteria, to get an individual water structure constructed on their private farm land.

Type of Water Structures Built under MGNREGS

In the study area there are essentially four types of water related structures that are being built on individual eligible farmers' fields under MGNREGS program. These are: farm ponds, farm bunding, gully plugging, and open

Table 1 Percent financial expenditure on various works under MGNREGS in Madhya Pradesh

Nature of Work	Percentage of Total Financial Expenditure on Completed works allocated to different category of works	
	2009-10	2008-09
Water Related		
Flood Control and Protection	1.93	1.62
Water Conservation and Water Harvesting	17.65	16.45
Drought Proofing	4.23	6.41
Micro Irrigation Works	2.37	2.09
Provision of Irrigation Facilities on Land Owned by Marginalised Farmers	37.53	37.34
Renovation of Traditional Water Bodies	3.91	3.29
Non-Water Related		
Rural Connectivity	27.54	26.94
Land Development	5.22	5.85
Other Assets	0	0
Total	100.00	100.00

Table 2 Types of water structures built on sampled farmers' fields

District	Block	Number of Households	Number of Water Structures			
			Farm Ponds	Bunds	Gully Plugging	Wells
Mandla	Bejjadandi	40	6	14	0	20
	Ghuggri	40	13	12	0	15
Jhabua	Petalwad	35	6	0	0	29
	Thandla	40	0	8	0	32
Total		155	25 (16)	34 (22)	0 (0)	96 (62)

Note: Figures in parentheses denote percentages

wells. Of these, while farm ponds and open wells have the potential of providing the on farm water storage, the other two essentially add to improved on farm management/usage of the available water without adding to the storage. In our sample, of the total 155 sampled households, farm ponds and open wells were built on 121 (78 percent) farmers' fields while the work on constructing farm bunds was undertaken on the remaining 34 (22 percent) farmers' fields (Table 2). On none of the sampled household farm gully plugging had been done. The proportion of farmers with different structures varied from block to block. For example, in Petalwad block of Jhabua district while none of the farmers had farm bunding most of the farmers had got an open well.

Quality of Assets Built

Given the emphasis on manual construction of structures under MGNREGS, several questions related to the asset quality arise. Are the works being built under the program

of a fairly good quality? How robust are these structures? What is the likely durability of the assets being built under the program? If the structures being built are not of reasonably good quality the investments in these structures would be wasted and the program would not be able to deliver on its promise of creating a process of employment generation which could be maintained on a sustainable basis.

While assessing the quality of the structures being built in a remote village, where most of such structures are located, what should be an ideal basis for quality assessment? Given the stipulations in the Act, in our perception the ideal basis for assessing the built asset quality should be to compare the asset quality in relative rather than in unqualified terms. Strictly speaking the quality of assets being built in a rural area under MGNREGS or any other program may or may not be comparable with a similar structure built, say in an urban

Table 3 Criterion Used for Assessing Asset Quality

Criterion	Description
Satisfaction	Farmers' own satisfaction with the quality of asset construction
Contrasting	Asset quality in comparison with quality of similar assets being built/ have been built by some farmers themselves or being built/ have been built under some non MGNREGS programs in the neighbourhood
Existence	Expected asset life in comparison with the perceived life of similar assets built under non MGNREGS programs
Robustness	Probable/ likely durability of the constructed structures

area, with substantial technical inputs, use of construction machinery, better quality of raw material available and with or without limits on financial expenditure that can be incurred. We advocate that for assessing the quality of assets built under MGNREGS the ideal basis for appraisal should be the quality of similar structures that have been built in the same or in a neighbouring village either by some farmers themselves from their own resources, by some contractors, by some NGOs, or built by government under a non MGNREGS program.

Based on above proposition, rather than using engineering norms to make a quantitative assessment of the quality of the built structures, we undertake to make an assessment of the asset quality on the basis of four discrete, yet somewhat analogous, criterion based on the perceived acuties of the beneficiary farmers. The four benchmark measures adopted to make quality judgement are described in Table 3.

The results obtained suggest that a majority of the farmers are satisfied with the overall quality of assets that have been built on their farm on all four assessment criterion (Table 4). Almost 92 percent of the sampled households expressed their agreement on satisfaction criterion. Assessed in terms of contrasting criterion, nearly 80 percent of the sampled households feel that the quality of structure built on their farm under MGNREGS is either better or at least of similar quality to other similar structures built in their neighbourhood under non MGNREGS programs or by farmers themselves. In terms of existence criterion also 92 percent of the sampled households expect the life of the assets built under MGNREGS to be at least as much or even larger than the non MGNREGS structures. In fact 44 percent of the sampled households expect assets built under MGNREGS to last longer than non MGNREGS similar structures. On the basis of fourth criterion of robustness also MGNREGS structures score over similar non MGNREGS structures.

Asset Creation and Impact on Water Availability and Use

Mere building of good quality water related assets however does not necessarily ensure availability, accessibility or intended and productive use of the water. For example, a good quality well, built on a farmers' field may or may not yield water at all, may or may not yield water in sufficient/ required quantity, may or may not yield water on a sustainable basis, and, may or may not yield water of good quality. Even if the structure yields sufficient water of good quality on a sustainable basis the farmer may or may not be able to access and/or use that

Table 4 Farmer perception of quality of asset structure on four criterions

District	Block	Satisfied with quality of construction	NREGA Quality Compared with Non NREGA Structures	Expected Life of NREGA structures in comparison with Non NREGA	Durability of Structure							
					Average	Similar	Better	Lower	Similar	Better	Very durable	Not durable
		Yes	No	Poor								
Mandla	Bejjadandi	38	2	2	7	15	16	1	21	18	39	1
Mandla	Ghuggri	31	9	6	8	10	16	4	22	14	35	5
Jhabua	Petalwad	34	1	4	4	9	18	5	5	25	31	4
Jhabua	Thandla	40	0	1	1	25	13	2	27	11	37	3
Total	155	143 (92)	12 (8)	13 (8)	20 (13)	59 (38)	63 (41)	12 (8)	75 (48)	68 (44)	142 (92)	13 (8)

Note: Figures in parentheses denote percentages

water for intended usage. The water available in the well becomes accessible to the farmer only if he can arrange to withdraw it out using a motive power (such as a diesel engine or an electric motor). So long as the farmer does not have access to a motive power or even if the farmer has access to a motive power (such as an electric motor) but does not have access to energy (electricity supply) to run it, he cannot access the available water. Even after accessing the available water putting it to intended productive use requires using the available water for cultivating irrigated crops. The farmer would be able to put the extracted water to such a productive use if, amongst other factors, the markets for such irrigated crops exists in the neighbourhood and marketing of crop output does not pose a problem (assuming that he has either access to know how or can be provided with the requisite know how for cultivating irrigated crops and availability of other crop inputs does not pose a problem).

Of the four types of water related structures, while farm ponds and wells have the potential of adding to the on farm water storage availability, the other two, farm bunding and gully plugging, essentially contribute to improve on farm management/ usage of available water without adding to the storage. Of the 121 sampled households, on whose farms potential water augmenting (storage) structures were built, 96 percent reported increases in actual availability of water on their farms due to construction of these structures (Table 5). Out of these however only 56 percent farmers reported that they have actually been able to access and make use of the available water for productive purposes. Thus 42 percent of the structures constructed to augment water availability (storage) and use on farmers' fields either did not add to water availability or even if added to water availability could not transform available water in the structure to water useable for productive purposes.

Reasons for non utilisation of the available water

What could be the possible reasons for such a large proportion of potential water augmenting structures not leading to on farm usage of available water for productive purposes? What distinguishes farmers who have and those who have not been able to convert available water in to usable water? The most important distinguishing characteristic has been access to a pumping equipment. From amongst the sampled households who have been able to make productive use of the available water, 55 farmers had invested in their own water extraction/ use equipment while another 7 farmers had got these equipments free under different schemes (non

MGNREGS) of the government (Table 6). Of the 55 farmers who had invested in their own equipment, 34 had invested in a diesel pumping set, 18 in electric motors and 6 farmers had invested in drip/sprinkler systems.

From amongst the farmers who could not make use of the available water for productive purposes, more than 88 percent cited non-availability of motive power as the most important constraint (Table 7). Non-availability of electricity to run electric motors was reported by almost 31 percent of the farmers as a reason for underutilisation of the available water.

Given that access to a motive power is necessary to make use of the available water for productive purposes, why is that a large proportion of beneficiary farmers have not acquired a motive power? How have those farmers who have been able to make use of the available water acquired the pumping equipment? Of the farmers who have invested in a pumping/use equipment of their own, 43 had self-financed this investment from out of their own past savings. Six of these households had borrowed money from moneylenders, 5 had taken loans from banks/ financial institutions while 4 had borrowed from friends and relative to meet the cost of investment in the water equipment.

The farmers who could not invest in such a pumping equipment neither had the resources of their own, nor had either access to borrowed funds or even if had access to borrowed funds did not want to borrow more funds (because they were already under debt). Access to a pumping equipment could not only have empowered such farmers to access and productively utilise the available water, it would have also enhanced more productive utilisation of MGNREGS money invested in asset creation. In any case with several thousand similar structures being built every year under MGNREGS providing free complementary equipment to enable farmers harness the benefits from these structures is a gigantic task. While the government has been trying to forge a convergence between MGNREGS and several non MGNREGS programs being run by different departments of the government, in practice such a convergence is slow to emerge. Even if such a convergence comes about it would be difficult to meet the huge equipment demand from government programs. Soft loans to farmers with extended repayment terms could encourage these farmers to invest in pumping equipment and make use of the water made available from water augmenting assets created under MGNREGS.

Table 5 Water structures, water availability and water use

Water augmenting (non-storage) structures - farm bunding/ gully plugging									
			Water augmenting (storage) structures - wells/ ponds						
District	Block	Number of HHs	Number	Led to increase in water availability	Able to fully use the available water for productive purpose	Not able to fully use the available water for productive purpose	Number	Led to increase in water availability	Able to use the available water for productive purpose
Mandla	Bejjadandi	40	26	25	11	14	14	0	14
	Ghuggri	40	28	27	11	16	12	0	12
Jhabua	Petalwad	35	35	33	25	8	0	0	0
	Thandla	40	32	31	18	13	8	0	8
Total		155	121	116 (96)	65 (56)	51 (42)	34	0	34 (100)

Note: Figures in parentheses denote percentages

Table 6 Investment in complementary equipment

District	Block	Able to fully use the available water for productive purpose (Number)	Number of farmers who made complementary investment in equipment	Type of Equipment Invested in (Number)	Source of Finance (Number)	Number of Farmers who got complementary equipment under some Government program				
						Sprinkler/ Drip	Self	Money Lender	Bank/ FIs	Relatives/ Friends
Mandla	Bejjadandi	11	11	7	3	1	6	0	2	3
	Ghuggri	11	10	10	0	0	9	0	1	0
Jhabua	Petalwad	25	21	7	12	4	18	6	0	0
	Thandla	18	13	10	2	1	10	0	2	1
Total		65	55	34	17	6	43	6	5	4

Note: Totals may not add up due to multiple answers

Table 7 Reasons for not being able to fully utilize the available water for productive purposes

District	Block	Number of households with water augmenting (storage) structures who have NOT been able to make full utilisation of available water for productive purposes	Reasons for non-utilization				
			No Pumping Equipment	No Electricity	Small size of land holding	Others	Lack of access to markets
Mandla	Bejjadandi	14	11	3	2	1	3
	Ghuggri	16	15	3	1	0	1
Jhabua	Petalwad	8	4	4	0	0	3
	Thandla	13	11	4	1	2	2
Total	Total	51	45	16	4	4	9

Note: Totals may not add up due to multiple answers

CONCLUSIONS

With reasonably good quality water structures being built in rural areas the MGNREGS holds a great promise for improving water security in rural India. Mere building of good quality assets is however equivalent to a job half done and a dream partially achieved. Of what use these good quality structures and water therein is if the water cannot be put to the productive use by the beneficiaries? In addition to building assets the program must also ensure that the created assets are actually put to productive use so that the intended objective of creating a process of employment generation on a sustainable basis

could actually be achieved. Accomplishing this task would require a careful assessment of the location specific underlying causes for non-use of created assets and devising appropriate remedial measures and complementary intervention strategies to address them. Successful mediation will not only enable beneficiary farmers to convert the available water into utilisable water and use this water more productively, it would also enhance more productive utilisation of MGNREGS money invested in asset creation. This could then also translate into an effective agricultural water management strategy.

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About the IWMI-Tata Water Policy Program and Water Policy Highlights

The IWMI-Tata Water Policy Program (ITP) was launched in 2000 as a co-equal partnership between the International Water Management Institute (IWMI), Colombo and Sir Ratan Tata Trust (SRTT), Mumbai. The program presents new perspectives and practical solutions derived from the wealth of research done in India on water resource management. Its objective is to help policy makers at the central, state and local levels address their water challenges – in areas such as sustainable groundwater management, water scarcity, and rural poverty – by translating research findings into practical policy recommendations. Through this program, IWMI collaborates with a range of partners across India to identify, analyze and document relevant water-management approaches and current practices. These practices are assessed and synthesized for maximum policy impact in the series on Water Policy Highlights and IWMI-Tata Comments.

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