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**Asset Creation and Local Economy
under NREGS:
Scope and Challenges**

**Amita Shah
Sunny Jose**



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Research*

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Gujarat Institute of Development Research
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Abstract

The National Rural Employment Guarantee Scheme (NREGS) is a major step forward, which not only provides guaranteed employment, but also empowers rural communities to demand work as part of their basic entitlements that are essential for participating in the larger process of development in the country. The paper examines the potential impact of wages and assets created under NREGS on local economies and discusses policy implications for ensuring realization of the potential. The specific objectives of the paper are to (a) identify potential linkages of the assets and scope for poverty reduction; (b) discuss imperatives for convergence with developmental programmes especially watershed development; and (c) draw policy implications. The analysis is exploratory in nature and it draws upon the secondary data as well as the existing literature on impact of various employment generation schemes as well as developmental programmes.

It is the contention of this paper that whereas right to work under NREGS could enhance and help realize the full potential of the productive capacities in the rural economies, it is essential that the work under NREGS is planned, synchronized, and placed in the context of planned economic growth so as to be able to impact local economies within short or medium time frame. The central thrust, therefore, should be to facilitate convergence among the various processes of asset creation aiming at enhancement of productive capacities in the stagnant and eroding base of the rural economies. Absence of this may lead to perpetual dependence on wage income earned through employment guarantee schemes. This may be counter-productive to the larger goals of development for which NREGS, if properly synchronized, holds a great potential by for setting up new pathways.

Keywords : NREGS, asset creation, watershed development

JEL Classification : O21, Q01

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Asset Creation and Local Economy under NREGS: Scope and Challenges

**Amita Shah
Sunny Jose**

1. Introduction

Enhancing wage income through creation of productive assets, especially in the farm economy, is a hallmark of the employment generation programmes in India and elsewhere¹. It could be postulated that increased wages and capital formation within rural economies may unleash significant amount of effective demand and productive capacities, which, in turn, may redress poverty and also boost-up overall growth in the country. The strategy may do marvel in an economy such as India, where agriculture sector continues to play crucial role in sustaining the momentum of overall economic growth besides reducing poverty (Panda, 2003; Majumdar, 2006; Planning Commission, 2007; The World Bank, 2006). In this context, National Rural Employment Guarantee Scheme (NREGS) is a major step forward, which not only provides guaranteed employment, but also empowers rural communities to demand work as part of their basic entitlements that are essential for participating in the larger process of development.

Basic investment in land and water is an essential precondition for enhancing productivity of agriculture besides generation and dissemination of technology across different agro-climatic conditions in the country. The proportion of investment in agriculture, with a single exception of irrigation infrastructure, however, has undergone significant decline owing to a number of reasons emanating mainly from the neo-liberal economic policies adopted since the 1990s (Bhaduri, 2005). Public investment in land and water resources and

Amita Shah (amitagidr@gmail.com) is Professor ,GIDR, Ahmedabad and Sunny Jose is Associate Professor, Institute of Development Studies (IDS), Jaipur.

¹ The idea of the state providing employment guarantee as ‘employer of the last resort’ has been prevalent in economic literature since the seventeenth century. The concept has gained currency in serious policy making especially, in the industrialized economies in the developed countries (Kuboub, 2007). In India, the concept has undergone progressive evolution from relief to employment guarantee and right to work and livelihood.

other economic infrastructure, ideally, could provide significant boost to the farm economies, particularly, in regions with low-endowment and limited agronomic potential. In fact the growing importance of policy initiatives like Watershed Development Projects (WDPs), Bharat Nirman (BN), Backward Area Grant (BAG) etc. in the recent plans signifies recognition of the critical need for enhancing basic investment in natural resource management for promoting the farm economy. If adequately funded and appropriately implemented, these schemes may create and unleash the requisite productive capacities for advancing agricultural growth, which is also broad based and poverty reducing.

The ideal scenario of a well-planned development of land and water resources, however, is far from being realized. Even if such developments were in place, coverage of such programmatic interventions may have fallen short of creating demand for the massive army of rural labour force in the country, waiting to be fully employed - both in terms of time as well as income - in productive sectors. Right to demand and seek work, therefore, could possibly work as an effective mechanism for bridging the gap between rural development and people's well being, given the constraints posed by the neo-liberal economic policies on the one hand, and the programmatic failures on the other.

It is important to note that there has not been much of political opposition to the idea. This is largely due to the widespread belief that opposing the NREGA would be perceived as being anti-poor. At the same time alternatives to guaranteed employment were hardly considered. The passage of the NREGA arguably, was neither a response to an upsurge in the power of rural workers nor mandated by the electoral dynamics. Rather it could be seen as an outcome of elite politics or political entrepreneurship by a group of well-placed and committed activists, politicians, and bureaucrats. Nevertheless, there were at least two major counter views on NREGS. First, it could be argued that the positive effects of transferring resources to some of the rural poor are out-weighed by the negative effects of the spread and intensification of corruption and patronage networks that is likely to result from such a significant increase in funding through the district bureaucracies and panchayats. Second and perhaps more popular among economists is that other instruments, such as cash transfers, achieve poverty reduction outcomes more cost-effectively (Kapur, et al., 2008).

Experiences from Maharashtra Employment Guarantee Scheme (MEGS), a precursor to NREGS, have shown mixed outcomes with respect to a wide range of developmental as well as welfare objectives that were expected to be addressed by the scheme (Shah and Mehta, 2008). More importantly it demonstrated that economically powerful ruling class turned the scheme to their advantage by not only extracting economic benefits from asset creation that took place under the scheme, but also by co-opting the oppressed in order to reinforce its political dominance (Patel, 2006).

Notwithstanding some of the unsettled issues pertaining to power dynamics and perpetuation of corruption and inefficiency with their the long term implications for growth, it is expected that NREGS could help bridge the major gap in building basic infrastructure that has been grossly lacking in rural economies over time. It may, however, be noted that NREGS is envisaged as providing minimum livelihood security to rural households rather than reducing rural poverty or attaining other developmental objectives (Pankaj, 2008). Although the distinction is quite clear, it may not necessarily resolve the dilemmas that actually arise while operationalising various rural works, especially for creating productive assets within rural economies. Essentially the operational dilemmas emanate because of the increasing presence of programmatic interventions dealing with land and water resources; keeping the distinction noted above thus is difficult. In any case, conceptual clarity on the interface between the two sets of interventions, often dealing with the same set of natural resources within local economies, is important for attaining the two (not so separable objectives) of livelihood security and poverty reduction or rural development.

It is the contention of this paper that whereas right to work under NREGS could enhance and help realize the full potential of productive capacities in rural economies, it is essential that the work under NREGS is planned, synchronized, and placed in the context of planned economic growth so as to be able to impact local economies within short or medium time frame.

The paper examines the potential impact of various assets created under NREGS on local economies and discusses policy implications for ensuring realization of the potential. The specific objectives are to: (a) identify potential linkages of the assets and impact on rural economies; (b) discuss imperatives for convergence with developmental programme especially watershed development; and (c) draw policy implications. Given the fact that the

implementation of NREGS is still in the initial stage and that realization of impact of the assets created under the scheme may often take longer than 2-3 years, the analysis presented in the paper is mainly exploratory and draws upon the vast and growing literature as well as secondary data.

The analysis is divided into six sections including this introduction. The next section briefly recapitulates the experiences of asset creation from various employment generation schemes and highlights the major corrective measures introduced in NREGS. Sections 3 and 4 present a broad mapping of the linkages, and assess various dimensions of the impact that the assets may generate in the rural economy. This has been attempted in the light of the evidence from watershed projects as there is fair amount of similarity in the nature of the assets created under these two initiatives. This is followed by assessing the scope for meeting the requirement of large sections of poor and vulnerable households and identifying implications for NREGS. The last section summarizes the main conclusions.

2. Creation of Assets under Wage Employment Programmes: Experiences and Corrective Measures under NREGS

A number of studies have gone into examining the aspect of asset creation under the various wage employment scheme. The two most important observation emerging from the studies are: (I) low employment intensity of the work while creating the assets; and (ii) low quality as well as durability, especially of the productive assets, which pertain mainly to land and water resources development (Papola, 2005; Hirway and Terhal, 1994; Government of India, 2006). Lack of planning, involvement of labour contractors and use of machinery have often been found to be the most common factors leading to what appeared to be poor outcomes with respect to asset creation.

A major exception seems to be in the case of Maharashtra Employment Guarantee Scheme (MEGS), where the works, with a central thrust on drought proofing, had focused mainly on creation of irrigation infrastructure. The land owning class thus became direct beneficiaries and important stake holders in the process of creation of such assets. Presence of social movements also helped keeping the contractors away. The outcome, therefore, turned out to be more effective (Patel, 2006).

The concerns about low quality and durability of the assume central importance in the context not only of wage employment schemes, but also

of development programmes like watershed development, waste land development, small irrigation etc. In fact, it is mainly these concerns combined with the objective of ensuring post-project management of the assets have led to the evolution of participatory approaches by setting up local institutions in the context of the various land and water resources development programmes².

Unfortunately, these participatory processes are yet to take root within the local communities owing to a number of factors - procedural, financial, and socio-political. We do not intend to get into the debates on the limitations of participatory approaches as well as outcomes. What is, however, important is to note that the issues of quality, durability, and future maintenance continue to remain by and large un-addressed even in these programmes. For instance, a recent study of nearly 1000 micro watershed projects, constituting five percent of completed projects in Madhya Pradesh, Maharashtra, and Karnataka revealed that a majority of the physical assets like water harvesting structures, contour trenches, village tanks, farm ponds, and pasture lands were not in 'good condition'. It was also noted that limited efforts were made to take care of repair/maintenance/post-project management of such assets³. While this may not be very surprising given the limitations of the participatory processes adopted so far the issue continues to pose the most critical challenge with respect to sustainability of such interventions and, hence, their impact on rural economies.

Prima facie, there could be two sets of responses: (i) to treat this as a hard reality and make provision for recurring investment for repair and maintenance year by year where the works under NREGS could serve as supplementary investment as noted above; (ii) to evolve mechanisms within NREGS whereby local institutions could be strengthened. Whereas it is not quite clear as to what kind of institutional arrangements would get evolved under NREGS, an important provision under the NREG-Act is for involving Non-Governmental

² Apart from improving efficiency in resources management, the participatory approaches adopted in various schemes, aim at strengthening democratic decentralization. These schemes include: Integrated Watershed Development (WDP), Waste Land Development, Participatory Irrigation Management (PIM), and Joint Forest Management (JFM).

³ The exercise was undertaken in three states viz., Madhya Pradesh, Maharashtra, and Karnataka, under the collaborative initiative, Forum for Watershed Research and Policy Dialogue (ForWaRD). For details see, www.forward.org.in.

Organisations (NGOs) for overseeing the implementation processes. This, in fact opens up a substantial opportunity for strengthening the participatory processes and institutions thereof. The scope for such developments to take place, however, may be significantly enhanced if NREGS-works are converged with developmental programmes like watershed development, which has already set the process of institution building in motion. In the absence of this, the two processes may work at cross purposes, a point already made earlier.

2.1 Corrective Measures under NREGS

Chart 1 presents a synoptic view of the problems faced with respect to asset creation and the corrective measures within the NREG-Act for overcoming the limitations.

Table 1 : Limitations and Corrective Measures

	Major Limitations in Asset-Creation under Wage Employment Programmes	Corrective Mechanisms under NREGS
1.	Predominance of Road and other Physical Infrastructures	Focus on Land and Water Resources Development with Prescribed Priorities under Schedule I.
2.	Lack of Planning for Creating Productive Assets Focusing on Land water Resources	Multi-layer Planning at Village, Block and Districts; Use of Information Technology in Planning; Provision of Technical Support Team
3.	Involvement of Contractors, use of Machinery and Neglect of Direct Labour Employment	Ban on Contractors; Involvement of NGOs besides Village Panchayats in Project Implementation.
4.	Absence of Institutional Mechanism for Future Management of Assets	Provision for Forming Local Institutions like Self-help Groups, User Groups; Special Emphasis on Social Auditing and Capacity Building Awareness Generation
5.	Relative Isolation from Developmental Programmes	Emphasis on Convergence with other Programmes

The above depiction highlights the fact that NREG-Act has made adequate provisions for addressing the limitations with respect to creation of assets under the various wage employment programmes. These are some of the

most needed improvements over the earlier schemes. However, two interrelated aspects need special attention in this context: (i) relatively greater emphasis on ensuring right choice of works with appropriate planning thus expecting better quality of assets rather than on mechanisms for future management; and (ii) more focus on implementation as against the outcomes. Of course, there is a valid justification for assuming that right kind of processes would lead to right kind of outcomes. This, however, may not necessarily hold good, especially, in the initial phase of implementation of the scheme as highlighted by a number of studies (Mehrotra, 2008; Pankaj, 2008; Ambasta et al., 2008).

While it may take some time before these provisions actually get operationalised, it is imperative to note that convergence with the various developmental programmes may hold the key for realisation of the corrective mechanisms noted above. According to a recent study covering 17 districts under the NREGS, only three districts had treated the rural works, especially for water conservation, as developmental initiatives (Mahapatra et al., 2008). The process of convergence, however, is yet to be fully worked out. In what follows we have discussed some of the important challenges in attaining the convergence, with special reference to watershed development projects.

2.2 *Convergence between WDPs and NREGS: Some Issues*

As noted earlier, much of the assets created by various employment generation programmes in the past have focused on development of land and water resources besides construction of roads and other physical infrastructure. Nevertheless given the disjointed nature of the wage employment programmes (and other scattered efforts for conservation), a comprehensive approach for land and water resources development, under what has evolved as watershed development programmes, came to the centre stage of livelihood enhancement under different agro-climatic conditions in the country (Shah, 1998).

It is, therefore, essential that asset creation under employment generation programmes is in tandem with the rapidly increasing scope and coverage of watershed development and other schemes for development of irrigation infrastructure in the lagging regions. It is here that the primary goals of employment generation and asset creation may need reconciliation. It is plausible that need for employment generation and priorities for land and water resources development may not necessarily coincide across time and space. This may hold good, particularly, in a situation where employment generation is driven by rights based approach as in the case of the NREGS

where demand for employment may not be amenable to any perspective planning for the area/spatial unit, which is the primary unit for schemes like watershed or irrigation development.

On the other hand, the actual experience from area based and planned interventions under programmes like watershed development also point out serious limitations arising out of a number of constraints - financial, administrative, and institutional. The outcomes, therefore, are often sub-optimal (Kerr, 2002). Absence of institutional mechanisms for maintenance and future management of the structures created under WDPs and mobilizing supplementary investment for enhancing efficiency of these structures, have remained the most important challenges despite adopting participatory processes for project implementation. Similar experiences have been noted under other schemes for land and water resources development. Given this scenario, creation of productive assets through NREGS could work as complimentary investment to those under the various developmental programmes.

Faced with the challenges of mis-match between the needs and priorities of employment guarantee and developmental programmes and sub-optimal conditions with respect to implementation of the various developmental programmes, NREGS has worked out some pragmatic solutions to attain complementarity or convergence between the two sets of policy initiatives. These have been manifested by the two important provisions made under the NREGS. First, seven out of the nine activity types prescribed for undertaking rural works pertain clearly to soil-water conservation or irrigation infrastructure⁴. And second, dovetailing the other developmental schemes, without substituting funds earmarked for NREGS, is strongly recommended. In the process NREGS could strengthen the implementation of developmental programmes such as watershed development and irrigation, without compromising the rights based approach for employment generation⁵.

⁴ These are: i) water conservation and water harvesting; ii) drought proofing including afforestation; iii) irrigation canals; iv) provision of irrigation on the land of SCs/STs; v) renovation of traditional water bodies; vi) land leveling; vii) flood control works; viii) road connectivity; and ix) any other works notified by the Central Government in consultation with the State Governments.

⁵ It may, however, be noted that as per the recent circular, the labour component of WDPs is to be obtained from NREGS; this essentially would mean shrinkage in the actual allocation of funds for such programmes as WDPs.

Potentially NREGS may contribute not only in terms of providing additional financial resources to the existing programmes, but, it could also help promoting institutions for local governance, an important feature of the various developmental programmes (including watershed and irrigation) adopting participatory approaches. This could be attained by promoting institutions for democratic governance such as *Gram Sabha*, at the village level, setting up participatory processes through social auditing and establishing strong links with Rights to Information etc.

While these are some of the pragmatic solutions for attaining the convergence, they may not completely reconcile the problem of a mis-match between needs and priorities of employment generation and asset creation, at least in the initial phase.

One of the risks involved in converging the two sets of programmes is that NREGS could be viewed not only as a source of supplementary investment during and after the project, but also as means to ensure continuous flow of funds for repair/maintenance and/or replacement of the assets created under the developmental programmes like watershed and irrigation. This may have a serious dampening impact on the quality of the assets in the first place, and also on the institutional mechanisms for ensuring efficacy of the assets thereby mobilizing additional (private) investment essential for sustaining the flow of surplus generation within rural economies.

Of course, NREGS does provide for certain checks for ensuring quality of work and social audit for monitoring the execution of rural works. It is, however, likely that the focus of these processes is mainly on the aspect of job-creation as compared to quality of asset creation⁶. In this situation, the assurance that funds from NREGS could be obtained for carrying out repair/maintenance of replacement of the assets created earlier, may have result in certain unwarranted outcomes that may undermine quality, sustenance and future development of the assets created for land and water resources development. This essentially, may result in putting the participatory processes for creating community's stakes in creation of assets as well as future management and

⁶ For instance, the emphasis even in the discussion on NREGA till now has focused mainly on planning, job creation, transparency in record keeping etc. The issue of what kind of assets, with what kind of technical specificity and, above all, with what kind of arrangement for repair and maintenance is yet to figure as an important element in the monitoring system.

development thereby accountability, in the back gear. All these may jeopardize sustained flow of benefits from the assets created jointly under development projects and NREGS. This essentially, may imply reverting to the earlier scenarios of unplanned, scattered, and haphazard approach to asset creation and development.

One could possibly argue that the actual experience from several of the developmental programmes, especially watershed development, is in any case far from creating good quality assets, with strong institutional mechanisms for future management, and sustainable impact on rural economies. And that all these happen without adequate and guaranteed employment. The issue, therefore, is to first correct the limitations/inadequacies in the existing projects, which, in turn, may generate additional demand for labour - short term as well long term. Meanwhile, NREGS may continue to supplement and, at times, work parallel to the process of asset creation in rural economies.

While this may be valid argument, it is not clear as to the kind of impact NREGS may have on long term sustainability of the assets created and the impact on rural institutions and economies. Of course, one could argue that one should bother much about the sustainability of the assets as far as NREGS could ensure continuous flow of funds for repairing or replacing them year by year. The question is whether the administrative wherewithal, including the institutions of local governance, is adequate to undertake rural works on a large scale with at least minimum assurance of quality control.

Given the inadequacies in the implementation of developmental programmes on the one hand and NREGS on the other, it is crucial that the convergence between them adds to the strength, rather than diffuse the effectiveness of the two sets of policy initiatives. There are of course possibilities of both these to happen since the promoters (the state) as well as recipients (the people) are same in the case of both the programmes. Consolidating the strengths would require much more detailed planning and implementation than what each of the two would call for. This is a huge challenge. In the absence of this the impact of NRGS on asset creation and growth of local economies may remain lower than the full potential, notwithstanding the multiplier impact it may generate for growth at macro level.

2.3 *Issues at Micro Level*

Apart from the criticality of convergence with the ongoing developmental programmes, the impact of asset-creation and wages within the local economy may largely get governed by factors such as composition of assets, scale and technology, equity and coverage of beneficiaries, and sustainability of benefits that may actually (rather than potentially) get generated through NREGS.

Since a large proportion of the NREGS-work is focused on land and water resources development, assets created through such activities are likely to have significant forward linkages within the local economies. Among these, the most important, at least in the short run, is increased access to irrigation. A number of studies have highlighted the pivotal role that irrigation plays in promoting growth in agriculture and poverty reduction (Bhattarai, *et al.*, 2002). Also evidence from a number of watershed development projects suggest a fairly favourable benefit-cost ratios, where a large proportion of the benefits tend to emanate from additional availability of water. However, unlike irrigation, the impact of watershed development programmes on poverty reduction or livelihood security is not very clear.

Nevertheless the extent to which NREGS supplements the programmatic investment in land and water resources development, the impacts of such investments are likely to be direct, immediate, and substantial. The issues that need further attention are that of the scale at which such assets are created, the technology used, spread of benefits among different categories of households, and, of course, the second round impact of increased wage rates on the demand for farm labour. Besides these there are issues of efficiency in the use of natural resources such as land and water and the environmental implications thereof.

Also there are issues of weather-induced uncertainties and fluctuations affecting the impact on local economies; investment in land and water resources development is expected to reduce such vulnerabilities. How far it is actually realized would depend on how systematic is the planning, what is the quality of work undertaken, and how sustainable the assets are. These aspects bring us back to the issues of careful synthesis and convergence between programmatic interventions through schemes like watershed development and NREGS.

The issues discussed above assume special significance in the context of the local economies, notwithstanding the significant multiplier impact to be generated at macro level due to the increased wage income in the economy.

3. Forward Linkages and Local Economy: Experience and Issues

It has been argued that rural employment programmes may help enhancing asset-base in rural economies and also improve efficacy of the various developmental initiatives by putting-in supplementary investment into these assets, besides generating wage-income, a part of which may be channelised through additional demand in the local economies. Together these may have significant multiplier impact in the overall economy. For instance, the initial estimates by Patnaik (2005) suggested that Rs. 1 spent on NREGS may generate Rs. 1.33 as wage bill in the economy. While these are macro level projections based mainly on income-multiplier, ascertaining the impact of productive assets within local economies is somewhat tricky.

This section presents a broad mapping of the linkages that the assets created under NREGS may generate within the context of local economies. The mapping of linkages would include mainly the first and second round effects. Whereas the first round effect may include aspects like increased wage income and the associated changes in demand for consumer goods as well as labour, wage rates, and on-farm investment etc. the second round effects may encompass a wide range of outcomes in terms of production, food security, market development, equity, and local governance.

The linkages, though, are fairly well-recognized, the actual realization could be diverse and complex. It is difficult to gauge the nature and extent of such linkages given the wide variations in the operating environment, including climatic variations across the states and regions. Besides these the impact on local economies is likely to be significantly influenced by the macro-economic policies, especially, pertaining to agriculture sector with which most of the assets have direct linkages.

Another important aspect that needs special mention at this stage is the complementary/ supplementary nature of investment in asset-creation under NREGS. As noted earlier, most of the prescribed categories of work pertain to various measures for land and water resources development. Since most of these works are to be planned at village level with a cap of 40 per cent for the material cost and relatively limited time flexibility for executing the works,

it may be difficult to plan out large scale activities such as creation of medium scale irrigation infrastructure, major treatments on drainage line, especially, on highly undulating terrains, structures for preventing flood, land shaping and fencing, and mulching-manuring of private land etc.

As a result the kind of activities that are likely to be undertaken for development of land and water resources would be more in the nature of: (a) creation of small irrigation/ water harvesting structures; (b) plantation on degraded land; and (c) repair and maintenance of the existing irrigation infrastructure, including preparation of field channels, drainage line treatments, and re-plantation etc. It may be noted that the first two constitute the central thrust of watershed/small irrigation development programmes, whereas the last one pertains to the future management of the treatments already carried out through the first two activities.

The activities remain complementary/supplementary in nature in so far as they fill-in the gaps in the coverage of the watershed/small irrigation development programmes on the one hand, and undertake the tasks of recurring maintenance for which there is no effective arrangement-individually or collectively⁷. This, at times, makes it difficult to assess the impact on local economy, in absence of information regarding (a) extent of initial investment in the structures; and (b) nature of arrangement for future maintenance on a recurring basis.

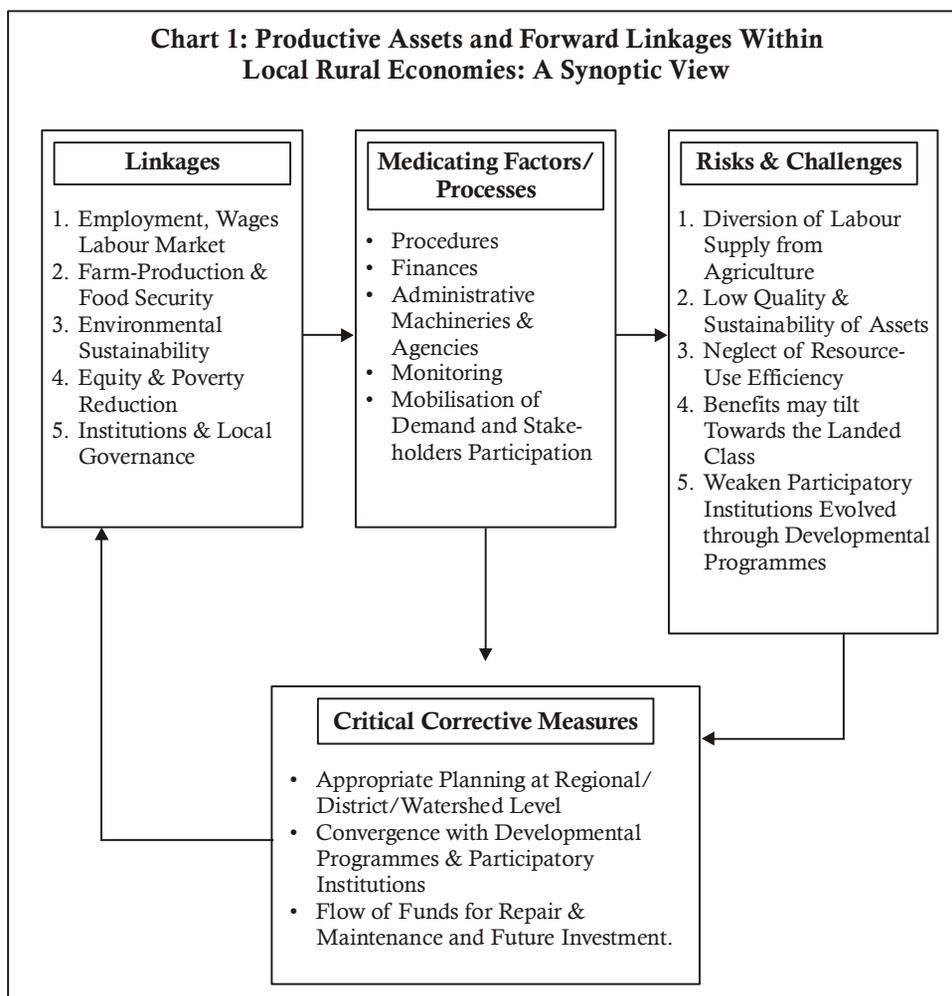
Given these caveats, we present below a typology of linkages of the major sets of assets likely to be created under NREGS and assess the second round effects of the assets created under the scheme.

3.1 Assets and the Linkages

The assets created through NREGS consist mainly of two categories: (i) those related to physical infrastructures such as roads and other amenities; and (ii)

⁷ As part of the budgetary allocation for WDPs funded by the Ministry of Rural Development, each micro watershed should create Watershed Development Fund (WDF) of the order of about Rs. 2 lakh, which, ideally, could take care of the future needs of investment including repair and maintenance. Unfortunately, the fund has remained unutilized for the want of procedural clarity. As result, about Rs. 300-400 crore seems to have been locked up in the bank accounts of the watershed committee.

the productive assets that directly help promote productive capacities within the local economy. Whereas the former may have significant bearing on the effective functioning of the latter, it is relatively difficult to capture direct linkages of the physical infrastructure with the local economies. Also the physical infrastructure plays a pivotal role in improving quality of life by enhancing the access to basic services for health, education and transport, and thereby improving economic well being. Chart 1 presents a broad mapping of the forward linkages, mediating factors, and the requisite corrective measures for realizing the potential impact of the productive assets generated under NREGS, which is quite self-explanatory.



3.2 Assets Created under NREGS: A State Level Profile

By the middle of 2007-08 a total of about 1437 million persons were provided employment under NREGS with about 43 person days per household. Nearly 21 million households had demanded employment under NREGS during 2006-07; this works out to be nearly 15 per cent of the rural households.

A total of 5.16 lakh rural works were undertaken till July, 2007. Of these 50 per cent of the works pertained to water and irrigation. Much of this refers to creation of water storage capacity and construction of canals. Table 2 presents a snap-shot of the main features of NREGS-activities at All India level.

Table 2: Assets Created under NREGS : A Bird's Eye View

General Features		Types of Assets (Up to July 2007)
Households Demanding Employment (2006-07)	2.1 million	Water Storage (New structures) Capacity – 737 lakh cu.mt.
Households Demanding Employment (Till May 2008)	33. million	Drainage – 3 lakh km. In water logged area
Job Cards Registered (2006-07) No. of Households	24.6 million	Construction of Canals – 13 lakh km.
Total No. of Schemes (Work) (Up to July 2007)	5,11,335	Area (owned by SC/ST) Brought under Irri. – 16 lakh ha.
Funds Utilized (Cumulative till January 2008)	10,133 crore	Additional Water Storage Capacity – 481 cu.ml.
Employment Generated (Person days) Million	905 (2006-07) 1437 (2007-08)	Land Levelling – 3.35 lakh ha.
Average Days/ Household – No.	43	Afforestation – 3.45 lakh ha.
Estimated Cost for Households for 100 days (per year) Rs.	50,000 crore of which wage cost is 35000 crore	Rural Roads – 2.37 lakh km.
Utilization of Available Fund (%) 2007-08	39.69	

Table 3 presents state-wise distribution of rural works undertaken through NREGS under six broad categories.

Table 3: Distribution of the Rural Works (Completed) Across Major States

States	Water and Irrigation	Drought Proofing	Food Control & Protection	Rural Connectivity	Land Development	Any Other Activity Approved by MRD	Total
Andhra Pradesh	58376	9865	0	182	32267	0	100690
Arunachal Pradesh	29	182	3	52	0	131	397
Assam	1552	212	1337	6021	1151	797	11070
Bihar	9718	630	1155	20254	284	7371	39412
Gujarat	4172	505	217	833	108	4	5839
Haryana	468	21	2	487	85	3	1066
Himachal Pradesh	1104	151	500	2724	84	781	5344
Jammu & Kashmir	437	330	426	364	312	28	1897
Karnataka	7900	1023	749	3809	351	904	14736
Kerala	1438	82	566	56	120	7	2269
Madhya Pradesh	70636	7271	627	13134	6619	438	98725
Maharashtra	4172	827	54	192	93	350	5688
Manipur	368	171	5	129	228	0	901
Meghalaya	670	34	15	522	64	0	1305
Mizoram	24	0	12	160	0	20	216
Nagaland	46	16	5	54	7	0	128
Orissa	10275	1017	378	11060	165	2956	25851
Punjab	140	15	54	454	86	0	749
Rajasthan	11799	434	157	2211	277	85	14963
Sikkim	57	0	110	34	2	0	203
Tamil Nadu	4650	7	19	458	0	0	5134
Tripura	2242	304	187	2076	327	835	5971
Uttar Pradesh	15243	8663	2556	2910	2509	2497	34378
West Bengal	12931	4418	2959	11146	2251	888	34593
Chhattisgarh	12507	4251	121	6873	10337	1672	35761
Jharkhand	25950	159	99	8896	1859	3802	40765
Uttaranchal	3314	459	933	570	60	374	5710
Total	260235	40754	13254	118094	59312	24543	516192
% to Total	50.41	7.9	2.57	22.88	11.49	4.75	100

Source: Based on Table 15.7 in Pankaj (2008).

Following observations highlight the state-wise profile of the various rural works under NREGS:

- i) Large number of works has been taken up for water and irrigation especially in Andhra Pradesh, Madhya Pradesh, and Jharkhand. In all 2.6 lakh works have been carried out under this category.
- ii) Rural connectivity emerges as the second most important activity, next only to Water and Irrigation, accounting for about 23 per cent of the total rural works under NREGS. Bihar has the highest number of works on rural connectivity; similarly smaller states like Chhattisgarh and Jharkhand also have accorded special importance to this activity, next to water and irrigation.
- iii) Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, and west Bengal have relatively more comprehensive approach to water and land resources development along with drought and flood proofing measures. Compared to this, Bihar, Jharkhand and Orissa however, have focused mainly on water-irrigation and road connectivity.
- iv) Among the states having relatively smaller number of works undertaken are Gujarat, Maharashtra, Tamil Nadu and Kerala. This is some what surprising, especially, for Gujarat and Maharashtra, the states having large proportion of drought prone areas in the state.
- v) It is difficult to ascertain the intensity of work in the absence of the details on the size/expenditure on the various activities.

We do not have information on expenditure under NREGS for different categories of rural works. Nevertheless the available information of all the works undertaken through NREGS (till May, 2008) may provide some broad idea of the magnitude of expenditure. Table 4 presents the estimates of expenditure per work under major states.

Table 4: Expenditure on Completed Works under NREGS

States	No. of Works Completed by May, 2008 (a)	Proportion of Works Completed- % ©	Total Expenditure- Rs. Crore (b)	Expenditure on Completed Works –Rs. Crore (d)=(b) * (c) /100	Expenditure per Completed Work Rs. Lakh (d)/(a)*100
Andhra Pradesh	183724	38.63	2083.75	804.95	0.44
Assam	6339	53.47	549.15	293.63	4.63
Bihar	46518	51.4	1052.78	541.13	1.16
Chhattisgarh	65562	64.05	1401.83	897.87	1.37
Gujarat	14579	67.48	81.84	55.23	0.38
Haryana	1692	59.77	52.35	31.29	1.85
Jharkhand	49438	31.08	1062.54	330.24	0.67
Karnataka	27086	68.79	377.84	259.92	0.96
Kerala	12650	82.8	83.37	69.03	0.55
Madhya Pradesh	136003	39.82	2891.73	1151.49	0.85
Maharashtra	4778	34.88	189.07	65.95	1.38
Orissa	19621	30.51	579.57	176.83	0.90
Punjab	566	24.76	30.04	7.44	1.31
Rajasthan	18090	28.61	1477.34	422.67	2.34
Tamil Nadu	8338	45.05	516.42	232.65	2.79
Uttar Pradesh	102154	69.09	1898.25	1311.50	1.28
Uttarakhand	6307	57.49	95.75	55.05	0.87
West Bengal	61059	47.95	1004.35	481.59	0.79

Note: The estimates of expenditure on completed works is derived by applying the proportion of completed to total works in each state.

Source: Based on Table 6 in Ghosh et al. (2008).

It is observed that the average expenditure per completed work range significantly from Rs. 38,000 in Gujarat to Rs. 4.63 lakh in Assam. A broad classification across expenditure groups suggest that three states have an average expenditure of more than Rs. 2 lakh (Assam, Rajasthan, Tamil Nadu); six states fall in the range of 1-2 lakh (Bihar, Chhattisgarh, Haryana, Maharashtra, Punjab, Uttar Pradesh); and another five states in the range of

nearly 0.8- 1.0 lakh (Karnataka, Madhya Pradesh, Orissa, Uttarakhand, West Bengal). The remaining four states have substantially lower than Rs. 80,000 per work. These states are Andhra Pradesh, Gujarat, Jharkhand, and Kerala. There is no systematic inverse relationship between the number of completed works and average expenditure per work.

The information presented in Tables 3 and 4, thus, does not help in identifying the specific nature of work undertaken in different locations. This may make it difficult to ascertain the impact that such works may generate on rural economies. It may however, be useful to consider some broad attributes of the major works under the NREGS in Table 5.

An important feature observed from Table 5 is that employment gain is mostly direct rather than also indirect and recurring. This is mainly because of the high incidence of under-employment among those already working on agriculture and allied activities. There is, of course, a possibility of increasing the productivity of labour time put to on-farm activities. It is, however, difficult to gauge this. It may be noted that development of public/common property resources may help creating additional flow of employment over time.

Table 5: Salient Features of the Various Rural Works: Some General Observations

Potential Linkages and Challenges	Type of Assets					Rural Connectivity (rural roads)*
	Water and Irrigation (water storage capacity including irrigation for SC/ST households; construction of canals)*	Drought Proofing (drainage line treatment; additional water storage)*	Flood Control and Protection(drainage; construction of canals)*	Land Development (land levelling; afforestation)*		
1. Employment and Labour Market	Increased area under cultivation; this may lead intensification of on-farm employment	Direct employment on the work-site	Direct employment	Direct employment; additional employment after a lag of time after the growth of plantation and additional fodder	Direct employment; may generate more/better employment opportunities due to increased mobility	
2. Farm Production and Food Security	Enhance productivity and help food security- directly/indirectly at household as well macro level	Indirect impact on productivity through increased soil-moisture profile	Significant impact on land productivity and reduced risk due to flooding	Increased availability of non-timber forest produce including fuel wood; and fodder	Not much	
3. Environmental Sustainability	Limited emphasis on water-use efficiency; Likely to shift toward water intensive crops and further depletion of ground water	Fairly substantial	Significant impact on reducing soil erosion/land degradation	Fairly Significant	No positive impact	
4. Equity and poverty Reduction	Significant impact on reducing poverty/poverty gap; implications on intra-village equity is not clear	Could benefit those not having irrigation; also help regeneration Common Property Land Resources (CPLRs).	Not so clear	Substantial, since the poor depend more on the forest resources	May help the poor to explore better opportunities outside the village	

(contd...)

		Type of Assets		
5. Institutions and Local Governance	Not much	Need local institutions for repair and maintenance as much of the works are on CPRs	Not clear	No impact
6. Size, Certainty and Gestation Period of the Flow of Benefits	Reasonably good	Marginal and takes long time for realizing the benefits	Fairly substantial and immediate	Indirect impacts are difficult to discern
7. Measures Needed for Sustaining the Benefits	Need to promote water-use efficiency	Comprehensive approach based on watershed development may help realizing the full potential	Systematic planning based on watershed/ basin as unit	Not clear
			Need local institutions for collective action	
			Significant benefits but, takes long time for plantation to grow; generally low survival rate	
			Strengthening of local institutions for protection is a critical pre-condition for the success	

Note: * The specific activities indicated in parentheses are based on the general impression as such information is not available at aggregate level.

The profile of the impact presented in Table 5 may give a broad picture of the typology of impact that each category of the rural works could generate. The presentation, however, is subject to two limitations: (i) it assumes specific nature of activities for which information is available under each of the major categories of works; there is no information on the specific activities carried out under each category of works; and (ii) the depiction of the typology of impact is based on the understanding derived from the actual experiences from a number of projects pertaining to natural resources development across different parts in India⁸; generalization may not be appropriate. In this sense the typology presented above may be treated only as indicative. Given this backdrop, the next section tries to assess the impact of some of the specific activities taken up under NREGS across different states in the country.

4. Assets and the Impact: A Preliminary Assessment

At outset it may be mentioned that the attempt made in this section to assess the impact of the various assets created under NREGS is somewhat premature and is based on the limited data available on the specific nature of the assets. The exercise is based on the evidence from impact assessment of various projects especially watershed development projects with which NREGS seems to have the closest linkages⁹. Since watershed projects have fairly large coverage across states in the country, using the evidence from impact assessment of watershed projects may be reasonably justified. The analysis in this section draws upon three sets of evidences from WDPS: (a) meta analysis covering a large number of states; (b) treatment specific assessment; and (c) status of the assets in the post-project period.

4.1. Evidence from Meta Analysis for Watershed Projects

A recent study based on 636 watershed projects spread across different parts in India bring out useful findings on benefits from the project (Joshi, et al., 2008). Drawing from a subset of 311 studies, the analysis indicates an average benefit-cost ratio of the order of 2.01:1 with a median value of 1.7:1 (Table 6). This is fairly moderate, given the fact that it includes the entire project-costs as well as benefits, which may also include wage income from the direct

⁸ These projects refer to watershed development, waste land development, joint forest management, minor irrigation, and drought proofing etc.

⁹ The linkage or convergence with NREGS has been envisaged as part of the operational guidelines of watershed projects suggesting that major part of the labour work should be undertaken by dovetailing funds from NREGS

employment on the project sites. This is an important limitation of meta-analysis, which is difficult to address as the estimates have been generated through the existing studies, often using different methodologies.

Table 6: Summary of Benefits from the Sample Watershed

	Particulars	No. of studies	Mean	Mode	Median
Efficiency	BC ratio	311.00	2.01	1.70	1.70
	IRR (%)	162.00	27.43	25.90	25.00
Equity	Employment Person (days/ha/year)	99.00	154.53	286.67	56.50
Sustainability	Increase in irrigated area (%)	93.00	51.55	34.00	63.43
	Increase in Cropping intensity (%)	339.00	35.51	5.00	21.00
	Runoff reduced (%)	83.00	45.72	43.30	42.53
	Soil loss saved (tons/ha/year)	72	1.12	0.91	0.99

Source: Joshi, et al. (2008).

On employment gains, the evidence from 99 studies indicate that the project activities generated an average of about 155 persons days of work per hectare per year for the project period of about five years. Assuming an average size of watershed area of 500 ha., this may generate total employment of about 77,500 person days per year. At the rate of 100 days per household per year (as per the NREGS-norm), this could provide employment to 775 households per micro watershed or village for five years. This may fall short of the actual requirement especially in villages with significant proportion of households facing severe poverty. It may however, be noted that the estimated employment gains is likely to be lower than the potential of a micro watershed project. This could be due to two reasons: (i) use of machinery to substitute labour; and (ii) incomplete treatments of watershed owing to several constraints including finance. We will get back to this issue in the next section.

4.2 Benefits from Specific Treatments - Evidence from Gujarat

The above evidence based on the meta-analysis provides estimates of benefits for the entire set of activities carried out under a micro watershed project. While these activities cover almost all the rural works covered under the five major categories listed in Chart 4, it is important to get at least broad idea of the impact from specific activities/treatments as NREGS, unlike WDPS, does not adopt a systematic/comprehensive approach to natural resource development to which most of the assets are linked.

Studies on WDPs seldom look at the impact of each of the treatments separately. However, following Shah (2006) an attempt was made to gauge broad magnitude of benefits in a disaggregated manner. The analysis, based on some micro-level evidence from Gujarat, provided estimates of the net returns from some of the major treatments such as water harvesting structures/ small check dams, field bunding, land levelling, plantation and pasture development, drainage line treatments etc.

Table 7 presents information on this aspect. It may be noted that the estimates of costs and benefits pertain to the prices prevailing in the study region during 2000-01. At present the estimates could be twice that of the original. These estimates are presented in the parentheses in column 3 of Table 7. Also, the estimates are drawn from the projects from dry land regions in Gujarat; the returns could be higher in the case of areas with moderate rainfall as indicated by the meta-analysis noted above, and also those with moderately sloppy topography, where immediate gains from soil-water conservation is generally higher than those having relatively plain terrain (Shah, 2004).

Table 7: Economic Returns from Major Treatments

Watershed Treatments	Cost Rs./Ha	Benefits Rs./Ha (2000-01 prices)	Remarks
Field bunding on private land	2500-3000 on land with moderate slope	15-20% increase in yield during normal rainfall	In most cases field bunds exist. They need to be strengthened and improved in terms of size and material.
			In absence of any other incentives like irrigation, FYM or farm forestry, field bunds alone will not provide sufficient incentives even for proper maintenance. Hence, this treatment should become a part of a larger package of increasing land productivity
Farm Forestry/ plantation and private and public land	5000-6000	15000-20000 with about 60% survival rate (30,000-40,000)	Need to be accompanied by provision for survival irrigation, good quality of planting material and fencing
Regeneration of pastures on CPLRs	4000-5000	1500-2000 for fodder+ fuel wood (3000-4000)	Need to treat a part of the gaucher through proper protection. The other part should be kept open for tree grazing Provision of fodder pool in the first five years or regeneration measures might help protection. Similarly, deep ploughing, manuring, seedling might also help expediting the process of regeneration.

Irrigation from Water harvesting structures like check dams on public land	20000-100000	7500-10000 through additional water for irrigation (15,000-20,000)	People have very high preference hence willingness to pay. Scope for attaining better equity through provision of water rights to all households and cross-subsidy.
Farm ponds on private land	10000-15000	2000-3000 during normal year (4000-6000)	Provide credit-support to make basic investment in the structures. Subsidies farm forestry or plantation on performance (survival) basis.
Land levelling	4000-7000	5000-7000	High preference in the regions having moderate-high slopes and small holdings
Mulching, composting and other agronomic practices	N.A	N.A	Farmers do recognise the importance of such measures. But these need proper extension as well as organizational support, besides (wage) income support for putting family labour on such on-farm treatments.
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Land levelling	4000-7000	5000-7000	High preference in the regions having moderate-high slopes and small holdings
Mulching, composting and other agronomic practices	N.A	N.A	Farmers do recognise the importance of such measures. But these need proper extension as well as organizational support, besides (wage) income support for putting family labour on such on-farm treatments.

Source: Adapted from Chart 2 in Shah (2005).

The information in Table 7 reveals that direct benefits from various treatments (in current prices at present) varies from Rs. 30-40,000 per ha. and from farm forestry to Rs. 15-20,000 per ha. from irrigation and water harvesting structures to Rs. 3-4000 per ha. from pasture development. It may be noted that the estimated benefits could further increase, provided: a) quality of the treatments/assets is good; and b) post-project maintenance is taken care of. In the absence these two, the flow of benefits may reduce over time. This phenomenon was widely observed during a recent exercise, mentioned earlier, of revisiting the physical structures/assets created under watershed projects covering a sample of nearly 1000 micro watershed in three states viz., MP, Maharashtra, and Karnataka.¹⁰

In what follows we bring out certain important findings from MP, the state which has created large number of such assets under the NREGS as already seen in Table 3.

4.3 Evidence from a Post-Project Assessment in Madhya Pradesh

The evidence from post-project scenarios in MP draws from a sample of 347 micro watersheds, constituting about 5 per cent of the completed WDPs in the state for which information was available (Shah, et al., 2008). As part of the exercise physical verification of a sub-set of the major structures (assets) created under the WDPs was carried out. The structures included in this exercise covered those with average to good conditions as per the local community; these excluded those, who, according to the village community, were severely damaged or in the best condition at the time of the visit.

¹⁰ See, Foot note 2.

Table 8a: Status of Selected Structures and Coverage of Beneficiaries

Type of Treatments	Total Nos.	No. of Structures in Good Condition (%)
Pucca check dams	885	465 (52.5)
Kachha check dams	1048	401 (38.3)
Village tanks	733	645 (87.9)
Deepening of village tanks	135	100 (74.0)
Percolation tank	283	255 (90.1)
Farm ponds (public)	362	276 (76.2)
Plantation (public)	122	39 (32.0)

Source: Adapted from Shah *et al.*, (2008).

The information in Table 8a indicates that whereas nearly 50 per cent of the check dams using concrete material) were already damaged, more than 60 per cent of the kachha check dams/ water harvesting structures were damaged at the time of the study. Compared to this, a significantly large proportion of village/percolation tanks were still in good condition. This could partly be due to the fact that many of the village tanks or ponds are traditional structures, relatively larger in size, existing over a longer period of time, and undergoing periodical repairs through drought relief programmes as compared to the check dams created through WDPs, which are generally smaller in size and not having institutional mechanisms for maintenance through local institutions. Compared to water harvesting structures, the impact of the CPLRs is found to be fairly limited as more than 60 per cent of the plots under plantation had lower than even 30 per cent of survival rate. The above observations may reiterate the widely acknowledged phenomenon of limited and selective coverage of benefits arising out the various treatments/assets created under WDPs, as shown in Table 8b.

Table 8b: Summary of the Physical Verification-Status, Arrangements for Future Management and Beneficiaries

Type of Treatment (Total No. of Villages covered under the Treatment)	No. of Structures	Structures in Good Condition (%)*	% of Villages with Arrangements for Future Management	Average No. of Direct Beneficiaries (No beneficiaries)**
Pucca Check Dam (217)	189	52.6	47.1	7 (25)***
Kachha Check Dams (78)	42	38.3	45.2	3 (11)
Village Tank (209)	166	88.0	54.2	5 (40)
Percolation Tank (74)	33	90.0	48.5	6 (5)
Farm Ponds on Public Land (41)	21	76.2	80.9	2.5 (5)
Plantation on Public Land (253)	122	32.0 (survival rate>30%)	82.8	NA

Note: *Based on table 19a,** Based on the median value;*** No. of structures not reporting any benefits.

Source: Same as Table 8a.

The phenomenon of limited coverage of beneficiaries is particularly true in the case of check dams where the direct benefits in terms of additional irrigation is obtained by about 7-10 beneficiaries at the most. Since these structures often do not have any specific arrangements for repair and maintenance (as it is generally assumed that the user group would take care of them), it is often observed that the initial benefits may get receded over time.

In this context the evidence from Table 9 is quite revealing. It is observed that the association between the proportions of the sample WDPs reporting 'high' level of overall benefits increased significantly from about 12 per cent in the pre-1994 period and 21 per cent during 1995-97 to 45 per cent in the post 2001-02. It may be noted that less than one fourth of the WDPs had reported 'high' overall benefits from the projects as compared to 29 per cent reporting low and another 47 per cent reporting medium levels of benefits from watershed projects.

Table 9: Overall Benefits by Year of Starting

Level of Benefit	Year- No. of WDPs				All
	Before 1994	1995-97	1998-2000	2001-02	
Low	37.5	30.5	27.7	19.3	28.7
Medium	50.0	48.7	45.8	35.5	47.4
High	12.5	20.8	26.5	45.2	23.9
All	100(16)	100(187)	100(83)	100(41)	100(327)

Source: Same as Table 8a.

Overall, the evidence presented in this section, though selective, highlights certain critical features of the impact of WDP-treatments on rural economies. These could be summarized as follows: i) employment gain is confined mainly to on-site work; ii) whereas overall benefit-cost ratio for watershed projects is fairly moderate, the major economic benefits emanate from various water harvesting structures, which, in turn, may have limited coverage of beneficiaries; iii) physical structures, especially small check dams, created under WDPs tend to get damaged in absence of institutional mechanisms for maintenance; and iv) overall benefits from WDPs appear to be low or medium and that the benefits tend to decline over time. This may imply that much of the impact on productivity, employment and capital formation, by and large, may remain confined to direct/first round effects. Sustaining the impact may, however, necessitate institution building and strengthening of the local governance.

There are three important implications for NREGS: i) exploring the scope for expanding employment generation; ii) ensuring good quality and maintenance of the assets; and iii) widening the net of beneficiary households so as to complement the coverage of direct beneficiaries from WDPs. Greater focus on development of resources under common property regimes may assume special importance in this context. We may address some of these issues in the next section.

5. Reaching out to the Poor: Exploring the Full Potential in the Context of WDPs

A number of studies in the recent past, have tried to address the issue of the extent of households requiring and actually demanding employment under NREGS. The analyses indicate a fairly large variation in the estimates of person days to be generated (including those requiring less than 100 days of work). These estimates range from 33-40 per cent of the total of about 5000 million person days of unemployment (Papola, 2005) to about 40-43 per cent of the rural households (Patanaik, 2005), to 80 per cent of the rural labour households (Ambasta, et al., 2008). (See Chart 5).

Table 10: Projected and Actual Demand for Employment under NREGS: Some Scenarios

Scenarios by	Main Features	No. of Rural Households (out of the total of 200 million)	Remarks
1. Papola (2005)	Based on the estimated quantum of unemployment and the actual turn out during MEGS.	Seeking employment for 2000 million person days/year, particularly by the uneducated in rural areas	This may be gross under-estimation in the light of the fact that (a) it ignores the extent of under employment; and (b) assumes no improvement in the actual implementation of NREGS over MEGS, notwithstanding the significantly higher wage rates under NREGS as compared to the actual.
2. Patanaik (2005)	Based mainly on the estimates of rural labour hhs i.e., approx. 60 million hhs.	60 million rural hhs (6000 million person days/year)	These may require employment for all the 100 days

<p>3. Considering marginally non-poor and the extent of under-employment to meet the requisite expenditure level</p>	<p>poor and those marginally above (25% higher expenditure than poverty line, i.e., Rs. 21375 per hh) the poverty line (about 40-43% of rural households as per NSSO 43rd round)</p> <p>Estimating the total no. of paid work to attain the income of Rs. 21375 per hh. This amounts to about 428 person days of paid employment/hh i.e., 214 days per worker (assuming 2 workers/hh) @ of Rs. 50 per day.</p>	<p>Assuming that two full time workers may get paid-employment for say a total of about 320 days per hh, these hhs may still need an addition of 100 days of work per year. This would imply significantly larger number (than 6000 million) of employment days to be generated through NREGS.</p>	<p>These hhs may be spread over the entire segment having expenditure up to Rs. 21,375 per household per year. Those much below the poverty line may require much more than 100 days of employment to reach the above level of expenditure</p>
<p>4. Actual Scenario</p>	<p>2.1 million hhs in 2006-07 (Mehrotra, 2008)</p>	<p>About 3.9 million hhs in the districts covered under phase I & II. 3s6% of the rural hhs in these districts (Ghosh, et al., 2008).</p>	<p>The achievement in the first two years tends to confirm the conservative estimate provided by Papola (2005).</p>
<p>A Significant gap still exists between the estimated no. of 60 million and the actual 2.1 million hhs demanding work. Also the intensity of employment is 43 days as against 100 days per hh per year.</p>			

The estimates presented above clearly suggest the need to expand the coverage of NREGS both in terms of households (Table 11) and also in terms of number of days of employment per household (as seen in Table 2). According to Ambasta et al. (2008) about 50-60 million households may need such employment. Against this the actual coverage of households appears to be in the range of 10-12 per cent. What is a more realistic assessment of the number of households actually requiring (hence, demanding) the work? And, how to go about attaining that?

Table 11: NREGS: Participation Rate

States	No. of Rural HHs in NREGS (Phase 1 and 2 Districts (in lakh)	Employment Demanded by HHs (in lakh)	Participation Rate (in %) (Column 3/2)* 100
Andhra Pradesh	105.92	48.04	45.36
Assam	19.88	14.48	72.86
Bihar	124.07	38.63	31.13
Chhattisgarh	29.43	22.97	78.05
Gujarat	19.88	2.91	14.62
Haryana	5.07	0.71	13.99
Jharkhand	37.37	16.80	44.96
Karnataka	29.39	8.64	29.39
Kerala	10.50	2.59	24.69
Madhya Pradesh	53.26	43.47	81.62
Maharashtra	53.50	4.75	8.87
Orissa	51.98	11.35	21.83
Punjab	8.18	0.50	6.07
Rajasthan	24.64	21.73	88.19
Tamil Nadu	31.35	12.35	39.38
Uttar Pradesh	120.95	41.04	33.93
Uttarakhand	5.05	1.89	37.45
West Bengal	108.69	39.20	36.07

Source: Primary Census Abstract, Census (2001)

We discuss this issue in the light of the scope within watershed development projects, which, as of now does not emphasize much of on-farm treatments, somewhat similar to NREGS.

Box 1: Employment Guarantee through NREGS-WDP Combined: Some Projections

The assessment of the scope for rural works under NREGS is has been attempted by considering a village with about 500 ha. of land under a micro watershed and 250 households inhabiting this. The need for additional employment is estimated on the basis of following assumptions (against the national average of 300 household per village)¹¹.

Demand for Work: 100 out of 250 households (i.e. 40 %) of the households would require additional employment for 100 days on an average. This works out to be 10,000 person days of additional work required in the village per year.

Wage Bill: Assuming a relatively low wage rate of Rs. 50 per day, the wage bill would amount to Rs. 7.5 lakh per year.

Provision for Wage Bill under WDPs (with a Total budget of Rs. 30 lakh): Of the total budget 82.5 per cent is to be spent for various treatments, of which 60 per cent should go towards wage bill. This works out to be about Rs. 15 lakh for five years. This @ Rs. 50 per day as wages could generate 30,000 person days of employment over five years i.e. 6,000 person days per year.

The Gap: 9,000 person days per year, which @ Rs. 50 per day may require Rs. 4.5 lakh per year or, 22.5 lakh for five years. The total wage bill thus may go up to Rs. 37.5 lakh per watershed village over a period of five years.

Revised Budget for WDPs: It is however, contemplated that the budget for WDPs may be revised upward to make it double i.e., Rs. 60 lakh per micro watershed. Simultaneously the time frame is also increased from 5 to 7 years. Accordingly, the wage bill may go up to Rs. 30 lakh for 7 years. It is envisaged that this kind of upward revision would help taking care of both the rise in costs (including wage cost), and completion of the required treatments, which was not possible due to financial constraints.

The revised budget with a wage bill of Rs. 30 lakh may generate employment of 60,000 person days over 7 years i.e. about 8,500 person days per year. However factoring-in for the higher wage rate of say, Rs. 70 per day, employment generation would be of the order of about 42-43,000 person days over 7 years i.e. roughly 6,000 person days per year. This may still leave a gap of 9,000 person days of employment over the project period of 7 instead of 5 years.

¹¹ The lower number of average household per village is worked out by considering 750 million rural population with an average size of five persons per household, spread over 0.6 million villages.

Assuming that NREGS could help mobilize the additional fund required for generating the flow of 15,000 person days of employment over a period of at least 7 years, the issue that remains to be addressed is what kind of work could be undertaken for generating the additional employment beyond what has been envisaged in the watershed project. Also it is important to address the issue pertaining to increase in the demand for work at least among the very poor sections of the society, given the situation of severe under employment. If the demand for work is more than 100 days among the 40 per cent of households who demand work, then the gap would be more than 1500 person days per year. Similarly, there is the issue of what happens after 7 years of the project period.

We try to discuss some of these issues in the light of the un-finished agenda of watershed development and beyond that.

First of all, the present approach to watershed development leaves out a number of measures that need more intensive treatments. These include both public or common resources as well as private land. The emphasis on public resources refer mainly to waste land and/or pasture development, which, in turn, has significant bearing on development of livestock and ,thereby, sustained increase in employment throughout the year and over time. At present, watershed treatment suffers from two major limitations - poor quality of material and low/no protection. These issues need to be addressed by mobilizing additional fund for taking up the labour works under NREGS; funds from WDPs could then be utilized for improving the quality of material/protection.

On private land, the need is to undertake labour intensive measures for mending the bunds/trenches, mulching and manuring; and bio-mass generation. A model focusing on bio-mass based approach to increasing productivity of land suggests that about 200 person days of work may be required to regenerate cultivable land facing degradation hence, low vegetative cover. It is postulated that a poor household having 1 acre of land could be brought to the level of self-sufficiency (rather than self-provisioning) through bio-mass regeneration (Datye, 1997). Such models need to be promoted by supporting labour inputs on the farm of the poor. At present NREGS permits on-farm work related to irrigation on the land of Scheduled Castes (SC) and Scheduled Tribes (ST). The provision needs to be extended to all households willing to adopt more sustainable technologies for productivity

enhancement such as this. At present the very poor households are not able to take out time and/or other resources as they often are too busy making the two ends meet by undertaking scattered, multiple, and low productive tasks at the cost of long term investment in their land and allied activities like livestock.

Second, a number water harvesting structures need supplementary investment for making field channels, direct recharging of wells; and taking up labour rather than water intensive crops. Watershed projects may provide special incentives for cultivation of such crops; the funds required for this could be created by dovetailing WDPs with NREGS. It may however, be noted that funds from NREGS should not be used indiscriminately for recurring repair and maintenance as it may send negative signals for the users/communities to take care of the assets created under WDPs/NREGS.

Lastly, there is substantial need for promoting value-addition through agro-processing and allied activities given the initial investment in land and water resources. In this context convergence between WDPs and NREGS may help fulfilling the incomplete agenda of watershed based development, which in turn, may pave way for sustained increase in income and employment. Absence of this, may lead to perpetual dependence on wage income earned through employment guarantee schemes. This may work counter productive if the central thrust of the rural works/asset creation moves away from creating additional production capacities in the rural areas as indicated by Bhaduri (2005). Increased connectivity may play an important role in facilitating expansion of productive capacities and employment opportunities rather than being seen as stand alone infrastructure, *per se*, to benefit the rural communities.

6. Concluding Remarks

The foregoing analysis tried to explore likely impact of the assets created under NREGS at this initial stage. In doing so the paper discussed the dilemmas of linking NREGS with various developmental initiatives, especially those focusing on livelihood enhancement through management of natural resources. Given the fact that over 70 per cent of the rural works under the scheme pertain to development of land and water/irrigation facilities, an assessment could be attempted in the light of the experiences

from developmental programmes like watershed development, having the closest resemblance to the scheme.

The discussion in the initial part of the paper highlighted the specific corrective measures under taken in the design of the NREGS, which potentially may help overcome some of the widely prevalent limitations of asset creation under the earlier employment generation programmes, especially, the Maharashtra Employment Guarantee Scheme. The analysis, however, points out that whereas these are some of the most needed improvements over the earlier schemes. Two interrelated aspects need special attention in this context: (i) relatively greater emphasis on ensuring right choice of works with appropriate planning, hence, expecting better quality of assets rather than on mechanisms for future management; and (ii) more focus on implementation as against outcomes. This may of course be justified by asserting right kind of processes would lead to right kind of outcomes.

It is further noted that much of the assets created under NREGS are likely to be supplementary/complementary in nature. This may open up both an opportunity for convergence and risk of diluting the processes of development already being set through the various natural resources based initiatives.

Supplementary nature of the assets may create additional difficulties in assessing the actual impact, besides the data limitations pertaining to the specific nature of the assets created under NREGS.

The assessment ideally, should take into consideration multifunctional nature of the impact that the assets, related mainly to natural resources, are expected to generate, especially, if initiated through a developmental mode. The various facets of the impact may thus, include not only income and employment, but also larger developmental objectives such as environmental sustainability, intra-village equity, and building up of institutional capacities through democratic decentralization.

Given these broad contours, the analysis brought to the fore some of the important evidences from the experiences of watershed projects in different parts of the country. The evidence highlighted certain critical features such as:

- i) employment gain is confined mainly to direct on-site work;
- ii) whereas overall benefit-cost ratio for watershed projects is fairly moderate (around 1.7), the major economic benefits emanate from various water harvesting structures, which in turn may have limited coverage of beneficiaries;
- iii) physical structures, especially small check dams, created under WDPs tend to get damaged in absence of institutional mechanisms for maintenance; and
- iv) overall benefits from WDPs appear to be low or medium and that the benefits tend to decline over time. This may imply that much of the impact on productivity, employment and capital formation, by and large, may remain confined to direct/first round effects. Sustaining the impact may however, necessitate institution building and strengthening of the local governance.

There are three important implications of NREGS: i) for exploring the scope for expanding the extent of employment generation; ii) for ensuring good quality and maintenance of the assets; and iii) for widening the net of beneficiary households so as to complement the coverage of direct beneficiaries from WDPs.

Widening the coverage of NREGS-work may involve intensification of several of watershed treatments (both on private and common property resources), which often remain incomplete; and also going beyond that. Investment of additional labour inputs on the farms of the poor may hold significant promise in terms of enhancing productive capacities of the marginal land, often subject to severe degradation, held by the poor. There are technological options for promoting a more regenerative agriculture, which is often more labour intensive. It is essential that corresponding changes are made in the macro economic policies to support such production systems. Similarly efforts should be made to create basic infrastructure for strengthening forward linkages for the increased on-farm production resulting from the assets.

The central thrust therefore should be to facilitate convergence among the various processes of asset creation aiming at enhancement of productive capacities in the stagnant and eroding base of the rural economies. Absence

of this, may lead to perpetual dependence on wage income earned through employment guarantee schemes. This may be counter productive for the larger goals of development for which NREGS, if properly synchronized, holds a great potential by for setting up new pathways.

Given the difficulties in overcoming the limitations of various developmental programmes on the one hand and NREGS on the other, it is crucial that the convergence between the two add to the strength, rather than diffuse the effectiveness thereof. There are of course possibilities of both these to happen since the promoters (the state) as well as recipients (the people) of both these initiatives are the same. Consolidating the strengths however, would require much more detailed planning and careful implementation than what each of the two separately, may call for. In absence of this the impact of NREGS on asset creation and growth of local economies may remain far lower than the full potential, notwithstanding the substantial multiplier impact it may generate for overall growth at the macro level.

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Website: www.gidr.ac.in