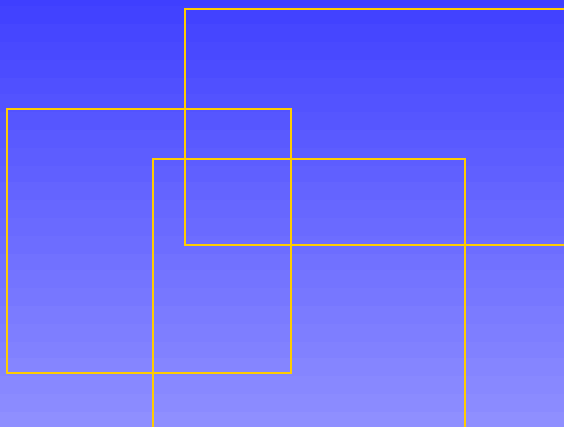




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The Contribution of Public Works and Other Labour-Based Infrastructure to Poverty Alleviation: The Indian Experience



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**The Contribution of Public Works and Other
Labour-Based Infrastructure to Poverty Alleviation:
The Indian Experience**

by

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Contents

	Page
Preface	iv
Section 1: Introduction	1
Section 2: Trends in Rural Poverty	2
Section 3: Impact of Public Works Programmes	5
Section 4: Rural Development Type Programmes	11
Section 5: Conclusions	15
References	17

Preface

The eradication of poverty has been a major objective of planned development in India. In rural India, poverty has been addressed through a three-pronged strategy: (i) emphasis on accelerated economic growth, which has strong poverty reducing effects, (ii) the provision of basic minimum services, especially in the field of education and health in order to make people more employable, and (iii) direct state intervention with targeted programmes of poverty alleviation. However, it has become apparent that inadequacy of infrastructure is a major constraint on growth and that growth per se may not lead to a reduction in poverty.

In this context, the issue of employment assumes crucial importance, as there is an increasing need to ensure the creation of productive employment in the growth process itself. Employment opportunities need to be created in sectors and sub-sectors which are more labour intensive, thereby enhancing productivity and wages of those already employed so as to enable them to cross the poverty line. This acknowledgement of the employment dimension of growth, has led to an increased focus on public works programmes in an attempt to create wage employment for the rural poor and under-employed in order to supplement their incomes. Moreover these programmes enable the creation of rural infrastructure such as roads, and social infrastructure such as school buildings and health centres.

The purpose of the present paper is to assess the role of such public works and other labour-based infrastructural programmes in poverty alleviation in rural India. In doing so, the paper attempts to identify and analyse the relative merits in terms of poverty alleviation of public works type programmes on the one hand, and of rural infrastructure development on the other hand. In the first section the paper considers poverty trends in India, followed by two sections on the impact of public works programmes and rural infrastructural development programmes. In the last section the paper attempts to put the two approaches in the context of an appropriate strategy for poverty alleviation. A few points emerging from this conclusion might be worth mentioning:

1. Both rural works programmes and labour-based infrastructure projects are required for poverty reduction at India's present level of development. The former addresses concerns of 'current poverty' through the provision of employment for those seeking work on public works, also leading to the creation of community assets and rural infrastructure. The latter supports the creation of 'productive employment' in the growth process.
2. In order to improve the efficacy of India's rural works programmes and labour-based infrastructure projects, two policy interventions are required, both of which are interrelated. Firstly, to ensure greater participation of beneficiaries in the planning, implementation and monitoring of the programmes. Secondly, the preparation of a holistic, integrated development plan at the district and sub-district levels based on the resources available from various sectoral programmes/departments and on the needs of the people.
3. Such a participatory development process based on integrated development plans should go a long way in articulating the needs of the people with a greater emphasis on providing employment to the poor and unemployed and greater investments in the development of local infrastructure, both physical and social.

26 July 2002

Rizwanul Islam
Director
Recovery and Reconstruction Department

The Contribution of Public Works and Other Labour-Based Infrastructure to Poverty Alleviation : The Indian Experience

Rohini Nayyar¹

Section 1

Introduction

Eradication of poverty has been a major objective of planned development in India. A three-pronged strategy has been adopted in order to tackle the problem of persistent poverty, especially in rural areas. First, is accelerated economic growth, which has strong poverty reducing effects. Second, the provision of Basic Minimum Services, especially in the field of education and health in order to make people more employable. Third, direct State intervention through targeted programmes of poverty alleviation. (Here it may be worthwhile to point out that while the incidence of poverty is around 30 per cent, the rate of unemployment is only 3 per cent, inclusive of underemployment of about 7 per cent.) The explanation for this is simple, most people are employed but at very low levels of wages and productivity, with insufficient incomes for subsistence.

In the Indian context, it is now recognized that inadequacy of infrastructure has become a major constraint on growth. This includes power, transport and telecommunications. Further, in rural areas there is need for investment in irrigation along with greater investment in rural roads and rural electrification. Public investment in these sectors has been inadequate and private investment, including foreign investment, has not supplemented the lack of public investment as was expected in the wake of economic reforms.

Further, there is a need to ensure the creation of productive employment in the growth process itself. However, growth per se may not lead to a reduction in poverty. Employment opportunities need to be created in sectors and sub-sectors which are more employment intensive; the adoption of appropriate technology which is labour intensive and the focus has to be on regions characterized by higher rates of unemployment and under-employment which have thus far been lagging behind. The backlog of under-employment coupled with the additions to the labour force is making the process of generation of productive employment limited. Even if the work opportunities are adequate the quality of employment, in terms of incomes received, is poor. Therefore, in addition to creating new jobs it is necessary to enhance productivity and wages of those already employed so as to enable them to cross the poverty line.

In this scenario, there has been an increased focus on public works programmes in an attempt to create supplementary wage employment for the rural poor and under-employed in order to supplement their incomes, especially in lean agricultural seasons. While the primary objective is the creation of supplementary wage employment, the secondary objective is the creation of rural infrastructure by taking up projects like soil conservation, water conservation, social forestry, small irrigation tanks and ponds, rural roads, and social infrastructure such as school buildings, health centres, etc.

¹The views expressed are those of the author and do not reflect the organization she works for.

This paper is confined to the role of public works and other labour-based infrastructural programmes in poverty alleviation in rural India. An attempt is made to analyse the role of public works type programmes in poverty alleviation on the one hand, and that of rural infrastructure development on the other, in order to identify the relative merits of these two approaches in the context of poverty alleviation on a sustainable basis in rural India.

The structure of the paper is as follows: In Section 2 trends in poverty are presented. The impact on public works programmes on poverty is discussed in Section 3. Section 4 deals with rural infrastructural development type programmes. Finally, in Section 5, an attempt is made to put these two approaches in the context of an appropriate strategy for poverty alleviation.

Section 2

Trends in Rural Poverty

There is a consensus that over the decades of the 1970s and 1980s there was a considerable decline in poverty, especially rural poverty, as measured by the head count ratio. Table 1 below gives the trends in poverty, both rural and urban at the All-India level over the last two decades.

Table 1. Percentage of Population Below Poverty Line : All-India

	Rural	Urban	Combined
1973-74	56.44	49.01	54.88
1983	45.65	40.79	44.48
1987-88	39.09	38.20	38.86
1993-94	37.27	32.36	35.97
1999-2000	27.09	23.62	26.10

Source : Government of India, Planning Commission.

Rural poverty declined from an estimated 56.44 per cent in 1973-74 to 45.65 per cent in 1983 and further to 39.09 in 1987-88 as per the official estimates made by the Planning Commission. In 1993-94, the incidence of rural poverty was 37.27 per cent (GOI Planning Commission 1997 and 2001). These estimates are based on the consumer expenditure data as obtained from the quinquennial rounds of the NSSO. Alternative estimates made by individual scholars are similar (Tendulkar 1998, Datt 1999).

In the 1990s data on consumer expenditure were collected annually by the NSSO, but these were based on thin sample surveys. Poverty estimates based on these suggested that, in the 1990s, rural poverty remained largely unchanged, though there were annual fluctuations. While no official estimates of poverty are available based on the thin samples, several individual researchers have made these calculations and their estimates correspond closely (Tendulkar 1998, Datt 1999, Gupta 2000).

However, recently the results of the large sample survey on consumer expenditure for 1999-2000 were released by the NSSO. Poverty estimates based on these, show a significant decline with

rural poverty estimated at only 27.1 per cent. This has led to considerable debate among scholars. Some argue that the decline is a real one consequent on the impact of economic reforms, while others contend that the other correlates of poverty suggest that such a decline is highly improbable over a 5-6 year period. In the first instance, it must be recognised that the estimates for 1993-94 and 1999-2000 are not comparable due to changes in the methodology of data collection. In the case of food items, data were collected using both a 30-day and a 7-day reference period from the same household, while earlier it was a 30-day recall period. Further, in the case of some non-food items like clothing, footwear, medical expenditure and durable goods, a 365-day recall period was used (GOI Planning Commission 2000, Sen 2000).

While the focus of this paper is on the impact of specific interventions through their employment-creation effects on poverty alleviation, at the risk of digression, it may be worthwhile to examine briefly some of the other correlates of poverty in order to see if they corroborate a decline in poverty.

Economic growth is a necessary but not a sufficient condition for poverty reduction. It is the pattern of growth and its distribution among different segments of the population which impacts on poverty. In the late 1970s and 1980s the growth in GDP was modest, while poverty reduction was high. However, agricultural growth was high in selected areas, consequent to the Green Revolution, and this was poverty reducing because it was characterised by high employment elasticity and high labour productivity. Evidence suggests that in the 1980s, agricultural production increased by 3.94 per cent per annum, whereas in the 1990s it was sluggish and increased by only 1.94 per cent. (Bhalla, G.S. 2002). In the Indian context, there is a consensus that agricultural growth holds the key to poverty alleviation. However, a word of caution. If initial inequalities are large, the 'trickle down' may not happen. The domination of large landowners in the labour market may keep wages depressed leading to a large number of 'hardcore poor' (Gaiha and Imai, 2000).

Increase in real wages of agricultural workers also reduces absolute poverty. During the 1980s the annual rate of increase in real wages was 4.68 per cent, while in the 1990s it was only 2.04 per cent (GOI Planning Commission, 2001). At the same time, wholesale price index for foodgrains increased more rapidly than for all commodities taken together, which means that the price of foodgrains grew faster than the price of non-food items, and, given that the poor spend a much larger proportion on foodgrains, this too would have affected them adversely.

In sum, though poverty may have declined between 1993-94 and 1999-2000, it could not have been as dramatic as the estimates for 1999-2000 suggest.

If one looks at the regional dimension of poverty, there is a concentration of the poor in 6 of the 15 major states, namely, Assam, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh and West Bengal, both in 1993-94 and 1999-2000. These data are presented in Table 2.

Table 2. Rural Poverty Ratio: Statewise

	State	1973-74	1977-78	1983	1987-88	1993-94	1999-2000
1	Andhra Pradesh	48.41	38.11	26.53	20.92	15.92	11.05
2	Assam	52.67	59.82	42.60	39.35	45.01	40.04
3	Bihar	62.99	63.25	64.37	52.63	58.21	44.30
4	Gujarat	46.35	41.76	20.80	28.67	22.18	13.17
5	Haryana	34.23	27.73	20.56	16.22	28.02	8.27
6	Karnataka	55.14	48.18	36.33	32.82	29.88	17.38
7	Kerala	59.19	51.48	39.03	29.10	25.76	9.38
8	Madhya Pradesh	62.66	62.52	48.90	41.92	40.64	37.06
9	Maharashtra	57.71	63.97	45.23	10.73	37.30	23.72
10	Orissa	67.28	72.38	67.53	57.64	49.72	48.01
11	Punjab	28.21	16.37	13.20	12.60	11.95	10.05
12	Rajasthan	44.76	35.89	33.50	33.21	26.46	13.74
13	Tamil Nadu	57.43	57.68	53.99	45.80	32.48	20.55
14	Uttar Pradesh	56.53	47.60	46.45	41.10	42.28	37.22
15	West Bengal	73.10	68.34	63.05	48.30	40.80	37.85
	All India	56.44	53.07	45.65	39.09	37.27	27.09

Source : Government of India, Planning Commission, Perspective Planning Division.

Surprisingly over the six-year span rural poverty declined in all states without exception, though in Orissa this decline was minimal. Again the States which have persistent poverty are also those where there was a slow growth in agricultural production. In fact, Orissa had a negative rate of growth. But in Bihar, U.P., M.P. and Assam the rate of growth in agricultural output does not explain the decline in poverty between 1993-94 and 1999-2000. These States also have poor social indicators with low levels of achievement in the decade of the nineties. Most States are facing a fiscal crisis with little investment in developmental programmes. This too corroborates that the decline in poverty between 1993-94 and 1999-2000 cannot be real. Hence, it is necessary to bear in mind that the decline in rural poverty could not have been as large as the estimates suggest. A further disaggregation by NSSO regions brings out the inter-State differences in rural poverty, which is very marked in some States (Datta and Sharma 2000). On the whole, there appears to be a concentration of rural poverty in two broad geographical areas, namely, the Eastern region consisting of Assam, Bihar, Orissa, West Bengal and Eastern U.P., and the central largely tribal belt, covering large parts of Madhya Pradesh, Maharashtra, North Karnataka and South and Central Uttar Pradesh. These two regions are characterised by completely different natural resource endowments and would require somewhat different strategies for poverty alleviation. We shall return to this later.

Section 3

Impact of Public Works Programmes

In India, specific anti-poverty programmes, especially rural works programmes, have been in operation since the 1960s, but their scale has been enhanced since 1980, with considerable increase in the funding of these programmes. This was required despite the decline in poverty, because the number of poor remained large.² Wage-employment programmes provide relief to the unemployed/under-employed rural poor in lean seasons and, by intervening in the labour market, smoothen seasonal fluctuations in employment and incomes.³ An important feature of wage-employment programmes like the Jawahar Rozgar Yojana (JRY) and the Employment Assurance Scheme (EAS) is their 'self-targeting' nature. The work requirement associated with these is supposed to function as a screening device. It is expected that only the poorest, who do not have any other opportunities open to them, will participate in these programmes, as payment of wages is contingent on fulfilling the work requirement. A demand for unskilled labour is created via these programmes as skill accumulation tends to be low among the poorest classes. It is stipulated that all projects undertaken under these schemes will use labour and capital in the ratio 60:40 (i.e. the ratio between wage and non-wage cost of projects). This is to ensure that these projects have a high labour content and hence high employment potential.

The benefits accruing to the poor from these programmes are classified into transfer benefits, both direct and indirect, and stabilization benefits (Gaiha, 1997a). Direct transfer benefits relate to the short run income gains to the poor from being employed, whereas indirect benefits relate to the benefits accruing to the village community in terms of the infrastructure and/or other community development projects undertaken as part of the programmes. As for stabilization benefits, the wage incomes earned through the JRY or EAS provide a stream of income during the lean season and thereby prevent the distress selling of assets by the rural poor. In this sense these schemes have a stabilization effect on the income streams of the poorest classes.

Further, they also lead to the creation of some durable assets. These include, social forestry, minor irrigation works, soil conservation, wells, tanks and ponds, rural roads, school buildings, anganwadis, community halls etc. Let us briefly examine the impact of public works programmes on the poor.

The JRY was launched by the Central Government in April 1989, by merging the erstwhile rural wage employment programmes. The main objective of the programme was the generation of additional gainful employment for the unemployed and underemployed rural poor through the creation of rural economic infrastructure and community assets. It was largely implemented through the elected local bodies at the village level, called the 'gram panchayats'. However, as each village had to be covered, it resulted in a thin spread of resources, and the employment effects were meagre.

The JRY has been restructured and renamed. It is no longer a wage-employment programme

² The number of rural poor were around 250 million between 1973-74 and 1993-94.

³ For an excellent and succinct discussion on public works programmes in the context of poverty alleviation see Lipton M. *Successes in Anti-Poverty*, ILO, Geneva 1998.

but a rural infrastructure development programme. Under the Jawahar Gram Samridhi Yojana (JGSY), as it is now called, each gram panchayat has the responsibility of preparing an annual action plan for taking up works, according to the felt needs of the people. The stipulation of 60 per cent for wages and 40 per cent for material is no longer operative. However, the types of works that would be taken up at the village level would inevitably be labour-intensive.

Another wage-employment programme, the Employment Assurance Scheme (EAS) was launched in 1993-94 in 1772 identified backward blocks situated in drought-prone, desert, tribal and hill areas. The primary objective of this programme was also creation of additional wage-employment in lean seasons. The secondary objective was creation of durable assets, both economic and social. In fact, under this it was stipulated that 40 per cent of the expenditure would be on watershed related activities, 20 per cent on minor irrigation, 20 per cent on rural roads and 20 per cent on the construction of school buildings and anganwadis. However, the EAS was progressively extended and finally universalised, again resulting in a thin spread of resources. The scheme was demand-driven with the objective that whenever there was demand for work, projects could be initiated. However, instead of the poorer areas demanding more resources, the better-off States were able to corner the lion's share, as they were more efficient in starting new works and then attracting labour, rather than waiting for people to register themselves for work.

From April 1999 the scheme has been restructured. It is a single wage-employment programme and is no longer demand driven. Fixed annual outlays are made for each State; these are based on the incidence of poverty, with the poorer states getting relatively more funds. From the States to the districts, allocations are based on an index of backwardness, which gives 50 per cent weight to the inverse of agricultural productivity and 50 per cent to the proportion of scheduled castes and scheduled tribes in the population. This does ensure that fund flow has a bearing on the extent of poverty though the quantum of funds is inadequate in districts that suffer from acute persistent poverty. Seventy per cent of the funds allocated for each district are further distributed among the blocks, with 30 per cent being retained at the district level to be used in areas suffering from endemic labour exodus/area of distress.

The EAS was modelled on the lines of the Employment Guarantee Scheme of Maharashtra (EGS). The EGS is the most well conceived rural works programme, introduced in Maharashtra in 1972-73 when the State was facing an acute drought. It was given a statutory status in 1979. Two-thirds of Maharashtra is semi-arid and drought-prone with rural poverty as high as 50 per cent. In contrast, the coastal area, near Mumbai, has an incidence of poverty of only 15 per cent while the inland area bordering the coastal area of 25 per cent (Datta and Sharma 2000). The EGS Act provides that any adult person in rural Maharashtra has a right to work as unskilled manual labour, provided they get themselves registered at the local level as persons seeking work. Thereafter, work had to be provided within 15 days of it being demanded. The funds for this scheme are raised from additional taxes, primarily from a professional tax. The permissible works are those that help in the development of rural, especially agricultural, infrastructure; these include minor irrigation works, soil conservation, afforestation, desilting of tanks, stone cutting and roads. Wages are paid piece-rate, and while initially they were lower than market wages, in 1985 a Minimum Wage Act was passed to regulate wages. However, four zones were created with differential wages (Acharya 1990).

Impact of Wage-Employment Programmes

a) Targeting:

Wage-employment programmes are self-targeting in nature which is considered a major strength of these programmes. However, a number of studies report widespread mis-targeting where the benefits meant for the poor fail to reach them altogether. This is a serious problem even in Kerala, which is a highly developed State, as studies report widespread inclusion of ineligible beneficiaries in the anti-poverty programmes in the State (Kannan, 1995). In particular, two aspects of mis-targeting have been estimated empirically. One refers to E-errors, which measure the proportion of non-poor among the total number participating in the programme. The second, F-errors, measure the proportion of poor population in the programme area excluded from programme benefits. The sum of the E- and F- errors give an aggregate measure of accuracy of targeting of the programmes. The greater the value of (E+F) the lower is the overall accuracy. Studies by Gaiha et al. (2001) reveal substantial E- and F- errors in the case of the wage employment programmes. Mis-targeting tends to occur via the level of wages offered under the JRY and EAS. Where these wages are higher than the prevailing market wage rate in the village, there is incentive for the non-poor to participate in the programmes.

The notion of a poverty line in India is based on adequacy of calorie intakes for subsistence. However, even those above the poverty line could do with some extra money for meeting other basic requirements like clothing, health care, expenses on religions, cultural functions, marriages, etc. Therefore, persons from 'above poverty line' families could also seek work on public works programmes especially in lean seasons. In so far as minimum wages are paid to them for doing hard physical work, in our opinion these people are needy and hence to some extent the mis-targeting may be justified.

b) Scale and Coverage:

The outlays for JRY and EAS increased rapidly from the early to the mid 90s as shown in Table 3. However, thereafter, there was an apparent decline, which is really illusory. This is attributable to the fact that from 1995-96, two special schemes of the erstwhile JRY, namely, the Indira Awas Yojana (Rural Housing) and the Million Wells Schemes, were delinked and made into independent schemes. With the exclusion of these two schemes, the outlays were perhaps constant. However, in the year 2000-01, there is a sharp decline in the outlay as a conscious decision was made to allocate more for watershed development while keeping the overall outlay for the rural development sector more or less constant. It may be noted that in terms of man days of employment generated, there is a significant decline over the period 1996-97 to 2000-01. Part of the explanation lies in the fact that from 1999-2000, JRY became a rural infrastructure development programme without the stipulation that 60 per cent be spent on wages and 40 per cent on materials. This obviously had a noticeable impact on the extent of employment generated in 1999-2000. With the earlier stipulation of 60:40 for labour material component on these works, it was felt that there was wide scale fudging of muster rolls and of measurement books in order to meet these mandatory conditions. Clearly the relaxation of the stipulation may have reduced the fudging of muster rolls as there was no pressure on meeting targets consistent with the stipulated wage material norm.

Table 3: Financial & Physical Performance under Wage Employment Programme (JRY & EAS)

	Allocation Rupees million	Employment generated million mandays
1991-92	26209	809
1992-93	31691	782
1993-94	46082	1075
1994-5	57870	1226
1995-96	69803	1242
1996-97	46607	804
1997-98	49596	868
1998-99	50822	792
1999-2000	46370	547
2000-2001	38751	Nil

Note: 1. From 1995-96, the rural housing and million well scheme were delinked from the erstwhile JRY and made into independent schemes and hence the allocations declined from 1996-97.

2. \$ 1 = Rs.48.2

c) Employment and Incomes:

Several attempts have been made to quantify the employment and income benefits, both direct and indirect, of these programmes. The World Bank has summarised the results of 'a benefit incidence analysis' of the alternative poverty alleviation programmes carried out by several researchers in the Indian context. These studies show that wage employment programmes are by far the most effective in reaching the poor (World Bank 1998).

Direct income benefits accrue to the poor through income transfers. In a study of Ahmednagar, it was found that the direct transfer benefits to the EGS participants were high and, given the lack of alternative employment opportunities, the income stabilization effects were also substantial. In the absence of EGS some of the poorest would have been without incomes for survival. Considering the paucity of funds, the participation was less than it would have been, given the extent of demand for work. Yet, the programme was more honestly and effectively implemented and hence had a positive impact. In another study, it was again observed that the EGS projects did generate net income gains to the participants and these direct transfer benefits led to a reduction in poverty (Gaiha et al. 2001).

Wage-employment programmes can also make an impact on income levels through wages. Firstly, one mechanism operates through the effects the employment projects have on agricultural productivity and via that on the agricultural demand for labour. Second, to the extent that the employment programmes contribute to a greater awareness of the potential for collective action among rural workers, the oligopsonistic power of large landholders in wage bargaining is likely to be weakened. This puts further upward pressure on agricultural wages. The additional employment opportunities created during the agricultural lean season, via these programmes, prevent the market wage rate from falling below a certain minimum level and help to reduce out-migration to the urban areas. For instance, Parthasarathy (1995) points out that employment programmes led to upward pressures on the minimum wages in rural Andhra Pradesh. In effect, by providing an alternative, these programmes lead to a uniform wage rate rather than a segmented labour market in a single locality, as suggested by the experience of West Bengal (Dasgupta, 1995). An evaluation of the Employment Guarantee Scheme (EGS) in Maharashtra by Gaiha (1997) reveals that the short-term impact of EGS on agricultural wages is small while the long-term effect is relatively large.³ Sharma (1995) cites evidence from Bihar to show that the JRY influenced the rural labour market and led to upward pressures on the agricultural wage rate. In a more recent survey of 36 villages in Bihar, it has been shown that where the presence of Government programmes was larger the market wage-rates were higher than in the other districts. A cross-section regression analysis reveals that the percentage of beneficiaries covered has a significant and positive impact on the daily average wage-rates within the village (Sharma et al. 2001).

The indirect benefits of a programme like EGS, through wage-increases have also been observed. In a study for the period 1979-89, it was found that participation under EGS dropped from 17.7 per cent to 9.4 per cent. This drop took place between 1986-87 and 1989-90. In 1986-87, 186.7 million person days of employment had been generated while in 1989-90 it was only 78 million person days. This was largely attributable to the wage increase that took place in 1988 (Gaiha and Imai 2000). This has been attributed to rationing, which was inevitable as wages increased without a matching increase in the outlays for EGS. While Ravallion et al. (1993) showed that about 86 per cent of reduction in EGS attendance was due to rationing, Gaiha (1997) attributes 50 per cent of the reduction to rationing. Further, it is likely that the reduction in attendance was due to an expansion in farm and non-farm activities. Clearly, the impact of this reduction in employment would have adversely affected the poor as many of them would have been excluded from EGS work opportunities. However, it is difficult to estimate the aggregate welfare measure of the poor consequent on the reduction in employment consequent on a rise in wages. It could be argued that fewer persons would have been able to get employment on EGS works, given the same quantity of funds. However, it must be remembered that the EGS programme guaranteed employment to those who had registered for work and were willing to do manual jobs. Hence it could be presumed that more people were not looking for employment on EGS works as there is no case reported of people seeking work and not getting it with compensation having to be paid to them.

Both under JRY and EAS the employment generated per person has been too inadequate to bring about any meaningful increase in the earnings of the beneficiaries. As per the concurrent evaluation carried out by independent researcher agencies, 11 days of employment was generated per person in 1993-94 (MORD, 1996). Again in a recent evaluation of the EAS, it is estimated that on an average 31 days of employment had been generated on EAS works and an annual 25 per cent of those who registered themselves in work got employed (GOI PEO 2000). In a quick evaluation study of JRY it has also been pointed out that on an average only 16.67 man days of employment

were generated per beneficiary over a three-month period (ISDM 2000). This certainly brings out the inadequacy of the programme to create direct employment even in lean seasons. Of course, the study shows that while in Orissa, 52 days of employment were generated, in Madhya Pradesh, it was as low as 3 days. This suggests that in some areas the programme is able to meet the minimum requirements in lean seasons, while in others there is need to upscale the programme. However, it should be noted that 75 per cent of the beneficiaries derived income benefits, 22 per cent were able to save more, while the others were able to spend more on health, safe drinking water, and nutrition. Hence, the employment was viewed as having a positive impact on the quality of life of the poor.

While wage employment programmes do generate employment in lean seasons and have also pushed up market wages, it is important to note that the projects taken up under these programmes have tended to benefit the land owners more, especially, the larger ones. This point is brought out succinctly in a survey of EGS carried out in 1977 (GOI PEO 1980) which revealed that projects like percolation tanks and rural roads, which have substantial output enhancing effects, favoured the land-owning class. The location of the asset was important in this case. For instance, a percolation tank if situated in an affluent area would have a different impact than one situated in an area for the benefit of small and marginal farmers. However a shift in the guidelines away from community assets to individual assets under the Jawahar wells and horticultural components of the EGS has meant greater public investments on private lands. Yet, it cannot be gainsaid that projects taken up under wage-employment programmes should be closely linked up with creation of agricultural infrastructure which holds the key to poverty alleviation through its positive employment and income effects.

It is widely accepted that agricultural growth is one of the major factors contributing to poverty alleviation (Dev 2000, Ravallion 2000, Gaiha and Imai 2000). The case of Punjab underscores the importance of agricultural growth for poverty alleviation (Shergill and Singh 1995). The authors find that the proportion and absolute number of poor declined at a steady rate both during the initial and major phase of the green revolution technology. Hence they assigned an important role to agricultural growth in eliminating rural poverty. This has been further stressed in a study of Haryana (Bhalla 1995). However, in this study the allocations for public works were marginal to the process of agricultural growth. These programmes generated demand for unskilled workers for which they were not too many takers in the prosperous state, particularly, as the market rate was higher in many case than the wages offered under the programme.

In practice poverty alleviation and agricultural development are viewed as different issues. For instance, a case study of the performance of the Poverty Alleviation Programmes in Karnataka reveals there was no coordination between the irrigation and other rural development activities which led to the misuse and even wastage of valuable resources (Vyasulu, 1995). Vohra (1996) also stresses this point. According to Vohra, the most important reason for rural poverty is the sub-optimal use of our natural resources of land and water. As such he advocates that programmes like the JRY and EAS should be merged into one scheme for 'soil and water conservation' and be run by a single department. This would also save wasteful expenditure currently incurred in the absence of inter-departmental co-ordination. Hirway has also drawn attention to the need for concentrating on works, which lead to better management of natural resources, especially works which can assist in drought proofing so as to reduce short-term drought relief works (Hirway 2001). The need for a better coordination between programmes of agricultural development and poverty alleviation have been spelt out and reiterated by Prof. C.H. Hanumantha Rao. According to him there has been a complete

dichotomy between the two, the former being concerned with increasing yields of individual farmers without any assessment of local needs and the latter much less concerned with increasing productivity and employment on a sustainable basis (Rao 1992, Rao 1994, Rao 1998).

Section 4

Rural Development Type Programmes

In a study of rural poverty in India, Fan *et al.* have examined the role of government expenditures on poverty, in an attempt to identify certain 'endogenous' variables that may impact on poverty (Fan et al.1999). Using state-level data for 1970-1993, for India, the study shows that additional investment in roads is the most poverty reducing, followed by agricultural research and extension. Both these factors operate through increases in agricultural productivity. Education is the third most important factor; it is poverty reducing as it creates greater non-farm employment opportunities and thereby induces wage-increases. According to Fan *et al.* additional investments in irrigation lead to agricultural growth, but have less impact on poverty. Expenditure on poverty alleviation programmes is poverty reducing but its impact is less than that of expenditure on roads, agricultural research and education. Surprisingly, the study found that expenditures on soil and water conservation, and on health, had minimal impact on poverty. Similar exercises done by other researchers have produced different outcomes. K.N. Ninan has shown that there exists a strong negative correlation between agricultural growth and rural poverty, and also that infrastructure development index is also negatively associated with inter-states differences in rural poverty (Ninan 1996). A. Sen found that aggregate state expenditures had a significant impact on poverty, but the same could not be established by regressing on individual items of government expenditure (Sen 1996). In contrast, Datt and Ravallion did not find any significant correlation between aggregate state expenditures and rural poverty reduction (Datt and Ravallion 1988). Of course, they both show that higher agricultural growth is poverty reducing.

In our opinion, a regression analysis based on aggregate data, does not provide satisfactory answers to the question of what kind of government spending would be poverty-reducing. The issue has to be addressed with respect to specific strategies that are feasible and possible in different regions of the country. Let us elaborate. Broadly speaking, agricultural growth still holds the key to poverty reduction in the Indian context. There is considerable scope for increasing agricultural productivity through greater investments in irrigation and also through access to appropriate technologies, better land and water management practices and infrastructural support. It is well documented that in the 1970s and 1980s, the Green Revolution technology on irrigated lands resulted in higher productivity. This helped reduce poverty through induced wage-effects, consequent on increased demand for labour due to multiple cropping, as well as direct increases in self employment and productivity on own-farms. Hence, greater investment in irrigation should receive top priority. While evidence suggests that public capital investment in agriculture declined significantly from Rs. 60 billion to Rs. 25 billion in 1994-95, in recent years there has been an increase in private investment especially for minor irrigation. The Government too has introduced new schemes to encourage state governments to complete on-going irrigation projects, like the Accelerated Irrigation Benefit Programme.

As we stated at the outset, poverty is concentrated in the eastern region and in the central tribal belt. In the eastern region, ground water can easily be accessed but it requires a massive effort

at the energisation of tubewells and pumpsets which, in turn, require rural electrification. In areas of rainfed agriculture, including the tribal belt of Central India, watershed development has been identified as the appropriate strategy for overall development of the region and for poverty reduction. This is contrary to the results of the study made by Fan et al. (1999). Watershed projects require holistic planning from ridge to valley along a slope. Plans for micro watersheds covering 500 hectares are prepared. All adult members of the village community participate in the planning and implementation of these works. The guiding principle is based on the *in situ* conservation of water, preventing its run-off to the bottom of the slope. In this way, varied activities can be pursued, with development of fodder/pastureland, horticulture and social forestry on the higher slopes depending on the nature of soil, climate, etc., and crop culture in the valley. This ensures optimal use of water, which is now the most scarce natural resource. The interests of the landless have to be protected through creation of non-farm employment and/or through institutional arrangements for equitable sharing of natural resources. In the states of Andhra Pradesh and Madhya Pradesh, concerted efforts are being made for the development of degraded lands on a watershed basis. The approach is a participatory one with the involvement of all potential beneficiaries. Success stories abound. Just by way of an illustration, it has been documented in a study of a village in Gujarat, that almost the entire population was brought above the poverty line through an integrated watershed project. Agricultural production increased from 900 kg per hectare in 1941 to 4000 kg per hectare in 1998. There were 2 lakh trees in 1998-99 as against 50 trees in 1991 and the village had all the basic infrastructural facilities. It is stated that 300 such tribal villages across three states had similar success under the leadership of an NGO called the N.M. Sadguru Foundation (GOI Planning Commission 2001).

In addition to water, agricultural growth requires import of appropriate technologies and extension services for transferring research from 'lab to land'. Investment in research and development is critical, particularly in developing new strains of crops suitable for rainfed areas. Further, providing access to land is still important from the viewpoint of poverty reduction through self-cultivation; this does not mean ownership of land but rights of cultivation through leasing of land. In some areas it means usufructuary rights for non-timber forest produce and given to the poor, they can take care of their subsistence.

While increase in agricultural growth is still the first best strategy for poverty reduction, through greater labour absorption and higher labour productivity, the demographic pressure on land is making it difficult for people to sustain a livelihood from agriculture. Hence, there is now a need to shift labour out of agriculture into rural non-farm employment.

It has been argued that in the 1980s rural non-farm employment contributed to poverty reduction. The share of non-agricultural employment increased from 15 per cent in 1977-78 to 22 per cent in 1987-88 to 23.7 per cent in 1999-2000. And this trend was observed in almost all the states. However, it is not clear whether the growth of non-agricultural employment in rural areas was residual or due to positive 'pull' factors. It is possible to argue that increased government expenditure both in the form of transfers and subsidies has also enhanced development expenditure in rural areas, would have created demand for goods and services, other than for food, and given a fillip to the non-agricultural sector. It is estimated that real per capita development expenditure of the government increased by 6 per cent annually, while real per capita GDP increased by only 3 per cent. In the 1990s, the GDP growth rate was high at about 5.5 per cent per annum, but the real per capita development expenditure remained stagnant (Sen 1996). Even though growth in the non-farm

employment has been identified as a 'pro-poor' process with direct impact on poverty, very little has been done by way of policy intervention to promote non-farm employment, which requires a holistic strategy of skill upgradation, training, access to credit and appropriate technologies, and markets.

However, availability of infrastructural facilities is also an imperative pre-requisite for development. Of prime importance is rural connectivity, which is a means of access to information, inputs, credits and markets, especially for bringing marginalised groups into the ambit of the development process. In a state like Bihar, where there is only 27 per cent connectivity of villages by rural roads, the process of growth would clearly bypass a large majority. Rural electrification is also important, especially in regions where ground water exploitation is easily possible through energisation of tubewells for irrigation. Finally, investment in human development is now recognised as the pivot of growth. Access to primary education and to primary health care, in a given time-frame must be provided to make people employable by building up their capabilities and energies.

The above analysis shows that there is no unique solution for reducing poverty. Different strategies have to be formulated for different regions. In so far as there is a concentration of poverty in areas characterised by low agricultural productivity, there exists considerable potential for bringing about increases in output through greater investments in irrigation and water management techniques. These processes are labour-intensive and hence impact favourably on the poor both through direct employment effects as well as indirect employment benefits made possible by multiple cropping. Further, greater production would lead to both increases in wage-rates and a decline in the relative price of foodgrains. Also, construction of rural roads, which is a priority for development, is labour-intensive and, hence, creates direct employment on construction activities, as does indirect employment through creation of subsidiary activities in the transport and services sectors. These observations are supported by two labour-based infrastructure projects undertaken by the district authorities with the support from ILO and DANIDA. Each of these projects were located in drought-prone districts of India: one in Bundwan block of Purulia district in West Bengal (Singla and Ghosh 1989); and the other in Thally block of Dharmapuri district of Tamil Nadu (Singla 1995). Let us very briefly analyse the salient features of these projects.

In Bundwan, the focus was on storage of water for irrigation, and on its even distribution to all farmers through feeder channels and lining of canals. In addition, some training-cum-production centres were also set up to promote non-farm activities. In the second phase, there was diversification into forestry, fishing, animal husbandry and wasteland development. It is estimated that of the total outlay, 57 per cent was the wage component. The irrigation facilities that were created provided long-term sustainable employment, as did the other sectoral activities. However, the success can be attributed to the preparation of a detailed project, which had built into it the creation of durable assets, long-term employment and use of appropriate technologies. People's participation was ensured through beneficiary committees, but this was possible as West Bengal had decentralised its planning process with panchayats responsible for the preparation of plans, based on available resources and local priorities. This project was thus an integral part of the block development plan and was supported by other sectoral programmes implemented at the block level.

In Thally too the emphasis was on minor irrigation and soil conservation, but rural roads received equal importance. Sericulture and forestry were taken up as the primary activities; these were viable with very high economic rates of return. It has been estimated that the proportion of

poor households decreased from 70 percent to 53 percent between 1985-86 and 1992-93. However, the long-term sustainability will depend on several factors, including maintenance of structures/assets whether tanks, soil conservation works or roads. In so far as sericulture is concerned the sustainability would depend on the market for silk, and in the forestry sector on active community vigilance. In both these projects, a watershed approach was adopted, with a detailed block level plan for the holistic development of the area.

However, while in these two projects labour-intensive works were taken up, it is also necessary that appropriate labour-intensive technologies are adopted, to the extent feasible. For instance, it has been shown that adoption of labour-intensive technology for rural roads generated 2821 person days of employment per kilometre of construction while, in equipment-intensive construction works the employment generated was insignificant. In most cases, to ensure quality and cost-effectiveness adoption of intermediate technologies provides the optimal solution. For instance, one could use animal-drawn road rollers or power rollers and tractor-trailers, whenever required. This combination of labour and equipment in a process is termed 'labour-based' technology (Kapila 1994). In the Indian context, there is a need for appropriate intermediate labour-based technologies, and there is considerable scope for it in construction-oriented infrastructure like irrigation projects and rural roads. Quite often there is a sudden shift from labour-intensive to mechanised processes, which are labour displacing, and not warranted.

In so far as the infrastructure development programmes are concerned, their impact on employment generation and poverty reduction has not really been analysed except in few studies at the macro level discussed above. The two micro studies derived from field investigations in two blocks are illustrative of the impact that a labour intensive approach to infrastructure would have. A word of caution has been expressed regarding the possibility of going in for capital intensive technologies and processes, which were more cost effective in the long run, but would adversely impact on employment and poverty. More public resources are being directed to the development of rural infrastructure with greater investments in roads, irrigation, watersheds, power generation and communications. For instance, the Central Government introduced a new scheme for rural connectivity last year with an annual budget of Rs.2500 crore and for irrigation Rs.2000 crore is now being provided under Accelerated Irrigation Benefit Scheme. These are State subjects as per the Constitution, but the Centre is supplementing the efforts of the State Governments. In addition, greater focus has also been placed on social development with higher allocations for education and health ; for elementary education the Centre spent Rs.4500 crore (\$ 934 million) in 1997-98 which increased to Rs.7600 crore (\$ 1576 million) in 2001-02, while for health and family welfare the annual outlay increased from Rs.3000 crore (\$ 622 million) in 1997-98 to Rs.5660 crore (\$ 1174 million) in 2001-02. Greater research is required to quantify the impact of transport and energy sectors on poverty reduction, rather than concentrating on looking at the economic efficiency and value addition aspects alone. Investments in these sectors would impact favourably on poverty both through the direct employment effects and through indirect employment opportunities that they would inevitably create, but this requires greater work and documentation.

Section 5

Conclusions

The discussion in this paper clearly shows that both rural works programmes and labour-intensive infrastructure projects are required for poverty reduction at India's present level of development. We don't think there is a trade-off. The former addresses concerns of current poverty through provision of employment to those seeking normal work on public works, which also lead to the creation of community assets and rural infrastructure. These works include small irrigation tanks, ponds and wells, social forestry, village roads, culverts school buildings, etc. which are critical for local level development. Here it should be noted that though these works are small in scale and meet only minimal local needs, they play an important role in stabilisation of income and in poverty reduction, both through the creation of direct employment and through indirect effects. However, no substitute for large-scale projects which require substantial capital and managerial inputs in order to create infrastructure for sustainable development. Under poverty programmes, employment is provided largely in lean agricultural season, and the programme is scaled up in the event of natural disasters, especially drought. However, these must be confined to geographical areas characterised by endemic poverty, underemployment and out-migration and/or to those areas which are drought-prone, remote and tribal-dominated. The problem has been that the Employment Assurance Scheme was universalised leading to a thin spread of resources and hence little impact on the poor. It needs to be better targeted.

However, it must be recognised that, in the Indian context, poverty is defined very strictly capturing only those who cannot eke out an existence from their incomes. However, a much larger number are willing and able to work for a given wage, especially in lean seasons, when they may be without work, as they could do with some extra income. Therefore, there is a floating population of persons above the defined poverty line, who perceive themselves as poor enough to seek employment on rural public works. This has been viewed as mis-targeting of the programme. In our view, if people are willing to perform hard physical labour on such works, they are in need of this employment and we should not be over concerned by it. The next issue follows from this, namely, whether wage-rates should be lowered, in order to enhance employment, and discourage those above the poverty line from working on these programmes. The notion of 'decent work' requires that wages be fixed in such a way as to conform to a 'subsistence wage', based on a defined poverty line, and revised periodically. The minimum wages of agricultural labour are fixed by state government and revised regularly, and these have to be paid on rural works programmes. However, as we have seen, employment generated per person is meagre. On an average 100 days of employment per person is required to make an impact on their poverty level. Furthermore, the timing and location of works should be determined by the demand for work, and the nature of projects should be as per the priorities of the village. In fact, more research is required on the impact of these public works programmes on the level of living of the poor. While some durable assets have been created, they are often either of poor quality or left incomplete. But more importantly, there is a lack of maintenance so that they fall into disuse. These aspects require attention.

In the long-run, productive employment must be created in the growth process, and this can be achieved only through development of labour-intensive infrastructure. In fact in a World Bank study for India, it has been observed that accelerated labour-intensive development is needed to reduce poverty especially in the States of Bihar, Orissa, Madhya Pradesh and Uttar Pradesh. It is

further noted that development of infrastructure is also required for reducing poverty (World Bank 1998). In the context of rural poverty reduction, greater investments in irrigation, rural roads and rural electrification should receive priority. Proper maintenance of infrastructure is a problem and imposes heavy costs. Hence, there must be a built-in provision for maintenance in all infrastructure projects. While the burden of financing falls upon the government, private investment needs to be encouraged through easy access to credit. Additional resources should be raised through user charges.

In order to improve the efficacy of India's rural works programmes as well as the various development programmes, two policy interventions are required, both of which are inter-related. First, is to ensure greater people's participation in the planning, implementation and monitoring of the programmes. Second, is the preparation of a holistic integrated development plan at the district and sub-district levels based on the resources available from various sectoral programmes/departments and on the felt needs of the people. In India, the Constitutional Amendment Act of 1993 led to the creation of panchayati raj institutions (elected local bodies) at three tiers, namely, a village, a block and a district, as institutions of local self-government. Twenty-nine subjects have been brought under their purview. In several states this procedure has taken roots, with considerable progress in transferring funds, functions and functionaries to the panchayats. At each of the three levels, local level plans have to be prepared reflecting the priorities and aspirations of the people. It is felt that over time, this process of democratic decentralisation will lead to a more responsive, transparent and accountable system of administration. However, quite often the panchayats reflect the power relationships that exist at the local level and hence may not be able to intervene effectively on behalf of, and for, the rural poor (Gaiha 1998, Lieten and Srivastava 1999, Gaiha and Kulkarni 2001). It is now recognised that gram sabhas need to be strengthened. A gram sabha is a body of all adult members of the village. They are required to meet regularly and ask the panchayats for accounts, monitor the physical progress of schemes and thereby develop a system of 'social audit'. Even though there are problems with the panchayati raj system, with evidence of corruption, over time the system will become stronger as people's awareness about their rights increases. In addition, user groups are emerging in different sectors, like the joint forest management committees, self-help groups of the poor for thrift and credit, watershed associations, water user groups etc. These too impose a degree of accountability on the bureaucratic system. NGOs also provide an interface between government and people and are playing a vital role in helping the poor and the disadvantaged to organise themselves better to fight for their rights.

In sum, a participatory development process based on integrated development plans should go a long way in articulating the felt needs of the people with a greater emphasis on providing employment to the poor and unemployed and greater investments in the development of local infrastructure, both physical and social. In fact, there has been a marked shift in recent years towards greater public investment in the creation of infrastructure for (i) agricultural growth, especially irrigation and watershed projects, (ii) rural roads, and (iii) social infrastructure, namely, health and education, while the outlays on direct poverty alleviation programmes have remained unchanged. However, at the present juncture, both are required: public works programmes to address the needs of 'current poverty' confined to selected areas characterised by endemic poverty; and infrastructural development projects, which support the creation of 'productive employment' with a shift to the latter. In designing public works programmes greater attention should be paid to a closer integration of these with programmes for agrarian and rural development.

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