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EMPLOYMENT GUARANTEE SCHEME IN MAHARASHTRA: ITS IMPACT ON DROUGHT, POVERTY AND VULNERABILITY

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Drought-prone Characteristics of Maharashtra

A large part of Maharashtra, east of Sahyadris hills, lies in the rain shadow area and receives rainfall between 400 and 800 mm per year. Altogether 87 Talukas, included in 13 districts of the State, are included in the drought-prone area program, a map of which is given below. In this region, variations in the dates of the onset and cessation of the rainy season, in the number of rainy days and in the frequency and duration of the dry spell subject agriculture to considerable risk and uncertainty. Further, the irrigation capacity in this area is limited, which makes the agriculture largely dependent upon rains. As a result, droughts occur frequently in the state (Subramaniyan, 1975).

Though Maharashtra's industrial progress, urbanization, per capita income and other indicators make it one of the more developed states in the country, its urban-rural contrast and regional disparities are enormous. Almost 65 percent of the total labor force depends on the agriculture sector, which makes the performance of agriculture critical to their employment and consumption. In the lean agricultural season or a drought year, employment opportunities in rural areas shrink, which results into significant incidence of transient poverty as against persistent poverty (Dev, 1995a).[1]

In Maharashtra, the Employment Guarantee Scheme (EGS) evolved from the relief employment programs that were undertaken during a severe drought in the state from 1970 to 1973. The drought affected 15 to 30 million rural people, constituting from 43 percent to 86 percent of the state's rural population. The persistence of drought for three years in succession, the shrinking supply of foodgrains, and the rising costs of living compelled most able-bodied men, women and children to seek employment in the relief work. The average attendance under the relief works in 1971-72 was .61 million, which increased to 1.87 million in 1972-73. During the first quarter of the year 1973-74 (the peak year of the drought) , the average daily attendance was 4.6 million, the peak being in May 1973 when nearly 5 million people were daily employed in the relief works (Subramaniyan, 1975). During the twelve months preceding July 1973, relief works generated nearly one billion person-days of employment. Reinforced by large import of foodgrains into the state, the relief employment protected peoples' entitlements. The drought did not result into starvation deaths or caused increase in morality rates, nutritional deterioration, distress sale of assets, or migration to other states (Dreze and Sen, 1989; Dreze, 1990).

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[1] Separating the 'persistent' poor from the 'transient' poor is important since the policies needed to combat the two types of poverty are quite different. Public works or relief programs primarily target transient poverty arising out of crisis, seasonality of employment, or natural disasters.

Research Objectives

Though a lot has been written on the Maharashtra Employment Guarantee Scheme (EGS) for its impact upon employment, poverty and income, its contribution to reducing risk and vulnerability has not received much attention. The objective of this paper is to assess the effectiveness of EGS as an instrument of risk and vulnerability reduction in the state. The paper argues that the EGS has been more successful in providing relief employment to the people affected by drought (insurance and stabilization benefits) rather than in bringing people above poverty line (transfer benefits). By providing employment to the people during lean season, the EGS reduces fluctuations in income and prevents people from distress selling of assets and migrating to other areas. The EGS has encouraged women's participation in labor force, increased their income, and contributed to their empowerment. Further, the EGS also has a positive impact on food security, both through the provision of wages and distribution of foodgrains.[2] The EGS has thus reduced economic and social vulnerability in the state in face of its recurrent droughts.

Though the EGS has been successful in providing drought relief, it has not really reduced the state's vulnerability to drought conditions. The paper argues that though a substantial investment has been made in the soil and water conservation measures over the years through the EGS, it has not translated itself into creation of assets in irrigation and agriculture sectors. As a result, the availability of surface and ground water to the farmers and their productivity has not increased. In recent years, the EGS has increased its coverage to include private asset-building such as wells and horticulture on farmers-owned lands, and its benefits have been found to be greater compared to the community assets such as percolation tanks. These results suggest that the EGS needs to invest in asset-building at the household level in order to get better results. It does not however imply that the EGS should withdraw from public works; rather, the EGS resources could be utilized more optimally if households are also included as target beneficiaries.

The paper has been divided into six sections. Section I introduces the concept of public works programs, its application as a safety net program and its benefits. Section II discusses the statutory and program features of the EGS and its performance over the years. The section III presents the findings on the impact of EGS on employment, income, and poverty in the state. Section IV assesses the effectiveness of EGS as an intervention in coping with the drought, reducing vulnerability of weaker social segments and ensuring food security. Section V analyzes the success of EGS in building assets at the community and individual levels and its impact on well-being. Section VI identifies the weaknesses and constraints of the EGS and suggests reforms in the program implementation.

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[2] Though the distribution of foodgrains is not a feature of the EGS, these are distributed under the program whenever the state receives it as part of the relief assistance from the Government of India.

Sources of Data

The study draws upon the data provided by the Department of Planning, Government of Maharashtra and a number of micro-studies and evaluations conducted by different institutions and individual researchers. The evaluations and micro-studies which this study has drawn its data are:

- Joint Evaluation of Employment Guarantee Scheme of Maharashtra: Planning Evaluation Organization, Planning Commission and Directorate of Economics and Statistics, Government of Maharashtra (1976)
- The Maharashtra Employment Guarantee Scheme: A Study of Labour Market Intervention: Sarathi Acharya for the International Labour Organisation (1990)
- Rural Employment and Employment Guarantee Scheme in Maharashtra: Madhusudan Sathe (1991)
- Maharashtra Employment Guarantee Scheme, Geographical Distribution of Employment: Hannan Ezekiel and Johann C. Stuyt (1990)
- Is There a Case for the Employment Guarantee Scheme in India? Some Recent Evidence: written by Raghav Gaiha (2003).

In addition to these field-level studies, the paper refers to data obtained through the panel survey of two villages in Maharashtra, Shirapur and Kanzara, undertaken by International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). Bhende and others (1990) and Walker and Ryan (1990) have presented their findings on the EGS on the basis of this panel survey. The paper has benefited from numerous other studies and published papers.

Most of the studies published on the EGS have been concerned with the administrative and financial details of the scheme, and its impact on employment and income.[3] These studies have referred to insurance and stabilization functions of EGS only cursorily. This paper focuses on these aspects, on the basis of data from these reports as well as lessons from recent droughts in the state.[4]

I. Public Works Program: Its Safety Net Functions

Public works programs, which are implemented as food for work, cash for work, or food for assets programs, are safety net programs, aimed to provide employment to poor households in crisis situations. These programs have been undertaken in both developed and developing countries for poverty alleviation and disaster relief. Public works are most effective where they provide infrastructure and employment in those areas of the country where the poorest reside. Geographical targeting is an important means to assure that such programs reach the poorest areas and the poorest people (Clay, 1986).

[3] Most of these reports are rather dated, from late 1970s to early 1990s. No comprehensive evaluation of the scheme has been attempted in the recent past.

[4] The author was involved with the drought relief administration in 2003and 2004 in the state.

Public works programs have historically been used for famine relief programs in many countries, particularly India and China. Several Western countries adopted different types of public works programs during the depression years (1931-36) and again during milder recessions. In recent years, in Asia and Africa particularly, public works programs (also known as workfare programs) have helped poor farmers and agricultural laborers to sustain their incomes in seasons when they cannot farm or during periods of drought or famine. In Latin American countries and Korea, public works program sought to mitigate the problem of urban unemployment in the wake of macroeconomic crises. Some programs such as Trabajar in Argentina, the Temporary Employment Program in Mexico, and the EGS in Maharashtra are considered to be successful in creating employment for the poor people (World Bank, 2001, 2003).

The rationale for public works programs rests on six considerations. First, these programs provide income transfers to poor households during critical times. Second, depending upon their timing, these programs also allow households to meet any consumption shortfalls they may experience during slack agricultural seasons or years.

Third, well-designed workfare programs construct or rehabilitate much-needed infrastructure. Fourth, the durable assets that these programs create have the potential to generate second-round employment benefits as needed infrastructure is developed. Fifth, the programs can easily be targeted to specific geographic areas with the highest unemployment and poverty rates. Poor areas and communities can benefit from the program directly (in terms of transfer benefits) and indirectly (in terms of the physical assets that the program creates or maintains). Finally, these programs build the capacity of communities to manage their own affairs by strengthening local governments and other institutions. They have also helped many small-scale private contractors to emerge and grow in many countries (Subbarao, 2003).[5]

Public works programs are high-cost interventions, and many governments sustain it only with the support of external donors.[6] The cost per person-day of employment created varies greatly across countries, ranging from as low as $1–2 in several South Asian programs to $8 in Bolivia.[7] The high non-wage costs and forgone earnings mean that the cost per unit (net) income transferred to poor households is relatively high. However, the program cost could be lowered by fixing the wage rate below the local market wage for unskilled labor and increasing the labor intensity of the projects undertaken. Further, as mentioned above, the program should target areas with a high concentration of poor people. On the asset creation side, though public works programs aim at creating community assets, they attach positive value to the employment of poor people, independently of the gains to society as a whole from the outputs obtained from that employment. So a public works program will tend to operate at a point where there is a trade-off between the value of the assets created and employment (Coady, 2004; Subbarao, 1997; Ravallion, 1998).

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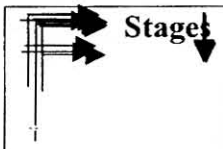
[5] http://www1.worldbank.org/sp/safetynets/Public%20Works.asp

[6] The World Food Programme (WFP) has been supporting a number of food-for-works program in Southern Africa.

[7] The cost depends on wage rate, type of projects undertaken, costs of local private contractors and administrative effectiveness. Wages represent 30—60 percent of total costs (World Bank, 2001).

Figure 1: Designing and Implementing Public Works



What you need:
Capital
Food/Cash
Implementing Agencies
Institutions

Source of financing of out of general tax revenues
Consider competing demands from other public goods
Consider other demands on scarce institutional and administrative resources

Public Works Projects

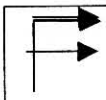
Choice of projects: community involvement
Technical feasibility, labor intensity
Level of the wage rate: mode of payment

Immediate impacts:
Assets

Targeting effectiveness
Labor market effects
Transfer gains
Stabilization gains, improved risk management
Cost-effectiveness

Medium-term impacts:
Assets

Distributional impacts of assets created
Second round employment effects
Quality of assets: Assets maintenance



Other Spin Offs

Gender impacts, women's empowerment
Food security, improved nutrition
Community mobilization

Source: World Bank, 2003

One of the ways in which the targeting and effectiveness of public works program could be increased is by promoting community involvement in selection, design, and implementation of projects. Women also need to be encouraged to participate through suitable project selection, decentralized work sites, and provision of child care (World Bank, 2001).

Poverty Alleviation (Transfer) *vis-à-vis* Relief (Stabilization) Program

The benefits accruing to the poor from these programs are classified into *transfer* benefits, both direct and indirect, and *stabilization* benefits (Gaiha, 1997). A participant get his *transfer* benefit from the wage he/she gets from the scheme, minus any costs of participation (such as the cost of transport) and any earnings lost from alternative employment. Direct transfer benefits relate to the short run income gains to the poor from being employed, whereas indirect benefits emanate from upward pressure on market wage rate or community assets created. The sum of *total* transfer earnings going to *all* participants will increase in proportion to the span of their employment (availability of work) as well as the share of wages in the total cost of the program (labor intensity) (Subbarao, 2003).

The *stabilization* benefit of the program, on the other hand, refers to its safety net or insurance function. Public works programs provide a stream of income to poor households during lean agricultural season, and enable them to smooth their consumption. It also prevents the distress selling of assets by the rural poor. In this sense public works programs have a stabilization effect on the income streams of the poorest classes (Nayyar, 2002).

II. The Employment Guarantee Scheme: Its Evolution and Entitlements

The EGS in Maharashtra grew out of pilot experiments conducted in Tasgaon block of Sangli district in 1965. Initially known as Page scheme, named after V.S. Page, the Gandhian leader and Chairman of State Legislative Council, it was expanded to cover 11 districts of the state in November 1970. The scheme was finally launched for the entire state on May 1, 1972. Soon after its statewide adoption, the EGS was suspended during the peak drought period of late 1972 to early 1974. During this period, EGS was superseded by central government programs, particularly the Crash Scheme for Rural Employment. The EGS was resumed two years later, when the state leadership felt the

need to set up a permanent scheme for protecting vulnerable groups and creating assets that would reduce the effects of future droughts (Dev, 1995a).

The Government undertook to provide statutory support to the EGS through the enactment of the Maharashtra Employment Guarantee Act, 1977, which came into force on January 26, 1979.[8] The EGS follows a right-based approach for providing rural employment on demand as expressed through the slogan, "magel tyala kam" ("whoever desires work will get it"). It is considered to be probably the most successful example of public works program in developing countries, sustaining itself as both a social safety net and a poverty reduction program for almost three decades.

The EGS provides manual employment to all able-bodied adults of villages and 'C' class municipal towns of Maharashtra who are willing to work on public works within a radius of 8 kilometers. If the work site falls beyond this distance, then the EGS act provides camp arrangements and travel expenses. The guarantee to provide work has been restricted to unskilled manual work. The fundamental objective of the scheme is that on completion of the works undertaken, some durable community assets should be generated and that the wages paid to the workers should be linked with the quantity of work done.

The EGS gives priority to those works which contribute to drought mitigation in the State. Most of the EGS works therefore relate to water conservation projects (irrigation projects, percolation and storage tanks, and underground bandharas)[9], soil conservation and land development works, and afforestation and social forestry, though rural road building is also undertaken extensively through the EGS. The works which have unskilled component of more than 60 percent of the total cost are permitted under the EGS, though these norms have been relaxed for internal roads and percolation tanks from 60:40 to 51:49.

The works are implemented through various government departments and agencies, like Agriculture, Irrigation, Public Works, Forest and Zilla Parishads (District Councils). These departments maintain muster rolls for engaging labor on their works. The EGS workers are, however, not paid on the basis of their daily attendance; rather, it is linked to the quantity of work done. Wages are set in the form of piece rates, stipulating rates of pay for a large number of specific tasks, such as digging, breaking rocks, shifting earth, and transplanting. These piece rates are fixed in such a way that an average person working diligently for seven hours a day should earn equal to the minimum wage prescribed for agriculture labor under the minimum wages act.

The State government has evolved a three-tier administrative set-up for implementing and supervising the EGS. At the Taluka level, the Tehsildar assesses the demand for employment and deploys laborers on different works.[10] The Collector supervises all the

[8] The details of scheme described here is based upon GOM (2001).

[9] The State High Court has stayed financing of major and medium irrigation projects through the EGS. The order was passed in a Public Interest Litigation, which argued that supporting irrigation projects through the EGS went against the spirit of the EGS.

[10] The State of Maharashtra has four-tier administrative structure: the state is divided into six divisions,

implementing agencies at the district level. The implementing agencies prepare plans and estimates and seek sanction of these works from the Collector. At the State level, the entire responsibility is vested in a separate department set up for the EGS and water conservation.

The Planning Department makes a budget provision and releases the Quarterly Credit limits to the Collectors. The Collectors releases the EGS allocation to different implementing agencies at the district level who in turn release funds to the sub-divisional officer for payment of expenses incurred on implementation of the works. An account of expenditure is required to be maintained by the implementing agencies at the primary and district units in accordance with the normal procedure laid down by the government.

The EGS is financed through resources raised from special taxes, such as tax on professionals and traders, additional Motor Vehicles and Sales tax, special assessment of irrigated agricultural lands, surcharge on land revenue, and tax on nonresidential urban lands and buildings under Maharashtra Education Cess Act. As the revenue from the first three items accounts for more than 90% of the total costs of the scheme, the EGS is a program funded mainly by the urban population. Revenue collected from these taxes and a matching contribution from the general revenues of the state government is credited to a separate fund the "Employment Guarantee Fund". This is to ensure that these funds are utilized only for the EGS. Unspent resources in any year are carried forward to the subsequent year.[11]

New Sub-schemes of EGS

In course of the EGS implementation, the Government introduced new sub-schemes for creating assets at the community and household levels.

Jawhar Wells under the EGS: Jawahar well scheme was started under the EGS in 1988 for providing source of irrigation to small and marginal farmers at the government cost. Initially, only small and marginal farmers below poverty line could participate in this program. In 1991, the scope of this scheme was widened to include all small and marginal farmers as per the definition of National Bank for Agriculture and Rural Development (NABARD). However, quotas have been fixed for backward classes by the size of landholding.

Horticulture Program Linked with the EGS: In June 1990, a horticulture program linked to the EGS was started. Under the scheme, a horticulture plantation which includes 25 fruit crops can be taken up for an individual beneficiary who has a landholding between 0.2 hectares and 4 hectares. The entire cost of horticulture plantation for Scheduled Caste / Scheduled Tribe / small farmers is borne by the government while others are allowed 100 percent subsidy only on labor charges and 75 percent on the cost

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each division consisting of several districts, and further divided into sub-divisions and Talukas.

[11] http://lnweb18.worldbank.org/SAR/sa.nsf/Attachments/mc5/$File/chapter-5.pdf

of material under the scheme. The program has a minimum coverage of 0.2 hectares to a maximum of four hectares.[12]

Social Forestry and Sericulture Linked to the EGS: As part of the government effort to diversify activities under the EGS, social forestry and sericulture have been initiated under the EGS. Through social forestry, the EGS aims to bring barren and unused lands under tree cover, and provide fuel wood, grass and other forest products to farmers. Similarly, the EGS has also started supporting farmers in a number of districts for sericulture-related activities.

The Performance of EGS in Maharashtra

Due to statutory support and a strong implementation structure, the EGS has become a very important intervention for poverty alleviation and drought mitigation in the state. Approximately Rs. 10,000 crores (100 billion) has been spent on the program since its inception. The program generated 3700 million man-days of employment since its beginning, making it one of the largest public works program anywhere in the world.

The wage ratio in the entire expenditure under the EGS has been above 75 percent till 1983-84. It declined thereafter till 1995-96, and the importance of skilled components increased.[13] As it went against the program's objectives of providing manual employment, the trend has been corrected. Since 1996-97, the proportion of wages in the total expenditure has increased consistently, from 70 percent to 80 percent.

[12] In Konkan region, known for its crop of Alfonso mangoes, the minimum area is 0.1 hectares.

[13] Increasing expenditure on skilled components showed greater use of machines in earthwork and road construction, and engagement of contractors through backdoor.

Table 1: Total Expenditure, Wage Expenditure and Person Days Generated under EGS 1972-2001

Year	Budget Provision (Rs. Million)	Total Expenditure (Rs. Million)	Expenditure on wages		Person Days Generated (Million)	Cost per Person Day		Av Wage/Person Day	
			(Rs. Million)	As Per Cent of Total Exp		Current Prices (Rs.)	1993-94 Prices (Rs.)	Current Prices (Rs.)	1960-61 Prices (Rs.)
1972-73	22.30	18.80	NA	--	5	4.18	23.84	--	--
1973-74	37.10	18.90	NA	--	5	3.71	18.31	--	--
1974-75	150.00	137.20	NA	--	48	2.85	12.11	--	--
1975-76	304.90	346.10	314.80	90.95	110	3.16	13.35	--	--
1976-77	500.00	511.00	383.50	75.04	137	3.74	14.87	2.81	0.91
1977-78	550.00	515.40	381.30	73.98	117	4.39	16.70	3.25	1.01
1978-79	706.30	741.70	590.30	79.58	164	4.54	16.52	3.61	1.16
1979-80	1004.00	1092.30	894.50	81.89	205	5.32	17.11	4.36	1.24
1980-81	1109.00	1221.20	926.90	75.90	172	7.12	19.94	5.40	1.41
1981-82	1160.00	1261.70	980.90	77.74	156	8.09	20.99	6.28	1.36
1982-83	1256.60	1309.30	997.80	76.20	128	10.23	25.72	7.80	1.74
1983-84	1573.40	1849.80	1393.70	75.34	165	11.24	26.19	8.41	1.68
1984-85	1557.40	2320.40	1477.70	63.68	178	13.04	28.64	8.30	1.61
1985-86	2465.50	2722.00	1819.90	66.85	190	14.37	29.39	9.60	1.79
1986-87	2260.80	2434.30	1543.70	63.47	188	12.98	25.05	8.23	1.44
1987-88	2652.40	2883.10	1533.60	53.19	133	21.63	37.85	9.11	1.46
1988-89	2500.00	2542.30	1262.60	50.00	81	31.27	50.19	15.02	2.21
1989-90	2315.40	2392.80	1234.00	53.30	78	30.68	45.91	15.53	2.07
1990-91	2369.70	2389.20	1348.20	57.37	90	26.61	35.95	15.02	1.97
1991-92	3109.50	3199.20	2020.00	63.14	119	26.79	31.96	16.91	1.71
1992-93	4532.30	4527.20	2730.00	60.30	148	30.59	33.70	18.45	1.60
1993-94	3136.20	3473.40	1830.00	52.69	98	35.30	35.30	18.60	1.80
1994-95	4131.50	3840.90	2685.50	69.92	94	40.77	36.31	28.51	2.29
1995-96	4500.00	4437.50	2695.60	63.00	97	45.75	37.44	28.82	1.93
1996-97	4182.50	3667.50	2567.30	70.00	90	40.70	31.48	28.49	1.90
1997-98	3600.00	3530.00	2576.90	73.00	90	39.22	28.72	28.63	1.88
1998-99	4890.00	4566.60	3242.30	71.00	92	49.69	34.45	35.28	2.09
1999-2000	4952.60	4939.70	3704.80	75.00	95	52.05	34.28	39.04	2.23
2000-01*	6670.30	5780.00	4392.80	76.00	111	52.55	--	39.50	--
2001-02*	6691.00	9146.50	7317.30	80.00	162	56.56	--	45.28	--
2002-03	8500.00	8890.00	5509.00	80.00	154	57.54	--	46.03	--
2003-04	1050.00	1051.52	930.21	88.00	169	62.18	--	47.00	--

* Provisional

Source: Human Development Report Maharashtra, 2002 and Department of Planning, GOM, 2003

Wages under the EGS too have shown steady increase over the years. In 1975-76, the average wage per person was about Rs. 3, which has increased to an amount between Rs. 46 and Rs. 51 presently (around US$1) in line with inflation.[14] Real wages (at 1960-61

[14] Wages under the EGS are linked to piece rates. Wages varied in proportion to the work actually done.

prices), however, did not increase until 1988, when the piece rates were doubled following a doubling in statutory minimum wage rates (Ravallion and others, 1993). Since then the EGS rates has followed the statutory minimum wages in the state.

Table 2: Year-wise Maximum, Minimum, Per Day Labour Attendance and Person Day Labour Generation under Employment Guarantee Scheme

Sr. No.	Year	Labour Attendance (In Lakhs) (1 Lakh= .1 million)			Peron Day Labour Generation (In Crore) (1 Crore= 10 m.)
1	1972-73	NA	NA	NA	0.45
2	1973-74	NA	NA	NA	0.51
3	1974-75	NA	NA	NA	4.81
4	1975-76	5.33	1.9	3.31	10.95
5	1976-77	7.16	2.94	4.56	13.65
6	1977-78	6.2	2.32	3.91	11.73
7	1978-79	8.94	3.55	5.45	16.35
8	1979-80	9.56	4.43	6.85	20.54
9	1980-81	9.2	2.96	5.7	17.15
10	1981-82	9.06	2.91	5.2	15.6
11	1982-83	7.28	3.51	4.68	12.8
12	1983-84	8.14	2.82	5.52	16.45
13	1984-85	7.58	4.73	5.98	17.8
14	1985-86	7.86	4.75	6.32	18.95
15	1986-87	10.61	3.74	6.26	18.76
16	1987-88	8.24	1.93	4.55	13.33
17	1988-89	6.1	1	2.71	8.13
18	1989-90	5.82	1.17	2.75	7.8
19	1990-91	3.46	0.82	1.82	8.98
20	1991-92	5.35	1.04	2.6	11.94
21	1992-93	9.01	1.24	3.8	14.8
22	1993-94	3.91	1.01	2.19	9.84
23	1994-95	2.93	1.04	1.89	9.42
24	1995-96	3.5	0.89	1.9	9.7
25	1996-97	1.86	0.49	1.02	9.01
26	1997-98	1.43	0.53	0.96	9
27	1998-99	2.48	0.42	1.2	9.19
28	1999-2000	1.97	0.57	1.19	9.49
29	2000-2001	4.35	0.67	1.7	11.12
30	2001-2002	5.85	1.69	3.02	16.17
31	2002-2003	5.33	1.03	2.61	15.45
32	2003-2004	9.39	3.11	5.76	16.91

Source: Department of Planning, GOM, 2003

Starting with 5 million person-days in the first two years, the EGS started providing employment on a large-scale from late 1970s. In 1985-86, it reached a peak of 190 million person-days, but employment under the EGS started declining thereafter. Ravallion and others (1993) suggest that increase in the EGS wages rates in 1988 brought some rationing in employment. The workers' attendance increased again during 1991-92

and 1992-93, but since then it averaged between 90 and 100 million person-days till 2000. As the state faced a severe drought from 2000-01 onwards, the total employment created under the EGS consistently exceeded 100 million person-days. EGS has been one of the most important sources of employment for the rural non-agricultural casual labor which are among the poorest segments in the state (Acharya 1990).

Till March 2003, altogether 430,201 projects of different types were started under the EGS. Out of these works, 408,140 works have been completed. The sectoral composition of these works, which has been given in the following table, shows that the EGS has targeted agriculture-based works and assets which enhance the productivity and improves rural infrastructure.

Table 3: Statement showing works started and completed since the Beginning of EGS to March 2002

Sr. No.	Type of Work	Works started since the beginning of EGS (Temporary)	
		Works Started	**Works Completed**
1	Irrigation	51,760	48.208
2	Soil Conservation & Land Development	267,818	260,732
3	Forestry	33,518	30,599
4	Roads	61,367	53,021
5	Other works	15,738	15,580
	Total	**430,201**	**408,140**

Source: Department of Planning, GOM, 2003

The sectoral composition of EGS changed considerably over the years. In 1974-75, the main objective of EGS was drought-proofing, with 78 percent of expenditure committed to irrigation, 12 percent to soil conservation and land development, and about 3 percent to afforestation. Thus nearly 93 percent of total expenditure was directly related to drought-proofing. In 1980s, roads emerged as the most significant EGS works, claiming 40 percent of the total expenditure under the scheme, a steep increase from 6 percent of the total in 1974-75. In 1987-88, a government order brought the percentage of expenditure on road at less than 25 percent (Dev, 1995b). In 1990s, while schemes in irrigation, agriculture and forestry sectors broadly supported soil and water conservation programs, the most significant change has been increasing commitment of EGS allocations to individual asset-building such as wells and plantations in 1990s (see the table below). The percentage share of these individual asset-building schemes in total EGS expenditure has been on an average about 25 percent in the last 10 years, which suggests a major shift in the program strategy of the EGS.

Table 4: Percentage of Sectoral Distribution of EGS Expenditure since 1990-91

	Irrigation	Agriculture	Forestry	Roads	Other (Salary, Allowances etc.)	Labour, Horticulture, Jawahar Wells	Total
1990-91	14.7	13.4	16.5	19.3	22.6	13.5	100% (238.92)
1991-92	14.9	15.6	15.5	19.6	11.5	22.9	100% (319.92)
1992-93	18.8	20.7	11.4	21.6	10	17.5	100% (452.72)
1993-94	18.1	19.3	11.5	19.4	6.4	25.3	100% (347.64)
1994-95	14.3	23.2	8.8	15.2	17.2	21.3	100% (384.09)
1995-96	13.1	26.8	7.1	11.6	17.7	23.7	100 (443.75)
1996-97	14.9	14.2	8.3	14.3	8.5	39.8	100% (366.75)
1997-98	17.1	8.6	11	16.6	12	34.7	100% (353.00)
1998-99	16.7	6.8	11.6	23.4	7.8	33.7	100% (456.66)
1999-2000	11.9	6.7	11.6	27.2	13.8	28.8	100% (493.97)
2000-2001	9.1	13.8	12.9	28.2	9.5	26.5	100% (578.00)
2001-2002	21.5	13.6	11.2	32	4.8	16.9	100% (914.65)
2002-2003*	12.3	26.3	9.7	28.3	8.1	15.3	100% (889.00)

Source: Department of Planning, GOM, 2003 *Provisional

III. Impact of EGS on Employment and Income at the State and Household-level

Different studies suggest a very positive impact of EGS on rural employment in Maharashtra. According to the World Development Report 1990, the EGS provided 180 million person-days of employment, representing 3 percent of total rural employment. Osmani (1991) concludes that the EGS was able to eliminate about one-third of underemployment in the state. Acharya (1990) suggests that between 1977-78 and 1983, there is a definite rise in the proportion of work / days in this category from 2.97 to 5.37 percent. Part of this can be attributed to the EGS since, over this period, employment under the EGS had increased from an average of 319,000 persons per day to 552,000 per day (Acharya, 1990: p. 29). Dev estimated that in the absence of EGS, unemployment among rural workers would have been up by 2.5 percent. The impact of EGS is reflected in the fact that the incidence of unemployment declined much quicker in Maharashtra than in India as a whole. The decline was particularly significant between 1983 and 1987/88 (Dev, 1995b, p. 119).

Table 5: Person-day Unemployment Rates for Rural Areas: Maharashtra and all India

Years	Maharashtra		India	
	Rural Male	Rural Female	Rural Male	Rural Female
1972-73	7.7	11.7	6.8	11.2
1977-78	5.9	9.3	7.1	9.2
1983	6.3	7.2	7.5	9.0
1987-88	2.9	3.5	4.6	6.7
1993-94	4.6	4.0	5.6	5.6
1999-00	6.3	6.9	7.2	7.0

Note: Unemployment rate is defined as the ratio of unemployment days to labor force person days.
Source: Economic Survey of Maharashtra, 2001-02 (GOM, 2002)

At the micro-level, various studies find the provision of person-day employment in a year varying from 25 in GOI (1980) to 160 in Dandekar (1983). A study on ICRISAT villages-- Shirpur and Kanzara-- shows that the EGS provided about 20 percent of the total employment in Shirpur and 10 percent in Kanzara in the five-year period from 1979-80 to 1983-84 (Bhende, et.al.). In another study, Datar (1987) reported that EGS contributed 50 percent of the total employment in the survey villages. Similarly, Gaiha (2003) found that most of the respondents in two survey villages in Ahmednagar district participated in the EGS. Important reasons for participation in the EGS are lack of other employment opportunities in these villages, long slack period, travel costs involved in searching jobs in neighboring villages and lower net earnings. Since EGS offered wages on the basis of piece rates, the villages also expect to earn more on the basis of the quantity and quality of work. EGS was preferable for female participants too since it allowed them to work with their husbands.

Datt and Ravallion (1992) also confirm the positive impact of EGS on both employment and transfer benefits. Using the same data set of two ICRISAT villages mentioned above, they conclude that the opportunity cost of EGS is low.[15] For Shirapur, the main activity displaced for employment under the EGS is unemployment for males and leisure / domestic work for females. The pattern is rather different in Kanzara, where nearly a third came out of other wage labor time, and a quarter was from own farm activities. Foregone incomes are estimated at 21 percent of gross wage earnings from public works in Shirapur, and 32 percent in Kanzara. Net transfer benefits from public works generated on average (for participating household-years) a 10 percent increase in pre-transfer earnings in Shirapur, and a 7 per cent increase in Kanzara (p. 21).

Table 6: The Percentage of Below Poverty Line Families: Maharashtra and all India

Year	Maharashtra	All India
1973-74	57.71	56.44
1993-94	37.93	37.27
1999-00	23.72	27.09

Source: Economic survey of Maharashtra, 2001-02 (GOM, 2002)

[15] It refers to foregone income that workers could be getting from other sources of employment.

Table 7: Economic Status, Employment and Wages of Workers in EGS Programme as seen from Select Studies

	GOI (1980)	ISST (1979)	Dandekar (1983)	Deshpande (1982)	RDC (1985)	GOM (1982)	Acharya and Panwalkar (1988)	Datar (1987)
Survey Period	1976-78	1978-79	1979-80	1976-77	1983-84	1981	1985-86	1985-86
Belonging to Landless households (Percentage)	24	51	45	31	52	38	34	35
Belongings to marginal and small farmers (percentage)	40	30	42	31	41	40	46	47
SC and ST population (percentage)	n.a.	n.a.	42	10	50	47	100 (purposively sampled)	69
Employment Provision per person (days per year)	25 over 4 reference months only)	n.a.	160	n.a.	n.a.	n.a.	54	105
Wage rate	2.93	2.75	3.60	2.00	n.a.	n.a.	5.30	7.80
EGS contribution to income (percentage)	n.a.	n.a.	65	n.a.	n.a.	n.a.	31	36

Source: Acharya, 1990

While EGS unambiguously reduces poverty, its record on bringing the people above poverty line has been inconclusive. In another household-level study on the impact of EGS, Acharya and Panwalkar (1988) compared a sample of 100 households with workers on the EGS with another sample (of 100 households), drawn from similar socio-economic background, whose members never participated in the scheme. The average annual wage income of the EGS household was Rs. 32 higher than the wage income of the non-EGS households. This difference was reflected in households' consumption: the EGS households had an 18 percent higher per capita monthly consumption (of food and other items) compared to the non-EGS households. However, the total average income of the EGS households was, still about Rs. 3,000 less than poverty line. Almost the same conclusion was evident in the study conducted by Datar (1987). Though per-worker income earned from the EGS work was much higher in Datar's sample (Rs. 820 per annum) compared to Acharya and Panwalkar (Rs. 286 per annum), it still was not sufficient to cross the poverty line.[16]

The ICRISAT study too showed that though the earnings from the EGS primarily supported households below the poverty line in both Shirapur and Kanzara villages, relatively few households were able to cross the poverty line because of EGS participation. Assuming that male participants could have replaced one-half of their EGS earnings with income from other sources and that female participants would not have

[16] During the seventh plan period (1985-90), poverty line income was fixed at Rs. 6,400 per household per year. Under the assumption that two persons from each household participate in the EGS, the incremental incomes provided by the EGS, according to these two studies would be Rs. 572 and Rs. 1,640 respectively per annum (Acharya, 1990).

found sources of employment to substitute for the EGS, one estimates that the EGS was responsible for 5 of 41 households crossing poverty line in 1979, 2 of 46 in 1980, 3 of 40 in 1981, and 3 of 33 in 1982, and 0 of 35 households crossing the poverty line in 1983 in both villages (Bhende, et.al. 1992).

In the study conducted by Gaiha (2003) of the two villages in Ahmednagar, average annual EGS earnings were found to be substantial for both groups –Rs.3,878 among the poor and Rs.4,312 among the non-poor (at current prices). The share of EGS earnings in total household income, however, was higher among the poor (30 per cent as against 27 per cent among the non-poor). Thus, not surprisingly, the importance of the EGS as a supplementary source of income was high for both the poor and non-poor.

In a larger study of 1,715 households, Sathe (1991) finds that the contribution of EGS was only seven percent in the total annual income of the entire family. After the wage increase was effected in 1988, a supplementary survey was carried out which found the proportion of EGS to the total family income at 21 percent. The ISS study (1979) too finds that the EGS provides an avenue of supplementary income during the inter-agricultural months. An important reason why the EGS cannot help a family to rise above the poverty line is that it may not be possible in practice to provide employment to a person under the EGS for more than 200 days a year. The EGS by providing employment on a partial basis could only be looked upon as a source of supplementary employment.

Impact on Agricultural Wages

The guarantee of employment through the EGS increases unskilled laborers' bargaining strength in negotiations with an employer or landlord (Lipton, 1988). Laborers can seek employment under the EGS if the agricultural wages are too low. Though it has brought upward pressure on agricultural wages, the resultant increase in agricultural wages has been very small. Ravallion and others (1993) show that the doubling of minimum wages and the EGS wages in May 1988 had no sustainable impact on agricultural wages: little more than 10 percent of an increase in the EGS wage was passed on in the agricultural wage rate in either the long or the short run. Gaiha (2003) too reports that the EGS has plausibly a small positive effect on agricultural wages. But, even if the induced wage responses are relatively small, the overall benefits can be enormous, since a wage increase benefits not just the half-a-million EGS participants but potentially the entire work force of 8 million agricultural laborers (Datt, 1998).

Social Mobilization and Cohesion

EGS brings together a large number of workers in one place in similar conditions, which increases their interaction and helps to break down their social differences. Participation of a large number of women in the EGS workforce contributes to dissolving gender barriers. The large number of women on work sites Social mobilization of workers provides them political clout, and makes state agencies more responsive to their demands. Organization and solidarity that the EGS has brought among the rural workers has been a significant social asset despite its intangibility (Echeverri-Gent, 1988; Dev and Ranade, 1997).

IV. Impact on EGS on Drought and Vulnerability

As mentioned above in the paper, though the EGS came into effect in the entire state in May 1972 at the height of a severe drought in the state, most of the relief employment was provided under the Crash Scheme for Rural Employment. But the state government was not happy with the state's dependence on the center for drought relief. It therefore decided that the employment needs of the population in areas where conditions of drought have been declared would be met through the EGS (PEO, 1976; Dev, 1995a). The EGS thus plays a very important role in drought management in Maharashtra, something which is so different from other states in the country.[17]

The role of EGS in drought relief management can be seen from a strong negative correlation between rainfall and EGS employment. Most of the districts which rank high in terms of EGS employment receive less rainfall and are considered drought-prone. Since high demand districts are predominantly rain-fed, and produce mostly a single crop, this correlation is as expected (Dev and Ranade, 2001).

Table 8: Districts Ranked by Average Annual Rainfall, Maharashtra State

No.	Drought-Prone Districts	Average Annual Rainfall (mm.)
1	Ahmednagar	579
2	Solapur	584
3	Sangli	625
4	Beed	666
5	Dhule	674
6	Aurangabad	726
7	Jalgaon	741
8	Buldhana	803
9	Satara	803
10	Osmanabad	810
11	Parbhani	821
12	Akola	847
13	Amravati	877

Source: Ezekiel and Stuyt, 1990.

[17] All the other states in the country depend upon Sampoorna Grameen Rozgar Yojna (SGRY), a centrally sponsored program for their relief employment. SGRY is driven by allocations and target rather than demand for employment.

Geographical Distribution of EGS (District-wise)

Indicating change in the pattern of correlation, Dev and Ranade (2001) note that in early 1990s the correlation though negative is not as strong. This suggests that over a period of time, it is a particular year's actual rainfall rather than a district's normal or average rainfall, which determines the EGS employment. A look at the geographical distribution of employment under the EGS shows that over a period of time, the ranking for districts in terms of highest EGS employment have changed in response to the actual rainfall and ensuing drought conditions.

Ezekiel and Stuyt (1990) have looked at the trends in EGS employment at the district-level at three points in time—1975, 1981 and 1987. Dev and Ranade (2001) have prepared the district-level ranking on the basis of the average annual employment from 1979 to 1997. In 2003-04, we have another list of districts, which have the highest levels of EGS employment in response to a severe drought. A comparison of these lists would provide information upon effectiveness of geographical targeting of the EGS.

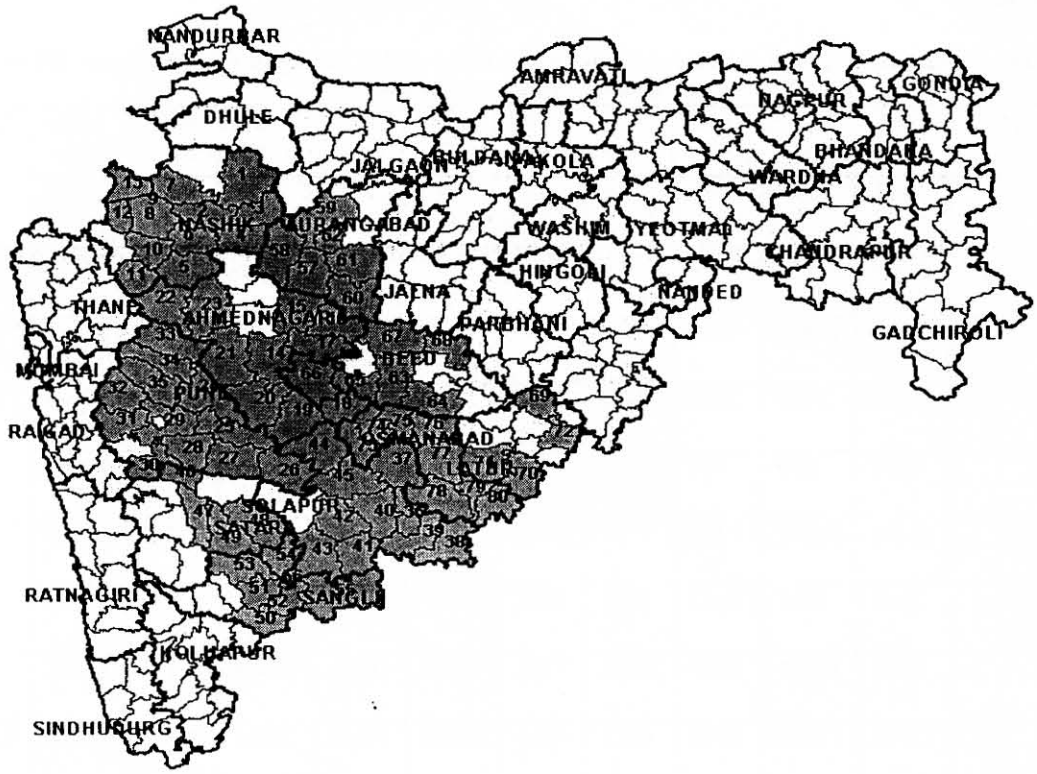
Table 9: Ranking of Districts in Maharashtra on the basis of EGS Employment

Rank	Ezekiel and Stuyt (1975)	Ezekiel and Stuyt (1981)	Ezekiel and Stuyt (1987)	Dev and Ranade (1979-97)	GOM (2003-04)
1	Solapur	Ahmednagar	Ahmednagar	Ahmednagar	Solapur
2	Ahmednagar	Solapur	Nashik	Bhandara	Ahmednagar
3	Thane	Nashik	Dhule	Solapur	Osmanabad
4	Aurangabad	Aurangabad	Osmanabad	Nashik	Beed
5	Nashik	Osmanabad	Aurangabad	Dhule	Aurangabad
6	Parbhani	Beed	Beed	Aurangabad	Pune
7	Osmanabad	Dhule	Solapur	Beed	Sangli
8	Bhandara	Bhandara	Yavatmal	Osmanabad	Satara
9	Beed	Nanded	Satara	Nanded	Latur
10	Nanded	Pune	Chandrapur	Pune	Nashik

Source: Compiled from Ezekiel and Stuyt (1990), Ranade and Dev (2001), and GOM (2004)

Out of these different lists of districts, there are six districts which are common to all the lists and where demand for EGS employment is consistently high: Solapur, Ahmednagar, Osmanabad, Beed, Aurangabad and Nashik. A large part of these districts fall in the rain shadow area of the state as shown in the map below, and are also among the lowest rainfall districts in the state as shown in the Table 6. Other districts move in and out of the list as per the annual rainfall and crop situation.

Figure 2: Map showing Drought-prone Blocks / Rainshadow Area in Maharashtra



Districts in Konkan division (Raigad, Ratnagiri, and Sindhudurg) and Kolhapur in the Western Maharashtra receive high rainfall, and the demand for EGS employment is never high in these districts. Thane, being part of the urban agglomeration of Mumbai is highly industrialized, which has reduced the demand for employment under the EGS. Most of the EGS employment is concentrated in two blocks of the district (Jawhar and Mokhada), which are predominantly tribal (Dev and Ranade, 2001). Pune, Satara, and Nashik districts contain a transition zone in the western part of district that receives between 1000-2500 mm of annual rainfall. Increase in irrigable lands and industrial employment in these districts have also dampened the attendance under the EGS. However, the eastern part of these districts lie in rainshadow area, and when rains fail in these parts, the demand for EGS employment in these districts goes up.

Sangli and Dhule districts are in anomalous situation. Despite being a drought-prone district in Western Maharashtra, the EGS attendance has never been high in Sangli, largely due to its prosperity on account of sugar mills, dairy and horticulture plantations. The situation changed in 2003, when successive droughts brought a dramatic increase in the number of people employed on EGS works in Sangli district. Dhule in Northern Maharashtra, which has an average annual rainfall of only 674 mm, forms part of the drought-prone group of districts. Since 1975, the growth of EGS in Dhule has been rapid, but it declined in 1990s, largely due to consistently good rains in the district.

The remaining districts in Maharashtra are in the assured rainfall area. In Amravati division, the rainfall is between 800 and 1000 mm, whereas in Nagpur division, it

exceeds 1000 mm. In these districts, the demand for EGS employment arises only in poor rainfall years.

Table 10: Statement showing Average Labour Attendance under Employment Guarantee Scheme in 11 Drought-affected Districts

Sr. No.	District	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	Average
1.	Nashik	3948	3658	4906	4448	6844	6257	10560	12828	8522	12584	7459.5
2.	Ahmednagar	20045	28581	8456	5781	4952	2739	3673	8115	14334	77730	17440.6
3.	Pune	5441	11845	5554	687	219	23	30	2917	8584	37447	7274.7
4.	Satara	2766	2458	2032	1854	1756	1046	693	3145	2576	29250	4757.6
5.	Sangli	1501	870	454	438	360	67	267	1547	1615	28620	3573.9
6.	Solpaur	28176	32407	1271	3047	2578	1924	4182	20744	30302	89109	21374
7.	Aurangabad	8145	8614	7652	8802	7854	5699	11071	30726	19465	31095	13912.3
8.	Jalna	8946	10599	5407	6594	7764	10098	10659	20422	23133	24713	12833.5
9..	Beed	12328	15025	8098	6912	7764	10098	10659	20422	23133	37376	15181.5
10.	Osmanabad	15429	13606	1905	2920	4168	8125	6807	32170	26152	53394	16467.6
11.	Latur	12325	7204	1757	2443	4889	6932	7318	13095	14877	22776	9361.6

Source: Department of Planning, Government of Maharashtra

Correlation between Drought Years and Expenditure on the EGS

If we look at the broad patterns of expenditure on and employment generated under the EGS over the years, we find a strong correlation with drought and bad harvests. For example, expenditure and attendance increased steeply in 1979-80 when farmers in western Maharashtra and Marathwada joined EGS works after sowing operations were disrupted by lengthy dry spells during the 1979 monsoon; attendance rose sharply and remained high in Vidarbha when August flooding destroyed the paddy crop in many localities. Similarly, a poor rabi crop due to insufficient soil moisture was reflected in unusually high EGS attendance during April-July 1983; flooding in Marathwada resulted in relatively high participation levels from August 1983 onward (Lieberman, 1984, p. 7).

The drought situation in Maharashtra continued from 1984 to 1987, a period which saw consistently high level of expenditure and attendance under the EGS. From 1987 onwards, crop situation improved in the state in the next few years which dampened the EGS attendance. Though Ravallion and others (1993) attribute lower attendance under the EGS to rationing in employment following a doubling of wages, it is likely that the

study took the high level of attendance in drought years as normal, and the drop in attendance was with reference to these high levels of employment.[18] Rationing theory is further disproved by the fact that when drought struck the state again in 1991-92 and 1992-93, expenditure and employment figures for the EGS showed a big spurt.

After 1992-93, the state did not experience a serious drought till 1999-2000 during which both the expenditure and employment figures for the EGS stabilized. Since 2000-01, the state faced serious drought conditions for four years in a row, which resulted into a considerable increase both in levels of expenditure and employment under the EGS as shown in the following charts:

Figure 3: Man-days Created under the EGS (1992-2004)

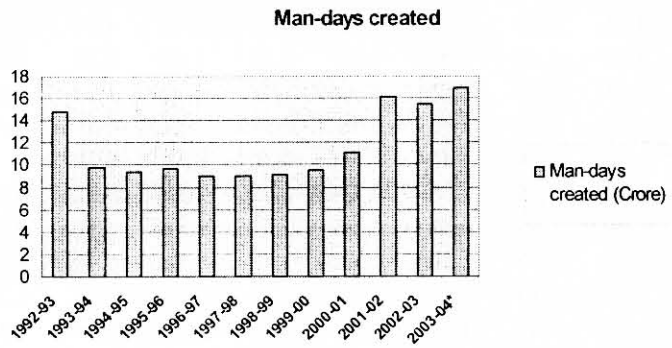
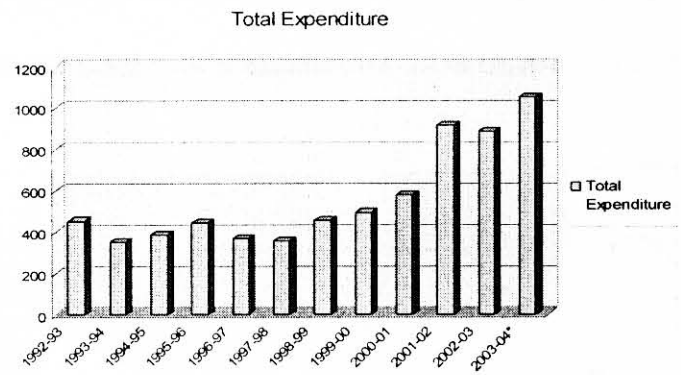


Figure 4: Expenditure on the EGS (1992-2004)



Correlation between Labor Attendance under the EGS and Seasonality of Agriculture

EGS employment levels also fluctuate within a year as per the seasonality of agriculture in the state. Employment under the EGS starts increasing from December onwards, after the Kharif harvest and Rabi sowing is over. It continues to increase till March, but

[18] Rationing in employment looks improbably considering that it would be violation of the EGS Act if the Government issues any directive for reducing the level of employment under the EGS.

slackens in April if Rabi harvest is good. However, if Rabi crops fail, the rise in the EGS employment is consistent till June. In May and June, the two most lean months for agriculture, the EGS employment peaks. From July onwards, when people get work in agriculture, the demand for employment starts declining, a trend which continues up to November. The variation is significant; peak attendance is almost twice the minimum attendance (Krishnaraj, et.al, 2004). Year after year, the EGS has shown this broad pattern of relationship between seasonality and levels of employment (Table 9).

Table 11: Labour Attendance under EGS in Maharashtra (1991-2004)

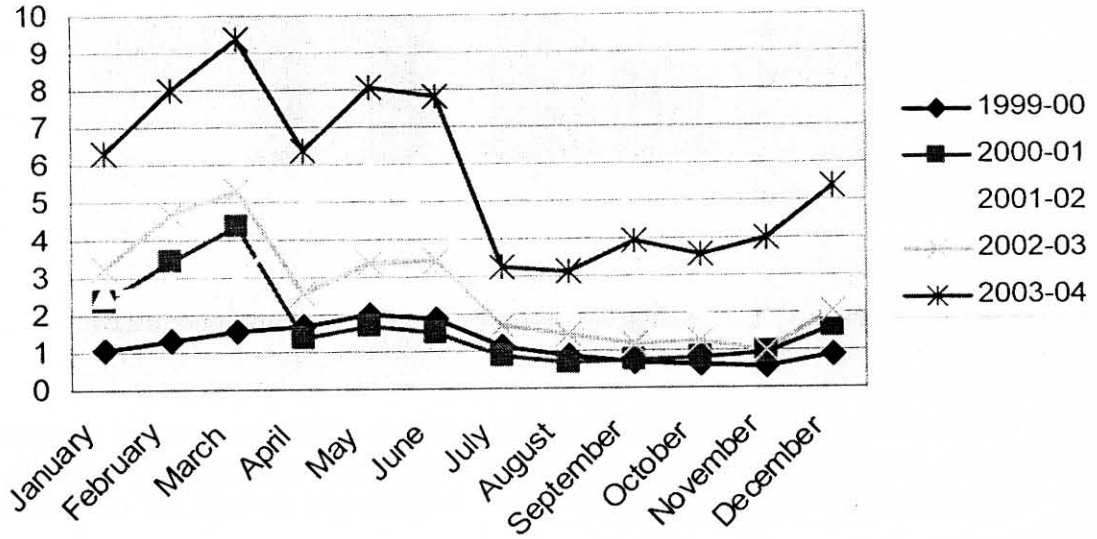
(Last Day of the Month) **(Figures in Lakhs)**

Month	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
April	2.70	6.93	3.35	1.86	2.92	1.86	1.08	1.70	1.71	1.40	4.86	2.56	6.39
May	2.82	7.73	3.85	2.23	3.18	1.82	1.19	2.13	1.97	1.68	5.85	3.37	8.07
June	2.44	9.02	3.91	2.03	3.50	1.65	1.30	2.48	1.86	1.48	4.54	3.45	7.80
July	1.64	5.02	2.98	1.23	2.83	1.32	0.68	1.10	1.14	0.88	2.18	1.71	3.22
August	1.10	2.77	2.22	1.04	1.72	0.68	0.59	0.61	0.87	0.69	2.04	1.42	3.11
Sept.	1.04	1.81	1.96	1.06	1.48	0.63	0.70	0.51	0.70	0.73	2.58	1.18	3.94
October	1.29	1.42	1.32	1.35	1.09	0.49	0.63	0.42	0.62	0.80	1.94	1.24	3.58
Nov.	1.61	1.24	1.01	1.47	0.89	0.49	0.53	0.49	0.57	0.93	1.69	1.03	4.01
Dec.	2.32	1.74	1.06	2.06	1.10	0.52	0.73	0.78	0.90	1.60	2.21	2.06	5.35
Jan.	3.60	2.26	1.34	2.59	1.17	0.69	1.17	1.10	1.05	2.37	2.56	3.25	6.31
Feb.	5.11	2.70	1.50	2.85	1.31	0.89	1.43	1.42	1.34	3.44	2.89	4.67	7.99
March	5.35	2.94	1.75	2.93	1.62	1.06	1.43	1.62	1.58	4.35	2.87	5.33	9.39

Source: Department of Planning, GOM, 2004

Seasonal fluctuations within the EGS employment from 1999-2000 are represented in the following chart:

Figure 5: Month-wise EGS Attendance under the EGS from 1999-2000



An important reason for the people joining the EGS works during the lean season is that it stabilizes their income and consumption. Reducing fluctuations in income prevents households from making costly adjustments such as selling lands or cattle. The existence of a form of income / employment insurance could be quite significant although the increase in employment and income is not very large as compared with the aggregate needs. Although only 0.5 to 0.7 million workers (out of 20 million rural workers in the state) in an average year participate in the EGS, all rural workers value the insurance function of the EGS and view the scheme as a form of security (Dev, 1995a, p. 2672).

The ICRISAT study involving villages Shirapur and Kanzara also found evidence of risk benefits for the households participating in the EGS. The evidence is based on comparing variability in household income between households in EGS villages, Shirapur and Kanzara, and non-EGS village Aurepalle. In Shirapur and Kanzara, the EGS was complementary to farm wage work. In Shirapur, the two employment profiles appeared to be strongly and negatively associated for (men= -0.68) and for women (r= -0.64), whereas in Kanzara, the association between farm and EGS employment exhibited a weak complementarity. In both these villages, however, landless labor households that relied almost entirely on earnings in the daily agricultural market had about 50 percent less variable income streams than those in Aurepalle, where no other avenue of employment was available (Bhende, et.al., 1992; Walker and Ryan, 1990).

Gaiha (2003) also reported stabilization benefits from participation in the EGS, based on a household survey of two villages in Ahmednagar district. Without the EGS, the option for majority of the participants (including the non-poor) would be to seek employment in better irrigated neighboring villages or work in a brick making unit elsewhere. Not only does it entail an expensive job search but also long daily journeys (in a few cases of up to 20-35 km one way). Failure to find employment would mean cuts in food expenditure, liquidation of assets and loans at exorbitant rates of interest. To the extent therefore that the EGS facilitated consumption smoothing among poor households and prevented them from making costly adjustments (e.g. sale of livestock) during slack months, the stabilizing benefit is likely to be substantial.

The Impact of EGS on Vulnerable Groups

A number of studies have pointed out that the EGS has been successful at targeting vulnerable groups. According to a field study conducted by Dandekar and Sathe (1980), 90 percent of workers in their 1978-79 survey of 1,544 EGS participants spread over 56 projects were living below the poverty line. About 45 percent of them were landless laborers. The remaining included 42 percent who had less than 5 acres of unirrigated land. Only 3.5 percent had more than 10 acres of land, which too could produce little because of uncertain rains and irrigation conditions. In the studies conducted by Acharya and Panwalkar (1988) and Datar (1987), the percentage of landless laborers among the EGS participants is 34 and 35 percent respectively, while the category of small and marginal farmers constitutes 46 and 47 percent.

Bhende and others (1990) also confirm the targeting performance of the EGS using household-level data over five years, 1979-83, for two Maharashtra villages, Shirapur and Kanzara. Wealth in the form of total assets was strongly and inversely related to participation. The size of that relationship was particularly large for women: as wealth increased, women's participation fell off more sharply than men's in both Shirapur and Kanzara. The efficiency of self-targeting was greater for women than for men within each village.

Under the EGS, the non-target group workers constitute between 20-30 percent of the total workers (Acharya, 1990). Such participation actually serves the scheme's objective. The EGS provides employment not on the basis of poverty, but on the basis of employment needs which could be created by poor crops or any other adverse condition. Since the wages are low, only those who genuinely need the EGS employment join it. It thus becomes a self-targeting scheme.

Right from the beginning, the EGS attracted large-scale participation of women, and it is known as a program of women. In 1979 and 1980, the official figures showed that female workers constituted 43 and 41 percent of the total attendance under the EGS, though the field observations showed that the number of female workers predominated in most works (Dandekar, 1983). The ISS study (1979) too states that the site figures reveal a higher percentage of female participation (varying from 50 to 72 percent) than the official state level figures. The PEO study (1976) shows women's participation to be 57 percent, while Datar's study (1987) reported female participation as varying between 45 and 64 percent.

There are several reasons which encourage women's participation in the EGS. First, the EGS provides work close to the village, where women can work alongside the family. Second, the EGS does not require special skills, and women are predominantly casual unskilled workers. Third, the EGS offers women employment on equal wage conditions with men, and there is no discrimination in recruitment. Finally, certain facilities such as provision of shelter, drinking water and crèches for children are provided in the EGS, which make it easier for women (Krishnaraj, et.al., 2004; Engkvist, 1995). Further, women have positively gained from the EGS. Dandekar reports that participating women's income from the EGS represents on average 73 percent of total income, and as much as 31 percent of total family income, while Datar concludes that EGS contributes to 60 percent of participant women's real income (Dandekar, 1983, cited in Engkvist, 1995; Datar, 1987). Availability of EGS employment also enables women to avoid seasonal migration (Ranade, 1998).

The EGS's record in providing employment to tribals has been mixed. While the EGS has been able to provide employment to tribals on a large scale in the predominantly tribal Talukas of Jawhar and Mokhada of Thane district (Deshpande, 1982), it has not been very successful in Melghat areas of Amravati district or Nandurbar district. One of the likely reasons for low employment is that most of the lands in tribal areas are owned by forests which make it difficult to start works under the EGS.

The Impact of EGS on Food Security

Under the EGS, wages are mostly given in cash. The Government started the Food for Works (FFW) program under the EGS in 1974-75 with the help of CARE, but the scheme was discontinued in 1979 (Dandekar, 1983). At present, foodgrains are distributed through the EGS only when the Government of India releases assistance in the form of foodgrains during drought years.

In normal years, there is little demand for foodgrains as part of wages. In drought years, however, when foodgrains prices are high in local market, the EGS workers agitate for payment of part wages in the form of foodgrains. If the Government of India provides foodgrains for drought relief, almost half of the daily wage is given in the form of foodgrains. Local authorities issue coupons to the EGS workers who present these coupons before the public distribution system (PDS) shops and collect foodgrains. It increases the workers' real wage, and it has a positive impact on the nutritional level of the family.

In 2003-04, when Maharashtra faced a severe drought, the Government of India sanctioned 50,000 metric tons of foodgrains. It was allocated to the drought-affected Talukas of the state, and all the EGS workers in these Talukas got 5 kilogram of wheat everyday. After the first allocation, the state did not receive foodgrains under the EGS for three months, which caused a big uproar among the drought-affected population. Subsequently, the Government of India sanctioned 6.5 lakh tons of foodgrains at regular intervals, which ensured food security of the people affected by drought.

The district-wise allocation of foodgrains under the EGS for 2003-04 is shown as follows:

Table 12: Allocation and Distribution of Foodgrains under the EGS in Drought-affected Districts

Sr.No.	Name of District	Distribution of 50,000 tons	Distribution of 1, 50,000 tons	Distribution of 2,00,000 tons	Distribution of 3,00,000 tons
1	Nasik	679	2,145	1,094	1,376
2	Ahmednagar	11,115	25,473	48,738	22,780
3	Pune	4,971	11,100	15,953	6,501
4	Satara	3,739	12,425	15,912	2,794
5	Sangli	4,446	10,906	14,855	13,722
6	Solapur	13,304	32,894	46,420	36,640
7	Aurangabad	2,314	4,954	1,699	5,461
8	Beed	2,757	12,820	11,759	20,725
9	Latur	1,692	7,961	5,787	8,896
10	Osmanabad	4,983	23,260	32,176	27,442
11	Jalna		5,646	2,550	7,025
	Total	**50,000**	**149,584**	**196,943**	**153,362**

Source: Department of Food and Civil Supplies, Government of Maharashtra, 2004

Distributing foodgrains through the EGS has always been riddled with problems. Political relationship between central and state governments influences the allocation of foodgrains for drought relief. The distribution of coupons and delivery of foodgrains through the local ration shops present a logistical challenge. The distribution of foodgrains among the EGS workers is often delayed for more than a month. Still, the people are keen to receive the foodgrains component of EGS wages for its overall impact on the well-being and nutrition of the family. During 2003-04 drought, the continuous availability of foodgrains through the EGS ensured that there was no mass deprivation or starvation death in drought-affected areas.

V. Asset-building under the EGS

One of the main objectives of EGS is to create productive assets (minor irrigation works, structures for water and soil conservation, roads) and improve rural infrastructure and agricultural productivity. However, productivity is so widely defined in the EGS Act that it is not useful in selection of projects under the scheme. In practice, administrative instructions provide a list of the broad categories of projects from which a particular project is undertaken. A particular project is selected more often on the ground of number of person-days or the unskilled component of the work rather its specific benefits (Bagchee, 1984). As a result, official data is confined to expenditure incurred and employment generated under the scheme at district and state levels. With respect to assets, data is thin with little beyond the expenditure incurred and numerical counts of the various assets created (Krishnaraj, et.al. 2004).

Percolation Tanks

One of the most popular projects under the EGS has been percolation tanks, which are constructed for conserving water and enabling irrigation of farms in neighboring areas. While undertaking a percolation tank, there are a number of factors such as the underlying strata, the existence of wells and the availability of cultivable land down stream, etc. which would determine whether, in fact, the benefits are realized or not in the case of a specific percolation tank. Thus, it is not proper to generalize all percolation tanks as necessarily "productive" (Bagchee, 1984).

An evaluation study undertaken by the Government of Maharashtra (GOM, 1982) presents its findings on the benefits accruing from 19 percolation tanks. The study reported that out of 222 wells which were to benefit from 19 percolation tanks, only 190 wells were in operation in the command area of those projects. Out of these it was reported that only 101 wells had increased their water levels. The actual benefit in terms of increase of water in the wells in the command area works out to be less than 45 percent. Of the six districts included in the study, details about wells were not available from Bhandara. In Yavatmal district, no well was benefited and in Ahmednagar, district utilization was less than 25 percent. The highest benefits seem to have been derived by Auranagabad (62 percent) and Solapur (58 percent).

Gaiha (2003) reports that in Padoshi village (Taluka Akole, district Ahmednagar), the farmers had their farms on top of the hill, while the percolation tank was located in the foothills. The farmers were thus deprived of its benefits. Even among those with farms around the tank the benefits accrued to those with wells. Those who benefited in this way were able to grow another crop. Drinking water facility during the summer of course benefited a larger number. The benefits would have been greater if the village *Panchayat* had been actively involved in the site selection and design of percolation tanks.

Irrigation works

Of six minor irrigation projects included in the PEO's evaluation report, four works were in Bhandara district and one each in Aurangabad and Yavatmal districts. These six projects together were expected to create 289 hectares of irrigation potential, out of which 188 or 65 percent of the projected target was actually utilized. The district-wise performance shows considerable variation. In the case of Aurangabad district, it was only 44 percent, while in the case of Bhandara district it was around 55 percent. It was only in Yavatmal district where the utilization was better at 76 percent.

Roads

The evaluation study reported upon 24 road projects completed through the EGS. Out of these, two works one each in Thane and Aurangabad districts were damaged and were not usable. Three roads were not in good condition and were deteriorating for want of maintenance. However, 19 works were in usable condition and were actually used for passengers and goods traffic.

Including road projects in the EGS has always evoked controversy, since it gave contractors an opportunity to gain entry through backdoor. From the initial stipulation that the expenditure on this category should be within 20 percent of the total expenditure on all EGS projects at the district level, the total expenditure on construction of roads at one point increased to 40 percent. In the late 1990s, the percentage of expenditure on roads was again brought down to 20 percent.

Jawahar Well Scheme

One of the biggest problems with the scheme is that though a large number of wells are sanctioned, they are never started, or even remain incomplete for a long time. The success rate of these wells has not been more than 60 percent, as shown in the following table.

Table 13: Jawahar Wells (Information from 1988-89 to 2002-03)

1.	No. of wells sanctioned	161,661
2.	No. of wells completed	99,276
3.	Expenditure incurred on wells (in Million)	4,566.938
4.	Man-days generated (in Million)	134.422

Source: Department of Planning, 2003

In respect of the scheme, Gaiha (2003) reports upon findings of a survey in eight districts as well as his field-work in Akole as follows: (i) About 70 per cent of the beneficiaries were marginal or smallholders and the rest relatively affluent. (ii) The digging of wells is often organized by the farmers themselves or assigned to contractors. (iii) Delays in completion are not uncommon mostly because of the inability of marginal / smallholders to provide their share of the cost in time (in absolute terms, the latter could be as much as Rs.50000). In Aurangabad, for example, 30 per cent of the wells were incomplete. (iv) Government subsidy is given in several small installments- in gross violation of the guidelines- to extract bribes. (v) Lack of careful attention to geological features (e.g whether soil strata are muddy or rocky) and their cost implications meant that the costs exceeded the estimates by a wide margin, forcing the beneficiaries to incur large debts. (vi) Access to a well leads to changes in crop intensity and pattern. In Akole, for example, it is feasible to grow an additional *rabi* (winter) crop. Also, it is profitable to grow tomatoes, onions, etc. (vii) On certain assumptions, an additional *rabi* crop of wheat could yield an income of Rs 5000 per hectare.

Horticulture under EGS

The horticulture program started under the EGS represented a shifted from public works to development of private assets. Between 1989-90 and now, there has been an increase of about 10 lakh hectares planted under fruits in the State, of which an estimated 96 per cent has been supported through the horticulture-linked EGS. Maharashtra today is a leading producer of horticulture crops. Besides Alphonso mangoes, Thomson Seedless grapes, Cavendish bananas, Nagpur oranges and self-seeded pomegranates, Maharashtra today is also a major producer of chickoo, guava, sweetlime, lemon, ziziphus (bhor), custard apple, cashew and coconut. From the employment angle, the programme is estimated to have covered roughly 14 lakh farmers and directly created 21.3 crore man-days of work. The employment-intensity was even more pronounced because horticulture production is said to typically require up to 275 man-days per hectare per year, compared to only 100-120 in the case of normal food crops (Damodaran, 2004).

Implementation of horticulture program on private lands through the EGS has raised several concerns. Horticulture by being applicable to land owners automatically excludes the poorest. It also entails use of other community resources, especially water without any quid pro quo. Also, the use of EGS funds to create private assets is likely to increase inclusion errors in the scheme (Krishnaraj, et.al. 2004).

Table 14: Area under Fruit Crops in Maharashtra (Before and after EGS-linked horticulture)

Name of Fruit Crop	Area before 1990 (000 ha.)	Area after horticulture linked program with EGS (1990-91 to 2000-01) (000 ha.)
Mango	35.4	368.2
Cashew	16.0	122.4
Coconut	17.0	21.5
Sapota	3.9	49.2
Orange	33.6	98.6
Sweetlime	5.7	66.9
Gauva	8.5	23.4
Pomogranate	7.7	67.4
Ber	0.0	71.2
Custard Apple	2.8	26.9
Tamarind	0.0	16.3
Fig	0.0	0.5
Jamun	0.0	0.4
Jackfruit	0.0	1.3
Awala	0.0	4.9
K. Lime	14.0	20.2
Spices	0.0	0.6
Others	28.0	11.1
Total	**172.6**	**970.6**

Source: Department of Agriculture and Horticulture, GOM

Farm Ponds

The EGS has supported construction of a large number of farm ponds in the state, particularly in drought-prone districts. The average cost of a farm pond is Rs. 40,000, and like Jawahar wells, it is a privately owned asset. Farm ponds are in big demand among farmers, since they provide irrigation benefits and help recharge ground water. In Sangli district, which was badly affected by drought for four years in a row, a large number of farm ponds were constructed in 2003-04. In 2004, when there were good rains in the district, these farm ponds by creating large storage of water provided significant benefits to farmers.

Construction of a farm pond requires a large area, more than half an acre. It therefore benefits only large farmers, who can allocate a big parcel of land for a farm pond. Also, due to its higher cost of construction (unlike horticulture, the entire amount on farm pond is spent in the same year), the number of farmers who can be covered through this scheme is rather small.

The above discussion shows that under the EGS, there is a gradual shift from creating public assets to privately owned assets. Though it goes against the objective of a public works program, the poor quality of public assets, absence of community benefits, and lack of maintenance funds is bringing about a change in the profile and ownership of these assets. While it may improve the durability and benefits of assets created under the EGS, it has also raised concerns about the equitable distribution of EGS benefits.

VI. EGS: Shortcomings and Need for Reforms

If the EGS has not been able to contribute to asset-building and reduce poverty on a long-term basis, it points to its long-standing weaknesses of the program. It largely arises from planning the EGS works for creation of immediate employment needs rather than long-term needs of poverty alleviation or drought mitigation. The EGS is monitored in terms of works sanctioned and man-days of employment they can provide, if a demand for employment arises. While such monitoring is helpful in ensuring the guarantee of employment, it does not bring about investment targeted at a particular segment of society or sector. Despite committing large resources, both in financial and administrative terms, the EGS has not been able to build an asset base which helps communities or households to enhance their productivity or income in a sustainable way.

If we assess the effectiveness of EGS for drought mitigation, as opposed to drought relief, in Maharashtra, it cannot claim much success. In fact, the problem of drought in the state has aggravated with every passing year. Drought requires a mix of interventions for watershed development in a particular area: land development, soil and water conservation, crop planning, horticulture, and agro-forestry. EGS does not support these interventions in an integrated way; rather it takes up one work, a compartment bund here or contour trench there, for example, at a time with the narrow objective of providing employment.

The EGS is implemented by a number of agencies in the state government, which is both its strength and weakness. Its strength lies in enabling a wide variety of works to be implemented under the EGS over a large geographical area. The weakness of such an arrangement arises from the fact that no department really owns up the program. It is considered an external program, implemented on an agency basis, and the assets created by these agencies are generally abandoned. Local governments at the district level, Zilha Parishads, could have played a strong role in implementing the EGS, but their participation in the EGS has become increasingly marginal over the years.

There are other governance and efficiency issues related to the implementation of EGS. Reports of corruption and leakage in the EGS implementation have surfaced at regular intervals. It must be said in defense of the EGS that the elasticity it shows in dealing with a drought situation, with numbers increasing or decreasing in accordance with the severity of drought, suggests that these reports are rather exaggerated, and the scope for inflating EGS muster rolls is indeed limited. However, reports of inordinate delay in payment of EGS wages are often true. It takes from 15 days to 1 month and sometimes even more for the workers to receive their wages, both in cash and foodgrains.

Reforming EGS

The EGS is overdue for reforms. These reforms are required both in terms of program contents as well as its implementation. Such a reform requires that the dilemma underlying the EGS, if it is a relief employment or poverty alleviation program, be resolved. These are two separate kinds of interventions with different program objectives and contents, and need to be clearly differentiated. A relief employment program aims at providing employment wherever there is a demand, which means that only those works

which have a preponderance of unskilled components be selected for the EGS. Since employment is the immediate priority, cost-benefit considerations and durability of assets need not be guiding factors in implementing them. On the other hand, a poverty alleviation program requires a more complex intervention for building income-generating assets at the community or household level. The feasibility of such an intervention needs to be established in economic terms before it is taken up for implementation. The EGS has suffered on account of blurring the distinction between these two objectives and their accompanying program strategies.

The EGS needs to differentiate between these two different streams. The relief employment stream needs to be linked to well-defined hazard triggers. For instance, as soon as a drought is declared, a relief employment program can immediately begin under the EGS. Relief through the EGS can be strengthened through provision of foodgrains as part of the wages. On the other hand, the poverty alleviation stream needs to focus on watershed development and agriculture. It requires specialized professional inputs and participation of NGOs and community-based organizations in the design and implementation of the program. The EGS can be combined with tied grants and microfinance programs, and could be implemented by rural cooperatives or self-help groups. This stream needs to focus on a range of allied activities related to agriculture, and requires continuous monitoring. Implementation arrangements for both the streams can be devised accordingly.

If watershed development programs, necessary for drought mitigation, are promoted through the EGS, it requires people's participation in planning surface and ground water resources. Excessive extraction of ground water and misuse of surface water are neutralizing all the gains of new watershed schemes. Further, it requires other activities to be taken simultaneously such as organic farming and social forestry where people also provide sweat equity.

The EGS needs to achieve a balance between public and private assets. The EGS began with the objective of creating public assets, but in the last decade there has been a shift in allocation of resources for building assets at the individual household's level. As public assets are not maintained, these investments did not bring adequate returns. On the other hand, private assets have made a positive impact on household's income and economic situation. Further, intermediaries cannot siphon off the resources earmarked for households. But such a shift tends to favor large landowners and more affluent people. While there is a strong case for investing EGS resources in private asset-building, it needs to be ensured that the benefits are equitably distributed among all the segments of the society.

EGS requires substantial professional and management support. Due to its elaborate procedures, a number of inefficient features have crept in its implementation. A reform program needs to create and maintain a database on the works undertaken and the assets created under the EGS. Sanction of works, release of funds, and provision of wages can be expedited much faster through use of computer-based systems.

EGS has been one of the most successful examples of rural public works programs anywhere in the world. The Government of Maharashtra has provided consistent financial

support and shown a strong political commitment to the program. It has given positive results in many ways: effective drought relief, increased rural employment, supplementary source of income, women as an important class of workers and income-earners, and social cohesion. However, the program has not made a significant impact on drought-proneness of the state and poverty. Despite the resources that are channeled through the EGS, poverty levels have not fallen more than national levels, and the problem of drought has only increased in Maharashtra. If the EGS needs to become a successful intervention in poverty alleviation and drought mitigation, it requires a serious reform along the lines suggested above.

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