Maharashtra Employment Guarantee Scheme
Geographical Distribution of Employment

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If the Employment Guarantee Scheme (EGS) genuinely meets the unmet needs of employment some concentration of EGS employment may be expected to occur, because it is unlikely that the unmet needs of employment are evenly distributed. This article looks at the geographical distribution of EGS employment in Maharashtra in order to examine to what extent the scheme has been responsive to the unmet employment needs reflected in the agro-ecological and other economic conditions affecting their employment opportunities relative to the growth of their labour force.

THE aim of this paper is to study the geographical distribution of employment under the Maharashtra Employment Guarantee Scheme. This will show whether this distribution is more or less even or whether it is concentrated in certain parts of the state. If EGS employment genuinely meets the unmet needs of the people for employment, some concentration of EGS employment may be expected to occur. This is because it seems unlikely that the unmet needs for employment are evenly distributed over all parts of the state. Concentration of EGS employment may be determined to a considerable extent by agro-ecological factors such as rainfall and proneness to drought, but the size of industry in different areas may also play a role to the extent that workers live in rural areas but work in towns or obtain income by supplying towns with products and services.

A study of the geographical distribution of EGS employment will be useful for two reasons. One, it will show to what extent EGS employment is responsive to the unmet employment needs of the people reflected in the agro-ecological and other economic conditions affecting their employment opportunities relative to the growth of their labour force. Two, it will show in which areas there is a high concentration of EGS employment so that the authorities can focus their attention on these areas, both in connection with the scheme itself and in connection with planning for the development of the state.

Employment Guarantee Scheme[1]

The Maharashtra Employment Guarantee Scheme provides a guarantee of employment to all adult[1] men and women in the rural areas of the state. This guarantee is unlimited in nature. It is not constrained by the holdings of land or other assets or by the incomes of the person requesting employment. In other words, there is no means test of any kind. All that is required is that the person seeking employment must be willing to carry out physical labour [2] at the wage that is set.[3] There are also no constraints on (a) the number of persons from each family who can be employed, (b) the total number of persons who can be employed under the scheme at any given time or over any given period, or (c) the time of the year at which employment is required to be provided.

On the assumption that those who are willing to provide physical labour at the given wage at any given time may be safely treated as being in need of employment at that time, the guarantee provides a very valuable self-targeting device for limiting the immediate employment benefits of the scheme to the needy. In theory, the existence of the guarantee means that officials do not have to decide whether or not projects providing employment should be initiated, since initiation of projects depends entirely on whether there are people in the relevant area who wish to have employment. The role of officials is limited to determining which projects to initiate when people wish to have employment. In practice, officials do take decisions on whether or not projects should be started. However, given the high level of political consciousness that prevails in the state and because of the environment created by the existence of the guarantee of employment, political pressures merely ensure in general that projects are started wherever they are needed.

If a project is started where it is not really needed whether this is because of political pressure or otherwise employment generated on the project will be nil or very small, and the project may have to be closed down. If, however, the project that is started is really needed, employment on it will become large and thus raise the volume of total employment provided under the scheme at that time.

The result is that political pressures tend to push EGS employment in various parts

Table 1: Trend Level of EGS Employment at Beginning, Middle and End of Period 1975-1987

No	District	End July 1975	End July 1981	End July 1987
1	Ahmednagar	37708.58	55457.70	81561.17
2	Akola	6906.21	8911.39	11498.76
3	Amravati	2794.56	5989.07	12835.32
4	Aurangabad	25297.05	31452.79	39106.46
5	Beed	18211.64	25631.71	36074.99
6	Bhandara	18958.73	21324.15	23984.70
7	Buldana	3201.90	6690.23	13978.98
8	Chandrapur	7905.28	14229.19	25611.98
9	Dhule	11313.34	25292.19	56543.45
10	Jalgaon	12951.36	9154.38	6470.57
11	Kolhapur	1120.81	729.29	474.53
12	Nagpur	8714.16	10316.37	12213.16
13	Nanded	17829.71	17880.74	17931.93
14	Nashik	23656.42	39096.63	64614.44
15	Osmanabad	19453.82	27915.47	40057.60
16	Parbhani	19951.50	17057.48	14583.25
17	Pune	13873.54	17449.61	21947.47
18	Raigad	3511.14	416.57	49.42
19	Ratnagiri	1158.18	2390.70	4934.35
20	Sangli	8183.61	11250.87	15467.75
21	Satara	9822.21	16690.26	28360.70
22	Solapur	48949.43	40759.03	33939.07
23	Thane	28955.57	12296.07	5221.56
24	Wardha	3293.00	3238.66	3180.38
25	Yavatmal	7549.84	15929.17	33608.46
	Maharashtra	403809.70	502542.25	625415.18

f the state towards the levels of the need or such employment. However, these essures cannot push it beyond that level. orkers will simply not come to work on GS projects if they do not need such ployment. The volume of EGS employent, therefore, provides a reasonable easure of the need for employment. Corspondingly, the geographical distribution f such employment should, therefore, prode an indication of the distribution of the nsatisfied need for employment in different arts of the state.

REND LEVELS OF EGS EMPLOYMENT BY DISTRICTS

Analysis of the geographical distribution f EGS employment over the state is only ossible by districts and not by talukas ecause data on EGS employment could nly be obtained on that basis. However, ven this analysis is complicated by the eorganisation of some districts that was arried out during the period covered by this tudy. At the beginning of the period, there ere 25 districts in the state. During the eriod, at different points of time, some new istricts were formed either by splitting of ld districts or by other forms of reorganisaion. Data are not available for the new listricts for the period before they were ormed.

It was, therefore, decided to recombine ata from the new districts after they were ormed to yield a complete series for the old istricts affected by these changes. Even then some adjustments were necessary where the reorganisation was more complex. The analysis below is presented in terms of the 25 districts that existed at the beginning of the period.

An examination of the available half-monthly data on EGS employment for the state and for different districts over the period 1975-87 shows wide variations in such employment both within and between years. These variations are caused by the operation of seasonal, crisis and casual factors that differ between different districts. Any comparison between the actual employment provided under the scheme in different districts at any given time is vitiated by these differences. To provide a reasonable basis of comparison between districts, the data were decomposed on a multiplicative basis into trend and seasonal components, after proper allowance was made for extraordinary volumes of employment that were provided during crisis periods.

The trends of EGS employment obtained through this process show rates of growth of such employment over the period. The differences in these rates of growth between districts are extremely important because they show how the situation has tended to change over time. However, for many purposes, it is the level of employment at a given point of time rather than the rate of growth of such employment over the period that is of significance. The trend level of employment at any point of time can be used for the purpose. This is distilled from the varying amounts of employment at different times. Yet, it is free from the influence of the seasonal and other factors, which tend to cause variations in it that differ between districts at any point of time. Of course, the trend level of employment at any point of time also incorporates the effect of any growth in EGS employment at the trend rate

TABLE 3: DROUGHT-PRONE DISTRICTS OF MAHARASHTRA STATE

No	Drought-Prone Districts	Average Annual Rainfall (mm)
1	Ahmednagar	579
2	Solapur	584
3	Sangli	625
4	Beed	668
5	Dhule	674
6	Aurangabad	726
7	Jalgaon	741
8	Satara	803
9	Osmanabad	810
10	Nashik	1022
11	Pune	1150

Note : Satara, Nashik and Pune contain a transition zone in the western portion of the district that receives between 1000-2500 mm of annual rainfall. The abundant rainfall of the transition zone increases the average annual rainfall for these otherwise rain scarce districts.

Source: Directorate of Economics and Statistics, Government of Maharashtra, Bombay, *Maharashtra Socioeconomic Maps*, 1986.

TABLE 2: DISTRICTS RANKED BY PERCENTAGE SHARE OF EGS EMPLOYMENT AND CUMULATIVE PERCENTAGE SHARE FOR BEGINNING, MIDDLE AND END OF PERIOD

No	1975 Ranked			1981 Ranked			1987 Ranked		
	District	Per Cent	Cumulative Per Cent	District	Per Cent	Cumulative Per Cent	District	Per Cent	Cumulative Per Cent
1	Solapur	13.55	13.5	Ahmednagar	12.67	12.7	Ahmednagar	13.50	13.5
2	Ahmednagar	10.44	24.0	Solapur	9.32	22.0	Nashik	10.69	24.2
3	Thane	8.01	32.0	Nashik	8.94	30.9	Dhule	9.36	33.5
4	Aurangabad	7.00	39.0	Aurangabad	7.19	38.1	Osmanabad	6.63	40.2
5	Nashik	6.55	45.6	Osmanabad	6.38	44.5	Aurangabad	6.47	46.7
6	Parbhani	5.52	51.1	Beed	5.86	50.4	Beed	5.97	52.6
7	Osmanabad	5.38	56.5	Dhule	5.78	56.1	Solapur	5.62	58.2
8	Bhandara	5.25	61.7	Bhandara	4.87	61.0	Yavatmal	5.56	63.8
9	Beed	5.04	66.7	Nanded	4.09	65.1	Satara	4.69	68.5
10	Nanded	4.94	71.7	Pune	3.99	69.1	Chandrapur	4.24	72.7
11	Pune	3.84	75.5	Parbhani	3.90	73.0	Bhandara	3.97	76.7
12	Jalgaon	3.58	79.1	Satara	3.81	76.8	Pune	3.63	80.3
13	Dhule	3.13	82.2	Yavatmal	3.64	80.4	Nanded	2.97	83.3
14	Satara	2.72	85.0	Chandrapur	3.25	83.7	Sangli	2.56	85.9
15	Nagpur	2.41	87.4	Thane	2.81	86.5	Parbhani	2.41	88.3
16	Sangli	2.27	89.6	Sangli	2.57	89.1	Buldana	2.31	90.6
17	Chandrapur	2.19	91.8	Nagpur	2.36	91.4	Amravati	2.12	92.7
18	Yavatmal	2.09	93.9	Jalgaon	2.09	93.5	Nagpur	2.02	94.7
19	Akola	1.91	95.8	Akola	2.04	95.6	Akola	1.90	96.6
20	Raigad	0.97	96.8	Buldana	1.53	97.1	Jalgaon	1.07	97.7
21	Wardha	0.91	97.7	Amravati	1.37	98.5	Thane	0.86	98.6
22	Buldana	0.89	98.6	Wardha	0.74	99.2	Ratnagiri	0.82	99.4
23	Amravati	0.77	99.4	Ratnagiri	0.55	99.7	Wardha	0.53	99.9
24	Ratnagiri	0.32	99.7	Kolhapur	0.17	99.9	Kolhapur	0.08	100.0
25	Kolhapur	0.31	100.0	Raigad	0.10	100.0	Raigad	0.01	100.0
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of the state towards the levels of the need for such employment. However, these pressures cannot push it beyond that level. Workers will simply not come to work on EGS projects if they do not need such employment. The volume of EGS employment, therefore, provides a reasonable measure of the need for employment. Correspondingly, the geographical distribution of such employment should, therefore, provide an indication of the distribution of the unsatisfied need for employment in different parts of the state.

Trend Levels of EGS Employment by Districts

Analysis of the geographical distribution of EGS employment over the state is only possible by districts and not by talukas because data on EGS employment could only be obtained on that basis. However, even this analysis is complicated by the reorganisation of some districts that was carried out during the period covered by this study. At the beginning of the period, there were 25 districts in the state. During the period at different points of time, some new districts were formed either by splitting of old districts or by other forms of reorganisation. Data are not available for the new districts for the period before they were formed.

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Table 2: Districts Ranked by Percentage Share of EGS Employment and Cumulative Percentage Share for Beginning, Middle and End of Period

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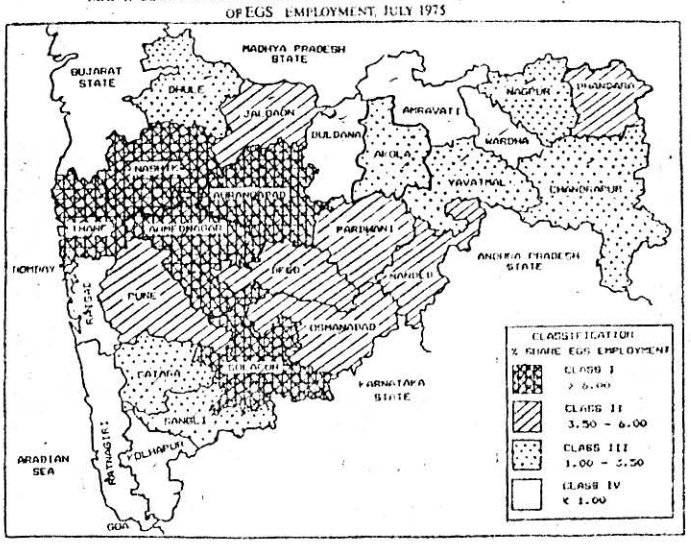
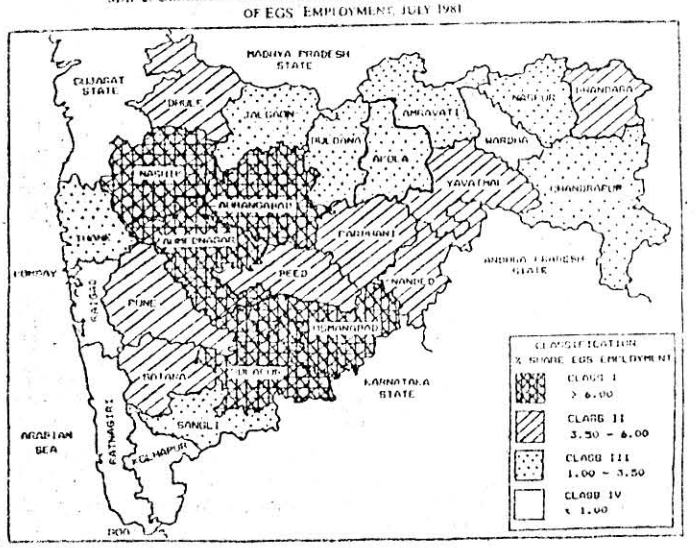
25	Kolhapur	0.31	100.0	Raigad	0.10	100.0	Raigad	0.01	100.0
	Maharashtra	100.00		Maharashtra	100.00		Maharashtra	100.00	

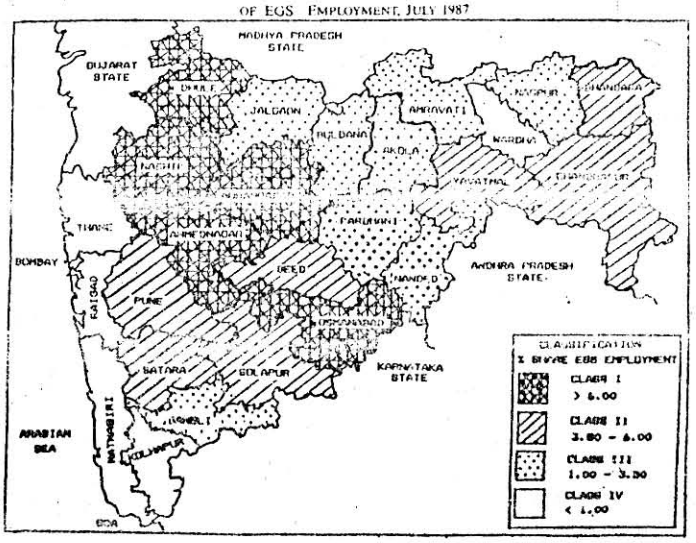
MAP 1: GEOGRAPHICAL DISTRIBUTION OF DISTRICTS BY PERCENTAGE SHARE OF EGS EMPLOYMENT, JULY 1975



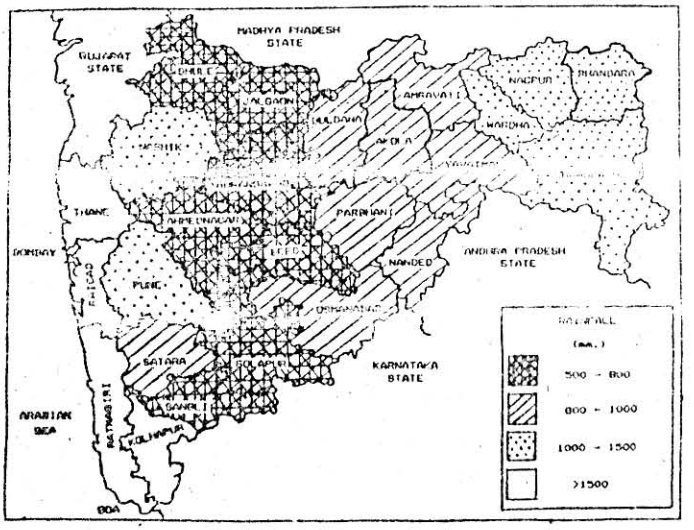
MAP 2: GEOGRAPHICAL DISTRIBUTION OF DISTRICTS BY PERCENTAGE SHARE OF EGS EMPLOYMENT, JULY 1981



MAP 3: GEOGRAPHICAL DISTRIBUTION OF DISTRICTS BY PERCENTAGE SHARE OF EGS EMPLOYMENT, JULY 1987



MAP 4: AVERAGE ANNUAL RAINFALL BY DISTRICT IN MAHARASHTRA STATE



that may have taken place from the beginning of the period to that point of time.

TREATMENT OF DATA

The data used in the current study cover the period from April 1975 to November 1987—a little over twelve and a half years. The trends of EGS employment for each of the 25 districts were obtained from data for the entire period. Since the rates of growth for different districts reflected in these trends differ widely, the results obtained from an examination of the levels of employment could be expected to differ depending on the point of time to which they relate. To take this into account, it was decided to consider the position at three points of time, falling respectively in the first, middle and last years of the period—1975, 1981 and 1987.

In our data series, the first observation for 1975 is for April. The last observation for 1987 is for November. Although seasonal and other factors are already eliminated in fitting trends to the data, it was felt that there would be some advantage in choosing the same calendar point of time in each of the years considered. July end was chosen for this purpose, because this is approximately equally distant from the first observation in 1975 and the last observation in 1987. The twelve years falling within this period are equally divided into two parts by using the end-of-July observation also for the middle year 1981.

Thus, the levels of EGS employment examined here are for six-yearly intervals—at the end of July in 1975, 1981 and 1987. Absolute trend values of EGS employment are obtained for each of the 25 districts in the state at these three points of time (Table 1). The shares of such employment in each district to the total of such employment for all districts are also computed (Table 2). The districts are then ranked for each point of time separately.

The percentage shares of different districts to the total for all districts taking all three points of time into account range from a high of 13.55 per cent for Solapur in 1975 to a low of 0.01 per cent for Raigad in 1987. By observing the distribution of district shares at each point of time, criteria based on these shares were developed for grouping the districts into four classes: Class I—above 6 per cent; Class II— between 3.50 per cent and 6 per cent; Class III—between 1 per cent and 3.50 per cent; and Class IV—below 1 per cent. This classification is necessarily somewhat arbitrary and, for the dividing points between some of the classes, may not make equal sense at all the points of time. Nevertheless, to facilitate comparison, it is used here uniformly for all of them. When considering the results, however, it may be necessary to devote some thought to the behaviour of marginal cases.

First Year of Period

In the first year of the period, that is at the end of July 1975, five districts fall into Class I, seven districts into Class II, seven into Class III and the remaining six districts into Class IV. The location of the districts belonging to the different classes is illuminating (Map 1).

It is immediately apparent from the map that the five districts belonging to Class I are found in a geographically contiguous area. Four of the five districts—Ahmednagar, Aurangabad, Solapur and Nashik—fall centrally into the group of drought-prone districts of the state (Table 3). Ahmednagar, Aurangabad, and Solapur have an average rainfall of less than 800mm per annum (Table 4). Nashik is also a drought-prone district. Half of the district, however, receives abundant rainfall, raising the district's average rainfall to over 1,000mm per annum.

The fifth district is Thane, which is one of the coastal districts of the state (and thus belongs to the Konkan region). Its agro-ecological conditions are quite different from those of the other districts in this class. It has an average annual rainfall of 2,259mm. In terms of rainfall and proneness to drought, its position in Class I is, therefore, anomalous.

It is also apparent from the map that six of the seven districts in Class II surround the districts of Class I. Four of these districts (Beed, Osmanabad, Jalgaon and Pune)—or parts of them in some cases—also belong to the drought-prone areas of the state, but Parbhani and Nanded do not. Of these six districts, two (Beed and Jalgaon) fall into the group of districts with an average rainfall of less than 800mm per annum, while three (Osmanabad, Parbhani and Nanded) fall into the next higher group of districts with average rainfall of between 800mm and 1,000mm per annum. The remaining district of Pune has an even higher average annual rainfall; it falls into the group with annual averages between 1,000 and 1,500mm per annum. However, half of this district is in the drought-prone zone. The average rainfall of this district is high because the rest of the district receives substantially higher rainfall.[4]

Table 4: Districts Ranked by Average Annual Rainfall, Maharashtra State

District	Rainfall mm	Rank by Rain Scarcity
Ahmednagar	579	1
Solapur	584	2
Sangli	625	3
Beed	668	4
Dhule	674	5
Aurangabad	726	6
Jalgaon	741	7
Buldana	803	8
Satara	803	9
Osmanabad	810	10
Parbhani	821	11
Akola	847	12
Amravati	877	13
Nanded	901	14
Yavatmal	992	15
Nashik	1022	16
Wardha	1090	17
Pune	1150	18
Nagpur	1175	19
Chandrapur	1398	20
Bhandara	1446	21
Kolhapur	1932	22
Thane	2259	23
Raigad	2966	24
Ratnagiri	3196	25

Of these six districts in Class II, Pune is to the west of Ahmednagar (Class I), Jalgaon is to the north of Aurangabad (Class I) and the districts of Beed, Parbhani, Osmanabad and Nanded are in a contiguous block that falls south-east of the same two districts of Class I (Ahmednagar and Aurangabad). These six districts belonging to Class II (out of the seven districts in this class) combine with the four districts of Class I (out of the five falling in this class) to form a solid block of what may be called 'difficult' EGS districts from an agro-economic point of view.

The exception in Class II in terms of location is Bhandara, which lies in the north-east corner of the state. The anomalous character of its location is accentuated by the fact that it has an average annual rainfall of 1,446mm.

The remaining thirteen districts of the state, which belong to Classes III and IV, account individually for relatively small shares of the total EGS employment in 1975. Of these five districts—the two Konkan districts of Raigad and Ratnagiri and the three districts of Kolhapur, Satara and Sangli—are located in the south-west corner of the state. In contrast, seven of the other eight districts are located in the north-east part of the state. The remaining district is Dhule, which is located to the north of Nashik in the north-west corner of the state. It has an average annual rainfall of only 674mm and forms a part of the drought-prone group of districts. For these reasons, it could have been expected to fall into either of the first two classes. Its position in Class III is, therefore, anomalous in nature.

Middle of Period

By the middle year of the period (July end 1981), a number of changes had taken place in the position of districts in different classes by their shares in total employment.

In Class I, the districts of Ahmednagar, Aurangabad, Nashik and Solapur remained firmly within the class (Map 2). Thane dropped out of Class I and fell into Class III, while Osmanabad moved up from Class II to Class I. Thane thus no longer constituted an exception to the agroeconomic characteristics of the districts in this class.

In Class II, Pune, Beed, Parbhani and Nanded remained in the class. Two districts moved out of this class - Osmanabad (which moved up into Class I) and Jalgaon (which moved down into Class III). Besides, three districts moved up into this class from below. These were Dhule, Satara and Yavatmal. Dhule thus no longer remained an anomalous member of Class III but moved up to the class that was more in consonance with its agro-ecological characteristics, as noted above. Satara also shares more of the characteristics of the low rainfall areas. However, Yavatmal which belongs much more to the north-east region of the state though it is contiguous to Parbhani and Nanded, joined Bhandara from the extreme corner of that region in Class II.

By the middle of the period, twelve districts fell into Classes III and IV. These

Table 5: Percentage of Tribal Population to Total District Population

District	Percentage to Total Population	Rank by Percentage of Tribal to Total Population
Dhule	30.53	1
Chandrapur	26.76	2
Nashik	23.45	3
Yavatmal	21.30	4
Thane	21.16	5
Bhandara	16.22	6
Wardha	15.35	7
Nagpur	13.65	8
Amravati	12.98	9
Raigad	12.80	10
Nanded	10.19	11
Jalgaon	8.25	12
Ahmednagar	6.93	13
Akola	6.28	14
Parbhani	4.60	15
Buldana	4.40	16
Pune	3.88	17
Aurangabad	2.98	18
Osmanabad	2.32	19
Solapur	1.96	20
Ratnagiri	1.58	21
Kolhapur	1.04	22
Beed	0.87	23
Sangli	0.85	24
Satara	0.64	25
Maharashtra State	9.19	

Table 6: Dominant Districts' Percentage Share of State's Relevant Rural Population (Age 15-59) and Cumulative Per Cent Total for Dominant Districts

No	District	Per Cent	Cumulative Per Cent
1	Ahmednagar	5.32	5.32
2	Nashik	5.09	10.41
3	Osmanabad	4.82	15.23
4	Beed	4.11	19.34
5	Dhule	4.03	23.37
6	Aurangabad	3.77	27.14
Total		31.15	

First Year of Period

In the first year of the period, that is at the end of July 1975, five districts fall into Class I, seven districts into Class II, seven into Class III and the remaining six districts into Class IV. The location of the districts belonging to the different classes is illuminating (Map 1).

It is immediately apparent from the map that the five districts belonging to Class I are found in a geographically contiguous area. Four of the five districts—Ahmednagar, Aurangabad, Solapur and Nashik—fall centrally into the group of drought-prone districts of the state (Table 3). Ahmednagar, Aurangabad, and Solapur have an average rainfall of less than 800mm per annum (Table 4). Nashik is also a drought-prone district. Half of the district, however, receives abundant rainfall, raising the district's average rainfall to over 1,000mm per annum.

The fifth district is Thane, which is one of the coastal districts of the state (and thus belongs to the Konkan region). Its agro-ecological conditions are quite different from those of the other districts in this class. It has an average annual rainfall of 2,259mm. In terms of rainfall and proneness to drought, its position in Class I is, therefore, anomalous.

It is also apparent from the map that six of the seven districts in Class II surround the districts of Class I. Four of these districts (Beed, Osmanabad, Jalgaon and Pune)—or parts of them in some cases—also belong to the drought-prone areas of the state, but Parbhani and Nanded do not. Of these six districts, two (Beed and Jalgaon) fall into the group of districts with an average rainfall of less than 800mm per annum, while three (Osmanabad, Parbhani and Nanded) fall into the next higher group of districts with average rainfall of between 800mm and 1,000mm per annum. The remaining district of Pune has an even higher average annual rainfall; it falls into the group with annual averages between 1,000 and 1,500mm per annum. However, half of this district is in the drought-prone zone. The average rainfall of this district is high because the rest of the district receives substantially higher rainfall.[4]

Table 4: Districts Ranked by Average Annual Rainfall, Maharashtra State

District	Rainfall mm	Rank by Rain Scarcity
Ahmednagar	579	1
Solapur	584	2
Sangli	625	3
Beed	668	4
Dhule	674	5
Aurangabad	726	6
Jalgaon	741	7
Buldana	803	8
Satara	803	9
Osmanabad	810	10
Parbhani	821	11
Akola	847	12
Amravati	877	13
Nanded	901	14
Yavatmal	992	15
Nashik	1022	16
Wardha	1090	17
Pune	1150	18
Nagpur	1175	19
Chandrapur	1398	20
Bhandara	1446	21
Kolhapur	1932	22
Thane	2259	23
Raigad	2966	24
Ratnagiri	3305	25

Of these six districts in Class II, Pune is to the west of Ahmednagar (Class I), Jalgaon is to the north of Aurangabad (Class I) and the districts of Beed, Parbhani, Osmanabad and Nanded are in a contiguous block that falls south-east of the same two districts of Class I (Ahmednagar and Aurangabad). These six districts belonging to Class II (out of the seven districts in this class) combine with the four districts of Class I (out of the five falling in this class) to form a solid block of what may be called 'difficult' EGS districts from an agro-economic point of view.

The exception in Class II in terms of location is Bhandara, which lies in the north east corner of the state. The anomalous character of its location is accentuated by the fact that it has an average annual rainfall of 1,116mm.

The remaining thirteen districts of the state, which belong to Classes III and IV, account individually for relatively small shares of the total EGS employment in 1975. Of these,five districts— the two Konkan districts of Raigad and Ratnagiri and the three districts of Kolhapur, Satara and Sangli—are located in the south-west corner of the state. In contrast, seven of the other eight districts are located in the north-east part of the state. The remaining district is Dhule, which is located to the north of Nashik in the north-west corner of the state. It has an average annual rainfall of only 674mm and forms a part of the drought-prone group of districts. For these reasons, it could have been expected to fall into either of the first two classes. Its position in Class III is, therefore, anomalous in nature.

Middle of Period

By the middle year of the period (July end 1981), a number of changes had taken place in the position of districts in different classes by their shares in total employment.

In Class I, the districts of Ahmednagar, Aurangabad, Nashik and Solapur remained firmly within the class (Map 2). Thane dropped out of Class I and fell into Class III, while Osmanabad moved up from Class II to Class I. Thane thus no longer constituted an exception to the agroeconomic characteristics of the districts in this class.

In Class II, Pune, Beed, Parbhani and Nanded remained in the class. Five districts moved out of this class - Osmanabad (which moved up into Class I) and Jalgaon (which moved down into Class III). Besides, three districts moved up into this class from below. These were Dhule, Satara and Yavatmal. Dhule thus no longer remained an anomalous member of Class III but moved up to the class that was more in consonance with its agro-ecological characteristics, as noted above. Satara also shares more of the characteristics of the low rainfall areas. However, Yavatmal which belongs much more to the north-east region of the state though it is contiguous to Parbhani and Nanded, joined Bhandara from the extreme corner of that region in Class II.

By the middle of the period, twelve districts fell into Classes III and IV. These

Table 5: Percentage of Tribal Population to Total District Population

District	Percentage to Total Population	Rank by Percentage of Tribal to Total Population
Dhule	40.53	1
Chandrapur	26.76	2
Nashik	23.45	3
Yavatmal	21.30	4
Thane	21.16	5
Bhandara	16.22	6
Wardha	15.35	7
Nagpur	13.62	8
Amravati	12.98	9
Raigad	12.80	10
Nanded	10.19	11
Jalgaon	8.23	12
Ahmednagar	6.93	13
Akola	6.26	14
Parbhani	4.60	15
Buldana	4.40	16
Pune	3.88	17
Aurangabad	2.98	18
Osmanabad	2.32	19
Solapur	1.96	20
Ratnagiri	1.58	21
Kolhapur	1.04	22
Beed	0.87	23
Sangli	0.85	24
Satara	0.64	25
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Table 6: Dominant Districts' Percentage Share of State's Relevant Rural Population (Age 15-59) and Cumulative Per Cent Total for Dominant Districts

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3	Osmanabad	4.82	15.23
4	Beed	4.11	19.34
5	Dhule	4.03	23.37
6	Aurangabad	3.77	27.14
	Total	27.14	

TABLE 7: ANNUAL EGS GROWTH RATE OF DISTRICTS IN MAHARASHTRA STATE

District	Annual EGS Growth Rate	Rank by Annual EGS Growth Rate
Dhule	13.41	1
Amravati	12.70	2
Yavatmal	12.44	3
Buldana	12.28	4
Ratnagiri	12.08	5
Chandrapur	9.80	6
Satara	8.84	7
Nashik	8.37	8
Ahmednagar	6.43	9
Osmanabad	6.02	10
Beed	5.70	11
Sangli	5.31	12
Akola	4.25	13
Pune	3.82	14
Aurangabad	3.63	15
Nagpur	2.81	16
Bhandara	1.96	17
Nanded	0.05	18
Wardha	−0.30	19
Parbhani	−2.61	20
Solapur	−3.05	21
Jalgaon	−5.78	22
Kolhapur	−7.16	23
Thane	−14.27	24
Raigad	−35.53	25
Maharashtra	3.65	

were still distributed between the south-west and north-east corners of the state. In the south-west, Thane, which has relatively high rainfall, replaced Satara, which moved up to be with districts similar to it in Class II. This left five districts from the south-west region in Classes III and IV as before. In the north-east region, with the exclusion of Yavatmal, now in Class II, the number of districts in Class III and IV fell to seven.

END OF PERIOD

Between the middle and the end of the period, Solapur dropped out of Class I into Class II, while Dhule moved up from Class II to Class I (Map 3). At the same time, Parbhani and Nanded dropped out of Class II into Class III, while Chandrapur moved up from Class III to Class II. The additional change in the lowest two classes is the further drop of Thane from Class III to Class IV.

By the end of the period, Class I included Ahmednagar, Aurangabad and Nashik (all three of which had been in this class from the beginning), Osmanabad (which had moved up from Class II to Class I by the middle of the period) and Dhule (which had moved up from Class III to Class II by the middle of the period and now moved up to Class I).

Surrounding these districts of Class I are two Class II districts, Pune and Beed (which have belonged to Class II from the begin ning), Solapur (which fell from Class I to Class II between the middle and the end of the period), and Satara (which rose from Class III to Class II between the beginning and the middle of the period).

The five districts of Class I and these four districts (out of seven) of Class II form at the end of the period a solid region from north to south immediately to the east of the western ghats. All of them belong to the drought-prone districts. Their average annual rainfall in each case is below 1,000 mm, except for Nashik and Pune for which it is less than 1,200 mm (Map 4).

By the end of the period, however, there are three districts—Bhandara (from the beginning), Yavatmal (from the middle of the period) and now Chandrapur—that also belong to Class II but are located in the north-east part of the state. However, both Parbhani and Nanded, previously belonging to Class II move down at the end of the period from Class II to Class III.

DISTRICTS WITH ANOMALOUS POSITIONS

In general, the above analysis indicates that the position of different districts in different classes can be explained by their agro-ecological characteristics. However, there are some anomalies that have been noted above. These can be briefly reviewed.

The position of Thane in Class I in the first year (1975) is one such anomaly. Unlike the other districts in Class I, Thane falls in the coastal strip that forms the Konkan region of the state. It has an annual average rainfall of 2,259mm. This is far above the low average rainfall in the other Class I districts, which are therefore described as drought-prone districts.

The position of Thane in Class I in 1975 may perhaps be explained by the fact that the district has a relatively large tribal population, 21 per cent of the total (Table 5). The tribal population is generally relatively poor and has only limited employment opportunities. In the sixties and the seventies, this group was increasingly deprived of its traditional sources of livelihood in shifting cultivation in forest lands because changes in forest policies that prevented such cultivation were increasingly enforced. Members of this group found the employment opportunities offered by the Employment Guarantee Scheme extremely valuable at this stage.

As has been shown, Thane dropped out of Class I into Class III by 1981 and further into Class IV by 1987. By this time, Thane had become similar to the other Konkan districts of Raigad and Ratnagiri. Agricultural growth under the favourable agro-ecological conditions found in this district is partly responsible for this improvement. However, as in Raigad, industrial development in Greater Bombay as well as in the district itself probably contributed a great deal to the fall in EGS employment.

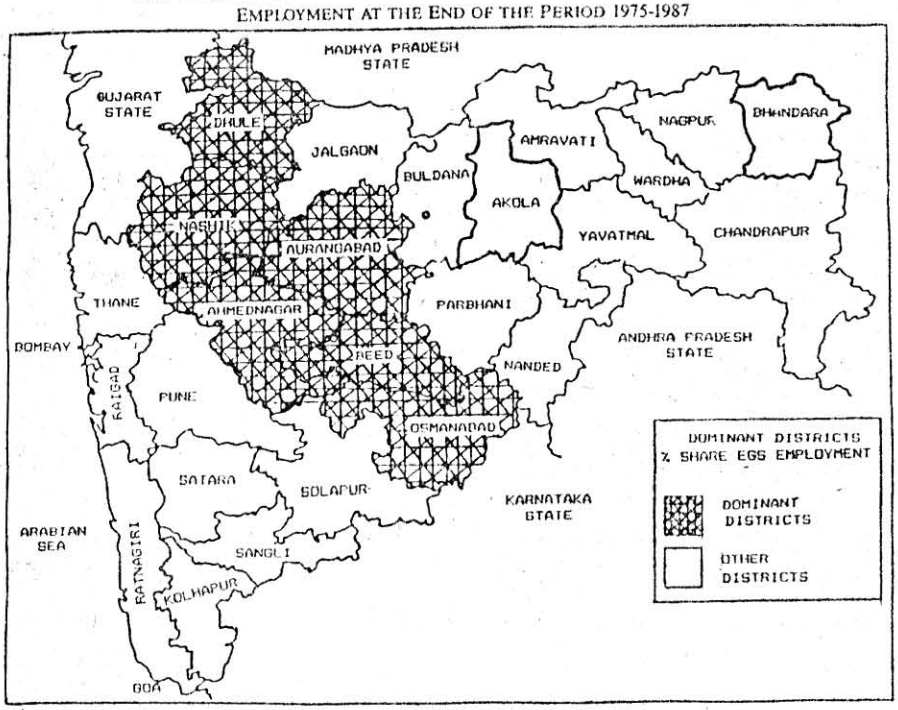
The position of Dhule in the classification in 1975 is anomalous because, although

TABLE 8: PROPORTION OF EGS EMPLOYMENT TO RELEVANT RURAL POPULATION BY DISTRICT FOR 1987

District	Trend Level End July 1987	Relevant Rural Population ('000) 1987	EGS Employment/ Relative Rural Population (Per Cent) 1987
(1)	(2)	(3)	(4)
Ahmednagar	81561.17	1287	6.34 (1)
Akola	11498.76	808	1.42 (19)
Amravati	12835.32	770	1.67 (17)
Aurangabad	39106.46	913	4.28 (4)
Beed	36074.99	995	3.63 (6)
Bhandara	23984.70	914	2.63 (9)
Buldana	13978.98	720	1.94 (14)
Chandrapur	25611.98	1068	2.40 (10)
Dhule	56543.45	975	5.80 (2)
Jalgaon	6470.57	1163	0.56 (22)
Kolhapur	474.53	1060	0.04 (24)
Nagpur	12213.16	682	1.79 (16)
Nanded	17931.93	845	2.12 (11)
Nashik	64614.44	1231	5.25 (3)
Osmanabad	40057.60	1165	3.44 (7)
Parbhani	14583.25	714	2.04 (12)
Pune	21947.47	1370	1.60 (18)
Raigad	49.42	736	0.01 (25)
Ratnagiri	4934.85	1103	0.45 (23)
Sangli	15467.75	826	1.87 (15)
Satara	28360.70	1454	1.95 (13)
Solapur	33939.07	1031	3.29 (8)
Thane	5221.56	1145	0.46 (22)
Wardha	3180.38	407	0.78 (20)
Yavatmal	33608.46	871	3.86 (5)
Maharashtra	625415.18	24193	2.59

Notes: (1) The relevant rural population includes all those between the ages of 15 and 59.
(2) Figures in brackets under Col 4 are the districts ranked by EGS Employment as percentage of relative rural population.

MAP 5: DOMINANT DISTRICTS BY CUMULATIVE PERCENTAGE SHARE OF EGS EMPLOYMENT AT THE END OF THE PERIOD 1975-1987



it belongs to the drought-prone group of districts and had an average annual rainfall of only 674 mm, it did not fall into Class I but into Class III. An explanation for this could be sought in the large volume of EGS employment in Thane and some other districts in this year that reduced Dhule's share in total EGS employment. However, EGS employment in Dhule was itself relatively low in 1975. It is possible that extension of cultivation in this district prior to 1975 had been sufficient to absorb the growth of population till then so that the need for EGS employment remained relatively low in that year.

Since 1975, the growth of EGS employment in Dhule has been rapid—13.41 per cent per annum. As a result, by the middle of the period in 1981, the district had risen to Class II and by the end of the period in 1987 to Class I. Thus, by 1987, Dhule's classification appropriately reflected the agro-ecological conditions that it shared with the other districts in Class I.

It is also noteworthy that three districts located in the north-east corner of the state and, therefore, not belonging to the drought-prone group of districts, nevertheless fall into Class II in 1987. Of these, Bhandara has belonged to Class II from 1975 and Yavatmal from 1981, while Chandrapur came into this class only in 1987. The growth rates of EGS employment in Yavatmal and Chandrapur are high—12.44 per cent and 9.80 per cent respectively. This is a danger signal about adverse developments in this region. Special attention needs to be paid to the behaviour of EGS employment in these districts and appropriate remedial action needs to be taken to ensure that the further growth of EGS employment here does not offset improvements that may be brought about elsewhere.

DOMINANT DISTRICTS

The information obtained by examining the geographical distribution of EGS employment in terms of districts classified by their share of total employment is extremely useful in providing an understanding of how the problems of different parts of the state differ. That information also throws light on how the position of different districts has shifted between classes between the beginning, middle and end of the period covered by the study. Again, for each district, its position at the end of the period by class and even by rank is extremely important. This information throws light on how its agro-ecological and other economic characteristics have affected the availability of regular employment in it relative to other districts.

However, if the object is to bring about a quick reduction in the volume of EGS employment, the policy conclusion that can be drawn from this information becomes somewhat diffuse. This arises from the fact that the criteria used for grouping the districts into four classes are broad. In particular, the range of shares of EGS employment in total employment between 3.5 per cent and 6 per cent that is covered by Class II is probably too large and covers too large a number of districts. At the end of the period, there were seven such districts. Adding these to the five districts in Class I at that time to get a set of important EGS districts creates too large a group of districts. Yet, dividing this class into two becomes difficult as any such dividing point seems arbitrary when examined for all three points of time.

Another approach needs to be devised. This can be found by looking at the cumulative percentage shares of districts in total EGS employment. The first six districts absorb more than 50 per cent of total employment and if one more district is added, the cumulative share rises to around 60 per cent (Table 2). Using the 50 per cent criterion for determining the districts that have a dominating share of total EGS employment, the six dominant districts at the end of the period are Ahmednagar, Nashik, Dhule, Osmanabad, Aurangabad and Beed (Map 5). These six districts, with the exception of Aurangabad, rose in rank over the period. Though Aurangabad fell in rank from 4 at the beginning of the period to 5 at the end, its share of total EGS employment fell only from 7 per cent to 6.47 per cent. It is interesting that in contrast Solapur, which is the seventh district by rank at the end of the period, fell substantially in rank between the beginning and the end of the period. This strengthens the justification for limiting the list of dominant districts to the six top-ranking districts at this time.

These six districts are located in a single block from north to south in the rain shadow area just east of the western ghats. They all have an average annual rainfall of less than 1025 mm. They are all classified as drought-prone districts. The cumulative share of their trend level EGS employment to total EGS employment for all districts at end-July 1987 was 52.6 per cent as compared with their cumulative share of only 27.1 per cent in total population between the ages of 15 and 59 in 1981 (Table 6).

It does not follow from the fact that these six districts are dominant districts, or even that five of them rose in rank between the beginning and the end of the period, that all of them had the highest rates of growth of EGS employment over the period. The EGS growth rates for these districts are all positive and, with the exception of Aurangabad, are all higher than the corresponding rates of growth of the population between the ages of 15 and 59. However, with the exception of that for Dhule, they are nevertheless modest compared to the rates of growth of some other districts. Dhule's growth rate at 13.41 per cent is indeed the highest among all the 25 districts.

However, the EGS employment growth rates of Beed (5.70 per cent), Osmanabad (6.02 per cent), Ahmednagar (6.43 per cent) and even Nashik (8.36 per cent), cover a relatively narrow range of moderately high rates. The growth rate for EGS employment for Aurangabad is relatively low at 3.63 per cent.

It is important to note that six other districts (those not described as dominant) had growth rates of EGS employment that fell between those of Dhule and Nashik (Table 7). This indicates the need for not neglecting these districts in dealing with the problem of unemployment. However, the existing dominating role of the six districts listed justifies concentration of initial effort on them.

Relationship between Regular and EGS Employment

To bring about a reduction in the volume of EGS employment in these six districts, it is necessary to convert the existing positive rate of growth of such employment into a negative rate. This task is not as formidable as it seems. To understand this, it is necessary to examine the relationship between three rates of growth: (a) those for the relevant population, (b) regular employment in agriculture and other activities, and (c) EGS employment. It can be shown that these are tied together by the proportion of trend level EGS employment to the relevant population (i e, the population between the ages of 15 and 59 that is used in this study as a proxy for the labour force). This proportion is extremely small, though of course it varies between districts and even over points of time. In the six districts under consideration, it ranges from 6.34 per cent in Ahmednagar to 3.44 per cent in Osmanabad (Table 8).

It can be shown that if the rate of growth of regular employment is equal to the rate of growth of the relevant population, the rate of growth of EGS employment is nil (actually positive but only to a very small extent). As the regular employment growth rate becomes lower than the growth rate of the relevant population, the EGS employment growth rate becomes rapidly larger. However, if the regular employment growth rate becomes only slightly higher than the growth rate of the relevant population, the EGS employment growth rate bcomes highly negative very quickly.

For these reasons, it seems likely that the growth rate of regular employment in these districts is only slightly below the growth rate of the relevant population. Thus, a relatively slight improvement in the rate of growth of regular employment should be sufficient to make the growth rate of EGS employment highly negative.

If increased investment alone is to be relied upon to bring about the increase in the rate of growth of regular employment, the proportionate increase in investment required will of course be equal to the proportionate increase in the latter rate of growth that is needed. Even this will be small for the reasons set out above. However, if attention is concentrated on increasing the effectiveness of investment in these districts, and in particular on obtaining greater long-term returns from the EGS expenditure on projects and from complementarities between different projects and programmes, the required growth in regular employment opportunities may be obtained without much increase in investment. A rapid decline in EGS employment in these districts can then be achieved, with powerful effects on the total volume of employment that has to be provided in the state under the Employment Guarantee Scheme.