

119

T. R. NO. 119

# Technical Report

EMPLOYMENT GENERATION IN PANCHMAHALS

by

Shreekant Sambrani

WP119



WP

1976

(119)

IIM  
WP-119



विद्याविनियोगादिकासः

**I I M**

AHMEDABAD

**INDIAN INSTITUTE OF MANAGEMENT  
AHMEDABAD**

**EMPLOYMENT GENERATION IN PANCHMAHALS**

by

**Shreekant Sambrani**

T.R. No. 119  
June, 1976

Indian Institute of Management  
Ahmedabad

## EMPLOYMENT GENERATION IN PANCHMAHALS \*

### 1. Background

#### 1.1 Drought-Prone District

Panchmahals is a relatively backward district in east-central Gujarat. It is largely hilly and tribal. The district as a whole is highly susceptible to droughts and scarcity conditions, owing primarily to the uneven and irregular rainfall and poor fertility of soils. Irrigation facilities are poor, with only about 6 per cent of the net sown area being irrigated. Table 1 gives the details of the incidence of droughts. Between 1951-52 and 1972-73, there were eight scarcity years. Thus, every third year could be considered to be a scarcity year for the district as a whole.

Table 1: Incidence of Drought

Financial year	No. of talukas affected	No. of villages affected by scarcity	Population affected	Area affected (sq. km.)
1951-52	9	781	1,22,602	2,690.56
1952-53	11	1,582	6,04,947	6,696.37
1957-58	8	693	5,05,630	3,234.17
1960-61	4	471	1,85,590	1,053.31
1965-66	11	1,784	13,14,099	2,343.09
1966-67	11	1,503	13,19,467	6,273.00
1968-69	11	1,650	10,44,373	7,051.00
1972-73	11	1,767	11,00,000	8,031.45

Source: Drought Prone Areas Programme, 1974-75 to 1978-79, Panchmahals District, (Godhra: 1974) Vol.II, p.34.

\* Based upon the findings of a study reported in detail by Shreekanth Sambrani and K R Pichholiya, An Inquiry into Rural Poverty and Unemployment (Ahmedabad, Indian Institute of Management), 1975.

This naturally affects the production of agricultural commodities. In the case of the two major cereals, paddy and maize, the variations have been between 11,300 tonnes and 91,400 tonnes, and 51,600 tonnes and 241,700 tonnes respectively. Since the bulk of this production is meant for subsistence, such fluctuations would greatly affect the consumption patterns for the populace. They would also affect the prices of the necessities.

## 1.2 The People

According to the 1971 census, the district had a population of 18,49,000, of whom 7,80,600, or over 42 per cent, belonged to scheduled castes and tribes. The population density is about 209 persons per sq. km. Of these, nearly 90 per cent reside in rural areas. Some 22 per cent of the people are literate.

The tribal population is mainly concentrated in the eastern talukas of Santrampur, Jhalad, Dohad and Limkheda. In these talukas together, the proportion of the scheduled caste and tribe population to the total is as high as 70 per cent. Among them, they account for 70 per cent of the scheduled caste and tribes population of the district. Both Santrampur and Limkheda have about 60 per cent tribal populations. The tribals belong to four main groups, Bhils, Patelias, Nayaks and Rathawas.

The literacy rate among the tribals is only about 9 per cent. Their primary occupation is cultivation, which utilises some 243,000 persons. It is followed by agricultural labour, using 28,000 persons<sup>1</sup>. The other occupations provide employment only to a few hundred people.

For the district as a whole, too, similar patterns are seen. Cultivation provides employment to nearly 80 per cent of the working population, followed by about 8 per cent employed as agricultural labourers (Table 2). This categorisation is somewhat misleading, however. For some of the cultivators, since there is not sufficient work on own farms and since the income from own farms may not be sufficient, it might become necessary to seek periodic employment elsewhere.

---

<sup>1</sup>General Administration Department (Planning) Government of Gujarat, District Planning Machinery (Baroda: 1973), p.153

Table 2: Occupational Pattern in Panchmahals

Economic Activity	Persons			Percentage of the total working Population
	Total	Male	Females	
1. Workers	678,355	518,186	160,169	100.00
I. Cultivation	541,337	406,427	134,910	79.80
II. Agricultural Labour	52,746	34,489	18,257	7.78
III. Livestock, Forestry, Fishing, Hunting Plantations, Orchards and Allied Activities	3,120	2,589	531	0.46
IV. Mining & Quarrying	1,296	989	306	0.19
V. (a) Household Industry	9,269	7,727	1,542	1.37
(b) Manufacturing other than household Industry	7,688	7,456	232	1.13
VI. Construction	3,445	3,174	271	0.51
VII. Trade and Commerce	19,552	18,999	553	2.88
VIII. Transport, Storage and Communications	12,405	12,277	128	1.83
IX. Other Services	27,498	24,059	3,439	4.05
2. Non-workers	1,170,449	433,014	737,435	-

Source: General Administration Dept. (Planning), Govt. of Gujarat, District Planning Machinery (Baroda: 1973), P.153

### 1.3 The District as Compared to the State.

Table 3 provides data on a number of indicators of socio-economic conditions prevailing in the district and the state.

As far as agriculture is concerned, there is a greater pressure on the land in the district as compared to the State. Due primarily to the excellent crop year of 1970-71 (see Table 3) in the district, the per capita foodgrain availability in the district is better compared to the state, but, as we have discussed earlier, this is subject to drastic variations.

The gulf between the state and the district becomes much wider when we compare the other aspects. The proportion of literates in the district is only two-thirds of the state as a whole. While the proportion of primary schools in the district is greater than its proportion of population, other educational

institutions, which would impart training and skills necessary for improving the possibilities of earning a decent livelihood are proportionately fewer. Only 0.6 per cent of the state's colleges and technical institutions are located in a district containing nearly 7 per cent of its population.

Table 3: Comparison of Socio-Economic Conditions between Gujarat and Panchmahals

	Gujarat	Panchmahals.	Panchmahals as of Gujarat
Area, Sq.km.	1,95,984	8,864	4.52
Total Population	2,66,97,000	18,49,000	6.93
Density of Population per sq.km.	136	209	153.68
Scheduled Castes & Tribes	55,59,000	7,80,600	14.04
Percentage of Scheduled Castes and Tribes of Total Population	20.82	42.21	202.77
Density of Population per 100 Hectares of Net Area Sown	283.17	382.02	184.91
Percentage of Net Area Irrigated to Net Area Sown	12.82	6.09	47.50
Per Capita Production of Foodgrains in Kg.	152.11	221.09	145.35
Percentage of Rural Population	71.92	88.88	123.47
Percentage of workers to Total Population	31.45	36.68	116.63
Percentage Literacy	35.79	22.82	63.76
Roads in km/sq.km. of area	0.17	0.18	105.88
Primary Health Centres	251	232	9.16
Educational Institutions Primary	21,592	1,852	8.58
Secondary	2,382	116	4.87
Others	2,570	15	0.58
Total	26,544	1,983	7.47
Factories and Workshops <sup>a</sup>	80,133	3,532	4.41
Small Scale Industrial Units <sup>a</sup>	2,592	52	2.06
Investment in 1000 Rs. <sup>a</sup>	62,792	1,687	2.69

a : 1960-61 Figures.

Source: 1971 Census Handbooks

Similarly, only 4 per cent of the state's industrial establishments, accounting for less than 3 per cent of the total investment, are located in the district. Thus, the per capita industrial investment in the district would amount to only about a third of that in the state.

#### 1.4 An Overview of the Area

From the point of view of income generation, the district indeed offers a rather gloomy picture.

Agriculture, the principal occupation for nearly 90 per cent of the populace, is conducted in adverse conditions. The soil fertility is poor. Irrigation availability is low. Therefore, agriculture is dependent on the vagaries of monsoon, which is irregular and uneven. The technology employed for agriculture is traditional and primitive. As a consequence, the agricultural productivity is low and subject to wide fluctuations. The income generation and employment potential of agriculture is, therefore, poor and at best, uncertain.

Even though the district has forest and mineral resources, the employment offered by these activities is not significant. There is no industrialisation worth the name. The capital formation within the district is poor.

Educational and training facilities, which would improve the earning potential of the people in the area, are inadequate as compared to the state. Consequently, the literacy rate in the district is only two-thirds of that in the state.

The district has a fairly large tribal population. Nearly 70 per cent of the tribals are concentrated in the agro-climatically poorer region of the district. Their methods of cultivation are even poorer than those of the non-tribals. Their dependence on agriculture for earning a livelihood is greater. The literacy rate among them being lower, their ability to obtain other jobs could be lower than that of the non-tribals.

Thus, our sample area would appear to be resource-poor and therefore, poverty-stricken. The tribals would appear to be the poorest among the poor. It is against this setting that a sample investigation was conducted to assess the extent of poverty and possibilities of employment generation.

#### 2. Summary of Results of a Sample Survey (Reference year 1972-73)<sup>2</sup>

In our sample of 199 households, only five were without any land. The average size of holding amounted to about 1.7 hectares per household. By itself, this could be considered to be better than the corresponding national

---

<sup>2</sup>The findings are detailed in Shreekant Sambrani and K.R. Pichholiya, An Inquiry into Rural Poverty and Unemployment, (Ahmedabad, Indian Institute of Management), 1975.

average. According to the seventeenth round of NSS, 21 per cent of the national households are landless and nine per cent possess holdings of less than 0.2 hectares. It might appear, therefore, that our sample is better placed than the poorest 30 per cent of the national average.

The fact that an overwhelming portion of our sample owned land is due primarily to the land inalienation act applicable to the region. The mere ownership of land, however, does not guarantee the adequacy of livelihood derived from it.

The land and other productive assets were rather poor for the sample population. Irrigation facilities were limited and the extent of irrigation was lower than the state average. Credit availability and utilisation were also limited. Other studies<sup>3</sup> showed that the level of adoption of technology was rather low.

/have

As a consequence, the productivity of agriculture was not very high. On an average a hectare of land produced crops worth Rs.1,300 year. Part of this poor productivity may be explained on account of the relatively poor reference year, there being a severe drought. There are reasons to believe, however, that even in relatively good years, agriculture is not very highly paying.<sup>4</sup>

Given the paucity of other productive resources with the sample of households and within the area, wage-paid employment is the major source of incomes other than agriculture. We found however, that only about 90 man-days of work were available per person, both on- and off-farm. Even at a conservative norm of 200 man-days per person per year for full employment, this amounted to a less than 50 per cent utilisation of available man-days. This was further complicated by the possibility that on-farm employment might have a high proportion of disguised unemployment.

Whatever work was available, it was primarily low-paying. For the sample as a whole, agricultural work predominated, where wage rates stagnated around Rs.1.65 per man-day. Wherever skills and education were available, a few opportunities of non-farm work paying about Rs.3.50 per man-day did exist. The level of education and skills, however, was considerably low, and consequently, the sample could not avail of these opportunities to a great extent.

As a result, the total household income on an average was about Rs.3,000 per year. An investigation of expenditures showed that about 40 per cent of this was spent on food articles. An examination of the per capita

---

<sup>3</sup> See M.S. Krishna Swamy and K.V. Patel, Status of Dryland Agriculture, (Ahmedabad, Indian Institute of Management) 1973, Vols. I and II.

<sup>4</sup> The findings of Krishna Swamy and Patel, op. cit., lead one to this hypothesis.



income and expenditure, as well as income deficits, indicated that nearly four-fifths of the households were poor.<sup>5</sup> These estimates are conservative. The reported yield rates for various agricultural commodities were higher than those expected by the department of agriculture. Consequently, the computed incomes may be overestimates of the actual income. Therefore, the number of the poor estimated in the study is likely to be an underestimation of the actual poor.

The tribal population was in a particularly unfortunate position. They seemed to be worse off than their non-tribal counterparts, in terms of education, skills and the total assets. They had a more limited access to institutional credit and consequently, pay a substantially greater interest rate.

Their relatively weaker position is brought into a sharp focus if we consider the employment opportunities available to them. A very large proportion of their time was spent on the low-paying agricultural work, as opposed to the non-tribals who spent a major proportion of their time in non-agricultural work. This resulted in a considerably lower income from off-farm employment for the tribals in comparison with the non-tribals. The average household incomes for the tribals were also lower. They spent a greater proportion of their income on food articles. Consequently, their consumption of other articles, which would lead to an improvement in the quality of life, was significantly lower than that of the non-tribals.

A larger proportion of the tribals, over 90 per cent, fell in the category of the poor as compared to the non-tribals. This resulted in greater deficits of incomes as compared to expenditures for the tribals. The income distribution spectrum among the tribals was wider as compared to that of the non-tribals.

We can conclude that the poverty in the area is not a result of adverse climatic conditions prevailing during the reference year alone. The bulk of the population can barely meet their minimum necessities of life from the income available to them. There is hardly any possibility of making investments so as to improve the quality of the productive resources available to them. On the contrary, indebtedness is likely to increase on account of deficits of income as compared to expenditure.<sup>6</sup> Since the bulk of the population is busy looking for employment opportunities to supplement their incomes, there is a limited possibility of their being able to improve their skills or education so as to avail of the better-paying employment opportunities. This then seems to be the classic vicious circle of poverty; as a result of the poor resources, the poor have low current incomes; since the bulk of it, and in many instances, additional loans as well, are used for subsistence consumption, there is no way to save and improve the resource situation; consequently, in the next year there are equally poor incomes. The poverty, therefore, is endemic and pervasive. It is not a cyclical phenomenon, nor is it a relative

---

<sup>5</sup> The norm used was per capita monthly expenditure of Rs.20 in 1960-61 prices or Rs.40 in 1972-73 prices.

<sup>6</sup> In an earlier round of investigation, 36 of the 37 households surveyed indicated a feeling of being poorer than their parents. Their indebtedness

Since the norm used for defining poverty guarantees no more than a minimum consumption package, the poor of our study are those who subsist at the very edge of survival

### 3. Employment Generating Alternatives

#### 3.1. The Magnitude of the Need

Our sample of 199 households had, on the whole, only about 90 days of productive work a year per person in the labour force. At the rate of 300 days per person per year, the scale of productive activities would have to be more than tripled for full employment. Even at the arbitrarily reduced norm of 200 days per person, the available work will have to be more than doubled.

We are not concerned with full employment for any reason other than income generation. At the prevailing overall average wage rate of Rs.2.19 per man-day, the total additional income for the sample on full employment would go up by some Rs.3,40,000. The total sample income would then be about Rs.9,30,500, or Rs.697.50 per capita. In other words, even at full employment, the per capita income of the sample would be only Rs.217.50 above the poverty mark. Considering that there may be overreporting of incomes and that the poverty line refers merely to essentials of survival, this level of per capita income cannot be considered a drastic move away from poverty.

Further, these calculations are of overall averages, which include a few households with per capita incomes as low as Rs.66 and a few others with per capita incomes over Rs.1,000. Thus, even with full employment, there may still be households which have expenditures in excess of incomes, and getting further into debts at exorbitant interest rates.

The import of this discussion is that full employment at 300 days per person per year will neither improve the economic positions of the households in the area to such an extent as to take them out of the class of vulnerable population, nor even eradicate poverty. Thus, full employment would appear to be merely a first step in the direction of removing poverty.

Yet, achievement of full employment would be no easy task. Assuming for the moment that public works are started to provide full employment to the entire working population of the district, the wage cost for 210 additional days per person at Rs.2 per day would alone amount to about Rs.28.50 crores. This is over three and a half times the amount spent on scarcity relief in the district during 1972-73, Rs.7.85 crores. The total wage bill for full employment in the district is comparable to the amount spent on scarcity relief in the entire state, including loans, during 1972-73, Rs.31.90 crores. These estimates are at a wage rate two-thirds of the minimum used by the government, Rs.3 per man-day.

Even for the reduced norm of 200 days of employment per person per year, the wage bill at Rs.2 per man-day for the working population of the district would be Rs.14.92 crores, or nearly twice the amount of the money spent on scarcity relief in the district in 1972-73. The 110 additional days that an approach will provide to a member of our sample working force would raise the income of the sample households to Rs.7,53,000 or Rs.564.65 per capita. This is only 17 per cent above the poverty mark.

Let us leave aside the concern for full employment. The sample per capita income is Rs.422.41 or less than 10 per cent below the poverty line. If this were to be raised to the poverty line, Rs.480, the additional income required would be a little over Rs.50,000 for the sample. This would need about 34 additional days of employment per member of the working force. For the district as a whole, to provide those many additional days of employment per person in the working population would imply a wage bill of Rs.4.61 crores, or about 60 per cent of the amount spent on scarcity relief during 1972-73.

Thus, even to raise the incomes of the district population to bare subsistence level would require a rather large expenditure. Full employment, while not removing poverty entirely, would further increase the amount of expenditure involved. And so far, we have only discussed the financial requirements. An attempt to increase the scale of employment generating activities many fold would imply a commitment of additional organisational resources.

It must be conceded at this stage that this analysis is based upon data obtained during a drought year, among the worst that the district had faced since 1950-51. The agricultural incomes would be depressed, as would be the demand for labour. Nonetheless, it is at such times that the need for employment would be the greatest. Moreover, the government had undertaken a substantial expenditure to create jobs and the short-falls in income discussed above are in the face of this expenditure. The above estimates of expenditures on wage bills are, therefore, in addition to the amount of money spent on scarcity relief.

It would thus seem that a dent can be made in the existing poverty of the district through a public works programme only at a great cost of resources. <sup>at</sup> Given the press of other demands on the use of resources, the public exchequer may well be unable to finance such works. This, then, is the dilemma of removing poverty in the area of our study. We fully expect the same picture to prevail with minor variations in other poverty stricken areas.

It might appear, therefore, that the only alternative to the people of the region being condemned to permanent poverty is an improvement in the productive resources and their productivity, particularly those employed in the principal occupation, agriculture. This need is all the more emphasised

because of the wide fluctuations in the agricultural productivity with variations in the agro-climatic conditions. This is the main reason for the drought-prone areas programme to be implemented in the district.

The results of such activities would be felt at best in the long run, after a gestation period of about 10 years. Even so, such programmes would only "make the agriculture...less susceptible to natural factors"<sup>7</sup> The need for employment generation would continue in the short-run, and even in the long run, since the long-run programmes would not fully ensure the vulnerable sections against adverse impacts of droughts.

The need for additional wage-paid employment, will, therefore, continue to be felt, though its extent may be reduced in the long-run. At the same time, public works may not be able to fully take care of this need. The set of employment generating alternatives must, therefore, include possibilities other than public works alone.

### 3.2 Objectives for selecting alternatives

If the dependence on public works for employment generation is to be contained, there must be some involvement of the private initiative. In a region such as Panchmahals, there are some clear limits, however, to the involvement of private initiative.

The generation of employment through industrial activities offers only limited possibilities. The known resources in the primary sector, the forests and the minerals of the region, have been able to offer employment opportunities to a relatively small number of people. Unless major mineral discoveries are made, this situation is not likely to change. The manufacturing industry would firstly need capital, which, given the poverty of the region, will have to come from outside. The experience so far clearly indicates that the incentives offered notwithstanding, there is no great possibility of a major capital influx. Secondly, the necessary skills and experience for such industrial activity are not available in the area. Therefore, even if there were to be a rapid industrialisation of the area, it would attract skilled labour from the outside, along with the capital. The local population may therefore get only the crumbs of benefits from such activities.

---

<sup>7</sup> Drought Prone Areas Programme, 1974-75 to 1970-79, Panchmahals District (Godhra), 1974, Vol. I, p.9.

It would, therefore, become necessary, for any employment generating alternative to be considered, that the capital investment involved be low. Further the bulk of employment derived from such activities should go to relatively unskilled labour. Such criteria, on the face of them, may not appear to be significantly different from those considered in general for determining investment priorities in a developing country. We have demonstrated above, however, their specific significance to the Panchmahals situation.

We would like to add another criterion to these. The activity undertaken should be able to create permanent assets. Unless this is assured, private initiative may not be forthcoming. The creation of assets could further make it possible that from a given activity, there may be continuing generation of employment, over and above that obtained as an immediate result of the commissioning of the activity. It would, therefore, be possible to treat these activities not as relief measures, but more as those aimed at bringing about a permanent improvement in the situation. The measures would then not be purely short-run, but would have a significant long-term fall-out.

### 3.3 The Alternatives

#### 3.3.1 Introduction

We identified three activities, housing construction, well-digging and soil conservation, as being particularly suited for employment generation in the short-run in the situation faced in Panchmahals.<sup>8</sup> We shall now evaluate how these activities fare on the criteria discussed in the preceding section. The ultimate objective is to gauge their employment potential, so as to lead to a design of a programme.

Not all of these activities have been pursued on a major scale in the area. The relevant data were, therefore, obtained from elsewhere in Gujarat, wherever these activities were conducted systematically enough.

#### 3.3.2 Housing Construction

##### 3.3.2.1 The Demand

We have in mind here relatively inexpensive housing meant for the rural masses. On the face of it, this may seem somewhat contradictory to our general discussion of the poverty in the area: A people whose incomes fall below or are around the poverty line cannot be expected to have sufficient savings for building houses. Housing is, nonetheless, a primary need of all the people. Activities carried on in Ahmedabad city indicate that when reasonably attractive and modern housing can be built within modest costs, with institutional

---

<sup>8</sup> In our pilot investigations, people indicated marked preferences for activities wherein permanent individual assets are created. These are preferred because they reduce the impact of subsequent scarcities.

finance and an element of subsidy, the cost of the house would not be a deterrent for even the poor.<sup>9</sup>

Even a cursory visual inspection would show that such housing as exists in rural Panchmahals is far from adequate, both qualitatively and quantitatively. This potential demand can be activated, provided the financial arrangements are attractive enough for the poor population. This is true of all rural areas in general and is one of the principal reasons for the creation of a special agency, the Gujarat Rural Housing Board.

### 3.3.2.2. The Requirements

In 1970-71, serious flooding of the Narmada devastated areas of Baroda and Broach districts. As a result, a number of people were left homeless. The Ahmedabad Study Action Group, a voluntary agency, undertook a housing construction project in the area. Simple brick houses with asbestos roofing were built during 1972-73. A total of 1,596 houses in Baroda district and 600 in Broach district were constructed.

### 3.3.2.3 Costs and Benefits

Table 4 gives the cost analysis of one unit of housing. The total cost is Rs.1,200, which by any standard is a modest figure. In this cost, the cost of land and the professional services of the architects and designers have not been included, since these elements were donated.

From this table, it appears that the total employment potential is rather low. The cost of labour is only 17 per cent of the total cost, and of this, only a third is on unskilled labour. Labour is required, however, not only for direct construction but also for the manufacture of the major material, bricks.

---

<sup>9</sup> The Ahmedabad Study Action Group (ASAG), a voluntary agency, has taken the lead in building 2,250 houses for the flood-affected slum-dwellers from the banks of the Sabamati. These houses are situated on the border of the city, on a plot of donated municipal land. The houses, with a floor area of 250 sq. ft. cost Rs.2,860 per unit. Of this, Rs.1,100 has been given as a subsidy and the balance is a loan at 6.5 per cent per annum from the Housing and Urban Development Corporation, to be repaid over 18 years. The residents pay an initial deposit of Rs.50 and a monthly instalment of Rs.18. The response, essentially from amongst the poorest segments in the city, was overwhelming and the first batch of residents has moved in.

Table 4: Cost Analysis of One Unit of Housing in Baroda and Broach Districts in 1972-73

		Rs.	Per cent of total cost
Basic	Cost of One House	1,200.00	100
	Cost of Labour	200.00	17
	Cost of Materials	1,000.00	83
Gross	Cost of the House	1,330.00	100
	Cost of Supervision	130.00	10
	Cost of Labour	200.00	15
	Cost of Materials	1,000.00	75
Total	Cost of Materials	1,000.00	100
	Cost of Bricks	400.00	40
	Cost of Cement	120.00	12
	Cost of A.C. Sheets	250.00	25
	Cost of Wood	130.00	13
	Other Materials	100.00	10
Total	Cost of Labour	200.00	100
	Cost of Skilled labour	130.00	65
	Cost of Unskilled labour	70.00	35

Table 5: Labour Employment for Housing Construction

Item	Type of Labour	Man-days per House	Man-days for 1500 Houses.
(A) House Construction	Masons	7	10,500
	Carpenters	3	4,500
	Labourers	28	42,000
(B) Site Work			
Site Cleaning, Leveling	Labourers	6	9,000
Misc. Works	Labourers	6	9,000
(C) Material Supply			
Loading - Unloading etc.			
Sand	Labourers	4	6,000
Gravel	Labourers	2	3,000
Others	Labourers	2	3,000
(D) Brick Production			
Bhalod Kiln	Labourers	-	36,000
Panetha Kiln	Labourers	-	20,000
		Total Man-days	1,43,000

Table 5 gives the details of labour employment for the activity. Out of the 1,43,000 man-days required for 1,500 houses, only 15,000 are those of the skilled workers, namely, the masons and the carpenters. The remaining man-days, nearly 90 per cent of the total, are all unskilled. Thus, for each unit of housing constructed, a total of about 100 man-days would be used, of which nearly 90 would be unskilled. Thus the activity has significant labour employment potential, particularly for the unskilled workers.

It must be conceded, however, that there will be no on-going component of labour utilisation. That is, once the house is constructed, there will be no further use of labour. As against this, it must be mentioned that the construction of the house is not merely a physical activity. It implies the creation of a new environment, wherein it might be possible to bring about new patterns of living. It may be possible, for example, to start



schools and have a greater attendance figure, thereby ensuring better educational possibilities for the children of the beneficiaries. It may be further possible to start adult training centres and impart employment-oriented skills. In fact, the Ahmedabad project of the same group aims more at creating such a new environment than at the mere physical construction of the houses.

### 3.3.3 Well-Digging

#### 3.3.3.1 The Need

We have seen that barely 6 per cent of the net sown area in the district is irrigated. Any programme aimed at improving the productivity of agriculture would essentially aim at providing more irrigation, so as to reduce the dependence on monsoons. Among the irrigation sources, in the context of the district, dug-wells are the most important. At present, they provide irrigation to over 20,000 hectares, out of the 24,000 hectares irrigated.<sup>10</sup> There are about 40,000 wells operating in the district.<sup>11</sup>

Even after the completion of the irrigation programmes in the district, the picture is not likely to change substantially. The major irrigation project at Kadana is to provide irrigation mainly to Kaira district. There are other minor and medium projects and would provide localised irrigation. One of the objectives in undertaking these projects is to improve the well recharge potential, so as to benefit individual farmers.

In any event, the private initiative as far as irrigation is concerned is confined to digging wells. Under DPAP, over 560 wells are proposed to be dug and another 660 converted into pauca wells, with a subsidy of 25 per cent, not exceeding Rs.1,500 and Rs.250, respectively. It is also hoped that an equal number of unsubsidised wells would come up in the area.<sup>12</sup> It seems reasonable to assume, therefore, that there would be a good demand for dug-wells.

#### 3.3.3.2 Costs and Benefits

The DPAP project report estimates the cost of a well to be Rs.8000.<sup>13</sup> We were unable to get further breakdown of this. It was possible, however to collect

<sup>10</sup> Drought Prone Areas Programme, 1974-75 to 1978-79, Panchmahals District, (Godhra: 1974) Vol. II, p. 79.

<sup>11</sup> Ibid., Vol. I, p.62.

<sup>12</sup> Ibid

<sup>13</sup> Ibid, Vol. I, pp.90-91.

some details from a well-digging programme conducted in 1970 in Broach district by the Catholic Relief Services.

The total cost of one of these wells was about Rs.7,200. The wells were dug in the Dediapada taluka of Broach, a predominantly tribal area. Thus the activity seems to be comparable to the one planned in Panchmahals.

Table 6 gives the cost details of a well. Among the materials used, the important ones are bricks and cement. The well-digging activity generates employment for 1,300 man-days. Another 40 days may be added to it, on account of the employment component in brick-making, calculated on the same basis as given in Table 5. Thus, the total initial employment is 1,340 man-days.

Table 6: Cost of a Well at Dediapada

<u>Item</u>	<u>Rs.</u>
a) <u>Masonry:</u>	
Bricks $20,000 \times \text{Rs.} \frac{70}{1000}$	1,400.00
Cement 90 bags $\times \text{Rs.} .11$	990.00
Masons: 20 brasses $\times \text{Rs.} .28$	560.00
Sand: 8 brasses $\times \text{Rs.} .30$	240.00
Tools provided	100.00
	<u>3,290.00</u>
b) <u>Unskilled labour</u> paid with Food-for-work 13 persons employed for 25 days in a month for 4 months	
Imputed Cost:	3,900.00
Total	<u><u>7,190.00</u></u>

There is a more significant feature of on-going employment associated with this. The DPAP project report estimates that as a result of well-digging, the average farm output would go up from Rs.1,800 to Rs.9,000. It estimates that 50 per cent of this increase, Rs.3,600, would be paid as wages.<sup>14</sup> At a wage rate of Rs.3 per day, this would provide 1,200 man-days of employment.

<sup>14</sup> Ibid.

Apart from employment generation alone, in view of improvement of assets and permanency of this improvement, well-digging recommends itself as a very desirable activity.

### 3.3.4 Soil Conservation

#### 3.3.4.1 The Need

The district terrain is undulating. Irrigation facilities are poor and the soils are shallow and not very rich. It would appear, therefore, that soil conservation measures such as contour bunding and nalla bunding would be needed to improve the agricultural productivity. The state has been spending a substantial amount of money on this activity. During the year 1973-74, a sum of Rs.47 lakhs was earmarked for soil conservation activities in the district. During the Fifth Five-Year Plan, a total of Rs.72.50 lakhs is proposed to be spent on soil and moisture conservation activities in the DEAP alone.<sup>15</sup>

The farmers themselves are well aware of these activities.<sup>16</sup> In fact during our interviews, they expressed a marked preference for soil conservation work to be undertaken as a part of the scarcity relief work, over other works such as road building.

It is estimated that approximately Rs.60 is the cost per acre for bunding in Panchmahals.<sup>17</sup> We were informed by the Divisional Soil Conservation Officer that a third of this is offered as subsidy and the remaining is given as a loan to be repaid over a 15-year period beginning two years after the completion of the works. Some 25 per cent of the total cost is incurred on establishment for the supervisory labour and the tools used. The remaining 75 per cent is paid as wages to the workers employed for the activity.

As in the case of well-digging, soil conservation activities are aimed at improving the productivity of land. In a study conducted by Shah and Patel, it was found that the additional benefits due to soil conservation more than pay for the cost of the work within one year.<sup>18</sup> Table 7 shows the improvement

<sup>15</sup> Ibid., Vol. I, p.28

<sup>16</sup> "Bunding is the most widely known soil conservation measure and ... the farmers' perception of its usefulness cuts across holding size groups." Krishna Swamy and Patel, op. cit., Vol. I, p.141.

<sup>17</sup> Reported by R.L. Shah and G.A. Patel, "Measuring Benefit due to Contour Bunding in Panchmahals District of Gujarat State" Indian Journal of Agronomy, Vol. XV (December 1970).

<sup>18</sup> Op. cit.

yields of the two principal crops in the district, paddy and maize. The observed increases vary between Rs.63 per acre and Rs.118 per acre, depending upon the age of the bund. These figures have been derived from the harvest prices prevailing in 1967-68. Assuming an average increase of Rs.80 per acre would, therefore, seem to be a conservative estimate of the benefits derived from soil conservation. As in the case of well-digging, we may expect

Table 7: Benefits of Bunding

Age of Bund	Additional Yield in Kg. per Acre.	Harvest Price Rs. per quintal (1967-68)	Total value of Additional Yield per Acre. Rs.
<b>Maize</b>			
Four years old	132.16	90.00	118.94
Three years old	101.88	90.00	91.69
Two years old	70.88	80.00	63.79
<b>Paddy</b>			
Four years old	77.72	100.00	77.72
Three years old	88.76	109.00	88.76
Two years old	74.56	100.00	74.56

Source: R L Shah and G A Patel "Measuring Benefit due to Contour Bunding in Panchmahals District of Gujarat State", Indian Journal of Agronomy, Vol. XV (December 1970).

that 50 per cent of this additional benefit is paid as wages. This assumption however, might not be as tenable as the one made in the case of well-digging. In that situation, it is quite clear that in view of the large increase in production, additional labour will have to be employed. In this situation, it may not be necessary to employ additional labour. It is, however, possible that the extent of underutilisation of labour on own farm would be reduced, and to that extent, the demand for outside employment would also be reduced. We shall, therefore, assume that Rs.40 per acre is the additional employment generated as a result of soil conservation.

### 3.3.5 Comparison of the Alternatives

It is now possible to compare the three activities for their potentials and limitations. In order to bring about a comparability, the data reported in the preceding paragraphs have been reduced to a base of Rs.1,000 of investment. Table 8 shows the various comparisons.

Table 8: Comparison of the Employment Generating Activities per Rs.1,000 of Investment.

Activity	Man-Days of Direct Employment for Unskilled Workers	Other Resources Required	On-going Employment for Unskilled Workers Man-days/year
Housing Construction	71.11	14 bags of cement 10 sheets of asbestos 7.5 cft. of wood Rs.216.67 worth of skilled and supervisory labour	
Well-digging	186.67 <sup>a</sup>	12.5 bags of cement 33.4 brass of sand Rs.13.91 worth of tools, Rs.77.80 worth of skilled labour	150 <sup>a</sup> 225 <sup>b</sup>
Soil Conservation	250.00 <sup>a</sup>	Rs.250.00 worth of Tools, skilled and supervisory labour	222.22 <sup>a</sup> 333.33 <sup>b</sup> two years after completion of the work

a: Estimated at a wage rate of Rs.3 per man-day

b: Estimated at a wage rate of Rs.2 per man-day

Soil conservation might appear to be the best alternative out of the lot. It provides the highest number of man-days through direct employment, as also the on-going employment. Further, it makes no use of other materials such as cement, of which there might be a shortage.

Well-digging comes next in terms of the desirability. Housing has only a one-shot employment content. It also makes considerable use of not only cement but also asbestos sheets and wood.

It would, however, not be realistic to conclude that the priorities for taking these activities should be in this order at this stage. The soil conservation activities have also higher requirements of skill and supervisory labour. This is provided through the departmental set-up. The effect of taking up soil conservation as a major activity would, therefore, be to add to the government establishment. On the other hand, skilled and supervisory labour involved in the other two activities is mainly from the household sector. The wages paid to them, therefore, would tend to increase the net income of the native households in the area.

The widespread awareness of the importance of contour bunding also suggests a possibility that the potential for taking up this activity is limited. In the case of the other two activities the potential may not be so limited.

Both well-digging and housing construction make use of masons and carpenters. The district provides employment to only about 3,500 people in the construction sector. It might be reasonable to assume, therefore, that the availability of masons would be a limiting factor. This becomes critical, since in the absence of masons it would be impossible to conduct these activities. Similar is the case of cement requirements for these activities.

From the point of view of generating enthusiasm among the beneficiaries of these activities - not amongst the labourers, but amongst the people for whom the asset creation will be undertaken - it would appear that housing construction would have a considerable attraction. A permanent house with a reasonable appearance would, on the face of it, attract at least the better-off segments of the population. It would be necessary, however, for the commissioning agency to offer finances at subsidised rates, and, if the benefits of the housing are to reach further down the economic ladder, a grant of subsidies to meet a part of the cost. The other two programmes have a built-in mechanism of subsidy for the weaker sections.

Another important consideration would be the amount of work required to mobilise public interest in these activities. While there is already a substantial interest in soil conservation and well-digging, the housing

schemes might perhaps be seen with a degree of scepticism. It would, therefore, become necessary to create an awareness of the programme and its possible impact. The experience of the Ahmedabad Study Action Group suggests that perhaps voluntary agencies have an advantage in this regard over a departmental organisation. Fortunately, the district possesses, in the form of the Bhil Seva Mandal, an excellent voluntary agency.

On the basis of this discussion, it would be desirable to accord well-digging and soil conservation equal priority. Housing construction should be seen as a second priority item. It must, nonetheless, be included in the set of activities considered, not merely for employment generation, but also for the improvement of quality of life.

#### 4. The Strategy in the Short-run<sup>19</sup>

##### 4.1 The Scale of Activities

We shall make an attempt in this section to derive an estimate of the scale of activities necessary to bridge the gap between existing average incomes and the poverty line. As we have discussed earlier, this by no means would connote an end to poverty, but would simply be a first step in the direction.

For our sample, there is a difference of Rs.50,000 between existing incomes and an income of Rs.480 per capital, the poverty line. To obtain this much additional income, each member of the working force will need 34 additional man-days at Rs.2 per man-day, or 22.5 additional days at Rs.3 per man-day, the desirable wage rate. For the working force of the district as a whole, a total of 1,52,78,000 additional man-days will have to be provided, if each person is to get 22.5 extra man-days.<sup>20</sup>

Table 9 shows the scale of activities and the investments that would be needed to provide these many additional man-days of employment, if they were to be provided by that activity alone. The investment requirements vary between about Rs.6 crores for soil conservation to about Rs.21.5 crores for housing construction.

<sup>19</sup> The amounts of money discussed in this section are in 1972-73 prices.

<sup>20</sup> Our estimate of about 1.5 crore man-days needed to bring incomes to the poverty line is comparable, within the limitations of survey research, to 1.2 crore man-days estimated by a committee of the state government set up to prepare a design for the right-to-work programme.

Table 9: Scale of Activities Necessary to Provide Subsistence Income to All Households in the District.

Activity	Man-days of Employment to be generated.	Investment Required, Rs.lkhs.	No.of Units Achieved through the Investment
Housing Construction	1,52,78,264	2,148.53	1,71,139 houses
Well-digging	1,52,78,264	818.46	10,230 wells
Soil Conservation (contour bunding)	1,52,78,264	611.13	4,07,420 hectares

The scale of activities suggested by Table 9 is indeed beyond what would be contemplated in the course of normal development. A comparison is provided by the expenditure in the district for the Fifth Five Year Plan. The state government recommended a total of about Rs.25 crores, of which agriculture was to get Rs.11 crores and social services, Rs.6 crores.

It must be pointed out, however, that expenditure for soil conservation and well-digging are not necessarily recurring. In the case of the former, two years after the completion of the work and in the case of latter, immediately after the activation of the well, there would be no further need of investment for providing these many additional man-days, since they would then provide an almost equal number of man-days of on-farm employment.

It would be entirely unrealistic to expect that either 10,000 wells could be dug or 4 lakh hectares could be bunded in a year under the present circumstances. Even over a five-year period these targets would be overambitious. If a combination of equal proportions is contemplated, 5,000 wells and 2 lakh hectares to be contour-bunded would emerge as targets for the five-year period. From our discussions with the district officials, it appeared that while the soil conservation target may be feasible, the well-digging target appeared to be at least twice as great as the possible figure.



Table 10 shows the implications of contour-bunding of 40,000 hectares and digging 500 wells annually in terms of the employment potential and requirements. We see that with such a gradual programme with an annual investment of Rs.1 crore, at the end of the eighth year, there is still over a third of the employment requirement left uncovered. If the investment is continued beyond the fifth year, it would require a continuing investment for another five years before the entire employment requirement is met.

From the above analysis it becomes clear that what had been contemplated as a short-run strategy does not remain so, by the sheer force of numbers. If we base our strategy design simply on what is considered feasible, a phased, gradual programme requiring an investment of Rs.1 crore a year, would take ten years to cover the current income deficit. For these ten years, large gaps will continue to remain. Additional demands from an increase in the population will have to be met through other factors, such as the possible industrial development of the area and the use of improved agricultural technology, the possibilities for which, as we have seen earlier, are rather limited.

The conclusion of the above discussion cannot be brushed aside: There is no alternative to a concentrated, major effort to combat poverty. We had earlier discussed that the poverty in the region seems to be resulting from structural factors and is endemic. It seems to show all the signs of following the classic vicious circle. It would therefore, become necessary to use the "big-push" to break this circle.

The argument for the big-push becomes relevant on other grounds as well. Firstly, if a concentrated attack is mounted, the magnitude of resources required would not be as great: The one-year investment figures were between Rs.6 and 8 crores; the ten year programme would cost Rs.10 crores and would still leave large gaps. Secondly, it is to be hoped, that once the first steps are taken to relieve poverty in a major way, at least those segments of the populace who have been made viable, would have sufficient motivation to avail of other facilities and embark upon a growth path. A gradual approach would make too few people viable within any year to make any significant impact.

Since a substantial portion of the investment in either well-digging or soil conservation will be repaid by the beneficiaries over a period of time, all of this expenditure need not be considered an investment on part of the government. In fact, the merit of this approach is that the beneficiaries,

Table 10 : Labour Utilisation Pattern According to Phased Programme

Total man-days of employment required: 1,52,78,264  
 Annual target: 40,000 hectares under bunding  
 500 wells

Year	Man-days of Employment Provided (Cumulative) in				Employment Needs Left Uncovered (man-days)
	Well-digging		Soil Conservation		
	Direct	Ongoing	Direct	On-going	
I	7,46,680	-	15,00,000	-	1,30,31,584
II	7,46,680	6,00,000	15,00,000	-	1,23,31,584
III	7,46,680	12,00,000	15,00,000	-	1,18,31,584
IV	7,46,680	18,00,000	15,00,000	13,33,320	98,98,264
V	7,46,680	24,00,000	15,00,000	26,66,640	79,64,944
VI	-	30,00,000	-	39,99,960	82,78,304
VII	-	39,00,000	-	53,33,280	69,44,984
VIII	-	30,00,000	-	66,66,600	56,11,664

Annual Expenditure for 5 years: Rs 1 crore

over time, will pay for the assets created, except for the subsidy granted to the weaker sections. This is significantly different from the pure rural works approach, which implies substantial outlays on part of the Government, without necessarily providing productive assets.

#### 4.2 A Desirable Programme

A number of employment-oriented programmes have been suggested: Since the beginning of this decade the crash scheme for rural employment (CSRE), the rural works programme and the pilot intensive rural employment programme (PIREP) have been tried out in a number of areas. Moreover, the small farmers' development agency (SFDA), the marginal farmers' and agricultural labourers' development agency (MFAL) and the expanded drought-prone areas

programme (DEAP) all have substantial elements of employment generation. There have already been a number of studies evaluation their impact.<sup>21</sup> These studies have, in the main, been based upon empirical data obtained from the functioning of the programme in one or the other area. Along with achievements of the programme, the studies have pointed out certain drawbacks.

We believe that these programmes all have a fundamental limitation, inherent in their design, that reduces their effectiveness in providing sufficient employment in chronically poor areas such as Panchmahals. They all aim at the provision of a limited number of jobs and over a period of time. While increasingly larger amounts of money have been provided for such programmes, the amounts are devoted to both short- and long-term activities, thereby reducing the impact of these activities. Consequently, increasingly larger sums of money have to be spent on scarcity relief measures: In 1972-73, Rs.31 crores were spent on scarcity relief in Gujarat; the 1974-75 figures are not yet final, but the present estimates are that the figure may well be over Rs.100 crores. This trend is alarming, to say the least; additional sums of money spent on the largely welfare-oriented activities imply a reduction in the developmental investments.

We have seen in the preceding section that even so modest a goal as to raise the per capita income to the poverty level would require a major effort in terms of deployment of resources. Anything short of that is most unlikely to be effective, since it would fail to make a dent of any significant magnitude until after a number of years, by which time the demographic pressures would already have added to the backlog of unemployment, thereby worsening the situation.

We realise the practical difficulties in the way of implementing such a programme. Some of these have been already discussed. Under these circumstances a rather difficult decision has to be made. This relates to the possibility that a campaign against poverty may not be focussed upon the entire working population of the district. In other

---

<sup>21</sup> See, for example, V. Govindrajan, "Small Farmer Development Agency Structural Inadequacies" (pp. 107-112), S.M. Shah, "Growth Centres as a Strategy for Rural Development: India Experience" (pp. 123-178) both in Shreekant Sambrani, ed. Rural Development for Weaker Sections (Bombay), 1974, K.K.S. Chauhan, S. Mundle, N. Mohanan, and D.G. Jadhav, Small Farmers - Problems and Possibilities of Development (Ahmedabad, Indian Institute of Management), 1973.

words, the target number of man-days of employment to be provided would be less than 1.5 crores a year.

In the context of the district, such a decision becomes particularly difficult to take. The poverty, as we have discussed is pervasive and the differences among the poor are only those of degrees. To exclude some of the poor from the purview of such programmes would, therefore, appear to be a cruel decision, based not entirely upon a concern for social justice!

We, therefore, reiterate our conclusion from the preceding section: To combat poverty in Panchmahals, a commitment of resources of the magnitude of at least Rs.5 crores - less than the amount spent on scarcity relief in 1972-73 or 1974-75 - for about two years would be inevitable. This money could be spent on the selected activities, soil conservation, well-digging and housing construction. Nearly Rs.8 crores of this amount will have to be spent on the former two, so as to provide adequate number of man-days of employment on a continuing basis. The remaining amount could be spent on housing construction so as to provide additional employment during the gestation period of the other activities.

Such a programme would certainly accelerate the pace of these activities beyond the normal expectations. This is inevitable: Whenever activities have been undertaken on an emergency basis, this has happened. During the drought of 1972-73, it was reported from Maharashtra that road building targets for the next 10 years or more were achieved during the one year. Unlike road building, however, soil conservation and well-digging would provide permanent assets, continuing employment and a possibility of repayment.

It would be necessary to provide not only the money but skilled man-power and other materials required for these activities. Again, constraints on the supply of such commodities and manpower do not stand in the way of implementing scarcity relief activities. There is no reason why similar priorities cannot be accorded to an employment-generating programme.

A word of caution is in order here: The institution of such a programme would not in any way mean a reduction in the scale of investment in the

long-term activities. The proposed activities would provide additional incomes sufficient only for raising the levels of per capita incomes to the poverty level and no more. Further improvements would be desirable and necessary in view of the fact that the income of Rs.480 per capita provides no more than bare subsistence. Then there is the question of making the productive system dynamic enough to sustain the momentum of growth and to provide for the increasing populations. All of these would be impossible without investment in all-round, long-term activities.