Study No. 69

DECENTRALISED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT

(A Consolidated Report of AERC Studies)

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CHAPTER-I INTRODUCTION

1.1 Background

The present study was undertaken at the instance of the Directorate of Economics and Statistics, Ministry of Agriculture, Government of India. The study "Decentralised Planning in Agriculture and rural development in a selected district" has been assigned to all the Agro-Economic Research Centres of the country. This Centre was asked to make summary of different studies.

The concept of decentralised planning is not new in India. Since the first five year plan the need for decentralised planning has been increasingly felt.

"The process of planned development is more than 40 years old in India. Although the idea of decentralised planning is as old as Gandhian economic thought, it was suggested in fourth five year plan to formulate micro-level plans to correct the imbalances created by centralised macro-level plans and district was selected as an optimum unit for planning. The need for decentralised planning was increasingly felt due to implementation of some special area programmes during the fifth five year plan".*

The principle of decentralisation in planning has been adopted by several developing countries as a basis of the strategy of socio-economic development. Current emphasis is laid on decentralised planning in Agriculture and Rural Development.

"Decentralisation is defined broadly to mean the transfer of planning and decision making from central authority to its field organisation, local administrative units, local government and non-social organisation"[1].

It is a new political and administrative arrangement for implementing development programmes and projects. It has been observed that active participation, involvement and support of the local people are needed if planning and implementation are to succeed.

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* Decentralised Planning for Shimla District (1991) Agro-Economic Research Centre, Himachal Pradesh University, Shimla, pp.2

1 Decentralised Planning in Agricultural and Rural Development(1993) Agro-Economic Research Centre- Visva Bharti, Shantiniketan, pp.1

Decentralisation ensures higher standard of living to all citizens. It aims at reducing the disparity between rural and urban development. It is only through decentralisation that rural development can reach to the dispersed rural villages.

The Decentralised planning basically aims at framing a feasible development strategy by combining the administrative responsibilities and existing resource structure for effecting an overall development of economy alongwith a qualitative change in the living standard of the people discernible through the increase in production and employment opportunities and reduction in the incidence of poverty.

How far the new planning strategy i.e. the decertralised district planning could have been effective in achieving the stipulated goals caused further concern to the planners and executors. Hence all the Agro-Economic Research Centres of the country at the instance of the Ministry of Agriculture, Government of India, conducted the present study.

Table 1.1 Details of districts selected by the AER Centres

S. No.	A.E.R. Centres	Name of the selected district	Year of publication
1.	Allahabad	Bahraich (U.P.)	December 1993
2.	Delhi	Mahendergarh (Haryana)	June 1992
3.	Jabalpur	Chhindwara (M.P.)	January 1993
4.	Jorhat	Jorhat (Assam)	January 1992
5.	Madras	Coimbatore (Tamil Nadu)	1995
6.	Pune (Institute of Politics & Economics)	Solapur (Maharashtra)	November 1990
7.	Shimla	i) Shimla (Himachal Pradesh)	1991
		ii) Sirmaur (Himachal Pradesh)	1995
8.	Visva- Bharti (Santiniketan)	Birbhum (West Bengal)	May 1993
9.	Waltair (Visakhapatnam)	Anantapur (A.P.)	January 1993

1.2 Objectives

The main objectives of the study were :

1) To review the organisational structure and methodology adopted for decentralised planning in the district.

2) To prepare the profile of natural and human resources with focus on delineating agro-climatic regions in the district.

3) To highlight various schemes launched in the district, their implementation and problems.

4) To identify the constraints in Agriculture and rural development.

5) To suggest the strategy for the future development.

1.3 Selection of the districts

A common methodology for all the AER Centres was chalked out in a meeting at Waltair for the purpose. It was proposed to select either an agriculturally backward district or an agriculturally advanced district for the purpose of the study.

Out of the ten districts selected, five districts namely Bahraich (U.P.) Mahendergarh (Haryana), Jorhat (Assam), Anantapur (A.P.) and Solapur (Maharashtra) were agriculturally backward districts. Two districts namely Shimla and Chhindwara (M.P.) were agriculturally advanced or developed districts and remaining one district i.e. Birbhum, was neither a very progressive district nor economically or socially backward district.

1.4 Data Collection

This study was based on secondary data and discussions with scientists and district officials. The data were collected tehsil-wise for the selected districts upto the latest year for which the data was available on the following heads :-

(i) Natural Resource Data

Geographical area, forest area, waste and barren land, land put to non-agricultural uses, permanent pastures, area under miscellaneous groves and trees, fallow land (permanent and current), cultivable waste, rainfall, surface water, ground water, soil texture, conservable soil and mineral resources etc.

(ii) Agro-Economic Data

Net sown area, gross cropped area, cropping pattern, net and gross irrigated area, cropping intensity, categorywise number of farmers, total number of holdings, fertilizer consumption, agricultural production and productivity, cattle population etc.

(iii) Demographic Data

Total population, scheduled castes/scheduled tribes population, rural and urban population, literacy rate, population below poverty line, labour force, work force etc.

(iv) Infrastructural Data

Number of blocks, villages, towns, schools and colleges, godowns and cold storages, industrial units, bank branches, markets and mandies, electrified villages, water resources, number of tractors, non-governmental agencies, energy sources, forest nurseries, education centres, roads and railways etc.

(v) Information on various schemes launched in the district

Various programmes such as food for work programme, DPAP, Drinking Water Programme, IRDP, Social Forestry, T & V programme, NREP, JRY, TRYSEM, Non-Conventional Energy Sources, Minor Irrigation, Oilseeds and pulse development, Agricultural & Allied activities (poultry, fishery, piggery, horticulture, sericulture), village Industries etc.

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CHAPTER- II

OVERALL REPORT

In this chapter the common points on which data were available in different reports have been described.

While two districts are in Himachal Pradesh, one each was from 8 states. The area of the different districts varied from 1,939.6 sq.km. (Mahendergarh) to over 19,000 sq.km. in Anantapur district of Andhra Pradesh. Among other smaller districts were Sirmaur (2,825 sq.km.) and Jorhat (2,924.7 sq.km.). Among the big size districts were Solapur (14,845 sq.km.) and Chhindwara (11,852 sq.km.).

Bahraich was the only district bordering other country (Nepal). The remaining districts were well within the Indian territory. (Table 2.1)

The land use pattern showed that maximum percentage of forest area was in Shimla district (25.7). Mahendergarh district had the least percentage of area under forest (1.05). Shimla being undulating, hilly and forest clad district had a very high percentage (44.2) of land under pastures and grazing land. On the other hand Coimbatore and Bahraich districts had only 0.30 and 0.13 per cent of the geographical area under permanent pastures respectively. However, Coimbatore had highest percentage (21.40) of area under current fallow. The net sown area formed highest percentage (83.91) in Mahendergarh district. This evidently was due to no area under culturable waste, none under miscellaneous crops and other fallow land. Shimla district on the other hand had least percentage of area net sown (18.3). This was due to a very high proportion of area under permanent pastures (44.0) and forest (25.7). (Table 2.2)

Cropping Intensity was highest (186.28 per cent) in Sirmaur district of Himachal Pradesh and lowest in (100.57 per cent) Anantapur district of Andhra Pradesh. While Sirmaur district had paddy and maize in kharif, it had wheat and barley in rabi pushing the intensity of cropping. Anantapur district on the other hand had mostly kharif crops of paddy, jowar, bajra, groundnut and cotton. Among the other districts with low percentage of intensity of cropping were : Solapur, Coimbatore and Chhindwara. The districts

Table 2.1 Location and area

Centres/Districts	Allahabad	Delhi	Jabalpur	Jorhat	Pune
Particulars	Bahraich	Mahendergarh	Chhindwara	Jorhat	Solapur
1. Location (Physical Features)	Situated between 27°4' to 28°24' North latitudes and 81°3' to 82°13' East longitudes	situated between 27°47'50" and 20°28' North latitude and 75°54' and 76°51'30" east longitude	Situated on the Satpura plateau between 21°28' and 22°49'North latitudes and 78°10' and 79°24' East longitudes at a height of 682 metres above sea level.	Situated between latitudes 26°21' North to°27°10' North and longitudes 92°0' East to 94°31' East.	Situated between 17°10' and 10°32' north latitudes and 74°42' and 76°15' east longitudes.
2. Area of the District (1981-Census)	6,877 sq.km. Surrounded by Nepal in the North, by districts of Barabanki and Sitapur in the South, by the district of khiri in the West and by district of Gonda in the East.	1,939.6 sq.km. Surrounded by Rewari district in the east, Rohtak in north, and Bhiwani in the west. It has a common border with Rajasthan's Alwar and Jhunjhunu districts.	11,852 sq.km. Surrounded by Hoshangabad and Narsinghpur districts in North, by Betul in west and by Seoni district in east.	2924.7 sq.km. Surrounded by the district of North Lakhimpur in the North, Nagaland in the South, Sibsagar district in the East and Golaghat district in the west.	14,845 sq.km. Surrounded by Ahmednagar and Osmanabad districts on north, Osmanabad and Andhra Pradesh in the east, Karnataka state in the South and Pune district in the west.

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entres/Districts articulars	Shimla	Visva-Bharati	Waltair	Madras	Shimla
	Shimla	Birbhum	Anantapur	Coimbatore	Sirmaur
. Location (Physical Features)	Situated between the longitudes 77°0" and 78°19" East and Latitudes 30°45" and 31°44" North.	Situated between 23°32'30" and 24°35'00" North Latitude and 80°05'25" east longitudes.	Situated between 13°40' and 15°15' North latitude and 76°50' and 78°30' East longitudes.	Lies between 10°10'& 11°3C' of the northern latitude and 76°40' and 77°30' of the eastern longitude in the extreme west of Tamil Nadu.	Lies among the outer Himalayan ranges between 77°01'12" and 77°49'40" East longitudes and 30°22'30" and 31°01'20" North latitude.
. Area of the District (1981-Census)	5,131 Sq.km.	4,51,440 Hectares or 4,514 sq.km.	19,070 sq.km.	7,469 sq.km.	2825 sq.km.
	Surrounded by Mandi and Kullu districts in the North, Kinnaur in the East, the State of U.P. in the South, Sirmaur district in the South and by Solan district in the West.	Bounded by Santal parganas of Bihar at its west and Murshidabad at its east.	Bounded by Bellary and Kurnool districts in the north, Cuddapah district in the east, Kolar district in the South and Chitradurg district in the west.	It is bounded in the north by Nilgiris district and south by Dindigul district and in the west by Kerala state.	District is bounded on the north by Solan district, on the east by Uttar Pradesh, on the south west by Haryana. The district is Hexagonal in shape.

Table 2.2 Land Use Pattern

(In Thou.Hect.)

Particulars	Allahabad	Delhi	Jabalpur	Jorhat	Pune	Shimla	Viswa-Bharati (Santiniketan)	Waltair Visakha-patanam	Madras	Shimla
	Bahraich	Mahende-rgarh	Chhindwara	Jorhat	Solapur	Shimla	Birbhum	Anantapur	Coimbatore	Sirmaur
1. Geographical area (Reported area)	687.31 (100.00)	190.63 (100.00)	1185.0 (100.00)	286.0 (100.00)	1501.0 (100.00)	427.84 (100.00)	NA	1910.12 (100.00)	743.14 (100.00)	224.75 (100.00)
2. Forest	101.77 (14.81)	2.01 (1.05)	268.0 (22.62)	-- (--)	32.7 (2.18)	109.85 (25.7)	NA	196.36 (10.28)	158.84 (21.40)	48.25 (21.50)
3. Land put to non agril.use (not available for cultivation)	68.06 (9.90)	20.47 (10.74)	50.4 (4.25)	87.0 (30.42)	4.7 (0.31)	12.39 (2.9)	NA	153.00 (8.01)	78.95 (10.60)	9.77 (4.30)
4. Barren & Uncultivable land	9.41 (1.37)	8.58 (4.50)	49.7 (4.19)	18.0 (6.29)	68.4 (4.56)	15.22 (3.6)	NA	184.52 (9.66)	10.78 (1.50)	7.76 (3.50)
5. Culturable waste	11.82 (1.72)	-- (-)	22.9 (1.93)	8.0 (2.80)	36.3 (2.42)	10.74 (2.5)	NA	79.08 (4.14)	2.27 (0.30)	13.17 (5.90)
6. Permanent Pastures & other grazing land	0.91 (0.13)	4.42 (2.32)	56.9 (4.80)	8.0 (2.80)	63.5 (4.23)	188.99 (44.2)	NA	23.30 (1.22)	1.97 (0.30)	60.88 (27.10)
7. Land under mise. crops trees, groves	9.09 (1.32)	-- (-)	-- (-)	1.0 (0.62)	5.3 (0.35)	3.48 (0.7)	NA	20.44 (1.07)	3.87 (0.50)	36.93 (16.4)
8. Current Fallow	26.02 (3.79)	4.81 (2.52)	35.3 (2.98)	19.0 (6.64)	69.8 (4.65)	7.35 (1.7)	NA	192.35 (10.07)	159.32 (21.40)	4.11 (1.80)
9. Other Fallow	11.53 (1.68)	-- (-)	32.5 (2.74)	-- (-)	54.7 (3.64)	1.53 (0.4)	NA	169.24 (8.86)	14.16 (1.90)	1.06 (0.5)
10. Net Area Sown	448.69 (65.28)	159.96 (83.91)	669.3 (56.48)	145.0 (50.70)	1165.5 (77.65)	78.28 (18.3)	NA	891.64 (46.68)	312.97 (42.10)	42.80 (19.00)

with high intensity of cropping were Birbhum, Bahraich and Mahendergarh.

Data on irrigation intensity was not available for Sirmaur district having the highest cropping intensity. Among other districts Coimbatore and Anantapur had highest (115.15 and 114.39 per cent) intensity of irrigation respectively. Chhindwara and Bahraich districts had low percentage of irrigation intensity. (Table 2.3)

Among different districts rainfall was highest in Jorhat (2200 mm.) followed by Sirmaur (between 1700-2000 mm.). While Jorhat was a district of north-east region receiving high rainfall, Sirmaur was hills district of Himachal Pradesh. The districts with low rainfall were Mahendergarh (473 mm.) and Anantapur (520 mm). (Table 2.4)

The density of population was least in Chhindwara district of Madhya Pradesh (104 per km^2). Other districts with low population density were hills districts of Himachal Pradesh viz. Shimla (120 per km^2) and Sirmaur (134 per km^2). Among the districts with high density of population were Birbhum (460 per km^2) and Coimbatore (410 per km^2). (Table 2.5)

Of the districts selected for the study shimla, Anantapur, Bahraich, Chhindwara and Sirmaur could be termed as agricultural districts as majority of the workers of these districts were cultivators. In Solapur district the workers were more or less equally devided as cultivators, agricultural labourers and other workers. In Jorhat district other workers had a thin majority (51.97 per cent of the total workers). The cultivators accounted for 42.72 per cent. In Mahendergarh district also other workers were in majority (42.93 per cent) followed by cultivators (40.80 per cent). In Coimbatore district the situation was peculiar. Other workers formed 48.24 per cent as against only 15.76 per cent of the cultivators. However, agricultural labourers formed more than double that of the cultivators (31.67 per cent).

The total population consisted of workers and non-workers. Non-workers included children below 14 years, old and infirm people.

Table 2.3 Cropping and Irrigation Intensity

Particulars	Allahabad Bahraich	Delhi Mahendergarh	Jabalpur Chhindwara	Jorhat Jorhat	Pune Solapur
1. Net Area Sown (Th.Hect.)	448.69	156.44	491.53	129.66	1,165.05
2. Gross Cropped Area(Th.Hect.)	703.02	241.38	564.90	170.77	1234.04
3. Cropping Intensity(%)	156.68	154.29	114.93	131.71	106.00
4. Net Irrigated Area (Th.Hect.)	108.97	82.10	63.92	NA	138.60
5. Gross Irrigated Area (Th.Hect.)	113.84	89.34	64.90	NA	154.12
6. Intensity of Irrigation (%)	104.46	108.82	101.53	NA	111.19
7. Cropping Pattern	Cereals- Paddy, Wheat, Maize, Barley	Cereals- Bajra, Wheat	Cereals- Jowar, Wheat, Kodo-Kutki	Cereals- Rice	Cereals- Sorghum, Bajra, Wheat, Maize
	Pulse- Gram, Pea	Pulse- Gram	Pulse- Gram	Pulse- Pea	Pulse- Pigeon pea, Gram
	Oilseed- Mustard	Oilseed- Mustard	Oilseed- Niger Groundnut	Oilseed- Rape& Mustard	Oilseed- Safflower, Groundnut
	Commercial- Sugarcane, Potato	Commercial- Cotton, Sugarcane	Commercial- Cotton	Commercial- Potato, Areacanut, Banana.	Commercial- Sugarcane Cotton, Fruits & Vegetables.

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Table 2.3 Continued.....

Particulars	Shimla	Visva-Bharti	Waltair	Madras	Shimla
	Shimla	Birbhum	Anantapur	Coimbatore	Sirmaur
1. Net Area Sown (Th.Hect.)	78.28	321.00	893.27	312.97	42.80
2. Gross Cropped Area (Th.Hect.)	109.99	520.00	898.39	343.39	79.73
3. Cropping Intensity (%)	140.51	162.00	100.57	109.72	186.28
4. Net Irrigated Area (Th.Hect.)	4.62	89.91	119.07	116.74	14.56
5. Gross Irrigated Area (Th.Hect.)	4.87	101.22	136.20	134.43	-
6. Intensity of Irrigation (%)	105.41	112.58	114.39	115.15	-
7. Cropping Pattern	Cereals- Wheat, Maize, Millets	Cereals- Rice, Wheat	Cereals- Paddy, Jowar, Bajra, Korra	Cereals- Paddy, Cholam, Maize, Cumbu, Ragi, Samai.	Cereals- Wheat, (82%) Maize, paddy, Barley
	Pulses-	Pulses-	Pulses- Pulses	Pulses- Pulses	Pulses- Pulses (6%)
	Oilseeds-	Oilseeds-	Oilseeds- Groundnut	Oilseeds- Groundnut, Coconut	Oilseeds- (2%) Fruits & Vegetables (5%)
	Others- Apples, Potato	Commercial- Sugarcane, Potato	Commercial- Cotton.	Others- Sugar-cane, cotton, spices, Banana.	

Table 2.4 Climate and population

Particulars	Shimla	Solapur	Jorhat	Birbhum (Santiniketan)	Anantapur
Temperature (^{o}c)	Max - 20.4 Min - 3.7	- -	Max - 39.4 Min - 6.7	Max - 39.4 Min - 12.7	-- --
Rainfall (mm)	1215.5	700.0	2200.0	1423.0	520.0
Area (sq.km.)	5,131	14,845	2,859.3	4,514	19,070
Tehsils (No)	11	-	-	-	
Blocks (No)	-	-	-	19	Mandals - 63
Villages (Nos)	2225	-	-	3161	
Population (Total)	6,14,892	25,89,000	8,68,445	23,82,155	31,84,000
(Male)	3,23,815	13,33,000	4,53,001	--	--
(Female)	2,91,077	12,56,000	4,15,444	--	--
Rural Population (Total)	4,30,755	18,20,000	--	--	24,36,000
(Male)	2,24,034	9,35,000	--	--	--
(Female)	2,06,721	8,85,000	--	---	--
Urban Population (Total)	80,177	7,69,000	--	--	7,48,000
(Male)	48,092	3,97,000	--	--	--
(Female)	32,085	3,72,000	--	--	--
Scheduled Castes	1,36,738	--	--	(SC/ST) 8,75,680	4,35,571
Scheduled Tribes	3,672	--	--		1,05,709

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Table 2.4 Continued.....

Particulars	Mahendergarh (Delhi)	Bahraich (U.P.)	Chhindwara (M.P.)	Coimbatore (Madras)	Sirmaur (Shimla)
Temperature(°c) Max -	Over 40°	Max- 42.2°	Max- 42°	Max- 35°c	January-Coldest
Min -	2°-3°	Min- 5.4°	Min- 3°	Min- 17°c	June -Hottest
Rainfall (mm)	473.0	1148.0	1269.0	711.3	1700-2000
Area (sq.km.)	1,939.6	6,877	11,852	7,469	2,825
Tehsils (Nos)	2	4	7	7	6
Blocks (Nos)	5	19	11	21	6
Villages (Nos)	372	1928	--	—	968
Population (Total)	9,59,400	22,16,245	12,32,735	30,60,184	3,79,695
(Male)	4,96,903(51.79%)	M (54.31%)	--	15,69,570	2,00,193
(Female)	4,62,497(48.21%)	F (45.69%)	--	14,90,614	1,79,502
Rural Population (Total)	8,34,025	20,60,032(92.96%)	10,00,192	15,16,013	3,41,621(89.97% to Total Pop
(Male)	--	--	—	7,70,077	1,79,875
(Female)	--	--	—	7,45,936	1,61,746
Urban Population (Total)	1,25,375	1,56,213(7.04% of Total Pop.)	2,32,543	15,44,171	38,074(10.03%) of Total Pop
(Male)	--	--	—	1,99,493	20,318
(Female)	--	--	—	7,44,678	17,756
Scheduled Castes	1,57,675(M.51.7%) (F.48.3%)	SC/ST 3,72,750	--	16.24% (SC) of total	1,14,605
Scheduled Tribes	--		—	0.73% (ST) Population	6,113

Table 2.5 Demographic features

Particulars	Shimla	Solapur	Jorhat	Birbhum (Santiniketan)	Anantapur
Sex Ratio	878	--	886	--	946
Literacy(%)	55.09(M.65%) (F.44%)	40.70 (M. 54%) (F.27%)	55.16 (M.62%) (F.46%)	33.8	29.0
Density of Population(per km^2)	120	174	226	460	167
1.Total Cultivators	1,58,120	3,35,400	78,590	--	4,37,804
2.Agricultural Labourers	7,017	2,87,200	6,739	--	3,88,242
3.Household Industry	1,752	30,300	3,028	--	--
4.Other workers	70,213	3,21,900	95,623	--	2,60,857
Total Workers (1+2+3+4)	2,37,102	9,74,800	1,83,980	--	10,86,903
% of workers to total population	46.40	37.65	28.46	--	43.00
Population below poverty line	35,000	--	--	--	--

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Table 2.5 Continued.....

Particulars	Mahendergarh (Delhi)	Bahraich (U.P.)	Chhindwara (M.P.)	Coimbatore (Madras)	Sirmaur (Shimla)
Sex Ratio	--	--	--	950	897
Literacy(%)	38.61(M.74%) (F.26%)	15.57 (M.24%) (F.5%)	28.25	53.10(M.61.85) (F.38.15)	42.2 (M.52.1) (F.31.0)
Density of Population(per km^2)	275	322	104	410	134
1. Total Cultivators	1,15,236	5,77,748	2,33,600	2,12,229	1,09,506
2. Agricultural Labourers	20,194	69,072	1,43,416	4,26,561	5,091
3. Household Industry	25,758	8,101	13,292	58,305	1,661
4. Other workers	1,21,253	61,435	99,628	6,49,700	36,038
Total Workers (1+2+3+4)	2,82,441	7,16,356	4,89,936	13,46,795	1,52,296
% of workers to total population	29.44	32.00	39.74	44.01	40.11
Population below poverty line	--	--	--	--	--

In the districts selected the proportion of workers was between 35 to 45 per cent. In Jorhat (28.46 per cent), Bahraich (32.00 per cent) and Mahendergarh (29.44 per cent), it was quite low. (Table 2.5).

Data on some of the development indicators was not uniformly given in all the reports. It was available on some indicators in some reports whereas other reports enumerated detailed information on some other indicators. The average size of holding was highest (3.79 hectares) in Chhindwara district. It was 2.33 hectares in Sirmaur district and 1.52 hectares in Shimla district. The size was smallest (0.64 hectares) in Anantapur district.

Electrification of villages is an important indicator of development. Data was available in terms of percentage of villages electrified in the district. While two districts of Himachal Pradesh viz. Shimla (100.00 per cent) and Sirmaur (99.90 per cent) had highest percentage of villages electrified, Bahraich had lowest percentage (65.41 per cent).

The Road length in km. per sq.km. of geographical area was highest (0.94 km.) in Mahendergarh district. Solapur district had an average of 0.65 km. followed by Sirmaur district (0.56 km.). On the other hand Birbhum district had lowest road length of 0.03 km. per sq.km.

The reports give number of hospitals or primary health centres in a district. However, to eliminate the factor of size of the district the criterion selected was number of hospitals per thousand population. From this point of view Sirmaur district of Himachal Pradesh topped the list with 0.46 hospitals per thousand population. Mahendergarh had 0.15 hospitals per thousand population. Other districts had negligible number.

Himachal Pradesh represented by Shimla & Sirmaur districts had largest number of primary schools per thousand population. The number was 1.66 and 1.61 respectively. Other districts had not even a unit number of schools per thousand population. The number of high schools per thousand population was less than unit in all the districts. It was 0.19 in Shimla, 0.18 in Mahendergarh and 0.15 in Sirmaur district. (Table 2.6)

Table 2.6 Family size, other amenities

Particulars	Shimla	Solapur	Jorhat	Birbhum (Santiniketan)	Anantapur
Average Family Size	6	-	-	-	-
Average Holding Size	1.52 Hect	-	-	-	0.64 Hect
No.of Factories	127 (1988)	-	-	-	-
No.of Villages Electrified (%)	100%	1,092 (Nos.)	-	94%	80%
Road length (Km.)	2,429	9,652	1,400	117	--
Metalled	868	-	-	-	-
Unmetalled	1,561	-	-	-	-
Branches of Nationalized Bank (Nos)	105	376	-	-	-
No.of Cooperative Banks	17	-	-	-	-
No.of Hospitals/Primary Health Centres	15	116	-	80	66
No.of Primary School	1,024	2,318	--	1,711	2,682
No.of Middle School	241	-	-	208	196
No.of High School	119	363	-	110	242
No.of Higher Sec.School	-	-	-	47	-
No.of Colleges	9	18	-	-	3 (Universities)

.....continued.

Table 2.6 Continued.....

Particulars	Mahendergarh (Delhi)	Bahraich (U.P.)	Chhindwara (M.P.)	Coimbatore (Madras)	Sirmaur (Shimla)
Average Family Size	--	--	--	--	5.78
Average Holding Size	--	1.03 Hect.	3.79	--	2.33 He
No.of Factories	--	--	--	Adequate number	116
No.of Villages Electrified (%)	--	65.41%	--		99.90
Road length (Km.)	1820.1	1875	--	District is well connected by roads with major cities & Towns. Four National High ways passing through the district	1582
Metalled	913.8	--	--		517
Unmetalled	906.3	--	--		1065
Branches of Nationalized Banks	56	--	--	41 Commercial Bank (311 Branches total)	46
No.of Cooperative Banks	--	--	--	--	11
No.of Hospitals/ Primary Health Centres	146	--	--	1 Medical Hospital, 15 Govt.Hospital, 31 Rural Dispensary, 28 Primary Health centre, 160 Maternity Centres,	174
No.of Primary School	588	--	--		613
No.of Middle School	--	--	--	--	96
No.of High School	172	--	--	--	56
No.of Higher Sec. School	--	--	--	--	--
No.of Colleges	5	--	--	--	3

The data on number of post offices, telegraph offices, irrigation pumps, wells, livestock population and gobar gas plants was very scanty and, therefore, not comparable. (Table 2.7)

Soil types have been described both in common terms and by fertility status. Thus, in Bahraich district the soils were domat and sandy and in some parts lateritic soil with good fertility. In Chhindwara district black soil is found in south eastern and north eastern part. Yellow soil is present in south-western portion. In general, soils of the district were shallow black and yellow and raddish brown in uplands. Jorhat soils varied from sandy loam to clay loam. These are classified in to three (i)recent riverine alluvial (ii) old riverine alluvial (iii) old mountain valley alluvial. Solapur soils are clay with predominent montmorillenite clay mineral. Because of this mineral the soils have swelling and shrinking property on wetting and drying respectively. In Shimla district soils varied from light sandy to heavy clay. The depth of soil is from medium to deep. In Birbhum district the soils are red laterite or clay loam or clay. Anantapur district had predominently red soils covering 76 per cent of the area. Black soils accounted for 24 per cent. The soils of Coimbatore district have been identified in 14 soil series from light to heavy soils. The soils are low in nitrogen, medium in phosphorus and medium to low in potash. Sirmaur district of Himachal Pradesh had generally coarse textured soils with low organic matter. (Table 2.8).

As per the data available for different years for different districts, consumption of fertilizers per hectare was highest in Solapur district. It was 100 kg/ha. Bahraich was second district with consumption of fertilizers per hectare at 49 kg. Data for Mahendergarh district was for the year 1987-88. It was 15.46 kg/ha. For Chhindwara district the data was available for 1988-89, the consumption being 20.25 kg/ha. We have reservations on these data as data pertain to the years 1987-88 and 1988-89.

Among the sources of irrigation, wells, tubewells and kuhls (Himachal Pradesh) were important. In Chhindwara district about 88 per cent of the irrigation was provided by wells & tubewells. In Solapur district wells commanded about 75 per cent of the irrigated area and the remaining 25 per cent was commanded by canals.

Table 2.7 Other amenities, irrigation pumps and livestocks

Particulars	Shimla	Solapur	Jorhat	Birbhum (Santiniketan)	Anantpur
No.of Post Offices	494	--	--	--	--
No. of Telegraph Offices/Telephone Exchange	256	--	--	--	--
No. of PCO's	69	--	--	--	--
No.of D. pumps	--	20583	--	--	8973 (Per 1000) hectare
No.of Electric Pumps	--	34157	--	--	57,788 (Per 100) hectare
No. of Wells	--	63725	--	--	--
No. of Tubewells	--	--	--	--	--
No. of Watersheds	--	64	--	--	--
Livestock Population	--	20,22,000	--	--	4,31,828
No. of Gobar Gas	--	14,085	--	--	--
Main Rivers	--	--	Brahmputra	--	Pennar, Jaya, mangala, Chitravathi, Vedavati

Water is the main constraint in this district.

.....Continued

Table 2.7 Continued..... .

Particulars	Mahendergarh (Delhi)	Bahraich (U.P.)	Chhindwara (M.P.)	Coimbatore (Madras)	Sirmaur (Shimla)
No.of Post Offices	10	--	--	Adequate network of postal facilities	145
No.of Telegraph Offices/Telephone Exchange	710	--	--	Adequate network of telegraph facilities	30 Telephone Exchange
No.of PCO's	--	--	--	Adequate no.of PCO's	--
No.of D.Pumps	DP 22,920	35,963	--	--	352
No.of Electric Pump	EP		--	--	32
No.of Wells	--	7,726	--	71 (Govt.) 91028 (Private)	--
No.of Tubewells	653	2,818	--	506 (Govt.) (Private)	--
No.of Watersheds	131	--	--	--	--
Livestock Population	--	17,85,678	14,35,555 (52% Cow)	23,99,853	4,24,036
No.of Gobar Gas	--	3,931	--	1247	--
Main Rivers	--	Ghaghra, Rapti, Kanrhiyala, Bheklaken, Suryu,	Kanhan, Pench, Shakkar, Sitarewa Dudhi	Amaravathi, Noyyil, Palar Aliyar,	Yamuna, Giri, Tons, Jalal Markanda, Bata Ghaghra
		Majority of the Popn lives in rural areas			

Table 2.8 Soil type and average size of holding

Particulars	Allahabad	Delhi	Jabalpur	Jorhat	Pune
	Bahraich	Mahendergarh	Chhindwara	Jorhat	Solapur
1. Soil Texture (Soil)	'Domat' and Sandy Soil and in some part Laterite Soil with good fertility.	--	Black soil in south eastern & North eastern part Yellow soil in south & western portion Soils of the district are shallow, black, yellow and reddish brown up land soils.	Soils varies from sandy loam to clay loam and classified into three main soil groups i) Recent revirine alluvial ii) Old revirine alluvial iii) Old mountain valley alluvial	Soils are clay in texture with predominant montmorillenite clay mineral. Because of the clay minerals, the soils exhibit swelling and shrinkage property on wetting & drying and develop cracks after rainy season.
2. Mineral Resources	--	--	--	--	--
3. Total Area of Holding	4,75,935(Ha)	--	5,76,338 (ha)	--	NA
4. Total No.of holdings	4,61,784	--	1,55,831	--	NA
5. Average size of holding	1.03	--	3.79	--	NA

.....Continued

Table 2.8 Continued.....

	Shimla	Visva-Bharti	Waltair	Madras	Shimla
	Shimla	Birbhum	Anantapur	Coimbatore	Sirmaur
1. Soil Texture (Scil)	Soil texture varies from light sandy to Heavy clay. In deep valleys and basins it is sandy & sandy loam. Depth of soil is medium to deep.	Red latarite, clay loam/ clay, Alluvial	District is predominated by red soils, covering about 76%, while black soils occur in about 24% area.	This district has indentified 14 soil series- 1. Irugur series 2. Palladam " 3. Peelamedu " 4. Palathurai " 5. Vellalur " 6. Manupathy " 7. Dasarapatti " 8. Somayyanur 9. Pichannur 10. Periyanaic Kenpalayam 11. Noyyur 12. Anamalai 13. Okkilipalayam 14. Chavadriparai Among these, first seven series are major soil series occupying more than 200 sq.km. Soils are low in Nitrogen medium in P and medium to low in K.	Alluvial- generally coarse textured comprising of loamy sand and sandy loam and occasionally loam to sandy clay loam with low organic matter. Brown Hill soil- Sandy loam to clay loam textures.
2. Mineral Resources	--	--	—	(Limestone, Gypsum)	--
3. Total Area of holding	1,13,356 (Ha)	--	4,14,594 (Ha)	--	1,02,178 (Ha)
4. Total No. of holding	74,498	--	--	1,58,027	43,942
5. Average size of holding	1.52	--	--	--	2.33

In Shimla district the entire irrigated area was under the command of kuhls. In Sirmaur district of the same state kuhls had 88 per cent of the irrigated area under command, whereas, wells and tube-wells commanded the remaining 12 per cent. Birbhum district had two kinds of tubewells, shallow and deep. In addition, dugwells existed. However, being a paddy area tanks played major role in irrigation. In Anantapur district wells (52 per cent), canals (32 per cent) and tanks (10 per cent) were the main sources of irrigation. In Coimbatore district situation was more or less similar (Table 2.9).

Crops grown in the selected districts varied according to weather conditions and soil types. In Bahraich district the major crop was paddy occupying 32.05 per cent of the gross cropped area. Coming close to it was wheat with 26.87 per cent. The third important crop was maize (18.45 per cent). In Mahendergarh district of Haryana bajra occupied most important place (38.43 per cent), probably because of comparatively low percentage of irrigation. Wheat occupied 19.74 per cent and gram, 13.76 per cent. Rabi oil-seeds including rape and mustard occupied 24.43 per cent of the gross cropped area. Chhindwara district had both hilly areas and plains either with or without irrigation facilities. Therefore, kodo-kutki (13.81 per cent), jowar (11.43 per cent) and wheat (12.67 per cent) shared about equal percentage of the gross cropped area. Among pulses urad was important (10.25 per cent) and among oilseeds ramtil (niger) was important (8.13 per cent). Jorhat, a north east district had paddy as the important crop (50.33 per cent). In rabi season rape and mustard were grown on 8.43 per cent of the area. Other crops were of only nominal importance. Solapur district which is traditionally dry farming district had 62.08 per cent area under jowar. Gram and pea were important pulses but these together alongwith other pulses formed only 10.31 per cent. Shimla district is well known for apple and fruits & vegetables cultivation. These together formed about 28 per cent of the area. Equally important is wheat which constituted 27.45 per cent of the area. Maize occupied third position with 20.62 per cent. Anantapur district had groundnut as the most important crop occupying 60.20 per cent. Coimbatore district had two major crops. Cholam occupied 23.56 per cent and groundnut 13.21 per cent. Besides these small pulses together occupied 13.61 per cent and other oilseeds, about 13.0 per

Table 2.9 Fertilizer consumption and sources of irrigation

Particulars	Allahabad	Delhi	Jabalpur	Jorhat	Pune
	Bahraich	Mahendergarh	Chhindwara	Jorhat	Solapur
1. Fertilizer Consumption/ha	49.1 Kg./ha	(1987-88) 15.46 kg/ha	(1988-89) 20.25 kg/ha	--	(1989-90) Total consumption of Fertilizer (Tonnes) 1,24,258 Tonnes
Distribution of Fertilizer	N- 28,248 MT P- 9,026 MT K- 2,055 MT Total-39,329 MT				Total consumption of Urea 45,673 Tonnes Total consumption of Superphosphate 23,735 Tonnes (100 kg./ha)
2. Cattle Population	In 1982 Cattle population 17,85,678	In 1986-87 Cow 41,000 Buffalo 1,09,000 Total Milch 1,50,000 Sheep & Goat 1,93,000 Donkey & Mules 8,000 Pig. 3,000 Poultry 15,000	Total Livestock Population 14,35,555 Cattle 7,44,709 Buffaloes 1,36,710 Goat 2,37,452 Sheep 2,156 Horses 6,422 Pigs 8,219 Poultry 2,99,887	1982 Cattle 4,62,616 Buffalo 32,392 Sheep 132 Horses 1,534 Pigs 43,292 Goat 64,443 Fowls 1,44,316 Ducks 1,50,743	Livestock Population 26,36,867 Cattle 5,06,110 Buffaloes 1,83,508 Sheep 2,67,529 Goat 5,63,704 Horses 1,236 Others 91,150 Poultry 10,23,630
Cow & Buffalow	7,07,513				
Sheep, Goat	5,21,914				
3. Sources of Irrigation	N.A.	Dams/Canal Tubewells & Pumpset Net Irrigated Area(115 Th.Hect.)	Main source Wells - 87.62% Canals - 5.22% Tanks - 1.00% Tubewells- 0.50% Others - 6.11%	--	Wells -74.77% Canals -25.23%
4. No.of Tubewells & Pumpsets	38,781 (1988) Tubewell- 2,818 Pumpsets-35,963	Tubewell- 653 Pumpsets- 22,920	Tubewell- 6 Tanks - 28	--	(1981) No.of wells- 63,725 D. Pump - 20,583 Elec.Pump- 34,157

.....Continued.

Table 2.9 Continued.....

Particulars	Shimla	Visva-Bharti	Waltair	Madras	Shimla
	Shimla	Birbhum	Anantapur	Coimbatore	Sirmaur
1. Fertilizer Consumption/ha	-	-	-	-	-
Distribution of Fertilizer	-	-	-	-	-
2. Cattle Population	Livestock Population (1982)	Livestock (1989-90)	Livestock	Livestock Population (1989)	(1992)
	Total 690322	Total 2997598	Total 2531734	Total 2399853	Total 424 03
	Cattle 336653	Cow 487533	Bullocks 337980	Cattle 335287	Cattle 235 55
	Buffalo 18581	Buffalo 50927	He-buffalo 33690	Buffaloe 154,249	Buffalow 401 0
	Sheep 164958	Sheep 149,263	Cows 247874	Sheep 153564	Sheep 27,61
	Goat 104011	Goat 473354	She-buffaloes 183954	Goat 200829	Goat 11591
	Horses & Ponies 1074	Pigs 49514	Sheep 557840	Pigs 25767	Horse & Ponies 6
	Mules 3011	Poultry 1787007	Goats 373,081	Others 77361	Mules 15
	Donkeys 331		Pigs 25946	Poultry 145 2796	Donkey 2
	Pig 2066		Poultry 771369		Camels 7
	Poultry 59657				Pigs 23
3. Sources of Irrigation	Kuhls 4875 (100%) (Ha.)	Dugwell (No.) 742	Canals 31.72%	Canal (No.) 40	Main source-Kuh
		River lift- 114	Tanks 9.76%	Tubewells (No.) 506	Kuhls 123 (87.6
		Shallow Tubewell - 8,298	Tubewells 3.29%	Wells(NC.) 91099	{Wells & Tubewells} 17 (12.3
		Tank - 26,768	Wells 52.22%	Tanks(No.) 76	Tanks 1 (0.1
		Deep Tubewell - 52	Others 3.00%		
4. No.of Tubewells & Pumpsets	-	-	-	Tubewells 506	-

Table 2.10 Area, production and productivity

Particulars	Allahabad / Bahraich	Delhi / Mahendergarh	Jabalpur / Chhindwara	Jorhat / Jorhat	Pune / Solapur
Agril. crops					
(A) Area	(1987-88) (Hectares)	(1989-90) (Hectares)	(TE 1988-89) (Area in Th.Hect.)	(1988-89) (Area in Hect.)	(1982-83) (Area in Th.Hect.)
Paddy	225319	Bajra 148000	Paddy 25.0	Paddy 85951	Paddy 5.014
Jowar	1213	Jowar 4000	Wheat 71.6	Wheat 3235	Wheat 36.757
Bajra	385	Barley 10000	Maize 22.2	Maize 42	Jowar 766.301
Maize	129705	Wheat 76000	Jowar 64.6	Pea 4095	Bajra 59.823
Wheat	188928	Gram 53000	Bajra 0.3	Blackgram 202	Maize 12.468
Barley	5673	Rabi Oilseed 94100	Kodo-kutki 78.0	Lentil 180	Millets 828.626
Gram	20776		Gram 37.3	Green Gram 116	Gram 29.83
Pea	1486		Urad 57.9	Tur 22	Pea 56.43
Mustard	8961		Tur 29.5	Rape Mustard 14390	Total pulses 127.24
Sugarcane	13934		Moong mooth 16.0	Sesamum 55	Sugarcane 22.92
Potato	2619		G.Nut 23.2	Castor 42	Spices 4.84
			Ramtil 45.9	Sugarcane 369	Fruits & Vegetables 8.34
			Sugarcane 8.5	Areacanut 1874	Cotton 13.90
			Fruits & Vegetables 8.3	Potato 2032	Groundnut 26.26
			Cotton 9.6	Banana 1470	Safflower 54.35
			Teora 2.3	Coconut 305	Fodder 12.96
(B) Production	-	(Th.Tonnes)	(Th. Tonnes)	(Tonnes)	('00 MT)
		Jowar 1	Paddy 11.96	Paddy 96322	Rice 21
		Bajra 96	Wheat 32.13	Wheat 4728	Wheat 348
		Wheat 250	Maize 16.43	Maize 21	Jowar 3652
		Barley 26	Jowar 44.80	Pea 1417	Maize 167
	NA.	Gram 41	Bajra 0.13	Blackgram 58	Gram 176
		Rabi Oilseed 102	Kodo-kutki 6.66	Tur 14	Tur 73
			Gram 11.66	Rape & Mustard 9154	Total pulses 338
			Urad 9.80	Sesamum 24	Linseed 10
			Tur 21.06	Castor 16	G.Nut 550
			Moong moth 2.80	Sugarcane 13004	Sugarcane 2664
			G.Nut 9.86	Areacanut 1687	Cotton 7
			Ramtil 5.13	Potato 16778	Mesta 24
			Sugarcane 11.67	Banana 19596	Chilli 29
			Fruits & Vegetables 32.78	Coconut 1969	Turmeric 330
			Cotton 3.60	Lentil 84	
				Green Gram 55	
(C) Productivity	(Kg/ha)	(Kg./ha)	(Kg./ha)	(Kg./ha)	(Kg./ha)
Rice	6 14	Jowar 252	Paddy 478	Paddy 1121	Rice 808
Maize	9 65	Bajra 649	Wheat 449	Wheat 1462	Wheat 959
Wheat	14 90	Wheat 3289	Maize 740	Maize 500	Jowar 475
Barley	11 18	Barley 2600	Jowar 693	Pea 346	Maize 811
Sugarcane	403 16	Gram 774	Bajra 433	Blackgram 287	Gram 560
Potato	169 97	Rabi Oilseed 1100	Kodo-kutki 85	Lentil 467	Tur 369
Jowar	9 44		Gram 312	Greengram 474	Urid 286
Bajra	8 44	Potato 15400	Urad 169	Tur 636	Lentil 308
Gram	6 68		Tur 713	Rape & Mustard 636	Total pulses 385
Pea	8 63		Moong moth 175	Sesamum 436	Linseed 370
Mustard	4 28		Teora 1174	Castor 381	G.Nut 1608
			G.Nut 425	Sugarcane 35241	Sugarcane 8734
			Ramtil 112	Areacanut 900	Cotton 241
			Sugarcane 1373	Potato 8257	Tobacco 500
			Fruits & Vegetables 3949	Banana 13331	Chillies 784
				Coconut 6456	Turmeric 1375

Continued....

Table 2.10 Continued.....

Particulars	Shimla		Visva-Bharti		Waltair		Madras		Shimla	
	Shimla		Birbhum		Anantapur		Coimbatore		Sirmaur	
Agril.Crops (A) Area	(1989-90) (Hectares)		(1988-89) (Th.Hect.)		(1988-89) (Th.Hect.)		(1990-91) (Hectares)		(1991-92) (Hectares)	
	Rice	4340	Total cereals	389.67	Paddy	45.28	Paddy	18156	Paddy	4757
	Wheat	30195			Jowar	60.13	Cholam	80895	Wheat	30720
	Barley	5393			Bajra	26.33	Maize	12562	Barley	2929
	Maize	22682	Total pulses	33.05	Ragi	14.83	Ragi	462	Maize	25821
	Millets	7203			Korra	42.18	Cumbu	1264	Gram	542
	Total cereals	72880	Total Food-grains	422.72	Pulses	53.86	Total pulses	46744	Urd	1420
	Total pulses	5606			G.Nut	540.87			Total pulses	4647
	Apples	18748			Cotton	5.94	Sugarcane	12233		
	Total Vegetables	11430					G.Nut	45354	Total Fruits	1513
							Cotton	15398		
							Chillies	1125	Total Vegetables	2260
							Total oilseeds	91845		
									Total oilseeds	1358
									Total non-food crops	3579
(B)Production	(Tonnes)		(Th.M.Tonnes)		-		(Th. Tonnes)		-	
	Apple	243938	Total Cereals	1107.87	NA.		Rice	62.75	NA.	
							Cholam	35.15		
			Total Pulses	26.17			Maize	14.20		
							Cumbu	1.48		
			Total Food grains	1134.04			Ragi	1.30		
							Total cereals	115.70		
							Total pulses	16.49		
							Sugarcane	98.95		
							Cotton	30.19		
							G.Nut	42.46		
(C) Productivity	(Kg./ha)		(Kg/ha)		(Kg./ha)		(Kg./ha)		(Kg./ha)	
	Rice	1203	Paddy local	2430	Paddy	2100	Rice	3456	Paddy	1702
	Wheat	1080			Jowar	1210	Cholam	434	Wheat	1785
	Barley	1067	Paddy HYV	3450	Bajra	320	Cumbu	1169	Barley	1241
	Maize	2078	Wheat	2070	Korra	217	Maize	1130	Maize	2544
	Potatoes	3418	Total pulses	790	Ragi	1619	Ragi	2816		
					Pulses	120	Korra	594		
			Rape & Mustard	1200	G.Nut	1000	Samai	547		
					Cotton	N.A.	Greengram	284		
							Blackgram	386		
							Sugarcane	80000		
							G.Nut	936		
							Chillies	809		

Table 2.11 Various Schemes/Development programmes launched in the selected districts

Allahabad/ Bahraich	Delhi / Mahendergarh	Jabalpur/Chhindwara	Jorhat/Jorhat
1. Pulses Development Programme	1.Drought Prone Area Programme (DPAP)	1. Integrated Rural Development Programme (IRDP)	1. Self-Employment of un-employment youth
2. Seed Multiplication scheme	2.Integrated Dryland Agricultural Development Project(IDADP)	2. Jawahar Rojgar Yojana (JRY)	2. Oilseeds Development
3. Fruit preservation programme	3.Integrated Rural Development Programme (IRDP)		3. Pulse Development
4. Development of Sericulture	4.Integrated Child Development Service Programme (ICDS)		4. Marketing of Fruits & vegetables
5. Scheme of Free Boring	Under IRDP		5. Development of Horticultural crops.
6. Soil Reclamation Programme	'TRYSEM' Scheme		6. Development of Progeny Orchard
7. Soil & Water Conservation Programme	5.Development of Women and Children in Rural Areas (DWCRA)		7. Citrus & Pineapples
8. Drought Prone Area Development Programme	6.Integrated Rural Energy Programme		8. Sugarcane Development
9. Fisheries Development	7.World Food Programme		9. Agro Service Centre Scheme
10.Integrated Rural Development Programme			10.Land Reform
11.Employment Programmes			11.Irrigation
12.Vocational Training and Promotion of Rural Industries			12.Animal Husbandry & Vety.
13.Khadi & Village Industries			13.Fishery development
14.Welfare Schemes-			
i) Non-conventional sources of energy			
ii) Installation of Hand pumps			
iii) Rural Housing Scheme			
iv) Harijan & Social Welfare programme			

Table 2.11 Continued.....

Pune / Solapur	Shimla / Shimla	Visva-Bharti/ Birbhum	Waltair/ Anantapur
1. Integrated Watershed Development	1. Integrated Rural Development Programme (IRDP)	1. Bio-Gas under National Energy Programme	1. Watershed developme
2. Sugar Based Industries	TRYSEM	2. Integrated Rural Development Programme (IRDP)	2. Development of grou water resources
3. Horticulture Based Industries	JRY	a) National Rural Employment Programme (NREP)	3. Development of waste lands
4. Sericulture	Social Forestry	b) Special Employment Programme (SEP)	4. Dryland development programmes
5. Animal Based Industries	Indira Awas Yojana	c) TRYSEM	5. Forestry
	Smokeless Chhulhas	3. Minor Irrigation	6. Crop husbandry
	2. Tourism Industries	4. Fish Farming Development Agency	7. Sericulture
	3. Floriculture	5. Sericulture	8. Animal husbandry
	4. Bee-keeping	6. New 20 points programme-1986	
	5. Mashroom Cultivation	7. Integrated Tribal Development Programme (ITDP)	
	6. Electronic Industry	8. Livestock & Poultry Birds	

Continued - - - - -

Table 2.11 Continued.....

Madras / Coimbatore	Shimla / Sirmaur
1. Special Food Production Programmes (Jowar)	1. Watershed Development Project
2. National Pulses Development Programmes	2. Irrigation Development
3. Distribution of Minikit Programmes - Paddy & Millets	3. Improvement in Dryland Farming
4. Integrated Dry land programmes	4. Increase in productivity of Food Crops
5. Integrated Pest Management Programme	5. Diversification of Agriculture by increasing area.
6. Seed Multiplication Schemes	6. Production & productivity of fruits, vegetables, ginger and potato.
7. Sugarcane Development Scheme	7. Post-harvest management of commercial crops.
8. National Watershed Development Programmes for Rainfed Agriculture (NWDPRA)	8. Improvement in basic infrastructure
9. Distribution of Rhyzobial Culture	9. Improvement in Livestock breed.
10. Distribution of Micro Nutrients Mixtures	10. Development of women
11. Jawahar Velai Vaiputhittam (JVVT)	
12. Social Forestry Scheme	
13. Special Self Sufficiency Scheme.	
14. Integrated Rural Development Programme (IRDP) (i) TRYSEM (ii) DWCRA (iii) National Project on Improved Chulahs (iv) National Programme on Bio-Gas Development	

cent. Sirmaur district of Himachal Pradesh had 38.53 per cent area under wheat. Maize was second important crop and occupied about a third of the gross cropped area. It had very little area under fruits & vegetables unlike Shimla district of the same state.

The yields per hectare of major crops are compared. The yield of paddy was highest (3,456 kg/ha) in Coimbatore district. In Birbhum district of West Bengal the yield was 2,430 kg/ha and that in Anantapur district was 2,100 kg/ha. In Jorhat district the yield was 1,121 kg/ha and that in Shimla district was 1,203 kg/ha. Wheat yielded highest (3,289 kg/ha) in Mahendergarh district followed by Birbhum district (2,070 kg/ha), Sirmaur (1,785 kg/ha), Bahraich (1,490 kg/ha), Jorhat (1,462 kg/ha) and Shimla (1,080 kg/ha). Maize was the third commonly grown crop. It yielded highest in Sirmaur district (2,544 kg/ha) followed by Shimla (2,078 kg/ha). Other important districts from the yield point of view were Coimbatore (1,130 kg/ha), Bahraich (965 kg/ha) and Solapur (811 kg/ha). The districts with high yields of jowar were Anantapur (1,210 kg/ha), Bahraich (944 kg/ha) and Chhindwara (693 kg/ha). The districts with high yields of bajra were Bahraich (844 kg/ha) and Mahendergarh (649 kg/ha). (Table 2.10).

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CHAPTER III

SUMMARIES OF INDIVIDUAL REPORTS

1. AER CENTRE, ALLAHABAD

DECENTRALIZED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT

(Infrastructure development enumeration at District Level, District Bahraich , U.P.)

Concept of Decentralized Planning

The decentralized planning basically aims at framing a feasible development strategy by combining the administrative responsibilities and existing resource structure for effecting an overall development of the economy along with a qualitative change in the social and economic life of the people discernible through the increase in production and employment opportunities and reduction in the incidence of poverty.

How far the new planning strategy, i.e., the decentralized district planning could have been effective in achieving the stipulated goals caused further concern to the planners and executors.

Methodology

As per prescribed norms the study was conducted in an agriculturally backward district selected from the backward region of Uttar Pradesh. The eastern region of Uttar Pradesh was identified as one of the most backward regions of the State regarding natural resources and socio-economic and agricultural conditions. Hence the study was confined in the eastern region of Uttar Pradesh. The eastern region of U.P. consists of 15 districts. At the first instance, all the 15 districts of eastern Uttar Pradesh were ranked according to the indicators of development in ascending order, and, thereafter ranks were cumulated. The district of Bahraich having the lowest cumulative rank was identified as the most backward district and as such it was selected for the study. The time series data were gathered from the official records for the period of 10 years viz., 1980-81 to 1989-90 in respect of natural resources, demographic features, agricultural conditions, infrastructural facilities, developmental schemes etc. and were analysed with the main control of years. For analysis of data, statistical tools like averages, percentages, ratios, coefficients, etc. were used. The reference year of the study was 1990-91.

The Decentralized Planning in the State of Uttar Pradesh

In the State the plan has been classified in two sectors, viz. state sector and district sector. The schemes included under district sector are 1. Agriculture and Allied Activities 2. Rural Electrification 3. Village and Small Scale Industries 4. Education 5. Tourism 6. Sports 7. Vocational Training 8. Medical and Public Health 9. Water supply 10. Labour Welfare 11. Social Welfare and welfare relating to scheduled castes and scheduled tribes etc.

Organizational Setup

The decentralized plan is prepared at the district level in respect of the above schemes under a broad frame given by the State level planning body. The Decentralized Planning process is carried out by the two principal bodies, namely, District Planning and Monitoring Committee and District Plan Coordination and Action Committee. The first committee consists of a member of the Council of Minister (Chairman), all members of Parliament and Legislature from the district and District Magistrate as members, and Chief Development Officer as Secretary. The main functions of this Committee are to finalize plan and allocate outlays to various blocks. The second committee consists of District Magistrate (Chairman), the Chief Development Officer (Member Secretary) and all district level officers as members. Its main functions are to formulate district plan, to review the progress and put up proposal for reallocation of funds. At the village level, Plan programmes are manned by the Village Development Officer, Panchayat Sevak and Cooperative Supervisor. At the block level, the Block Development Officer supervises the works taken up under Decentralized District Plan. At the district level, the District Magistrate is the overall incharge of planning and supervising the district plan. Funds are allotted by the State Government after giving due weightage to the SC/ST populations and other weaker sections in the district.

Financial Pattern Under Decentralized Planning

The District Plan at present is funded by the State Government. Among the District Plan Schemes the first priority is given to the ongoing schemes. After meeting expenditure on the ongoing schemes 60 per cent of the balance allotment is utilized for the new productive schemes and 40 per cent on rural infrastructure.

Profile

The district of Bahraich is situated between $27^{\circ}4'$ to $28^{\circ}24'$ north latitudes and $81^{\circ}3'$ to $82^{\circ}13'$ east longitudes. According to the census of 1981, the area is 6,877 sq.kms.

Climate

The normal temperature varies from 5.4° centigrade to 42.2° centigrade.

Administrative Divisions

For the convenience of administration, the district has been divided into 4 Tehsils : 1. Bahraich 2. Keshargranj 3. Nanpara 4. Bhinga

Development Blocks

The district consists of 19 Development Blocks namely 1. Chitaura 2. Payagpur 3. Econa 4. Vishesherganj 5. Gilola 6. Kesarganj 7. Phakharpur 8. Mahasi 9. Tejwapur 10. Jarwal 11. Hujurpur 12. Balha 13. Shivapur 14. Nawabganj 15. Risia 16. Mihipurwa 17. Jamunha 18. Sirsia 19. Hariharpur Rani

The Ghaghra, Rapti, Kanrhiyala, Bheklaken and Saryu are the main rivers of the district. During rainy season transportation and conveyance become very difficult. The minerals are absolutely nil in the district.

Human Resources

The total population of the district was 17.27 lakhs during 1971 which increased to 22.16 lakhs during 1981. The population increased by 2.83 per cent per year during the decade 1971-81. The density of population was 322 persons per sq.km. as against 377 for the State.

Bahraich is a rural district where more than 90 per cent of the total population lives in villages. The growth of urban population was 5.29 per cent per year during the decade 1971-81 as against 2.68 per cent for rural population in the district. Most of the SC/ST population lives in the rural areas. However, the decade 1971-81 showed that the SC/ST population inclined to concentrate at urban places.

During 1981 the total population of the district consisted of males and females by 54.31 per cent and 45.69 per cent respectively. The male and female population of the district increased by 1.86 per cent and 1.13 per cent respectively during the decade 1961-71 while both the population increased by 2.74 per cent during the decade 1971-81. The mortality rate of children as well as aged persons was higher among males than that of the females, whereas, it was lower among grown up males than females.

Literacy

As per census of 1961 the literacy rate in the district was only 11.70 per cent which increased to only 12.10 per cent in 1971 and further to 15.57 per cent in 1981.

Distribution of Workers

During 1981, there were 7.27 lakh workers (or 32.80 per cent of the total population). Of the total workers, 98.6 were main workers and other 1.4 per cent were marginal workers. The marginal workers included mainly the minors and the aged persons. Of the workers 89.0 per cent were employed in agricultural sector : 79.5 per cent as farmers and 9.5 per cent as agricultural labourers. Of the total workers 8.5 per cent were employed in non-agricultural sector.

Composition of Farm Community

During 1980-81, there were 4.62 lakh farmers possessing the total land of 4.76 lakh hectares. The average size of holding was 1.03 hectares. The distribution of land was very skewed.

Other Resources

There are 1928 villages in the district out of which 1,885 villages (98%) are inhabited villages. A total of 1204 villages or 64% of the inhabitted villages are electrified. Four hundred and fifty villages (or 24%) do not have any primary school. There are 6 big industries, 819 small scale establishments and 4,603 khadi and village industries units, 10 were housing godowns and 6 cold storages. There are 7,726 pacca wells, 250 persian wheels, 2,818 tubewells and 35,963 pump sets. Forests cover only 14 per cent of the reporting area. Total length of pacca roads is 1,875 kms. or 47.4 kms. per lakh population. During 1982 total cattle population was 17,85,678 including 7,07,513 cows and buffaloes (39.62%) and 5,21,914 sheep and goats (29.23%). During 1987-88, there were 155 Primary Cooperative Societies having 2,13,714 members on their rolls.

Land Use Pattern

The reporting area of the district was 6.88 lakh hectares during 1982-83 consisting of cultivated area (65.37 per cent). forest area (14.80 per cent), waste and barren (1.24 per cent) and area covered under shrubs and bushes, pastures, fallows and culturable waste etc. (9.10 per cent). An area of 0.65 lakh hectares or 9.49 per cent of reporting area was put to uses other than agriculture.

Intensity of Cropping and Intensity of Irrigation

The intensity of irrigation was 104.46 per cent in 1987-88. The intensity of cropping was 156.69 per cent in 1987-88.

Cropping Pattern

Paddy, maize and wheat are the important crops. Cash crops like potato sugarcane, oilseeds etc. are grown on a very small scale. The cropping pattern is more consumption oriented rather than commercial one. More than three fourths (or 78.12%) of the gross cropped area was shared by only these three crops. i.e. paddy, wheat and maize. Against this, the commercial crops like mustard, sugarcane and potato were grown on 1.75, 1.25, and 0.32 per cent of the gross cropped area respectively. Establishment

of sugarmills in the district facilitated the cultivation of sugarcane.

Distribution of Fertilizers

During 1980-81 the total quantity of fertilizers distributed in the district was 18,303 qtls. which increased to 38,843 qtls. during 1985-86 and onward 1985-86 due to short supply there was gradual decline till 1987-88. The main distributing agencies of fertilizers in the district were agriculture Department, Cooperative Department, Agro-Industrial Cooperation and Sugarcane Department. During 1982-83 the per hectare consumption of fertilizers was only 36 kgs. which increased to 58 kgs. in 1985-86 and declined to 43 kgs. in 1987-88.

Schemes launched

Progress Under Pulse Development Programme

The total area devoted under pulses was 1.05 lakh hectare in 1985-86. Thereafter the scheme showed a retarding trend occupying and area of only 96,326 hectares. The principal pulse crop of the district was gram but its area gradually decreased after 1985-86. The cash crop like sugarcane and potato gained popularity in the district specifically after 1985-86, hence the farmers increased area under these crops at the cost of decrease in area under gram. It is a noteworthy fact that the expenditure on the pulse development scheme increased nineteen times in between two points of time (1980-81 to 1989-90) whereas the production increased only by 1.42 times during this period. Yield of pulses per hectare did not show encouraging results, it increased from 5.30 qtls. in 1980-81 to 5.40 qtls. in 1989-90.

Progress Under Seed Multiplication Scheme

The principal crops of which seeds were multiplied in the district were paddy, wheat, maize and pulses (specifically gram and pea). The total quantity of seeds multiplied during 1983-84 till 1989-90 was 56,328 qtls. of which wheat alone occupied 46 per cent followed by paddy with 39 per cent. The main focus of the scheme was on the development of seeds of cereal crops. To popularize the multiplied seeds, a programme of distribution of 'Mini Kits' of certified seeds was also launched in the district since 1983-84 on which a total expenditure of Rs.31.95 lakhs was

made till 1989-90.

Progress Under Fruit Preservation Programme

The Directorate of Horticulture and Food Processing, Uttar Pradesh set up a Fruit Preservation and Training Centre at Bahraich District during 1975. The main task assigned to this Centre was to preserve and process 10 mts. of fruits of different varieties and train 300 to 350 trainees every year. Over the period of ten years, viz., 1980-81 to 1989-90 the Centre processed 89.33 mts. of fruits with an average of 8.9 mts. per year and trained 3385 trainees with an annual average of 338 trainees. It means that on both the fronts, the achievements of the Centre remained about 90 per cent.

Development of Sericulture

This programme was started in the District during 1968-69. This scheme was executed by the Extension-cum-Demonstration Centre in the District. A Sericulture farm of 47.36 hectare was set up in the district for the purpose of production and demonstration. In all, over the period of 10 years i.e., 1980-81 to 1989-90, 120.07 mts. of cacoon were produced @ 12.0 mts. per year.

Scheme of Free Boring

This scheme was executed in 1984-85 by the Minor Irrigation Department with the cooperation of Agro-Industrial Corporation. The cost of a boring was fixed at Rs.3000. This cost was to be borne out by the Minor Irrigation Department. The fund of Rs.3000 fixed for carrying a boring generally fell short of the requirement and hence in many cases the borings remained incomplete.

Soil Reclamation Programme

With the view to develop barren land, the scheme of soil reclamation was launched in the district during 1985-86. The District Rural Development Agency was made responsible to execute this scheme with the cooperation of banks. Under this scheme, the weaker farmers would be provided institutional finances in the shape of free boring and other inputs on subsidized rate for reclaiming their waste land while the medium and large farmers would carry this work with their own resources. The scheme did not make any satisfactory progress.

Soil and Water Conservation Programme

Most of the fertile soils are shedaway every year by the rivers and rivulets causing necessity of soils conservation. A scheme of Soil Conservation was launched during 1983-84. From 1983-84 to 1989-90 an outlay of Rs.283.84 lakhs was earmarked for the execution of the scheme and out of which an amount of Rs.274.90 lakhs (or 96.85% of outlay) was spent on various works undertaken under the scheme. In terms of quantitative achievements the scheme appeared to have made some what satisfactory success.

Progress Under Drought Prone Area Development Programme

The scheme was launched in the district in the year 1983-84. The scheme was executed by District Rural Development Agency(DRDA). The works under taken under the scheme were installation of tubewells, construction of check dams, deepening tanks, planting trees, and soil works etc. Since 1983-84 to 1989-90, a fund of Rs.1259.25 lakhs was earmarked for the scheme out of which an amount of Rs.1171.98 (or 93.07%) was spent on the scheme. The scheme showed a remarkable financial performance, The financial achievements excelled the annual targets. The scheme was running smoothly and successfully.

Fisheries Development

For the development of fisheries in the district a Fish Farmers Development Agency was set up in 1982-83. The principal task of this Agency was to develop inland fisheries resources as well as infrastructural facilities including marketing centres to provide financial assistance and technical know how to the fish farmers. So far as achievement of targets is concerned fisheries programme appeared to have made much head way and its further prospects seemed bright in the years ahead. With the view to overcome unemployment and poverty of the rural masses, a number of developmental schemes were implemented in Bahraich District during the course of Decentralized Planning strategy.

Implementation of Integrated Rural Development Programme

Under this scheme, subsidized loans were provided to the rural weaker persons to enable them to establish their own ventures. They were also provided credit to strengthen their existing occupations. This scheme was executed by the Development Department through community blocks. During the period of 1980-81 to 1990-91 the total funds made available for the management of the scheme

amounted to Rs.3,016,98 lakhs out of which an expenditure of Rs.2,365.87 lakhs (or 78.42%) was incurred on various activities of the scheme. In all, 1,30,337 persons including (73,905 per-sons of general castes (56.70%) and 56,432 persons of SC/ST (43.30%) were financed under the scheme. An important aspect of financing under the scheme was that prior to 1985-86 only the male members were the recipient of benefits but from 1985-86, the females were also financed for setting up of their productive avenues. The female participation increased from 6.17 per cent in 1985-86 to 24.12 per cent in 1990-91.

Organisational Structure of the Employment Programmes

The National Rural Employment Programme (NREP) was introduced in October 1980. It replaced the earlier scheme of 'Food for Work Programme! The principal objectives of this scheme were : (i) to generate additional gainful employment, and (ii) to create public assets to strengthen rural economy. This scheme was executed by the District Rural Development Agency and was financed by the Central Government and the State Government on the basis of 50:50. Rural Landless Employment Guarantee Programme(RLEGP) was also initiated in the district during 1983-84 with the major objective to provide guaranted employment to at least one member of every rural landless labour household upto 100 days in a year. Another employment programme, namely, 'Jawahar Rojgar Yojna(JRY) was launched in the district during 1989-90. The earlier two on-going schemes of employment viz., were merged in this new programme of JRY. The rural works undertaken under the above employment schemes were: social forestry, construction of community buildings, construction of barren land, construction of rural road etc. Training of Rural Youths for Self-Employment(TRYSEM) was also implemented in the district during Sixth Plan period. The main objective of this scheme was to impart vocational training to the unemployed rural youth (both men and women) and enable them to set up their own ventures with institutional financing.

Progress Under Employment Programmes

During the period of ten years (1980-81 to 1989-90), the total employment generated through the schemes was of 173.34 lakh man-days and on this an expenditure of Rs.30.08 crore was incurred. It means that for generating employment for one day an amount of Rs.17.36 was incurred. An analysis of data for the period 1980-81 to

1989-90 revealed that both the expenditure and employment exhibited an increasing trend. The cost of one man-day employment was only Rs.10.65 during 1980-81, the same increased to as high as Rs.27.27 during 1989-90. Through NREP an employment for 91.25 lakh may-days was generated from 1980-81 to 1988-89 and during this period total expenditure incurred on the scheme amounted to Rs.12.87 crore. Under RLEGP, with an expenditure of Rs.7.65 crore, an employment for 47.65 lakh man-days was generated since its inception in 1983-84 till its merger in JRY in 1989-90.

Vocational Training and Promotion of Rural Industries

For imparting vocational training an Industrial Training Institute was set-up at Bahraich District Head Quarter in 1986-87. Training was imparted in printing technology, wood work, jute cloth, construction of dunlop cart, doors,windows etc., furniture, boxes, almirahs, bathroom sets, laterine sets, wash-basin etc.

Khadi & Village Industries and Small Scale Units

The Khadi and Village Industrial Board has have been playing a pivotal role in industrializing the rural areas and creating work opportunities for the educated unemployed rural youths in the district since 1961-62. During 1980-81 to 1989-90, 3372 units were established and on their working a total expenditure of Rs.169.91 lakh was made. The pace of establishment of the small scale industries got accelerated only after the Industrial Training Institute was established during 1985. Lack of marketing facilities for the goods prepared, the shortage of credit and communication gap were the major problems for the development of the small scale industries in the district.

Welfare Schemes

The important welfare schemes launched in the district under Decentralized Planning were development of Non-Conventional Sources of Energy, Drinking Water, Rural Housing, Harijan and Social Welfare Schemes etc.

Non-Conventional Sources of Energy

With the devastation of forests, the traditional sources of rural energy have been adversely affected. To overcome this crisis alternative means (bio-gas) have been popularized among the people.

Biogas plant of 3 to 6 cubic meter capacity needs 6 to 10 animals. Those farmers who possess required number of animals are stimulated by way of subsidy to the extent of two-third of the actual cost in case of weaker farmers and one-third in case of large and medium farmers.

The scheme of bio-gas was initiated in the district during 1980-81 where in 200 family type biogas plants were constructed on which a total subsidy of Rs. one lakh (or Rs.500 per plant) was granted to the beneficiaries. During the period of 10 years 3931 bio-gas plants were erected for which a total subsidy of Rs.59.47 lakhs was made available to the beneficiaries.

Installation of Hand Pumps

The rural water supply scheme was initiated during 5th Five Year Plan. Presently this scheme is being carried out throughout the country with the cent percent financial assistance from the Central Government. All the problematic villages (water scarcity villages) will be covered under this scheme. The Harijan localities are attached first priority. During the period 1983-84 to 1989-90, 9171 hand pumps were installed in the district with an expenditure of Rs.934.08 lakhs out of total 1928 villages of the district 1872 villages (97%) had been covered under the rural drinking water programme upto 1989-90.

Progress Under Rural Housing Scheme

Under the house-site programme, plots measuring 100-150 sq. yrds. are allotted to the members of scheduled castes, scheduled tribes, village artisans, landless workers and members of other weaker sections of the society who does not possess any house. However, preference is given to those who are the poorest among poor. Under rural housing programme two schemes, namely. Indra Avas Scheme and Nirbal Varg Avas Scheme are inforce in the district. Upto 198"-88, 3,484 houses 1,457 houses under Indra Avas Scheme and 2,027 houses under Nirbal Varg Avas Scheme were constructed. In all upto 1989-90, 11,161 houses were constructed out of which 2,536 were Indra Avas and remaining 8,625 were Nirbal Varg Avas. Upto 1989-90, 34,352 house-sites were also allotted to the poor people.

Harijan and Social Welfare Programmes

With the view to uplift the Harijan and other depressed sections of the rural communities a number of walfare measures such as stipend to the school going children of the scheduled castes and scheduled tribes, book assistance, rehabilitation of the disabled persons, assistance for improvement in their agricultural occupation, upgradation of technical and entrepreneurial skills of people belonging to the backward classes, assistance for setting up small scale industries for the SC/ST people etc. were undertaken in the district,

The Inter-Block Differentials

The district of Bahraich was found as one of the most backward districts of Uttar Pradesh and even within the district there existed a large number of variations from block to block regarding demographic features, physical factors agricultural situation etc. As per census of 1981 the inter-block density of population varied from 159 psk to 408 psk, literacy ranged from 9.18% to 20.65% and the percentages of SC/ST population varied from 11.8% to 27.1%. The percentages of main workers employed in agriculture ranged between 24.15% to 36.67%. During 1986-87 the pacca roads per lakh population varied from 24.6 kms. to 75.7 kms and the percentages of electrified villages ranged from 28.4% to 100.00%.

The inter-block variation in the size of average holdings was from 0.61 hact. to 0.93 hact. against the district average of 0.78 ha. which itself was much lower than the State average size of 1.1 ha. The net sown area varied from 61.7% to 83.2% to the reporting area. The variation in net irrigated area was from 2.5% to 51.1% and that of irrigation intensity was from 2.1% to 35.3%. The block to block intensity of cropping ranged between 126.9% to 155.2%. The percentages of area devoted to commercial crops in different blocks varied from 0.09% to 7.01% against the district average of 2.03%. The inter-block variation in per hectare comsumption of fertilizers was from 21.3 kgs. to 89.6 kgs. against district average of 49.1 kgs. during 1986-87.

It is thus, apparent from the above statistics that there were large intra-district variations in the domographic features, agricultural conditions and infrastructural facilities and such large variations had led to a disbalanced growth of economy of different blocks of the district.

Constraints in Developments
Problems Idendtified in the Execution of the Decentralized Planning

In the course of execution of the new strategy of decentralized planning a lot of problems were encountered; principal among them are as follows:

1. The District Rural Development Agency (DRDA) was entrusted responsibility to execute the rural schemes and for this purpose the district level officers of all the departments were required to extend their full cooperation to DRDA. But in the execution there emerged an operational problem in the coordination of works of different departments. The district level officers had to work under two agencies viz. the District Magistrate and the State level Directorate. In this dual approach nither the departmental coordination nor the smooth implementation of various rural works could be possible.

2. It was laid down that 70 per cent of the total funds allocated to a district would be spent on state Sector schemes and remaining 30 per cent on District Sector Schemes. The State Sector share of 70 per cent funds would be managed by the different departments such as department of Agriculture, Irrigation, PWD, Horticulture, Extension etc. The DRDA was to function only as a catalyst to coordinate and supervise the works done by different departments under District Sector Schemes. The main job of DRDA was to maintain records of subsidies granted for only District Sector Schemes. The records of expenditure made out of 70% allocation under State Share Schemes were to be maintained by the different departments. Under such plan of work, consolidation of activities and resources was not possible at all.

3. Under Decentralized Planning, the district was taken as an ultimate unit on account of which local problems at the lower levels, specifically, the block and village were not fully heeded while making plan for the district as a whole.

4. Generally allocation of funds was affected by the political interference. The more influential legislator was the more allocation he managed for his constituency ignoring the need of other backward pockets of the district. It led to further increase in disparities and disbalances in the growth.

5. The district plan was prepared by the District Planning Unit. This unit was also entrusted monitoring and evaluation of the schemes. But the officials employed in this unit were neither sufficient to handle the gigantic task nor were technically qualified to prepare the plan on scientific lines.

6. The sectoral distribution of rural schemes was done at the State Headquarters without taking the opinions of district officers into confidence. Sometimes it created over burden on the district sector as well as shortage of funds due to which a couple of the schemes could not be completed as per prescribed norms.

7. Due to lack of technically qualified staff on one hand and shortage of funds on the other the District Planning Unit without conducting a presurvey of the local conditions mapped out the schemes.

8. It also came into notice that the State level committee moderated or cut short the schemes prepared at the district level and approved at the division level. Such irrigation cut shorts most often created frustration among the district officials and also distorted the entire sketch of the schemes.

9. It was also reported that the Head of the state level Departments, often and on, transferred the allocated funds for a district to another district or to State Sector Schemes from District Sector Schemes. This action of State level bodies adversely affected the implementation at the district level.

10. There was no scope for district level officers to include any new scheme into the agenda as the funds allocated to the district were hardly sufficient to carry out merely the ongoing schemes.

11. Releasing of funds was a complicated and time taking process. In this process a considerable delay occurred in obtaining funds and starting work by the district officers.

12. At the district level, building constructing agencies were fixed by the State level officers and funds were directly released to them. In this working system the district officers had no control to check the quality of work and use of funds.

13. Coordination between the District Sector and State Sector was extremely lacking. There was no agency to take stock of the progress of the State performance.

14. The guidelines issued from State level to the District Sector were quite ambiguous and even they were not provided to the district officers in time.

Suggested Strategy

B. Guidelines for Successful Implementation of Decentralized Planning

1. For coordination and harmony in the working of different district level departments it is necessary that they should be controlled by only one authority i.e. the District Magistrate, the Chairman of District Rural Development Agency. To avoid clash between the instructions of District Magistrate and guide lines from State Headquarters of different Departments it is vey essential that all the district officers should be brought under exclsusive control of District Magistrate.

2. For proper and smooth working of different district departments it is imperative that one and the same authority, i.e. District Magistrate should be empowered to fix targets of work and allot funds for their accomplishment. Therefore, to avoid this irrationality, funds should be provided to DRDA and not directly to individual department. The District Magistrate then will fix targets of works to different district departments on the basis of availability of funds.

3. The share of District Sector in the funds allocated to a district should be increased to 50 per cent from the present level of 30 per cent so that the development programmes undertaken in a district may not suffer from want of money.

4. To assess the local problems in depth and effect spatial development, the decentralized planning process should be taken to the lower levels, i .e. the block and village.

5. Political decision for economic affairs at the local level should as far as possible be avoided.

6. The Planning Cell in the district should be strengthened. The technical hands should be provided to the Planning Cell.

7. The voice of the grass-root workers who are more familiar with village problems should be taken into confidence fully. Communication gap which is a crucial problem in effecting decentralized planning should be reduced to the minimum possible level.

8. The ideology of umbrella administration should be avoided. The rural development needs more of workers and not more of officers. Hence working hands at the grass-root level should be increased.

9. Any cut short or moderation by the State Coordination Committee in the plan submitted by district officers should be well communicated so that management of work at the lower levels may be done accordingly.

10. The approval of funds once communicated to the district should not be alterered or approved funds should not be transferred to some other district in mid way.

11. Guidelines issued by the State Government or Central Government to the district officers should be specific and well defined so that there may not arise any scope for excuse or lapse on the part of officials and workers at the lower levels.

12. The approved grant should be released expeditiously so as to make completion of work possible within time.

13. The decentralized plan should be outlined on the survey based facts. A seperate allocation of funds should be fixed for pre-survey of local conditions.

14. The responsibility of work at each level should be clearly fixed and any lapse in it should be dealt strictly.

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2. AER CENTRE - DELHI

DECENTRALISED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT-INFRASTRUCTURE DEVELOPMENT ENUMERATION AT DISTRICT LEVEL

(A study in Mahendergarh District of Haryana)

Profile

Mahendergarh district in Haryana was selected for the study since this was the most backward district of the state. Secondary data was collected on all aspects of agriculture and rural development at the district and tehsil levels.

The district of Mahendergarh lies on the south-western border of Haryana between $27^{\circ}47'$ and $20^{\circ}28'$ north latitudes and $75^{\circ}54'$ and $76^{0}51'$ east longitudes.

The district headquarter is at Narnaul. There are two sub-divisions, two tehsils and five blocks in Mahendergarh district. The total area of the district is 1,939.6 sq.km. The total number of villages is 372 and the density of population per sq.km. is 275.

The district is identified as a drought prone district. The climate is very hot in summer with the mercurry rising to over $40^{\circ}C$ in the months of May and June and very cold in winter with the temperature dropping to almost $2^{\circ}C$ to $3^{\circ}C$ in January. Summer is characterised by hot winds and occassional duststorms. The annual rainfall in the district is one of the lowest in the state of about 473 mm. The problem areas have been identified only in the context of the new district and a strategy for development has been proposed accordingly.

Land Use

The prolonged dry spells have made the district a drought prone area and the dwindling forest cover has resulted in a serious problem of soil erosion and sand dunes formation.

The area under forest has gone down in all the tehsils. Similarly, the land put to non-agricultural uses, barren and uncultivable land has increased. The net sown area has gone up. Multiple cropping has increased as can be seen from the increase in the area sown more than once. The barren and uncultivable land in the district has gone up from 9,000 hectares to 14,000 hectares the area under permanent pastures has gone down from well over 8,000 hectares to 4,000 hectares.

The area under current fallow has gone up from 3,000 hectares to 5,000 hectares, showing an increase of 7.57 per cent per year. The net sown area has gone up from 2,46,000 hectares

to 2,62,000 hectares. The total cropped area has gone up slightly from 3,81,000 hectares to 3,89,ooo hactares.

Irrigation

Two thirds of the underground water in this region is either saline or sodic. Hence the use of poor quality of water is unavoidable.

Irrigation Facilities in the District

The irrigation facilities in the district have always been much lower than the state average. The percentage of gross irrigated area was 8.6 in 1970-71. This percentage rose to 31.1 in 1989. Similarly the percentage net irrigated area to net sown area was 11.4 in 1970-71. This figure rose to 55.5 per cent in 1989.

Irrigation Facilities-Tehsilwise

The percentage of gross irrigated area/net sown area in the district has risen from 23.3 per cent in 1977-78 to 29 per cent in 1984-85. Assuming the same trend this percentage could reach 42 by 1994-95. In this district two tehsils lagging behind in irrigation facilities are Narnaul and Mahendergarh. Efforts should be made to improve the facilities in these tehsils as these two tehsils constitute the present district of Mahendergarh after bifurcation. Tubewell irrigation is the most predominant form of irrigation as more than 95 per cent of the total net irrigated area was under tubewell irrigation even in 1977-78. Narnaul and Mahendergarh tehsils are lagging behind in terms of irrigation facilities. Effort should be made to improve the irrigation facilities in these two tehsils if the targets for 1994-95 are to be achieved. In the present district of Mahendergarh consisting Narnaul and Mahendergarh tehsils the total geographical area is 1,90,633 hectares out of which the area under forests is 2,006 hectares. Land put to non-agricultural uses has gone up to 20,467 hectares forming 10.74 per cent of the total area. The barren and uncultivable land is 8,577 hectares. The cultivable area is 1,58,855 hectares forming 83 per cent of the total area. The gross irrigated area is 89,344 hectares and the net irrigated area is 82,100 hectares bringing the irrigation intensity to 109. The gross cropped area is 2,41,378 hectares and the net sown area is 1,56,443. The cropping intensity is 154. As for the agricultural implements, there were 1,503 tractors, 8,077 sprinkler sets, 653 tubewells and 22,920 pumpsets in the district in 1990.

Agriculture is the main occupation of this district. Land is used exhaustively in this district inspite of lack of irrigation facilities. Hence, minute assessment of the past performance and careful planning regarding the future prospects of agriculture in the district becomes imperative.

Cropping Pattern, Production & Yield

Traditionally cereals occupied major portion of the total cropped area. The major cereal crops are Bajra & Wheat. The main pulse crop is Gram. The main commercial crops are Sarson, Cotton and Sugarcane.

The major Kharif crops in the district are Bajra and Barley and in Rabi Gram, Wheat and Oilseeds are the major crops. There is a distinct shift in area away from Gram towards wheat and oilseeds in the Rabi season in all the tehsils.

Wheat, Bajra and Oilseeds have shown a significant increase in production over the years while Barley and Gram have recorded a fall. This is in keeping with the change in the cropping pattern. The yield levels of all the crops have shown an increase over the years partly due to increased input use. Gram showed only marginal increase.

Fertilizer Consumption

Fertilizer consumption in the district has gone up steeply over the years after the advent of the green revolution. Even the percentage share of fertilizer consumption of the district to that of the state has steadily gone up from 1.6 per cent in 1970-71 to 4.26 per cent in 1988-89. The usage of the improved seeds has gone up in the district from 1977-78 to 1984-85. The increase is 7.95 per cent per year. The usage of the certified seeds of wheat has grown by 2.8 per cent and for bajra, the growth rate is 10.6 per cent per year. In the case of gram it has gone down by more than 43 per cent per year.

Livestock Population

The livestock population has gone up in the district during the two livestock censuses. The livestock population has increased by 3.37 per cent per year from 1977 to 1982. But the livestock population per thousand persons has gone down from 23 to 18 in the district. The number of hospitals has gone up from 21 to 30 recording an increase of 6.12 per cent per year. Similarly, the dispensaries

increased from 11 to 23, veterinary doctors from 23 to 24 and the number of assistants from 72 to 119.

Population and Labour Force

The population in the district has increased very rapidly in the last two censuses. The population increased by 22.21 per cent in 1961-71 and 25.97 per cent during 1971-81. The urban population increased by 23.81 per cent and 23.47 per cent in the two periods and the rural population by 21.96 per cent and 26.37 per cent. The Projection for 1991 is 11,43,385. Density of population per sq.km. was 236 during 1971 census which rose to 319 in 1981. The density per sq.km. in the district was much higher than the state average. The estimated density for 1991 was 351. The work force in the district too is always lower than the state average. The percentage of work force to total population was 29.44 in 1981 compared to the state average of 32.30. The composition of the work force too has changed in the last two decades. According to 1971 census the percentage of agricultural workers to total population was 67.45 which was higher than the state average of 65.29. This percentage dropped to 47.95 by 1981, lower than the state average of 54.49. But the percentage of manufacturing and industrial workers has risen from 7.53 to 9.12 during the same period, the state average being 9.96 per cent and 11.53 per cent respectively. The total number of literates in the district is 4,38,964. The number of male literates is 3,27,628 and that of female literates is 1,11,337. The number of male literates per 1000 males is 553 compared to 554 in 1981. The corresponding figure for females is 202 which was 206 in 1981. The percentage of literacy in the district which was 28.8 in 1971 has risen to 38.6 in 1981. The corresponding figure at the state level was 26.9 per cent and 36.1 per cent respectively. But the female literacy percentage in both the periods was lower in the district compared to the state average. There is no increase in either the number of schools or the teacher/pupil ratio over the last 10 years in the district. The state of technical education is very poor in the district. There is no facility for diploma training. There is an alarming decrease in the percentage of school going children in the higher age-groups of 14 + indicating a higher number of dropouts. There are 5 Colleges out of which 4 are Government aided or managed. There is no College for girls.

Health

The health facilities are very poor in the district compared to the state. The number of hospitals, dispensaries or even the number of beds has not shown any increase nor there is seen any qualitative improvement in the services provided despite a rapid growth in population over the last 10 years. This negligence in providing proper health care facilities to the people could adversely affect the family planning and birth control measures being propagated hampering population control process. In the present district of Mahendergarh there is one general hospital, 2 community health centres, 18 primary health centres, 24 govt. ayurvedic dispensaries, 100 sub-health centres and 1 T B Centre. There is no increase in the staff.

Miscellaneous Social Infrastructure

The facility of drinking water has been provided to almost all the villages by the end of 1989. The number of post-offices seems to be slightly lower than the state average. This number which was 18 in 1980, fell to 12 by 1989 in the district. The number of commercial vehicles too, is much below the state average.

The law and order machinery has not shown much increase in the district despite a rise in crime rate from 1977 to 1986. At present there are 6 police stations, and 8 law courts in the district.

Transport and Communications

In the district of Mahendergarh, there is a road length of 1,820.1 km. of which 913.8 km. is pucca road and 906.3 km. of katcha road. The number of post offices is 10 and the number of telephone lines is 710. There are 56 bank branches, 4 principal market yards, 8 sub-yards and only one major/medium industrial unit at Narnaul.

Industry, Employment and Cooperatives

The number of workers employed in registered factories per lakh population is 227 in 1989 which is much below the state average of 1,634. The number of business organisations in the district increased by 46.6 per cent between 1977 and 1984 and the number of persons employed in these organisations increased by 23.23 per cent. At the same rate of growth, these figures could reach 14,215 and 3,340 respectively in 1994-95.

In the present district of Mahendergarh, there is only one major industrial unit, 'Haryana Minerals Ltd.' at Narnaul, which is employing about 600 persons. There were 375 small scale units till 1989-90. The target for 1990-91 is 170 and the achievement is 172.

Planning and Administrative Set up at the District level in Haryana

Planning Machinery

Additional Deputy Commissioner (ADC) is the Chief Planning Officer at the district level. In additional to ADC, the planning unit consists of Economists, Planning Officer and Credit Planning Officer. District level plan documents are prepared by the District Planning Officer and placed before the planning Board for approval. Planning Board consists of Deputy Commissioner as Deputy Chairman. Additional Deputy Commissioner as Member Secretary and all Officers at the district level members. District Planning Board approves the plan for the district and sends it to the State Planning Board for final approval and inclusion in the State Plan. After the state plan has been finalised and approved by the State Planning Board it is sent to the planning commission, Government of India, for final approval.

Agricultural Plans of the District

Director of Agriculture is responsible for preparing annual as well as five year plans for agriculture in the state. The Director of Agriculture convenes meetings with the Deputy Directors of Agriculture stationed at the district level to solicit their views for fulfilling the agricultural plan objectives of the State and each district. A similar exercise is carried out by the Deputy Director of Agriculture of each district before they submit district plans to the Director of Agriculture. The Deputy Director of Agriculture calls a meeting of his sub-Divisional Agricultural Officers (SDAO), subject matter specialists (SMS) and Agriculture Development Officers (ADO) at the district level. In the meeting, plan performance, bottle-necks and achievements are reviewed and annual plan targets are fixed,

Panchayat Raj Set-up

Haryana belongs to the second category of states which have abolished the Zila Parishads.

The Panchayat Raj Institutions have a two tier structure in the state. The village Panchayats are the village level bodies with elected members and Panchayat Samiti is the main executive body at the district level. The zila Parishad is abolished in the district. Panchayat Samithi is the chief executive body and it is constituted at the block level consisting of elected, coopted and ex-officio members. At the village level these are Gram Panchayats having elected members. The developmental work is assigned to these Panchayat Samithis and limited powers of taxation too have been vested with the Samithis by the State Government. The Panchayat Samithi is to oversee the work of the Gram Panchayats and the overall supervision is done by the State Government.

Duties and Powers of the Panchayat Samiti

It is the duty of the Panchayat Samiti to provide for and make arrangements for carrying out the requirements of the area under its jurisdiction in respect of agriculture, animal husbandry & fisheries, health & rural sanitation, communication, social education, cooperation and other aspects.

Schemes Launched

Programmes and Schemes Undertaken

The important among the different beneficiary oriented and area oriented programmes undertaken in the district are Integrated Rural Development Programme (IRDP), Integrated Dryland Agricultural Development Project (IDADP). The important programmes among those currently being implemented are DPAP and ICDS. All these programmes have made a beneficial impact on the people of the district but the full benefits could not be realised due to improper implementation of some of the programmes. Of all these programmes, DPAP may prove to be the most important and beneficial programme for the district in the long run.

The other programmes undertaken in the district are Development of Women and Children in Rural Areas (DWCRA), Integrated Rural Energy Programme (IREP), Jawahar Rozgar Yojna (JRY), Nehru Rozgar Yojna (NRY), World Food Programme (WEP), etc.

Constraints and Suggested Strategy

Problem areas and Strategy for Future Development

The major problems in the district are the low agricultural productivity, scanty irrigation, rapid deforestation, lack of employment opportunities and lack of health facilities. Since agriculture is the chief occupation, a long term perspective plan for its development taking all the technical and economic factors into consideration is suggested to be prepared. Because this is beyond the capability of the district planning machinery at present, the effort should be made at the regional level. Since agricultural productivity is low in the district, employment opportunities should be created in the non-farm sector. But even the growth in non-farm employment is linked to growth in agriculture. Thus, concommitant efforts should be made for the development of both. Efforts at augmenting the income of the landless may be made through group farm forestry on village wastelands by growing economically viable varieties. This could also help in reducing the soil erosion.

Health facilities have to be given priority. Spatial planning methods have to be adopted for the location of these facilities giving due weightage to area, population and the level of development.

3. AER CENTRE- JABALPUR

DECENTRALISED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT

(A Study in Chhindwara District, Madhya Pradesh)

Profile of Chhindwara district

The district Chhindwara has a total geographical area of 11,652 sq.km. with 10th position contributing 2.67 per cent area of the state. Out of the total area 5.63 lakh hectares is under cultivation, 4.28 lakh hectares is cultivated in kharif (about 76 per cent) and 1.35 lakh hectares (about 24 per cent) in Rabi season, respectively. The district has 10.7 per cent irrigated area mainly through wells (86.7 per cent) followed by canal and tanks. The average size of holding in the district is 3.4 against 2.9 hectares of state average of the total operational holdings, the marginal (below 1 hectare) and small (1-2 hectare) constitute 25.63 and 21.49 per cent respectively.

The principal crops grown in the district in kharif are kodo-kutki, jowar, maize, soybean, niger, groundnut, cotton, moong. urid, arhar and wheat, gram lentil, peas are grown in rabi season. Vegetable crops are grown thoughout the year besides oranges for which it is famous.

Among the rabi cereals wheat is the important crop with a coverage only next to the most important kharif cereal i.e. jowar. Among oilseeds soybean has the largest coverage. Wheat contributes 98.23 per cent to the rabi cereal production and 70.71 to the total rabi foodgrain production. It contributes 36.63 per cent to the total cereal production and 27.53 per cent to the total food grain production of the district. The productivity of soybean in the district is always higher than its average productivity in Madhya Pradesh. In fact out of 45 districts in Madhya Pradesh the highest yield of soybean during the last five years has been from Chhindwara district.

The district has total population of 12,32,735 of which 78.82 per cent is rural comprising 56.32 per cent of tribals with 28.2 per cent literacy and density of population 104 per square km. Total farmers in the district are 2,33,600 of which 36 per cent small and marginal ones.

Soils : The black soils of the plateau are well suited for wheat and gram. The best wheat tract of the plateau is its south eastern portion. The north eastern part of the plateau is also black soil tract but it is cut frequently by hills which are suitable for millets only. The south and western portion has yellow soils. The rest of west portion is suited for kharif crops mostly millets. The higher plateau in the north also grow kharif crop chiefly the kodo, kutki, niger.

Soils are generally low in available nitrogen and low to medium in phosphorus and medium to high in potash. The soils of the hilly tracts are almost eroded and are poor in water holding capacity. The shallow black soils in plains have better fertility as well as good water holding capacity.

Climate and Agricultural situations of the district

District Chhindwara is having comparatively mild climate. In this district the average annual rainfall comes to be 1,269 m.m. varying from 1,035.3 m.m. at Sausar to 1,823.6 m.m. at Tamia. The rainfall generally increases from west to east. The temperature increases rapidly in early March. May being the hottest months with mean daily maximum temperature as 39.4 ^{o}C and minimum 26.1 ^{o}C. By the middle of June the temperature drops appreciably with onset of monsoon, which after a slight increase at the end of September of early October decreases rapidly. January is the coldest month with maximum and minimum temperature as 25.5 ^{o}C and 10.6 ^{o}C, respectively. Due to cold wave the minimum temperature may drop down to about 3 ^{o}C. The relative humidity which generally exceeds 70 per cent during the south west monsoon decreases in the post monsoon season.

Profile of Sub-Regions (Sub-regionalisation)

The land topography of Chhindwara district is typical and quite different from rest of districts in Madhya Pradesh, being cludded ranges of Satpura mountain, it is predominantly slopy in nature with very small percentage of area under level lands. The slope ranges from 1-2 per cent to as steep as 80 per cent and above the soils of the district ranges from sandy to clayay. Mostly three types of soils are found in the district. (1) Light reddish brown up land soils, (2) Yellow and silty loam soils, (3) Shallow black or clayay loam soils.

On the basis of these soils the district was divided into following three sub-regions. (1) High ranges of Satpura (2) Plateau of Satpura, (3) Plains of Satpura.

1. High ranges of Satpura

This situation is characterised by high mountains of Satpura with an elevation ranging from 200 to 1,000 metres above mean sea level. Rainfall in this situation varies from 1,200 to 1,400 m.m. This is predominantly mono kharif area. It includes three tribal blocks of Chhindwara district namely; (1) Junnardeo, (2) Tamia, (3) Harrai.

2. Plateau of Satpura

This agro-ecological situation is the largest in area having moderate slope embadded with hillocks and rocks. The elevation of this location is 400-800 metres above mean sea level. Soils are shallow black, loamy clay, red loam and loamy.

The Plateau of Satpura consists of the following six namely; (1) Amarwara, (2) Chourai, (3) Bichhua, (4) Mohkhed (5) Chhindwara, (6) Parasia.

3. Plains of Plateau

The topography of this sub-region is pre-dominantly plain with scattered small hillocks. Soils of this sub-region are black and clayay loam, ill drained, heavy textured and low in fertility, but are of high yield potential if properly managed. These soils have high retentivity of water. Irrigation is very limited, mostly through wells and utilized in orchards and wheat fields, Rainfall varies from 800-1,000 m.m.

This sub-region includes two blocks namely; (1) Sausar, (2) Pandhurna.

Main Constraints in Agricultural and Rural Development

The performance of agriculture, especially in foodgrains production during the last decade has been sluggish. Foodgrain production has not kept pace with the population growth. As a result, the district is deficient in food supply.

The Sheer need to increase food production to meet the requirements of its growing population calls for special efforts to improve production. As there is no further scope for expansion in area, such improvements in production can be accomplished only through double and multiple cropping and stepping up yields.

Specific Constraints identified in Sub-Region-I

(1) Soils are marginal with very poor soil depth and poor moisture retentivity.

(2) Soils are low in nutrient content.

(3) These soils are problematic from the management point of view as these soils become soft when it rains and become hard when dry.

(4) This is predominantly monocrop area.

(5) Irrigation facilities are not available.

(6) Only kodo-kutki and niger crops are grown which are very low yielding.

(7) The tribal cultivators are very poor.

Specific Constraints Identified in Sub-Region-II

(1) This sub-region includes various type of soil from sandy on hillocks for silty black on clayey silt at their basement. It therefore includes various problems of soil management. Hillocks soils are well drained with poor retension of moisture.

(2) Soils are low in fertility.

(3) Mostly late maturing low yielding local varieties of Jowar are grown by the farmers.

(4) Wheat is grown under heavy (10-15) irrigation in light red laterite soils, which is wastage of irrigation water.

(5) Wheat is sown by broadcasting of heavy seed rate and then applying heavy irrigation, leading to lodging and low yields.

(6) Yield levels of urad, arhar, gram, niger, and kodo-kutki are very low mainly due to local varieties.

(7) There is no source of supply of certified seed of Potato.

(8) The farmers are ignorant of high yielding disease resistant varieties and appropriate management practices of potato cultivation.

(9) Fusarium wilt in gram and mosaic virus in moong and urad are the problems of this sub-region.

Specific Constraints Identified in Sub-Region-III

(i) Soils of this situation are having very poor drainage hence creates problem in inter-culture operations.

(ii) Wheat, gram and Arhar yields are very low as farmers are still growing their local seed bulk which is low yielding as well as susceptible to diseases and pests.

(iii) Nagpur variety of oranges are grown in this situation. The orchards are deteriorating each year because of the sooty mould disease. There are also number of other diseases viz. dieback, Iummosis and others.

(iv) Hybrid cotton variety JKH-1 has been observed to be susceptible to wilt due to failure of late monsoon.

(v) Almost no inputs are given to the crop grown under rainfed conditions.

Strategy for the future Development of Sub-Regions

Sub-region - I

(1) Crop Improvement

i) Development of high yielding varieties of niger, sorghum, maize, soybean, tur and gram which may fit well in double cropping system.

ii) There is an urgent necessity to develop dual purpose short duration and drought resistant sorghum varieties.

iii) Development of varieties resistant to wilt in gram, mosaic virus in moong and urid.

(2) Soil, Agronomy and Agricultural Engineering

i) In black cotton soil, establishment of crop stand in rabi season is a serious problem. Efforts are needed to test suitable implements and seeding devices to secure good crop stand.

(vii) To conduct larger number of field demonstrations on improved crop production technology and arranging training of the farmers.

Sub region- III

In sub-region-III two blocks viz. Sausar and Pandhurna which contiguous of Santra belt of Maharashtra are important mandarin orange producing centres. No efforts have been made in the past to improve this citrus growing sub-region in this district.

The existing orchards are facing many problems eventually yields of citrus trees have decreased in recent years. Citrus decline is mainly due to the factors like malnutrition, defective cultural practices and improper management of pest and diseases.

Citrus production should be taken up on scientific lines and following production strategies be developed keeping in view the requirements of the country.

(i) Collection and evaluation of varieties of loose skinned oranges and some arid zone fruits such as custard apple, Pomegranate, ber etc.

(ii) Breeding of suitable varieties of mandrins and root stocks.

(iii) Studies on the effect of different root stocks on growth, yield and quality of Nagpur oranges and Mosambi.

(iv) Identification of suitable inter crops for citrus orchards.

(v) Survey of different insect pests and nematodes in the oranges and their control.

(vi) To develop effective measures for control of gummosis, bark scalling, citrus canker and viral diseases.

In the state of Madhya Pradesh the decentralize planning at the district level was initiated in the Seventh Five Year Plan and District Planning Board (DPB) were established in all the 45 districts to formulate and implement the district level schemes prepared by the DPB. The process of decentralization in State Planning Board has been adequately extended by the distribution of funds gram-panchayat wise and also allowing their participation in decision making and execution of schemes with the funds provided.

The District Planning Board, Chhindwara is consisted of a large number of members.

(i)	Minister in-charge of the district	.....	Chairman
(ii)	All M.L.As and M.Ps of the district	.....	Members
(iii)	District Panchayat President	.....	Members
(iv)	All Janpad Panchayat President	.....	Members
(v)	President of Cooperative Banks	.....	Members
(vi)	Seven Social Workers nominated by State Government	.....	Members
(vii)	District Level Officers of the various departments	.....	Members
(viii)	Collector	.....	Member Secretary
(ix)	District Planning Officer	.....	Member Dy. Secretary

The DPB is a constituent of the office of the district Collector and works as District Secretariat for planning purpose. The Collector is the sole authority coordinating the all sided development activities including agriculture, of the district. The DPB is also assisted by the executive committee which has the following setup.

(i)	Collector	.....	Chairman
(ii)	All Heads of the Department(District level)	...	Members
(iii)	All Officers in-charge (Representative of lead bank, Manager District Rural Bank, Cooperative Bank, LDB and MPEB).	.....	Members
(iv)	District Planning Officer	.....	Member Secretary

With the establishment of DPB, the heads of the various departments of district level are responsible to prepare the appropriate schemes for seeking financial assistence from the DPB. The proposed schemes are reviewed by the members of the DPB before allocation of the fund. Once the scheme is approved, the head of the department at district level will be responsible to execute the project.

Suggestions

It is highly necessary to prepare a base line status report of the districts by mapping up all resources for development, assess the needs and potential for developing various sectors of the economy and annual updating of these report so that level of development is indicated. If these status reports of all districts are prepared the state level planning would be benefited. If this task is undertaken now it would be helpful in preparation of the 9th plan on the basis of district plans.

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4. AER CENTRE- JORHAT

DECENTRALISED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT (A case study in Jorhat District of Assam)

A study on Decentralised Planning in Agriculture and Rural Development was proposed to be carried out at district level with the following objectives.

1. Review the organisational structure and methodology adopted for decentralised planning at the district level in Assam
2. To prepare a profile of Jorhat district
3. To identify the constraints of planning for development, and,
4. To suggest strategy for future course of decentralised planning for development of agriculture and allied sectors.

Methodology

A case study method was adopted and the district of Jorhat was selected for the study. A quick assessment of the decentralised planning in the district was made on the basis of official data.

Decentralised Planning in Assam

1. Decentralised planning Scheme was initiated by the Government of Assam in April 1986, with the purpose of preparing plans at the sub divisional level.

2. The official directive is to prepare plans on the basis of needs, potential and level of the sub divisions.

3. Initially 22 sectors were assigned to sub divisional level planning and subsequently tribal sub-plan and Integrated Rural Development were tagged to the decentralised planning. More sectors are being transferred to it.

Organisational Structure

1. The organisational structure of the decentralised planning consists of a Directorate at the state level and a Planning Section under the deputy commissioner at the district level. The Cell consists of a Senior Planning Officer, two Assistant Planning Officers and three secretarial staff members. It looks after the works of both Majuli and Jorhat sub-divisions.

2. There is a core group with Deputy Commissioner as Chairman, Additional Deputy Commissioner as Vice-Chairman, Civil Sub-Divisional Officer, Project Director, DRDA, Sub-Divisional Planning Officer as members and the Senior Planning Officer as the Member Secretary. This core group is set up for the purpose of formulation of plans and programmes.

3. Sub-divisional Planning and Development Councils are constituted with a Cabinet Minister as the Chairman and Deputy Commissioner of the District as the Vice-Chairman (he presides in the absence of the Cabinet Minister). The members consists of Members of the State Legislative Assembly from the Sub-division, Member of Parliament, Chief Executive Councillor of Mohkuma Parisad (elected member from Panchayat), Secretary Mohkuma Parisad (official) Chairman, Municipalities (elected members), Project Director DRDA (official), Sub-divisional Planning Officer, Representative of Lead Bank, Representative of State Planning and Development department and two Economists to be nominated. The Council approves the sub-divisional Plans and reviews the Progress of plan implementation.

4. The financial allocations are made by the State Level Heads of the Departments from their budgets against programmes initiated at the state level. The schemes are prepared by the respective departments at the district level on the basis of the allocations under the programme.

Profile of Jorhat District

The profile prepared for the Jorhat district is only suggestive of the need for planning exercises at the sub-divisional/ district level. The basic constraint in preparing the profile so as to determine the existing human, natural resources and the level of development is the lack of up-to-date data on the various aspects of the economy. The profile prepared for the district suggests that the district is agriculturally not advanced. The Majuli Sub-divison is flanked on all sides by the Brahmaputra river and is subject to floods and erosion. This sub-division needs special treatment on the basis of geomorphic and soil condition. The Jorhat Sub-division can be divided into flood plains and alluvial zones. The cropping is different in these divisions. The potentials are, therefore, different in different, agro-climatic areas. The Old alluvial soil is mono-cropped due to

heavy textured soils. Irrigation development has not taken place to the expectations.

Decentralised Planning in Operation in Jorhat District

At the sub-divisional level Annual Operational Plans are prepared on the basis of allocations received from the Departments. These Plans are approved by the Sub-divisional Planning and Development Councils. These annual Operational plans indicate the allocations and specific schemes against the allocations. The rationale of the schemes and projects are not indicated in the plans as most of the schemes originate from programmes already chalked out at the State Level. The schemes have no reference to needs, potential and levels achieved during the previous years. This happens as the district/sub divisions are unable to project the potentials and needs on the basis of a long term plan with well defined strategies and targets.

Conclusions

In Assam only an attempt at decentralisation of the Planning process has been started. Planning in the true sense of the term has yet to take its roots.

Suggested Strategy

1. It is highly necessary to prepare a base line status report of the district by mapping up all resources for development, assess the needs and potential for developing various sectors of the economy and annual updating of this report so that levels of development is indicated. If all the districts prepare this status report state level planning would be benefited. If this task is undertaken now it would be helpful in preparation of the 9th Plan on the basis of district plans.

2. The basic data for the exercise mentioned in para 1 above can easily be spelt out. The Planning Commission had spelt out the data requirements for block level planning. This may be supplemented with data requirements for the district level.

3. The concept of Agro-Climatic Regional Planning as initiated by the Planning Commission in 1989 can be adopted for development of agriculture and allied fields.

The expertise developed at the Assam Agricultural University (Zonal Planning Team for Eastern Himalayan Region) in extending the concept to state as well as district level can be utilised in training up the officials associated with preparation of the plan. The Planning team is currently preparing plan on that basis for Nagaon district of Assam.

5. AER CENTRE- MADRAS

DECENTRALISED PLANNING IN AGRICULTURAL DEVELOPMENT- INFRASTRUCTURE DEVELOPMENT ENUMERATION IN DISTRICT LEVEL

(Coimbatore District of Tamil Nadu)

Decentralised planning is a system through which planning is made at different levels, so that there is greater integration between the development needs and priorities of smaller areas with sub national and national level development policies. It is a process which begins both at the top level (national or macro level) as well as at the bottom (micro level at the district or even lower unit) and merge with each other at a point below which centralised planning becomes irrelevant and above which micro planning becomes meaningless.

Coimbatore, a progressive district in Tamil Nadu, both in respect of agriculture and industry, was selected for the study. Data relating to natural resources, agro climatic aspects, demography, infrastructure and schemes implemented in the district were collected from various offices, records and reports. Analysis of data covered the period from 1979-80.

Profile

Location

Coimbatore is an inland district in the Southern part of the peninsula and lies between $10^{\circ}10'$ and $11^{\circ}30'$ northern latitudes and $76^{\circ}40'$ and $77^{\circ}30'$ eastern longitudes in the extreme west of Tamil Nadu. It is bounded in the north by Nilgiris district and in south by Dindigul district and in the west by Kerala State. More than 20 per cent of the total area of the district is under forests. The forests abound in commercially significant items such as teak, sandalwood, rose wood, bamboo, etc. The district has two premier agricultural institutions viz. the Agricultural college and Agricultural Research Institute. The main cereals cultivated in the district are paddy and cholam. In addition to these, commercial crops such as cotton, sugarcane and oilseeds are also cultivated.

Irrigation

Scanty rainfall and poor subsoil reserves necessitate agriculturists to depend largely on irrigation projects or other sources such as wells, rainfed tanks etc. The important rivers which contribute considerably towards irrigation are Amaravathi, Noyyil, Palar and Aliyar. Upper Bhavani project and Parabikulam Aliyar Project

make sizeable contribution in irrigating large extent of land. Few spring channels and rainfed tanks also help to augment irrigation in some taluks.

Area & Population

The total area of the district is 7,469 sq.km. The district is divided into two revenue divisions, three development divisions, seven taluks and 21 blocks. There are 45 town Panchayats and 411 village panchayats. According to 1981 census, the district has a population of 30,60,184 persons, comprising rural population of 15,16,013 and urban population of 15,44,171. The density of population is 410 per sq.km. and literacy rate is 53.10 per cent. Forty four per cent of the population was classified as main workers, 1 per cent marginal workers and 55 per cent were non workers. Among the main workers, cultivators accounted for 15.76 per cent, agricultural labourers, 31.67 per cent, household industry workers, 4.33 per cent and other workers accounted for 48.24 per cent. Of the total population, 16.24 per cent were scheduled castes and 0.73 per cent were scheduled tribes.

Meteorological Factors

(i) Temperature

March, April and May are the hottest months, while December, January and February are the cold months.

(ii) Rainfall

The normal rainfall in the district is 711.3 mm. The district is benefited both by the southwest and northeast monsoons. The mountainous regions generally receive heavy showers as compared to the plains. Rainfall was above normal in only six out of the 21 years (70-71 to 90-91).

Land Resources

Of the total geographical area of 7,43,135 hectares, 1,58,840 hectares (21.4 per cent) were under forests, about 21 per cent of the area comes under current fallows. The net area sown accounted for 42.1 per cent and 4.1 per cent of the area was sown more than once. The intensity of cropping worked out to 109 per cent. Between 79-80 and 90-91 the area under forests has increased by 3,070 hectares.

Soil Characteristics

The Soil Survey and Land Use Organisation, Tamil Nadu has identified 14 soil series in Coimbatore District. 1. Irugur series, 2. Palladam series, 3. Peelamedu series, 4. Palathurai series, 5. Vellalur series, 6. Manupathy series, 7. Dasarapatti series, 8. Somayyanur series 9. Pichannur series, 10. Periyanai chenpalayam series, 11. Noyyur series, 12. Anamalai series, 13. Chavadriparai series. 14. Okkilipalayam series.

Among these, first seven series are classified as major soil series occupying more than 200 sq.km. each.

Soil fertility

The soils in all the 21 blocks, except Valparai, are low in nitrogen. Phosphorus is low in six blocks and medium in the remaining 15 blocks. Potassium is found to be high in two blocks, medium in 13 blocks and low in six blocks.

Water Resources

The sources of irrigation in the district are canals, wells and tanks. About 65 per cent of the net irrigated area (excluding wells supplementing other source) is irrigated by ground water sources, mainly wells and to a small extent by tube wells. Surface water sources claim about 35 per cent of the net irrigated area. Canals (mainly government canals) form the main source of surface water irrigation which irrigate about 33 per cent.

Surface Water Reservoirs

There are three reservoirs in the district viz. Paranbikulam Aliyar Project, Amaravathy Reservoirs Project and Lower Bhavani Project.

Tanks

There are 76 irrigation tanks in the district. Among them 41 have an ayacut of 40 hectares or more, while the rest have less than 40 hectares each.

Ground Water

Wells are the most important source of ground water. Since ancient times, they have remained the most dependable source of

irrigation in this district. Between 79-80 and 90-91 the number of wells had increased by 12,247. Tubewells have also been a source of ground water irrigation since 87-88. The number of tubewells had increased from 348 in 87-88 to 506 in 90-91.

Quality of water

The surface water is generally found to be good, not having much salt. The drained water collected from the field was analysed and found suitable for crop production, except in some pockets.

Drainage

There is no problem of drainage in the major part of the district, as it is flanked by mountains and has an undulating topography.

Livestock Resources

According to livestock census of 1989, the livestock population in Coimbatore district was 9,47,057. There were 3,35287 cattle,1,54,249 buffalos, 1,53,564 sheep, 2,00,829 goats and 25,767 pigs in the district. Poultry population was 14,52,796. It is seen that between 82 and 89, there had been considerable decrease in most of the livestock resources. Only poultry population had increased remarkably (by about 59 per cent).

Fishery Resources

Pisciculture in this inland district is limited to the propogation of inland fishers in the resourvoirs or dams and in tanks and lakes. Marine fishery activities are limited to two of five rivers in the district viz. Aliyuar and Bhavani.

Forestry Resources

Forests occupy about 21 per cent of the area of the district. The important forest produces are sandlewood, timber, rosewood, teak, bambos, firewood, charcoal and eucalyptus and minor forests producer such as tamarind, gallnut etc.

Mineral Resources

Limestone is one of the major minerals available in large areas of the district. Gypsum is another major mineral available in most of the areas. The minor minerals of importance are field span, and quarts.

RESOURCE USE SCHEMES AND INFRASTRUCTURE

Cropped Area

The net area sown was the highest in 79-80 (3,74,502 hect.) and lowest in 90-91 (3,12,967 hect.). The average area sown more than once during the 12 years comes to 42,951 hect. the highest figure being 79,185 hect. in 86-87 and the lowest 30,430 hect. in 90-91. The gross cropped area ranged from 3,43,397 hect. in 90-91 to 4,41,706 hect. in 86-87. Both net and gross cropped area fluctuate widely and do not show any definite trend. The intensity of cropping was the highest in 86-87 (121.8%) and lowest in 85-86 (105.7%). The average intensity of cropping for the 12 years period worked out to 112.1 per cent.

Irrigated Coverage

During the period 79-80 to 90-91 an average area of 1,42,870 hect. were irrigated more than once. The average gross irrigated area per year during the period was 1,64,083 hect. The net irrigated area ranged from 1,16,667 hect. in 87-88 to 1,67,628 hect. in 84-85 while the area irrigated more than once was the highest in 80-81 (29,426 hect.) and lowest in 85-86 viz. 12,744 hect. The gross irrigated area fluctuated between 1,33,622 hect. (87-88) and 1,91,760 hect. (80-81) and the intensity of irrigation varied between 109 per cent in 85-86 to 120 per cent in 79-80.

Sourcewise irrigated coverage

Wells form the main source of irrigation in the district followed by canals. The average area irrigated by wells formed 67.6 per cent of the total net area irrigated. The share of canals was 29.8 per cent and that of tanks was 2.2 per cent.

Cropwise irrigated coverage

Among food crops paddy was the most important irrigated crop in terms of area. The area under irrigated paddy fluctuated widely during the period from 39,995 hect. in 80-81 to as low as 15,741 hect. in 87-88. Sugarcane occupied the second place with an average irrigated area of 17,448 hectares, followed by cholam (12,988 hectares) and Maize (10,679 hectares). Among the non-food

crops, the important irrigated crops were cotton and groundnut. The average area under cotton during the period was 15,340 hectares and that under groundnut was 14,795 hectares. The entire area under paddy and sugarcane was irrigated.

Cropping Pattern

Cholam occupied the largest area covering 33.7 per cent of the gross cropped area. The other major crops in terms of coverage were pulses (20.3 per cent of gross cropped area), groundnut (11.7 per cent, coconut (11.5 per cent) and paddy (8.7 per cent). Between 79-80 and 90-91 the production of many crops has decreased, partly due to decrease in yield rate and mostly due to decrease in area under the crops.

Scope for Irrigation

Development of minor irrigation needs consideration in view of agricultural development, industrial uses and drinking water. It is necessary to excavate ponds wherever possible and to improve existing ponds. There is scope for erection of check dams at a number of places to use water flows from the mountain ranges with a view to irrigate dry crops and to improve ground water level. The heavy rainfall in Anamalai can also be utilised for irrigation by storing through check dams.

Size of Holding

The size of holding is an important factor which influences production and productivity. Marginal farmers (holding less than 1 hectare) accounted for 23.5 per cent of total number of holdings and small farmers (1-2 hectares) formed 27 per cent. Big farmers with holdings above 10 hectare formed 4.7 per cent.

Crop Prospects

Between 79-80 and 90-91 net sown area, area sown more than once and gross cropped area have decreased while current fallows and other fallows recorded an increase. The scope for extension of area under crops such as maize, tobacco, grape, coconut, sunflower, soybean, cotton and vegetables and flowers has to be examined and increased usage of HYV seeds and chemical fertilizer need encouragement through institutional arrangements and extension services.

Schemes and Infrastructure

Agriculture

The district is administrated by a Joint Director of Agriculture and assisted by five Deputy Directors of Agriculture. The training and visit system was introduced in this district on 1.10.81. The system aims for simplicity in organisation, objectives and operation.

Seed Multiplication Schemes

Under the seed multiplication schemes, seed farms are organised and quality seeds are procured for distribution through Agriculture Extension Services for procurement of quality seeds of paddy, millets, pulses, cotton, etc. These seeds are distributed through Agriculture Extension Centres of the district. The breeder's seeds are obtained from the University and the foundation seeds are produced in the seed farms at Pongalur, Kannampalayam and Pappankulam.

Quality Control Work

The Assistant Director of Agriculture (quality control) is incharge of all the regulatory functions with respect to the fertilizers and pesticides in the district.

Credit Support

Canara Bank is the lead bank for the district. There are 309 branches of different banks in the district.

Allied activities/Agriculture and Agro Based Industries

The major allied activities in Agriculture found in the district are dairying, calf rearing, sheep and goat rearing, poultry farming, sericulture and fisheries. Among the agro based industries rice mills and oil mills are found in plenty in Pollachi, Udumalpet and Avinashi taluks. Tobacco curing is carried out in Palladam and Mettupalayam taluks. There are about 100 coconut fibre facilities in Pollachi taluk. There is one sugar factory.

Activities of System Departments

(a) Oil Seeds Department : The Oilseeds Department is functioning in this district to take care of the oil seed crops.

(b) Agricultural Marketing Department : An Assistant Director of Agriculture (Agriculture Marketing) with his supporting staff facilitates the sorting of agriculture produce which comes to the regulated markets and issues "Agmark" certificates to the marketable agricultural produce.

(c) Horticulture Department : An Assistant Director of Agriculture with his supporting staff works in the district to take care of the horticultural crops.

(d) Agricultural Engineering department : takes care of the soil conservation, construction of percolation ponds and minor irrigation tanks of the department besides, they hire out tractors and bulldozers for agricultural purposes.

(e) Seed Certification Department : An Assistant Director of Seed certification and an Assistant Director of seed inspection of the department are working in the district with their supporting staff.

II. Animal Husbandry

There are 305 cooperative milk producers societies spread over the district. The primary milk producers societies are well knit with the district cooperative milk producers union at Coimbatore which organises planned distribution of milk. Minidairy units are prevalent throughout the district. Dairying is a major source of income to small and marginal farmers and agricultural labourers. Sheep rearing and goat rearing activities are undertaken by small and marginal farmers and agricultural labourers with a view to meet the demand for wool and mutton.

The Poultry population in the district includes country fowls and hybrid varieties. The Tamil Nadu Poultry Development Corporation is taking steps for Poultry Development in the district. Poultry dominates in Palladam and Pongalur areas. The department of Animal Husbandry provides necessary health cover to the animal population.

III. Sericulture

Sericulture is one of the highly labour intensive rural industry which is fast growing. It was introduced in the district in 1972. The Department of Sericulture run a regulated market solely for marketing cocoons. By means of the World Bank aided

Sericulture Project, the department is making constent efforts to boost the area under mulberry.

IV Industry

Coimbatore is called the Manchester of South India due to the concentration of large number of spinning Mills in the district. The Industrial activities include the manufacture of cotton textile, Food products, Wool & Synthetic Fibres, Machinery, Machine Tools, Textile Products, Electrical Machinery Appliances etc. The District Industries Centre was formed on 2.10.1979. The village industries include bee-keeping, lime kulas, tailoring units, basket making, coir industry, etc. Schemes financed by Khadi and Village Industries include soap units, Footwear Units, Oil extracting Units, Brack making, Bamboo based Units, Fruit preservation etc.

V Fisheries

The Department of Fisheries, Government of Tamil Nadu, and the Tamil Nadu Fisheries Development Corporation take care of the fisheries development activities in the district.

Schemes launched

Institution and Schemes

District Rural Development Agency (DRDA)

The District Rural Development Agency provides assistance to landless labour, small and marginal farmers and artisans for purchase of livestock, bullock carts, improved implements, etc and also, for digging and deepening wells, contour bunding and other agricultural and allied activities.

Jawahar Velai Vaiputhittam (JVVT)

Under the activities under this scheme provision of employment opportunities through creation of infrastructure facilities such as roads, buildings, ponds check dams etc. are made.

Social Forestry Scheme

Special Self Sufficiency Scheme

The important aspects are construction and maintenance of roads, constructions of school buildings, noon meal centres, provision of street lights, TV sets, tanks and ponds, desilting supply channels and provision of drinking water facilities.

Integrated Rural Development Programme (IRDP)

Training for Rural Youth for Self-Employment(TRYSEM)

The District Rural Development Agency, is the implementing authority of Training for Rural Youth for Self-Employment. The Agency identifies various self employment opportunities, suitable to the rural conditions. The various fields of training are Silk Worm Rearing, Palm products, handloom wearing, simple wiring, diesel and petrol engine repair, computor, radio & TV, Video Cameraman, Auto mechanism, book binding, fitter, welder, sheet metal work, tailoring & dress making, printing, composing, Nylon mat weaving, construction of building, handpump mechanism etc.

Development of Women and Children in Rural Area (DWCRA)

This scheme was initiated in March, 1990 to induce improvement in the living conditions of poor rural women. Under this scheme, rural women are encouraged to form working groups so that they can take up income generating activities. They are provided loan by the banks and subsidy by the government for this purpose. Skill training is also provided.

National Project on Improved Chulahs

With a view to reduce the use of firewood, the project for improved chulahs was introduced. The improved chulahs do not eminate smoke there by eliminating the health hazards and diseases. A target of 6000 smokeless chulahs was fixed for 91-92 for the district and the achievement was 8800 including 2000 Priyagni model chulahs.

National Programme on Bio-gas Development in Coimbatore district

Normally, bio-gas is used as fuel for cooking and also for lighting in some places where electricity is not readily available. But in Coimbatore district, bio-gas plants are used for other purposes also such as running powerlooms in Nambiampalayam village of Avinashi block using dual fuel engine saving 75 per cent of the diesel requirements. In Paladam town Palladam block it is used for operating in two wheeler service station to operate hydraulic factory saving 60 per cent of diesel requirements apart from other uses like lifting groundwater, cooking etc. Bio-gas is also used for heating large quantities of milk and for pasteurisation of milk in Navakarai village of Madukkarai block.

Operation of Banks

The Annual Credit Plan prepared by the Canara Bank (Lead Bank) envisaged an outlay of Rs.19,316.27 lakhs for the year 1991-92 of which Rs.8,666.35 lakhs go to agricultural sector, Rs.7,004.23 lakhs to small scale industries and Rs.3,654.99 lakhs to trade and services. The district has a well developed banking system with 41 Commercial Banks in operation having 311 branches.

Cooperative Institutions

The various cooperative institutions in the district are - 1. Financial, 2. Service, 3. Milk Cooperatives, 4. Labour Contract Cooperatives, 5. Supply Societies, 6. Marketing, 7. Miscellaneous.

Marketing

The Coimbatore District Regulated Marketing Committee has the distinction of being the first regulated marketing committee in the state. The regulated marketing centres and sub markets handle agricultural commodities such as cotton, groundnut, tobacco, turmeric, cane, jaggery, maize, arecanut, paddy, chillies, cumbu, cholam, ragi, ginger, coconut and onion.

Storage Facilities

There are Central Ware Houses at Coimbatore Town and Udumalpet and State Ware Houses at Tiruppur, Pollachi, Mettupalayam, Avinashi and Palladam.

Power/Energy

The power houses in the district are Kundah Power House III, Kundah Power House IV. Aliyar Power House, Sarkarpathy Power House I, Sholayur Power House I and Sholayur Power House II.

Rural Electrification

The Pykara Electricity and the Udumalpet Electricity System cater to the needs of the village and Harijan Colonies in the district.

Transport and Communication

Roads

The district is well connected by road with major cities and towns. In addition, neibouring states like Andhra Pradesh, Karnataka

and Kerala are also connected by Government Corporation owned buses. Buses are the main transport vehicles available to the people of the district. The four national highways passing through the district connect the district with Cochin, Bangalore, Hyderabad, and Dindigal with a 92 Km. cement concrete and black topped roads.

Railways

The district is benefitted by a good net work of railways with a junction at Coimbatore.

Postal and Telegraph Facilties

There is a fairly adequate network of postal and telegraph facilities in the district.

Health and Family Welfare

Coimbatore city has a medical college hospital. In addition there are 15 government hospitals and 31 rural dispensaries, 28 primary health centres and 160 materinity centres.

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6. GOKHALE INSTITUTE OF POLITICS AND ECONOMICS-PUNE

AGRICULTURAL DEVELOPMENT PERSPECTIVE OF SOLAPUR DISTRICT

Profile

Solapur, in south Maharashtra, is situated between 17°10' and 10°32' north latitudes and 74°42' and 76°15' east longitudes. There are no important hill systems in the district. Rolling topography is the typical topo sequence with very shallow, shallow soils on ridge, medium deep soils on slopes and deep soils in the valley portion.

The whole district falls in Bhima and Sina river basins. The water courses of tributaries in the district may be reckoned at about 650 km. But the district could not fully exploit the benefits of the river systems.

The geographical foundation of soils prevailing in Solapur district is mainly from Deccan Trap of volcanic origin viz."Basalt". The soil is underlain by partially decomposed basaltic rock locally known as "murum". Medium deep soils (22.5 to 90 cms) dominate the soil profile with 45 per cent of area followed with 25 per cent of deep soils of more than 90 cms of depth. About 30 per cent of the area is under shallow soils.

Solapur district has a population of 25.8 lakhs of which about 80 per cent is rural population. Cultivators and agricultural labourers form the main strata of the workers. Household industries, manufacturing and repairs also engage a significant portion of workers.

The district is spread over 1,501 thousand hectares with 11 tahsils. Annual rainfall is in the range of 500 to 600 mm. Total cropped area of the district is 1,124 thousand hectares of which 39 thousand hectares are cropped twice with a meagre cropping intensity of about 106 per cent. The district has 2.17 per cent of forest cover with only a few hills in the north and some spread over small shrub forests.

The district is one of the chronic drought hit districts of the state and hence, agricultural sector presents quite a low profile in the economy. Among the other sectors of the economy, the household industries and other rural industries contribute a significant share.

The district has a low growth profile compared to the neighbouring districts and the state. The growth rate in aggregate

productivity of major crops works out to be 1.80 per cent over the three decades ending at 1980-81 as compared to 2.30 per cent of the state.

Jowar, bajra and red gram are the major crops with wheat, gram, sunflower taking the secondary positions. The cropping pattern is dominated by low value- low density crops and hence, the financial flows from farm sector are limited. Sugarcane, cotton, groundnut and sunflower account for about 10 per cent of the gross cropped area which is indicative of lower level of commercialised agriculture. Horticulture offers a great scope in this district with pomegranate, grapes and lime taking the lead. Ber has picked up as a promising fruit crop in the recent past. The average size of holding is quite large with more than 70 per cent of the area under the holdings above 5 hectares. Irrigation has a limited scope in the district with only 12.8 per cent net sown area irrigated.

Dry Farming Research Station

Famine is of common occurence from ages due to inadequate and ill distributed rains. Partial and complete failure of both kharif and rabi crops result in famine. Drinking water becomes an acute problem. The significant contribution from the Dry Farming Research station, Solapur in the various farming sector can be narrated briefly as under alongwith the expected impact.

i) Soil and water conservation
ii) Cultivation practices
iii) Crop improvement
iv) Cropping systems
v) Agricultural engineering
vi) Watershed management

i) Soil and water conservation

Black soils are highly erodable. During rainy season high intensity causes runoff and ultimately soil losses. The various measures are -

a. Contour cultivation
b. Strip cropping
c. Contourbunding
d. Graded bunding

e. Compartmental bunding

f. Live bunding

ii) Cultivation practices

a. Famous Bombay Dry Farming method deals with package of practices which includes ploughing once in three years, 3-4 harrowings during rainy season wide spacing between rows, specific 3 interculture operations. This helps in moisture conservation and boosting crop production.

b. To avoid competition for moisture and nutrients weed eradication programme in kharif season is recommended.

c. The efficient utilisation of fertilizer nutrients, the placement below the seed has been found most essential.

d. Shivaji multipurpose implement : A bullock drawn Shivaji multipurpose implement has been developed which can carry out all field operations more efficiently excepting ploughing.

e. The dry seeding of most of the kharif crops excepting groundnut is recommended.

iii) Crop improvement

Screening and testing of crops and their varieties for drought tolerent, pest and disease resistance, high yield etc. are in progress.

iv) Following cropping systems have been recommended for different soil types.

a. Very shallow soils - grasses

b. Shallow soils - bajra + moth bean/horse gram in 2:1 proportions

c. Medium deep soils (upto 45 cm.) - i) Bajra + red gram (2:1)
ii) Sunflower + red gram (2:1)

d. Medium deep soils (60-90 cm.) - double cropping
i) bajra- gram/safflower
ii) cow pea for fodder/ udid - rabi sorghum/safflower
iii) Sunflower - gram

Besides seasonal crops, the recommendations are also available for alternate land use, horticulture crops and contingent crop plan.

Alternate Land Use

Very shallow soils and shallow soils should be put under pasture, horticulture, silviculture and agro-silvi-horti-pasture systems.

a) For this purpose, besides blue panic, marvel-8, siratro, a legume viz. stylo haemata has been found to be most promising.

b) Subabhul for fuel, fertilizer and fodder has been found to be very good species for dry land agriculture.

c) Agave for fiber can be grown very successfully in very shallow soils, which can be further used for paper industry.

d) Horticulture crops like ber, pomegranate, custard apple, mango, tamarind, aonla, drum stick, wood apple etc. have been found to be most suitable for drylands.

Contingent crop planning

For delayed onset of monsoon, crops like sunflower, red gram and castor should be preferred for kharif season.

v) Agricultural Engineering

This covers development of implements as well as soil and water conservation.

Development of improved implements is essential for efficient utilisation of bullock power and natural resources.

Vi) Watershed Management

In watershed management, there is a community approach to the problems of soil and water conservation, utilisation of ground water, plant protection, planting according to soil types etc. Hence collective and cooperative efforts are essential for watershed management.

BASIC PHILOSOPHY OF DISTRICT DEVELOPMENT PLANNING

Solapur is one of the semi-arid districts of the state.

Rainfall and water resources do not offer a great potential. The experiments at the dry farming research stations have proved the necessity of adopting the dry land technology with watersheds as the basic and integrated planning unit. Accordingly some experiments have proved extremely encouraging. The watershed based approach alone may not absorb the abundant surplus man power from agricultural sector. Hence, as a supplementary strategy based on the allied agricultural activities e.g., dairy, poultry, fishery, sericulture, resin making etc., and rural small scale industries like textile, pottery, agro-processing need to be chalked out.

Sub-Regionalisation

Solapur district with geographical area of about 14,845 sq. km. has 11 revenue tahsils. The criteria chosen for sub-regionalisation of the district for effective strategy formulation are :

(i) Water availability period (WAP) (ii) Soils (iii) Rainfall during kharif (iv) Total Annual Rainfall.

On the basis of above four criteria and land use capability sub-regionalisation of the district has been done.

Sub-region I

Total annual rainfall between 700 to 750 mm. kharif rainfall more than 400 mm. WAP exceeding 130 days and predominantly deep soils (more than 90 cm) - Akkalkot, North Solapur and South Solapur.

Sub-region II

Total annual rainfall between 600-700 mm. kharif rainfall between 300-400 mm. WAP between 100-130 days and predominantly medium deep soils (22.5 to 90 cm)- Mohol, Barshi, Pandharpur, Madha and Mangalvedha.

Sub-region III

Total annual rainfall between 500 to 600 mm. kharif rainfall below 300 mm. WAP less than 100 days and predominantly shallow soils (less than 22.5 cm.) - Malsiras, Karmala and Sangola.

LAND AND WATER RESOURCES

Being a predominantly rainfed cropping system, all agricultural and economic activities of the district depend on land and water resources, their use and limitations.

Rainfall

The kharif season rainfall is maximum in sub-region I, followed by II and III. While the rabi season rainfall is similar in all the sub-regions indicating that there are chances of rabi cropping. Similarly, due to fairly well distributed rain in every month, the kharif cropping is somewhat assured in sub-region I and II and can be supported by rabi crops. But, the sub-region III is quite weak in this respect.

Soil

In sub-region III, proportion of shallow soils is 55 per cent and deep black soil is 11 per cent. The proportion of deep black soil is maximum in sub-region I (36 per cent). The weak natural resource base of sub-region III can also be seen here and this region calls for supporting activities.

Land Use Categories

The uncultivable land was proportionately more in sub-region III and II . There is large scope to bring these areas under agro-forestry or horticulture plantation in these sub-regions. Moreover, there is a scope to bring the land under horticulture system and develop the allied agricultural activities like sheep and goat rearing. As regards the sub-region I, being an assured rainfall region, there is a considerable scope to bring some area under horticulture, hortipastural development and to increase the dairy development programme.

The total cropped area has decreased in sub-region I and II, while it remained constant in sub-region III. Similar situation is also observed in net sown area. The cropping intensity remains unchanged. The land cultivated more than once increased in sub region II and III. Fallow land also increased in sub-region I and II, while it decreased in sub region III.

As regards total cropped area, 48% area was in sub-region II, followed by sub-region III (28%) and sub-region I (23%). Similar trend was observed in the case of net cropped area, area cropped more than once and fallow lands.

Irrigation

The number of wells are more in sub-region II followed by sub-region III and I. The number of diesel pumps are more in sub-region III (3980) followed by sub-region II and I. The number of

wells electrified are more in sub-region II followed by sub-region I and III. There is scope to electrify the wells in sub region III.

Watershed management is likely to be the prime agricultural development strategy in the district. There are 64 watersheds in the district of which 44 per cent are in sub-region II, 23 per cent and 33 per cent in sub-region I and III respectively. These watersheds belong to Sina and Bhima basins.

The proportion of total area of watersheds is maximum (52%) in sub-region II, followed by sub-region III and I. Potential irrigable area per watershed is more in sub-region III, followed by sub-region II and I. It would be necessary to consider the Horti-pastoral, Silvi-pastoral and other supporting systems, while planning for the treatment of watersheds.

The proportion of surface and well irrigation was highest (55% and 46% respectively) in sub-region II, followed by sub-region III. However, the area irrigated was the highest (15%) in sub region III, followed by sub region II (11%) and sub region I (6%), indicating irrigation potential in sub region I.

CROP HUSBANDRY

Cropping Pattern :

In the district mainly bajra, redgram, horsegram, mothbean, groundnut and sunflower are grown in kharif season, while sorghum, safflower, gram and sunflower are grown in the rabi season. Sugarcane cultivation is also concentrated in some pockets of all the sub-regions. Horticultural crops, particularly ber; pomegranate cultivation is also increasing at a faster rate. Area under kharif pearl millet was higher in sub-region III. The productivity level is the main constraint for rabi sorghum in sub-region I and III.

Among pulses, pigeonpea has great scope in the sub-region I & II. Minor pulses are grown on lighter type of soil, however, the productivity is very poor and hence varieties like Man and Sina of horsegram and MBS-27 of mothbean need to be introduced. Similarly, some area under these crops can be diverted for agro-forestry.

Due to fodder problem during rabi season, the area under gram crop remained less as compared to rabi sorghum. Sugarcane cultivation is concentrated in sub-region III, where 4 per cent of the total

cropped area is under this crop. There are sugar based industries but the productivity need to be increased by adopting the improved technology.

Cotton cultivation is relatively higher in the sub-region III and I, indicating good scope for textile industries. In the region I, some area under cotton is cultivated in rabi season as rainfed crop for which research efforts are required to identify suitable varieties and package of practices.

Amongst the oilseeds, groundnut and safflower are the main oilseed crops. Maximum area under fodder crops is concentrated in the sub-region I and and hence it is necessary to introduce dairy based industries in this region along with sub-region III. Introduction of improved varieties of fodder crops is also required to increase the production.

Irrigation Pattern of Crops

Solapur district has only 11% irrigated area. The major crops grown under irrigation are sugarcane, sorghum, maize, cotton, groundnut, wheat, fruits and vegetables.

Among the cereal crops, sorghum was largely grown under irrigated conditions in sub-region II, while the crops like wheat, bajra and maize were having more acreage under irrigation in the sub-region III.

Acreage of gram under irrigation was more in sub-region II, while irrigated pigeonpea and green gram acreage was more in sub-region III. In the sub-region II, pulses and food grains were grown under irrigated condition in large scale as compared to sub-region I and III. Sugarcane cultivation with irrigation facilities was more in the sub-region III, while the fruit crops were grown in the sub-region I.

Area under irrigated cotton was mainly concentrated in the sub-region III. Considering the overall performance of irrigated crops, the sub-region II was having 49% of the total irrigated area under different agricultural crops.

Horticultural Crops

Very little area is under horticultural plantation in all sub-regions. The maximum area is under grapes, banana, lemon, pomegranate and ber. As much as 59 per cent of the total area under

horticulture plantation is in the sub-region II. Therefore it is is essential to introduce the horticulture based agro-processing industries in the sub-region II, in order to get the good returns to the producers. There is also considerable cultivation of grapes and banana in the sub-region I. Ber and pomegranate cultivation is increasing in the sub-region III. Amongst various vegetables onion, chilli, brinjal and tomato are largely grown in the district.

Fertilizer, Pesticides and Technology

Due to shortage of organic manure and higher prices of oil cakes, the farmers are inclined to use the chemical fertilizers for most of the crops and the major input goes to cash crops like sugarcane, cotton, groundnut and horticultural crops. The consumption of nitrogenous fertilizers urea and the next is phosphatic fertilizers like superphosphate. Amongst the mixed/complex fertilizer, the consumption of suphala (15:15:15), 10:26:26 was more compared to other complex/mixed fertilizers.

Use of pesticides is not common. The pests like Sorghum shoot fly, pigeonpea and gram podborer, groundnut leaf roller, aphids, sunflower hairy caterpilar, rodent, white grub are the major pests in the region. The pesticides like endosulfan, phosphomidon, Dimetheoate, Parathion, monocrotophos, Quinalphos, BHC 10% are mainly used for the pest control.

Forest

Land covered under forest is only 653 ha under DPAP and 874 ha under fuel wood for rural area schemes. In sub-region III, both reserved and unclosed forest area is highest. Similarly, roadside forest is also highest in sub-region III. The total number of benefitted farmers is only 707 in the district.

As per recommendation of Dry Farming Research Station, very shallow and shallow soils should be diverted for pasture, forests and dryland horticulture crops.

Extension Support

Agricultural extension programme is implemented by various agencies. The role of each agency is also fixed. The Office of the Principal Agricultural Officer is the nodal agency for transfer

of technology with the help of other agencies. The Agricultural Development Officer, Z.P. provides inputs through Maharashtra Seed Corporation, Fertilizers and Pesticides Firms. The distribution is done through Cooperative Societies and Block Development Officers. Village level workers are responsible for dissemination of technical information.

Under the guidance of State Agricultural University, certain pilot projects are launched during kharif, rabi and summer seasons. The results of pilot projects are very encouraging. The production under pilot project is 2 to 3 times more than average. The farmers Rallies are organised not only at the Research Stations but also at sugar factories in villages etc. The various activities are also given due publicity through local news papers. The extension workers and scientists contribute popular articles to the newspaper. All India Radio, Solapur station organises group meeting every month to chalk out the technical programme for broadcasting.

Production Profile

Among the cereal crops, the highest production is of sorghum which is usually grown under rainfed and under receding soil moisture conditions. This is the main staple food of the rural population and hence the crop is grown on all types of soils which ultimately results in productivity of 475 kg/ha. Inputs, especially fertilizer use is least for this crop.

Wheat shows highest productivity. Among the pulses, pigeonpea (tur) and gram are important crops. Tur is grown in kharif or rabi season as rainfed crop while gram is grown in rabi season, usually under irrigated condition. Productivity of these crops is 369 and 560 kg/ha in 1987-88 respectively. The oilseed production is mainly from groundnut, safflower and sunflower. Groundnut is grown both in kharif and summer seasons. Safflower is mainly under rainfed condition. However, the productivity increase with two protective irrigations to the tune of 100 per cent.

Area under sunflower has increased considerably during last decade. The crop has replaced considerable area under kharif groundnut. Productivity of crop is low during kharif due to poor management practices, while during rabi and summer, it is fairly good.

Sugarcane is the most important commercial crop of the district for production of sugar and jaggery.

Cotton has a definite place in the district. It is grown mainly as rainfed crop in sub-region I and irrigated crop in sub-region I & III. Cotton is cultivated as rainfed rabi crop in deep black soil for rotation with rabi jowar. The productivity of rainfed and irrigated Kapas is 10 to 12 quintals and 25-30 quintals potential per hectare, respectively.

Productivity potentials

The use of inputs such as improved seed, water and plant protection is the important key to increase production. Productivity should be increased by adopting suitable management practices. In agriculture, management aspect contributes much more than inputs, since it is "how and when" these inputs are used, determines the productivity. The production of rabi sorghum can be increased even though the area under the crop is reduced, by improving the fertilizer use efficiency, plant protection and protective irrigation at the right time of crop growth. Same is the case with other crops. This can be achieved only if the farmers are aware of the improved technology, by giving guidance from time to time and providing inputs in adequate quantity at right time.

Agro-based industries can be started, based not only on the excess produce but also for processing and marketing to earn foreign exchange. Knowledge about fruit preservation, packing and marketing need to be enhanced. Grape grower associations and other fruit crop grower associations have already launched such programmes.

LIVE STOCK ECONOMY

Livestock :

Livestock development has achieved importance in this district. Bullock and cow population increased by 3 and 13 per cent, respectively during last five years. The increase was more in sub-region II. It was observed that he-buffaloes were increased in sub-region I, which were used for breeding as well as draft purposes. As regards cows and buffaloes in milk, the highest increase was in sub-region III followed by sub-region II. In sub-region I, sheep population has increased considerably, (30 per cent), while the goat population has increased in sub-region III. The total livestock and poultry birds

have increased by 12 and 24 per cent respectively in the sub-region III. The population of the exotic breeds of cows has tremendously increased. The increase was higher in sub-region II, followed by sub-region I and III.

Milk collected by Government and Non-Government agencies was highest in sub-region III. Both cow and buffalo milk collection in I and II regions was there, but no buffalo milk collection was observed in sub-region III. From total amount of milk, the proportion was highest in sub-region III. There are six chilling plants in the district.

There was an increase in the number of animals slaughtered in all the sub-regions. The proportion of slaughtered sheep and goats was more as compared to cows, bullocks and buffaloes. This helps the farmers to meet their timely requirement of funds. This is a typical character of drought prone economy.

There was increase in dispensaries, primary aid centres and artificial insemination centres in all sub-regions. The increase was more in sub-region II and III over sub-region I.

Poultry

Poultry population has substantially increased in sub-region III followed by sub-region II. The total number of fowls has increased by 23.65 and 6.62 per cent in the sub-region III and II respectively. While it has decreased by 9.67 per cent in the sub-region I. Though the fowl production has increased in sub-region III, the egg production was more in sub-region II, followed by sub-region III. Poultry sector provides a large scope in this district.

Fishery

The total area favourable for fishery remained more or less same but the fish production has increased during the last five years in all the sub-regions by 38 and 15 per cent respectively in sub-region II and III. The fishery income increased by 21, 90 and 98 per cent for the sub-region I, II and III respectively. Fish production was maximum in the sub-region II.

Present Status of Livestock Economy

Number of bullocks in work per 1000 ha. was highest in region III and it was on par in region I & II. The number of buffaloes and cows in milk per 1000 population was highest in region III followed by II and I. As regards total milk collection agencies of the State Government or Cooperative Sector, the highest societies were in sub-region II (345) and lowest in sub-region I (56). The maximum milk collection was in the sub-region III followed by II and I. Number of chilling plants will have to be increased. Similarly the availability of milk collected per 1000 population was highest in region III followed by II and I. The Silvipastoral systems to support livestock economy can be a supporting economic sector.

Poultry

Poultry and egg production has been well spread in all the three regions. This can also prove to be an supporting economic activity.

Fishery

In the sub-region I, 21 per cent length of the river basin is available for fishing activity. While 39 per cent each river basin is available in Sub-Region II and III. The fish production per unit area was 73 per cent in Sub-Region II and 15 per cent in Sub-Region III and 12 per cent in Sub-Region I. The income received per unit area was highest in Sub-Region III.

Constraints for development

Unawareness of the programme by the rural masses, development of marketing and processing network, Inadequate financial support for purchase of cross-bred animals, economic non-viability of local breeds. Grazing of animals before the grass get established with the onset of rainfall and Inadequate medical facilities for the livestock.

PROFILE OF THE AGRO-INDUSTRY SYSTEM

Number of industries are more in sub-region I (13 numbers), while there are 7 industries each in sub- region II and III respectively. This is due to the fact that Solapur city falls in first sub-region. Besides sugar mills, there are spinning and textile mills, distilleries etc. These industries make large

capital investment and thus generate employment potentials in the district.

In sub-region III, small scale industries are least and hence more attention is required to be paid to this region by the concerned departments to bring them at par with sub-region I.

Agro-based, forest based and animal husbandry based small scale industries have good scope in all the sub-regions. Horticultural crops especially ber, pomegranate, mango, grapes, tamarind, etc., have tremendous scope in the district. In order to capture the international market, the processing of fruits is very essential. All these fruits are exported. Grape can be preserved in cold storage for marketing or converted into resins or wines for which supporting industries are required.

Even though cotton based industries are more in sub- region I and III, the raw material is not available in these Sub-Regions of the district in adequate quantity. Lint is imported from Marathwada, Vidarbha and Karnataka. Hence there is scope to grow cotton under rainfed as well as irrigated conditions.

There are not many forest based industries in the district. Sub-Region I and II have some industries in this sector but Sub-Region III has only a few such units. However, there is scope of establishing forest and social forestry programme in this region. There are no textile based industries, chemical, animal husbandry based and building material based industries in sub-region III. The reasons for the same need to be identified.

INFRASTRUCTURAL FACILITIES

Human Resources

Population density per square kilometer in rural and urban area has increased from 113 to 125 and 1,818 to 2,665, respectively. Increase in population is more in sub-region III than in sub-region I and II. Both in urban and rural sectors population per square kilometer is highest in sub-region I and it is practically double than that of sub-region III and II.

Agricultural Infrastructure

i) Research

There are three more Agricultural Research Stations viz.,

Mohol and Pandharpur (in Sub-region II) and Jeur, Karmala tahsil (Sub-region III). Jeur is the sub-centre of main centre Solapur. Mohol is exclusively for rabi sorghum improvement, while Pandharpur is for pulse and oilseeds research.

ii) Education

There is one Agricultural School in which agricultural education is imparted for two years to develop skills and train for field duties. There are a few other schools which offer Agriculture as one of the subjects for HSSC Examination.

iii) Extension

Agricultural extension activities are normally carried out by the Agriculture Department and Zilla Parishad. Soil and water conservation programme is implemented by Divisional Officers, while crop production programme is implemented by T&V staff. The various other departments are also actively associated with Agriculture, viz.Social Forestry, Animal Husbandry, Fisheries, Commercial and Cooperative Banks.

iv) Agricultural Implements

There is a sudden rise in number of electric pumps and tractors from 1977 to 1982. In sub-region II, the electric pumps are highest closely followed by sub-region I. However, the number of tractors are highest in sub-region III. The number of oil ghanies has decreased in all the sub-regions drastically from 1977 to 1982 by about 80 per cent.

Educational Facilities

Sub-region I does not include this information. Amongst sub-region II and III, educational facilities are more in sub-region III. However, adult educational centres are more in sub-region II. There is a sudden increase in adult education Centre in Sub-region III.

Medical Facilities

There is not much growth in all the sub-regions in respect of hospitals, dispensaries, doctors etc. in public sector.

Market, Banks and Transport Facilities

The number of regulated markets are highest in sub-region II followed by sub region III. However, number of banks are highest in sub-region I followed by sub-region II. Number of banks per 1,000 ha

geographical area are more or less equal in different sub-regions. Length of road is highest in sub-region II followed by sub-region III but the length of road per square kilometer is practically same in all sub-regions.

In all sub-regions, market arrivals of sorghum, paddy, groundnut, wheat and jaggery are more as compared to other agricultural commodities. Arrivals of sorghum, paddy and wheat is more in the sub-region I, while bajra, groundnuts and jaggery arrivals in the market, is from sub-region III. In sub-region I number of money lenders and loan advanced by them to traders and non-traders is highest. However, in sub-region II, the per cent increase was highest. Traders get more share of loan from non-traders in all sub-regions.

Non-Conventional Energy

The number of gober gas plants are highest in sub-region II, it is practically double than that of sub-region I. The number of gober gas plants per 1,000 human population is least in sub-region I and highest in sub-region II. The number of gober gas plants per 1,000 livestock is least in sub-region II. There are only three wind mills.

Agricultural Cooperative Societies

Number of cooperative societies, number of members of co-operative societies, number of share holders of the societies, are highest in sub-region II. Total loan distributed per society is highest in sub-region III.

Planning and implementation system

Maharashtra was the first state to introduce district level planning machinery as early as 1975. The district planning frame-work operates at two levels, namely state level and district level. At the state level, the planning department with the approval of the planning sub-committee of the cabinet decides the overall plan outlay of the state. In the overall plan outlay, there are three components namely : 1) State level schemes, 2) State pool schemes and 3) District schemes. It was decided that 40 per cent of the total outlay be allocated for district level schemes. Out of this the amount required for district schemes which are to be planned and funded from the state level (State pool schemes) is deducted and the remaining amount is distributed among the various districts.

Once the district level outlay is indicated to the district, a small committee consisting of Collector, Chief Executive Officer and President of the Zilla Parishad alongwith 2-3 non-official members prepare a plan proposal for the district.

The proposal is prepared broadly under eight sectors of development namely : 1) Agriculture and allied activities, 2) Rural and community development, 3) Irrigation and flood control, 4) Power development, 5) Industries and mining, 6) Communication and transport, 7) General economic services and 8) Social and community services.

The plan proposal is then scrutinized by the senior officer of the planning department. The plan proposal prepared by the executive committee is then submitted to the District Planning and Development Council(DPDC). The executive committee has all the powers of the DPDC and it is the body which discusses the district plan proposals of the DPDC with the state level planning officials.

While reviewing the planning and implementation systems at district level, we are more concerned with the present operating system. Hence, our comments would restrict mainly to the district plan proposals and the operating machinery. A senior officer of the directorate of economics and statistics is posted as District Planning Officer (DPO).

The DPO is occassionally trained in the planning process in the Administrative Training Institute but these trainings have the limitation of the present working system of district planning. The DPDC and also the DPO can only monitor the financial progress and the physical achievements are usually kept out of the perview of the monitoring process.

The time given for preparation of the plan proposals to the DPDC is so insufficient that both the DPDC and its executive committee can hardly apply mind to scrutinize and give final shape to the proposals received.

DPO receives the proposals from the implementing agencies under the overall guidelines received from the state planning department. It is difficult for the DPO to integrate the proposals of the different departments due to heterogenity and diagnosis, planning, target setting, monitoring and restructuring. This would also provide better opportunities to complement inter-sectorial programmes.

The formula used for allocation of district plan funds is being followed for over the last decade. The level of participation of public representatives is quite satisfactory. They take active part in the DPDC discussions and suggest changes. This is supplemented by the direct control of elected representatives on the "Felt Need Programme" funds. The scientists from agriculture universities are involved indirectly by the implementing agencies but no such effort is made by the DPDC itself. It would be of great benefit that a perspective plan of each of the district is prepared.

DEVELOPMENT PERSPECTIVES

Solapur is one of the chronic drought prone districts of deccan plateau with severe climatic and natural resource limitations. The agrarian structure is characterised by larger average size of holding, low density - low value crops and extreme poverty in some of the pockets.

In gist, the district needs a five fold development strategy namely- agriculture, livestock, poultry, land and water conservation, allied agricultural activities and supporting rural industries. This needs to be drafted on the basis of maximum participation from the people and supportive investment policies from public institutions. A careful review of the districts planning and implementation mechanism suggests a possibility of achieving this without much difficulty. Some of the pertinent development issues are -

i) Diversification of agriculture or Alternate land use

Very shallow soils which are unsuitable for growing any crop successfully should be diverted for alternate land use. Such type of soils do exist in all sub-regions of the district. These soils should be utilized for growing : 1) grasses for fodder, 2) trees for fuel and timber, 3) dryland horticulture and fruit processing, 4) agave for fibre.

ii) Crop Husbandry and Agro-based Industries

In conventional agriculture rabi sorghum is given priority by the farmers for grain and fodder purposes. Efforts are required to popularise intercropping systems such as bajra- red gram, sunflower- red gram, castor- moth bean, groundnut- red gram etc., for boosting pulse and oilseed production. This would help in increasing cropping intensity and promoting dal and oil industry for providing employment to rural population.

iii) Introduction of cotton, castor and soybean

The area under cotton crop is meager to meet the requirement of Spinning Mills established in the district. At present, more than 90 per cent cotton is imported. There is a scope for growing this crop by extending area and increasing productivity under well irrigation in Sub-region II.

Castor crop has been found to be most useful for mid-season cropping. With one or two protective irrigations, the crop can give production of 15 to 20 q/ha. There is very good market in sub-region II at Barshi.

Soybean, which is a major source of oil and protein and found to be good introduction during kharif and summer season. This would be very good for intercropping as well as for rotation with sugarcane.

iv) Integrated Watershed Development

Solapur being a chronic drought prone region, water and soil conservation assume prime importance in its crop husbandry sector. The district has 64 macro watersheds with an average area of 23 thousand hectares. The integrated strategy for treatment of these watersheds should involve three stages spread over five sectors of the agro-economy. The sectors involved in the planning of watersheds should be :- 1) Forestry, 2) Crop-husbandry, 3) Horticulture, 4) Soil Conservation, 5) Agro-economics. A mid term review of the progress of each watershed may help in improving over the existing plan.

v) Sugar Based Industries

Sugar industry of Maharashtra has key role to play in socio-economic and political fields. Sugar cane is non-risky crop from the producer's point of view.

At present, sugar factories in Solapur district utilise sugarcane mostly for producing sugar only, with a few exceptions. Large scope exists for utilisation of bagasse for paper industry, molasses for alcohol and other chemicals, recycling of pressmud cake for crop production. Sugarcane trash which is produced to the tune of 8 to 10 t/ha is burnt at present.

vi) Horticulture Based Industries

There is also scope for mango, tamarind, and banana. Dryland horticultural crops custard apple, drumstick are coming up very fast.

The product is perishable and faces problems of packing, transport and hence, facilities are required for cold storage and processing industries. Efforts are being made to establish processing industries in cooperative sector.

At present, onion and chillies are grown on large scale. However, there is scope for other seasonal vegetables, if good marketing facilities are created by providing transport and storage.

vii) Sericulture

Solapur district tops with highest area under mulberry and silk worm production in the State. In sub-regions I and II, the farmers have become aware of the production. Efforts are required for further processing the product for silk fibre extraction, spinning and weaving industries to benefit the farmers. These industries can serve as complementary units for the present textile and linen making activities.

viii) Animal Based Industries

Increase in fodder production would lead to increase in milk and milk products. Milk produced in the district is at present transported to Bombay to some extent. The facilities are required to be created for cold storage, processing and marketing. This can support leather goods production and marketing.

Sheep and goat rearing is a subsidiary occupation. There is more scope in sub-region III.

Poultry keeping has come up very well in sub-region-I. The eggs are transported to Bombay. In order to create assurance of marketing, the transport facilities need to be strengthened.

Fisheries has not very well developed in the district.

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7. AER CENTRE - SHIMLA

DECENTRALISED PLANNING FOR SHIMLA DISTRICT

The process of planned development is more than 40 years old in India. Since the inception of planning era, emphasis was laid on centralised planning based on macro-level indicators of growth.

Although the idea of decentralized planning is as old as Gandhian economic thought it was suggested in Fourth Five year Plan to formulate micro-level plans to correct the imbalances created by centralised macro-level plans, and district was selected as an optimum unit for planning.

District planning is a kind of area based sub-state planning and arises from the need to supplement the national and State plans with a more detailed examination of the resources, problems and potentials of local area (i.e. district).

In Himachal Pradesh, district planning has not attracted much attention. The State Government has accepted the decentralisation of planning process in a phased manner. Even district planning will not serve the purpose as the administrative boundaries of the districts do not correspond with natural geographic regions. One has to descend further down and identify the homogeneous regions, i.e. sub-regions within the districts to take into account the regional affinities and more balanced development can be achieved.

Selection of the District :

All the 12 districts in the State have different levels of development. The results of analysis indicated that district Shimla ranks at the top on the basis of development indicators considered. Shimla district was selected for the study of district planning.

This district has also varied agro-climatic conditions as elevation ranges from 300 to 6,000 meters above MSL. For in depth analysis, the district is further divided into five sub-regions on the basis of agro-geomorphological conditions.

District Profile

Shimla district in its present form came into existence from 1st September, 1972. The district comprises 11 tehsils and 5 sub-tehsils, Administratively the district is divided into seven sub-divisions, namely, Shimla (R), Shimla (U), Rohru, Theog, Rampur, Dodra-Kawar and Chopal. The total geographical area is 5,131 sq.kms. which constitutes 9.22 per cent of the total area of the State. The district's total population of 6,14,892 persons constitutes 12.03 per cent of the total population of the State. The district has in all 2,409 villages of which 2,225 are inhabited and 184 are uninhabited.

The district lies between the longitudes 77°0' and 78° 19' east and latitudes 30° 45' and 31° 44' North. The shape of the district is rectangular. The elevation of the district ranges from 300 to 6,000 meters. Soil texture varies from light sandy to heavy clay. In deep valleys and basins it is generally sandy and sandy loam. The depth of soil is medium to deep depending upon the slope of the area. The district has four broad seasons. Winter normally starts from mid November and continues till mid March. December, January and February are severe cold months. Snow may fall as early as in the beginning of October. Spring starts from mid March. Summer extends from mid May to mid July. Rainy season generally starts from mid July and extends even upto mid September. Autumn season is generally very small from mid September to mid November. Minimum temperature in the district is as low as 5°C or below while maximum temperature does not exceed 30°C during the period 1977-83. The annual rainfall in the district ranges from 700 mm to 1,400 mm. The average rainfall for the period 1982-83 to 1986-87 was about 1100 mm.

It has a number of peaks. All rivers are snow fed with perennial flow. The population of the district mainly consists of Hindus followed by Sikhs and Muslimswhile, other religions like Christians, Jains and Budhists constitute microscopic Minority.

The district is having a number of shrines and temples. Almost every village has a local deity and a temple. The temple priests are generally Brahmins. The population of the district can speak Hindi and Pahari languages. The staple food of the villagers consists of maize, rice and wheat. Pulses like urd, lobia, moong and kulthi are eaten almost daily. Rice is generally taken atleast once a day. People are also very fond of meat. In addition to the above cereals, bathu and kodra are also taken especially in winter.

Cotton as well as woollen clothes are worn by the people. In winter woollen clothes made of indigenously spun and woven cloth are commonly used. Men use Khadi or mill made shirts, pyjamas, caps and jackets and women uses salwar, kameej and coloured headgear. Shimla district has houses built of mud and stone plastered from inside and outside with clay. These are generally double storeyed and provided with windows. In the lower areas of the district the cattle sheds and kitchens are generally separate and in the higher areas, the ground floor is mostly used for tending cattle. With the spread of education and increase in the standard of living of the service class people, people started keeping modern furniture, dressing table, steel almirahs, radios and television sets, sewing machines, oil stoves, electric heaters and table lamps and pressure cookers. The total population of the district was 6,14,892 persons out of which 52.7 per cent were males and 47.3 per cent females. Scheduled tribes were less than one per cent. Average family size was of six persons. Major proportion of the population lives in rural areas i.e. 84.8 per cent. Number of females per thousand males were 899. Literacy was higher in males. Density of population was 120 persons per $km.^2$ About 46 per cent of total population was workers. Agriculture was the main occupation in the district as 66.7 per cent of total workers were cultivators. About 3 per cent workers were agriculture labourers, 29.6 per cent were other workers. Permanent pastures and other grazing land constituted the major proportion (44.2 per cent) of total geographical area . Area under forests was about 26 per cent. Barren land was about 3.6 per cent while, net area sown was nearly 18.3 per cent. The cropping intensity was about 140 per cent. Current fallow land was about 2 per cent. Very

little area is available for cultivation. Hence pressure of human population is very high on agricultural land which causes disguised unemployment. Major proportion of area is suitable for horticultural crops. Rice, maize, wheat and barley constituted main cereal crops. Area under these crops was about 4, 21, 28 and 5 per cent of the gross cropped area respectively. The share of millets and pulses was 6.5 and 5.1 per cent respectively. A good quality virus free potato, pea, cabbage, tomato are also produced in this district. Apple is the dominant fruit crops of the district and covers about 17 per cent of gross cropped area. Average size of holding in Shimla district was 1.52 ha (1985-86). About 76 per cent of farmers were those of marginal and small categories, Kuhl is the main source of irrigation. About seven per cent of the cultivated area was irrigated in the district. Due to hilly terrain and other factors, ground water potential is negligible. Agriculture in the district is presently almost entirely dependent upon rains. Percentage of area irrigated to total area irrigated was maximum in the case of wheat (28.7). Thus irrigation is not available to the desired level. Among cereals, the productivity of maize was highest i.e. 2,078 kg/ha. followed by rice (1,203 kg./ha.), wheat (1,080 kg/ha.) and barley (1,067 kg/ha.) Per hectare output of potatoes was about 3,418 kg. during 1987-88. The productivity growth rates of all the cereal and pulses crops were showing a negative trend except in rice and wheat crops where it was marginally positive. Horticultural crops are more remunerative as compared to cereals. The economy of Shimla district is dependent upon horticulture. Besides fruits good quality vegetables including virus free seed potato is grown. Apples are grown on about 83 per cent of horticultural land in the district. Main vegetables grown in district are pea, cabbage, cauliflower and tomato. Livestock rearing is the main subsidiary occupation in the district. More than 90 per of households keep animals. Out of total livestock population 53.4 per cent were cattle, 26.2 per cent were sheep and goats accounted for 16.5 per cent, other animals kept were horses and ponies, mules and pigs. A good quality wool is available.

Fodder seed production farm is also functioning at Jeori in Rampur tehsils. In Shimla district 1,09,851 hectares of land area was under forests. It is About 26 per cent of total geographical

area of the district was under forests. The forests lie between 300 meters to 1,800 meters or more in elevation. The forests provide valuable timber, and other minor forest produce, medicinal herbs, raw material for large and small scale industries. The women contribute in all the agricultural operations except ploughing. The participation of females in off farm jobs declined from 28.3 to 20.4 per cent showing increasing importance of females in agriculture. Tending of livestock is the important activity of females. Higher concentration of females in agriculture may be due to low literacy.

Roads : The total length of roads in Shimla district was 2,429 kms. Out of this 868 kms. was metalled,The length of rail way line was about 25 kms.

Banks : There were about 105 branches of Nationalised banks and 17 branches of cooperative banks.

Electricity: All the inhabited villages are electrified. There are three hydroelectric projects.

Health : There are 15 hospitals,23 primary health centres and 74 Ayurvedic Dispensaries.

Education: There were 1,024 primary, 241 middle and 119 high school and 9 degree Colleges. Medical College and University is also located in Shimla town.

Communication: There were 494 post offices, 256 telegraph offices and 69 PCO's in Shimla district.

Research Stations Located in Shimla District:

Central Potato Research Institute (CPRI): The CPRI Shimla and its regional seed station at Kufri/Fagu have been credited by production of new Indian potato varieties and breeder's seed.

IARI Research Station,Shimla : This is the only station in Indian sub-continent which monitors and examines the variability in wheat rust in India and neighbouring countries.

Seed Multiplication Farm in District Shimla : Six seed Multiplication Farms are located in district.

Regional Fruit Research Station, Mashobra (Shimla) and Temperate Fruit Research Station. Kotkhal (Shimla) of Dr. Y.S. Parmar University of Horticulture & Forestry. Nauni. Solan: These Centres are involved in various pre and post harvest activities to promote horticulture in the district as well as the region. There are six

towns in the district. Due to unemployment and under-employment in agriculture sector people are migrating to the urban areas. Shimla town is well connected with all the towns and interior areas of the district. The whole district has a beautiful view. The important tourist places in the district are Shimla town, Taradevi, Naldehra, Kufri, fagu, Narkanda, Hatkoti, Rampur, etc. The tourist season is only for 5-6 month.

Problems in Agriculture in Shimla district

The agro-climatic conditions of Shimla are not much different from the rest of the State. The productivity of land is much lower than the average because of small and steep terraces, poor soil, low input use etc. The soil erosion in the district is very high. The area under irrigation in the district is about 7 per cent, The horticulture is most developed in this district. The role of women in agriculture in the district is highly significant, but in decision making, women are generally ignored. No attention is being paid to increase the literacy of the women folk.

1. Sub-Regionalisation:

Remote Sensing Centre Shimla divided this district into five sub-regions.

Sub Region-I

This sub-region constitutes small tri-angular portion in the north of Shimla district occupying nearly 5 per cent of geographical area. Entire Rampur Tehsil is covered in the region. The rivers Satluj and Noglikhad alongwith their tributaries provide well laid out drainage system. The slopes are moderate and, hence, the depth of soil is medium to very deep with thick vegetation cover.

Sub-Region-II

The sub-region contributes a small rectangular portion in the west occupying about 35 per cent of the district area. It consists of Suni, Shimla (R), Shimla (U), Theog and Kumharsa in tehsils.

Sub-Region-III

It is the pentagonal shaped central portion of the district covering nearly 25 per cent of geographical area of the district.

Entire area of Kotkhai, Jubbal, Rohru, Chirgaon tehsils and Nankhari and Tikkar sub-tehsils is covered in this sub-region. Dograkhad, Pabar, Giri, Kalyarkhad are providing extensive drainage network of the area.

Sub-Region-IV

The eastern most triangular area covering about 13 per cent of district forms sub-region-IV. Tehsil Dodra-Kawar is the sole constituent of this sub-region. This is the remotest part of Shimla district. It is not even connected with motorable road.

Sub-Region-V

The coverage of this southern most portion is about 20 per cent of geographical area of the district. Tehsil Chopal and sub-tehsils Nerwa and Kupvi are covered by this sub-region. The rivers Shalni, Gurti, Saini and Tons with their tributraries provide a very good drainage network.

2. Socio-Economic Indicators:

About 51 per cent of total population of the district resided in sub-region-II. Sub-region-III shared about 29 per cent of total population while, the share of sub-region-V and I was 10.8 and about 9 per cent respectively. Just about one per cent of total population resided in sub-region-IV. The density of population i.e. number of persons/km^2 was highest in sub-region-I (302 persons/km^2) and lowest in sub-region-V (95 persons/km^2). Over-all literacy was about 53.43 per cent in sub-region-II followed by sub-region-III. Scheduled Cast and Scheduled Tribes population had highest concentration in sub-region-I. About 29 per cent of total population in sub-region-II is urban. Sub-region-IV and V are exclusively rural. At Sub-regional level size of holding was 1.84 hectares in sub-regions-II followed by 1.72 hectares in sub region IV. Sub-regions I and III had average holding size of 1.28 hect. As 84 per cent of total population is rural and extent of literacy is comparatively low, people are mostly engaged in agriculture, horti-culture, animal husbandry and and allied activities. Proportion of main workers to total population was highest i.e. 56.71 in sub-region-V and lowest i.e. 40.87 in sub-region-II. Percentage of agricultural labourers to total main workers was highest (4.7 per cent) in sub-region-I.

In sub-region-I out of total geographical area, about 61.1 per cent was net area sown. In sub-regions II and V more than

50 per cent of total reported area was under permanent pastures. In sub-region-III net area sown was about 38 per cent of total reported area while, permanent pastures and grass land covered about 28 per cent. Forests shared about 54 per cent of geographical area in sub-region-I. The share of net sown area ranged from 2.3 per cent of reported area (sub-region-IV) to 29.9 per cent in (sub-region-III). During 1979-80 the percentage of area devoted to cereal crops ranged from about 71 per cent (sub-region III) to 86 per cent (sub-region-V). But due to higher profitability in horticultural crops, i.e. fruits and vegetables, farmers shifted area from cereals to these crops.

Except maize, area under all the crops has shown a decrease during the study period. On the other hand, area under fruits and vegetables is increasing very sharply. The proportion of small and marginal farmers ranged from 69.7 per cent (sub-region-II) to about 83 per cent (sub-region-I). Due to poor production base the farmers cannot make best use of their other productive asset, i.e. labour.

Animal raising is one of the important occupations. Among the sub-regions cattle population was maximum in sub-region-II (60.5 per cent) followed by sub-region-V (52.7 per cent of total livestock population). Buffaloes constituted about 3.2 per cent of total livestock population. Sub-region-II had maximum number of buffaloes due to comparatively warmer climate. Sheep is the prominent livestock kept by hill farmers. Sub-region-I had about 37.6 per cent of sheep population in total livestock population while in other sub-regions sheep population ranged from 18.3 per cent (sub-region V) to 30.3 per cent (sub-region-III).

Large area in sub-region-II is conducive to grow citrus fruits. Sub-region-III is most suitable for apple. Sub-region-V is also well suited for apple crop. Sub-region IV has good potential for apple. Dry fruits have good potential in this area. Sub-region-II is leading in the production of off-season vegetables such as peas, tomatoes, cabbage, cauliflower etc. Seed potato is grown in sub-region III and V.

Due to high altitude, percentage area under forests to total geographical area is very little in sub-region-IV. Most of the area in this sub-region remains under thick sheet of snow for

about 6 to 8 months in a year. Sub-region-I has maximum area under forests.

DEVELOPMENTAL ISSUES AND STRATEGIES

The development strategy for the district has to focus its attention on the sectors/avocations like forestry, fruit crops, livestock, raising of high value crops and strengthening the post hervest technology for fruit and vegetable crops.

1. Land :

Land is one of the most important factors of production available to the rural masses. About 75 per cent of cultivators have land less than or equal to two hectares. Fields are slopy, small in size and highly scattered. In such a situation. the following strategies are suggested

(i) The foremost step should be to consolidate the holdings. This will encourage the farmers to invest more on their fields and hence productivity will increase.

(ii) The agriculture should be practised on the land with less than 30 per cent slope for taking the maximum possible advantage of scarce land resource. Otherwise, the soil may get eroded.

(iii) The land having 30 to 50 per cent slope can be used for horticulture/fodder development in case it is already not covered by forests.

(iv) All the land having more than 50 per cent slope should be brought under tree cover.

(v) Emphasis should be given to reclaim culturable waste lands.

2. Irrigation :

Only 7 per cent of net area sown is irrigated and 'Kuhls' are the main source of irrigation. This source is also dependent upon rains. Watershed development should be given due emphasis in Shimla district. Irrigation potential can also be increased by constructing small tanks harnessing the water run off, natural springs and lift irrigation system. Lift irrigation can be useful in catchment areas of the rivers. In order to regulate water loss kuhls should be cemented and wherever possible should be replaced by pipes. Commercial crops with less requirements of water should be emphasised.

3. Diversification

Farmers must be encouraged to follow intensive crop husbandry. Cultivation of off-season vegetables, potatoes, fruits, flowers and vegetable seeds should be popularized. Diversification of agriculture also reduces risk and uncertainty associated with the agricultural production. There is great scope to export plants and cut flowers to other metropolitan cities of the country and abroad as well.

4. Infrastructure

Transportation and Cold Storage facilities for fruits and vegetables in the producing areas should be developed. Rope ways for transportation of fruits should be encouranged for efficient marketing of fruits. Processing should be encouraged to utilize the culled fruits.

5. Agriculture

The varieties of different field crops grown in the different parts of the district are not compatible with the local conditions. This calls for evolution of area specific varieties. There is need to use the scarce land resource in maximum efficient way. Inputs like HYV seeds, fertilizers etc. should be made available to the farmers at proper time and cost.

6. Horticulture

Shimla district is the fruit bowl of Himachal Pradesh. Apple is the most important fruit of this district. In the valley areas where the horticultural development is in primitive stage citrus fruits can be grown with great success i.e. some parts of sub-region- I and II. In midhill areas agriculture can be diversified by growing off season vegetables and most suitable areas are sub-regions II and III. Sub-region-II and III are main producers of seed potato. Input delivery system has to be improved and credit facilities should be made available especially to the small and marginal farmers.

7. Marketing/disposal of Agricultural Produce

Horticultural crops i.e. various types of fruits and vegetables are perishable and hence, need efficient transportation and other marketing facilities. In order to protect the interests of the orchardists and to bring prosperity in the district government have to give more emphasis on transportation, processing and storage facilities.

In order to reduce cost of headload up to road head more ropeways (gravity and motorized) should be installed. Roads connecting the orchards with the terminal markets should be well maintained. In order to reduce the pressure in the Delhi fruit market apple should be directly sent to other markets of the country. There is good scope to establish potato processing industry in the district. Potato chips, potato flour and vodka are important processed potato products.

8. Forestry

About 20 per cent of total geographical area was under forests. It is very little to protect the existing forest cover and to increase it attempt has been made to enhance people's participation in forest farming by implementing a scheme 'Ban Lagao Roji Kamao'. This scheme will certainly improve the employment conditions. State Government should come forward more strongly to stop its duel policy of providing wooden boxes for fruit packing on one hand and protecting forests on the other. Adoption of silviculture should be given preference. Social forestry and pasture development should be intensified.

9. Animal Husbandry

There is good scope to substitute the non-descript cattle with jersey as the exotic breed in a phased manner. It will improve the productivity of milk. Only nine milk cooperative societies are functioning presently in the district. Cross breeding of sheep should be done on priority basis so that benefits of higher wool production and productivity are shared by the farmers. Government has stressed to reduce goat population because it is very destructivity animal.

10. Other Avocations

In Shimla district there is good scope to increase income and employment opportunities through :

10. (i) Tourism

Shimla is an important tourist place from the time of Britishers. In order to attract more tourists it is required to increase the bed capacity in the town and also to provide better facilities for parking vehicles, improve the water supply during summer season. In winter season winter sports e.g. skiing, ice skating, ice hockey etc. should be given more emphasis.

10. (ii) Floriculture

In Shimla district great potential exists for natural and artificial cultivation of flowers and ornamental plants. Flowers can be grown as intercrop in orchards. There is great scope to export such plants and cut flowers to other metropolitant cities of the country and abroad as well.

10. (iii) Fisheries

There is good scope to develop fisheries, because rivers and other perennial sources of water are in abundance.

10. (iv) Bee Keeping

Bee keeping is also a good source of income. The beehives placed in the apple or other orchards provide additional income by way of sale of the honey.

10. (v) Mushroom Cultivation

Because of low summer temperature and adequate moisture moshroom cultivation can be a good source of employment and income. Four to five crops of mushroom can be grown in a year.

10. (vi) Electronic Industry

Dust free environment of the district is very conducive to electronics industry. An electronic complex has already been established in Shoghi in Shimla tehsil. Such more centres should be established.

10. (vii) Other activities

Hydel projects can be constructed on rivers to generate electricity, which will boost employment generation. Tourism development can also increase employment opportunities.

11. Shimla District

Development Strategies

1. Rationalisation of Land Use According to Capability.
2. Watershed Development for Soil and Water Conservation.
3. Optimum Utilisation of Surface Irrigation System Through Development of Tank and Lift Irrigation.
4. Crop Development Through Area Specific High Yielding Varieties and Higher Doses of Chemical Fertilizers etc.

5. Increasing area under high value vegetable crops through intercropping in Orchards and adoption of Improved Production Technology.
6. Improving productivity of fruit crops by providing good variety planting material and increasing area under high density plantation.
7. Development of adequate infrastructure to step-up and sustain economic development of the district.
8. Livestock and fodder development through extensive cross breeding of cattle and sheep and augmenting fodder availability by improving management of pasture lands and growing nutritive fodder in marginal lands.

District Planning and Administration

Towards decentralization, the Planning Commission has urged the State Governments to take the following four important steps :-

(a) Effecting functional decentralisation. This procedure will help in defining the role of District Planning in the multilevel planning structure.
(b) Effecting financial decentralisation
(c) The establishment of appropriate Planning mechanism at the district level
(d) The establishment of appropriate budgeting and reappropriation procedures.

Organisational Set Up

The composition of this Apex Planning Body at the district level is as follows.

1. Minister-Chairman
2. Chairman of Zila Parishad (wherever these exist)Vice-Chairman
3. Deputy Commissioner of the District-Member.
4. All M.P.'s and M.L.A's from the district.
5. Chairman Block Development Committees.
6. Representatives of women's Organization, Voluntary Organization, Urbdn Local Bodies, Khadi & Village Industries Board and Financial Institution.
7. Additional Deputy Commissioner/ADM as Member-Secretary.

A small executive body for transacting functional needs comprise (i) Deputy Commissioner-Chairman (ii) All Heads of Offices as members and Additional Deputy Commissioner, as Member-Secretary.

Funds for Local District Planning by the Deputy Commissioners

These cells in all the 10 districts have became fully functional by the first stage of decentralisation were made during 1987-88. The Deputy Commissioners are the sanctioning authorities.

Review of the District Planning System

Suggestions for the development of the functioning of the district planning and development Committees.

(i) At present the DPDCs have no functional powers. They are only reviewing the physical and financial targets of the Plan Schemes and suggesting the remedial measures to the State Planning Department.

(ii) In order to strengthen the coordination among the development committees it is recommended that the senior level officers should be posted at the district level as D.D.Cs.

(iii) It is suggested that the public representatives in the DPDCs should be elected from the public and that they should be nominated by the Panchayats or the Block Development Committees.

(iv) Senior level functionary is required to coordinate the functioning of the district level officer

(v) It is recommended that the adequate administrative control should be vested with the Deputy Commissioners so that the departmental officers may be answerable to the deputy commissioner and fulfil the targets.

(vi) The DPDCs should also be given the policy direction and the frame work to decide the district priorities

(vii) The DPDCs should be given an option to choose the schemes which they want to implement in the district.

Development Programme

The war against poverty has been the priority in the development planning. The concept was also applied in district Shimla in order to remove poverty and create employment.

The course of action based on following points is required to achieve the obectives of development programmes.

(1) Timely supply of quality seeds, irrigation and water management.

(2) Ten per cent allocation at district plan infrastructure at village level-good roads, marketing facilities for perishable articles like milk etc.

(3) Support in terms of competent management and sustained marketing outlets for promotion of rural industrialization.

(4) Proposition of inventory of available resources, preferably through modern technology.

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8. AER CENTRE- SHIMLA

DECENTRALISED PLANNING FOR SIRMAUR

(A Relatively Backward District in H.P.)

This study attempts to prepare a decentralised plan for a relatively backward district of Sirmaur of Himachal Pradesh. The district has been further divided into four sub-regions to find out the specific problems at micro-level. The study reveals that inadequate irrigation facilities, traditional agriculture, poor productivity of crops, poverty, high pressure of livestock population, meagre non-farm employment opportunities, etc. are the major problems of various sub-regions in this district. Based on the availability of resources and favourable agro-climatic conditions it is suggested to adopt watershed development approach to improve the conservation of soil and water, diversify the agriculture through more emphasis on the cultivation of fruits and off-season vegetables and improve the breed of animals, etc. to sustain the fragile ecosystem of this district.

On the basis of composite index, Shimla district ranked at the top while Sirmaur district was placed relatively at the bottom among the twelve districts of the state. The report on Shimla district was prepared in 1991. This report is for Sirmaur district. For detailed study this district has been further divided into four sub-regions by the Remote Sencing Centre, Shimla.

Profile

Total geographical area of Sirmaur district is 2825 sq.kms. which constitutes about 5.07 per cent of State's area. As per 1991 Census, the total population of this district was 3,79,695 which forms 7.34 per cent of State's population. The sex ratio was 897 during 1991. About 90 per cent of total population was rural. The proportion of Scheduled Castes and Scheduled Tribes was 30 per cent and 1.6 per cent respectively.

Sirmaur is backward in the field of education and it ranked 11th in literacy ratio (51.62 per cent) among the twelve districts of the State. This ratio was 7.5 per cent during 1951 and 24.4 per cent during 1971. During 1991, the male and female literacy ratio was 63.20 per cent and 38.45 per cent respectively.

Agriculture was the main occupation of most of the workers as 72 per cent of them were cultivators and 3.3 per cent were agricultural labourers.

In this district, agriculture is traditional and mixed farming is done by most of the farmers. Land is a scarce factor as far as agriculture is concerned because just about 19 per cent of total reported area was net area sown during 1991. Except Paonta valley and Nahan Tehsil (Sub-region-I and II) most of the land is covered by forests and permanent pastures and grazing land. During 1991, the area under permanent pastures and grazing land and forests was about 27 per cent and 21 per cent respectively. The intensity of cropping was about 186 per cent. In Sirmaur district around 82 per cent of total cropped area was under cereals. Wheat, maize, paddy and barley are the major cereals crops sharing 38.5 per cent, 32.4 per cent, 6 per cent and 3.7 per cent of gross cropped area (1991). The share of total pulses was around 6 per cent. Although the agro-climatic conditions of this district favours the cultivation of a variety of fruits (tropical and temperate) and off-season vegetables, but merely 5 per cent of total cropped area was allocated to these crops.

During 1971-91, the average yield of maize and wheat has more than doubled it has registered a decline in case of paddy and barley, in last two decades.

The area under irrigation constituted about 33 per cent of net area sown. Kuhls are the main source of irrigation (88 per cent of total area irrigated) followed by wells and tube wells (12 per cent).

The marginal and small farmers constituted about 65 per cent of total number of holdings and were sharing about 22 per cent of total area operated (1990-91). The average size of holding was 2.33 hectares.

As mentioned earlier, the agro-climatic conditions of Sirmaur district are conducive to produce high value crops like ginger, off-season vegetables, potato, flowers and fruits. Potato, ginger and apple are the traditional commercial crops of this district (especially in sub-region-III and IV) due to mild temperate climate. But, over a period of time these crops have become less important. The ginger growing farmers have to incur a big loss every year due to disease (Rhizome rot/yellow). Efforts were made to control this disease but much success was not achieved and

ultimately the farmers have started to shift the area to other crops like vegetables. The climatic conditions are not much suited to grow apple in this region even then the Government gave more aid and emphasis to this crop. But due to poor productivity of apples the farmers are now planting other fruits like peach, plum, apricot, almond and pears for which climatic conditions are most suitable. Sirmaur district is also slowly picking up in the cultivation of off-season vegetables like peas, cabbage, capsicum, cauliflower, beans, etc. But the pre-and-post-harvest technology for these crops is not adequate and every time the farmers are facing a lot of problems.

Due to poor resource base, the farmers are using very less amount of modern inputs like HYV seeds, chemical fertilizers, plant protection materials, etc. The mechanisation of agriculture is very less due to topography and availability of enough family labour.

Almost every household keep animals for various needs. The density of animal population exceeds that of human population in the district. Cattle is the main animal kept by the people with a few sheep and goats. Buffaloes are reared mostly in relatively plain areas of the district. Most of the milch animals are indigenous with less productivity.

Constraints in development

The specific constraints in the development of various sub-regions are (i) inadequate irrigation facilities, (ii) traditional agriculture with main emphasis on cereal crops and less use of modern inputs, (iii) poor productivity of crops, (iv) high pressure of indigenous unproductive livestock on land, (v) indequate infrastructural facilities to support and sustain development, (vi) less employment opportunities outside the agriculture sector and (vii) low status of women in the district.

Suggested Strategy

Keeping in view the local resources and agro-climatic conditions a detailed development strategy has been suggested for this district. Watershed development approach is suggested to ensure optimum use of land and water resources in each sub-region of the district. It is recommended to constitute Watershed Management Committee having legal status and active involvement of rural women and NGOs for the management of watersheds. For the improvement in

the productivity of various crops, suitable varieties should be developed with more efforts to improve extension, credit and other facilities. The agriculture in sub-region-III and IV can be diversified by giving more stress to grow fruits and off-season vegetables. These crops are high value and labour intensive. The pre-and-post-harvest technology has to be improved to ensure higher benefits to the farmers. Emphasis should be laid to involve cooperative institutions in the sale of inputs, marketing and processing of the produce. Sincere efforts should be made to revive the ginger crop in sub-region-IV. In livestock sector, there is a need to improve the breed of the animals, encourage stall feeding, better nutrition and health to the animals, etc. Non-farm employment can be increased through agro-processing and electronic industries, hydroelectric power generation and more investment in infrastructure, etc. In order to improve the status of women, it is suggested to improve their level of education, development of skill both in agriculture and modern occupations, etc.

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9. AER CENTRE- SANTINIKETAN

DECENTRALISED PLANNING IN AGRICULTURE AND RURAL DEVELOPMENT

(A study in district Birbhum, West Bengal)

Decentralisation is a new approach to the economic and social development. It has been observed that active participation, involvement and support of the local people are needed if planning and implementation are to succeed.

It is increasingly felt that in India the level of economic and social development vary among different regions. In such a situation centralised planning would be inefficient to deal with diverse factors. So decentralised planning is the best way to counteract the evils of centralised planning.

Decentralisation benefits the poorer section of the people living in villages or to the smallest area. In such planning block has assumed greater importance.

The main objectives of our study is to review the organisational structure and method adopted in the district Birbhum. To highlight the various schemes launched in the district, their implementation and problems. To identify the constraints in agricultural and rural development. To suggest the strategy for future development.

For the present study the district Birbhum has been selected which is neither progressive like Burdwan district nor backward like Coochbehar or Jalpaiguri district. It is considered to be a representative district of the state of West Bengal. There exists no large scale industry in the district. The prospect and possibilities of agriculture in Birbhum district is enormous. The district was mainly a monocropped area before independence, but after independence it has made a steady progress.

The report is based only on the official data collected from different offices of suri - the district headquarters.

In all, there are 19 blocks in the district. Our attempt is to analyse the data of these blocks and find out which of them are emerging out successfully both economically and socially.

Profile

Nanoor comes out as the block covering the largest geographical area 2.36 sq.km. As regards literacy labpur tops the other blocks. More than 37 per cent of the total population are literate.

Nanoor block follows next in this respect having 35 per cent of population being literate. Bolepur and Md. Bazar consist the greater percentage of tribal population- 17 per cent and 14 per cent respectively. Sainthia enjoys the largest number of primary schools- 182. If we look towards the agricultural sector, we find that 45 per cent of the total workers in Labpur follow this occupation on the other hand a gloomy picture is observed in Suri- where 51 per cent of the total workers earn their livelihood from agricultural labour. In Bolepur also this kind of occupational structure is noticed. Such kind of phenomenon may be attributed to the incidence of tribal population in large number in these two blocks. Other occupations like service, industrial, manufacture and repairing are quite high in number. In Suri-II and Murarai-II, the cultivated land comes to 87 per cent and 91 percent respectively. Besides cultivated land in these blocks, pasture land also appears to be very important one. Most of the households possess cattle like cow, buffalo, goat etc. Dirth of pasture land will no doubt poses a serious problem for the grazing of these cattle. In respect of grazing land Illambazar block has shown a better position- 5 per cent of its total land is under pasture.

It is interesting to notice that in all the blocks male and female population is more or less equally divided. In most of the blocks male workers have been recorded to be 50 per cent and female workers as low as 3 per cent to 17 per cent. The female workers are on the higher side in the blocks where scheduled tribes are found to live in large number. As regards bargadar recording Khayrasol block shows the highest one about 17 per cent. Among the 19 blocks it will be our hunch which of the blocks have emerged out as economically and socially progressive.

Land and Agricultural Entriprise

Three types of land-holdings are found to exist in the district- high, medium and low. Medium land accounts for the better productivity of crops,whereas, the other two grades of land suffer

from water - holding capacity and water logging. Except 4 to 5 blocks, all other blocks account 40 per cent to 50 per cent medium type of land. This is an indication that in most of the blocks cultivation is the way of life.

Drought and flood are two other climatic hazards that have direct affect on the productivity of the soil.

Three types of soils predominantly exist in the district. These are red laterite, old alluvial and clay loam. Cent per cent land at Kehairasol, Rajnagar and Md. Bazar are red-lateritic soils because these blocks are adjacent to Santal Parganas. Besides these 3 blocks the blocks enjoy old alluvial soil and thus are comparatively in better position in crop raising.

In the district different sources of irrigation facilities are found to operate. These are mainly river-lift, shallow-tubewell, deep-tubewell, tank and dug-well. Nalhati block is equipped with greatest number of river-lifts (19 in number). In Ilambazar block 31 deep-tubewells are operating. The mentioned two sources are run by public expenditure. As regards the installation of shallow, and dug-well, these are mainly undertaken by individual farmers. Mayureswar-II block claims the highest number of shallow-tubewells-1564. Bolepur, Nanoor, Sainthia follow next. In Khairasole and Rajnagar blocks dug-well appear to be the main sources of ground-water.

Though apparently it seems the existence of different types of irrigation must push up the p.c. of irrigated area and thereby the productivity, in real terms it is not the case. So it is immensely felt that by decentralised planning the different blocks should get equal advantage of irrigation.

In the district there are 1,711 primary schools, 47 higher secondary schools, 208 secondary schools and 110 junior high schools. Besides these there are a large number of primary schools and few madrasas. Both the scheduled castes and scheduled tribes boys and girls are imparted education in these schools. The blocks, Suri, Sainthia and Bolepur are endowed with greater number of all types of schools. Conciousness towards education in these blocks are no doubt praiseworthy. The srudy reveals that the blocks should be equipped with more schools to raise the percentage of educated among boys and girls.

Health is considered to be an important factor for a population. It has indirect effect on the productivity of crops as well as controlling the population explosion. Suri and Bolepur have big hospitals. Except these Sub-divisional hospitals primary and secondary health centres are spread out among these blocks.

A Family Health Centre has been established in every district. In Birbhum district also this kind of Family Welfare Centre is working in all the blocks to make the young couples aware of various methods of birth control and distributing medicines to the child patients suffering from various diseases.

Various Schemes Launched in the District :

Of the so many schemes we have selected to study only a few important schemes that are operating in this district.

Bio-gas plays a vital role to produce energy at a cheaper rate in rural sector. Still now this source of energy has not been fully explored or extended satisfactorily. The importance of this technology lies in the use of various organic waste. such as cowdung, human excreta and also agriculture waste. Previously general farmers used to get 25 per cent as subsidy of the total cost and the schedules castes and scheduled tribes got 74 per cent subsidy. Recently the amount of subsidy is related with the ownership of holding and capacity of the plant. A time series data regarding the number of bio-gas plants points out that most of the blocks except Nanoor, Rampurhat and Nalhati-I have shown satisfactory progress. Number of bio-gas units per household in each block shows a wide difference.

A few blocks in the district of Birbhum reveal that a huge potential lies for the extension of this scheme. Poor campaigning for installation of such plants in rural sector seems to be the reason.

I.R.D.P. :

I.R.D.P. is another important scheme launched in the district. Its main objective is to create additional opportunities of employment in the rural sector. In the VII plan, I.R.D.P. was mainly designed for activities like sericulture, animal husbandry, weaving, handicrafts etc. I.R.D.P. was first introduced in Birbhum

in the year 1978-79 in 11 out of 19 panchayat samities. It is noticed that from the year 1984 to 1989 there has occured a steady growth of per head I.R.D.P. subsidy in the district as a whole. But when looked into the individual blocks this kind of trend is absent. Only Md. Bazar block shows a steady rise regarding subsidy disbursed and number of beneficiaries.

I.R.D.P. is basically meant for the poor and the weaker sections of the rural people whose family income is below poverty line. In actual field it is found that the subsidy has gone mostly to the well-to-do families. Some of the blocks where scheduled caste and scheduled tribe and landless labourers are in greater percentage have been neglected in respect of disbursing I.R.D.P. subsidies.

TRYSEM :

TRYSEM stands for training for rural youths for self-employment. Rural youths are trained in vocational training to acquire minimum expertise to make themselves self-employed. During 6th and 7th plans Birbhum had achieved 28.9 per cent and 39.52 per cent of its total targets respectively.

DRDA (District Rural Development Agency) has arranged non-residential training centre at Suri. Here rural youths are being trained in trades like maintenance and repairing electric pumpset, sinking and repairing of tubewells etc.

It is observed that number of persons trained under TRYSEM were maximum in 1984-85 but thereafter its number fell sharply.

Minor Irrigation

The investment on minor irrigation comes both from institutional and private sources. Following all India pattern, in Birbhum also more emphasis on minor irrigation has been given in tribal and backward communities. The sources of minor irrigation in this district are mainly deep-tubewell, shallow-tubewell, river lift and dug-well.

Mayureswar and Murai-I blocks have recorded higher percentage of irrigated area by way of sinking shallow tubewell. Illambazar has shown the highest irrigated area by Deep-tubewell.

River-lift, though a very popular source of irrigation has its limitation. If rain water is not sufficient the river lift can not operate. In Birbhum during summer 70 per cent of the river lift over river Kopai remain nonfunctioning. Few blocks like Rajnagar, Kharasole, Dubrajpur and Suri-I are getting benefit of irrigation from dug wells. Though there are a large number of tanks distributed in the blocks, these source also suffer from its limitation. The water-reserve of these tanks solely depend on the good monsoon.

F.F.D.A.(Blockwise)

In most of the blocks of Birbhum scientific composite fish culture has made good progress. It is observed that there is a great scope of extending modern fish culture in every block. Suri-I, Rajnagar, Khairasole and Sainthia blocks can be earmarked as showing good progress in this respect. It is found from the Official data that Bolepur Sub-division and Rampurhat Sub-division have proved successful as regards F.F.D.A. In the last two years the involvement of the scheduled castes and scheduled tribes has increased in this project. Failure of repayment of bank loan from the part of fish-farmers has indirectly compelled the Bank to Shrink in granting of loans.

Sericulture

It is highly labour-intensive. The weaker sections of the society like women, scheduled castes and scheduled tribes and landless labourers are mainly involved in sericulture activities. It is a low-capital project. In West Bengal Sericulture gives the highest return from land in comparison to other agricultural crops. It was traditionally practised in the districts of Malda, Murshidabad and Birbhum. In Birbhum mulberry plantation has increased by 19 per cent during the period 1978-91. Number of cocoon rearers is the highest in Nalhati Block-I and II. Next comes Rampurhat which is also a traditional area. Except Suri-II, in all other blocks sericulture had been extended. It is happy sign to note that extension of new mulberry areas have been gradually extended to those blocks where sericulture practice is of much recent origin. Department of agriculture in Birbhum is putting more attention to those areas which are less developed in sericulture.

Livestock and Poultry Birds

The figures of the livestock both ordinary and hybrid have been collected from Livestock Census office for the year 1989-90 only. At present an attempt is going throughout the country to raise the quality of livestock by cross-breeding. We come across a very discouraging figure in this respect. Less than one per cent male cow has gone under cross-breeding. In case of female cow this p.c. is somewhat higher. The percentage of indigenous female in milk in most of the blocks show that it varies from 28 to 35 per cent per household. Possession of live-stock per household varies from 1 to 3 in number. Bolepur, Nanoor, Rampurhat, Dubrajpur blocks rear buffalo to a greater number than the other blocks. The return from she-buffalo is greater than he-buffalo. Besides these there are livestock like sheep, goat, pigs in every block but no improvement has been noticed among them as regard high-breed quality.

Keeping poultry birds like hen and duck have appeared as a source of income to the poor farmers. Only in Rajnagar and Sainthia block 38 to 39 per cent birds are found to be of improved breed. It is a high time that poultry bird as an industry should take its roots in the livelihood of the rural masses to push up their income level.

This study no doubt assists one to earmark some of the blocks like Nanoor, Rampurhat, Bolepur, Illambazar, Suri-I as progressive-economically as well as socially.

10. AER CENTRE- WALTAIR

PROFILE OF AGRICULTURE AND DEVELOPMENT STRATEGIES FOR ANANTAPUR DISTRICT OF ANDHRA PRADESH

Profile

Anantapur district which is one of the most backward districts lies in the Rayalaseema region of Andhra Pradesh. It lies between $13^{o}40'$ and $15^{o}15'$ North latitudes and $76^{o}50'$ and $78^{o}30'$ East longitudes. It is bounded by Bellary and Kurnool districts in the north, Cuddapah district in the east, Kolar district in the south and Chitradurg district in the West. There are 3 divisions (1) Anantapur Division, (2) Dharmavaram Division and (3) Penukonda Division, and 63 mandals in the district.

Forest cover in the district is thin and scanty.

The district is at a fairly good elevation which provides a tolerable climate throughout the year. The district is far from the east coast and is deprived of the North-East monsoon. The average rainfall is about 520 mm.

Pennar, Jayamangala, Chitravathi and Vedavati (also known as Hagari) are the important rivers in the district. Upper Pennar Project, Bhairavanithippa project and Chennaraya Gudi project are the major irrigation projects in the district irrigating about 60,000 Ha.

Agro-Ecological Situations

Taking factors such as rainfall, soil type, sources of irrigation and major cropping pattern, the National Agricultural Research Project identified 12 agro-ecological situations in that part of the district which falls in the scarcity rainfall zone covering 53 mandals. The remaining mandals form part of the southern zone (zone 3).

Agro-Climatic Regions in the District

1. Black soils with high rainfall and irrigation facilities (14 Mandals)

   This region lies in the northern part of the district and includes 14 mandals.

2. Red soils with high rainfall and irrigation facilities (11 Mandels)

   This region lies to the south of region 1 and is more compact and includes 11 mandals.

3. Red soils with low rainfall, and rainfed agriculture (12 Mandals)

This region lies to the south of Region 2 and occupies the central part of the district. It includes 12 mandals.

4. Red soils with high rainfall and rainfed agriculture (16 Mandals)

This region occupies the southern and south-western part of the district and includes 16 mandals.

5. (10 Mandals)

This region is in the south-eastern corner of the district covering 10 mandals.

The district has an area of 19,070 sq. km. and a population of about 3.18 million in 1991. The average density is 167 persons per sq.km. Urban population forms 23 per cent of the total.

The sex ration for the district works out to 946 females per 1,000 males.

In 1981 the district reported 13.68 per cent of the total population as scheduled castes and 3.32 per cent scheduled tribes.

There were 7,39,841 literates in the district, constituting about 29 per cent of the total population as of 1981.

Forty three per cent of the total population is stated to be workers. Of them 76 per cent are agricultural workers. Again , a majority of them (53 per cent) are cultivators and the rest 47 per cent are agricultural labourers.

This district generally has only one crop season, namely, kharif. Employment of workers is, therefore, limited to this season.

Social and Economic Infrastructure

There were 2,682 primary schools, 196 upper primary schools, 242 high schools and 3 Universities.

There are 66 hospitals in the district with 168 doctors and an intensity of one doctor per over 15,000 population.

All the villages were electrified.

The district is predominated by red soils, covering about 76 per cent while black soils occupy about 24 per cent area.

Land Use Pattern

The total geographical area of the district is 19,10,118 hectares.

The proportion of forests in total geographical area varies from 5.45 per cent in region 3 to 20.10 per cent in region 5. The southern district, consisting of regions 4 and 5 account for over

55 per cent of the district's forest area. Eighty per cent of the forest area is degraded.

Another interesting feature of land use is the extent of waste land that can be put to productive use. These account for 10 to 17 per cent of the geographical area in various regions. This is just around one fourth of the present cultivated area. This presents a promising prospect for increasing agricultural income. The intensity of cropping is more or less around 100 per cent.

Land Distribution

Thirty one per cent of the holdings are below one hectare in size (marginal holdings), 25 per cent are between 1 and 2 hectares (small holdings) and the remaining 44 per cent are more than 2 hectares each. Small holdings are more in the southern regions where there is no assured irrigation, but which has more copious rainfall.

Crop Concentration

1. Groundnut, the most important crop of the district, is spread more or less evenly throughout the district in kharif season. In rabi, it is concentrated in regions 3 and 2, which account for 69.53 per cent of the rabi area.

2. Rice is concentrated in regions 1, 2 and 3 in kharif, accounting for 88.28 per cent of the kharif area, and in regions 2, 4 and 3 in rabi, with 71.43 per cent of the rabi area.

3. Jowar is raised predominantly in regions 1, 2 and 4 in kharif, accounting for 88.38 per cent of the area, while 93.66 per cent of the rabi area is found in Region 1.

4. About 94.45 per cent of the bajra area is in regions 1,3,2 and 5 in kharif, while regions 5 and 1 account for 99.17 per cent of the rabi area.

5. Korra is concentrated in regions 1 and 2 accounting for 81.95 per cent of the kharif crop. Rabi area is negligible.

6. Ragi is located in Regions 4 and 3 in both the seasons, accounting for 77.33 per cent of the kharif area and 73.26 per cent of the rabi area.

7. Regions 3, 4 and 2 raise pulses with 71.34 per cent of the area in kharif. In the rabi season, the crop is raised mainly in regions 1 and 3 with 84.91 per cent of the district's area.

Watershed Development in Unirrigated Areas

In Anantapur district, about 75 to 95 per cent of the cultivated area in different sub-regions is rainfed. In some of the years the rainfall distribution is highly undependable in terms of onset, withdrawal and distribution during crop growing season. Soil erosion due to rain water run-off continuously degrade the soils. The risk factor is high in dryland farming due to uncertainty of rains which often acts as deterrent for the adoption of modern and cost intensive technologies by the extremely poor farmers with fragile resources.

The possibility of expansion of irrigated areas seems to be limited. Increased production to meet the demands of rising population is possible only through increase in production from rainfed areas through development of rainfed/dryland farming on scientific lines.

Soil conservation and other dryland programmes taken up so far did not go far in improving the rainfed agriculture to the desired level. The recently started watershed development programmes, through successful, are cost intensive and require huge manpower.

Modified watershed development programmes with less cost and manpower requirement with provision for active participation of farmers and rural youth needs to be developed so as to cover the needed areas within next 20 year period.

About 60 per cent of the unirrigated area (including waste lands that can be developed) requires development, the area requiring watershed development ranges from 1.17 to 2.15 lakh hectares within the regions. Total area to receive treatment is 7.54 lakh hectares in the district, which may include some areas already covered by watershed programmes so far implemented.

Modalities of Implementation

It is proposed to saturate the entire amenable rainfed areas with watershed development programmes within next 20 years in 4 phases.

A. Phase-I (First 5-Year Period):

Lands having slope upto 1 per cent will be developed under phase I and it covers an area of 1.51 lakh hectare.

(a) Conservation works

(i) Diversion drains and water ways

For safe disposal of excess run off, diversion drains and water ways will be formed and maintained at the project cost and wherever it is possible they may be preferentially drained into farm ponds.

(ii) Farm ponds

A network of farm ponds at the rate of one for each 50 hectares is proposed at an estimated cost of Rs. 3000/- per pond to recharge the groundwater to provide drinking water for cattle and water for plant protection measures. Atleast 75 per cent of the ponds may be provided on community basis. The rest of 25 per cent may be owned by the individual farmers with 50 per cent subsidy, recovering the loan portion in 15 annual instalments. Total number of ponds proposed are 3,020 which cost around Rs. 90.60 lakhs. Of this, the Government share will be 79.28 lakhs and the rest of 11.32 lakhs will be funded by banks.

(b) Cropping Programme

(i) Crop Demonstrations

It is proposed to organise crop demonstration in 10 per cent of the project area with project funds in blocks of 4 hectares each, distributing uniformly over the area proposed for the year, with an objective to saturate the area with dryland technology. The following operations will be taken up by the farmers under the supervision of project staff.

- Summer ploughing
- Contour cultivation: Formation of keylines with the help of rural youth, contour sowing and other cultural practices.
- Seed Treatment
- High Yield Variety(HYVs) seed will be supplied free of cost (10% cost). Optimum seed rate for optimum plant population will be advocated.
- Fertilisers : Recommended dose, time and method of application will be followed.
- Weed Control : Manual - Mechanical and Chemical.
- Plant protection : Need based control methods with time, dose and method of application of plant protection chemicals for each crop will be adopted.
- Improved agricultural implements will be introduced for different cultural practices.

(ii) New Crops and Cropping Systems

Based on the needs and suitability, non-traditional crops may be introduced. Similarly high value and low volume crops commercial crops may also be introduced to enhance the productivity and profitability. The crops may include maize, soybean, sunflower, mustard, coriander, vegetables, fodder crops etc. The area to be covered under this programme is 7,550 hect. Estimated cost of introducing new cropping systems is around Rs. 22.65 lakhs.

(iii) Dryland Horticulture

Fruits and vegetables may be raised in the watershed area. Assured water source is essential for the initial establishment. Use of water saving devices like micro-irrigation systems may be introduced. An area of about 6,040 ha. is proposed for fruit crops at an estimated cost of Rs. 120.80 lakhs. An area of 1,510 ha. is proposed for vegetables at an estimated cost of Rs.7.55 lakhs.

(c) Credit support

It is proposed to arrange the required credit to all the farmers through the financing institutions on the pattern suggested by NABARD, i.e., cyclic financing.

(d) Infrastructure for Input Supply

Input supply centres may be established at convenient places to serve an area with a radius of 10 km., so that all the inputs required by the farmers can be made available within their reach. Rural youth may be involved in handling the inputs, for which an amount of Rs. 400 per unit of 10 tonnes of transaction with a limit of Rs. 2,000 per year is proposed as incentive.

(e) Crop insurance

The risk factor is high in dryland farming due to uncertainty of rains. Crop insurance will cover all the farmers including those who do not take loan from financial institutions.

(B) PHASE-II (second 5 year period)

Lands having slope of above 3% covering an area of 1.51 lakh hectares.

(a) Land treatment (Soil Conservation and Gully Control Structure)

Construction of earthen bunds, stone terraces and check dams to check soil erosion and to prevent gully formation are proposed at a cost of Rs.1500 per hectare. On steeper slopes and for afforestation contour trenching will be taken up.

(b) Crop Improvement

In this category of land slopes, one-third of the area is suitable for raising crops and the rest is suitable for raising minor fruit bearing and economic trees, like Seethaphal. Amla, Jamoon, Soapnut, Tamarind etc., and forest species as well as fodder trees can be raised beside pasture development.

(C) PHASE-III (3rd 5 Year Period)

Phase-III covers the lands with the slope between 1 to 2% and it constitutes about 40% of the watershed area, i.e., 3.02 lakh hectares.

a. Land Treatment

i) Diversion drains and water ways

These works are required for safe disposal of excess run off and estimated cost is Rs. 302 lakhs.

ii) Water harvesting structures

Farm ponds and percolation tanks based on the feasibility and suitability will be formed to store run-off water for the purpose of providing life saving irrigation, water for plant protection measures and recharging ground water. These works cost around Rs. 3,000 per farm pond and from Rs.10,000 to Rs. 30,000 per percolation tank.

iii) Gully control works

Active and one metre and above deep gullies in treated areas will be taken up.

iv) Earthen bunds/Vegetative barriers

Vegetative barriers are proposed for the lands having slope between 1 to 1.5 per cent which constitutes about 50 per cent of the area of 1 to 2 per cent slope i.e., 1.51 lakh ha. An amount of Rs. 1,812 lakhs is required for both the measures.

b. Cropping programme

Eighty per cent of the area under the category of 1 to 2 per cent slope lands is suitable for raising field crops. The programmes suggested for the slopes of upto 1 per cent under Phase-I are proposed even for this category of lands also.

Horticultural crops can be raised in the rest of the 20% area. The fruit crops and the financial assistance are the same as

given under less than 1% sloped lands of Phase I. Estimated costs for both the crops and horticultural programmes is Rs. 2,972 lakhs.

PHASE-IV (4th 5 Year Period)

Under Phase IV, lands having slope between 2 to 3 per cent will be covered in an area of 3.02 lakh hectares.

a. Conservation Works

i) Land Treatment

Formation of diversion drains and water ways, will be taken for safe disposal of excess run off in farm ponds/water courses. Estimated cost is around Rs.302 lakhs.

In order to check soil erosion and gully formation and to conserve moisture, earthen bunds and stone terrace will be formed.

Vegetative barriers will be provided at convenient intervals in between two earthen bunds/stone terraces to serve as key lines for contour/across the slope cultivation and also to conserve soil and moisture.

Land smoothening of inter-bunded area needs to be done at cost of Rs. 300 per hectare. Total cost is around Rs.906 lakhs.

Gully control works and water harvesting structures like check dams, farm ponds and percolation tanks will be taken up as community works.

b. Cropping Programme

Fifty per cent of the area in the lands with 2 to 3 per cent is amenable for cropping programme similar to the programme suggested in phase I.

For the rest of the area, horticultural crops including silvipastural system are suggested.

BENEFITS EXPECTED :

a) Conservation of soil and water which are basic resources for agriculture.

b) There will be an additional production of about 30 per cent with the implementation of crop improvement programmes.

c) Larger uncultivated areas can be brought under cultivation.

d) Year to year production fluctuations can be evened out.

e) Larger areas can be brought under horticultural crops.

f) The entire scenario of agriculture will be improved and hence socio-economic status of the farmers is expected to change.

Funding of the Programme:

a) The funds ear-marked for different types of watershed programmes may be merged and be implemented as a single programme.

b) Centrally sponsored schemes on crop improvement may be dovetailed into the wastershed programmes.

c) Similarly the programmes like D.R.D.A., N.R.E.P., etc. may be made use of.

d) Crop loans, loans to horticultural crops etc., may be made use of by the farmers.

e) The Government participation should be limited to only providing infrastructure facilities and training the rural youth and farmers.

Development of Groundwater Resources

Anantpur district suffers not only from low rainfall and inadequate assured sources of flow irrigation, but also from a paucity of ground water resources. Already half of the known resources have been exploited. Even if the entire potential is utilised, this source may not irrigated more than one-tenth of the cultivated area. It is therefore very essential that this limited resource is used most efficiently.

Strategy and Modalities of Implementation

While the opportunities for development of well irrigation through private investment may continue, the state should wholeheartedly support a massive programme of irrigation of small and marginal holdings.

So far as the well-to-do farmers are concerned, who have the capacity to borrow for their investments, there is no problem and the banking sector may continue to extend them the usual assistance. However, the real problem crops up with the weaker sections. Two alternative strategies are suggested for their benefit. Either the Government may sink wells or borewells or tubewells in the public sector, maintain them and charge the beneficiaries for water on a no profit no loss basis, or the beneficiaries may be encouraged to form groups and financed by banks for group irrigation. While the former strategy will overcome problems in cooperation among the beneficiaries, it is best with reservation in the light of failure of public sector corporations to sustain profitable operations.

The experiment of Government sinking wells or borewells and transferring the ownership of the successful ones to the cultivators (and absorbing the loss on failed wells) as was done in Uttar Pradesh, may be tried in this district.

The Government may have to bring in legislation regulating the use of groundwater. A system of licensing of new wells should be introduced under this legislation.

A more detailed and systematic survey of groundwater potential combining remote sensing with exploration on ground is called for to locate potential areas, specific location and water quality.

Bore wells are cheaper and more productive than open wells. These may be encouraged.

Irrigation loans should also include provision for water lift, land preparation and capitalised crop loan for the first year to change over to irrigated crops.

Watersaving devices such as drips and sprinklers may be propagated. These may be treated as irrigation development measures, rather than as poverty alleviation measures.

Financial Implications and funding

It is estimated that the cost of sinking a well will be about Rs.20,000 each, and would aggregate to about Rs. 105 crores for the district.

Additionally about Rs. 13 crores may be required for pumpsets on an estimated cost of Rs. 5000 per well for 50% of the proposed wells. Additional assistance of 5 crores may be needed for land preparation @ Rs. 1000 per ha. The total investment, excluding crop loans, will thus amount to over Rs. 123 crores.

It is assumed that about 50 per cent of the future wells will be sunk by the medium and large farmers, and half of them only will seek bank finance. Further it is assumed that Government

assistance will be needed only for the remaining wells at 50%, while the remaining amount will be funded by the banks.

Schemes Launched

There are several programmes under implementation which are assisting the development of well irrigation, such as the IRDP, DPAP, Special Foodgrains Production Programme, SC and ST programmes. Million Wells programme, etc. The current level of investments under these programmes is quite substantial.

Production Potential

Benefits of irrigation on crop productivity, employment and mechanisation will depend on the cropping pattern to be adopted.

Additional Action Suggested

i) Ensure optimum use of water through appropriate legislation and licensing system.

ii) Expend, expedite and refine the groundwater surveys at the block and village levels.

iii) Ensure supply of electricity for energisation of pumpsets.

iv) Regulate cropping pattern under irrigation wells to maximise land use intensity and production.

Development of Waste Lands

There are several estimates of the extent of waste lands in Anantapur district. According to National Remote Sensing Agency (NRSA) the following categories of waste land are available for productive use :

a. Degraded forests

b. Land with or without shrubs

Yet another estimate, based on the official publication of the State Government gives data on waste lands as follows :

a. Culturable waste

b. Permanent fallows

c. Miscellaneous tree crops and groves

Due to various reasons the extent of waste lands is increasing while population pressures on land are also on the rise. From the point of view of increasing the economic use of land and also restoration of ecological balance it is necessary to reclaim the waste lands.

Waste lands may be classified into private and Government owned lands and the principal means of their use are afforestation, fodder production and horticultural development. The strategy recommends that suitable programmes may be evolved to achieve this objective.

In view of the profitability of horticulture and the contribution that fruits and vegetables can make to human nutrition, and the ecological value of tree crops, horticulture may be given the highest priority in utilisation of waste lands.

Development of Horticulture

The Government of Andhra Pradesh needs to realise the importance of horticulture in its rural economy and spare no effort in providing resources to the Directorate to enable it to discharge its functions effectively.

In this district, where rainfall is uncertain and deficient, horticultural crops which can withstand drought and at the same time yield much more income than field crops, has a bright future. Permanant fallows and culturable waste may be amenable to this activity. In order to encourage horticulture, Government may give preference in their ground water development programme to support horticulturists. Besides, dryland horticulture may also be encouraged in this district. The NABARD has estimated a potential of 3.26 lakh hectares for horticulture in this district.

Other Aspects that need Consideration

These include :

1. Government and private farms to produce plant material,
2. Agencies for certification of the plant material
3. Supply net work for plant material
4. Marketing system for horticulture products including storage,
5. Food processing industries to convert the produce,
6. Pricing policy for horticultural produce on lines with agricultural produce, and
7. Development of an able extension service to transfer the appropriate technology to the growers

Social and Farm Forestry

Forestry schemes in non-forest areas take their priority after horticulture and fodder. The suggested area to be brought under forestry is approximately 30% of waste lands or 1 lakh ha. in the district.

Assuming that the programme can be completed in 15 years, the average area to be covered per plan period comes to about 7,000 ha. It may be desirable to give importance to fuelwood and small timber plantation in this district.

Fodder and Pasture Development

This district does not hold much promise for dairying industry, because of inadequate water resources. The spread of natural resources suggest a concentration of dairying in the northern regions (1 and 2) and sheep and goat rearing in the other regions (3 to 5). Accordingly, the strategy for fodder development should also be to encourage fodder farms in the dairying region and pastures in the other parts of the district.

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