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Research Papers

Cropping pattern and land Utilization in Solapur District

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ABSTRACT

At the aggregate district level the agrarian pattern of Solapur district is more or less concentrate in terns of land Utilisation pattern, cultivable area and the gross cropped area between two points of period i.e. 1990-91 to 1997-98

It is clear from the table numbers 5.1,5.2,5.3,5.4,5.5 and 5.6, that : -

1) Remaining the net sown area constant between 1991 to 1997 at the level of 11000 hectares, the gross cropped area had slightly decreased from 12074 hectares to 11315 hectares (Table No 5.1)
2) Area irrigated under the source of wells showed increased from 1474 hectares to 1788 hectares and under sources of surface i.e. from 472 hectares to 532 hectares between 1991 to 1997. As a result, the irrigation intercity had increased i.e. oil engine, electric pumps had shown substantial increase (Table No 5.2)
3) Although the cropping pattern of the district remains constant the area under vegetable and sugarcane has increased substantially i.e. sugarcane from 497 hectares to 535 hectares.
4) The cropping pattern i.e. the area under cereals increased from 990 hectares to 1229 hectares between 1991 to 1997 where as area under sugarcane had increased from 497 hectares to 535 hectares.
5) The most serious matter is the decrease in the productivity of all crops i.e. food grain as well as cereals except the yields of sugarcane, which showed an increase from 68162 kg. Per hectare to 73261 kg. Per hectares between 1991 to 1998

Table No.5.1
Land Utilization Pattern
(Area in Hectares)

Year	Total geographical Area	Barren and Unalterable land	Cultivable Waste	Current Fallows	Other Fallows	Net area Sown	Area sown more than once	Gross cropped area
1990-91	14895.00	701.00	279.00	1098.00	659.00	11450.00	624.00	12074.00
1997-98	14895.00	634.00	326.00	1500.00	944.00	10558.00	757.00	11315.00

Source - Agricultural Data Base (2001-01)

Table No. 5.2
Area Irrigated By Different Sources.

ear	No of electric Pumps of Agriculture		No of Tube wells		No of domestic wells		Area irrigated (in hectares)		Area irrigated more than once	Gross Area irrigated	% of Net area Irrigated to net area sown	% Of gross irrigated to gorss cropped area
	Oil Engines	Electric Pumps	Govt.	Private	In Use	Not in Use	Well	Surface				
990 to 991	6771	65936	370	492	469	5441	1474	472	337	2 283	17%	18.91%
997 to 998	8817	89011	1518	5487	712	6864	1788	532	353	2 673	21.97%	23.62%

Source – Agricultural Data Base year, 2000-2001.

Table No. 5.3
Total Cropped Area Under Different Crops
(Area in Hectares)

ear	Total Cropped Area	Total Food Crops	Cereals				Pulses				Total Cereals	Total Pulses	Sugar cane
			Rice	Wheat	Jawar	Jawar	Chana	Mung	Tur	Udid			
90 to 991	12074	10017	40.00	450.00	65.00	7108.00	339	30	401	17	8201.00	1108.00	497.00
97 to 998	11315	9855	22.00	444.00	13.00	6936.00	329	30	341	30	7960.00	997.00	535.00

Source – Agricultural Data Base year, 2000-2001.

Table No. 5.4
Gross Irrigated Area Under Different Crops.
(Area in Hectares)

	Gross irrigated Agra	Total Food Crops	Cereals				Pulses				Total Cereals	Total Pulses	Sugar cane
			Rice	Wheat	Jawar (K)	Jawar (R)	Chana	Tur	Mung	Udid			
	2283.00	1764	34.00	213.00	14.00	593.00	74.00	5.00	-	-	990.00	79.00	497.00
	2673.00	2246	11.00	391.00	8.00	674.00	122.00	21.00	1.00	1.00	1229.00	14.00	535.00

Source – Agricultural Data Base year, 2000-2001.

Table No. 5.5
Total Food-grains Production of Different Crops.
(In Metric Tonnes)

r	Total Food -grains	Cereals				Pulses				Total Cereals	Total Pulses
		Rice	Wheat	Jawar (K)	Jawar (R)	Chana	Tur	Mung	Udid		
1991	5147.00	35.00	480.00	55.00	3796.00	168.00	98.00	8.00	3.00	4366.00	277.00
1998	2549.00	24.00	355.00	13.00	1497.00	116.00	37.00	10.00	14.00	1889.00	177.00

Source – Agricultureal Data Base year, 2000-2001.

Table No. 5.6
Avearage Yield Rates of Different Crops
(In Kg Per Hectare)

r	Total Food Grains	Total Cereals	Cereals				Pulses				Sugar Cane
			Rice	Wheat	Jawar (K)	Jawar (R)	Chana	Tur	Mung	Udid	
1991	552.91	579.93	875.00	1066.67	846.15	534.05	495.58	244.39	266.67	176.47	68162.98
1998	284.58	290.33	1090.91	799.55	1000.00	215.83	352.58	108.50	333.33	466.67	73261.68

Source – Agricultural Data Base year, 2000-2001.

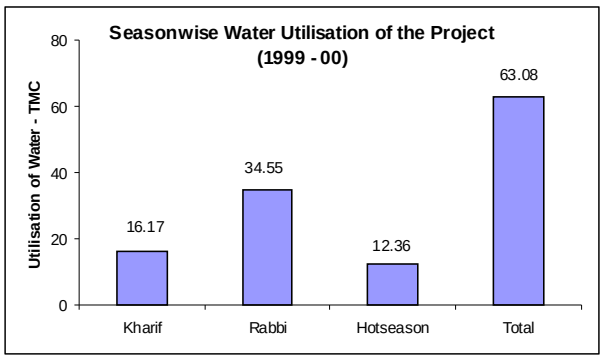
V.2 Potential created and Its Utilisation.

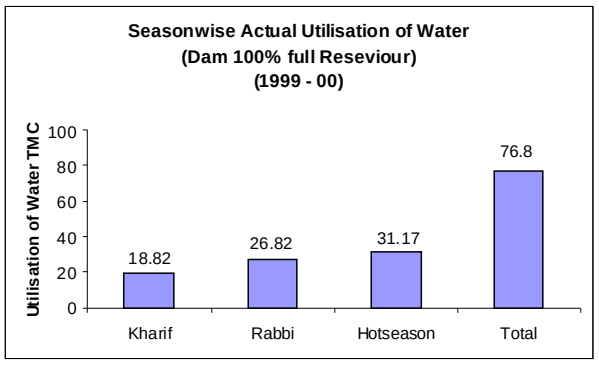
Table No. 5.7
Yearwise Total Potential Created and Total Utilisation of the Bhima (Ujjani) Project in Solapur District ,Under CADA Since 1980 -81 to 2000-2001
(AREA IN 000 Ha)

Year	Potential Created	Potential Utilised	Gap in potential Created & Utilised	% of Utilisation
1980-81	23,367	14,478	8,889	61.96
1981-82	32,564	15,107	17,487	46.39
1982-83	40,763	20,327	20,436	49.15
1983-84	55,981	24,717	31,264	43.15
1984-85	81,001	32,247	48,754	39.81
1985-86	93,893	41,582	52,311	44.29
1986-97	1,02,172	56,667	45,505	55.46
1987-88	1,09868	65,218	44,650	59.36
1988-89	1,17,052	82,499	34,553	70.48
1989-90	1,21,426	91,543	29,883	75.39
1990-91	1,40,828	92,628	48,200	65.77
1991-92	1,69,050	96,053	72,997	56.82
1992-93	1,65,817	1,07,800	58,017	65.01
1993-94	1,73,271	1,45,981	27,290	84.25
1994-95	1,72,745	1,69,402	3,343	98.06
1995-96	1,74,106	1,51,672	22,434	87.11
1996-97	1,88,836	1,67,277	21,559	88.58
1997-98	2,16,199	1,60,785	55,414	74.37
1998-99	2,34,938	1,44,659	90,279	61.57
1999-00	2,36,731	1,71,211	65,520	72.32
2000-01	2,41,799	1,38,578	1,03,221	57.31
Total	**28,92,407**	**19,90,431**	**9,01,976**	**68.82**

Source compiled by the Researder and CADA Irrigation Department Solapur, 2004.

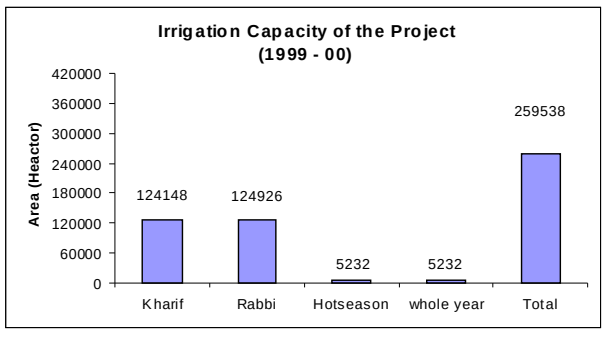
V.2 (A) Utilisation of Irrigation Potential

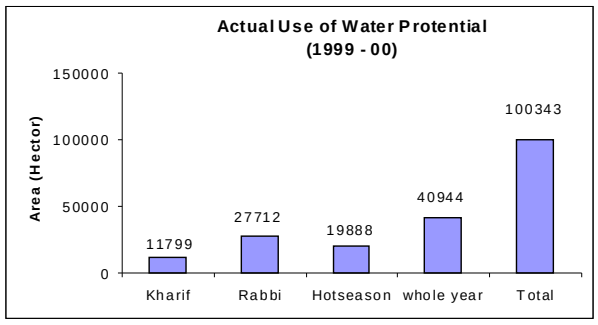




Source - CADA Irrigation Department year, 2004

V.2 (B) Utilisation of Irrigation Potential





Source - CADA Irrigation Department year, 2004

V. 3 The Performance Indicators Of CADA Irrigation Department in Solapur.

The over all performance of Bhima Ujjani project under CADA Solapur could be analyses with the help of the Bench Marking Survey of the irrigation projects undertaken by irrigation department Govt. of Maharashtra for the year 2004. This is very important document showing the continuous improvement of the measurement of performance of the major, medium, and minor irrigation project. This is the Third Consecutive Report Bench Marking in the state with total number of 261 projects with 12 indicators.

The Bhima (Ujjani) Dam comes under the CADA Solapur of western Maharashtra region. The following 12 indicators are selected for Bench Marking Survey.

1) Annual Irrigation water supply per unit irrigated area.
2) Potential created and utilised.
3) Out put (Agri: production) per unit irrigated area.
4) Out put (Agri: production) per unit irrigation water supply.
5) Cost Recovery Ratio.
6) Total Operation and maintenance cost per unit Area.
7) Total Operation and maintenance cost per unit volume of water supplied.
8) Revenue per unit volume of water supplied.
9) Man days for Operation and maintenance per unit area.
10) Land damage index.
11) Equity performance
12) Assessment Recovery Ratio
A) Irrigation
B) Non-Irrigation

It is clear from the above table that the area all performance of Bhima Ujjani project under CADA Solapur is fair particularly, the performance of the indicators such as number III, V and VII is very good. It implies that the agriculture out put per irrigation area as substantially increased as a result the cost recovery ratio has improved.

The following tables describe the performance of Bhima Ujjani project under CADA with help of 12 indicators mentioned as above. The performance of project for the five years average of each indicator can be said as sign of good performance.

TABLE 5.8
The following table shows the performance indicators of CADA Solapur in Comparison with the other major irrigation project for the year 2004.

At a glance evaluation of performance of irrigation Circles (Service providers) for 2003-04												
Plan Group	Circle	Indicator Number										
		I	II	III	IV	V	VI	VII	VIII	IX	X	XII Irr	XII NI
Deficit	A/C Akola	VG	F	G	G	F	F	M	F	F	VG	VG	VG
	CADA Aurangabad	M	F	F	F	VG	F	G	G	F	F	F	VG
	CADA Beed	F	F	F	F	VG	F	F	VG	F	F	F	F
	CADA Jalgaon	F	F	F	F	VG	F	VG	F	F	VG	F	F
	NIC Nanded	M	G	G	VG	F	F	M	F	F	M	F	F
	NIPC Dhule	F	M	VG	VG	VG	VG	VG	M	F	VG	VG	G
	UWPC Amravati	G	G	F	F	M	F	VG	F	VG	VG	F	VG
Normal	A/C Akola	M	VG	F	F	VG	M	VG	F	F	VG	VG	VG
	CADA Ahmednager	G	VG	F	F	M	G	VG	F	F	M	F	F
	CADA Aurangabad	M	G	VG	VG	F	F	VG	F	F	G	F	F
	CADA Jalgaon	F	VG	VG	VG	VG	F	VG	VG	F	VG	F	F
	CADA Nashik	F	G	VG	F	VG	F	VG	VG	F	F	M	M
	CADA Pune	M	G	G	VG	F	G	VG	F	F	VG	F	F
	CADA Solapur	**M**	**F**	**VG**	**G**	**VG**	**F**	**VG**	**F**	**F**	**F**	**F**	**M**
	CIPC Chandrapur	F	VG	F	F	F	F	F	F	VG	F	F	F
	NIC Nagpur	F	F	F	F	VG	VG	VG	G	VG	F	F	F
	PIC Pune	F	VG	M	F	VG	G	VG	G	VG	F	F	G
	UWPC Amravati	F	F	VG	F	VG	G	VG	F	F	VG	F	G
	YIC Yavatmal	M	F	F	F	F	F	G	F	F	VG	F	VG
Surplus	CADA Nagpur	G	VG	M	M	VG	M	VG	F	VG	F	F	G
Abundant	CADA Pune	F	VG	F	G	VG	F	VG	F	VG	F	F	F
	CIPC Chandrapur	F	VG	G	VG	F	F	VG	F	VG	VG	F	F
	KIC Kolhapur	F	G	VG	VG	VG	VG	VG	F	VG	F	F	F
	TIC Than	F	F	VG	F	VG	F	VG	VG	F	VG	F	VG

VG = very Good, G = Good, M= Moderate, F = Fair

Note: The performance is very much affected by availability of water in the reservoirs, which is dependent on rainfall in the year.

Source: Bench marking survey Report of Irrigation Department.Govt. Of Maharashtra March 2004

TABLE No. 5.9
The Performance Indicators and Average Unit of Measuarement as per Bench Marking Survey Report Since 2003-04

No	Performance Indicators	Unit of Measurement	Five year Average	2003 to 2004	Maximum Average	Minimum Average
1	Annual irrigation water supply per unit of irrigation area.	TQW / Irrigated area	119119	11397	16504	6228
2	Potential created and utilized.	Potential Created / Potential Utilised	0.33	0.15	0.10	0.36
3	Agricultural production per unit irrigated area.in Rs	Total Rs. / Total Irrigation Area	7311	0	11928	4469
4	Agricultural production per unit irrigation water supply.	Value of Agri.prodn. from Irrigation Area / Total quantity of water.	3.31	3.63	4.77	2.52
5	Cost recovery ratio.	Water charges(Rs.) / Cost service	0.05	0.00	0.10	0.00
6	Total operation and maintenance cost per unit area.	Value of agricultural products in Rs. / Total quantity of water.	602	1625	846	393
7	Total operation and maintenance cost volume of water supply.	Total O/M in Rs. / Area irrigated	0.03	0.06	0.7	0.3
8	Revenue per unit volume of water supply.	Total revenue(Rs.) / Total water supply.	0.06	0.00	0.34	0.01
9	Man days for operation and maintenance per unit area.	In man-days	3	8	3	2
10	Land damage index	Percentage of land damage irrigation potential created	4.05	7.93	7.23	2.91
11	Equality performance.	Total area irrigation / Projected irrigable area X 100.	0.41	0.43	-	-
12	Recovery ratio:- a) Irrigation b)Non irrigation.	-	0.85 0.65	0.16 0.74	1.00 0.97	0.50 0.97

Source: - Bench mark survey report irrigation department of Maharashtra March -2004.and compiled by the Researcher.

The following conclusion can be drawn from the above table

1) The water supply position has improved at the average indicators level of 11919 from the minimum level of 6228.
2) The ratio of irrigation potential and actual area created was at the level of 0.33 which can be described as normal.
3) The agricultural output per unit of irrigated area was to the tune of Rs.7311 for five years average.
4) It is very important to note that the agricultural production has improved from minimum level of 2.52 to 3.31 for the five years average.
5) The cost recovery ratio was at minimum level.
6) The revenue per unit volume of water supplied has marginal increased.
7) The land damage index is a serious matter of concerns which is at the highest level of 7.93 for the year 2003 to 2004.
8) In brief the Bhima Ujjani project has tremendous scope for improvement depending upon the availability of rains. It has very solid base of engineering infrastructure and very efficient operation and maintenance system.