सत्यमेव जयते

Report On
BENCHMARKING OF IRRIGATION PROJECTS IN MAHARASHTRA
2006-07

WATER RESOURCES DEPARTMENT

Government Of Maharashtra, India

March 2008

REPORT ON
BENCHMARKING OF IRRIGATION PROJECTS
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Water Resources Department
Government of Maharashtra, India
March 2008

FOREWORD

In compliance to commitment in State Water policy about transparency in water use and to identify the areas of problems in seeking objective set in the project planning, Benchmarking of selected 262 projects in the State is in practice since last 4 years.

Use of Benchmarking no doubt has conferred success in elevating the performance level of irrigation projects. Increase in potential utilization from 1.685 Mha. to 2.681 Mha. and revenue recovery from Rs. 413 crores to 494 crores is the significant the achievement of Water Resources Department during last two years.

More improvement in project performance can be attained if results obtained by Benchmarking are systematically utilised for framing and implementing the project wise action plan.

In near future, there will be a shift of irrigation Water Management from Water Resources Department to Water Users Associations. Naturally, benchmarking of WUA shall be also helpful for performance evaluation and creating awareness amongst water management staff and office bearers of WUA's.

Lastly, I appeal all project authorities to use Benchmarking as an effective management tool to improve the current performance level of the irrigation projects.

I appreciate sincere efforts taken by Shri R.B. Shukla, Chief Engineer, MWRDC, Aurangabad and his team for preparation of this report.

I would like to express thanks to Director General, WALMI, Aurangabad for getting this report printed at Aurangabad.

Comments & suggestions on this report will be appreciated.

E. B. Patil
Secretary (CAD)

Maharashtra Water Resources Development Centre, Aurangabad

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S

Avg Per	Average performance
BCM	Billion Cubic Metre
CAD	Command Area Development
CBIP	Central Board of Irrigation & Power
CCA	Culturable Command Area
CRT	Converted Regular Temporary
DIRD	Directorate of Irrigation Research & Development
FAO	Food & Agriculture Organisation
FY Avg	Five years average
GCA	Gross Command Area
GOI	Government of India
GOM	Government of Maharashtra
ha	Hectare
HW	Hot weather
ICID	International Commission on Irrigation & Drainage
IMD	Indian Meteorological Department
INCID	Indian National Committee on Irrigation & Drainage
IPTRID	International Programme for Technology and Research in Irrigation and Drainage
IWMI	International Water Management Institute
m	Metre
M cum/ Mm^3	Million Cubic metre
Mha	Million Hectare
MKVDC	Maharashtra Krishna Valley Development Corporation
MWSIP	Maharashtra Water Sector Improvement programme
MMISF ACT	Maharashtra Management of Irrigation System by farmers Act 2005.
mm	Millimetre
MWIC	Maharashtra Water & Irrigation Commission
NLBC	Neera Left Bank Canal
NRBC	Neera Right Bank Canal
O & M	Operation & Maintenance
Past Max	Maximum value observed in Past
Past Min	Minimum value observed in Past
PIM	Participatory Irrigation Management
PIP	Preliminary Irrigation Programme
PLBC	Paithan Left Bank Canal
PRBC	Paithan Right Bank Canal
PWD	Public Works Department
Sq km	Square Kilometre
State Tar	State target

WALMI	Water and Land Management Institute, Aurangabad
WRD	Water Resources Department
WUA	Water Users' Association
ISP	Irrigation system performance
AIC Akola	Akola Irrigation Circle, Akola
BIPC Buldhana	Buldhana Irrigation Project Circle, Buldhana
CADA A'bad	Command Area Development Authority, Aurangabad
CIPC Chandrapur	Chandrapur Irrigation Project Circle, Chandrapur
JIPC Jalgaon	Jalgaon Irrigation Project circle, Jalgaon
KIC Ratnagiri	Konkan Irrigation Circle, Ratnagiri
NIC Nagpur	Nagpur Irrigation Circle, Nagpur
NIC Nanded	Nanded Irrigation Circle, Nanded
NIPC Dhule	Nashik Irrigation Project Circle, Dhule
NKIPC Thane	North Konkan Irrigation Project Circle, Thane
PIC Pune	Pune Irrigation Circle, Pune
SIC Sangli	Sangli Irrigation Circle, Sangli
TIC Thane	Thane Irrigation Circle, Thane
UWPC Amravati	Upper Wardha Project Circle, Amravati
YIC Yeotmal	Yeotmal Irrigation Circle, Yeotmal

C O N T E N T S

CHAPTER - 1

INTRODUCTION

1.0.0 Benchmarking is a very powerful management tool for analysing and improving the performance of water resources projects. It is widely accepted all over the World. IPTRID, IWMI, ICID, World Bank & FAO advocate use of benchmarking – since 2000.

For evaluation and improvement in performance of water resources projects, Government of Maharashtra has undertaken the benchmarking exercise in the State since 2000-01. The first Benchmarking Report was published in 2001-02.

Considering a shift in Irrigation Water Management from Water Resources Department to Water User's Associations in near future, to secure the advantages of benchmarking, benchmarking of WUA'S was under consideration for last two years. To set an example before the field officers, an attempt in the form of benchmarking of selected 13 WUA'S on 8 major projects under different 6 Irrigation circle has been initiated from this year. Details about objectives, indicators selected, proformae framed for calling information of WUA, indicator values procurred etc is given in detail in chapter 6 of this report. This will be helpful to field officers and office bearers of WUA'S official for improving the performances of their WUA'S.

Maharashtra is the first State in India, which has introduced the Benchmarking technique for Irrigation Projects & now with our experience and CWC's follow-up other States are also adopting it.

The methodology and main performance Indicators for Benchmarking are adopted as per the guidelines issued by Indian National Committee on Irrigation & Drainage (INCID) in 2002.

The year wise indicators selected for benchmarking since 2001-02 alongwith their Domain are enlisted below:-

Year	Domain	Performance Indicator
2001-02	1. System Performance	i) Annual irrigation water supply per unit irrigated area
	2. Agricultural Productivity	i) Output per unit irrigated area, ii) Output per unit irrigation supply

	3. Financial Aspects	i) Cost Recovery Ratio ii) Total O&M cost per unit area iii) Revenue per unit volume of water supplied iv) Maintenance cost to revenue ratio v) Mandays for O&M per unit area vi) Total O&M cost per unit volume of water supplied
	4. Environmental Aspects	i) Land damage index
2002-03	1. Deleted Indicator	Maintenance Cost to Revenue Ratio
	2.Additional Indicators	1. Potential Created and Utilised Equity Performance
2003-04	Additional Indicator	Assessment Recovery Ratio a. Irrigation b. Non-irrigation
2004-05	No Change	
2006-07	1 Deleted	Mandays per unit area

Initially, the exercise was conducted for 84 projects in 2001-02 with 10 indicators. The number of projects was increased to 254 in 2002-03 with 11 indicators. Instead of presenting the data of all these projects individually, an irrigation circle was considered as a unit for evaluation of performance. Here also, it was observed that some of the characteristics of projects under a circle are not identical and to make the comparison still on better grounds, from the year 2003-04, projects under a circle in a sub basin are grouped together and comparison is made with other projects in a particular plan group.

In carrying out the Benchmarking exercise, following categorization of irrigation schemes into similar types have been done for comparison.

a)	Type of control for Supply of water	Fixed proportional division, manual control, automatic control "Manual Control" is applicable in this Benchmarking Exercise.
b)	Method of allocation and distribution of water.	Supply-oriented arranged-demand, on demand The method applicable in this case is "on-demand."
c)	Water Availability	Abundant, Scarce. Highly deficit to Abundant.
d)	Water Source	Surface water, groundwater or both. Surface water is applicable
e)	Size	Major, Medium, Minor. All sizes applicable

Details of year wise benchmarking of irrigation projects is mentioned below.

Year:	**No. of Projects.**				**No. of Indicators**	**Year of publication**
	Major	**Medium**	**Minor**	**Total**		
2001-02	30	26	28	84	10	March 2003

2002-03	49	142	63	254	11	March 2004
2003-04	49	143	69	261	12	March 2005
2004-05	49	144	69	262	12	February 2006
2005-06	49	144	69	262	12	March 2007

1.1.0 Maharashtra at a glance

Map of India showing location of Maharashtra State

Maharashtra occupies main portion of the Indian Sub-continent. The geographical location of Maharashtra is bounded between latitude 16.4° to 22.1° N and longitude 72.6° to 80.9° E and has an area of 307.71 thousand sq km, which is about 9.4 percent of the total geographical area of India. Maharashtra stands first amongst the major states in India in income & growth rate. The State has 720 km long coastline along Arabian Sea. The western hill ranges are almost parallel to this coastline. The State is divided into two physiographic regions of Konkan and rest of the State (Deccan Plateau). The Deccan Plateau spread over on the east side of *ghat* has west-east slope. In general, the altitude of the plateau varies between 300 to 600 m. Maharashtra has Gujarat on north-west, Madhya Pradesh in north, Chhattisgadh on east and Andhra Pradesh, Karnataka and Goa in south.

1.2.0 Physiography

The State is divided into five major regions physiographically:

i) Konkan strip on western side (ii) Sahyadri ranges iii) Plateau on eastern side (iv) Hilly ranges of Satpuda and adjacent area on north and (v) Hilly and forest region of north-south Wainganga basin on East side of State.

1) Konkan Strip

The narrow strip of land extending from Damanganga basin in north to the border of Goa State in south is the Konkan. It has Sahyadri ranges on east and Arabian Sea on west. The Konkan strip is about 53 to 60 km wide and 500 km long along north-south. The widest stretch is about 100 km. Width decreases as one proceeds towards south. The region becomes hilly and altitude increases from the depressed coastline towards east.

2) Sahyadri Ranges

These continuous mountain ranges extend almost parallel to the western coastline. It is known as Western *Ghat*. The average height of Sahyadri in Maharashtra is 900 m. It is more in the north and diminishes towards south.

3) Eastern Plateau Region (Deccan Plateau)

The height of this plateau goes on diminishing from 600 m on western side to 300 m in the Wainganga basin on east. This region is formed from lava of igneous rocks. All the districts of Khandesh[1], Marathwada[2], Western Maharashtra and the western districts of Vidarbha[3] fall in this region.

4) Satpuda Ranges and Tapi – Purna basin on North

Satpuda hill ranges lie on the northern boundary of the State. This region is spread over in the districts of Amravati, Akola, Jalgaon and Dhule.

5) Eastern Region Consisting of Wainganga basin

Eastern region comprises of eastern side of the State and flat paddy field region lies along both the banks of the river at an elevation of about 300 m. On the eastern side of this flat region along the Maharashtra - Chhattisgadh boundary are the hills of different geological formations other than the Deccan Trap. Many eastern tributaries of Wainganga originate from this hill range. The height of this hilly plateau is around 800 m.

Detailed information with regard to river basins, availability of water resources, climate, rainfall, agro climatic zones, etc of Maharashtra is given in Appendix-VII

1.3.0 Rainfall during 2006-07

Rainfall during 2006-07 the state received rains from South West monsoon from 31st May 2006 which remained active expect A'nagar, Jalgaon, Dhule district up to 6th June 2006. A gap in rainfall was observed till 17th June 2006. Afterwards it is again active in all over the state in July 2006. Some part of the state experience heavy rainfall & flood situation.

But Latur & Osmanbad district in Marathawada region experience less rainfall. The intensity of the monsoon reduced from 1st fortnight of Oct.2006 and finally ended on 18th Oct. 2006. Average rainfall in the month of June to September and October 2006 is 117.55 % & 93% respectively.

[1] Khandesh includes Dhule, Nandurbar & Jalgaon districts
[2] Marathwada includes Aurangabad, Jalna, Parbhani, Nanded, Osmanabad, Latur, Hingoli & Beed districts
[3] Vidarbha includes Akola, Washim, Amravati, Yeotmal, Wardha, Nagpur, Bhandara, Gondia, Chandrapur, Buldhana & Gadchiroli districts.

In the year 2006 the monsoon rainfall 17.3% above the average rainfall. Only Bhandara district experience the less rainfall than average.

35 talukas out of 355 talukas average scanty (41% to 80%) in 67 taluka 81% to 100% in 91 talukas 100% to 119% whereas in 162 talukas it is more than 120% than average.

1.4.0 Irrigation Development during Post-independence Period

Maharashtra State as of today came into existence in 1960. The increasing population was facing shortage of food grains. This has led to the need of increasing agricultural production. By giving priority to agricultural development, attempt has been made to achieve irrigation development in a planned manner.

Hardly, 0.274 Mha, irrigation potential was created in the State during pre-plan period i.e. before 1950. Agriculture has been the prominent occupation to provide food and fiber to the growing population of the State. Adequate, timely and guaranteed water supply is of paramount importance in agriculture production and irrigation development plays a key role in alleviating rural poverty. The State has created 4.132 Mha irrigation potential using surface water resources by June 2007 through 54 major, 222 medium and 2726 state sector minor irrigation projects. The ultimate irrigation potential, through surface water and ground water resources, has been estimated as 12.6 Mha.

1.4.1 Supply System

Generally supply of water for irrigation is through distribution network of canals off-taking either from dam or from pick-up-weir. The distribution network consists of main canal, branch canal, distributary, minor and field channels. The open canals are either lined or unlined, but mostly the systems are unlined.

Water is supplied to irrigators via distribution network through outlets. In addition, there are individual, co-operative, Govt. owned lifts on reservoirs, rivers and canals. Normally there is major area under gravity irrigation and small part under lift irrigation in most of the projects. Some projects are specially lift irrigation projects with storage reservoir or storage reservoir with series of Kolhapur type weirs downstream of reservoir. In most of the major & medium irrigation projects, water reserved for non irrigation (domestic and industrial) use varies between 15 % to 25 %. While in deficit years the non-irrigation use in projects goes even up to 50%.

The supply of water for domestic and industrial purpose is mostly made through pipeline either from reservoir or from river.

The projects selected for benchmarking are having major area under flow irrigation with small percent under lift irrigation. The lifts are on main canals as well as reservoirs. Most of the medium projects selected supply irrigation water for eight months i.e. monsoon Kharif and Rabi and very small proportion for Hot Weather or for perennial crops. There is a tendency amongst farmers to use the water saved in Kharif and Rabi season for Hot weather or Perennial crops.

1.4.2 Present Organisational Set up

The organisational set up for irrigation management comprises of section office at the lowest level looking for an area of about 3000 to 4000 ha. The section office is headed by a sectional officer having staff for O & M of the area. The subdivision dealing with four to five sections is headed by Executive Engineer, AE-I, sub divisional officer/engineer and works under the control of division. Thus the division is looking after four to five subdivisions with sixteen to twenty five sections and headed by the Executive Engineer in charge of the irrigation projects. The management circle headed by the Superintending Engineer controls three to four divisions. The regional head of the Superintending Engineers (four to five circles) is either Chief Engineer or the Chief Administrator in case of CAD projects.

The Superintending Engineers in-charge of irrigation circles are responsible for full utilisation of the water stored in reservoir and maintenance of public utilisation system, as well as recovery of water charges through their subordinate offices. The organisation chart of department is enclosed herewith.

1.4.3 Crops Irrigated

The crops grown vary significantly within the regions & projects laying therein. Details of principle crops grown in different regions are categorised plangroup wise and shown as below.

Region	Plan group	Principle crops grown
Eastern Vidarbha	Abundant & Surplus	Kharif Paddy, HW Paddy
Western Vidarbha	Normal	Cotton, Wheat, Gram, Sunflower, Orange
Marathwada	Normal & Deficit	Cotton, Wheat, Gram, Sunflower, G.nut, Sugarcane, Banana

Central Maharashtra	Normal	Rabi Jawar, Maize, Wheat, Bajara, Cotton, Vegetable, Grapes, Sugarcane, Banana
Western Maharashtra	Normal & Abundant	Maize, Wheat, Vegetable, Sugarcane,
Konkan	Abundant	Paddy, Vegetable

1.4.4 Management of Systems

The irrigation systems are constructed and mostly managed by the Government. Operation and maintenance of irrigation projects is looked after by irrigation divisions, which are administratively controlled by circle office. GOM has taken a policy decision to supply water for irrigation through Water Users' Associations only. Accordingly the MMISF Act is passed by the Government in year 2005. Formation of Water Users' Associations in command areas of irrigation projects is in progress. Irrigation management of area under their jurisdiction is being transferred to them. Recently, a major project Waghad in North Maharashtra region is handed over to Federation of WUAs for irrigation management.

The National Productivity Council, New Delhi under Ministry of Commerce and Industries, GOI has awarded National Productivity Award for 2000-01 & 2001-02 to Waghad & Katepurna projects in the State. Similarly Pench & Shekdari projects were awarded the National Productivity Award for 2002-03 & 2003-04.

To corborate the process of handing over the culturable command area (668850 ha) of selected 285 projects to the WUAs within stipulated time frame, Maharashtra Water Services Improvement Project has been taken up with the help of World Bank

1.4.5 Area under modern irrigation methods

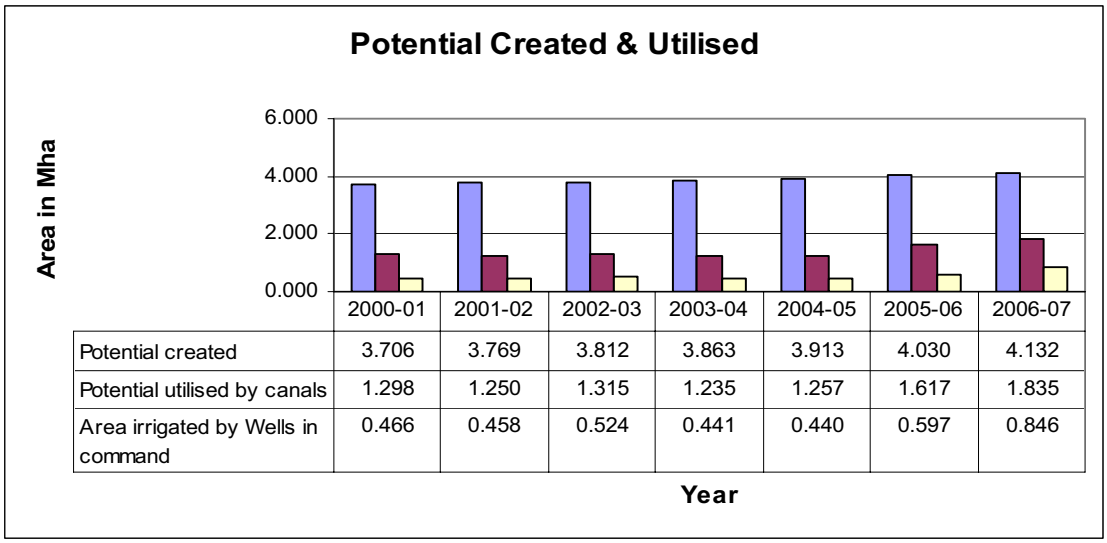
Area under drip & sprinkler irrigation in the State by March 2007 was 3.83 Lakh ha. and 1.68 lakh ha. respectively. The region wise area under drip irrigation is as follows:

Sr.No.	Region	Area under Drip irrigation in ha. (up to March 2007)	Percentage
1	Konkan	10202	2.66
2	Nashik	162334	42.37
3	Pune	96713	25.29
4	Aurangabad	64501	16.84
5	Amravati	43098	11.25
6	Nagpur	6275	1.64
Maharashtra State		383123	100

Out of 383123 ha under drip irrigation, Max. area is in Nashik (42.37%). Drip irrigation is applied to Banana, Grapes, Sugarcane, Oranges, Pomogrenade, Cotton, Mango & Vegetable crops. Out of 383123 ha, the area under Banana (80449 ha) & grapes, (70749 ha) is remarkebly high.

1.5.0 Present Status of Irrigation Utilisation

In spite of various measures taken so far, there is a gap between potential created and actual utilised.



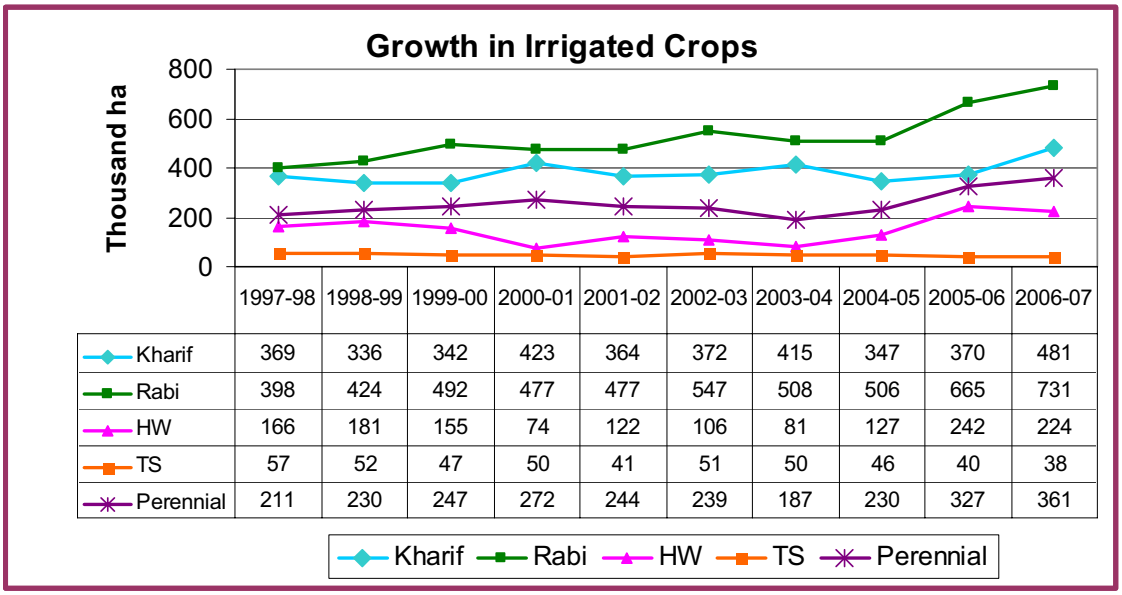
	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Potential created	3.706	3.769	3.812	3.863	3.913	4.030	4.132
Potential utilised by canals	1.298	1.250	1.315	1.235	1.257	1.617	1.835
Area irrigated by Wells in command	0.466	0.458	0.524	0.441	0.440	0.597	0.846

The overall reasons for less utilisation are as follows:

i) Low water yield in the reservoirs ii) Diversion of irrigation water to non-irrigation uses iii) Tendency of farmers to grow cash crops which are highly water intensive like sugarcane, banana iv) Low utilisation during kharif (Rainy) season v) Reduction in storage capacity due to silting vi) Lapses in assessment of the irrigated area in the command vii) Non accounting of irrigated area outside the command (influence area) viii) Poor maintenance of the infrastructure due to financial constraints ix) Non participation of beneficiaries in irrigation management.

Yearwise data of potential created and actual utilisation is exibited above. From this information, it is clear that till the year 2004-05, actual maximum utilisation (canal+wells) was 48% of the potential created. Under utilisation has always remained a point of concern. Therefore, based on past experience, a special drive was taken at State level during the year 2006-07, in which circlewise targets for potential utilisation were fixed. Field officers tried their level best to achieve the set goals. As a result, total actual potential utilisation has raised to 2.781 Mha (67% of potential created).

Details about yearwise, Seasionwise area irrigated is given below.



	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07
Kharif	369	336	342	423	364	372	415	347	370	481
Rabi	398	424	492	477	477	547	508	506	665	731
HW	166	181	155	74	122	106	81	127	242	224
TS	57	52	47	50	41	51	50	46	40	38
Perennial	211	230	247	272	244	239	187	230	327	361

From the above table, it is seen that, due to satisfactory rainfall in most of the parts in the State, area irrigated in Kharif season is low compared to last year (2004-05) but there is striking increase in area under Rabi & HW, Perennial in particular. Overall increased in area under HW & perennial crops at State level has helped in enhancing the output per unit irrigated area.

1.6.0 Participation of Beneficiaries in Water Resources Management

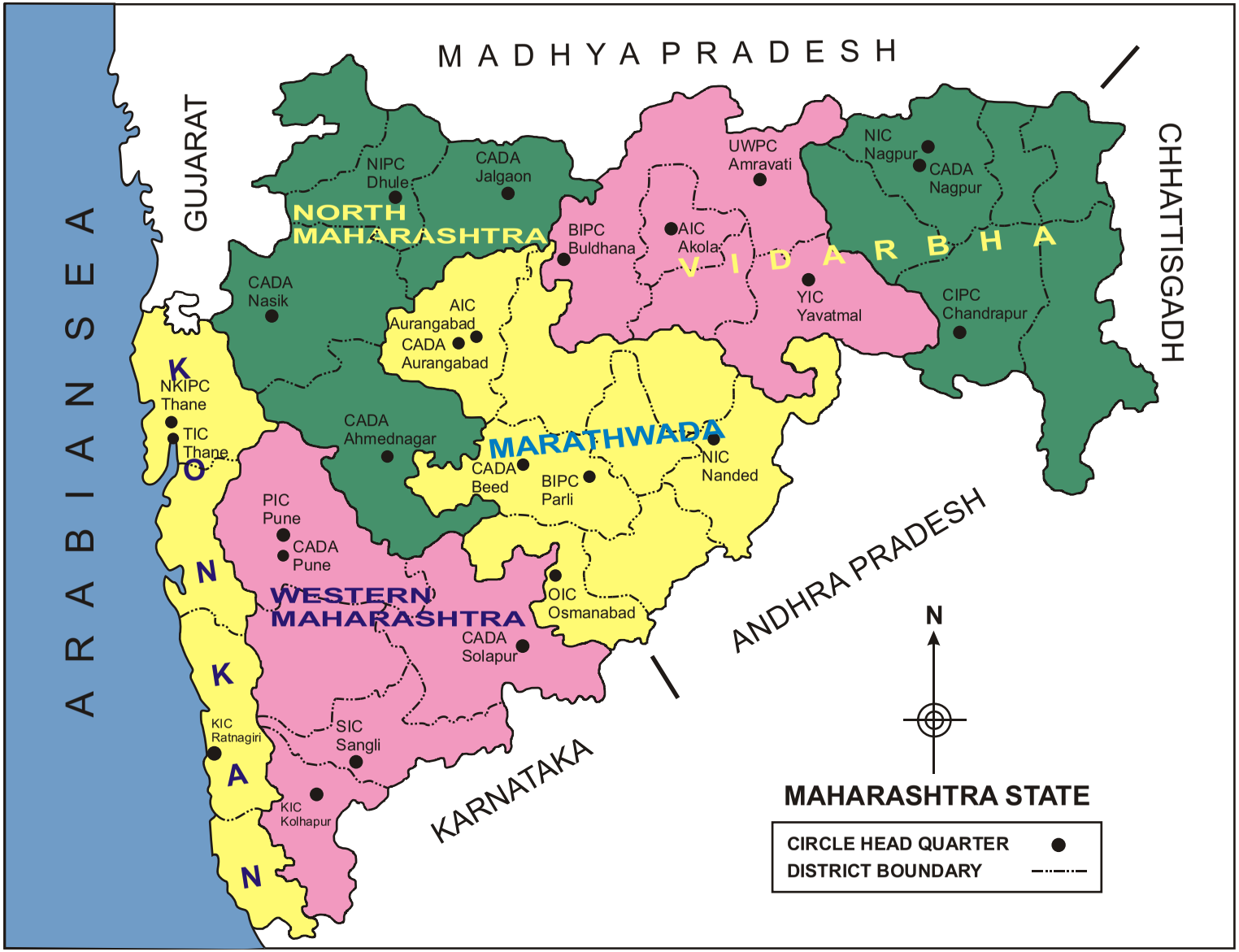
National Water Policy 2002 and Maharashtra State Water Policy advocate participatory irrigation management. In view of these, water users associations were setup in command areas of various projects in different parts of the State. By the end

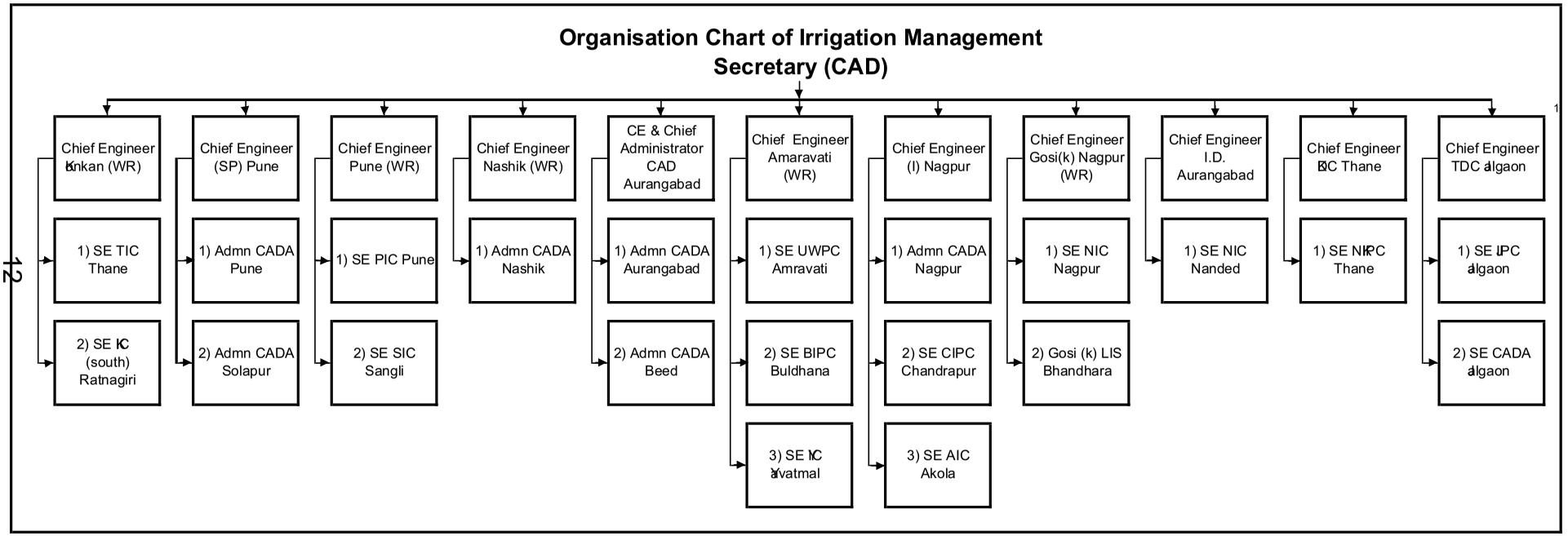
of 2006-07 in all 1100 WUAs were in full operation with operational area of 3.55 lakh ha. Besides this the number of WUAs which have been registered and entered into agreement during 2006-07 was 1304 covering an area of about 4.84 lakh ha.

Looking at the slow pace of PIM in last decade and to bridge the gap between irrigation potential created and its actual utilization and to optimise the benefits by ensuring proper use of surface & ground water by increased efficiency in distribution, delivery, application and drainage of irrigation systems and for achieving this objective, to give statutory recognition to the constitution & operation of WUAs, an act has been passed by the State legislature. The act is known as ”Maharashtra Management of Irrigation Systems by Farmers Act, 2005”.

As per this act, all the beneficiaries in the command of a distributaries / minor will become the members of WUA, once the area is notified under the act.

MAP SHOWING LOCATION OF IRRIGATION CIRCLES




Organisation Chart of Irrigation Management
Secretary (CAD)
Chief Engineer Konkan (WR)
1) SE TIC Thane
2) SE KC (south) Ratnagiri
Chief Engineer (SP) Pune
1) Admn CADA Pune
2) Admn CADA Solapur
Chief Engineer Pune (WR)
1) SE PIC Pune
2) SE SIC Sangli
Chief Engineer Nashik (WR)
1) Admn CADA Nashik
CE & Chief Administrator CAD Aurangabad
1) Admn CADA Aurangabad
2) Admn CADA Beed
Chief Engineer Amaravati (WR)
1) SE UWPC Amravati
2) SE BIPC Buldhana
3) SE KC Yavatmal
Chief Engineer (I) Nagpur
1) Admn CADA Nagpur
2) SE CIPC Chandrapur
3) SE AIC Akola
Chief Engineer Gosi(k) Nagpur (WR)
1) SE NIC Nagpur
2) Gosi (k) LIS Bhandhara
Chief Engineer I.D. Aurangabad
1) SE NIC Nanded
Chief Engineer KBC Thane
1) SE NKPC Thane
Chief Engineer TDC Jalgaon
1) SE UPC Jalgaon
2) SE CADA Jalgaon

CHAPTER - 2
Benchmarking of Irrigation Projects

Benchmarking can be defined as a systematic process for securing continual improvement through comparison with relevant and achievable internal or external norms and standards.

2.1.0 Background

This is the fifth consecutive report of benchmarking of irrigation projects in the State with 262 projects and 12 indicators. The plangroup wise number of projects selected for benchmarking during 2006-07 is as follows.

Sr. No	Plan Group	Nagpur, Amravati Region			Pune, Konkan Region			Aurangabad, Nashik Region			
		Major	Medium	Minor	Major	Medium	Minor	Major	Medium	Minor	
1	Highly Deficit	--	--	--	1	10	3	Nil	16	4	34
2	Deficit	3	9	13	--	--	--	10	43	19	97
3	Normal	5	12	6	6	1	3	10	17	7	67
4	Surplus	3	24	3	--	--	--	--	--	--	30
5	Abundant	2	2	1	8	10	11	--	--	--	34
	Total	**13**	**47**	**23**	**16**	**21**	**17**	**20**	**76**	**29**	**262**

Grand Total : 262

2.2.0 About this report

Following 12 indicators are selected for benchmarking in 2004-05. They are grouped in different key activity areas.

System Performance

1 Annual Irrigation Water Supply Per Unit Irrigated Area

2 Potential Created And Utilised

Agricultural Productivity

3 Output (Agricultural Production) Per Unit Irrigated Area

4 Output (Agricultural Production) Per Unit Irrigation Water Supply

Financial Aspects

5 Cost Recovery Ratio

A. Irrigation B. Non Irrigation

6 Total O&M Cost Per Unit Area

7 Total O&M Cost Per Unit Volume Of Water Supplied

8 Revenue Per Unit Volume Of Water Supplied

9 Assessment Recovery Ratio

A. Irrigation
B. Non Irrigation

Environmental Aspects

11 Land Damage Index

Social Aspects

12 Equity Performance

The indicator no. IX mandays for OM per unit area is deleted as per suggestions of coregroup of Benchmarking in Maharashtra.

The report is available on **www.mahagovid.org & www.mwrdc.org**

2.3.0 Methodology

The data presented in this report is based on information collected from each of the circle in-charge of the project.

The following process was used in development of this report.

- Irrigation projects are selected, representing the main geographical regions of State and of categories viz. major (CCA more than 10000 ha), medium (CCA more than 2000 ha and below 10000 ha) and minor (CCA less than 2000 ha).
- For consistency in monitoring & evaluation, projects considered (same projects) for benchmarking during 2006-07 are continued this year also.
- Data is collected in revised spreadsheet containing 30 columns from the concern field officers and analysed in MWRDC office. (Appendix No.IX) An explanatory note containing detailed instructions about working out the figures of different indicators was issued to field officer. This is also appended.
- The data about water use and area irrigated is correlated with water accounts (2006-07) of relevant projects.
- The presentation for every indicator is done with past-past (5 year average), recent past (2005-06) and present year (2006-07) in order to compare the performance with predecessors as well as own performance of last year.
- The draft report is scructinised in MWRDC & Mantralaya, Mumbai.
- Reasons for deviation from last year's performance and State norm are called from each circle.

Looking to the large number of projects for better monitoring the analysis is carried out considering irrigation circle as a unit and projects therein with

similar plangroups of sub basins. Performance of projects in a circle against each indicator is collective performance as given in the Appendices.

- Ranking of circles in different plangroups is done by arranging the performance for 2006-07 in ascending order.
- Based on performance for 2005-06, indicator wise average performance is found out for the plangroup of circles under consideration, setting aside the exceptionally high/low values.
- State targets for indicator No III & IV are decided plangroup wise. However for other Indicators target value is common for all plangroups. The targets are different for major, medium & minor projects for indicator No. I, VI, VII, & VIII.
- For benchmarking of projects at circle level, each circle has defined its own targets considering specific conditions of project areas, crop type, condition of canal system etc.
- Target values are revised with experience gained in the process.
- For financial indicator of output per unit irrigated area and output per unit irrigation water supply, fixed prices of 1998-99 are considered to obviate effect of price rise.
- Good as well as fair achievements and performance below average is separately shown.
- Some circles are not having either major, medium or minor projects; therefore, only relevant circles are shown in graphs of each indicator. Thus total of circles may not tally to 21 in each graph, for example for major projects category, there are only 15 circles.
- At a glance evaluation of performance of all circles with respect to each indicator is also given.
- There are 2470 completed minor irrigation projects in the State. Therefore, it has been decided to carryout benchmarking and monitoring of minor projects at circle level itself. To get an idea about performance of minor projects, some sample schemes which were considered in last year's report are analysed and included in this report.

- Actions taken by GOM for improvement of performance are included in Chapter-5.

2.4.0 Overview of Irrigation Projects

An overview showing details such as sub basin, designed and actual storage during the year, command area, crops grown, etc. is enclosed as **Appendix No. V**

2.5.0 Benchmarking of WUA

Till June 2006, potential to the tune of 4.132 Mha has been created on state level projects. National Water Policy and Maharashtra Water and Irrigation Commission (1999) have recommanded the active participation of farmers in Irrigation Water Management. Water Resources Department has also concentrated its efforts in that direction.

In response to above recommendations, an act namely MMISF (Maharashtra Management of Irrigation System by Farmers) - 2005 has been passed in the State assembly.

Against the total potential creation of 4.132Mha, 0.67 Mha potential is handed over to 1539 WUA'S to which MMISF (Maharashtra Management of Irrigation System by Farmers) - 2005 is made applicable. Potential to the tune of 0.343 Mha is handed over to another 1038 WUA'S which are formed under co-operative act. Thus at present, 1.01Mha area is under Irrigation Management of 2577 WUA's.

At present, 286 projects (0.67Mha area) selected under MWSIP to which the act is made applicable, are finanacially aided by the World Bank. The cost of the project is about 1700 crores.

In view of the huge capital cost investment in construction of projects as well as in rehabitilation of canal systems along with intention of securing the advantage of benchmarking, benchmarking of WUA's was felt necessary. Accordingly the issue of Benchmarking of WUA was under consideration for last two years.

To initialise the process, 9 Indicators feasible to determine the performance of individual WUA are designed and data in prescribed proforma was called from selected 13 WUA's on 8 Major projects. Out of these 13 WUA'S, MMISF Act- 2005 is applicable to three WUA's on Waghad and Mula projects.

The details about objectives of Benchmarking of WUA's, Proformae used for calling the data along with indicator wise, WUA wise analysis has been given as a case study in a separate chapter (Chapter 6) in this report.

Chapter - 3

Performance Indicators

3.0.0 As stated earlier, Chapter 2 of this report provides an idea about indicators relevant with the five key activities, mentioned below.

a. System Performance

b. Agricultural Productivity

c. Financial Aspects

d. Environmental Aspects

e. Social Aspects

3.1.0 System Performance

Delivery of water, to meet user requirement for irrigation and other purposes, is the primary focus of the project authorities. The water delivery process is strongly influenced by physical, climatic, economic and other factors and the project authority has limited control over some of these factors. In particular, the prevailing climatic conditions largely determine both, the available water resources and the crop water requirements in any season. The main task of the project in-charge is to manage the system so as to optimise the use of available resources in order to meet agreed user needs in an effective and efficient manner.

3.1.1 Annual Irrigation Water Supply Per Unit Irrigated Area

Annual irrigation water supply per unit irrigated area is total quantity of water supplied for irrigation in all the seasons of a year divided by the sum of area irrigated in Kharif, Rabi, HW on canal, reservoir & river (if water released from dam or canal escape) in that year.

Annual irrigation water supply per unit irrigated area varies with water availability, cropping pattern, climate, soil type, system conditions, system management etc.

As a measure of efficiency of irrigation system, a target of 7692 m^3/ha is set for major and medium projects and 6667 m^3/ha for minor projects.

3.1.2 Potential Utilised & Created

This is the ratio of potential utilised (crop area measured) to created irrigation potential of the project. Crop area irrigated on canal, reservoir, wells, river in the command area is considered as potential utilisation.

The irrigation potential created through large investments should be fully utilised. However the utilisation is governed by the availability of water in the reservoirs. Therefore, reduction in created irrigation potential is effected proportionate to availability of water for irrigation.

3.2.0 Agricultural Productivity

In Maharashtra, 58% population depends on agriculture, thus production per unit area as well as per unit water is vital for State economy.

The indicators chosen for benchmarking are

1) Output per unit irrigated area.

2) Output per unit irrigation water supply.

3.2.1 Output Per Unit Irrigated Area

Output per unit irrigated area is the output in rupees of agricultural production from irrigated area divided by total irrigated area. Here the area irrigated means potential utilised.

As the population grows, the land holding per capita is going to be reduced. Secondly there is limitation on land to be brought under irrigation. Thus it is important that the output per unit area has to be increased with efficient water and land management, improved seeds and adoption of latest technology.

The efforts have to be made to increase output by diversification of cropping pattern, better farm practices and judging the market needs. However, water is the only input in agriculture on which service provider has control. Therefore to have an idea about trend of production in the command, which depends upon timely supply of water in adequate quantity, this indicator has been adopted. The yield data for the year of various crops is collected from agriculture department. The market prices are obtained from Agricultural Produce Market Committees located in each taluka. In respect of sugarcane, prices are obtained from sugar factories in the command area and for cotton, from Cotton Federation. The prices of 1998-99 are considered as base price for all the remaining years & output is worked out accordingly. The plangroup wise targets set for different categories of projects are given in **Appendix-II**

3.2.2 Output Per Unit Irrigation Water Supply

Output per unit irrigation water supply is value in rupees of agricultural production from irrigated area divided by total quantity of water supplied for irrigation.

The output per unit irrigation water supply is a crucial measure of optimal use of water. The indicator shows how efficiently water is used to get maximum output (agricultural produce).

3.3 Financial Performance

It is vital for any system to be economically self-sustainable at least yearly O & M expenditure incurred on the project is met from its own revenue.

In Maharashtra, it is proposed to levy the water charges to all users, including irrigation & non-irrigation use on volumetric basis so as to encourage the users for efficient water use. Presently the practice of volumetric supply is in use for WUAs, Domestic and Industrial water supply.

The indicators chosen for financial performance are given below.

1) Cost Recovery Ratio. (Irrigation & Non irrigation)

2) Total O & M Cost per unit area (Irrigation & Non Irrigation)

3) Total O & M Cost per unit Volume of Water Supplied. (irrigation & Non irrigation)

4) Revenue per unit water supplied.

5) Assessment Recovery Ratio

3.3.1 Cost Recovery Ratio

It is the ratio of recovery of water charges to the cost of providing the service. Recovery of water charges and O & M cost incurred during the period of irrigation year i.e. first July (2006) to 30th june (2007) is considered. Secondly the operation cost includes the salary of technical & ministerial staff working on irrigation management irrespective of its establishment type (i.e. RT/CRT/WC/Daily). It is imperative to devise water rates and mechanism for recovery of water charges for irrigation use in such a manner to meet, at least, annual cost of management, O & M of system and recovery of some portion of capital investment on the projects in order to make the system self sustainable. Theoretically the cost recovery ratio should be at least equal to one.

Due to the efforts taken at all levels the recovery of water charges has improved and the O & M cost has come down. This resulted in enhancing the cost recovery ratio more than one.

As most of the major projects are multipurpose projects supplying water for irrigation as well as non-irrigation uses, the analysis is carried out separately for irrigation use & non-irrigation use. Similarly combined analysis is also carried out to enable comparing the performance with the past.

3.3.2 Total O & M Cost Per Unit Area

Total O & M cost per unit area is the ratio of total O & M cost incurred for management of the system and area irrigated (potential utilised) during the irrigation year. The total O & M cost includes cost of maintenance as well as all types of establishment charges. The annual maintenance cost incurred does not include cost of modernisation. Establishment charges include salary paid to staff working up to a management section.

The O & M cost per unit area should be as minimum as possible.

Government of Maharashtra has prescribed yearly O & M norms per ha., excluding establishment cost. The O & M cost per unit area is increased in projects where there is less irrigation compared to design plan area.

3.3.3 Total O & M Cost Per Unit Water Supplied

Total O & M cost per unit water supplied is obtained by dividing total O & M cost by total quantity of water supplied for irrigation and non-irrigation use during the year.

Total O & M cost per unit volume of water supplied should be as minimum as possible to achieve economy in supply.

3.3.4 Revenue Per Unit Water Supplied

It is the ratio of total revenue and quantity of water supplied for irrigation & non irrigation use during the irrigation year.

Revenue per unit volume of water supplied is very important measure as every drop of water is to be used efficiently and economically. The ratio also gives idea about revenue realised against actual water supplied. The indicator will have more importance once the water is supplied on volumetric basis.

The comparative analysis given in **Appendix-VIII** shows that where non-irrigation supply is prominent as well as hot weather or perennial irrigation is more, the revenue per unit volume of water supplied is more owing to higher rates.

3.3.5 Assessment Recovery Ratio

This indicator is split up into two components viz

a) Irrigation

b) Non Irrigation

In case of both the uses, there are arrears of water charges in many projects due to some or other reasons. One of the reasons being postponement of recovery during draught years.

It is the ratio of recovery of water charges during the irrigation year 2006-07 and assessment of charges for Kharif & Rabi of 2006-07 for irrigation and for Hot weather of 2005-06. For non-irrigation purpose assessment for water used during the year 2006-07 is considered.

The purpose of introducing this indicator is to check whether the water charges assessed during the irrigation year (1 July to 30 June) are totally recovered or not. For this indicator, arrears are not considered.

3.4 Environmental Aspects

3.4.1 Land Damage Index

Land damage index is expressed as percentage of land damaged to irrigable command area of the project.

The lands under irrigation become saline or waterlogged due to excessive use of water resulting in low productivity. This problem is faced in areas where high water intensive crops are grown year after year with unscientific methods of irrigation like flooding. Water logging and salinity occur in soils with poor drainability. In Maharashtra, black cotton soil, which is highly impervious, is found on extensive area. Directorate Irrigation Research & Development, Pune is regularly monitoring & taking remedial measures for reclamation of damaged lands in commands of projects.

3.5 Social Aspects

3.5.1 Equity Performance

Most of the schemes are gravity systems with canals and distribution system. The command area is divided equally in to head, middle & tail reaches. Equity performance means ratio of sum of actual area irrigated in all three seasions (Canal flow and lifts on canal) to projected irrigable command area in head, middle and tail reaches. It is expressed as percentage. This indicator gives clear picture as to whether the irrigation facility is provided equitably to head, middle & tail reach farmers in command area.

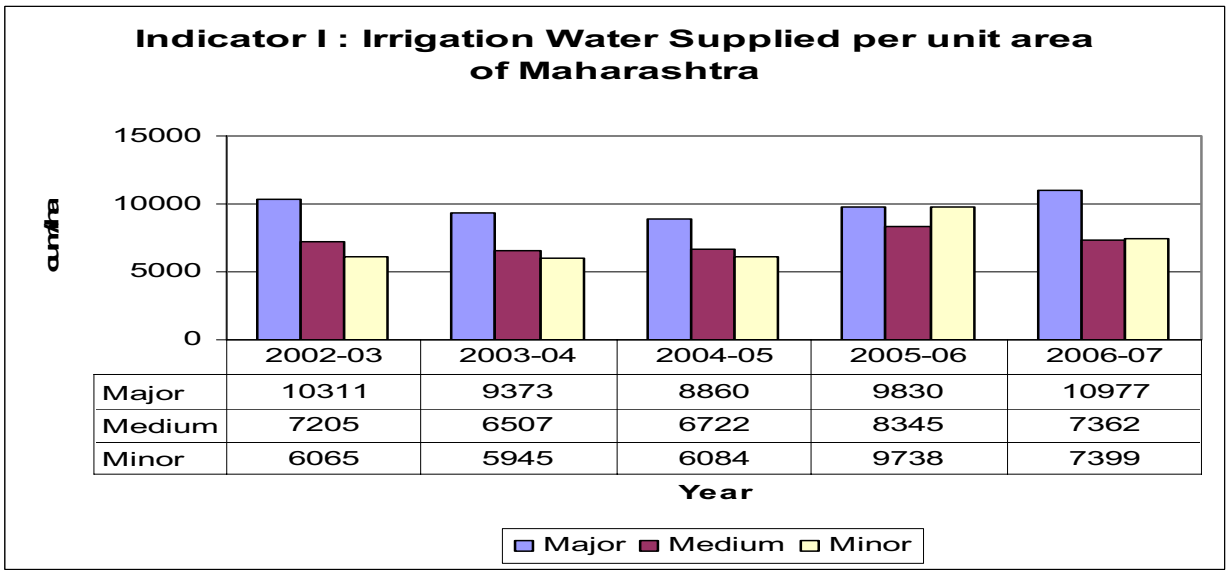
The benefit of irrigation should be given to the beneficiaries in head, middle & tail reach equitably. Ideally for equity, this ratio should be equal to one for head, middle as well as tail reaches.

Chapter 4

Overall status of Benchmarked projects in Maharashtra

Indicator wise Performance of Maharashtra State for the Years 2002-03 to 2006-07

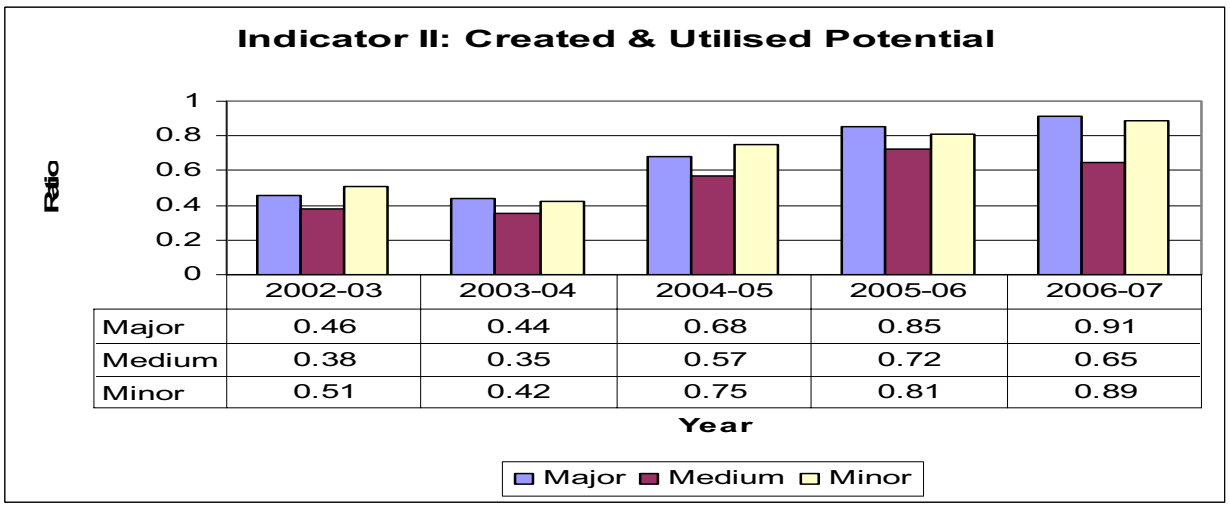
Indicator – I : Annual Irrigation Water Supply Per Unit Irrigation Area :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	10311	9373	8860	9830	10977
Medium	7205	6507	6722	8345	7362
Minor	6065	5945	6084	9738	7399

Annual Irrigation water supplied for major projects in maharashtra state is higher in the year 2006-07 i.e. 10977 cum/ha. and lower in 2004-05 . In medium project annual water use was in the equal range for five years. Only in the year 2005-06 the water use is 8345 cum/ha. For minor project the water use is less in the year 2003-04 i.e. 5945 cum/ha. and maximum in the year 2005-06.

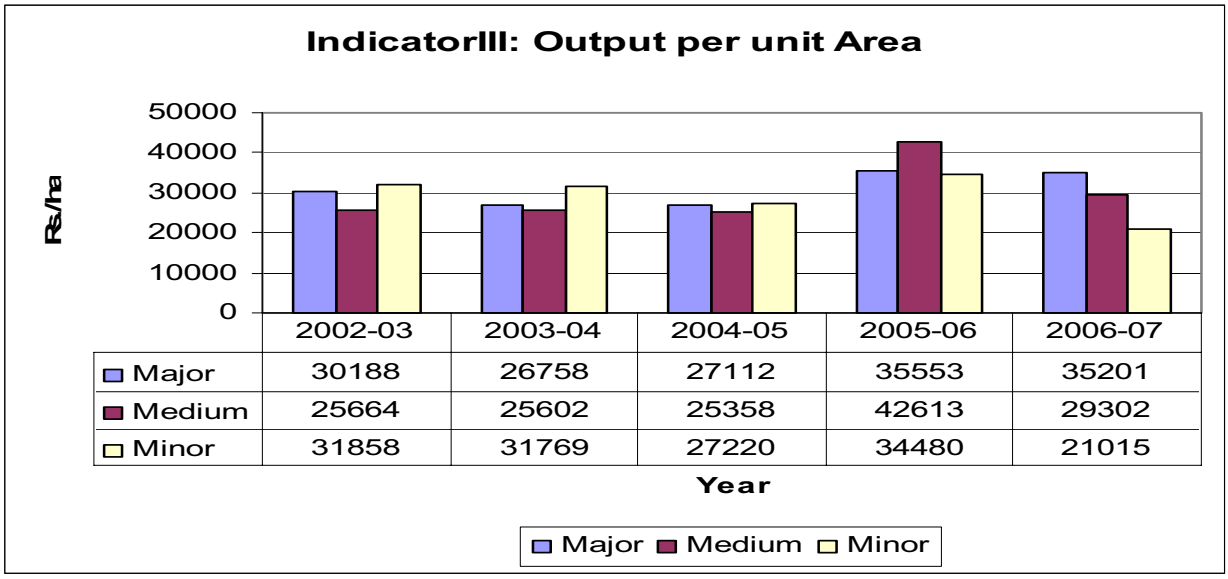
Indicator –II: Potential created and utilised :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	0.46	0.44	0.68	0.85	0.91
Medium	0.38	0.35	0.57	0.72	0.65
Minor	0.51	0.42	0.75	0.81	0.89

For Major Projects the maximum utilised potential was in the year 2006-07 the utilised potential is increasing yearly from 0.46 in the year 2002-03 to 0.91 in the year 2006-07. For medium projects the ratio was minimum in the year 2003-04 and maximum 0.72 in the year 2005-06. For minor Projects utilised potential was 0.42 in the year 2003-04 and it is raising yearly last four years and 0.89 in the year 2006-07.

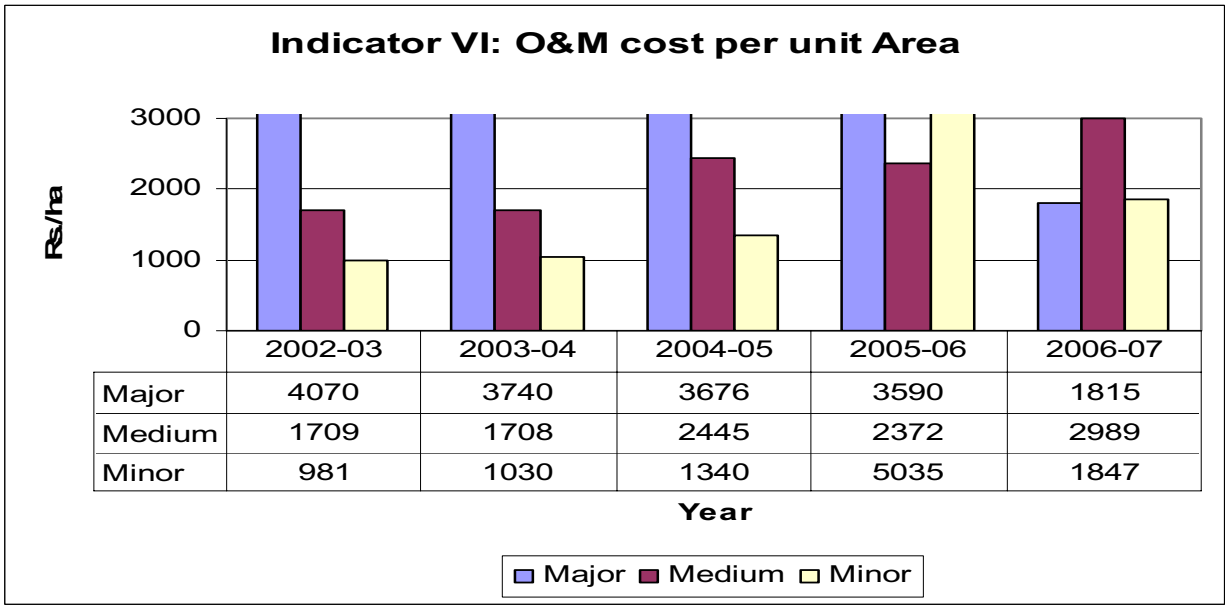
Indicator-III : Output Per Unit Irrigated Area :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	30188	26758	27112	35553	35201
Medium	25664	25602	25358	42613	29302
Minor	31858	31769	27220	34480	21015

In Major Projects agricultural output shows ups and downs in last five years maximum Rs. 35553/cum in the year 2005-06 and minimum in the year 2003-04 i.e. Rs. 26758/cum. For medium project the agricultural output was maximum in 2005-06 and minimum in the year 2004-05. For Minor Projects output was maximum Rs. 34480/cum in 2005-06 and minimum in the year 2006-07 i.e. Rs. 21015/cum.

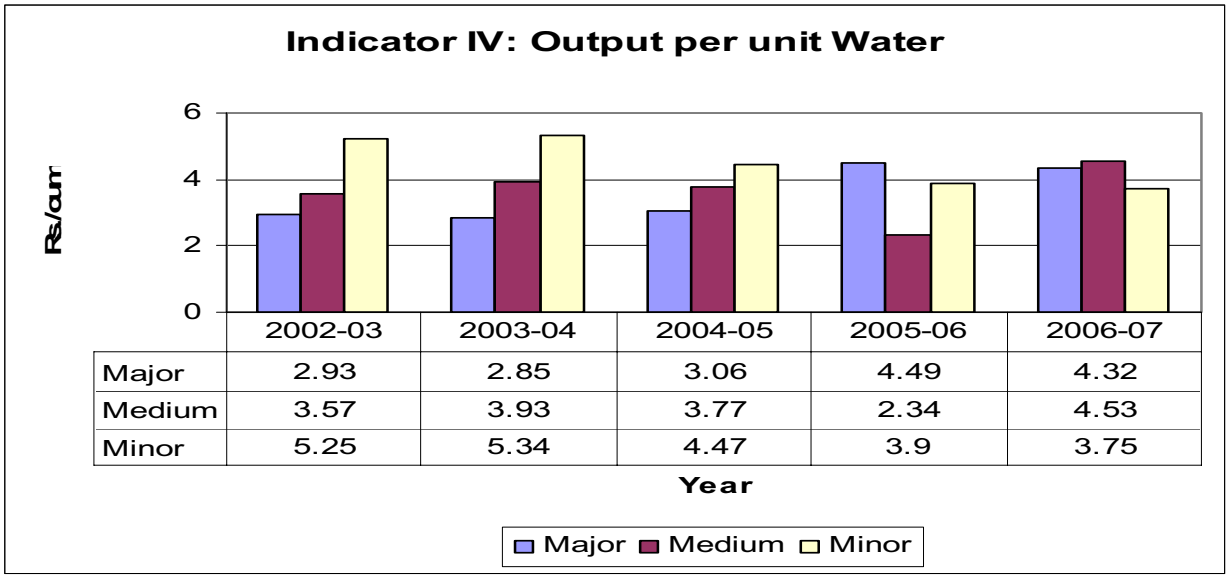
Indicator-VI: O & M Cost Per Unit Irrigated Area :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	4070	3740	3676	3590	1815
Medium	1709	1708	2445	2372	2989
Minor	981	1030	1340	5035	1847

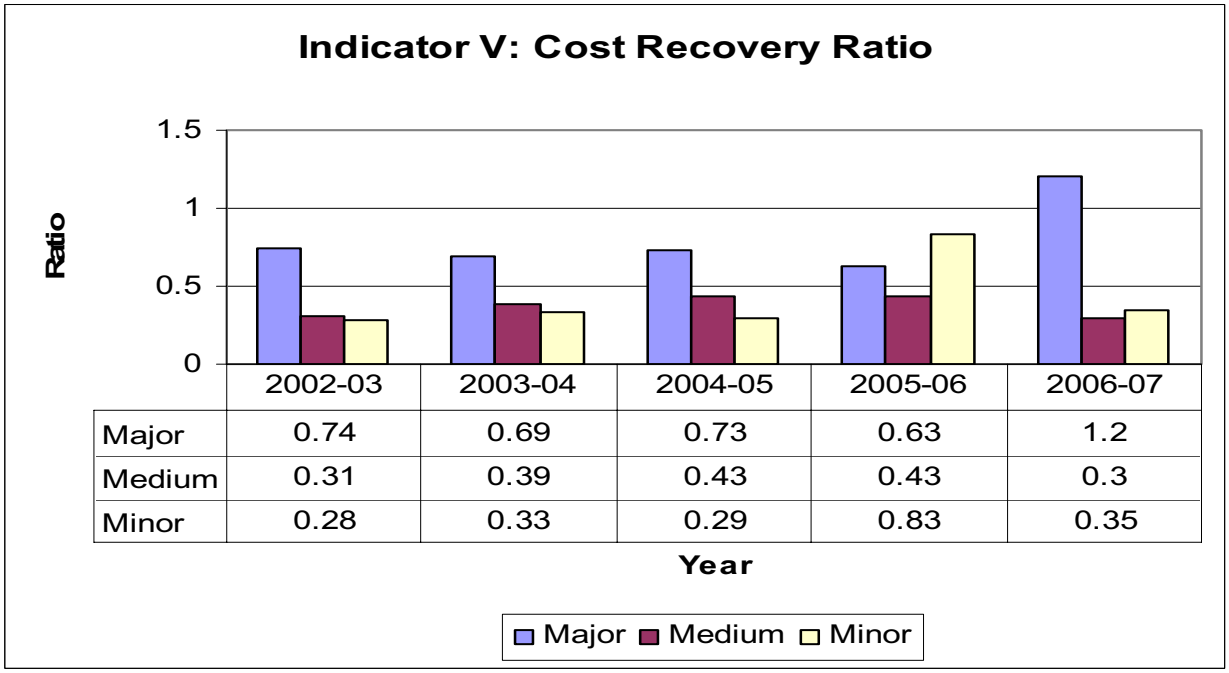
For Major Projects the O & M Cost Per Unit Area is on higher side of state target for last five years it is nearly three time the state target except in the year 2006-07. It is due to excess expenditure on maintenance. In Medium Project O & M expenditure increasing from the year 2002-03 to 2006-07 consistently. For Minor Projects the O & M Cost Per Unit Area was minimum in the year 2002-03 i.e. Rs. 981/ha and increasing yearly it is maximum in the year 2005-06 i.e. Rs. 5035/ha.

Indicator – IV : Out Put Per Unit Irrigation Water Supply :



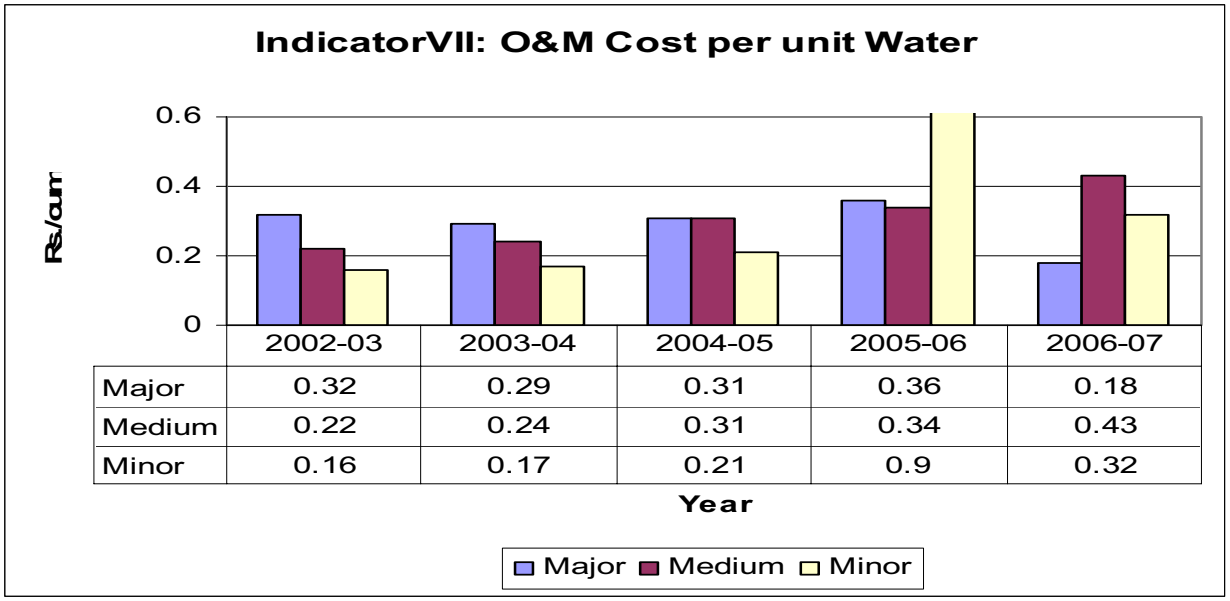
For Major Project the output per cum was Rs. 2.93/cum in the year 2002-03 and goes on increasing yearly and comes to Rs. 4.32/cum in the year 2006-07. In Medium Projects output was minimum in the year 2005-06 Rs. 2.34/cum and maximum in this year i.e. Rs. 4.53/cum. The output was on higher side in the year 2003-04 and minimum in this year i.e. Rs. 3.75/cum in minor projects.

Indicator –V : Cost Recovery Ratio :



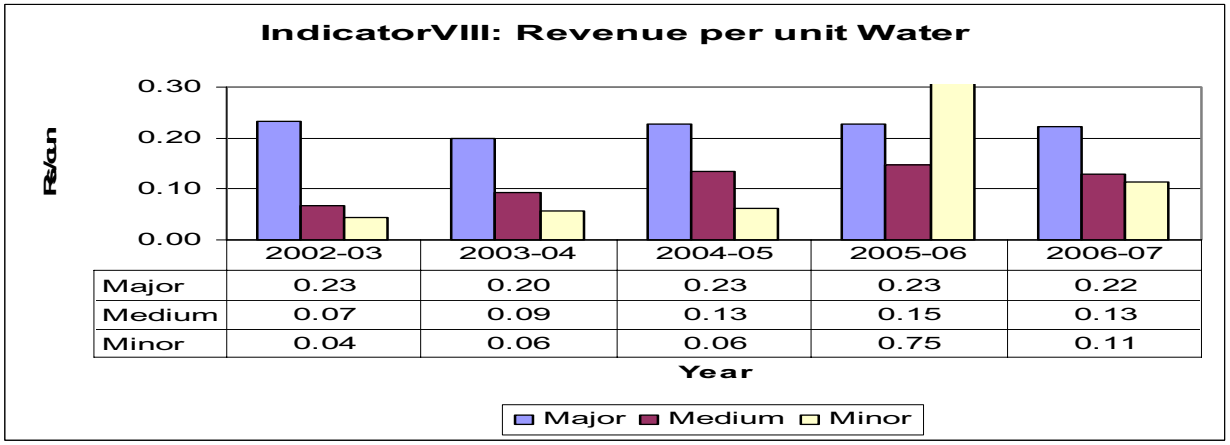
For Major Projects the ratio was between 0.65 to 0.75 for last four years but in 2006-07 increase in recovery and reduction in O & M cost causes enhancement in performance. For medium projects the ratio was in between 0.30 to 0.43 for last five years. In case of Minor Projects ratio was in between 0.28 to 0.35 for four years. But in 2005-06 the ratio was 0.83.

Indicator – VII : O & M Cost Per Unit Water Supply :



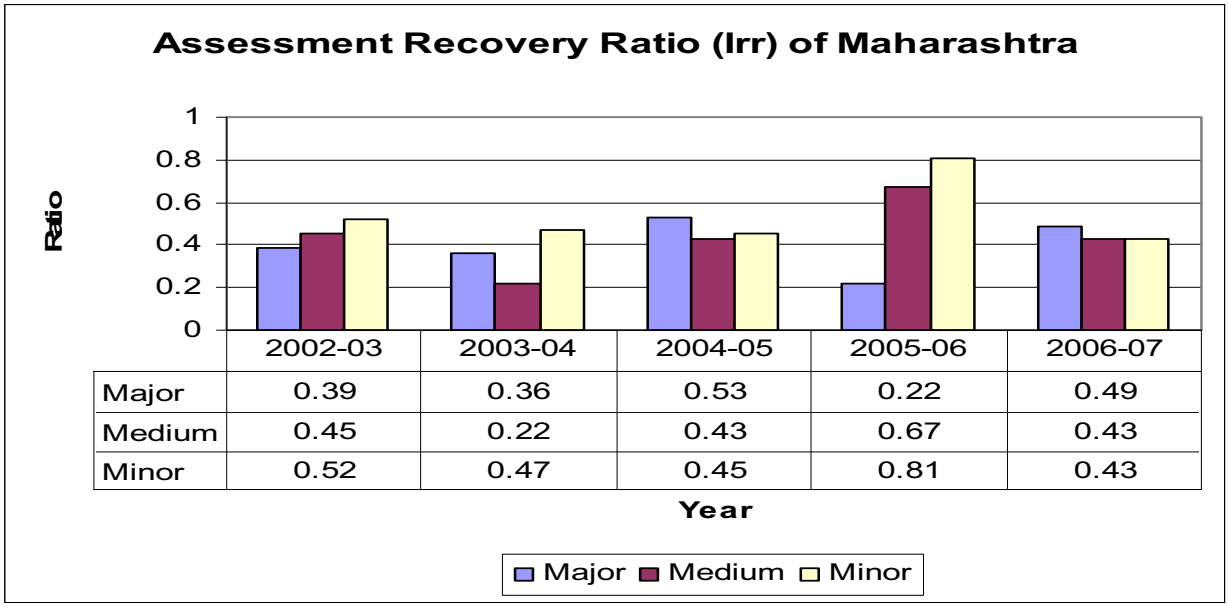
In Major Projects O & M Cost Per Unit Water Supply was in between Rs. 0.29/cum to Rs. 0.36/cum for four years but this year it comes down to Rs. 0.18/cum. Control over maintenance expenditure causes in improvement in the performance. For Medium Projects the more O & M expenditure on maintenance causes decreasing performance for last five years consistently. In Minor Projects the O & M Cost Per Unit Water Use was in between Rs. 0.09/cum to Rs. 0.21 for four years but in 2006-07 it enhances to Rs. 0.32/cum.

Indicator – VIII : Revenue Per Unit Water Supply :



For Major Project in Maharashtra State Revenue Per Unit Water Supply was Rs. 0.20/cum to Rs. 0.23/cum for last five years. For Medium Projects the performance was Rs. 0.07/cum in the year 2002-03 and goes on increasing to Rs. 0.15/cum in the year 2005-06. In 2006-07 Revenue ratio comes to Rs. 0.13/cum. For Minor Projects revenue per unit water use was in between Rs. 0.04/cum to Rs. 0.11/cum. For four years except in the year 2005-06. It was Rs. 0.75/cum shows enhancement in the revenue recovery.

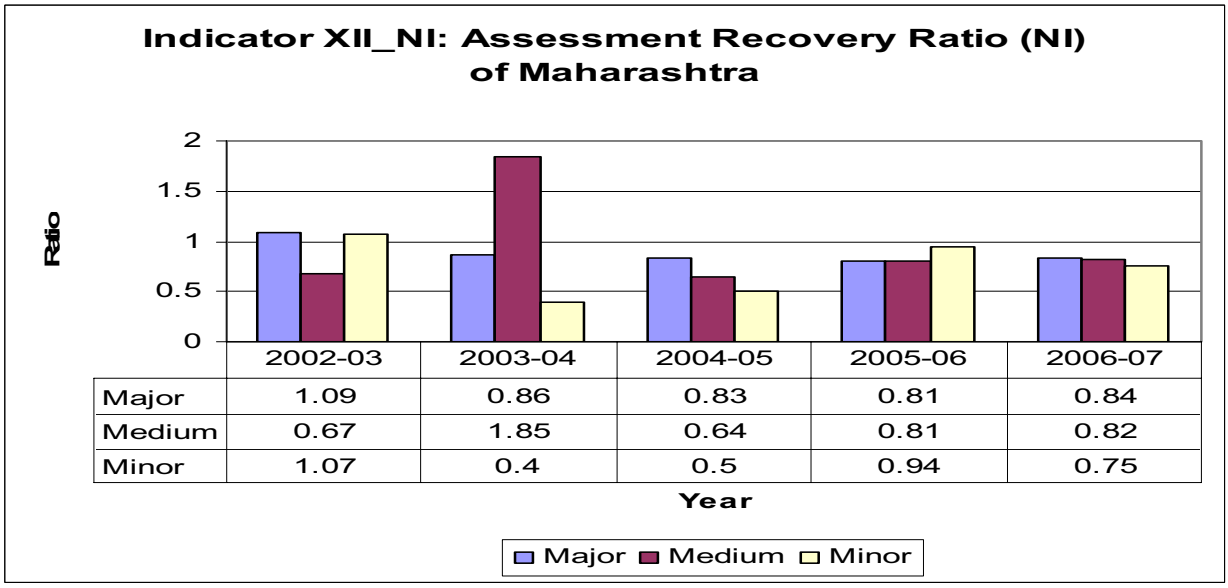
Indicator – XII : Assessment Recovery Ratio (Irrigation) :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	0.39	0.36	0.53	0.22	0.49
Medium	0.45	0.22	0.43	0.67	0.43
Minor	0.52	0.47	0.45	0.81	0.43

For Major Project Assessment Recovery Ratio (Irrigation) was minimum in year 2005-06 i.e. Rs. 0.22. But in 2006-07 it goes to 0.49 due to increase in the amount of recovery of irrigation water charges. For Medium Projects ratio shows ups and downs year wise. It was 0.22 in the year 2003-04 and increases to 0.67 in 2005-06. In this year less amount of recovery causes to lower down the ratio to 0.43. For Minor Project Assessment Recovery Ratio was in between 0.43 to 0.52 for four years but in 2005-06 it was 0.81.

Indicator – XII : Assessment Recovery Ratio (Non Irrigation) :



	2002-03	2003-04	2004-05	2005-06	2006-07
Major	1.09	0.86	0.83	0.81	0.84
Medium	0.67	1.85	0.64	0.81	0.82
Minor	1.07	0.4	0.5	0.94	0.75

For Major Project Average 80% recovery of water charges for non irrigation was recovered for last five years. For Medium & Minor Projects 80 % to 85 % average recovery of water charges for non irrigation use was achieved for last five years.

Indicators of Major Projects

Chapter 4

Observations and conclusions

Major Projects

Indicator I: Annual Irrigation Water Supply per Unit Irrigation Area (cum/ha)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujani) project, water is utilised for irrigation & the rate of 9734 cum/ha overall performance is moderate, However, it is slightly more than the state norm of 7692 cum/ha compared to last year water use 7094 cum/ha, more water use in this year, Reason for more water utilization is that, additional rotation for irrigation was provided.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the annual water use per unit irrigated area is 5990 cum/ha. Though it is on higher side of five years average values & last year value, it has not exceeded the state norm.

AIC Akola: Annual irrigation water use on projects (Katepurna & Nalganga) under Akola Irrigation Circle was 6324 cum/ha which is close to the state norm. If Katepurna and Nalganga projects are considered individually, water use per unit area irrigated is 6042 cum/ha and 6573 cum/ha respectively which is low than the state norm and its past average five years performance. On Katepurna project above water use is with 5 rotations in Rabbi Season. On Nalganga project, Water use appears to be better as area is handed over to WUA's to which water supply is on volumetric basis.

BIPC Buldhana: Wan project is the only major project under BIPC Buldhana under this plan group. Water use per unit area irrigated is 9097 cum/ha which is about 16% more than the state norm. There is slight improvement over its last year's performance. Excess water use over state norm is on account of less response to night irrigation. Field officers are required to adhere strictly to the guide lines issued about irrigation management.

CADA Aurangabad & CADA Beed: In Jayakwadi project Stage-I (PLBC) the water use per unit irrigated area has increased from 10278 to 10518 cum/ha. compared to last year which is far away from State norms. The increase in water use is due to less area under irrigation. However efforts are required at field level to achieve State target.

In Jayakwadi project Stage-I (PRBC) the water use per unit irrigated area has reduced from 18439 to 11833 cum/ha. as compared to last year, but still it is far away from State norms. The reduction is mainly due to increase in area under irrigation. However efforts are still required at field level to achieve the State norms.

CADA Beed: In Majalgaon project the water use per ha. is reduced from 18074 to 16217 cum/ha as compared to last year. But it is far away from State norms. It is mainly due to 71% perennial crops are irrigated requiring more

water. The field officers are required to pay more attention for improvement in performance by adopting cropping pattern.

In Manjra project the water use per hectare has reduced from 10529 to 9933 cum/ha. as compared to last year. But it is still ahead of State norms. It may be due to 78% perennial crops are irrigated.

In Lower Terna project the water use has increased from 6225 to 7159 Cum/ha But it is well within the State norms.

NIC Nanded: In Manar project the water use per unit irrigated area is reduced from 12921 to 8139 cum/ha this is mainly due to increase in irrigated area from 9045 ha. to 15304 ha. as compared to last year.

In Vishnupuri project though the water use has increased from 6304 to 7996 cum/ha. it is within the State norms.

In Purna project the water use has increased from 11345 to 18390Cum/ha. as compared to last year and it is 2.5 times more than the State norms. The field officers are required to go through the reasons behind it and do the needful for improvement in performance.

CADA Jalgaon: In Girna project, the water use per unit irrigated area is very high (14749 Cum/ha), which is more than its past values and nearly double of the state target since from two years. The field officers are required to take efforts for improvement in performance.

Normal Plangroup:

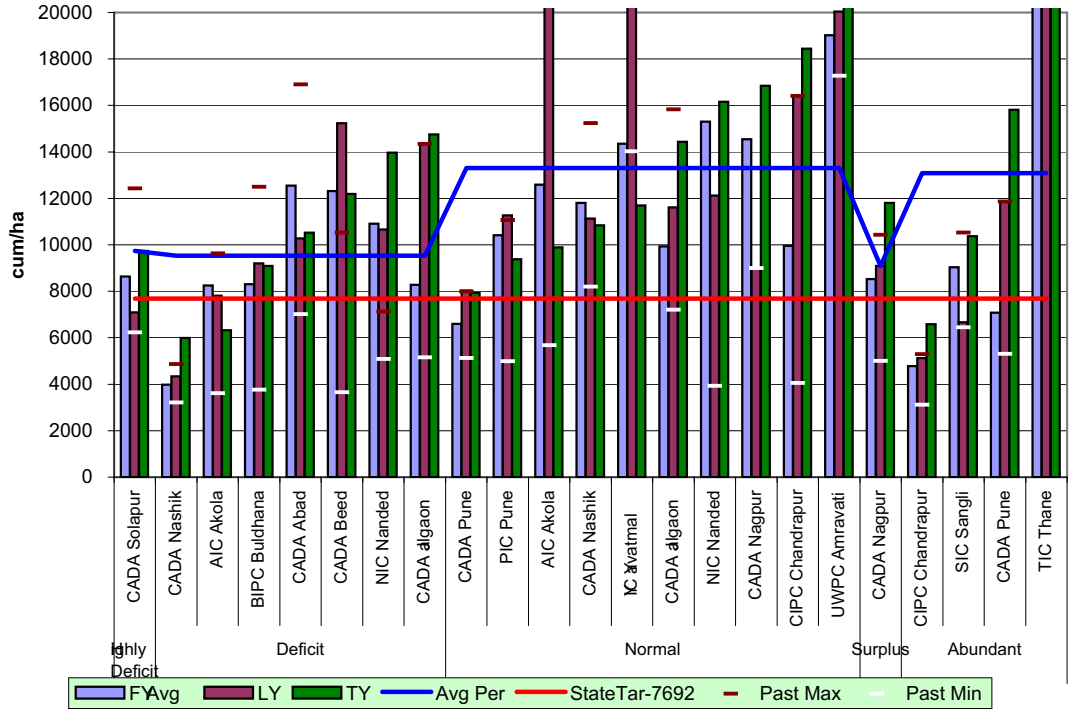
CADA Pune: In Kukadi Project the annual irrigation water supply per unit area is 8060 cum/ha. The water utilization is slightly increased this year. It is also on higher side of state target in Ghod Project the water utilization for irrigation is 7628 cum/ha. There is slight decrease in value as compared to last year value of 8171 cum/ha.

PIC Pune: In Khadakwasla Project the water utilization is 11388 m^3/ha. This is better than the last year's 21583 cum/ha. Performance in NLBC the water utilization is 12494 cum/ha. This is on higher side of last year and state target performance. It is due to heavy leakage through masonry structures on canals. In NRBC the performance improved as compared to last year and state target. The improvement is achieved because of repairs of canal system and rainfall during irrigation rotation period. In Pawna Project the water utilization is 6901 cum/ha. Which is on higher side of last year performance (4986 cum/ha).

AIC Akola: In case of Pus Project, water use per unit irrigated area is 9854 cum/ha which is 28% more than state norm. But there is improvement, over its last year performance which was exceptionally high (21105 cum/ha). Field officers are expected to explore the reasons for more water use and take suitable action to bring it to the state norm.

CADA Nashik: In Bhandardara project, the water use per unit irrigated area (10494 cum/ha) is lowered than last year (15574 cum/ha), but still it is higher than the state target. The efforts are being taken by field officers to reduce water use per ha duly taking necessary remedial measures i.e. desilting of

Indicator I
Major Projects
Annual Irrigation Water Supply per unit Irrigated Area (cum/ha)



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	8642	7094	9734	12420	6228	9734
Deficit	CADA Nashik	3979	4338	5990	4863	3205	9531
	AIC Akola	8256	7816	6324	9622	3605	
	BIPC Buldhana	8301	9199	9097	12491	3759	
	CADA Abad	12551	10278	10518	16899	7013	
	CADA Beed	12313	15240	12186	10529	3654	
	NIC Nanded	10908	10666	13970	7127	5077	
	CADA Jalgaon	8275	14336	14749	14336	5146	
Normal	CADA Pune	6596	8034	7937	7987	5125	13310
	PIC Pune	10417	11261	9376	11059	4986	
	AIC Akola	12595	21110	9894	21110	5681	
	CADA Nashik	11811	11123	10837	15234	8200	
	NIC Yavatmal	14357	24600	11700	24600	14025	
	CADA Jalgaon	9933	11615	14433	15828	7201	
	NIC Nanded	15298	12121	16156	24682	3927	
	CADA Nagpur	14539	8996	16840	23773	8996	
	CIPC Chandrapur	9957	16406	18444	16406	4051	
	UWPC Amravati	19023	20045	20665	21005	17268	
Surplus	CADA Nagpur	8520	9097	11806	10428	5005	9097
	CIPC Chandrapur	4786	5118	6578	5291	3118	13087
	SIC Sangli	9033	6662	10367	10519	6453	
	CADA Pune	7081	11858	15806	11858	5298	
	TIC Thane	40477	30443	20901	61487	24140	

Note:1) Figures in red indicate values exceeding range of graph. 2) Figures in blue are excluded from Avg Per.
3) 'No Water' indicates reservoirs are not filled in that year.

canal, increasing height of banks minimising leakages and supply of water by volumetric basis duly forming water user assossiations.

In Kadawa project, the water use is consistently more than the state target. As per field officers, more water use/ha is due to more conveyance losses in the canal system. Remedial measures are being taken in hand i.e. selective lining, pitching to improve the performance.

In Mula project, the water use/ha is 11563 cum/ha, which is on higher side of state norm. As per field officers, though this project, at present, is having eight monthly cropping pattern, it is obligatory to supply the water to sugar cane as per demand of cultivators as there are four sugar factories in the command. Efforts are being taken by the field officers to lower the water use/ha by training the farmers to reduce the sugercane and also to avoid flood irrigation.

In Waghad project, the water use/ha is 10317 cum/ha, which is slightly reduced than that of last year (10675 cum/ha) but still it is on higher than the state norm. As water is supplied fully on volumetric basis on this project, more efforts are required at field level to use the water economically.

In Gangapur project, the water use per unit area is lower than the state target (4833 cum/ha).

In Darna project the water use per unit irrigated area is increased twice (12850 cum/ha) as compared to last year (6257 cum/ha). As per field officers, the indicator value is on higher side due to scattered irrigation & more transit losses in canal & disnet system. Remedial measures i.e. repairs of C. D. works, creation of W.U. Associations are being taken to minimize the water use/ha.

YIC Yeotmal: Water use in Arunavati project is high (11700cum/ha.) as compared to the state norm. According to field officers, excessive leakages through H.R., outlets and irrigation in tail reaches are responsible for more water use than anticipated.

CAD Jalgaon: In Hatnur project, the water use per unit irrigated area (14433 cum/ha) is increased than last year value (11615 cum/ha) & nearly double of the state target. The field officers are required to take efforts for improvement in the performance duly preparing the action plan.

MC Nanded: In Upper Penganga Project the water use per unit irrigated area has increased from 12121 to 16156 cum/ha as compared to last year. The area under Sugar cane, Banana, H.W. ground nut, Vegetable & other perennials was 9822 ha. out of 22843 ha. total irrigated area which cause more water use. The field officers are required to take more efforts to improve the performance by judicious use of water.

CAD Nagpur: On Lower Wunna Project, in spite of no. of water rotations remaining same, water use (16840 cum/ha.) during the irrigation year has been increased by 53% as compared to its last year's performance (8996 cum/ha). Water use is 210 % more as compared to the state norm.

CIPC Chandrapur: Actual water use per unit area irrigated on Bor project is 18444 cum/ha which is 239% of the state norm. There is decrease in

Performance level as compared to last year performance. According to field officers, old canal system of Bor Project requiring major repairs is responsible for more transit losses.

WPC Amravati: On Upper Wardha project, the rate of water use per unit area irrigated (20665 cum/ha) has remained more or less same (20044 cum/ha) as it was during last year. As compared to the state norm, it is 268 %. According to field officers, apathy of formers to-words night irrigation & scattered area irrigated at tail portion alongwith untrained, insufficient field staff are the main reasons for the low performance. Also, Canal and Distribution system requires major repairs. But it is equally true that, for economic water use project authorities are required to pay more attention to wards planning & monitoring of irrigation management at circle level along with mandatory repairs to curb transit losses.

Surplus Plangroup:

CAD Nagpur: The performance of Pench Project (12834 cum/ha.) and Itiadoh project (13254 cum/ha} has been decreased over to its last two year's performance (10428 cum/ha. and 9886cum/ha.). However, water use on Bagh (7163 cum/ha) though close to state target has been low than it was during the year 2005-06 (8283 cum/ha). Though Pench, Bagh, Itiadoh projects are kharif dominating projects, H.W. paddy which requires more water as compared to other HW seasonal crops was irrigated on Itiadoh project. Therefore, water use on Itiadoh project may be more than the state norm.

Abundant Plangroup:

CIPC Chandrapur: Ninety percent of total water use on Asolamendha & Dina projects under CIPC Chandrapur is for kharif paddy crops. These projects lies in assured rainfall zone, obviously irrigation is in the form of protective irrigation. However water use per unit area irrigated on Asolamendha was 7254 cum/ha which was more than its last year's use (5323 cum/ha.) On Dina project, water use for irrigation is 5943 cum/ha which is more than its last year's use of 4896 cum/ha.. Project authorities are expected to sort out the reasons for more water use per ha on Asolamendha than Dina, when both projects lies in the same Agroclimatic zone.

SIC Sangli: Water use for irrigation in different projects under this circle against State norm (7692 cum/ha) are as under; Radhanagri (10640), Tulsi (8559), Warana (10649), & Dhudhganga (9925). Over all water use on all the projects are comparatively more than the State norm. Comments on more water use stated by field officers are as under, on these project irrigation has been done by lifting of water from river, Due to irregular supply of electricity at night time, there is a tending of farmers to lift more water than requirement. Accurate measurement of water lifted for irrigation is not possible.

CAD Pune: In Krishna Project the water utilization for irrigation is 15806 cum/ha. This is nearly 30% more than last year 11858 cum/ha. The water utilization is nearly double of state target norms. The Field Officers are to do needful to reduce the water utilisation per unit area.

ICT Thane: Water use for irrigation in different projects under this circle against State norm (7692 cum/ha)are as under; Bhatsa (17775), Kal-Amba(23995), & Surya (19767).

Reasons for more water use, put forth by field officer, are steep geographical topography, water loss is more, mostly rice crop is taken, & water requirement for rice crop is 5 to 6 times more. Efforts are being made to reduce rate of water use by promoting farmers by developing horticulture in command area.

Indicator II:Potential created and utilised

Highly deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) Project, utilized irrigation potential is 76%. Performance is 12% more than last year. Large percentage of the potential is utilized from river lifts, and reservoir lifts. More efforts are needed to utilize the potential of canals.

Deficit Plangroup:

CADA Nashik In Chankapur project, full effective potential is utilised since last year.

MIC Akola: Actual potential utilisation on Katepurna and Nalganga project was just 39% and 37% respectively. According to field officers there was low water demand for irrigation.

MIPC Buldhana: In case of Wan Project, potential utilisation is 28% of effective potential created.There appears to be no improvement over its last year's performance (29%). Reasons for low potential utilisation compared to state norm & it's past year performance needs to be explored by the field officers.

CADA Aurangabad &CADA Beed: In Jayakwadi project (PLBC) under CADA Aurangabad the ratio has increased from 0.57 to 0.86 where as for PRBC under CADA Beed the ratio has increased from 0.23 to 0.39 as compared to last year. The performance of PRBC is poor as compared to PLBC through the both canals (originating from the same reservoir) have command area of similar characteristics. The field officers are required to be more vigilant for improving the performance.

CADA Beed: In all three major projects viz. Majalgaon, Manjra, Lower Terna the over all ratio is low. Proper planning is required at project level to increase irrigated area so that improvement in performance can be possible.

MIC Nanded: In all three projects Manar, Vishnupuri, Purna the ratio is decreased from 1.0 to 0.84.

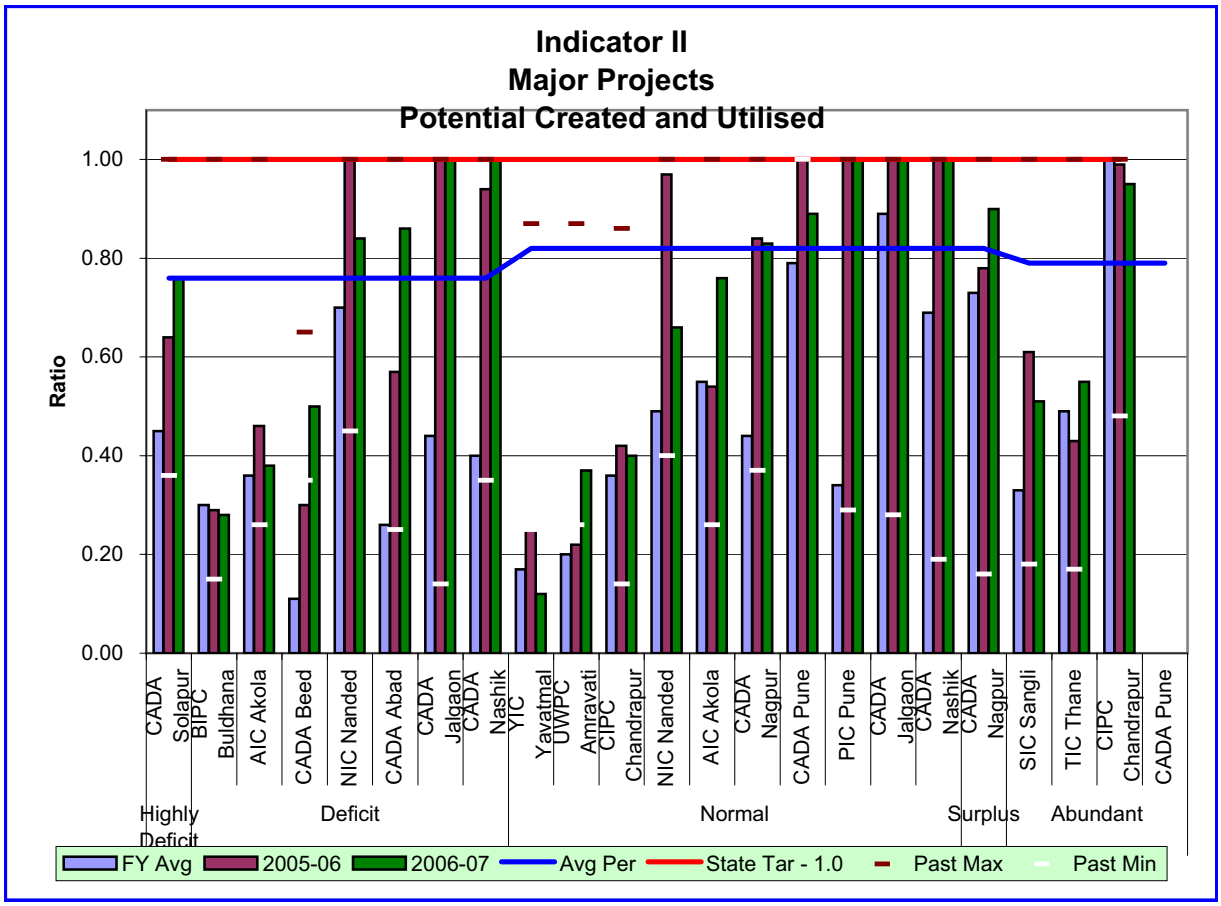
CADA Majalgaon: In Girna project, the field officers have succeeded in increasing utilisation from 0.94 to 1.19.

Normal Plangroup:

CADA Pune: In Kukadi Project the utilized potential ratio is 0.79. It shows decrease in performance since last year by 21%. In Ghod Project the ratio utilised irrigated potential with effective created potential comes to one.

MIC Pune: In Khadakwasla Project the ratio comes to 0.48 shows decrease in performance than 0.64 of last year. In NRBC & NLBC the ratio comes to 1.00. In Pawana Project the ratio decreased from 1.0 of last year to 0.27 this year. The field officers are advised to take efforts for improvement.

MIC Akola: There is improvement in Potential utilisation on Pus project (76%) than past five years average performance (53%) as well as over its last year potential utilisation.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.45	0.64	0.76	1.00	0.36	0.76
Deficit	BIPC Buldhana	0.30	0.29	0.28	1.00	0.12	0.76
	AIC Akola	0.36	0.46	0.38	1.00	0.26	
	CADA Beed	0.11	0.30	0.50	0.65	0.35	
	NIC Nanded	0.70	1.00	0.84	1.00	0.13	
	CADA Abad	0.26	0.57	0.86	1.00	0.25	
	CADA Jalgaon	0.44	1.00	1.00	1.00	0.14	
	CADA Nashik	0.40	0.94	1.00	1.00	0.14	
Normal	YIC Yavatmal	0.17	0.25	0.12	1.00	0.25	0.82
	UWPC Amravati	0.20	0.22	0.37	0.87	0.26	
	CIPC Chandrapur	0.36	0.42	0.40	1.00	0.14	
	NIC Nanded	0.49	0.97	0.66	1.00	0.40	
	AIC Akola	0.55	0.54	0.76	1.00	0.26	
	CADA Nagpur	0.44	0.84	0.83	1.00	0.37	
	CADA Pune	0.79	1.00	0.89	1.00	1.00	
	PIC Pune	0.34	1.00	1.00	1.00	0.29	
	CADA Jalgaon	0.89	1.00	1.00	1.00	0.28	
	CADA Nashik	0.69	1.00	1.00	1.00	0.19	
Surplus	CADA Nagpur	0.73	0.78	0.90	1.00	0.16	0.82
Abundant	SIC Sangli	0.33	0.61	0.51	1.00	0.18	0.79
	TIC Thane	0.49	0.43	0.55	1.00	0.17	
	CIPC Chandrapur	1.00	0.99	0.95	1.00	0.48	
	CADA Pune	0.90	1.00	0.96	1.00	0.36	

Notes:1) Figures in blue are excluded from Avg Per.
2) No Irr'indicates the utilised potential in that year is nil.

CAD Nashik All major projects except Kadwa have achieved the state norm. Effective potential utilisation in Kadwa project is 97%.

YIC Yeotmal: Actual potential utilisation on Arunavati project (26%) during the year 2006-07 is more or less same as it was during the irrigation year 2005-06 (25%) Proper action to utilise full created irrigation potential is necessary at project level.

CAD Jalgaon: In Hatnur project, full effective potential is utilised since last year.

MC Nanded: In Upper Penganga Project the ratio has decreased from 0.97 to 0.66. This may due to 43% non utilisation of water, the field officers are required to be more vigilant for improving the performance by planning full utilization of available water.

CAD Nagpur: There is no improvement on Lower Wunna project under the circle as compared to its last year's perfomance of (84%). However the current Potential utilisation (83%) as compared to state norms is appreciable. It is better as compared to other projects under this plan group.

CIPC Chandrapur: On Bor Project, there is slight decrease in potential utilisation (40%). During 2005-06 actual potential utilisation was (42%). There is low potential utilisation in rabbi & H.W. compared to project planning. Reasons for under potential utilisation must be sort out at project level.

UPC Amravati: Potential utilisation during year 2005-06 was 22%. However during the year 2006-07 potential utilisations has risen to 37 %. There is continuous increase in potential utilisation for last 3 years.

Surplus Plangroup:

CAD Nagpur: Actual potential utilisation on all the three projects [Bagh (100%), Itiadoh (100%) & Pench (84%)] under this circle is better than their past five year's average performance [Bagh (74%), Itiadoh (83%) & Pench (62%)]. Principle area on all these three projects is kharif paddy with appreciable area under HW paddy on Itiadoh project. Kharif Irrigation on agreement may be the prime reason for getting 100% potential utilisation.

Abundant Plangroup:

CIPC Chandrapur: On both Asolamendha and Dina Project, kharif paddy is the principle crop which requires water in the form of protective irrigation. Actual potential utilisation on the project is 95% of the created potential which is very close to the state norm. In case of Dina Project potential utilisation is 100% of created irrigation potential, which is 95% on Asolamendha project.

SC Sangli: The ratio of utilized irrigation potential to effective created potential in different projects under this circle are as under; Radhanagri (1),Tulsi (0.63), Warana (0.52), & Dhudhganga (0.31). On Dhudhganga project canal system under progress, hence potential ratio is lower. Compared with last year, improvement in utilization of potential created is observed to some extend.

CAD Pune: In Krishna Project the ratio comes to 0.96 this year as compared to last year value 1.0 and state target.

IC Zone: The Ratio of utilized irrigation potential to effective created potential in different projects under this circle are as under Bhatsa (0.47), Kal-Amba (0.91), Surya(0.35), Compared with last year 90% improvement is done. Overall performance is below State norm, sincere efforts & improvement, is observed to some extent, in this regard.

Indicator III: Output per Unit Irrigated Area (Rs/ha)

High Deficit Plangroup:

CAD Solapur: In Bhima project, Agricultural output is Rs52374/ha, overall performance is very good, Due to sugarcane crop percentage in this project is more than state norm.

Deficit Plangroup:

CAD Nashik In Chankapur project, though the output per ha is reduced (Rs. 21710/ha) as compared to last year 2005-06 (Rs. 35543 /ha), the achievement is about 95% of the state norm.

AIC Akola: Output on Katepurna Project is Rs.39042/ha which is too high although the percentage of oil seeds and perennial crops donot exceed 2.5% of the total area irrigated. On Nalganga Project, percentage of cash crops is not more than 3.5%. Still the out put rate achieved was Rs 45215 which is exorbitantly high. Field officers are required to assess the performance considering the realistic data.

BPC Buldhana: In spite of irrigating crops like oil seeds, wheat on Wan Project, output per unit area irrigated is low (Rs.14393). However, out put has been increased by more than 50%over its last year rate of out put. No perennial crops are grown in the command may be the reason for low out put.

CAD Aurangabad &CAD Beed: In Jayakwadi project (PRBC) the indicator is higher than State norms being 69% of cash crops.

On PLBC the agricultural out put has reduced from Rs. 27729 to Rs. 20282 as compared to last year. This is due to area under H.W. ground nut being substantially decreased.

CAD Beed: On all three major projects agricultural output is more than State target. The reason for higher output can be attributed to higher percentage of area under perennial crops ranging from 48% to 78%.

MC Nanded: In all the three projects viz. Manar, Vishnupuri & Purna the average agricultural out put reduced from 35801 (2005-06) to 20111 (2006-07) which is below the state norms ,reason being low yield per ha.

CAD Jalgaon: In Girna project, output/ha is increased from Rs. 16724 /ha (2005-06) to Rs. 19250 (2006-07) which is about 84% of the state norm.

Normal Plangroup:

CAD Pune: In kukdi Project the output is Rs. 53569/ha. It is nearly doubled than last year performance due to increased in irrigated area and cash crops of Rabi Wheat and Sugarcane in Perennial season.

In Ghod Project the output decreased from 21284/ha. To 20462./ha.this year, it is also below the state norms.

PIC Pune: In Khadakwasla Project the output comes to Rs. 49666 as compared to last years output of Rs. 53039. In NRBC the output is Rs. 30235/ ha. Which is same as last year and it is quite good as compared to state target. In NLBC in output is Rs. 31734/ha. It is slightly decreased than last

year but above the state norms in Pawna Project the output is slightly increased as compared to last year.

AIC Akola: Output observed on Pus Project (Rs.28028/ha) was more than the state norm of Rs.26000 per ha irrigated area. There is an increase in Out put as compared to last year out put. Cash crops on 40% of the total area irrigated may be the responsible for appreciable increase.

CAD Nashik In all the projects, the output/ha is above the state norm. Specifically in Mula project, the performance is improved (Rs. 33478/ha) as compared to last year (Rs. 23416/ha)

YIC Yeotmal: On Arunavati Project, there is slight improvement in output during the irrigation year 2006-07(Rs19377/ha) as compared to out put realised in 2005-06(16524) But it is low if compared to the state norm of Rs. 26000/ha.

CAD Jalgaon: In Hatnur project, the output /ha is on higher side (Rs. 77415/ha) of the state norm. This is because of major area under Banana & Sugar cane crops.

NC Nanded: In Upper Penganga Project the out put (28108) is increased by about 30% over last year (21803) being 28% cash crops.

CAD Nagpur: In case of Lower Wunna project, output per unit area irrigated was Rs 12892 which shows improvement in performace compared to last year performance of Rs. 9409 /ha. Still out put is low compared to the state target (Rs.26000 /ha) and other projects under this plan group.

CIPC Chandrapur: Output per unit area on Bor Project (Rs.17535) has beeen slightly rolled down as compared to its performance in 2005-06 (Rs19758). Performance is low compared to the state norm probably due to rabbi seasonal crops mainly gram with meager perennial crops (2.5%) sown in the command.

UPC Amravati: Out put per unit ha on Upper Wardha project was Rs 24058 which is low compared to the state norm of Rs 26000.

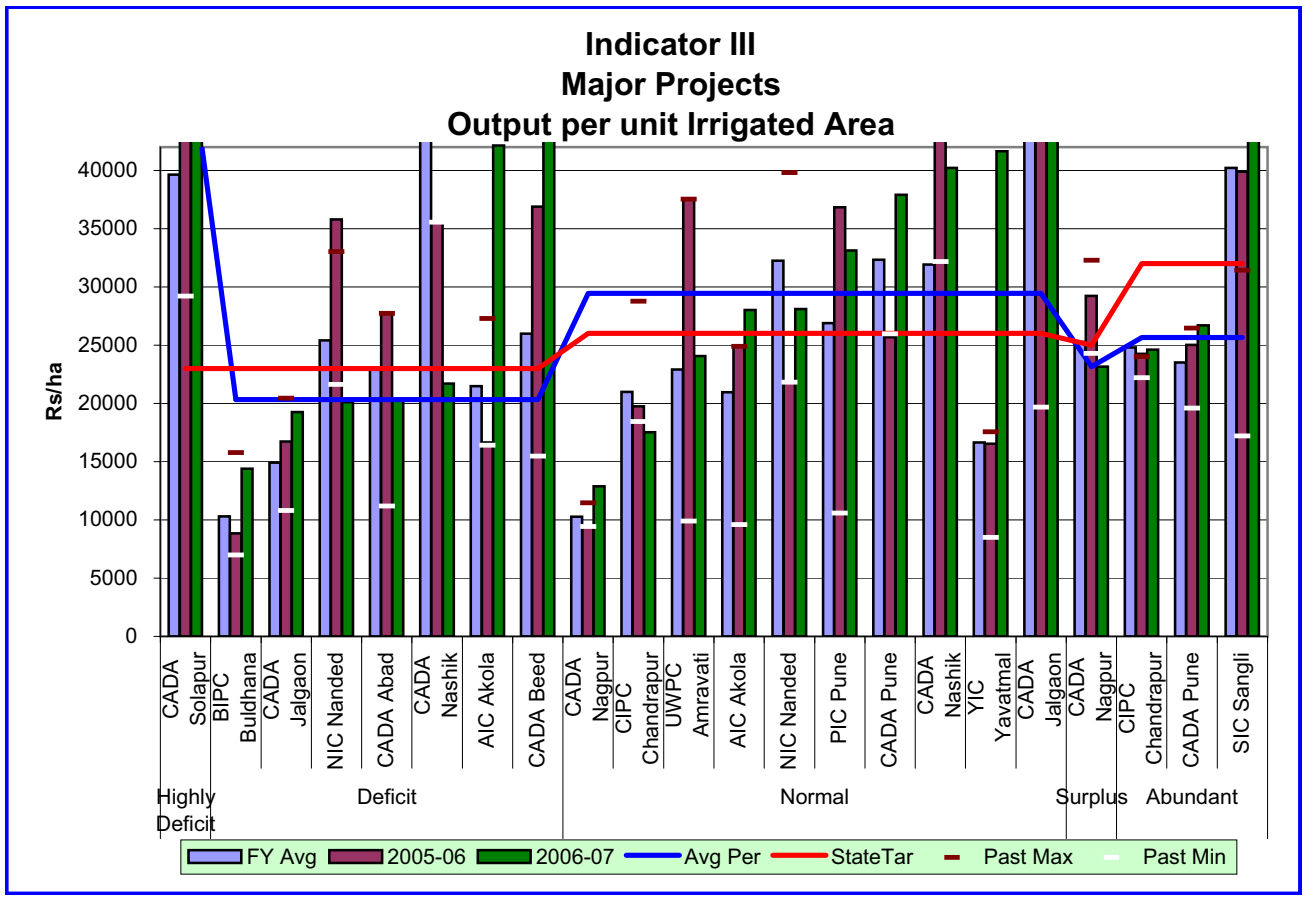
Surplus:

The output per unit irrigated area realised on Bagh (Rs.24885), Itiadoh(Rs25084) & Pench (Rs 22072) projects shows no improvement compared to it's last year performance. In fact out put on Pench project has been reduced by Rs 10201 per ha. As compared to the state norm (Rs.25000/ha) actual output derived on Bagh and Itiadoh project is satisfactory. Reason for reduction in out put on Pench project may be determined at project level.

Abundant Plangroup:

Output observed on Asolamendha and Dina was Rs.24500/ha and Rs 24700/ha respectively which is more or less same as per last year out put.

Asolamendha & Dina projects are paddy growing projects. Obviously the output per unit irrigated area on these projects is likely to be low



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per	St.Tar
Highly Deficit	CADA Solapur	39631	46175	52374	46175	29203	52374	21000
Deficit	BIPC Buldhana	10296	8850	14393	15773	6979		
	CADA Jalgaon	14904	16724	19250	20429	10806		
	NIC Nanded	25401	35801	20111	33023	21613		
	CADA Abad	23058	27729	20282	27729	11186	20338	23000
	CADA Nashik	47237	35543	21710	54857	35543		
	AIC Akola	21487	16658	42150	27290	16412		
	CADA Beed	25972	36903	47369	49912	15468		
Normal	CADA Nagpur	10278	9409	12892	11445	9409		
	CIPC Chandrapur	20988	19758	17535	28752	18421		
	UWPC Amravati	22918	37535	24058	37535	9886		
	AIC Akola	20961	24877	28028	24877	9578		
	NIC Nanded	32258	21803	28108	39808	21803	29458	25000
	PIC Pune	26892	36834	33127	55781	10562		
	CADA Pune	32330	25674	37920	50853	25947		
	CADA Nashik	31913	47030	40213	190886	32158		
	YIC Yavatmal	16637	16524	41646	17552	8478		
	CADA Jalgaon	68652	48351	77415	148519	19680		
Surplus	CADA Nagpur	25266	29214	23158	32272	24276	23158	31000
Abundant	CIPC Chandrapur	24803	24263	24602	24004	22187		
	CADA Pune	23523	25036	26705	26466	19599	25654	40000
	SIC Sangli	40224	39890	45073	31424	17193		
	TIC Thane	50197	50324	61582	63025	47865		

Note: 1) Figures in red indicate values exceeding range of graph. 2) Figures in blue and red excluded from Avg Per.
3) No Irr'indicates utilised potentail in that year is nil.

compared to state target (Rs.34000) and projects under SIC Sangli (Abundant plan group) where sugar cane is the predominant crop.

SIC Sangli: The Agricultural output per unit area in different projects under this circle are as under Radhanagri (67343),Tulsi (61553), Warana (64638), & Dhudhganga (59807). Paste attack on sugarcane crop is controlled, increase in yield, hence achievement is double than the state norm (Rs32000/ha). Overall performance is very good on all the projects.

TIC Thane: The Agricultural output per unit area (Rs/ha) in different projects under this circle are as under Bhatsa (56455), Kal-Amba (71079), & Surya (25651), Due to horticulture crops in place of rice crops output is much more the state norm (Rs 21000/ha). Over all performance of Agricultural output is very good.

CAD Pune: In Krishna Project the output is Rs. 26705/ha shows slight improvement than last year performance of Rs. 25036/ha.

Indicator IV. Output per unit Irrigation Water Supply (Rs./cum)

Highly Deficit Plangroup:

CAD Solapur: In Bhima (Ujjani) project, output per unit water supply for (Irrigation) is Rs4.5/cum. Over all performance is very good.

Deficit Plangroup:

CAD Nashik: In chankapur project, out put per unit irrigation water supplied is on higher side (Rs. 11/cum) as the water use per unit irrigated area has not exceeded the state norms i.e. water is utilised for irrigation precisely.

AIC Akola: On Katepurna Project on account of better yield and economic water use per unit area irrigated, output realised per unit irrigation water supply (Rs4.44/cum) appears to br good.. In case of Nalganga project due to volumetric water supply and better output the ratio (Rs.4.17/cum) is very good compared to the state target(Rs2.99/cum}.

BPC Buldhana: Due to the very low output and more water use than the state norm, output realised per unit of irrigation water supply on Wan project (Rs 1.13/cum) is low compared to state norm of Rs2.99/cum.

CAD Aurangabad & CAD Beed: In Jayakwadi project (PLBC) has retained its last years value where as on PRBC the value is increased from 1.77 to 4.41, perennial crops (69%) is the reason for increase in value.

CAD Beed: In Majalgaon project the indicator is increased from 1.57 to 2.0 but it is still lower to State target. The field officers are required to improve the indicator value by judicious water use. On Manjra & Lower Terna the values are more ahead to State norms.

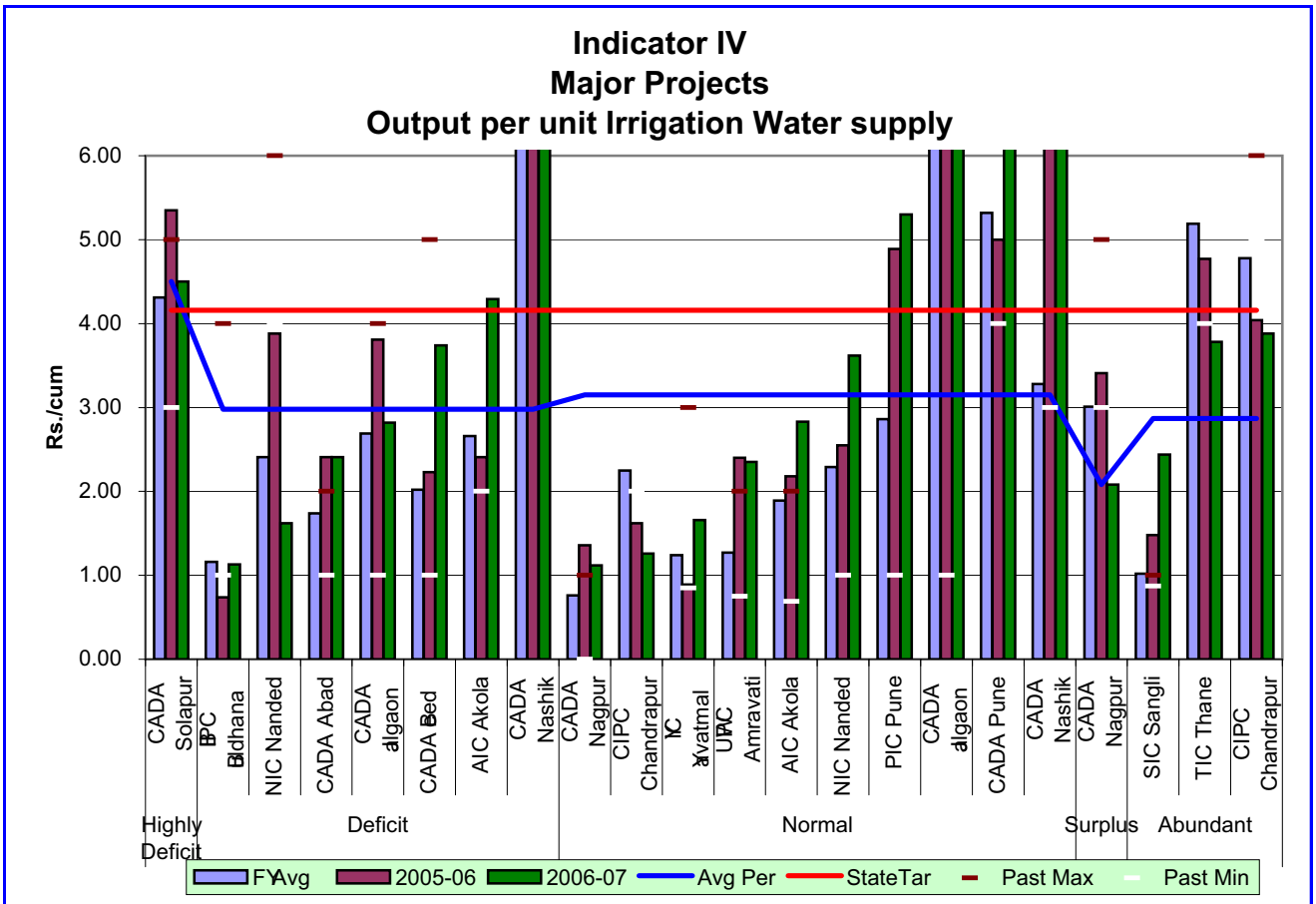
MC Nanded: In Manar project the value retained its last year value, in Vishnupuri & Purna project the values are reduced from 3.8 to 3.0 and 4.44 to 1.35 respectively as compared to last year. this indicates that proper attention has not taken at field level on water use which also affect getting low yield per hector.

CAD Jalgaon: In Girna project, the output per unit irrigation water supply is with the state norm (Rs.3/cum)

Normal Plangroup:

CAD Pune: In Kukadi Project the output works out to Rs. 14.03/cum. This is nearly 2.5 times than last year performance which is quite good due to less water use and increased in irrigated area. In Ghod Project output is slightly increased (Rs. 4.38/cum) than last year (Rs. 3.22/cum)

PIC Pune: In Khadakwasla Project the output is Rs. 4.30/cum in NLBC the output decreases from Rs.6.34/cum to Rs. 5.80/cum this year due to less area under irrigation of cash crops. In NRBC the output increased from Rs. 4.74/cum to 5.44/cum this year because of repairs to canal system and rainfall during rotation period causes less utilisation of water. In Pawna the output is decreased from Rs. 12.24/cum to Rs. 7.53/cum this year. But the performance of project under this circle is above the state target.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per	St Tar
Highly Deficit	CADA Solapur	4.31	5.35	4.50	5.36	3.00	4.50	2.69
Deficit	BPC Bidhana	1.16	0.74	1.13	4.62	1.00	2.98	2.99
	NIC Nanded	2.41	3.88	1.62	5.97	4.00		
	CADA Abad	1.74	2.41	2.41	7.30	1.00		
	CADA algaon	2.69	3.81	2.82	2.41	1.00		
	CADA Bed	2.02	2.23	3.74	3.81	1.00		
	AIC Akola	2.66	2.41	4.29	5.97	2.00		
	CADA Nashik	12.66	11.62	10.93	16.53	11.00		
Normal	CADA Nagpur	0.76	1.36	1.12	2.70	No water	3.15	3.38
	CIPC Chandrapur	2.25	1.62	1.26	2.18	2.00		
	YC Yavatmal	1.24	0.89	1.66	2.40	0.85		
	UPC Amravati	1.27	2.40	2.35	2.00	0.75		
	AIC Akola	1.89	2.18	2.83	6.76	0.69		
	NIC Nanded	2.29	2.55	3.62	7.10	1.00		
	PIC Pune	2.86	4.89	5.30	12.24	1.00		
	CADA algaon	8.59	10.46	6.72	6.67	1.00		
	CADA Pune	5.32	5.00	9.43	8.56	4.00		
	CADA Nashik	3.28	9.04	9.58	19.09	3.00		
Surplus	CADA Nagpur	3.01	3.41	2.08	5.95	3.00	2.08	3.25
Abundant	SIC Sangli	1.02	1.48	2.44	4.11	0.87	2.87	4.16
	TIC Thane	5.19	4.77	3.78	6.61	4.00		
	CIPC Chandrapur	4.78	4.04	3.88	5.12	5.00		
	CADA Pune	3.71	4.14	4.07	7.12	3.00		

Note:1) Figures in red indicate values exceeding range of graph. 2) Figures in blue & red are excluded from Avg Per
3) No water' indicates reservoirs are not filled in that year.

AIC Akola: In spite of, excessive water use per unit irrigated area, good realisation of output on Pus Project gave value as Rs.2.83. Moreover there is improvement in performance by Rs (2.83-2.13) 0.70 per cum as compared to last years performance.

CAD Nashik In all the projects, the output per unit irrigation water supply is quite higher as compared to the state norm due to cash crops in the command.

YIC Yeotmal: Due to high water use and low output on Arunavati project, the ratio has attained value Rs.1.66/cum which is low compared to state target of Rs 3.89/cum . However there is increase in out put over its value in last year (Rs 0.89/cum)

CAD Jalgaon: In Hatnur project, the output per unit irrigation water supply is on higher side (Rs. 7/cum) of the state norms due to cash crops (Banana & Sugar cane) in the command.

NIC Nanded: On Upper penganga project the value of indicator is increased from 2.55 to 3.62 this is due to 28% perennial crops.

CAD Nagpur: Output per unit irrigation water supply on Lower Wanna Project is Rs.1.12 only as compared to state norm of Rs.3.38/cum. Performance is average on account of low output and more water use on the project.

CIPC Chandrapur: Though the output per unit irrigated area on Bor Project is fair as compared to the state target, ultimate out put per unit water supply was Rs.1.26 due to excessive irrigation water use.

WPC Amaravati: Exceptionally high water use per unit area irrigated and low output has resulted in reduction in performance in case of Wardha project (Rs.2.35/cum). By curbing excessive water use performance can only be improved.

Surplus Plangroup:

CAD Nagpur: Ratio in case of Bagh & Itiadoh Project is Rs.3.51/cum & 1.88/cum respectively. Performance in case of Itiadoh project compared to Bagh is some what low due to Hot Weather paddy grown on it.Where as on Pench project, low out put(Rs.1.89) is on account of more water use and low out put per ha area irrigated.

Abundant Plangroup:

CIPC Chandrapur: On Asolamendha and Dina project irrigation is mainly in the form protective irrigation. The performance is close to the state norm, on Dina Project (Rs.4.16/cum). On Asolamendha project, on account of more water use than Dina, the out put is compareteively low (Rs.3.44/cum).

SIC Sangli: The output per unit water supply (Rs/cum) in different projects under this circle are as under Radhanagri (3.98), Tulsi (4.23), Warana (4.13), & Dudhganga (3.3). Sincere efforts are being made for improvements. Compared with the last year, overall performance is improved by 20 to 40%.

CAD Pune: In Krishna Project the output comes out to Rs. 4.07/cum which is slightly less than last year and state norms.

TIC Thane: The out put per unit water supply (Rs./cum) in different projects under this circle are as under Bhatsa (3.18), Kal-Amba (2.97) & Surya (1.30). Compared with last year, overall performance is improved, only the performance of Surya project is below the state norm..

Indicator V:Cost Recovery Ratio

Highly Deficit Plangroup:

CAD Solapur: In Bhima (Ujjani) project, cost recovery ratio is 0.75. It is less than the state norm due to utilization of O & M fund for repair of system & increase in the salaries of staff to some extent.

Deficit Plangroup:

CAD Nashik In chankapur project, the ratio is reduced from 4.08 (2005-06) to 1.58 (2006-07).This is because of reduction in revenue by 62% and increase in O&M cost by 160%.

AIC Akola: On Katepurna project the ratio (0.95) is close to state target. Appreciable achievement is on account of notable NI water tax recovery. However on Nalganga project, the cost recovery ratio (0.12) is very poor compared to state norm. It is even low compared to its last year performance i.e. 0.28. There is low revenue recovery on the part of irrigation water supply along with heavy operation (salary) cost. Reasons for such large operation cost when the area irrigated on both the projects i.e. Katepurna and Nalganga is same and most of the area on Nalganga project is managed by WUA needs to be sorted out at field level.

BPC Buldana: On Wan Project, ratio observed was (0.49). Though it is low compared to state target, there is improvement over its last year performance (0.28). Low irrigation recovery along with high operation cost has affected the cost recovery ratio.

CAD Aurangabad & CAD Beed: The ratio on PLBC is above State norms as recovery is better. In PRBC the ratio has declined over the last year due to lesser recovery.

CAD Beed: In Majalgaon project ratio has been increased over last year, as recovery of irrigation & Non irrigation has doubled, keeping the O & M cost nearly same. In Manjra there is decline trend in cost recovery ratio, as the O & M cost has increased. In Lower Terna, the ratio is very low (0.08) against State norms as recovery being less.

MC Nanded: In Vishnupuri project the cost recovery ratio has improved from 0.4 to 1.11 and achieved State norms as the recovery of non irrigation has increased and simultaneously O & M cost has reduced. On Purna project ratio has been declined over last year due to O & M cost has doubled and recovery being same. In Manar project the ratio being retained its last years value and no improvement. Field officer are required to take efforts for recovery of irrigation & non irrigation.

CAD Jalgaon: In Girna project, the ratio is reduced from 0.52 (2005-06) to 0.34 (2006-07).This is mainly due to reduction in revenue by 67% and increase in the O&M cost by 103%.

Normal Plangroup:

CAD Pune: In Kukadi Project the cost recovery ratio comes to 0.21 shows improvement than last year's value 0.17. The ratio is below the state target. The field officer's have to take more efforts for better recovery. In Ghod

Project ratio increased from 0.36 to 1.67 this year. The performance increased due to better recovery and less amount of expenditure on maintenance.

PIC Pune: In Khadakwasla, NLBC, NRBC and Pawna Project the cost recovery ratio is 1.64, 2.22, 1.04 and 18.25 this year. All projects has increased the performance than last year, the reason for better performance is better recovery and reduction in maintenance cost. In Pawna Project the more recovery of N.I. use causes enhancement in performance considerable.

AIC Amla: On Pus project, the ratio (0.36) is low compared to state norm as well as last year performance (0.72). It is so on account of low irrigation recovery and high operation cost. Suitable measures to increase the irrigation recovery are necessary.

CAD Nashik In Bhandardara project, the ratio is lowered from 1.02 (2005-06) to 0.61 (2006-07) due to increased in O & M cost by 1.25 times.

In Mula project though there is increase in revenue by 17% but there is increase in O & M cost by 40% resulting lowering down the ratio from 0.27 (2005-06) to 0.23 (2006-07).

In Ozerkhed project there is increase in revenue by 30% due to which the ratio is increased from 0.10 (2005-06) to 0.15 (2006-07).

In Palkhed project the ratio has been increased from 0.53 (2005-06) to 0.72 (2006-07) due to 20 % increased in revenue and 90% reduction in O & M cost as compared to last year.

In Waghad project, there is no change in revenue as compared to last year. How ever due to 25% increase in O & M cost, the ratio is lower from 0.17 to 0.13.

In Darna project the ratio is above state norm since last year.

In Gangapur project the ratio has been increased from 11.02 to 15.91 due to increase in recovery of NI use by 90% as compared to last year.

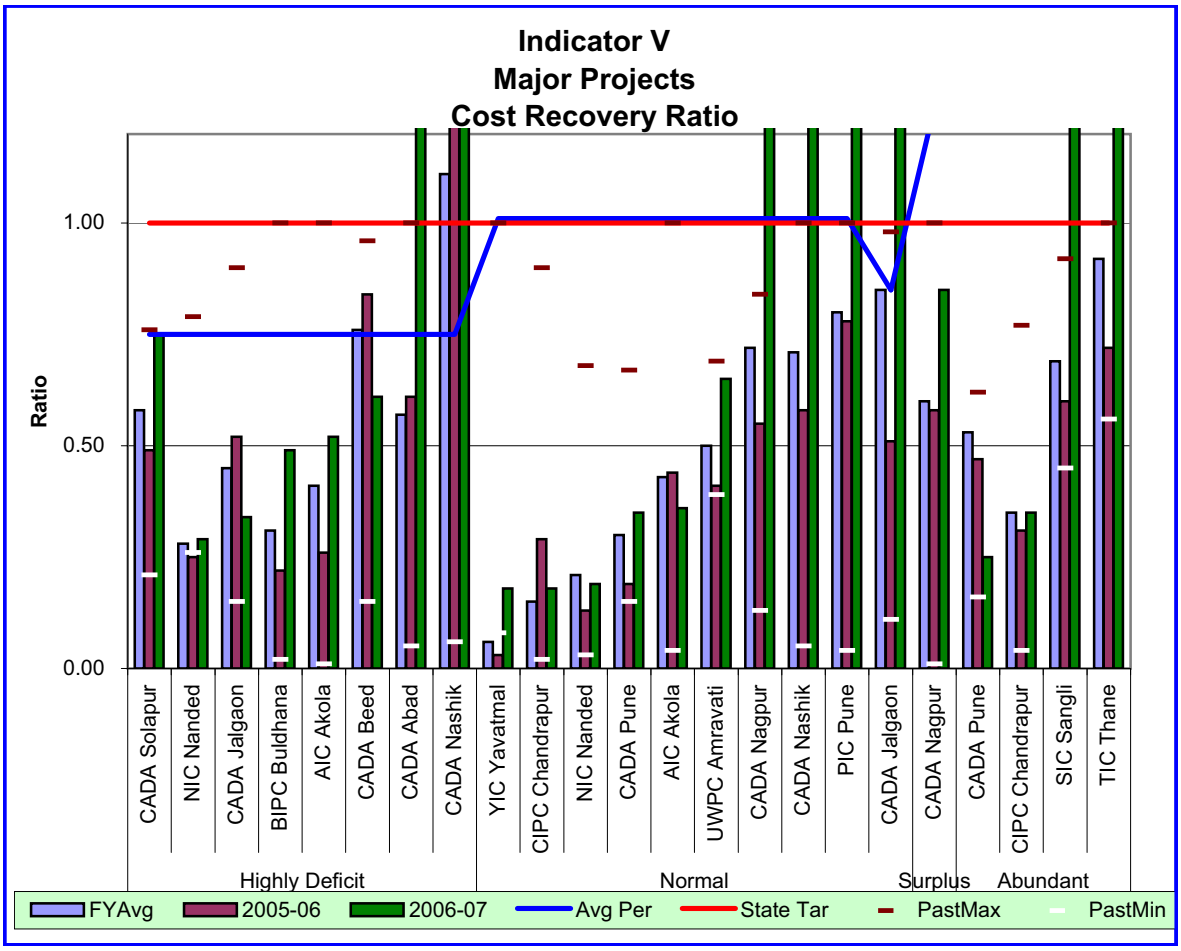
In Kadwa project there is slight increase in revenue of both irrigation & Non Irrigation use. However due to high O & M cost, the ratio is much below the state norm (0.04).

Field officers are required to take necessary efforts to improve the performance in the projects where the ratio is below the state norm.

YIC Yeotmal: The cost recovery ratio on Arunavati project is very low (0.18). Recovery on the part of irrigation was just 10%. It may be so on account of weak economical condition of farmers. But it is to be noted that recovery on account of Non Irrigation water supply was also less than 30%.Efforts are needed at least to collect the NI recovery in scheduled time.

CAD Jalgaon: In Hatnur project, the ratio is above state norm (3.8).The increase is due to high recovery of N.I. water use.

MC Nanded: The ratio in UPP has increased from 0.13 to 0.19 as compared to last year, but it is still below the State norms. Increase in O & M cost affect



Plangroup	Circle	FYAvg	2005-06	2006-07	PastMax	PastMin	Avg Per
Highly Deficit	CADA Solapur	0.58	0.49	0.75	0.76	0.21	0.75
0	NIC Nanded	0.28	0.25	0.29	0.79	0.26	0.75
	CADA Jalgaon	0.45	0.52	0.34	0.90	0.15	
	BIPC Buldhana	0.31	0.22	0.49	1.00	0.02	
	AIC Akola	0.41	0.26	0.52	1.00	0.01	
	CADA Beed	0.76	0.84	0.61	0.96	0.15	
	CADA Abad	0.57	0.61	1.29	1.00	0.05	
	CADA Nashik	1.11	4.08	1.58	4.08	0.06	0.62
Normal	YIC Yavatmal	0.06	0.03	0.18	1.00	0.08	1.01
	CIPC Chandrapu	0.15	0.29	0.18	0.90	0.02	
	NIC Nanded	0.21	0.13	0.19	0.68	0.03	
	CADA Pune	0.30	0.19	0.35	0.67	0.15	
	AIC Akola	0.43	0.44	0.36	1.00	0.04	
	UWPC Amravati	0.50	0.41	0.65	0.69	0.39	
	CADA Nagpur	0.72	0.55	1.33	0.84	0.13	
	CADA Nashik	0.71	0.58	1.42	1.00	0.05	
	PIC Pune	0.80	0.78	2.40	1.00	0.04	
	CADA Jalgaon	0.85	0.51	3.80	0.98	0.11	0.85
Surplus	CADA Nagpur	0.60	0.58	0.85	1.00	0.01	1.26
Abundant	CADA Pune	0.53	0.47	0.25	0.62	0.16	
	CIPC Chandrapu	0.35	0.31	0.35	0.77	0.04	
	SIC Sangli	0.69	0.60	1.23	0.92	0.45	
	TIC Thane	0.92	0.72	6.78	1.00	0.56	

Note: Figures in red indicate values exceeding range of graph.

the indicator value. The field officers is required to be vigilant for reducing maintenance cost and efforts are required for better recovery.

CADA Nagpur: On lower Wanna Project (1.35), the cost recovery ratio observed is good as compared to state norm. 100% Non Irrgation water use recovery along with appreciable irrigation recovery is responsible to cross the target.

CIPC Chandrapur: On Bor Project (0.40), the ratio has improved compared to last year (0.12). Still it is very low compared to the state norm.

UWPC Amaravati: On Upper Wardha Project cost recovery ratio has slightly improved (0.67) compared to last year (0.60)] but it is still below the state norm.

Surplus Plangroup:

CADA Nagpur: In case all three projects under this circle, namely Bagh (o.07), Itiadoh (0.13) and Pench (1.45), achievement in respect of Cost recovery ratio was low than the past year performance of 0.17, 0.33 & 2.45 as well as state norm(except Pench). On Pench performance looks to be good compared to state norm due to considerable NI water use and recovery on that part. Low Percentage of irrigation revenue recovery on all the three projects have pulled down the performance of the circle. More efforts are needed towards maximum irrigation revenue recovery on these projects as a whole for improving the performance.

Abundant Plangroup:

On both the projects, Dina (0.39) & Asolamendha (0.31), cost recovery ratio was between 30 to 40% of the state target. Low achievement obviously is due to low irrigation recovery. If projects are considered individually, performance of Dina appears to be better than Asolamendha as the revenue recovery on it was about 70%, which was 30% on Asolamendha project. On Dina project revenue recovery has improved the ratio compared to its past performance (0.08).

SIC Sangli: Cost Recovery ratio in different projects under this circle are as under Radhanagri (0.24), Tulsi (0.58), Warana(1.2),& Dudhaganga(0.46). Substantial increase in O&M cost due to KT weirs newly rectified & fully repaired.

CADA Pune: In Krishna Project the ratio decreased from 0.85 to 0.25 this year. The ratio reduced due to increase in expenditure on operational and maintenance and decrease in recovery of irrigation and NI use.

TIC Thane: In Bhatsa project the ratio is 26.07 which is three times more, compared with last year, increased abnormally due to increase in revenue & reduction in O & M expenditure. In Surya project the ratio is 13.56, It is three times more than last year & much more than the state norm.

Indicator VI: O & M Cost Per Unit Irrigated Area (Rs./ ha)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) project O & M cost per unit area is Rs.1398/ha, which is 11.80% more than the state norm, Hence performance is good.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the O & M cost per unit irrigated area is just (28%) on higher side of the state norm.

AIC Akola: Due to low irrigation potential utilisation and twice the maintenance expenditure of prescribed norms on Katepurna Project, the O & M cost per unit are irrigated is about 3.5 times more (Rs.4422) than the state norm (Rs.1250). On Nalganga Project too, the maintenance expenditure 4 times the prescribed norm with low potential utilisation has raised the ratio to Rs.5234 ha against state norm of Rs.1250/ha.

BIPC Buldhana: On Wan Project, O & M cost per unit irrigated area has been increased to Rs.1839 as compared to its last year performance of Rs 925. Decrease in performance level was on account of low potential utilisation.

CADA Aurangabad: In Jayakwadi project (PLBC) the O & M cost per unit area has increased from 1434 to 1877 as compare to last year, which is 1.5 times the State norms.

In Jayakwadi project (PRBC) under CADA Beed the ratio has reduced from 5573 to 2455 as compared to last year, but still it is 2.0 times the State norms.

CADA Beed: In Majalgaon project the indicator value is reduced from 6170 to 4187 as a compared to last year. But it is still very high to State norms, nearly 3.5 times higher than the State norms.

In Manjra project the ratio is reduced from 3999 to 3115 as compare last year. But it is still very high to State norms, nearly 2.5 times the State norms.

In Lower Terna though the ratio is reduced from Rs. 6998 to Rs. 5796 as compare to last year, it is still very high to State norms. Nearly 4.5 times the State norms.

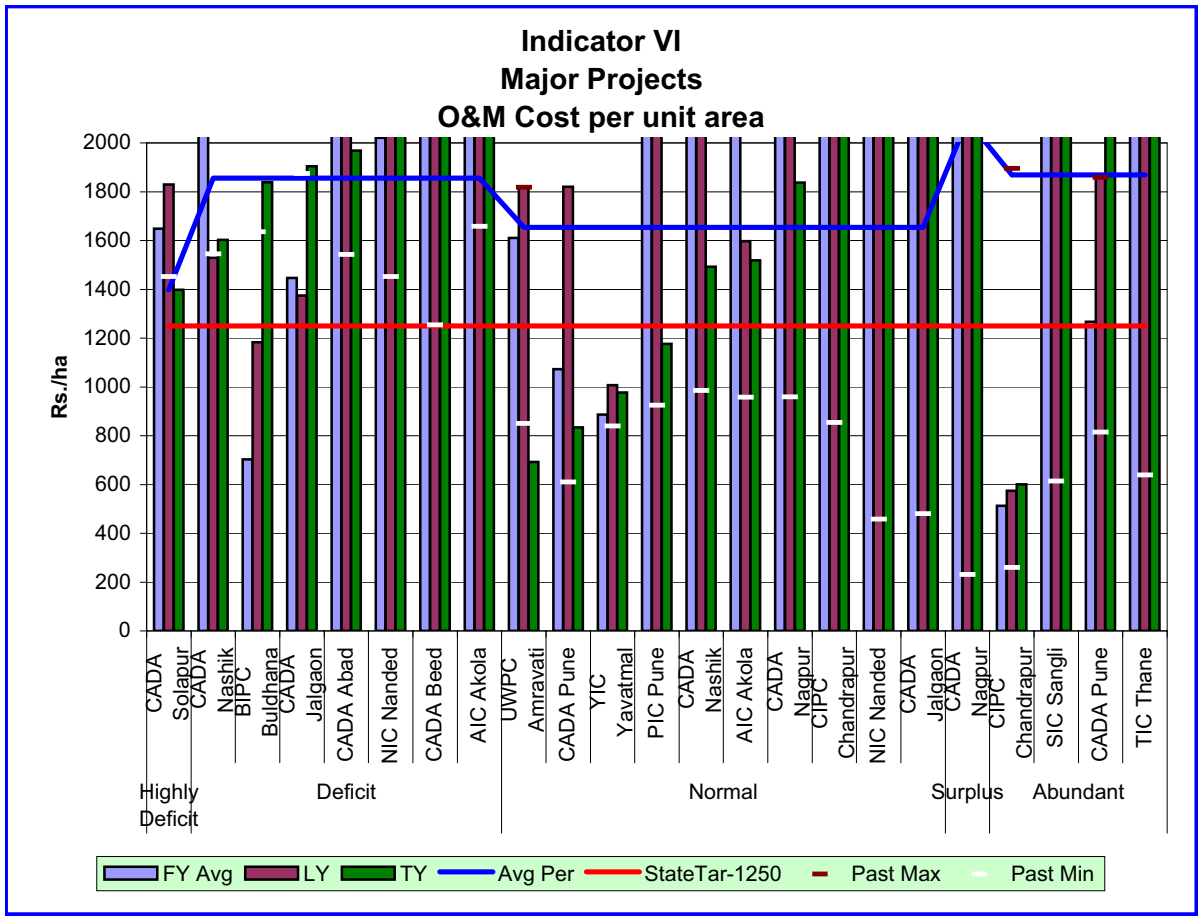
NIC Nanded: In Manar project the cost has decreased from 2529 to 2138 as compared to last year.

In Vishnupuri project the cost ratio has decreased from 3377 to 1585 as compared to last year, but it is still 1.25 times the State norms.

In Purna project the cost ratio has increased from 1837 to 2862 as compared to last year, which is 2.35 times the State norms.

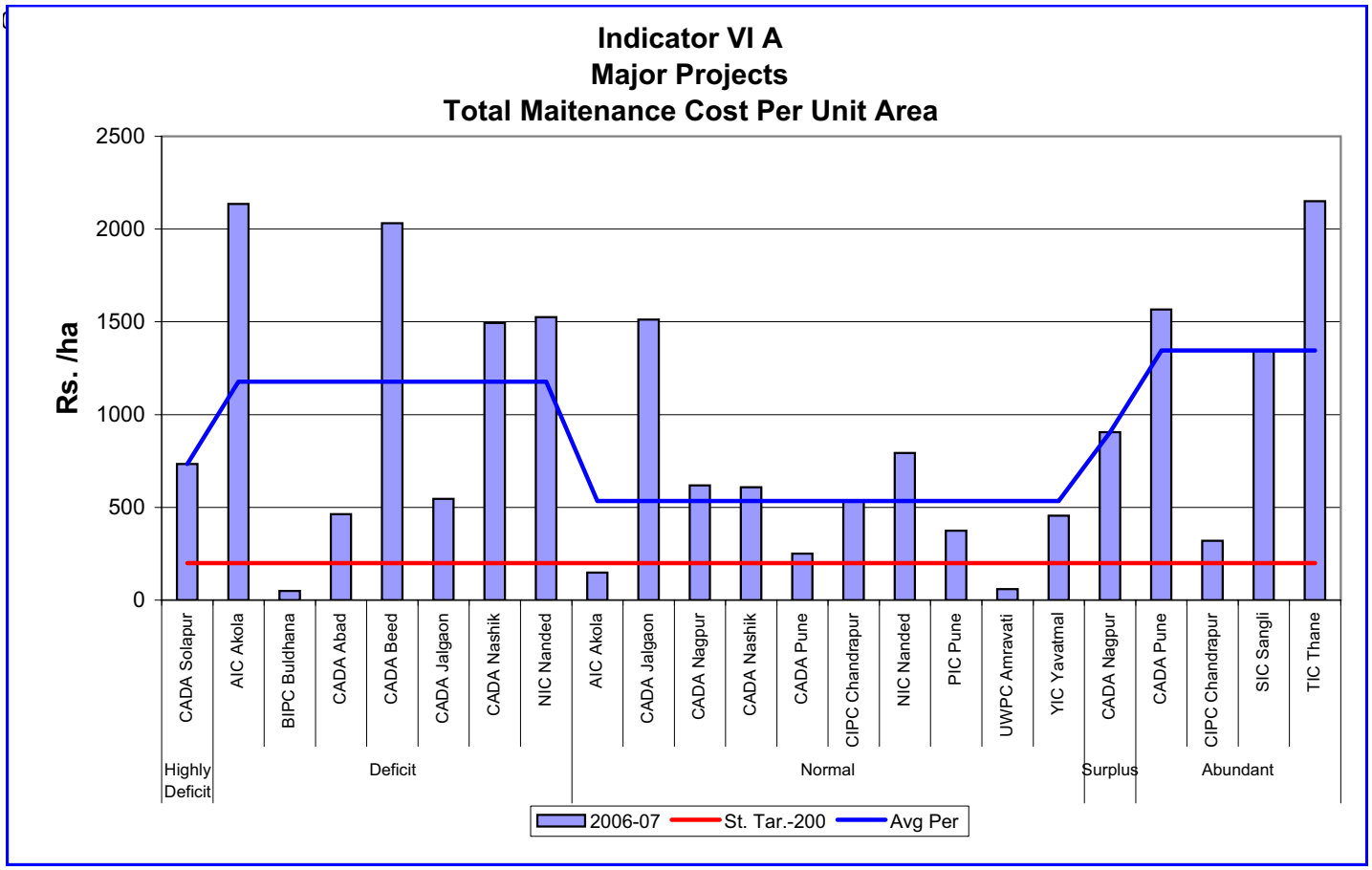
CADA Jalgaon: In Girna project, the O&M cost per unit irrigated area is on higher side (Rs 1904/ha) of state norm.

Normal Plangroup:

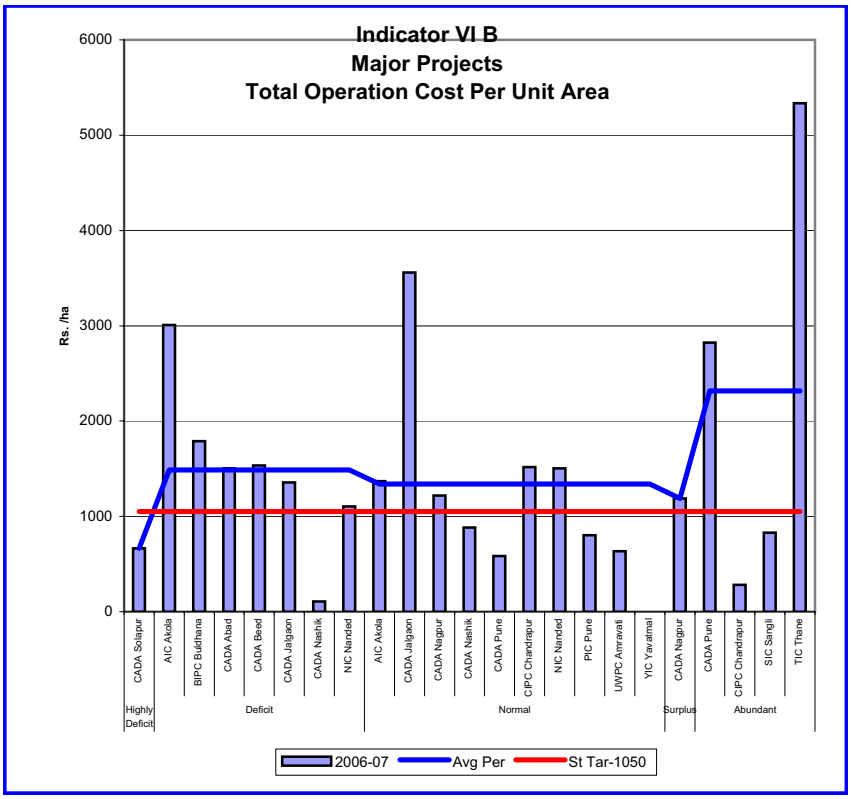


Plangroup	Circle	FY Avg	LY	TY	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	1648	1830	1398	6934	1452	1398
Deficit	CADA Nashik	2616	1529	1603	8115	1545	1856
	BIPC Buldhana	703	1183	1839	3456	1635	
	CADA Jalgaon	1446	1374	1904	3654	1874	
	CADA Abad	5984	3368	1968	4835	1542	
	NIC Nanded	2021	2594	2631	6548	1452	
	CADA Beed	3590	5406	3563	4092	1254	
	AIC Akola	4797	5987	5145	5462	1658	
Normal	UWPC Amravati	1611	1818	693	1818	850	1654
	CADA Pune	1073	1820	834	2806	610	
	YIC Yavatmal	886	1007	977	2956	840	
	PIC Pune	3909	3015	1177	8106	924	
	CADA Nashik	3746	3159	1493	3431	985	
	AIC Akola	2597	1598	1519	5364	958	
	CADA Nagpur	3193	3577	1837	3854	959	
	CIPC Chandrapur	6351	2481	2049	6451	854	
	NIC Nanded	3043	2676	2297	7103	458	
	CADA Jalgaon	5840	4840	5071	6534	480	
Surplus	CADA Nagpur	3111	3313	2094	3227	231	2094
	CIPC Chandrapur	513	575	601	1895	260	1869
	SIC Sangli	2770	3703	2176	15571	614	
	CADA Pune	1267	1859	4389	1859	815	
	TIC Thane	7360	43848	7484	8600	639	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in blue are excluded for Avg Per. 3) 'No Irr' indicates utilised potential of that year is nil.



Plangroup	Circle	2006-07	Avg Per	St. Tar.-200
Highly Deficit	CADA Solapur	734	734	200
Deficit	AIC Akola	2136	1177	200
	BIPC Buldhana	49		200
	CADA Abad	464		200
	CADA Beed	2031		200
	CADA Jalgaon	546		200
	CADA Nashik	1494		200
	NIC Nanded	1525		200
Normal	AIC Akola	148	535	200
	CADA Jalgaon	1512		200
	CADA Nagpur	619		200
	CADA Nashik	609		200
	CADA Pune	250		200
	CIPC Chandrapur	531		200
	NIC Nanded	793		200
	PIC Pune	374		200
	UWPC Amravati	60		200
	YIC Yavatmal	455		200
Surplus	CADA Nagpur	906	906	200
Abundant	CADA Pune	1566	1345	200
	CIPC Chandrapur	320		200
	SIC Sangli	1345		200
	TIC Thane	2150		200



Plangroup	Circle	2006-07	Avg Per	St Tar-1050
Highly Deficit	CADA Solapur	664	664	1050
Deficit	AIC Akola	3009	1487	1050
	BIPC Buldhana	1791		1050
	CADA Abad	1505		1050
	CADA Beed	1533		1050
	CADA Jalgaon	1358		1050
	CADA Nashik	108		1050
	NIC Nanded	1106		1050
Normal	AIC Akola	1371	1341	1050
	CADA Jalgaon	3558		1050
	CADA Nagpur	1218		1050
	CADA Nashik	884		1050
	CADA Pune	584		1050
	CIPC Chandrapur	1518		1050
	NIC Nanded	1505		1050
	PIC Pune	803		1050
	UWPC Amravati	633		1050
	YIC Yavatmal	0		1050
Surplus	CADA Nagpur	1187	1187	1050
Abundant	CADA Pune	2823	2317	1050
	CIPC Chandrapur	281		1050
	SIC Sangli	830		1050
	TIC Thane	5335		1050

CADA Pune: In Kukadi Project the O & M cost per unit area is Rs. 992/ha which reduces from Rs. 1344/ha of last year. In Ghod Project the project the performance considerably reduced from Rs. 2311/ha to Rs. 323/ha. due to increase in irrigable area and reduction in expenditure on maintenance.

PIC Pune: In Khadakwasla Project the O. & M. cost per unit area is Rs. 4735/ha. It increased from Rs. 3668/ha of last year's due to decrease in irrigabed area as compared to last year. In NLBC the O & M cost per unit area is Rs. 410/ha shows improvement in performance than last year of Rs. 594/ha due to increases in irrigated area and less expenditure on establishment. In NRBC Cost per unit area is Rs. 748/ha which is nearly same of last year value of Rs. 688/ha. In Pawna this year the value increases from Rs. 5162/ha.to Rs. 11680/ha.

AIC Akola: On Pus project, the ratio was slightly higher (Rs1381) than the state norm

CADA Nashik: In Darna, Bhandardara, Ozerkhed and Palkhed projects, the O&M cost per unit irrigated area is well within the state norm. However, in Gangapur, Kadwa, Waghad & Mula projects, the O & M cost per unit irrigated area is on higher side of state norm.

YIC Yeotmal: On Arunavati project, the ratio (Rs 455) appears to be too low. In spite of permanent instructions issued to consider the cost of salary of staff worked on IM as operation cost, irrespective of account head to which it is charged, project authorities have considered only maintenance cost.

CADA Jalgaon: In Hatnur project, the O & M cost per unit irrigated area is on higher side (4 times) of state norm. The field officers are required to take remedial measures to improve the performance.

NIC Nanded: In UPP the cost ratio has reduced from 2709 to 2052 as compared to last year.

CADA Nagpur: On Lower Wunna project O&M cost per unit area irrigated (Rs 1831) was on higher side on account of low potential utilisation as well as more expenditure on maintenance and operation than the standard norms.

CIPC Chandrapur: On Bor project, O&M cost per unit area irrigated was on higher side on account of low potential utilisation as well as more expenditure on maintenance and operation than the standard norms.

UWPC Amaravati: Low expenditure on maintenance and operation of IM has kept the ratio well below the state norm.

Surplus Plangroup:

CADA Nagpur: O&M cost per unit area of 3 projects under the circle is Rs. 2094 /ha which is more than the state norm. In spite of good potential utilisation on Bagh & Itiadoh projects, the ratio observed is Rs. 2387/ha and Rs. 2598/ha which suggest more O&M exenditure on these projects compared to the state norm.

Abundant Plangroup:

CIPC Chandrapur: Better potential utilisation and low expenditure on O & M has curbed the O & M cost per unit area irrigated well below the state norm on Dina (Rs 546) & Asolamendha (Rs659) projects.

SIC Sangli: The O & M cost per unit area (Rs/ha) in different project under this circle are as under Radhanagri (2868), Tulsi(4773), Warna(1170) & Dudhaganga(1183). Comparing with last year ratio is decreased by 50%, further efforts are being taken to reduce O & M cost & increasing irrigation area. Overall performance in Warna project & Dhudhganga project is good & improved marginally compared with last year. Due to huge repair work on Radhanagari & Tulsi, indicator value is too much more than the state target.

TIC Thane: The O & M cost per unit area (Rs/ha) in different project under this circle are as under Bhatsa(2141), Kal-Amba(1425), & Surya (1962). Overall performance is more than the state norm at the tune of 14 to 71 %

CADA Pune: In Krishna Project the O & M cost per unit area is enhanced alarmingly this year from Rs. 1041/ha.to Rs. 4389/ha. The enhancement is because of increase in expenditure on maintenance and establishment cost

Indicator VII: O & M Cost Per Unit Water Supply (Rs. /cum)

Highly Deficit Plangroup:

CADA Solapur: In Bhim (Ujjani) project, the O & M cost is Rs. 0.14 /cum, It is 12.5% below the state norm, overall performance is very good.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the O & M cost per unit water supplied has exceeded the state norm (Rs.0.30/cum). The indicator value has exceeded the state norm because of 60% increase in O & M cost as compared to last year.

AIC Akola: O & M cost per unit water supplied on Katepurna & Nalganga Project under AIC Akola (Deficit) was more than state norm on account of increase in maintenance expenditure.

CADA Aurangabad & CADA Beed: In Jayakwadi project (PLBC) the value is increased from 0.11 to 0.22 and for PRBC it is reduced from 0.27 to 0.21, which are still higher to State norms.

CADA Beed: In Majalgaon, Manjra & Lower Terna the indicator values have decreased from 0.28 to 0.24, 0.30 to 0.27 & 1.00 to 0.61 respectively, but for all 3 projects the values are higher than State norms.

NIC Nanded: In Purna project the ratio has slightly increased from 0.19 to 0.21 where as in Manar it is increased from 0.24 to 0.47.

In Vishnupuri project the ratio is reduced by 50% i.e. from 0.38 to 0.19 as compared to last year.

CADA Jalgaon: In Girna project, the O & M cost per unit water supplied is more than state norm and slightly increased from Rs.0.21/cum (2005-06) to Rs.0.25/cum (2006-07). O & M expenditure should be controlled to improve the performance.

Normal Plangroup:

CADA Pune: In Kukadi Project the O & M cost is Rs. 0.26/cum which is slightly increased over last year performance of Rs. 0.24/cum.because of increase in water utilisation in Ghod Project, this year O & M cost is Rs. 0.07/cum reduces from Rs. 0.34/cum The improvement in performance is due to less maintenance expenditure.

PIC Pune: In Khadakwasla, NLBC, NRBC and Pawana Project O & M cost Per Unit water supply is Rs. 0.19, 0.07,0.13 and 0.08/cum. The performances of all projects are up to target level.

On Arunavati (YIC Yeotmal) (Rs 0.04/cum), & Upper Wardha (UWPC Amaravati) (Rs .06/cum) projects, O&M Cost per unit irrigation water use was well below the state norm due to excessive water use and low maintainance /operation cost incurred on these projects. The ratio on Pus (AIC Akola), Bor (CIPC Chandrapur) and Lower Wunna (CADA Nagpur was close to the state target.

CADA Jalgaon: In Hatnur project, the O&M cost per unit water supplied is within the state norm. This is achieved duly reducing the O&M cost by 60% as compared to last year.

CADA Nashik: In all the projects except Gangapur (Rs.0.11/cum) the O & M cost per unit water supplied is above state norm. The indicator value ranges from Rs.0.23/cum to Rs. 0.60/cum.Field officers are required to take care to improve the performance.

NIC Nanded: In UPP the ratio has retained as 0.27, which is higher to State norms.

Surplus Plangroup:

On each project under this circle i.e. Pench (Rs 0.13/cum), Bagh (Rs 0.34/cum), & Itiadoh (Rs 0.20/cum), project O & M cost for unit water supply is close or more than state norm.

The low performance in spite of more water use per unit irrigated area shows excessive O&M expenditure on these projects. Project authorities are advised to determine reasons for excessive O&M expenditure and still more transit losses in the system leading to excess water use on these projects.

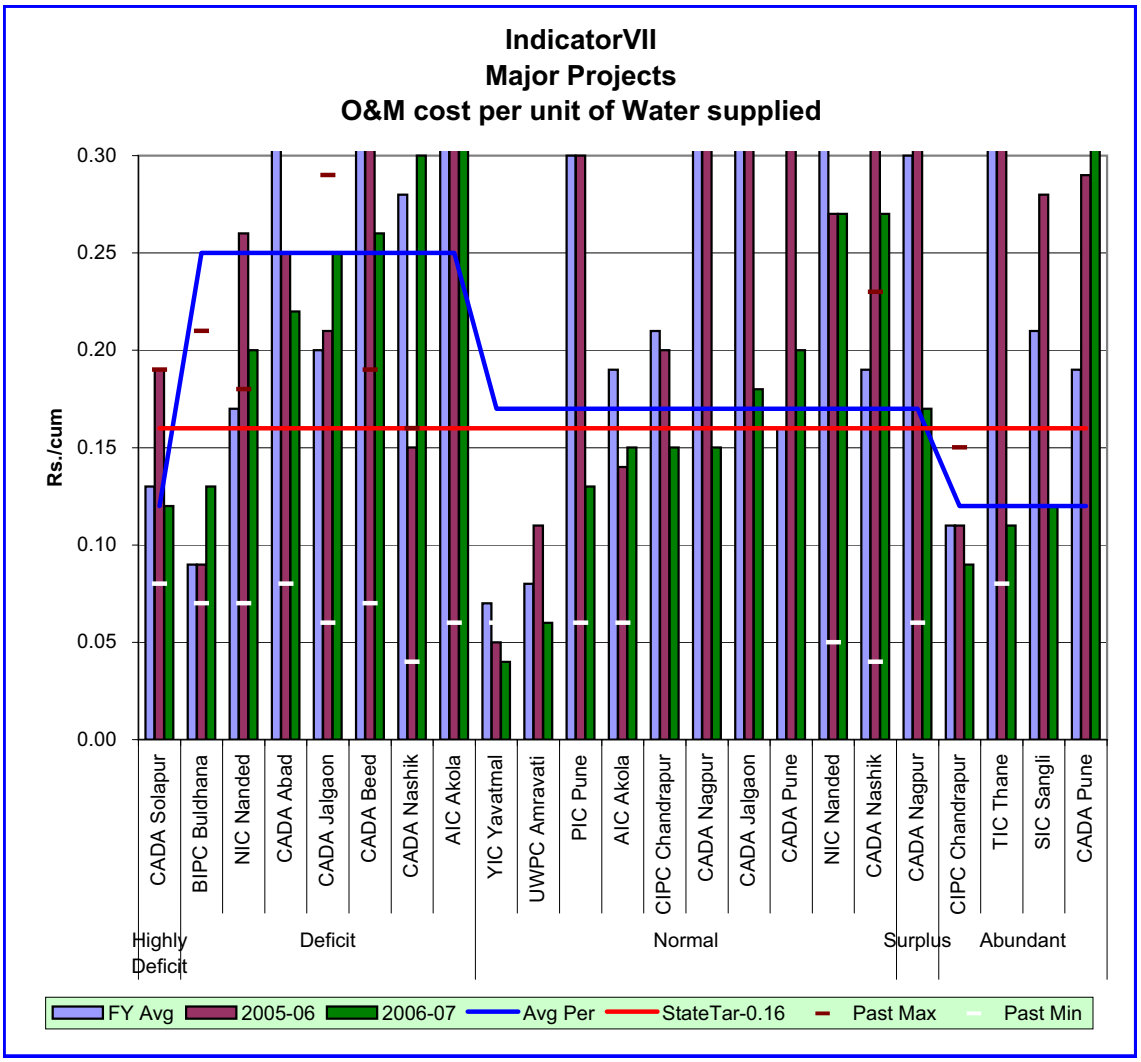
Abundant Plangroup:

CIPC Chandrapur: Protective irrigation in Kharif on Asolamendha & Dina project under CIPC Chandrapur has restricted the O & M cost per unit water supply well within the state norm.

SIC Sangli: The O & M cost per cubic meter of water supply for irrigation, in different projects under this circle are as under Radhanagari (0.17), Tulsi (0.33), Warna (0.07), Dudhaganga (0.07). Overall performance is below the state norm.

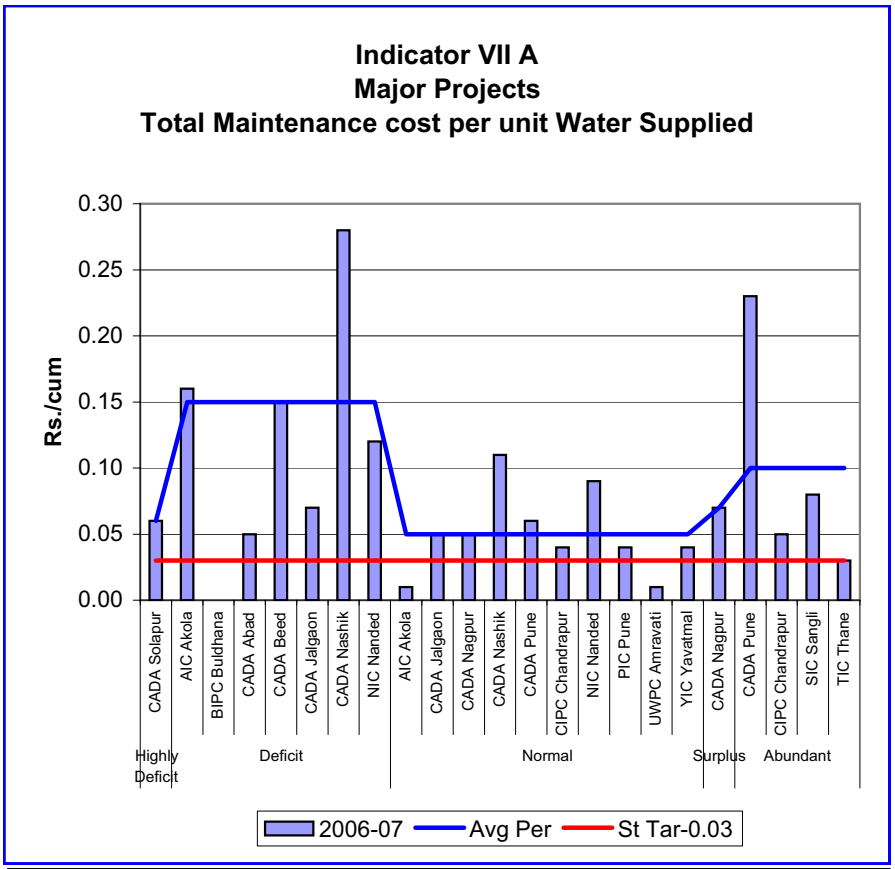
TIC Thane: The O & M Cost per cubic meter of water supply for irrigation in different project under this circle are as under Bhatsa(0.27),Surya(0.38),& KalAmba(0.16).Overall performance is improved compared with the last year.

CADA Pune: In Krishna Project the O & M Cost is Rs. 0.66/cum increases four times the last year, it is due enhancement of expenditure on maintenance cost over last year.

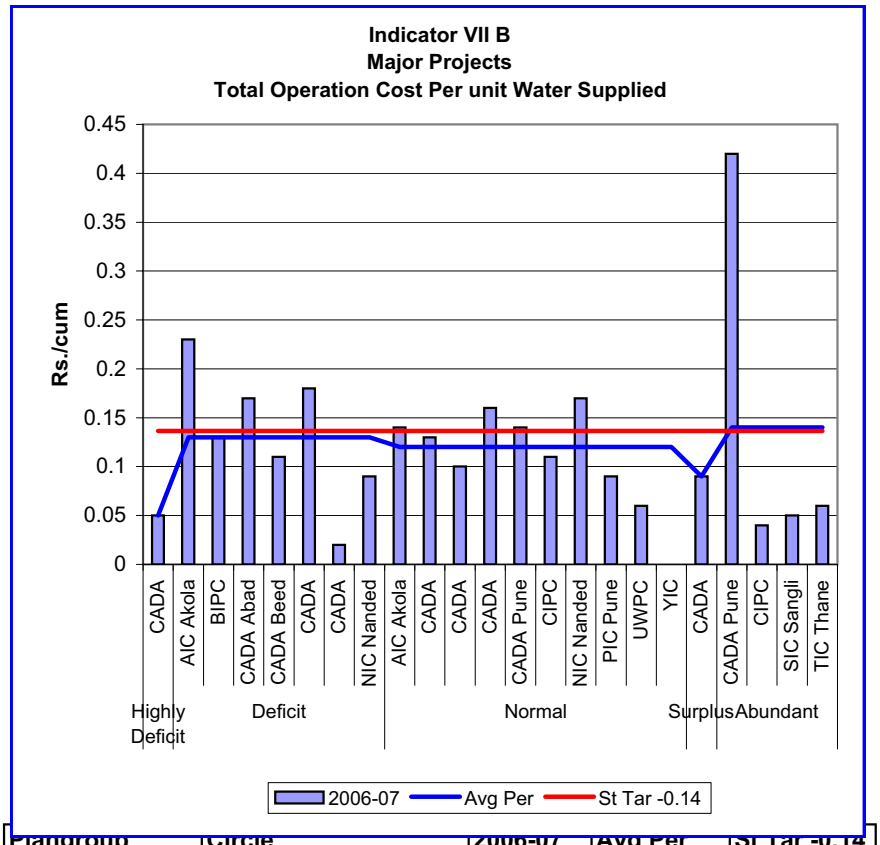


Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.13	0.19	0.12	0.19	0.08	0.12
Deficit	BIPC Buldhana	0.09	0.09	0.13	0.21	0.07	0.25
	NIC Nanded	0.17	0.26	0.20	0.18	0.07	
	CADA Abad	0.35	0.25	0.22	0.47	0.08	
	CADA Jalgaon	0.20	0.21	0.25	0.29	0.06	
	CADA Beed	1.58	1.79	0.26	0.19	0.07	
	CADA Nashik	0.28	0.15	0.30	0.16	0.04	
	AIC Akola	0.33	0.49	0.39	0.51	0.06	
Normal	YIC Yavatmal	0.07	0.05	0.04	0.99	0.06	0.17
	UWPC Amravati	0.08	0.11	0.06	1.06	0.61	
	PIC Pune	0.30	0.30	0.13	0.35	0.06	
	AIC Akola	0.19	0.14	0.15	0.48	0.06	
	CIPC Chandrapur	0.21	0.20	0.15	0.95	0.24	
	CADA Nagpur	1.01	0.48	0.15	4.81	1.41	
	CADA Jalgaon	0.70	0.40	0.18	13.80	0.89	
	CADA Pune	0.16	0.31	0.20	4.13	1.03	
	NIC Nanded	0.34	0.27	0.27	0.65	0.05	
	CADA Nashik	0.19	0.46	0.27	0.23	0.04	
Surplus	CADA Nagpur	0.3	0.32	0.17	0.36	0.06	0.17
	CIPC Chandrapur	0.11	0.11	0.09	0.15	0.27	0.12
	TIC Thane	0.62	0.43	0.11	0.65	0.08	
	SIC Sangli	0.21	0.28	0.12	0.36	0.44	
	CADA Pune	0.19	0.29	0.66	4	0.72	

Note: 1) Figures in red indicate values exceeding range of graph. 2) Figures in blue excluded for Avg Per



Plangroup	Circle	2006-07	Avg Per	St Tar-0.03
Highly Deficit	CADA Solapur	0.06	0.06	0.03
Deficit	AIC Akola	0.16	0.15	0.03
	BIPC Buldhana	0		0.03
	CADA Abad	0.05		0.03
	CADA Beed	0.15		0.03
	CADA Jalgaon	0.07		0.03
	CADA Nashik	0.28		0.03
	NIC Nanded	0.12		0.03
Normal	AIC Akola	0.01	0.05	0.03
	CADA Jalgaon	0.05		0.03
	CADA Nagpur	0.05		0.03
	CADA Nashik	0.11		0.03
	CADA Pune	0.06		0.03
	CIPC Chandrapur	0.04		0.03
	NIC Nanded	0.09		0.03
	PIC Pune	0.04		0.03
	UWPC Amravati	0.01		0.03
	YIC Yavatmal	0.04		0.03
Surplus	CADA Nagpur	0.07	0.07	0.03
Abundant	CADA Pune	0.23	0.10	0.03
	CIPC Chandrapur	0.05		0.03
	SIC Sangli	0.08		0.03
	TIC Thane	0.03		0.03



Plangroup	Circle	2006-07	Avg Per	St Tar -0.14
Highly Deficit	CADA Solapur	0.05	0.05	0.14
Deficit	AIC Akola	0.23	0.13	0.14
	BIPC Buldhana	0.13		0.14
	CADA Abad	0.17		0.14
	CADA Beed	0.11		0.14
	CADA Jalgaon	0.18		0.14
	CADA Nashik	0.02		0.14
	NIC Nanded	0.09		0.14
Normal	AIC Akola	0.14	0.12	0.14
	CADA Jalgaon	0.13		0.14
	CADA Nagpur	0.1		0.14
	CADA Nashik	0.16		0.14
	CADA Pune	0.14		0.14
	CIPC Chandrapur	0.11		0.14
	NIC Nanded	0.17		0.14
	PIC Pune	0.09		0.14
	UWPC Amravati	0.06		0.14
	YIC Yavatmal	0		0.14
Surplus	CADA Nagpur	0.09	0.09	0.14
Abundant	CADA Pune	0.42	0.14	0.14
	CIPC Chandrapur	0.04		0.14
	SIC Sangli	0.05		0.14
	TIC Thane	0.06		0.14

Indicator VIII: Revenue Per Unit Water Supply (Rs./ cum)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) project, the revenue is Rs. 0.09/cum. It is 80% below the state target.Overall performance is fair.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the performance is much better (Rs.0.47/cum) as compared to state norm.

Due to excess water supply and low revenue recovery, ratio in case of Nalganga (Rs 0.06/cum) was much below the state norm. On Katepurna project due to appreciable NI recovery, revenue recovery per unit water supplied was more than state norm (Rs 0.18/cum). In case of Wan project (BIPC, Buldhana) low irrigation recovery and more water use has led to lower down the ratio (Rs 0.07/cum).

CADA Aurangabad & CADA Beed: In Jayakwadi project (PLBC) the ratio increased from 0.15 to 0.28 where as in PRBC it is decreased from 0.69 to 0.10 as compared to last year. In PRBC the decrease is due to only 50% recovery against the assessment.

CADA Beed: In Majalgaon & Manjra the ratio is 0.22 & 0.16 respectively.

In Lower Terna project the ratio is 0.05, this is due to 7% water was used for non irrigation purpose and recovery for which is only 27% of assessment.

NIC Nanded: For Manar project the revenue is Rs. 0.03 per cum. The recovery for the project is 65% of assessment. For Vishnupuri project the ratio is increased from 0.15 to 0.21 as compared to last year. For Purna project the ratio is decreased from 0.06 to 0.04 as compared to last year. The recovery for the project is 16% of assessment.

CADA Jalgaon: In Girna project, the ratio is below state norm since last year. Efforts for more recovery of revenue along with economical water use are required at project level.

Normal Plangroup:

CADA Pune: In Kukadi Project revenue is Rs. 0.06/cum shows slight improvement over last year performance of Rs. 0.04/cum. But it is far below the state norms. In Ghod project revenue per unit water supply is Rs. 0.11/cum.Which slightly decreased from Rs. 0.12/cum of last year.

PIC Pune: In Khadakwasla revenue is Rs. 0.31/cum increased from Rs. 0.19/cum of last year because of increase in revenue of irrigation and non irrigation use. In NLBC revenue Per Unit water supply is decreased from Rs. 0.18 to Rs. 0.16/cum. In NRBC the value is increased from Rs. 0.09/cum to 0.13/cum. In Pawna Project the value increased from Rs. 1.46/cum to Rs. 1.49/cum. The variation in performance of all above projects is due to increase or reduction of recovery of irrigation water charges.

Except Lower Wunna (CADA Nagpur) (Rs 0.20/cum) revenue recovery per unit water supplied was low due to excessive water use on Bor (CIPC

Chandrapur) (Rs 0.03/cum), Arunavati (YIC Yeotmal) (Rs 0.01/cum), Pus (AIC Akola) (Rs 0.05/cum)& Upper Wardha (UWPC Amaravati) (Rs 0.04/cum) compared to state norm as well as their past performances.. An action for more relisation of revenue recovery along with economical water use is required at project level for improving the performance of above projects.

CADA Nashik: The revenue per unit water supplied is above state norm in Gangapur,Darna & Palkhed projects. However, the ratio is below state norm (varying from 6%to70%) in Kadwa, Bhandardara, Ozerkhed and Waghad projects.

CADA Jalgaon: In Hatnur project, though the revenue of N.I. use is reduced as compared to last year, the ratio is above state norm. (Rs.0.70/cum)

NIC Nanded: For UPP the ratio is very poor (0.05), recovery being negligible i.e. only 0.3% of assessment.

Surplus Plangroup:

CADA Nagpur: Low revenue recovery along with excessive water use on all projects under CADA Nagpur (except Pench), is responsible to low performance as compared to state target. Performance on Pench project was better on account of NI water use recovery.

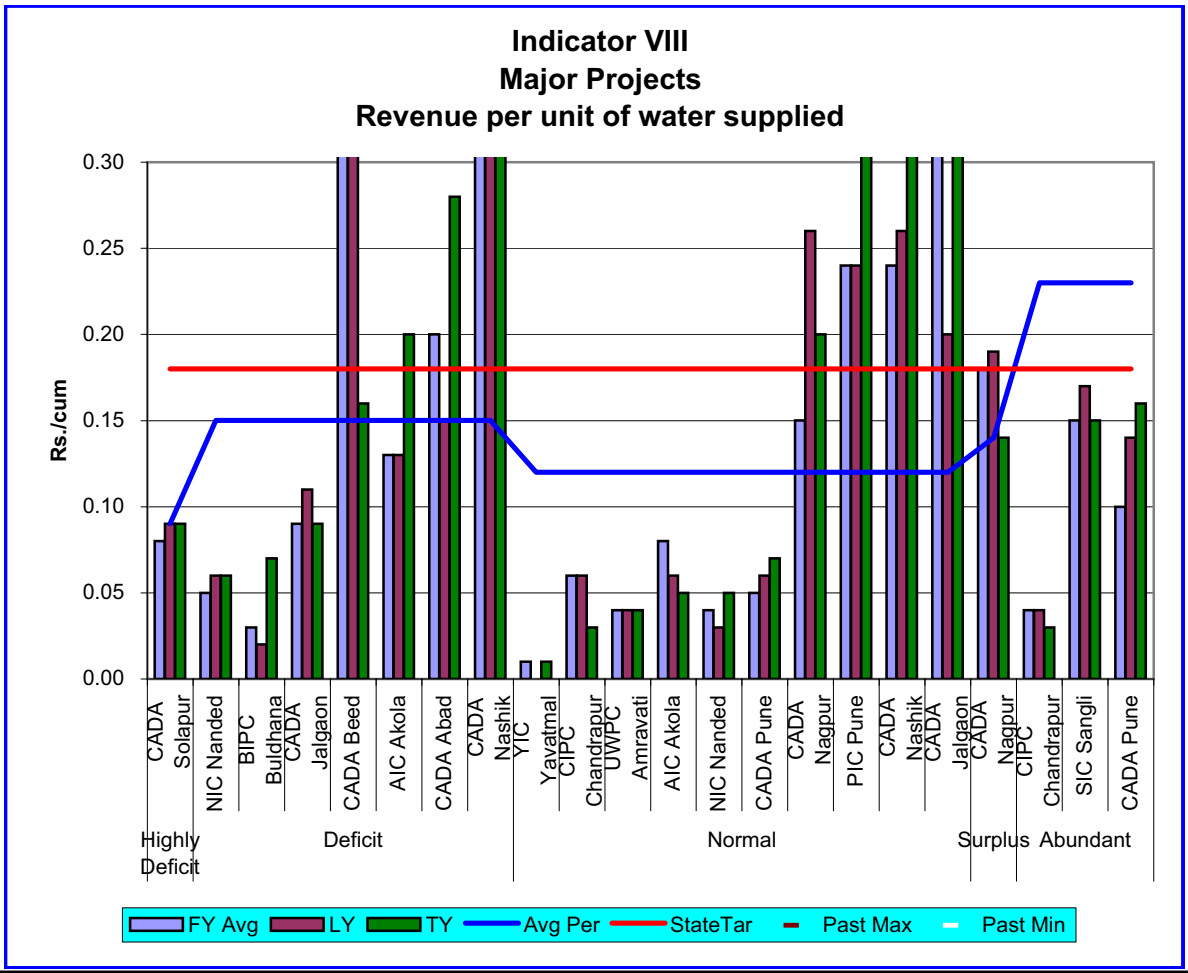
Abundant Plangroup:

CIPC Chandrapur: On Asolamendha & Dina projects under CIPC Chandrapur though ratio was (Rs 0.09/cum) low compared to the state norm it was better than projects under Normal plan group.

SIC Sangli: The revenue value per cubic meter of water supply, in different project under this circle are as under Radhanagri (0.19),Tulsi(0.05),Warna (0.09), & Dudhganga (0.18).Performance in Tulsi & Warna project is below the state norm by 72 % % 50% respectively.

TIC Thane: The revenue value per cubic meter water supply in different project under this circle are as under; Bhatsa (0.29), Kal-Amba(0.81),& Surya(0.81). Overall performance is more than state target.

CADA Pune: In Krishna Project the revenue is increased from Rs. 0.14/cum to of last year to Rs. 0.16/cum this year because of increase in revenue of irrigation & Non Irrigation Water Charges.



Plangroup	Circle	FY Avg	LY	TY	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.08	0.09	0.09	1.00	1.00	0.09
Deficit	NIC Nanded	0.05	0.06	0.06	2.00	0.04	0.15
	BIPC Buldhana	0.03	0.02	0.07	1.00	0.03	
	CADA Jalgaon	0.09	0.11	0.09	3.00	0.02	
	CADA Beed	1.20	1.50	0.16	7.40	2.00	
	AIC Akola	0.13	0.13	0.20	2.00	0.04	
	CADA Abad	0.20	0.15	0.28	4.00	1.00	
	CADA Nashik	0.31	0.63	0.47	6.00	2.00	
Normal	YIC Yavatmal	0.01	0.00	0.01	5.40	0.03	0.12
	CIPC Chandrapur	0.06	0.06	0.03	3.00	0.05	
	UWPC Amravati	0.04	0.04	0.04	0.00	0.04	
	AIC Akola	0.08	0.06	0.05	3.50	0.06	
	NIC Nanded	0.04	0.03	0.05	1.00	0.04	
	CADA Pune	0.05	0.06	0.07	0.00	0.02	
	CADA Nagpur	0.15	0.26	0.20	3.00	1.00	
	PIC Pune	0.24	0.24	0.32	3.40	6.00	
	CADA Nashik	0.24	0.26	0.38	0.00	0.02	
	CADA Jalgaon	0.60	0.20	0.70	8.00	2.00	
Surplus	CADA Nagpur	0.18	0.19	0.14	4.00	2.00	0.14
Abundant	CIPC Chandrapur	0.04	0.04	0.03	1.00	0.02	0.23
	SIC Sangli	0.15	0.17	0.15	1.00	1.00	
	CADA Pune	0.1	0.14	0.16	1.00	1.00	
	TIC Thane	0.57	0.31	0.61	9.00	2.00	

Note: 1) Figures in red indicate values exceeding range of graph. 2) Figures in blue are excluded for Avg Per

Indicator IX : Mandays for O & M per Unit Area (Mandays/ha.)

Deleted as per Govt. letter No. CDA/1006/(208/2006) CAD (works) Dated 23-11-06.

Indicator X : Land Damage Index :

Highly Deficit Plangroup :

CADA Solapur: In Bhima (Ujjani) project land damage index is 2.24 which is 31% higher than the last years index.

Deficit Plangroup:

CADA Beed: In Manjra project the affected area has increase from 440 ha. to 448 ha. as compare to last year, resulting slight variation in ratio .
CADA Aurangabad: In Jayakwadi Project (PLBC) the land damage increased from 2375 ha. to 2653 ha.
NIC Nanded: In Manar & Purna project there is no increase in land damage area.

Normal Plangroup:

CADA Pune: In Kukadi land damage index remains same as last year ie 0.15%. In Ghod no land damage is observed this year.

PIC Pune: In Khadakwasla, NLBC, NRBC and Pawna Projects the land damage index is 2.0, 1.0 and Nil this year respectively, as compared to 0.44, 2.21, 1.48 & Nil last year.

NIC Nanded: In UPP there is no change in land damaged area as compared to last year.

Surplus Plangroup:

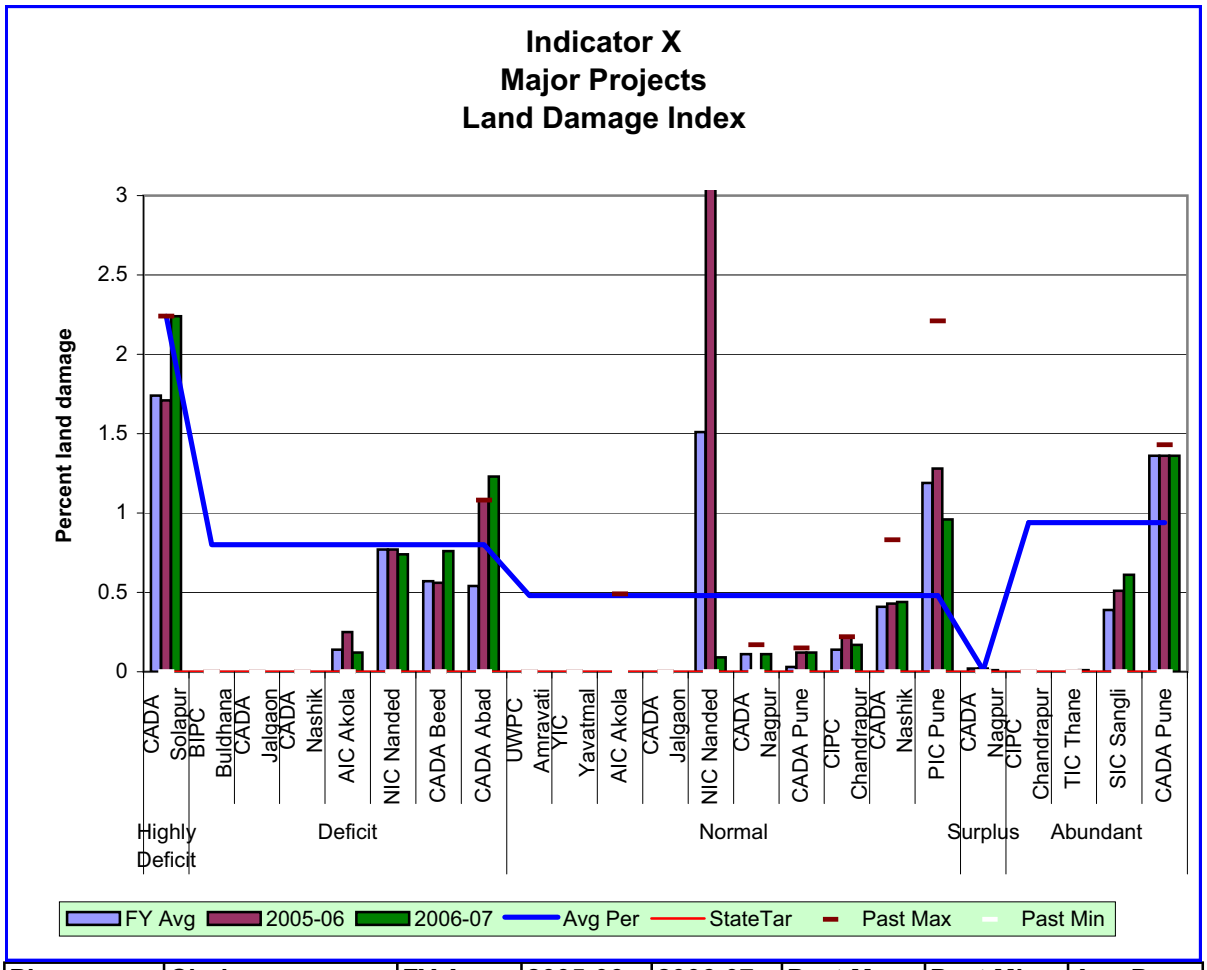
Abundant Plangroup:

SIC Sangli: Land damage index value in Radhanagri (2.0). In Radhanagari project, land damage index is lower down by 16.5 % compared with last year.

TICThane: Nil.

CADA Pune: In Krishna Project the index is decreased from 1.36 to 1.00 this year.

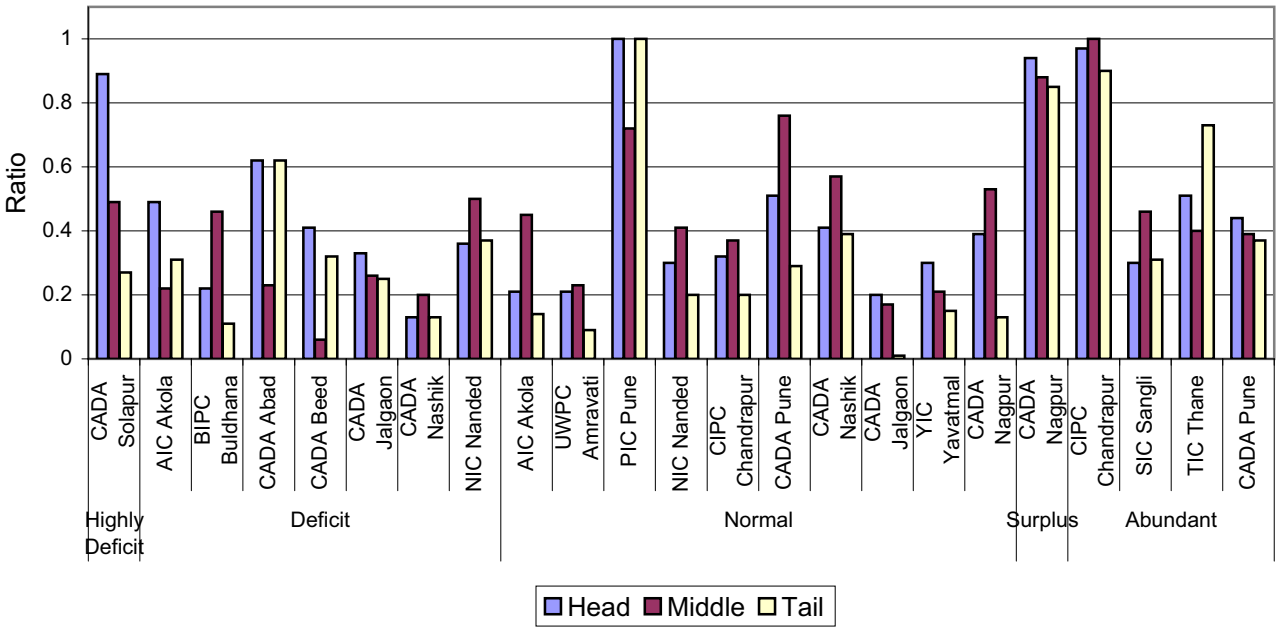
Land, less than 0.17 % of C.C.A. have been damaged due to water logging on Katepurna, Bor, Nalganga & Pench project. From available data, part of damaged land appears to be reclaimed on Katepurna, Pench project where as 0.11% of the CCA, new land damage is identified on Lower Wunna project.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	1.74	1.71	2.24	2.24	0.00	2.24
Deficit	BIPC Buldhana	0.00	0.00	0.00	0.00	0.00	0.80
	CADA Jalgaon	0.00	0.00	0.00	0.00	0.00	
	CADA Nashik	0.00	0.00	0.00	0.00	0.00	
	AIC Akola	0.14	0.25	0.12	0.00	0.00	
	NIC Nanded	0.77	0.77	0.74	0.00	0.00	
	CADA Beed	0.57	0.56	0.76	0.00	0.00	
	CADA Abad	0.54	1.08	1.23	1.08	0.00	
Normal	UWPC Amravati	0.00	0.00	0.00	0.00	0.00	0.48
	YIC Yavatmal	0.00	0.00	0.00	0.00	0.00	
	AIC Akola	0.00	0.00	0.00	0.49	0.00	
	CADA Jalgaon	0.00	0.00	0.00	0.00	0.00	
	NIC Nanded	1.51	9.45	0.09	9.45	0.00	
	CADA Nagpur	0.11	0.00	0.11	0.17	0.00	
	CADA Pune	0.03	0.12	0.12	0.15	0.00	
	CIPC Chandrapur	0.14	0.22	0.17	0.22	0.00	
	CADA Nashik	0.41	0.43	0.44	0.83	0.00	
	PIC Pune	1.19	1.28	0.96	2.21	0.00	
Surplus	CADA Nagpur	0.02	0.02	0.01	0.00	0.00	0.01
Abundant	CIPC Chandrapur	0.00	0.00	0.00	0.00	0.00	0.94
	TIC Thane	0.00	0.00	0.01	0.00	0.00	
	SIC Sangli	0.39	0.51	0.61	3.11	0.00	
	CADA Pune	1.36	1.36	1.36	1.43	0.00	

Note: 1) Figures in red exceeds range of graph. 2) Figures in blue excluded for Avg Per.

Indicator XI
Major Projects
Equity Performance



Plangroup	Circle	2006-07		
		Head	Middle	Tail
Highly Deficit	CADA Solapur	0.89	0.49	0.27
Deficit	AIC Akola	0.49	0.22	0.31
	BIPC Buldhana	0.22	0.46	0.11
	CADA Abad	0.62	0.23	0.62
	CADA Beed	0.41	0.06	0.32
	CADA Jalgaon	0.33	0.26	0.25
	CADA Nashik	0.13	0.20	0.13
	NIC Nanded	0.36	0.50	0.37
Normal	AIC Akola	0.21	0.45	0.14
	UWPC Amravati	0.21	0.23	0.09
	PIC Pune	1.00	0.72	1.00
	NIC Nanded	0.30	0.41	0.20
	CIPC Chandrapur	0.32	0.37	0.20
	CADA Pune	0.51	0.76	0.29
	CADA Nashik	0.41	0.57	0.39
	CADA Jalgaon	0.20	0.17	0.01
	YIC Yavatmal	0.30	0.21	0.15
	CADA Nagpur	0.39	0.53	0.13
Surplus	CADA Nagpur	0.94	0.88	0.85
Abundant	CIPC Chandrapur	0.97	1.00	0.90
	SIC Sangli	0.30	0.46	0.31
	TIC Thane	0.51	0.40	0.73
	CADA Pune	0.44	0.39	0.37

Indicator XI: Equity Performance:

Highly Deficit Plangroup:

CADA Solapur: In Bhima project the performance value of 2006-07 are as under; Head reach 0.89, Middle reach 0.5, & Tail reach 0.27.Potential utilization, in head reach is max. & in tail reach is min.

Deficit Plangroup:

Normal Plangroup:

CADA Pune: In Kukdi Project the ratio of potential utilizations is 0.42,0.5,0.26at head middle and tail reach of canal area. In Ghod Project 100% area has been irrigated at Head and middle reach but at tail the ratio comes to 0.42.

PIC Pune: In Khadakwasla potential Utilization is same (0.57) in three reaches of command area. In NLBC the ratio comes to 2.06in three reaches of command area. in NRBC Irrigation Potential is 1.49, 1.19 and 2.11 at head, middle and tail reach respectively.

Abundant Plangroup:

CADA Pune: In Krishna Project potential utilization comes to 0.44, 0.38, and 0.37 in head, middle and tail reach of command area.

Potentional utilisation is more or less equal in all the three reaches of command area of Pench, Bagh & Itiadoh {(CADA Nagpur (Surplus)} and Asolamendha & Dina {(CIPC Chandrapur (Abundant)} projects.

Potential utilisation is more concentrated in head reaches of Nalganga (BIPC Buldhana-Deficit), Katepurna (AIC Akola) and Arunavati (YIC Yeotmal-Normal) In case of Wan (BIPC Buldana) and Pus project (AIC Akola-Normal) Potentional utilisation is more concentrated in middle reach than other reaches.

Indicator XII_I: Assessment Recovery Ratio (Irrigation)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) project the ratio is 0.56, it is improved by 28% than the last year & 44 % below the state norm.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the ratio is lowered from 0.99 (2005-06) to 0.60 (2006-07).

Percentage of irrigation recovery compared to assessment on Wan, Katepurna, and Nalganga under AIC Akola and in BIPC Buldana, varied from 0 to 9%.Weaker economical condition of farmers may be the prime reason for poor irrigation recovery.

CADA Aurangabad & CADA Beed: In Jayakwadi project (PLBC) the ratio has decreased from 1.08 to 0.29 as compared to last year. Only Rs. 131 lakhs are recovered against Rs. 446 lakhs. In Jayakwadi project (PRBC) under CADA Beed the ratio has increased from 0.16 to 0.45 but it is still below the State norm. This year the recovery being Rs. 89 lakhs against assessment Rs.198.

CADA Beed: In Majalgaon project the ratio has increased from 0 to 0.56 as compared to last year, but it is still below to State norm. The field officers are required to give proper attention to recover the revenue.

In Manjra project the ratio has decreased from 1.0 to 0.45 as compared to last year.

In Lower Terna the ratio has decreased from 1.0 to 0.38 as compared to last year.

NIC Nanded: All three projects under this circle viz Manar, Vishnupuri, Purna the ratio has decreased from 0.73 to 0.64, 0.72 to 0.28, 0.99 to 0.16 respectively, lesser recovery affected the indicator value. The field officers are required to achieve 100% recovery with more efforts.

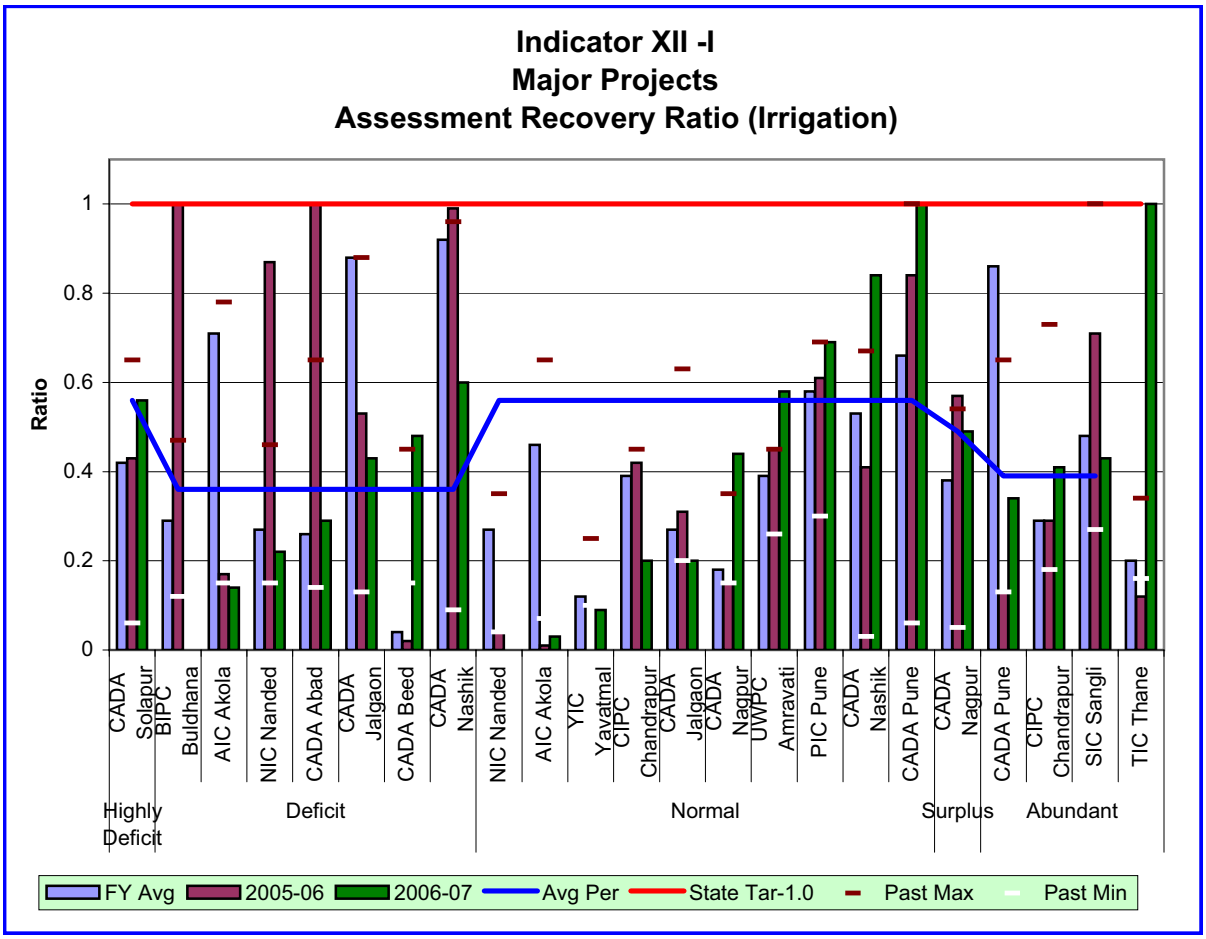
CADA Jalgaon: In Girna project, the ratio is lowered from 0.53 (2005-06) to 0.43 (2006-07)

Normal Plangroup:

CADA Pune: In Kukadi Project the ratio has increased from 0.20 to 0.58 this year. The improvement is achieved due to better revenue recovery. In Ghod Project ratio is 0.36.

PIC Pune: In Khadakwasla the ratio increased from 0.84 last year to 0.87 this year. It is due to better recovery of irrigation water charges this year. In NLBC Project the ratio comes down from 0.55 last year to 0.46 this year because of cultivators are not paying water charges assessed on well irrigation.

In NRBC ratio comes to 0.72 this year as compared to 0.58 last year. The improvement in performance is due to better recovery of irrigation water charges. In Pawna Project the ratio increased from 0.31 last year to 1.0



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.42	0.43	0.56	1.00	0.06	0.56
Deficit	BIPC Buldhana	0.29	1.00	0.00	0.86	0.12	0.36
	AIC Akola	0.71	0.17	0.14	0.76	0.15	
	NIC Nanded	0.27	0.87	0.22	0.84	0.15	
	CADA Abad	0.26	1.00	0.29	0.86	0.14	
	CADA Jalgaon	0.88	0.53	0.43	0.78	0.13	
	CADA Beed	0.04	0.02	0.48	0.79	0.15	
	CADA Nashik	0.92	0.99	0.60	0.92	0.09	
Normal	NIC Nanded	0.27	0.04	0.00	0.90	0.04	0.56
	AIC Akola	0.46	0.01	0.03	0.91	0.15	
	YIC Yavatmal	0.12	0.00	0.09	0.89	0.10	
	CIPC Chandrapur	0.39	0.42	0.20	0.65	2.00	
	CADA Jalgaon	0.27	0.31	0.20	0.54	0.20	
	CADA Nagpur	0.18	0.15	0.44	0.65	0.15	
	UWPC Amravati	0.39	0.45	0.58	0.45	0.26	
	PIC Pune	0.58	0.61	0.69	0.45	0.30	
	CADA Nashik	0.53	0.41	0.84	0.58	0.03	
	CADA Pune	0.66	0.84	1.00	1.00	0.06	
Surplus	CADA Nagpur	0.38	0.57	0.49	0.90	0.18	0.49
Abundant	CADA Pune	0.86	0.13	0.34	0.45	0.13	0.39
	CIPC Chandrapur	0.29	0.29	0.41	0.73	0.18	
	SIC Sangli	0.48	0.71	0.43	1.00	0.27	
	TIC Thane	0.20	0.12	1.00	1.00	0.16	

Note: Figures in blue are excluded for Avg Per.

this year. The enhancement in performance is due to arrears of revenue recovery of previous years.

On Upper Wardha (UWPC Amaravati) & Lower Wunna (CADA Nagpur), the revenue recovery against assessment is improved over its last year performance.

CADA Nashik: In all the projects except Kadwa about 80 to 100 % water charges has been recovered. Specifically in Ozarkhed & Palkhed projects, the state target is achieved.

CADA Jalgaon: In Hatnur project, the ratio is lowered from 0.31 (2005-06) to 0.20 (2006-07) which is much below state norm.

NIC Nanded: In Upper Penganga Project the recovery is very poor. (Only Rs.1.00 lakh against assessment of Rs.352 lakhs).

Surplus Plangroup:

Revenue recovery against assessment on Pench project (85%) is appreciable as compared to the Bagh (8%) and Itiadoh project (25%) under CADA Nagpur.

Abundant Plangroup:

CIPC Chandrapur: Ratio in case of Asolamendha (16%) as compared to Dina (62%) project under CIPC Chandrapur has low value. Though recovery percentage against assessment is low on these projects, there is improvement in performance compared to last year.

SIC Sangli: Assessment recovery ratio values in the projects under this circle are Radhanagri (0.6), Tulsi (0.44), Warana (0.45) & Dudhganga (0.22). Overall performance in Tulsi, Warna & Dudhganga projects is lower down by 51%, 49% & 71% respectively.

TIC Thane: Assessment recovery ratio values in the projects under this circle are as under Bhatsa (0.58),Kal-Amba (0.58),& Surya (0.11). Overall performance in project Bhatsa & Kal-Amba has increased by 49% & 53% respectively compared with last year & both project 42% below the state norm.

CADA Pune: In Krishna Project the ratio increases to 0.34 as compared to 0.13 of last year. The improvement is due to better recovery Field Officer have to take more efforts to enhance the performance up to state norms.

Indicator XII: Assessment Recovery Ratio (Non Irrigation)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) project the ratio is 0.94 it is improved by 8 % than the last year & 6% below the state norm.

Deficit Plangroup:

CADA Nashik: In Chankapur project, the ratio is lowered from 1.00 (2005-06) to 0.92(2006-07).

AIC Akola: Revenue recovery against assessment on Katepurna (100%) was good as compared to state as well as its last year performance (88%). On Nalganga project, performance was low (11%) than state norm.

BIPC Buldhana: On Wan project (68%) though there was improvement over its last year performance (20%), recovery was low against assessment compared to state norm.

CADA Aurangabad & CADA Beed: In Jayakwadi Project (PLBC) the ratio has decreased from 0.93 to 0.57 as compared to last year. The recovery is Rs. 2802 lakh against assessment Rs. 4901 lakh.

In Jayakwadi Project (PRBC) under CADA Beed the ratio has increased from 0.37 to 0.61 as compared to last year, but it is still below the State norms.

CADA Beed: In Majalgaon project the ratio is 1.0 which achieves the State target. In Manjra project the ratio has decreased from 1.0 to 0.19 as compared to last year. Only Rs. 51 lakhs are recovered against assessment of Rs. 271. The field officers are required to take maximum efforts to recover the revenue.

In Lower Terna the ratio has decreased from 0.56 to 0.13 as compared to last year. The recovery is only Rs. 0.65 lakh against assessment of Rs. 5.00

NIC Nanded: In Manar and Vishnupuri project the ratio has achieved its state target 1.0, recovery being 100% Of assessed amount.

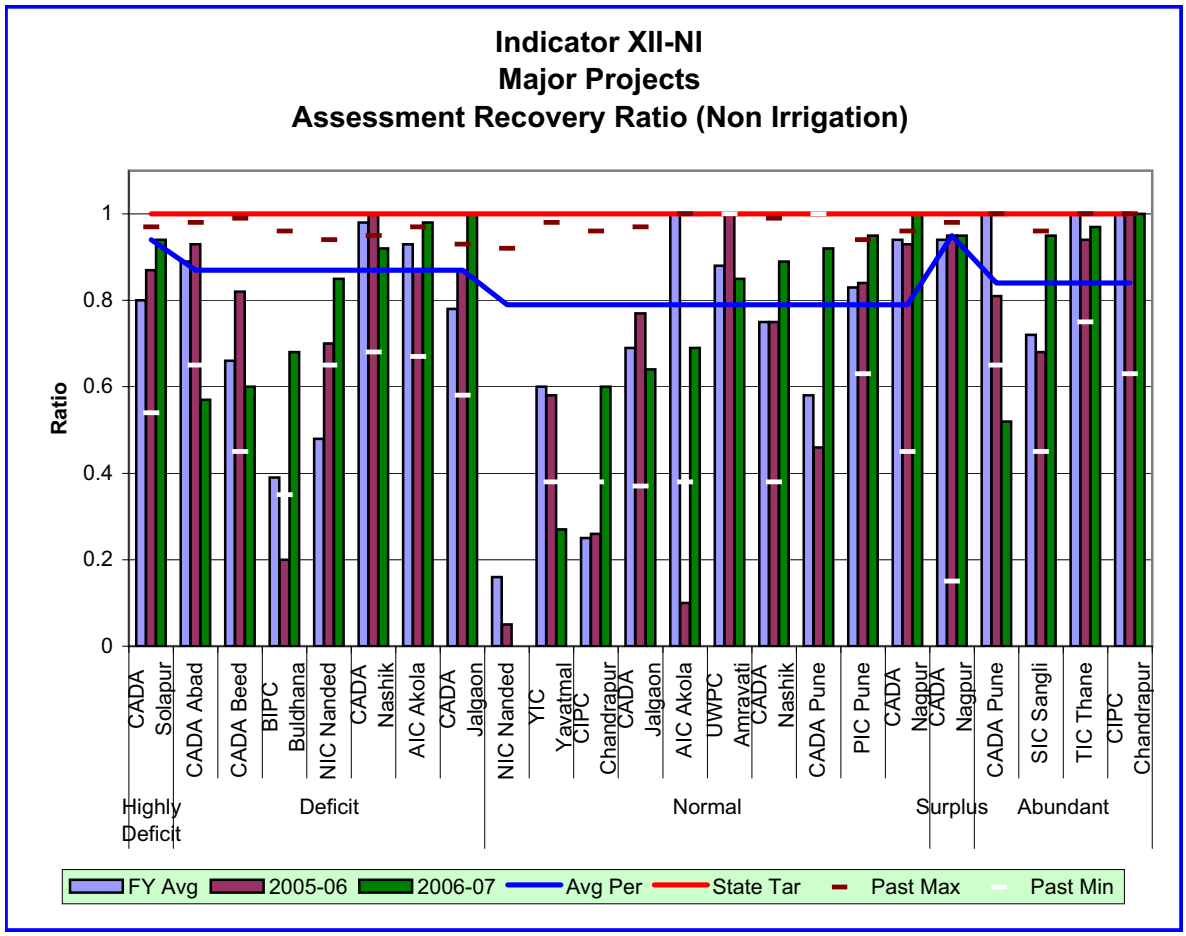
In Purna project the ratio has decreased from 0.11 to 0.07 the recovery is very poor. Only Rs. 2.00 lakh are recovered against assessment of Rs. 30 lakhs.

CADA Jalgaon: In Girna project, the ratio is 1 i.e. with the state norm

Normal Plangroup:

CADA Pune: In Kukdi Project the performance is improved from 0.06 of last year to 0.73 this year, in Ghod the performance reduces from 0.99 of last year to 0.97 this year due to less recovery of NI use.

PIC Pune: In Khadakwasla the ratio decreases from 0.99 of last year to 0.92 this year. In NLBC the ratio comes down from 0.98 to 0.83 due to non – clearance of cheques within the financial year. In NRBC the ratio comes down from 1.00 to 0.96 due to less recovery of N.I. use. In Pawna Project the ratio



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.80	0.87	0.94	1.00	0.35	0.94
Deficit	CADA Abad	0.89	0.93	0.57	1.00	---	0.87
	CADA Beed	0.66	0.82	0.60	1.00	0.48	
	BIPC Buldhana	0.39	0.20	0.68	1.00	0.45	
	NIC Nanded	0.48	0.70	0.85	1.00	0.65	
	CADA Nashik	0.98	1.00	0.92	1.00	0.78	
	AIC Akola	0.93	0.87	0.98	1.00	0.47	
	CADA Jalgaon	0.78	0.87	1.00	1.00	0.48	
Normal	NIC Nanded	0.16	0.05	0.00	1.00	0.65	0.79
	YIC Yavatmal	0.60	0.58	0.27	1.00	0.54	
	CIPC Chandrapur	0.25	0.26	0.60	1.00	0.36	
	CADA Jalgaon	0.69	0.77	0.64	1.00	---	
	AIC Akola	1.00	0.10	0.69	1.00	---	
	UWPC Amravati	0.88	1.00	0.85	1.00	1.00	
	CADA Nashik	0.75	0.75	0.89	1.00	0.45	
	CADA Pune	0.58	0.46	0.92	1.00	1.00	
	PIC Pune	0.83	0.84	0.95	1.00	0.50	
	CADA Nagpur	0.94	0.93	1.00	1.00	---	
Surplus	CADA Nagpur	0.94	0.95	0.95	1.00	0.20	0.95
Abundant	CADA Pune	1.00	0.81	0.52	1.00	---	0.84
	SIC Sangli	0.72	0.68	0.95	1.00	---	
	TIC Thane	1.00	0.94	1.00	1.00	---	
	CIPC Chandrapur	1.00	1.00	1.00	1.00	---	

Note: Figures in blue are excluded for Avg Per.

increases from 0.70 of last year to 0.97 this year because of better recovery of NI Water Charges.

Recovery on Lower Wunna (CADA Nagpur) (100%) was exceptionally good. It was low to some extent on Upper Wardha project (UWPC Amaravati) (85%).More efforts are needed on Arunavati (YIC Yeotmal), Bor (CIPC Chandrapur) & Pus (AIC Akola) projects where recovery rate is very poor as compared to state target.

CADA Nashik: In Gangapur, Kadwa, Ozarkhed & Waghad projects, the field authorities have achieved the state target. However, in Darna, Bhandardara, Palkhed & Mula Projects above 60 to 75% water charges has been recovered.

CADA Jalgaon: In Hatnur project, the ratio is lowered from 0.77 (2005-06) to 0.64 (2006-07).

NIC Nanded: In Upper Penganga Project the recovery is very poor. Only Rs.1.00 lakh is recovered against assessment of Rs. 314 lakhs, this shows that the field officers are not paying proper attention to recover the government revenue.

Surplus Plangroup:

Recovery rate against assessment on Itiadoh &Bagh project under CADA Nagpur was appreciable. On Pench project NI recovery was 85 % of the assessment.

Abundant Plangroup:

CADA Pune: In Krishna Project the ratio decrease from 0.81 of last year to 0.52 this year due to decrease to Non Irrigation recovery.

SIC Sangli: Assessment recovery ratio value for non-irrigation in different projects under this circle as under Radhanagri (0.95), Tulsi (0.89), Warna (0.94) & Dudhganga (0.96). Overall performance is marginally improved & tending to achieve state value.

TIC Thane: Assessment recovery ratio value for non irrigation in different projects under this circle is as under Bhatsa (0.94), Kal-Amba (1.0), & Surya (1.0).Overall performance is very good. It has achieved the state target.

Indicators of Medium Projects

Observations of Medium projects

Indicator I: Annual Irrigation Water Supply per Unit Area (cum/ha)

Highly Deficit Plangroup:

CADA Solapur: In Bhima (Ujjani) project the ratio is 0.94 it is improved by 8 % than the last year & 6% below the state norm.

PIC Pune: Average Amount water supplied Per Unit Irrigated Area for Sina, Khairy, Nher, Ranand, Tisangi & Mhaswad projects under this circle is 6678 cum/ha this year. The performance is good as compared to state target.

CADA Beed: Average annual water supplied per unit irrigated area of medium project under this circle is 6915 cum/ha. It has decreased by 7% over last year performance. In Ruti medium project the water used is maximum i.e. 28737 cum/ha. This is due to ongoing repairs to canal. In Khandala Medium project the water use is minimum i.e. 4049 cum/ha. This is due to area irrigated is maximum in rabi season with less rotations. The average water is 132% more than State norms.

Deficit Plangroup:

CADA Nashik: The water use is well within the state norm since last year.

AIC Akola: Irrigation water use per unit area irrigated on projects under the circle is low (6267/cum) compared to state target and as well as last years performance) (7931/m3). Water use on Mas, Morna & Nirguna is more compared to all other projects under the circle.

BIPC Buldhana: On and average water use on projects under this circle was11181 cum/ha. It was so as irrigation water use on both the projects Mun (10995cum/ha) and Torna (12232 cum/ha) under this circle was excessively high. Reasons for the same, needs to be sorted out.

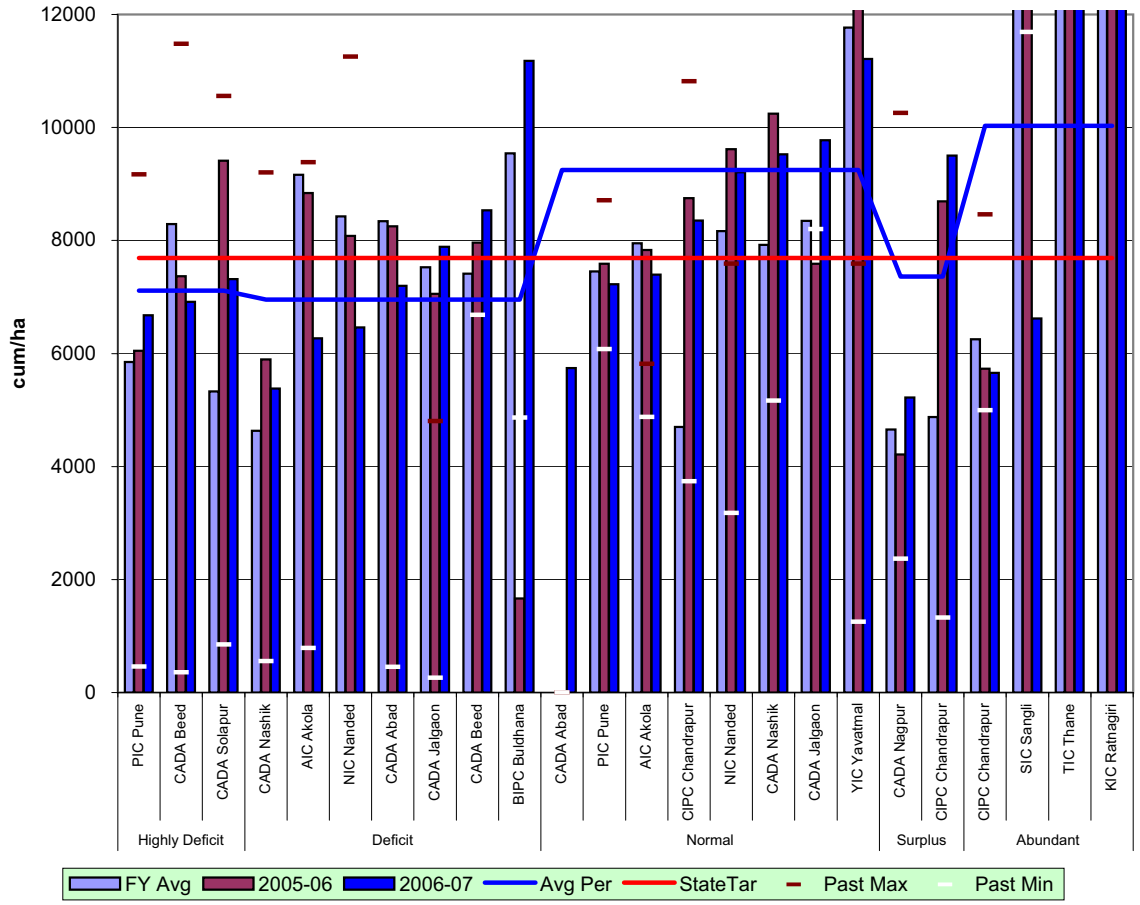
CADA Aurangabad: Average annual water supplied per unit irrigated area of medium project under this circle is 7199 cum/ha. It is decreased by 13% as compared to last year performance.

In Galhati Medium project the water use is maximum i.e. 14805 cum/ha and in Khelna medium project the water use is minimum i.e. 3687 cum/ha. This is due to area is irrigated maximum in rabi season with two rotations only.

CADA Beed: Average annual water supplied per unit irrigated area of medium project under this circle is 8533 cum/ha. It increased by 7% over last year performance.

In Kundalika medium project the water use is maximum 12636 cum/ha . This is due to water use is more in H.W. season for perennial crops and in Sakol medium project the water use is minimum 4766 cum/ha. This is due to water used is only by reservoir lifts.

Indicator I
Medium Projects
Annual Irrigation Water Supply per unit Irrigated Area (cum/ha)



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	PIC Pune	5851	6048	6678	9168	458	7115
	CADA Beed	8291	7365	6915	11479	354	
	CADA Solapur	5331	9411	7316	10558	851	
Deficit	CADA Nashik	4630	5896	5382	9200	556	6955
	AIC Akola	9160	8838	6267	9385	786	
	NIC Nanded	8425	8080	6464	11250	9082	
	CADA Abad	8344	8253	7199	12778	451	
	CADA Jalgaon	7527	7055	7887	4805	258	
	CADA Beed	7411	7963	8533	12620	6680	
	BIPC Buldhana	9542	1667	11181	28140	4864	
Normal	CADA Abad	---	---	5741	---	---	9245
	PIC Pune	7455	7587	7227	8707	6078	
	AIC Akola	7952	7832	7396	5818	4878	
	CIPC Chandrapur	4698	8750	8353	10815	3740	
	NIC Nanded	8167	9614	9206	7586	3175	
	CADA Nashik	7922	10245	9528	23499	5162	
	CADA Jalgaon	8349	7587	9775	32940	8201	
	YIC Yavatmal	11767	19042	11214	7591	1254	
Surplus	CADA Nagpur	4654	4214	5223	10256	2365	7361
	CIPC Chandrapur	4878	8695	9500	13583	1326	
Abundant	CIPC Chandrapur	6251	5731	5655	8460	4995	10028
	SIC Sangli	34279	97537	6620	22738	11690	
	TIC Thane	19200	21513	17811	49152	15462	
	KIC Ratnagiri	79004	21429	123332	129172	21429	

Note: 1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per
3) 'No Water' indicates reservoirs are not filled in that year.

NIC Nanded: Average annual water supplied per unit irrigated area of medium project under this circle is 6464 cum/ha. Water use decreased by 20% as compared to last year.

In Kardkhed Medium project the water use is maximum i.e. 9034 cum/ha. This is due to scattered irrigated area and water is released to W.U.A. as per their demand.

In Kudala medium project the water use is minimum i.e. 4584 cum/ha. This is due to maximum water use is in rabi season.

CADA Jalgaon: As the water use per ha is increased by about 10% as compared to last year, the indicator value (7887 cum/ha) has been exceeded the state norm. The field officers are required to improve the performance in case of Bhokarbari (11232 cum/ha) and Kanoli (13205 cum/ha) projects.

Normal Plangroup:

PIC Pune: Annual water supplied to Wadiwale Project was 7227 cum/ha. this year. The performance is good as compared to state target.

AIC Akola: Average rate of water use on group of projects under the circle has value (7396 m3/ha) which was very close to state norm. Reasons can be attributed to appreciable economic water use on Ekburji Sonal, Boargaon& Koradi project. Water use on Saikheda (9358cum/ha) and Lower Pus (11589cum/ha) was excessively high. Field officers are advised to investigate high water use on Saikheda when crops grown on the project were mealy Rabbi seasonal. More water use on Lower Pus is justifiable to some extent as perennial and HW ground nuts were irrigated over more than 25% irrigated area.

YIC Yeotmal: Average water use of Adan & Navargaon projects per unit area irrigated was 11214 cum per ha which was low compared to its last years water use of19042 m3. Though there was improvement still current water use is more than the state target. Water use on Navargaon was 7225 cum/ha as against 11572 cum /ha on Adan project

CADA Nagpur: Water use per unit irrigated area on Chandrabhaga & Wunna projects was 11185 and 4944 cum respectively. As per last year, Water use on Chandrabhaga was more compared to Wunna project.

CIPC Chandrapur: Except Labhansarad and Amalnalla water use on remaining two projects namely Pothara (10880m3), Panchadhara (17543m3) was exceptionally high. Water use per unit area on this project has been increased compared to last year use.

CADA Aurangabad: Average annual water supplied per unit irrigated area of medium project under this circle is 5741 cum/ha. which is below to State norms.

NIC Nanded: Average annual water supplied per unit irrigated area of medium project under this circle is 9206 cum/ha. Water used is slightly decreased as compared to last year. But it is still more than State norms.

CADA Jalgaon: The water use per ha of irrigation is increased by 28% as compared to last year and exceeded the state norm. Specifically in Abhora,

Aner & Suki projects, the water use per ha is 1.5 to 3 times more than the state norm. Necessary steps should be taken by field officers to improve the performance.

CADA Nashik: Though the water use per ha is lowered from 10245cum/ha (2005-06) to 9528cum/ha (2006-07), it is very much essential to use the water for irrigation more precisely in Adhala (10062 cum/ha), Bhojapur (9530 cum/ha) and Mandohol (11462 cum/ha) projects to achieve the state target.

Surplus Plangroup:

CADA Nagpur: On and average, water use on projects under this circle was 5223 cum/ha which was low compared to the state norm. It was so as most of the projects under the circle are kharif predominant where water is supplied as a protective irrigation. Though water use on these projects is increased as compared to last year, it is low compared to state norm.

CIPC Chandrapur: Average water use for unit area in 4 projects under the circle is slightly more (8353m3) than state norm & but less than last year performance. Water use on Dongargaon project which is under construction has excessive water use to the tune of (13641m3). However there was improvement over its last year water use performance (17512 cum/ha).

Abundant Plangroup:

SIC Sangli: Assessment recovery ratio value for non-irrigation in different projects under this circle as under Radhanagri (0.95), Tulsi (0.89), Warna (1.0),& Dudhganga (0.96).Overall performance is marginally improved & tending to achieve state value.

TIC Thane: Assessment recovery ratio value for non irrigation in different projects under this circle are as under Bhatsa (0.94), Kal-Amba (1.0), & Surya (1.0).Overall performance is very good .It has been achieved the state target.

KIC Ratnagiri: In Natuwadi Project annual water supply per unit area is alarmingly increased from 21429 to 1,23,332 cum/ha. It is due to heavy leakage through the canal system. The Field Officers are require to take preventive measures to stop leakage through canal system.

CIPC Chandrapur: Water use in Naleshwar (7000cum/ha) was more as compared to Ghorazari (5007cum/ha), though average water use of the project taken together (5655cum/ha) was below the state norm

Indicator II: Potential Utilised and created

Highly Deficit Plangroup:

CADA Beed: Average ratio of medium project under this circle is 0.34. It is decreased by 47% to last year ratio.

Deficit Plangroup:

CADA Jalgaon: The potential is fully utilised since two years.

CADA Nashik: Though the ratio is increased from 0.64 (2005-06) to 0.67 (2006-07), the performance is below state target. There is much scope to improve the performance in Haranbari (0.78) & Kelzar (0.55) Projects.

CADA Beed: Average ratio of medium project under this circle is 0.34. The value is reduced by 10% as compared to last year.

CADA Aurangabad: Average ratio of medium project under this circle is 0.84. The ratio is increased by 40%.

In Lahuki project the ratio is 4.71. This is due to well irrigation is more.

NIC Nanded: The average ratio of medium project under this circle is 0.98.

AIC Akola: Potential utilisation on the projects is low (0.42) as compared to created potential. Morna (0.3) Nirguna (0.43), Shahanoor (0.25) & Dnyanganga (0.39) projects have large under -potential utilisation.

BIPC Buldhana: In spite of water availability for irrigation, actual potential utilisation on Mun & Torna projects was just 30% of the effective created irrigation potential.

PIC Pune: Average Irrigation potential of Six Projects is 0.60 this year it is below the state target.

Normal Plangroup:

PIC Pune: Irrigation potential of Wadiwale Project under this circle is 0.61 of last year. This is below the state target.

AIC Akola: Storage position of projects under the circle was satisfactory during the irrigation year 2006-07. Still the average utilisation on projects under the circle was 47 % which was low than last year performance of 67%. Saikheda & Lower pus has more under utilisation compared to Sonal, Koradi & Ekburji projects under the circle.

YIC Yeotmal: Potential utilisation compared to created potential on both the projects Adan & Navargaon was good. There was improvement over last year performance.

CADA Nagpur: Potential utilisation on Chandrabhaga (0.37) & Wunna (0.23) is very low compared to the state norm.

CIPC Chandrapur: Under potential utilisation on all 4 projects has resulted 52% average potential utilisation, which is quite low compared to state norm.

CADA Aurangabad: Average ratio of medium project under this circle is 0.76.

NIC Nanded: Average ratio of medium project under this circle is 0.72. The ratio is increased by 10%.

CADA Jalgaon: The potential is fully utilised.

CADA Nashik: 100% potential is utilised.

Surplus Plangroup:

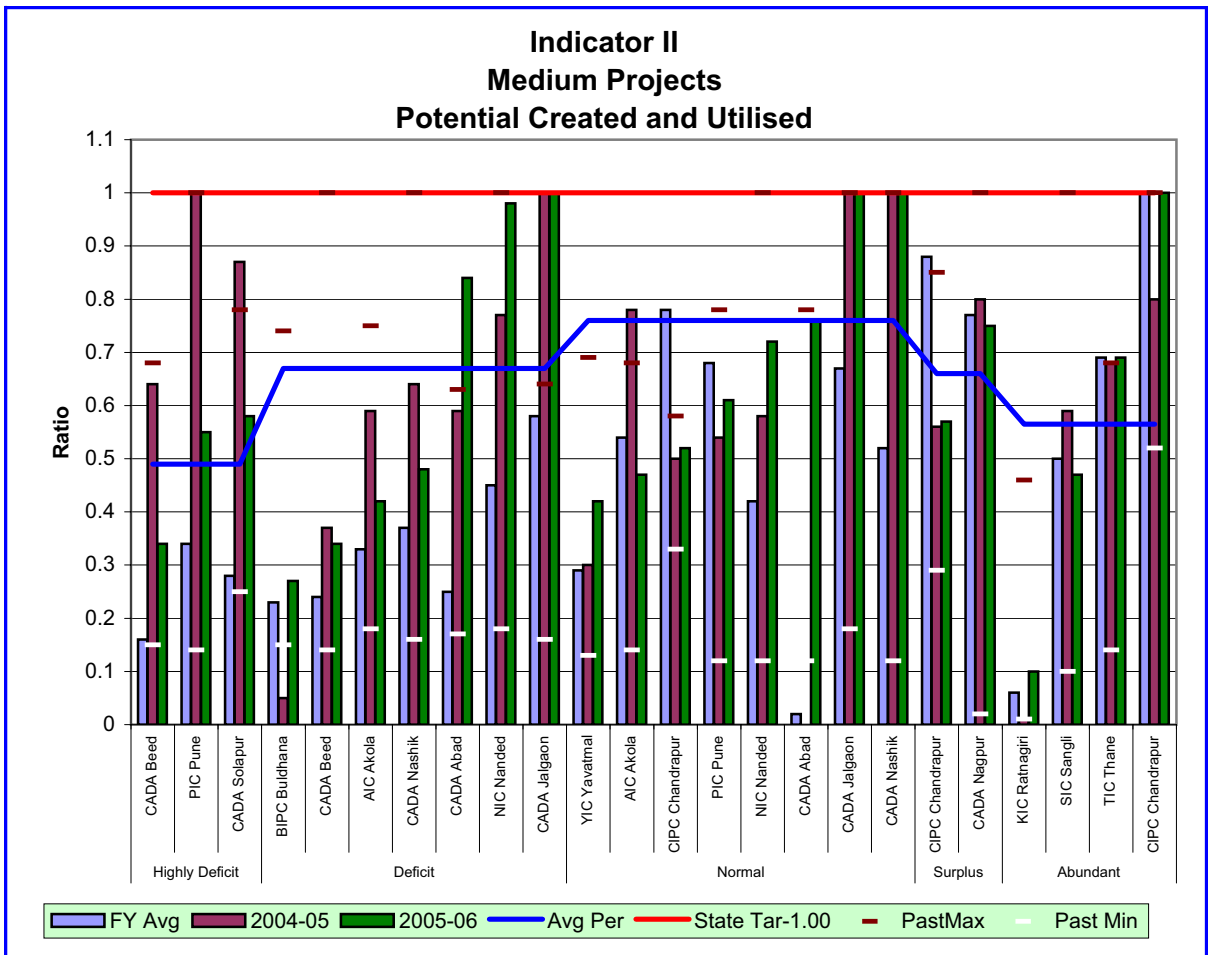
CADA Nagpur: Most of the projects under the circle are kharif predominant projects. There fore, average potential utilisation was 75% which is quite good compared to state norm. But it was low compare to last year performance of 83%. Potentional utilisation is low on Mordham (41%), Khekaranala (17%) compared to other projects if considered individually. .

CIPC Chandrapur: Potential utilisation of projects combined together was 57% of potential created. It is low compared to state norm as well as last year performance. Only Chargaon project has better potential utilisation (90%)

Abundant Plangroup:

Potential utilisation on both Ghorazari & Naleshwar was as per state norm & last year performance.

KIC Ratnagiri: Utilisation of potential in Natuwadi project is increased from 0.01 to 0.10 this year. But it is very low than the state norms, it is due to very less irrigated area and heavy leakages in the canal system.



Plangroup	Circle	FY Avg	2004-05	2005-06	PastMax	Past Min	Avg Per
Highly Deficit	CADA Beed	0.16	0.64	0.34	0.90	0	0.49
	PIC Pune	0.34	1	0.55	0.94	0	
	CADA Solapur	0.28	0.87	0.58	0.96	0	
Deficit	BIPC Buldhana	0.23	0.05	0.27	0.85	0	0.67
	CADA Beed	0.24	0.37	0.34	1.00	0	
	AIC Akola	0.33	0.59	0.42	0.86	0	
	CADA Nashik	0.37	0.64	0.48	1.00	0	
	CADA Abad	0.25	0.59	0.84	0.78	0	
	NIC Nanded	0.45	0.77	0.98	1.00	0	
	CADA Jalgaon	0.58	1	1	0.76	0	
Normal	YIC Yavatmal	0.29	0.3	0.42	0.85	0	0.76
	AIC Akola	0.54	0.78	0.47	0.84	0	
	CIPC Chandrapur	0.78	0.5	0.52	0.95	0	
	PIC Pune	0.68	0.54	0.61	0.68	0	
	NIC Nanded	0.42	0.58	0.72	1.00	0	
	CADA Abad	0.02	No Water	0.76	0.87	0	
	CADA Jalgaon	0.67	1	1	1.00	0	
	CADA Nashik	0.52	1	1	1.00	0	
Surplus	CIPC Chandrapur	0.88	0.56	0.57	0.90	0.29	0.66
	CADA Nagpur	0.77	0.8	0.75	1.00	0.02	
Abundant	KIC Ratnagiri	0.06	0.01	0.1	0.46	0.01	0.565
	SIC Sangli	0.5	0.59	0.47	1.00	0.1	
	TIC Thane	0.69	0.68	0.69	0.95	0.14	0.8
	CIPC Chandrapur	1	0.8	1	1.00	0.52	

Note:1) Figures in blue excluded for Avg Per

2) 'No Water' indicates reservoirs are not filled in that year.

Indicator III : Output Per Unit Irrigated Area (Rs./ha)

Highly Deficit Plangroup

CADA Beed: Average out put per unit irrigated area of project under this circle is 18155. The ratio is decreased 16% as compare to last year. But it is still below the State norm.

On Jakapur project the ratio is Rs. 31891/ha. This is due to 50% crops are perennial one.

Deficit Plangroup:

CADA Nashik: The output/ha is with the state norm since last year.

AIC Akola: Average output per unit area irrigated on projects under this circle was better (Rs 80265) compared to state norm as well as last years performance (Rs.34009). Out put on Morna, Nirguna and Shahanoor if considered individually is exorbitant as compared to state norm. Data about yield and market rate for above projects needs to be checked for proper evaluation.

BIPC Buldana: Out put on Mun and Torna project was less than 50% of the state target as well as last years performance.

CADA Beed: Average out put per unit irrigated area of project under this circle is Rs. 48491/ha. The area irrigated under this project is mainly sugar cane crops (45 to 85%) resulting high out put.

CADA Aurangabad: Average ratio of medium project under this circle is Rs. 18303/ha.

NIC Nanded: Average ratio of medium project under this circle is Rs. 21261/ha

CADA Jalgaon: The output/ha is reduced from Rs. 23452 /ha (2005-06) to Rs. 19028 (2006-07) which is below state norm. Field officers are required to improve the performance in case of Bhokarbari, Bori, Hiwara, Kanoli and Rangawali projects as the performance of these projects is about 50% of the state norm only.

PIC Pune: Average output per unit irrigated area of Six medium Projects is Rs. 22862/ha this year.

Normal Plangroup:

PIC Pune: In Wadiwale Project of PIC Pune the output is Rs. 75847/ha. It is above the state target. The improvement is due to increase in irrigable area under cash crops.

AIC Akola: Output per unit area irrigated (Rs.38748) is good on projects taken together under AIC Akola.

Low output per unit irrigated area is observed on projects under YIC Yeotmal (Rs10923) ,CIPC Chandrapur (Rs20668) .

CADA Aurangabad: Average ratio of medium project under this circle is 18304/ha. Last year this indicator was zero due to non availability of water.

NIC Nanded: Average ratio of medium project under this circle is Rs. 14251/ha.

In Nagzari project this ratio is Rs. 8771/ha which is very less as compared to State norms. The lower value may be due to 93% irrigation is in rabi season and only 2% perennial crops.

CADA Jalgaon: The output/ha in Aner, Karwand, Malangaon & Panzara projects is below state target. Field officers are required to improve the performance.

CADA Nashik: The output/ha has exceeded the state target.

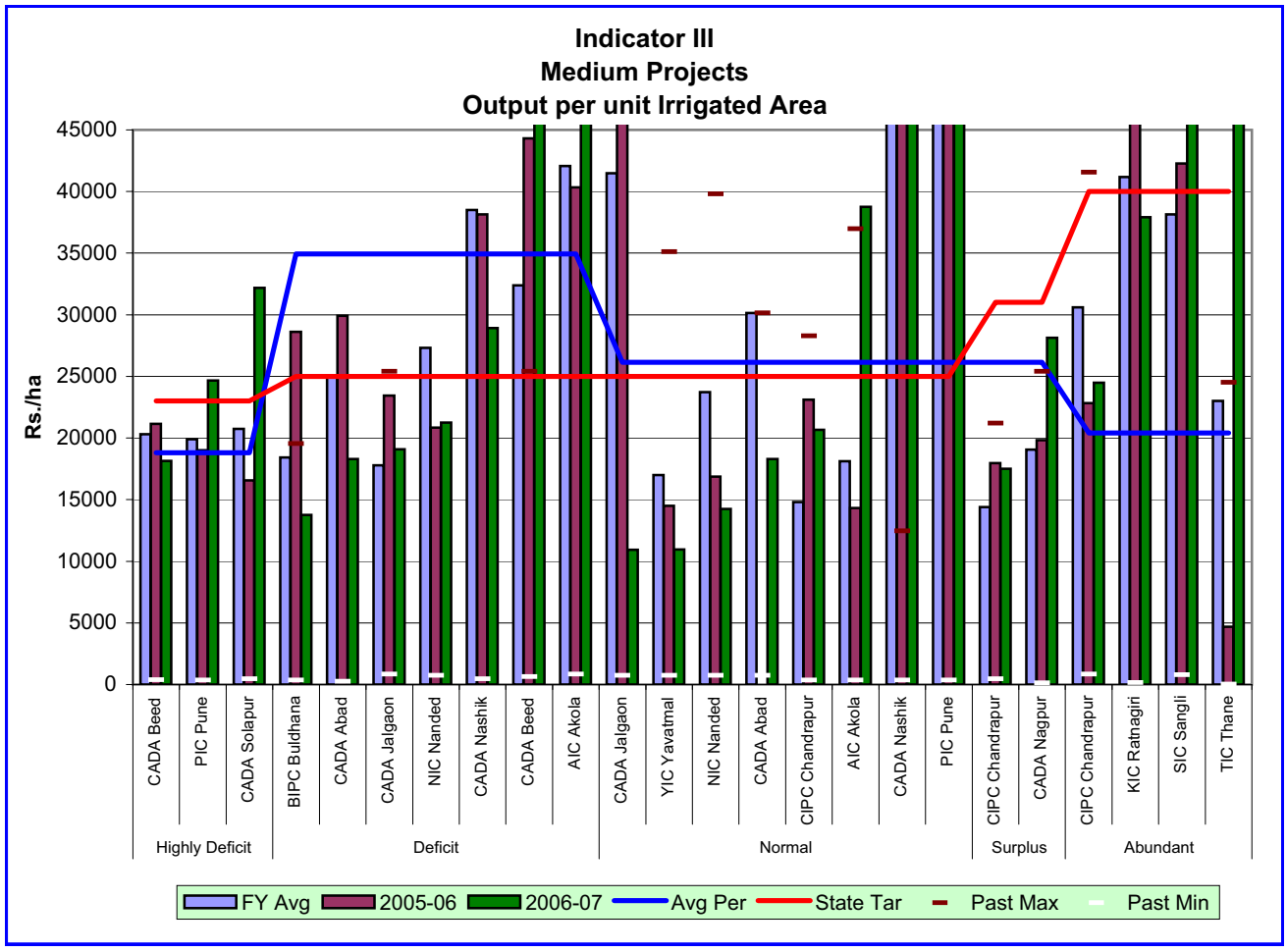
Surplus Plangroup:

Output on projects under CADA Nagpur & CIPC Chandrapur is Rs.28122/ha and Rs.17508/ha., respectively which is low compared to the state norm (Rs.31000/ha.)

Abundant Plangroup:

Ghorazari & Naleshwar are the paddy growing projects. Naturally the output is Rs.21201/ha which is low compared to state norm of Rs.40, 000/ha.

KIC Ratnagiri: In Natuwadi Project the annual output is reduced from Rs. 98571/cum to Rs. 37910/ha. The decrease in performance is due to reduction in yield of cash crops.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per	St. Tar
Highly Deficit	CADA Beed	20321	21145	18155	136095	392	18813	23000
	PIC Pune	19896	19018	24667	65378	365		23000
	CADA Solapur	20731	16559	32188	46175	456		23000
Deficit	BIPC Buldhana	18424	28611	13755	19548	365	34939	25000
	CADA Abad	24939	29914	18303	67083	245		25000
	CADA Jalgaon	17775	23452	19098	25412	851		25000
	NIC Nanded	27312	20840	21261	77408	745		25000
	CADA Nashik	38495	38139	28910	59287	456		25000
	CADA Beed	32379	44303	48491	25412	635		25000
	AIC Akola	42069	40345	80568	54245	851		25000
Normal	CADA Jalgaon	41474	59500	10923	54635	751	26140	25000
	YIC Yavatmal	16992	14509	10964	35124	751		25000
	NIC Nanded	23734	16875	14251	39808	742		25000
	CADA Abad	30142	---	18304	30142	735		25000
	CIPC Chandrapur	14803	23120	20668	28279	368		25000
	AIC Akola	18118	14312	38748	36979	367		25000
	CADA Nashik	109698	211074	47712	12454	365		25000
	PIC Pune	55877	56185	75847	64726	365		25000
Surplus	CIPC Chandrapur	14399	17964	17508	21201	458	22815	25000
	CADA Nagpur	19054	19836	28122	25415	129		25000
Abundant	CIPC Chandrapur	30614	22842	24500	41569	851	20414	31000
	KIC Ratnagiri	41186	98571	37910	54124	165		31000
	SIC Sangli	38152	42286	47023	94776	797		40000
	TIC Thane	23015	4684	54420	24512	30		40000

Note: 1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per

3) 'No Water' indicates reservoirs are not filled in that year.

Indicator IV: Output Per Unit Irrigation Water Supply Rs./cum

Highly Deficit Plangroup:

CADA Beed: Average out put/cum of medium project uner this circle is Rs. 2.73/cum which is slightly below the State norms and also last year performance.

Deficit Plangroup:

PIC Pune: Average output per unit irrigation water supply for Six Projects under this circle is Rs. 5.19/cum this year. It is above state norms the improvement in performance is due to reduction in water use.

AIC Akola: Output (Rs.6.49/m3) is quite high compared to the state norm (Rs. 3.15/m3) and last year value of Rs 5.53 on project under AIC Akola it is so on account of exorbitantly high out put observed on Shahnoor project and economical water use on other projects.

CADA Beed: Average out put/cum of medium project under this circle is Rs. 4.21/cum which is more than state norms, but 13% below last year performance.

CADA Aurangabad: Average output/cum of medium project under this circle is Rs. 5.5/cum which is more than state norms & 37% of last years performance.

NIC Nanded: Average output/cum of medium project under this circle is Rs. 3.42/cum which is more than state norms 14% more than last years performance.

CADA Jalgaon: Output per unit irrigation water supply is above state target since last year.

CADA Nashik: The performance is above state target since last year.

Normal Plangroup:

PIC Pune: In Wadiwale Project output is Rs. 10/cum this year and it is above state target. The improvement in performance is due to reduction in water use and increased in yield of cash crops.

Output observed on the project under AIC Akola (Rs2.49/cum) was low than state norm & last year performance.

There is low output per unit irrigated area on project under YIC Yeotmal & CIPC Chandrapur compared to state norm & last year performance.

CADA Aurangabad: Average output/cum of medium project under this circle is Rs. 8.56/cum which is more than state norms.

NIC Nanded: Average output/cum of medium project under this circle is Rs. 2.45/cum which is less than last year performance.

CADA Jalgaon: Due to lower output/ha in Panzara & Suki projects (Rs.1/cum) overall performance is lowered below state target as compared to last year.

CADA Nashik: All the project expect Ghatshil pargaon & Mandohol projects have achieved the state target over all output is Rs. 13.15/cum.

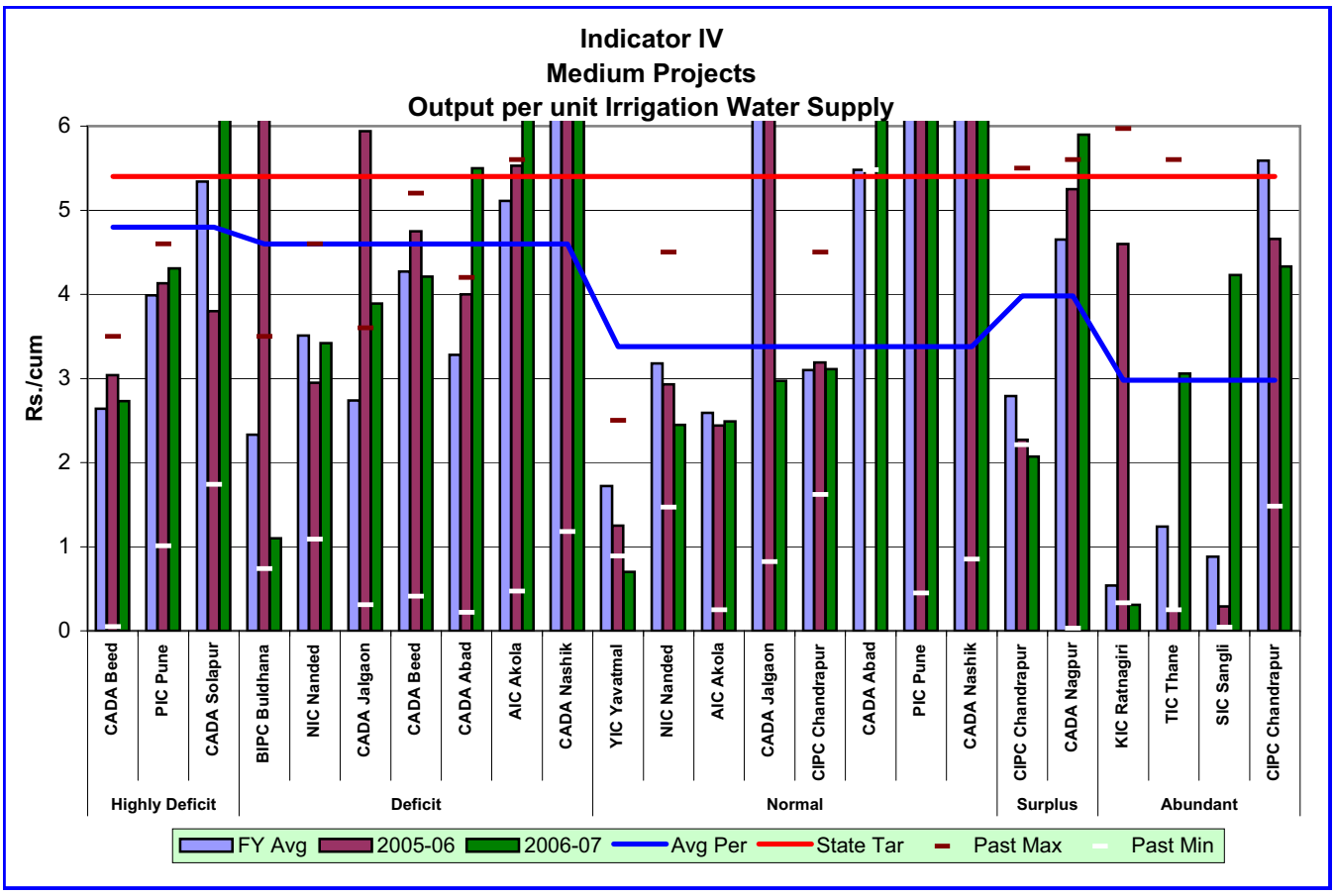
Surplus Plangroup:

CADA Nagpur: Due to low water utilisation output per unit irrigation water supply on projects under CADA Nagpur (Rs.5.9/m3) is more than the state norm (Rs.5.4 /m3) as well as last year performance. But in case of project under CIPC (Rs 2.07/cum), it was low compared to state norm.

Abundant Plangroup:

Output per unit water supply on Ghorazari & Naleshwar project under CIPC Chandrapur combined together has low value (Rs4.33/cum) compared to state norm & last year performance.

KIC Ratnagiri: In Natuwadi Project this year the output per unit water supply is very low i.e. Rs. 0.3/cum as compared to Rs. 4.60/cum of last year. It is due to excess quantity of water use and leakage through canal system.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per	St. Tar
Highly Deficit	CADA Beed	2.64	3.04	2.73	3.50	0.05	4.8	5.4
	PIC Pune	3.99	4.13	4.31	4.60	1.01		5.4
	CADA Solapur	5.34	3.8	7.43	6.30	1.74		5.4
Deficit	BIPC Buldhana	2.33	17.17	1.1	3.50	0.74	4.6	5.4
	NIC Nanded	3.51	2.95	3.42	4.60	1.09		5.4
	CADA Jalgaon	2.74	5.94	3.89	3.60	0.31		5.4
	CADA Beed	4.27	4.75	4.21	5.20	0.41		5.4
	CADA Abad	3.28	4	5.5	4.20	0.22		5.4
	AIC Akola	5.11	5.53	6.49	5.60	0.47		5.4
	CADA Nashik	7.96	7.88	7	8.40	1.18		5.4
Normal	YIC Yavatmal	1.72	1.25	0.7	2.50	0.89	3.38	5.4
	NIC Nanded	3.18	2.93	2.45	4.50	1.47		5.4
	AIC Akola	2.59	2.44	2.49	6.50	0.25		5.4
	CADA Jalgaon	6.64	15.85	2.97	7.80	0.82		5.4
	CIPC Chandrapur	3.1	3.19	3.11	4.50	1.62		5.4
	CADA Abad	5.48	No Water	8.56	6.80	5.48		5.4
	PIC Pune	6.88	6.14	10.49	6.90	0.45		5.4
	CADA Nashik	17.31	43.53	13.15	17.40	0.85		5.4
Surplus	CIPC Chandrapur	2.79	2.27	2.07	5.50	2.21	3.98	5.4
	CADA Nagpur	4.65	5.25	5.9	5.60	0.03		5.4
Abundant	KIC Ratnagiri	0.54	4.6	0.31	5.97	0.33	2.98	5.4
	TIC Thane	1.24	0.24	3.06	5.60	0.25		5.4
	SIC Sangli	0.88	0.29	4.23	12.09	0.04	4.1	5.4
	CIPC Chandrapur	5.59	4.66	4.33	7.57	1.48		5.4

Note: 1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per
3) 'No Water' indicates reservoirs are not filled in that year.

Indicator V: Cost Recovery Ratio

Highly Deficit Plangroup:

PIC Pune: Average cost recovery ratio of Six medium projects under this circle is 0.23 this year and below the state target due to reduction in recovery.

CADA Beed: Average ratio of medium project under this circle is 0.87. The ratio is increased by 60% as compared to last year.

Deficit Plangroup:

AIC Akola: Cost Recovery Ratio has low value in case of projects under AIC Akola (0.26) on account of very low realisation of Irrigation recovery on all projects except Shahanoor (0.98) and Dnyanganga (0.54). Weak financial condition of farmers may be the main cause for low relisation of irrigation recovery.

BIPC Buldana: On both the projects under the circle ratio has low value suggesting more O&M expenditure than revenue recovery.

CADA Beed: Average ratio of medium project under this circle is 0.64. The ratio is slightly increased as compared to last year.

CADA Aurangabad: Average ratio of medium project under this circle is 0.23. The ratio is decreased by 18% as compared to last year.

NIC Nanded: Average ratio of medium project under this circle is 0.29. which has very slightly increased over last year.

CADA Jalgaon: The cost recovery ratio is increased from 0.32 (2005-06) to 0.56 (2006-07) but still it is much below the state norm. More attention is required to be given by the field officers in case of Aner, Burai, Hiwara & Kanoli projects to improve the performance.

CADA Nashik: The overall cost recovery ratio of the projects concerned is 0.43. Spicifically. In Nagyasakya project, much improvement is required as the ratio is only 0.04.

Normal Plangroup:

Cost recovery ratio on project under YIC Yeotmal is quite good (1.45). It is comparatively low on projects under AIC Akola (0.48), CIPC Chandrapur (0.15). Performance was low on all projects under this circle.

PIC Pune: In Wadiwale Project the cost recovery ratio this year 0.11. The performance is poor due to reduction in revenue.

CADA Jalgaon: Overall performance is improved as the ratio is increased from 0.33 (2005-06) to 0.54 (2006-07). However it is still below the state target. Efforts are required to improve the performance in case of Abhora, Aner & Suki projects.

CADA Nashik: The ratio is slightly increased from 0.13 (2005-06) to 0.15 (2006-07). There is much scope to improve the performance in all the projects. Field officers are required to take necessary actions in this regard.

CADA Aurangabad: The average ratio is 0.29 which is decreased as compared to last year.

NIC Nanded: The average ratio is 0.32 which is increased to last year.

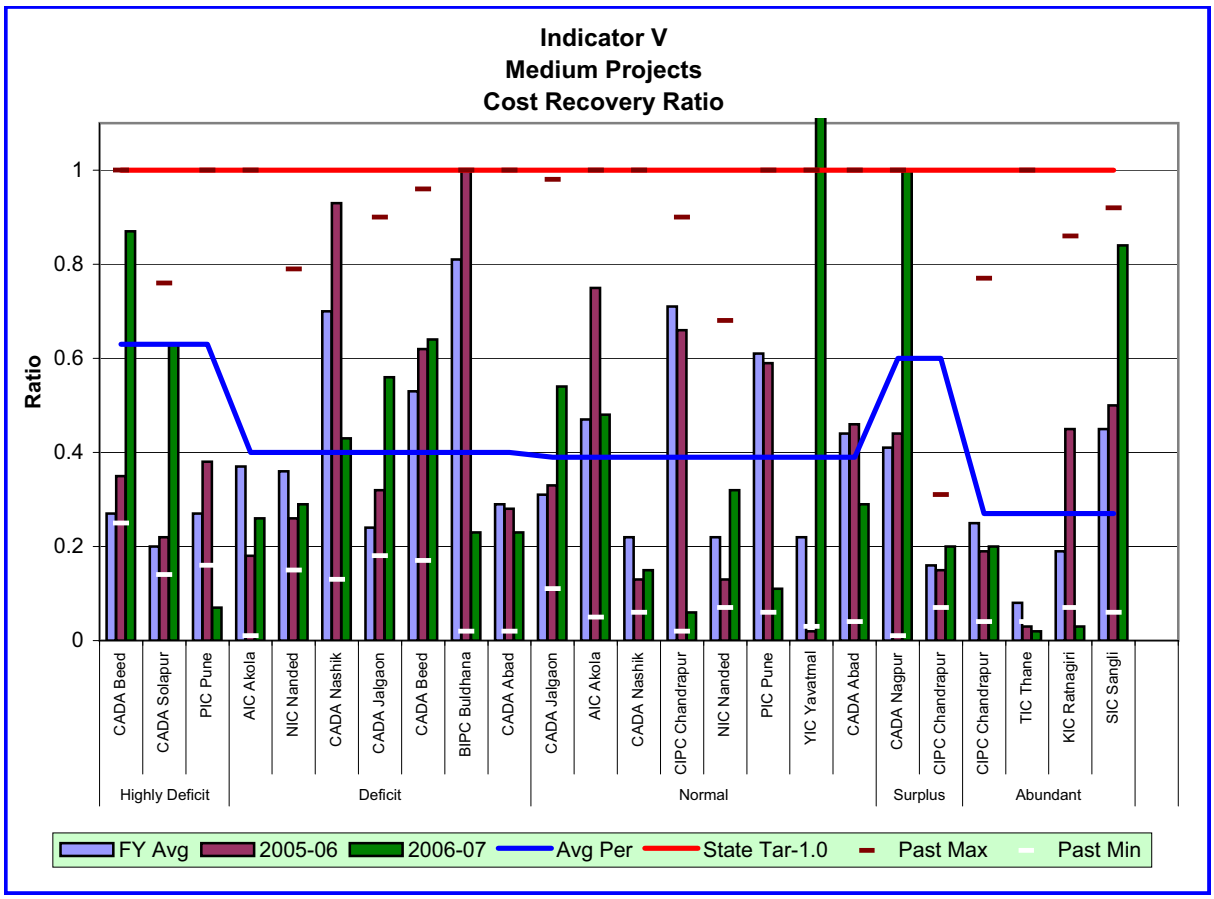
Surplus Plangroup:

Cost recovery ratio on CADA Nagpur (1) was satisfactory compared to state as well as its last year performance (0.44). In case of projects under CIPC Chandrapur, there was no change in cost recovery compared to last year performance.

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project cost recovery ratio is very low this year 0.03. The performance is very low as compared to last year 0.58 and state target. The reason for poor performance in higher expenditure on maintenance and poor recovery of irrigation water charges.

Cost recovery on Naleshwar project (0.12) under CIPC Chandrapur is declined compared to last year performance (0.15).



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.27	0.35	0.87	1.00	0	0.63
	CADA Solapur	0.2	0.22	0.63	0.76	0	
	PIC Pune	0.27	0.38	0.07	1.00	0	
Deficit	AIC Akola	0.37	0.18	0.26	1.00	0	0.4
	NIC Nanded	0.36	0.26	0.29	0.79	0	
	CADA Nashik	0.7	0.93	0.43	4.08	0	
	CADA Jalgaon	0.24	0.32	0.56	0.90	0	
	CADA Beed	0.53	0.62	0.64	0.96	0	
	BIPC Buldhana	0.81	1	0.23	1.00	0	
	CADA Abad	0.29	0.28	0.23	1.00	0	
Normal	CADA Jalgaon	0.31	0.33	0.54	0.98	0	0.39
	AIC Akola	0.47	0.75	0.48	1.00	0	
	CADA Nashik	0.22	0.13	0.15	1.00	0	
	CIPC Chandrapur	0.71	0.66	0.06	0.90	0	
	NIC Nanded	0.22	0.13	0.32	0.68	0	
	PIC Pune	0.61	0.59	0.11	1.00	0	
	YIC Yavatmal	0.22	0.02	1.45	1.00	0	
	CADA Abad	0.44	0.46	0.29	1.00	0	
Surplus	CADA Nagpur	0.41	0.44	1	1.00	0.01	0.6
	CIPC Chandrapur	0.16	0.15	0.2	0.31	0.07	
Abundant	CIPC Chandrapur	0.25	0.19	0.2	0.77	0.04	0.27
	TIC Thane	0.08	0.03	0.02	1.00	0.04	
	KIC Ratnagiri	0.19	0.45	0.03	0.86	0.07	0.58
	SIC Sangli	0.45	0.5	0.84	0.92	0.06	

Note: 1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per
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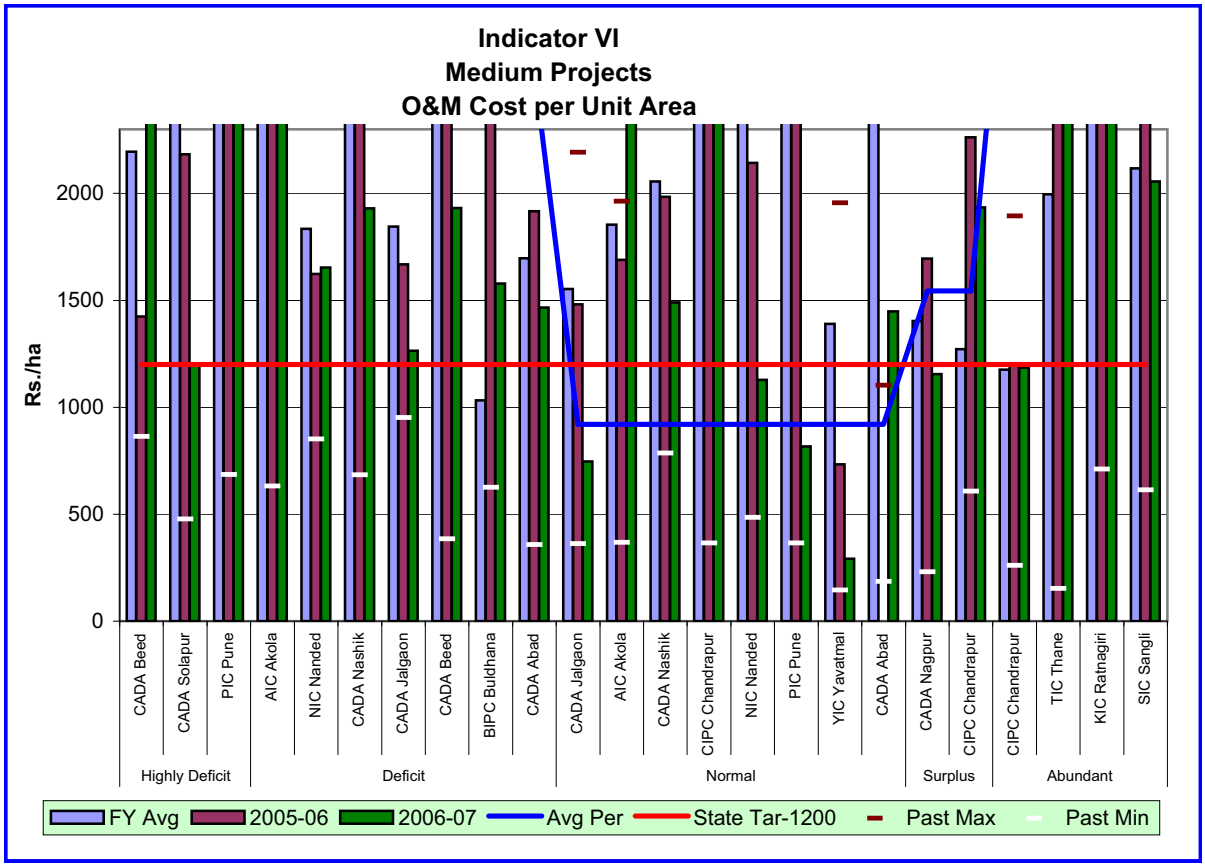


Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	2195	1425	3002	13792	863	2436
	CADA Solapur	3198	2184	1200	6934	478	
	PIC Pune	3137	5010	3107	15427	685	
Deficit	AIC Akola	4489	3524	6077	22183	632	2571
	NIC Nanded	1835	1623	1653	10868	851	
	CADA Nashik	2549	7038	1930	8115	684	
	CADA Jalgaon	1845	1668	1264	3492	951	
	CADA Beed	3318	3366	1932	4962	385	
	BIPC Buldhana	1033	15417	1579	7200	625	
	CADA Abad	1697	1917	1467	4385	358	
Normal	CADA Jalgaon	1553	1481	747	2192	362	921
	AIC Akola	1854	1690	5628	1964	368	
	CADA Nashik	2056	1985	1491	2431	785	
	CIPC Chandrapur	2839	4055	42221	3020	365	
	NIC Nanded	2347	2143	1129	7103	485	
	PIC Pune	2643	3458	817	7106	365	
	YIC Yavatmal	1390	733	292	1956	145	
	CADA Abad	12043	No Water	1449	1103	185	
Surplus	CADA Nagpur	1404	1696	1155	9227	231	1545
	CIPC Chandrapur	1272	2263	1935	6620	608	
Abundant	CIPC Chandrapur	1176	1199	1185	1895	260	3684
	TIC Thane	1996	4430	6183	7600	152	
	KIC Ratnagiri	19939	198071	39276	20071	711	1261
	SIC Sangli	2118	2555	2056	15571	614	

Note:1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per.

Indicator VI: O & M Cost Per Unit Area (Rs./ha)

Highly Deficit Plangroup:

CADA Beed: The average cost per unit irrigated area of medium projects under this circle is 3002 Rs./ha. Which has increased by 2 times over last year & 2.9 times the State norms. The O & M cost in Kambli project is 24783 Rs/ha, this is due to lesser area irrigated with O & M cost very high.

PIC Pune: Average O & M cost per unit area of Six medium projects of this circle this year is Rs. 2201/ha. And above the state target. The reduction in performance is due to increase in irrigated area.

Deficit Plangroup:

O & M cost per unit area irrigated on projects under AIC Akola is quite high (Rs.6077) compared to state norm, as well as last year value (Rs 4024) due to low potential utilisation.

CADA Jalgaon: The O&M cost per unit irrigated area is Rs 1264/ha, which is very close to state norm. In Agnawati, Kanoli & Tondapur projects, O & M cost is on higher side which should be minimised in future.

CADA Nashik: The O&M cost per unit irrigated area is Rs. 1930/ha. which is 1.6 times more than the state norm. Specifically in Nagyasakya project (Rs. 2137/ha), the O & M cost should be minimised in future.

CADA Beed: The average cost per unit irrigated area of medium projects under this circle is 1932 Rs./ha. Which has decreased by 43% over last year & 60% over the State norms.

In Masalga project the O & M cost per unit irrigated area is 9563 Rs/ha, Raigavan it 4032 Rs/ha.

CADA Aurangabad: The average O & M cost per unit irrigated area of medium projects under this circle is 1467 Rs./ha. Which has slightly increased over last year and 22% above State norms.

Ajantha Andari, Dhamna, Gadadgad, Galhathi & Lahuki project have O & M cost high. Which has effected the indicator value.

NIC Nanded: The average O & M cost per unit irrigated area of medium projects under this circle is 1653 Rs./ha. Which has slightly increased over last year & 38% of State norms. Mainly Mahalingi the O & M cost per irrigated area is 4389.

Normal Plangroup:

PIC Pune: In Wadiwale Project the O & M Cost per unit area is Rs. 816/ha. this year. It is also better as compared to state target. The improvement in performance is due to increase in irrigable area and lower maintenance cost.

Low potential utilisation on Shahnoor, Nirguna & Uma with more O&M expenditure under AIC Akola has resulted more ratio value than state norm.

In case of projects under YIC Yeotmal, the ratio (292) was quite below the state norm .It may be on account of salary of staff exempted from operation cost at field level.

CADA Jalgaon: Overall performance is well within the state norm.

CADA Nashik: Overall performance is improved as compared to last year as the O & M cost per ha. is reduced from Rs. 1985/ha. (2005-06) to Rs. 1491/ha (2006-07).

NIC Nanded: The average O & M cost per unit irrigated area of medium projects under this circle is 1129. Which is below State norms as well as last year value. It is mainly due to reduction of O & M cost in Nagzari project. The O & M cost is reduced from 2035 to 673 Rs/ha.

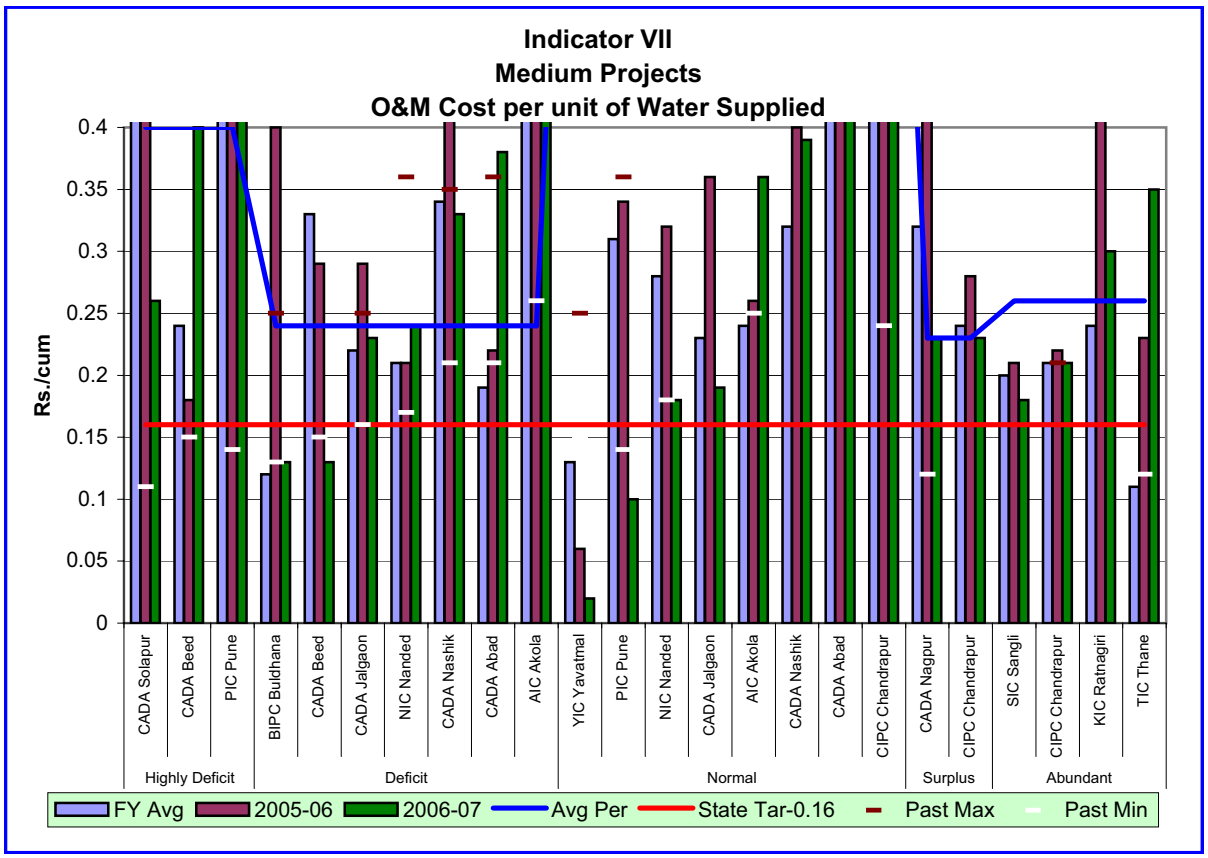
CADA Aurangabad: The average O & M cost per unit irrigated area of medium projects under this circle is 1449 Rs/ha. which is 20% above State norms. The last year value being zero as no availability of water.

Surplus Plangroup:

O & M cost per unit area irrigated on projects under CADA Nagpur was close (Rs.1155/ha) to the state norm, on account of appreciable Potentional utilisation.

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project the O & M Cost per unit area decreases to Rs. 34025/ha.This year from Rs.154500/ha.Of last year. But the value much more than state norms. The Field Officers are to take efforts for improvement in performance.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.7	0.44	0.26	0.78	0.11	0.4
	CADA Beed	0.24	0.18	0.4	0.45	0.15	
	PIC Pune	0.55	0.86	0.54	0.56	0.14	
Deficit	BIPC Buldhana	0.12	0.4	0.13	0.25	0.01	0.24
	CADA Beed	0.33	0.29	0.13	0.63	0.15	
	CADA Jalgaon	0.22	0.29	0.23	0.25	0.01	
	NIC Nanded	0.21	0.21	0.24	0.36	0.17	
	CADA Nashik	0.34	0.85	0.33	0.35	0.01	
	CADA Abad	0.19	0.22	0.38	0.36	0.21	
	AIC Akola	0.46	0.44	0.44	0.74	0.26	
Normal	YIC Yavatmal	0.13	0.06	0.02	0.25	0.15	0.98
	PIC Pune	0.31	0.34	0.1	0.36	0.01	
	NIC Nanded	0.28	0.32	0.18	0.63	0.18	
	CADA Jalgaon	0.23	0.36	0.19	13.80	0.89	
	AIC Akola	0.24	0.26	0.36	0.52	0.01	
	CADA Nashik	0.32	0.4	0.39	0.63	0.01	
	CADA Abad	0.54	1.79	0.57	0.45	0.01	
	CIPC Chandrapur	0.56	0.53	6.06	0.65	0.24	
Surplus	CADA Nagpur	0.32	0.42	0.23	0.45	0.12	0.23
	CIPC Chandrapur	0.24	0.28	0.23	0.45	1.07	
Abundant	SIC Sangli	0.2	0.21	0.18	0.45	0.44	0.26
	CIPC Chandrapur	0.21	0.22	0.21	0.21	0.27	
	KIC Ratnagiri	0.24	1.02	0.3	0.52	0.47	
	TIC Thane	0.11	0.23	0.35	0.52	0.12	0.17

Note:1) Figures in red indicate values exceeding range of graph.
2) Figures in red & blue excluded for Avg.Per. 3) 'No Water' indicates reservoirs are not filled.

Indicator VII: O & M Cost Per Unit of Water Supply (Rs./cum)

Highly Deficit Plangroup:

PIC Pune: Average O & M Cost per unit of water supply in Six medium projects comes to Rs. 0.66/cum this year. But it is nearly Five time the state target. The Field Officers are to take efforts to lower down the performance.

CADA Beed: The average value of this indicator for medium project under this circle is 0.40. Which increased over last year (0.18) which is 2.5 times above the State norms.

Deficit Plangroup:

AIC Akola: O & M cost per unit water supply on projects under AIC Akola was more as water was economically used on projects under this circle. It suggests more expenditure on O&M than standards specifed.

CADA Jalgaon: O & M cost per unit water supplied is on higher side of the state norm since last year. More attention is required in case of Agnawati, Kanoli & Tondapur projects to improve the performance.

CADA Nashik: O & M cost per unit water supplied is on higher side of the state norm since last year. Field authorities are required to take necessary steps to improve the performance.

CADA Beed: The average value of this indicator for medium projects under this circle is decreased over last year. Which is within State norms.

NIC Nanded: The average value of this indicator for medium projects under this circle is 0.24. Which increased by 13% over last year and is 50% more than State norms.

CADA Aurangabad: The average value of this indicator for medium projects under this circle is 0.38. Which is increased by 40% over last years and also which is over the State norms.

Normal Plangroup:

PIC Pune: In Wadiwale Project O & M Cost per unit of water supply is lower down this year to Rs. 0.10/cum. The performance is better than state norms.

On projects under AIC Akola and CIPC Chandrapur, in spite of irrigation water use close to the state target , high values for O&M cost per unit water supplied (0.36 and 6.06) compared to state norm, suggest excessive O&M expenditure on some of the projects under these two circles.

CADA Jalgaon: O & M cost per unit water supplied is reduced from Rs. 0.36/cum (2005-06) to 0.19/cum (2006-07) which is close to state norms. The performance in Aner & Malangaon projects is better as the indicator value in these projects is close to state norm. However, improvement is required in case of Abhora & Karwand projects.

CADA Nashik: In all the projects except Adhala, the O&M cost per unit water supplied is on higher side. Remedial measures should be taken to improve the performance in Alandi. Bhojapur, Ghatshil pargaon & Mandohol projects.

NIC Nanded: The average value of this indicator for medium projects under this circle is 0.18 which has decreased by 55% over last years. The indicator is near to State norms.

CADA Aurangabad: The average value of this indicator for medium projects under this circle is 0.57. Which has reduced by 1/3rd over last year and 3.5 times more than State norms.

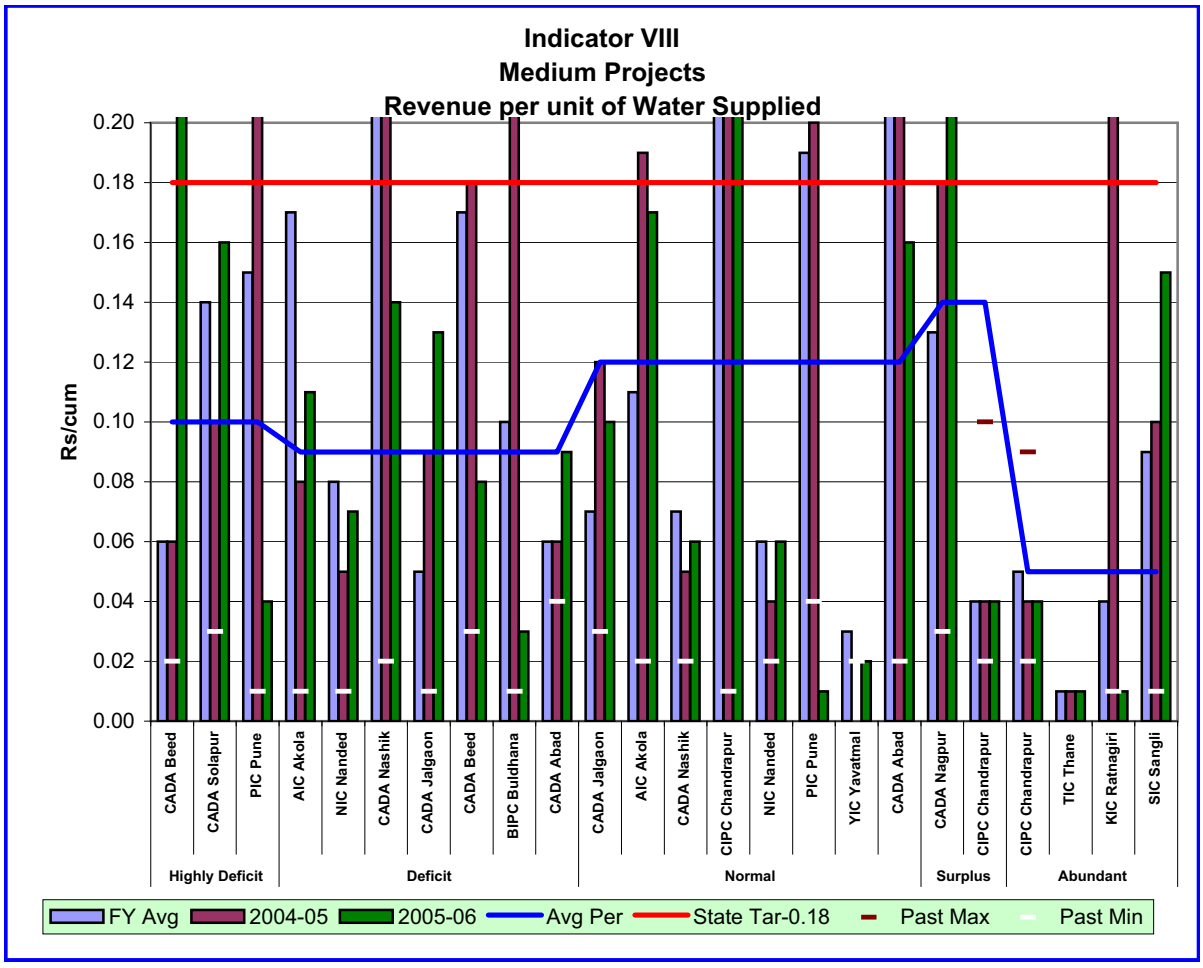
The indicator value for Dheku project is reduced from 8.74 to 0.88 as compared to last year. This effects the average value of circle.

Surplus Plangroup:

O & M cost per unit water supplied observed on projects under CADA Nagpur(0.23) & CIPC Chandrapur (0.23) was slightly more than state norm as well as last years performance..

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project O & M Cost per unit of water supply is reduced from Rs. 0.80/cum of last year to Rs. 0.03/cum this year.



Plangroup	Circle	FY Avg	2004-05	2005-06	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.06	0.06	0.35	0.80	0.02	0.10
	CADA Solapur	0.14	0.10	0.16	0.65	0.03	
	PIC Pune	0.15	0.32	0.04	0.64	0.01	
Deficit	AIC Akola	0.17	0.08	0.11	0.54	0.01	0.09
	NIC Nanded	0.08	0.05	0.07	0.63	0.01	
	CADA Nashik	0.24	0.79	0.14	0.54	0.02	
	CADA Jalgaon	0.05	0.09	0.13	0.58	0.01	
	CADA Beed	0.17	0.18	0.08	0.69	0.03	
	BIPC Buldhana	0.10	0.40	0.03	0.36	0.01	
	CADA Abad	0.06	0.06	0.09	0.78	0.04	
Normal	CADA Jalgaon	0.07	0.12	0.10	0.83	0.03	0.12
	AIC Akola	0.11	0.19	0.17	0.85	0.02	
	CADA Nashik	0.07	0.05	0.06	0.70	0.02	
	CIPC Chandrapur	0.39	0.35	0.39	8.11	0.01	
	NIC Nanded	0.06	0.04	0.06	0.85	0.02	
	PIC Pune	0.19	0.20	0.01	0.69	0.04	
	YIC Yavatmal	0.03	No Water	0.02	0.78	0.02	
	CADA Abad	0.24	0.82	0.16	0.69	0.02	
Surplus	CADA Nagpur	0.13	0.18	0.23	0.45	0.03	0.14
	CIPC Chandrapur	0.04	0.04	0.04	0.10	0.02	
Abundant	CIPC Chandrapur	0.05	0.04	0.04	0.09	0.02	0.05
	TIC Thane	0.01	0.01	0.01	0.63	0.03	
0	KIC Ratnagiri	0.04	0.46	0.01	0.46	0.01	
	SIC Sangli	0.09	0.10	0.15	0.85	0.01	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in red & blue excluded for Avg Per. 3) 'No Water' indicates reservoirs are are not filled.

Indicator VIII: Revenue Per Unit of Water Supplied Rs./cum

Highly Deficit Plangroup

CADA Beed: The average value of this indicator for the medium projects of this circle is 0.35, It has increased over last years performance by 6 times. The value of indicator is two times the State norms.

Deficit Plangroup:

AIC Akola & BIPC Buldhana: Revenue recovery per unit water supplied on projects under AIC Akola, BIPC Buldana was quite low mainly due to low revenue realisation.

PIC Pune: Average revenue per unit of water supplied in Six medium projects under this circle comes to Rs. 0.04/cum this year. The reason for poor performance is reduction in revenue recovery.

CADA Jalgaon: Revenue per unit water supplied is increased from Rs. 0.09/cum (2005-06) to Rs. 0.13/cum (2006-07) but still it is below state norm. In case of Burai, Hiwara & Rangwali projects, performance is very low (ratio is 0.03, 0.06 & 0.03 respectively). Improvement in these projects is necessary.

CADA Nashik: Revenue per unit water supplied is lowered from 0.79 (2005-06) to 0.14 (2006-07). Efforts are required to improve the performance in all the projects concerned.

CADA Beed: The average value of this indicator for the medium project under this circle is 0.08. It has decreased over last year and 50% below the State norms. The field officers are required to take more efforts in recovering the revenue.

CADA Aurangabad: The average value of this indicator for medium project under this circle is 0.09. It has increased by 1.5 times over last year. But it is still below state norms. Improvement in revenue collection is still needed.

NIC Nanded: The average value of this indicator for medium project under this circle is 0.07. It has increased over last year performance. But still it is below State norms. The field officers are required to take still more efforts for recovering the revenue.

Normal Plangroup:

PIC Pune: In Wadiwale Project the ratio is (0.01) shows poor performance than state target due to reduction in revenue recovery.

The ratio has appreciable value (0.39) in case of projects under CIPC Chandrapur on account of realisation of irrigation recovery on projects under his circle.

CADA Jalgaon: The indicator value is lowered from 0.12 (2005-06) to 0.10 (2006-07). The performance is better in Malangaon project only. However improvement in the performance is required in Abhora, Aner & Panzara projects.

CADA Nashik: There is slight increase in revenue per unit water supplied (0.05 to 0.06) as compared to last year. Performance of all projects concerned

is below the state norm. Field authorities are required to improve the performance.

CADA Aurangabad: The average value of this indicator for medium project under this circle 0.16. It has decreased over last years performance by 5 times as well as slightly below the State norms. In Dheku project the recovery of the revenue is reduce by 90%. This effects the average value of the circle.

NIC Nanded: The average value of this indicator for projects under this circle is 0.04. It has increased slightly over last year, but it is very much below state norms. The field officers are required to pay more efforts to recover the revenue.

Surplus Plangroup:

CADA Nagpur: Revenue recovery per unit water supplied on projects under this circle (0.23) was more than the state norm as water was used for protective irrigation in Kharif only.

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project the ratio (0.01) comes down from (0.46) of last year due to less amount of revenue recovery and excess water use.

Indicator X: Land Damage Index

Highly Deficit Plangroup

PIC Pune: On all the Six medium Project the land damage is nil.

Deficit Plangroup:

There is no land damage on any project in Nagpur & Amaravati region except 0.06% on projects under AIC Akola (Deficit) & 0.02% on projects under CADA Nagpur (Surplus).

Normal Plangroup

PIC Pune: in Wadiwale Project damage land is nil.

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project the damage land is nil.

Indicator XI: Equity Performance

Highly Deficit Plangroup:

PIC Pune: Average potential utilisation in six medium projects is higher in Heads reach and low in tail reach.

Deficit Plangroup:

AIC Akola: Potential utilisation is more or less equal in all the reaches in projects under AIC Akola.

BIPC Buldana: Potential utilisation is more or less equal in head and tail reaches of projects under the circle.

CADA Beed: The potential utilisation is concentrated in Head and Tail reach.

CADA Aurangabad: The potential utilisation is concentrated in Head and Tail reach.

NIC Nanded: The potential utilisation is concentrated in Middle.

Normal Plangroup:

Potential utilisation was more concentrated in head and middle reaches of projects under AIC Akola, CIPC Chandrapur and YIC Yeotmal.

NIC Nanded: The potential utilisation is more in middle reach.

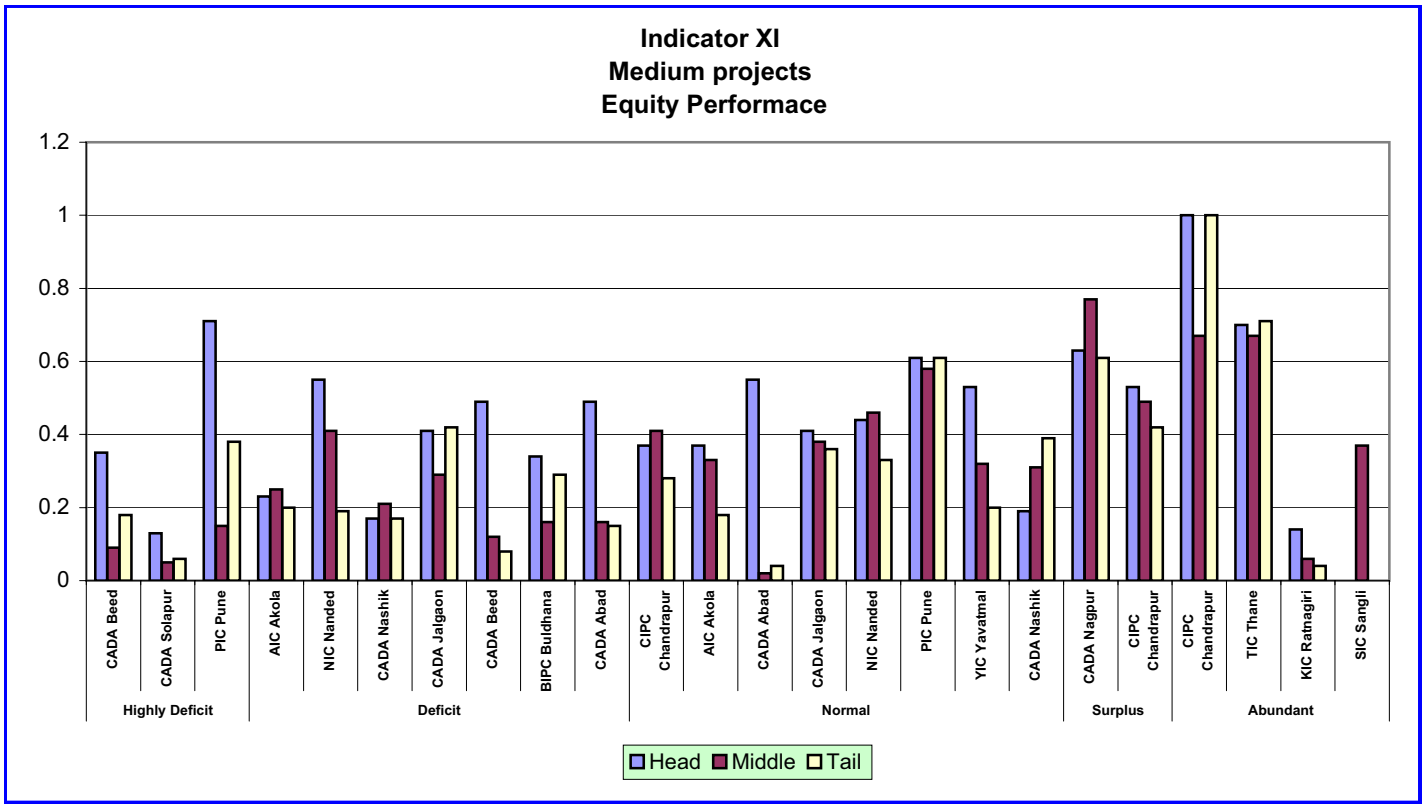
Surplus Plangroup:

Potential utilisation was more or less equal in all the reaches in projects under CADA Nagpur and CIPC Chandrapur.

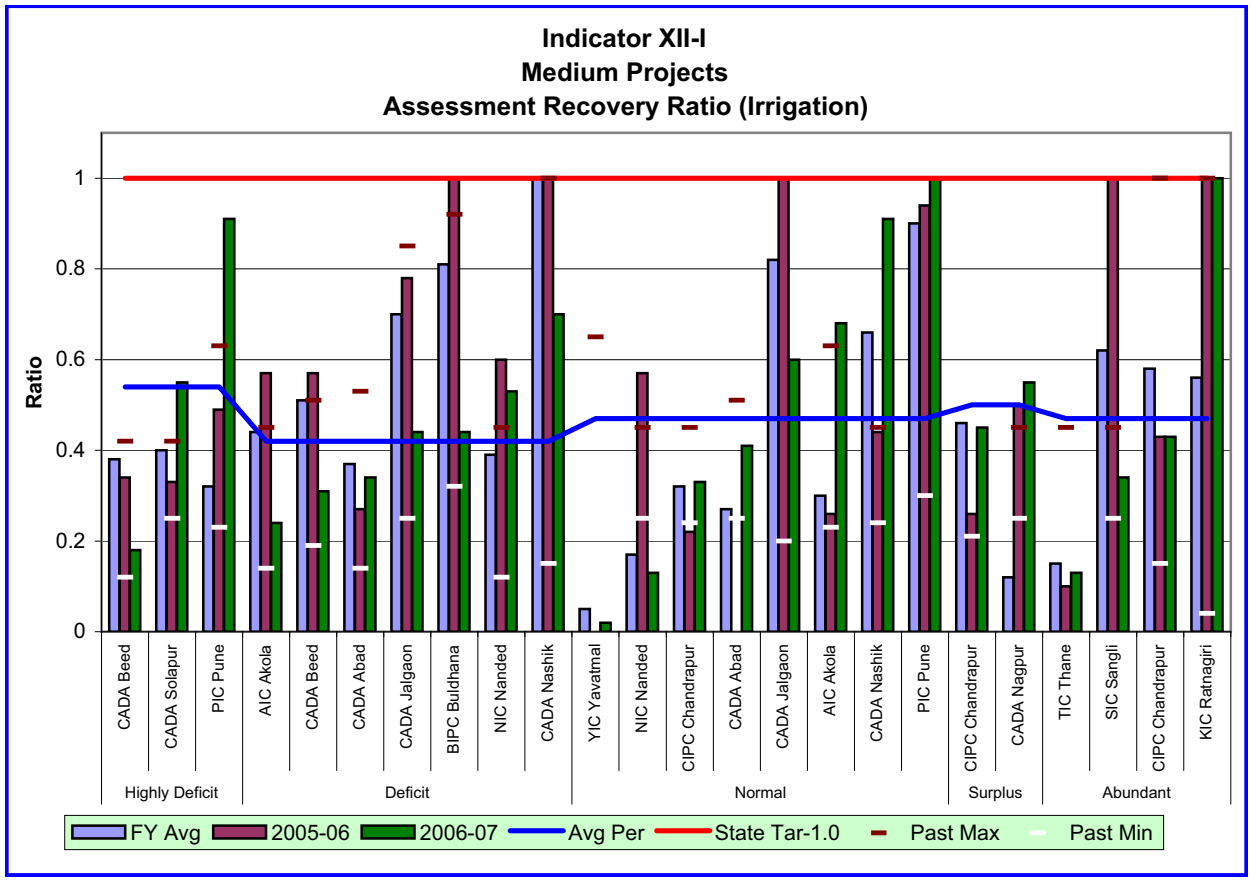
Abundant Plangroup:

Potential utilisation was more or less equal in all the reaches in projects under CIPC Chandrapur.

KIC Ratnagiri: In Natuwadi project irrigation potential utilization ratio is 0.14, 0.11, and 0.04 at head, middle and tail reach of command area



Plangroup	Circle	2006-07		
		Head	Middle	Tail
Highly Deficit	CADA Beed	0.35	0.09	0.18
	CADA Solapur	0.13	0.05	0.06
	PIC Pune	0.71	0.15	0.38
Deficit	AIC Akola	0.23	0.25	0.20
	NIC Nanded	0.55	0.41	0.19
	CADA Nashik	0.17	0.21	0.17
	CADA Jalgaon	0.41	0.29	0.42
	CADA Beed	0.49	0.12	0.08
	BIPC Buldhana	0.34	0.16	0.29
	CADA Abad	0.49	0.16	0.15
Normal	CIPC Chandrapur	0.37	0.41	0.28
	AIC Akola	0.37	0.33	0.18
	CADA Abad	0.55	0.02	0.04
	CADA Jalgaon	0.41	0.38	0.36
	NIC Nanded	0.44	0.46	0.33
	PIC Pune	0.61	0.58	0.61
	YIC Yavatmal	0.53	0.32	0.20
	CADA Nashik	0.19	0.31	0.39
Surplus	CADA Nagpur	0.63	0.77	0.61
	CIPC Chandrapur	0.53	0.49	0.42
Abundant	CIPC Chandrapur	1.00	0.67	1.00
	TIC Thane	0.70	0.67	0.71
	KIC Ratnagiri	0.14	0.06	0.04
	SIC Sangli	0.00	0.37	0.00



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.38	0.34	0.18	0.42	0.01	0.54
	CADA Solapur	0.4	0.33	0.55	0.42	0.01	
	PIC Pune	0.32	0.49	0.91	0.63	0.01	
Deficit	AIC Akola	0.44	0.57	0.24	0.45	0.01	0.42
	CADA Beed	0.51	0.57	0.31	0.51	0.01	
	CADA Abad	0.37	0.27	0.34	0.53	0.14	
	CADA Jalgaon	0.7	0.78	0.44	0.85	0.25	
	BIPC Buldhana	0.81	1	0.44	0.92	0.01	
	NIC Nanded	0.39	0.6	0.53	0.45	0.01	
	CADA Nashik	1	1	0.7	1.00	0.01	
Normal	YIC Yavatmal	0.05	No Irr	0.02	0.65	0.01	0.47
	NIC Nanded	0.17	0.57	0.13	0.45	0.01	
	CIPC Chandrapur	0.32	0.22	0.33	0.45	0.01	
	CADA Abad	0.27	No Irr	0.41	0.51	0.01	
	CADA Jalgaon	0.82	1	0.6	0.20	0.01	
	AIC Akola	0.3	0.26	0.68	0.63	0.01	
	CADA Nashik	0.66	0.44	0.91	0.45	0.01	
	PIC Pune	0.9	0.94	1	0.30	0.01	
Surplus	CIPC Chandrapur	0.46	0.26	0.45	0.21	0.21	0.5
	CADA Nagpur	0.12	0.5	0.55	0.45	0.01	
Abundant	TIC Thane	0.15	0.1	0.13	0.45	0.01	0.47
	SIC Sangli	0.62	1	0.34	0.45	0.01	
	CIPC Chandrapur	0.58	0.43	0.43	1.00	0.15	0.81
	KIC Ratnagiri	0.56	1	1	1.00	0.04	

Note:1) 'No irr' indicates no irrigation in that year.

Indicator XII (I): Assessment Recovery Ratio (Irrigation)

Highly Deficit Plangroup:

PIC Pune: Average assessment recovery ratio in Six medium projects under this circle comes to 1.60 this year it is above state target the increase is due to recovery of previous years revenue.

CADA Beed: The average value of this indicator for projects under this circle is 0.18. It has decreased over 50% by last years performance. It is very much below State norms. Proper attention should be given for the recovery by allotting target.

Deficit Plangroup:

Recovery against assessment sanctioned during the year 2006-07 on group of projects under AIC Akola and BIPC Buldana was low than last year as well as state norm.

CADA Jalgaon: The ratio is lowered from 0.78 (2005-06) to 0.44 (2006-07). In Bori, Hiwara, Manyad & Tondapur projects, not even 30% state target is achieved. More attention is required by field officers to improve the performance in these projects.

CADA Nashik: The ratio is lowered from 1.00 (2005-06) to 0.59 (2006-07). There is scope in all the projects to improve the performance.

CADA Beed: The average value of this indicator for projects under this circle is 0.31, it has decreased over last years performance and declined to 1/3rd of the State norms.

CADA Aurangabad: The average value of this indicator for projects under this circle is. 0.34. It has increased slightly over last year but still it is very much below State norms.

NIC Nanded: The average value of this indicator for medium project under this circle is 0.53. It has slightly decreased over last year performance. But it is still 47% below State norms.

Normal Plangroup:

CADA Aurangabad: The average value of this indicator for projects under this circle is 0.41.

NIC Nanded: The average value of this indicator for projects under this circle is 0.13. It has decreased over last year performance by 78% and much below the state norms. Field officers should give proper attention towards recovery of revenue.

CADA Jalgaon: The ratio is lowered from 1.00 (2005-06) to 0.60 (2006-07). In Abhora & Aner projects, the performance is below 50%. As such improvement is necessary.

CADA Nashik: The ratio is increased from 0.44 (2005-06) to 0.91 (2006-07). Field officers have succeeded to achieve 90% state target.

Except some projects under AIC Akola recovery against assessment on group of projects under YIC Yeotmal CIPC Chandrapur was low as compared to state norm.

PIC Pune: In Wadiwale Project the ratio is (1.0) shows better recovery.

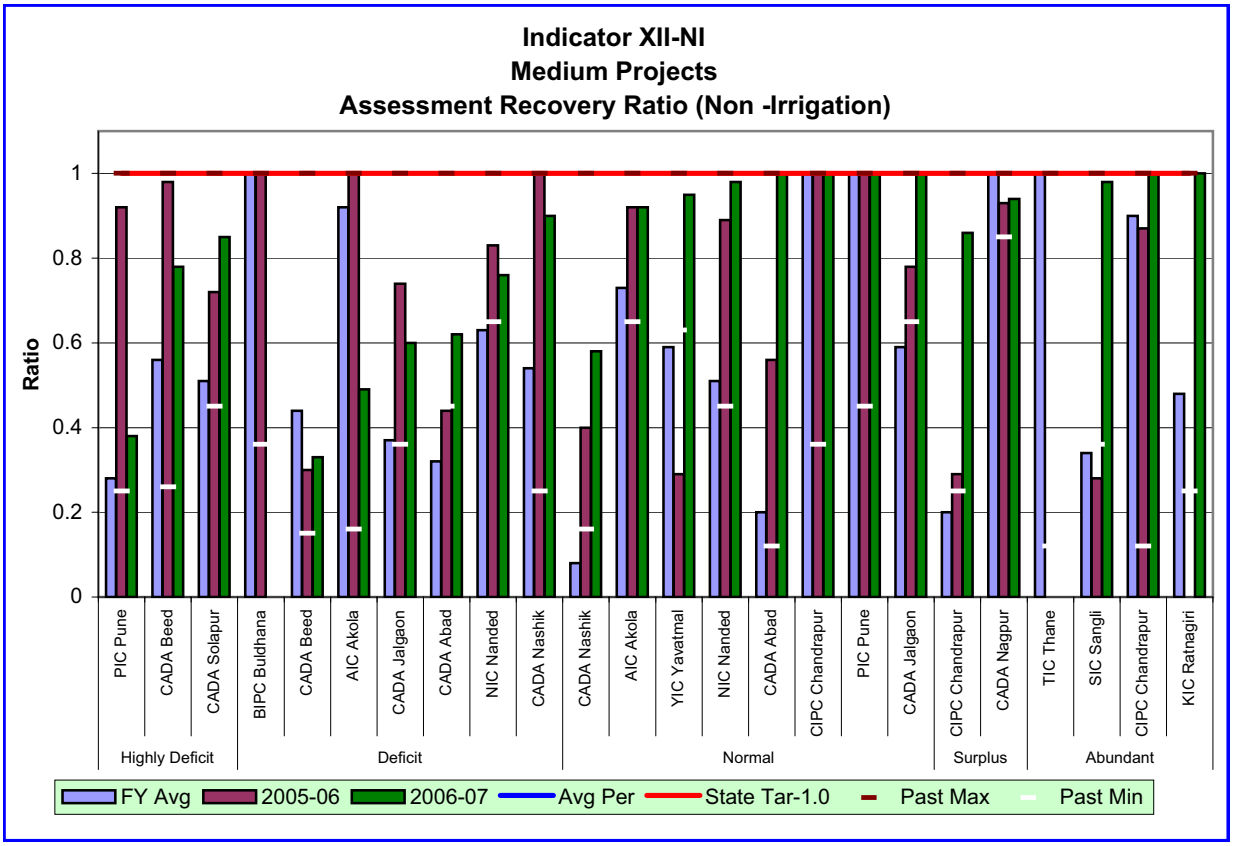
Surplus Plangroup:

Though recovery against assessment on group of projects under CADA Nagpur (0.45) and CIPC Chandrapur (0.55) was low still there was improvement over its last year performance (0.5 & 0.26).

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project the ratio increases this year (2.32) from 1.0 of last year due to recovery of previous year's revenue.

Recovery against assessment on group of projects under CIPC Chandrapur (0.43) was low and same as it was during last year.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	PIC Pune	0.28	0.92	0.38	1.00	0.25	0.67
	CADA Beed	0.56	0.98	0.78	1.00	0.26	
	CADA Solapur	0.51	0.72	0.85	1.00	0.45	
Deficit	BIPC Buldhana	1.00	1.00	0.00	1.00	0.36	0.56
	CADA Beed	0.44	0.30	0.33	1.00	0.15	
	AIC Akola	0.92	1.00	0.49	1.00	0.16	
	CADA Jalgaon	0.37	0.74	0.60	1.00	0.36	
	CADA Abad	0.32	0.44	0.62	1.00	0.45	
	NIC Nanded	0.63	0.83	0.76	1.00	0.65	
	CADA Nashik	0.54	1.00	0.90	1.00	0.25	
Normal	CADA Nashik	0.08	0.40	0.58	1.00	0.16	0.98
	AIC Akola	0.73	0.92	0.92	1.00	0.65	
	YIC Yavatmal	0.59	0.29	0.95	1.00	0.63	
	NIC Nanded	0.51	0.89	0.98	1.00	0.45	
	CADA Abad	0.20	0.56	1.00	1.00	0.12	
	CIPC Chandrapur	1.00	1.00	1.00	1.00	0.36	
	PIC Pune	1.00	1.00	1.00	1.00	0.45	
	CADA Jalgaon	0.59	0.78	1.00	1.00	0.65	
Surplus	CIPC Chandrapur	0.20	0.29	0.86	1.00	0.25	0.9
	CADA Nagpur	1.00	0.93	0.94	1.00	0.85	
Abundant	TIC Thane	1.00	---	---r	1.00	0.12	0.93
	SIC Sangli	0.34	0.28	0.98	1.00	0.36	
	CIPC Chandrapur	0.90	0.87	1.00	1.00	0.12	0.58
	KIC Ratnagiri	0.48	---	1.00	1.00	0.25	

Note: 1) Figures in blue excluded for Avg Per 2) 'No irr' indicates no irrigation in that year.

Indicator XII (NI): Assessment Recovery Ratio (Non Irrigation)

Highly Deficit Plangroup

CADA Beed: The average value of this indicator for projects under this circle is 0.78. It has reduced over last year performance by 20%.

PIC Pune: Average assessment ratio (NI) of Six medium projects this year's 0.38. It is below the state target due to reduction in recovery of water charges of Non Irrigation use.

Deficit Plangroup:

Recovery against assessment during the year 2006-07 on group of projects under AIC Akola Deficit was on lower side (49%) as compared to the state target as well as its last year recovery.

Recovery on projects under YIC Yeotmal, CIPC Chandtrapur, AIC Akola (Normal plan group) alongwith CIPC Chandrapur and CADA Nagpur under Surplus plan group was Satisfactory compared to the state norm.

CADA Jalgaon: The ratio is on lower side (60%) in Agnawati, Kanoli & Tonapur projects. Hence improvement is necessary.

CADA Nashik: The ratio has slightly reduced from 1.00 (2005-06) to 0.87 (2006-07).

CADA Beed: The average value of this indicator for projects under this circle is 0.33. It has slightly increased by 3% over last year performance, state norms have to be achieved with hard efforts.

CADA Aurangabad: The average value of this indicator for projects under this circle is 0.62, it has increased over last year by 18%. but it is still below the State norms.

NIC Nanded: The average value of this indicator for projects under this circle is 0.76. It has decreased over last year performance. To achieve the State norms the field officers should take efforts for revenue recovery.

Normal Plangroup

CADA Jalgaon: Field officers have succeeded to achieve the state target. The ratio is increased from 0.78 (2005-06) to 1.00 (2006-07).

CADA Nashik: The ratio has been increased from 0.40 (2005-06) to 0.58 (2006-07). The performance in Bhojapur & Mandohol projects is below 50%. However, 80% target is achieved in Adhala project.

CADA Aurangabad: The average value of this indicator for projects under this circle achieved State norms. i.e. 1.00, It has increased by 44% over last year.

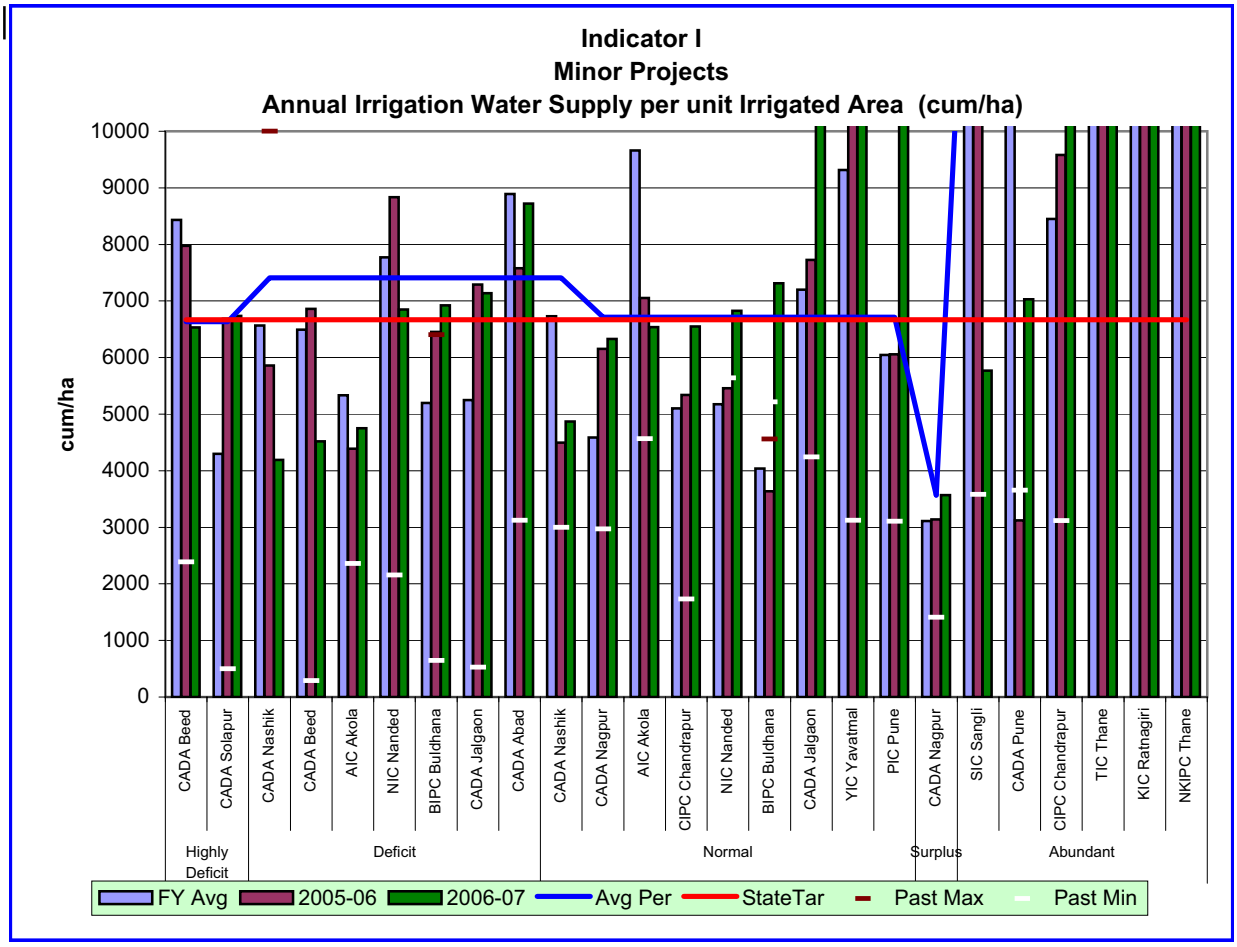
NIC Nanded: The average value of this indicator of the projects for this circle has nearly achieved State norms. i.e. 0.98, it has increased by 10% over past year.

PIC Pune: In Wadiwale Project the 100 % recovery has been achieved as that of last year.

Abundant Plangroup:

KIC Ratnagiri: In Natuwadi Project 100% recovery has been achieved as that of last year.

Indicators of Minor Projects



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	8433	7975	6532	18621	2386	6635
	CADA Solapur	4297	6684	6738	11397	500	
Deficit	CADA Nashik	6565	5859	4191	10000	7854	7407
	CADA Beed	6492	6861	4517	18439	291	
	AIC Akola	5336	4389	4750	53353	2356	
	NIC Nanded	7771	8837	6851	17927	2155	
	BIPC Buldhana	5198	6452	6922	6400	645	
	CADA Jalgaon	5250	7292	7136	84791	526	
	CADA Abad	8893	7582	8719	22671	3125	
Normal	CADA Nashik	6730	4497	4868	27908	3000	6712
	CADA Nagpur	4585	6154	6332	15410	2968	
	AIC Akola	9659	7052	6538	17352	4562	
	CIPC Chandrapur	5101	5340	6548	17512	1731	
	NIC Nanded	5174	5456	6828	24682	5641	
	BIPC Buldhana	4039	3637	7316	4561	5214	
	CADA Jalgaon	7203	7724	10367	19246	4241	
	YIC Yavatmal	9317	14713	10615	24600	3125	
	PIC Pune	6047	6059	10807	21588	3103	
Surplus	CADA Nagpur	3110	3137	3570	42338	1406	3137
Abundant	SIC Sangli	16114	17778	5772	17579	3583	18137
	CADA Pune	10130	3125	7031	19180	3654	
	CIPC Chandrapur	8452	9581	10915	12259	3118	
	TIC Thane	25261	21227	21330	87671	26514	
	KIC Ratnagiri	20536	24844	22135	32172	15111	
	NKIPC Thane	38573	58750	67500	58750	29238	

Note: 1) Figures in red indicate values exceeding range of graph. 2) Figures in blue excluded for Avg Per

Observations of Minor Projects

Indicator I: Annual Irrigation Water Supply Per Unit Irrigated Area.

Highly deficit Plangroup:

CADA Beed: The average performance of this year is 6532 cum/ha which is well below the State norms. The water use is reduced by 18% compared to last year.

Deficit Plangroup:

CADA Beed: The average value of this indicator for this circle is 4517 cum/ha. which is well below the State norms. The water use is reduced by 35% compared to last year.

CADA Aurangabad: The average value of this indicator for the year is 8719 cum/ha, which is quite above State norms. The water use is increased by 14% compared to last year.

NIC Nanded: The average value of this indicator for the year is 6851 cum/ha. Which is slightly above the state norms. The water use is reduced by 23% compared to last year.

CADA Jalgaon: The water use is slightly reduced (2%) as compared to last year. But it is still above (7%) than state norms.

CADA Nashik: The water use is less than state norms since last year.

AIC Akola: Annual irrigation water use on all grouped projects under AIC Akola was 4750 cum/ha which was slightly more than last yea water use (4389 cum/ha).However it was low than state norm.

BIPC Buldana: Water use on seven projects under the circle taken together was 7136 cum/ha whichwas close to state norm. Water use on Vidrupa and Shivankhurd was more than 10000 cum/ha.

Normal Plangroup:

NIC Nanded: The average value of this indicator for the year is 6828 cum/ha which is slightly above State norms. The water use is increased by 20% compared to last year.

CADA Jalgaon: The water use is more than the state norms and it is increased by 34% as compared to last year performance.

CADA Nashik: The water use is less than the state norms but it is increased by 8% as compared to last year.

AIC Akola: Annual water use on Singdoh and Jamwadi was 6538 cum/ha which was less than fixed norm at state level.

YIC Yeotmal & BIPC Buldana: Water use on Manjra and Adol, Mohagaon under YIC Yeotmal & BIPC Buldana respectively had 7316 & 10615 cum/ha water use.Water use on Mohgaon was more than state norm.

PIC Pune: Average annual irrigation water supply per unit irrigated area in Rahu, Chichondi Patil and Tambway minor projects under this circle is 13800 cum/ha. This is on higher side of last year and state norms. Field Officer to take corrective measures to bring down the performance up to state norms.

Surplus Plangroup:

Annual water use on projects under CADA Nagpur was less than state norm due to low water intensive crops grown in the command.

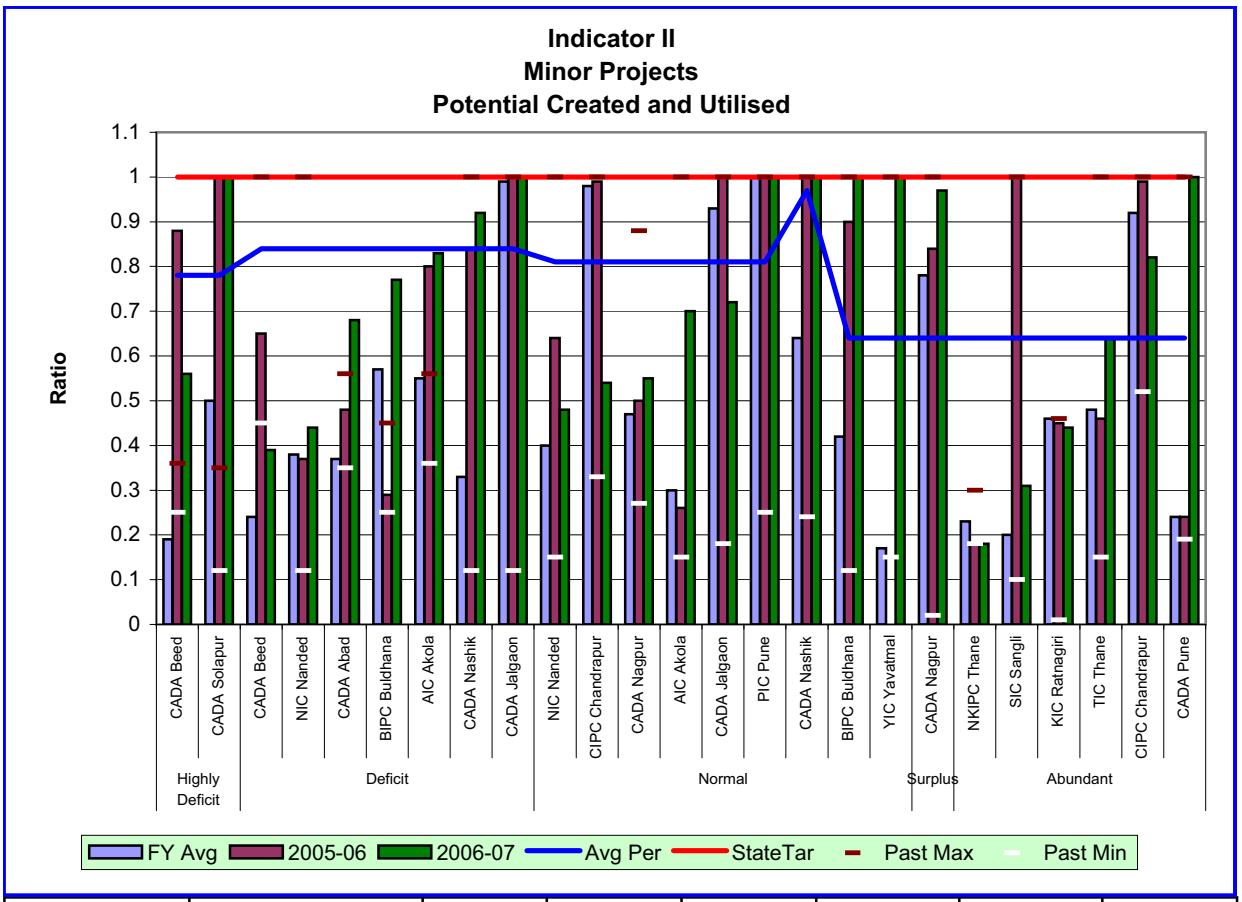
Abundant Plangroup:

CIPC Chandrapur: annual water use on Lagam project was much higher (10915 cum/ha) than state norm.

CADA Pune: Annual irrigation water supplied in Thoseghar Project comes to 7031 cum/ha. Which is on higher side of last year and state norms.

NKIPC Thane: Average annual irrigation water supply of Panchnadi and Dhasai minor projects under this circle comes to 51206 cum/ha which is higher than last year and state norms. Irrigation water use in both the projects is very high. The Field Officer required to take corrective measure to bring down the water use.

KIC Ratnagiri: In Shirwal M.I. Project the annual water supplied is 22135 cum/ha nearly 3.5 times the state target. Field Officers to take preventive measures to bring down the performance up to state norms.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.19	0.88	0.56	1.00	0.01	0.8
	CADA Solapur	0.50	1.00	1.00	1.00	0.03	
Deficit	CADA Beed	0.24	0.65	0.39	1.00	0.45	0.8
	NIC Nanded	0.38	0.37	0.44	1.00	0.04	
	CADA Abad	0.37	0.48	0.68	1.00	0.02	
	BIPC Buldhana	0.57	0.29	0.77	1.00	0.25	
	AIC Akola	0.55	0.80	0.83	0.56	0.36	
	CADA Nashik	0.33	0.84	0.92	1.00	0.03	
	CADA Jalgaon	0.99	1.00	1.00	1.00	0.04	
Normal	NIC Nanded	0.40	0.64	0.48	1.00	0.15	0.8
	CIPC Chandrapur	0.98	0.99	0.54	1.00	0.05	
	CADA Nagpur	0.47	0.50	0.55	0.88	0.27	
	AIC Akola	0.30	0.26	0.70	1.00	0.15	
	CADA Jalgaon	0.93	1.00	0.72	1.00	0.18	
	PIC Pune	1.00	1.00	1.00	1.00	0.02	
	CADA Nashik	0.64	1.00	1.00	1.00	0.24	
	BIPC Buldhana	0.42	0.90	1.00	1.00	0.06	
	YIC Yavatmal	0.17	No Irr	1.00	1.00	0.15	
Surplus	CADA Nagpur	0.78	0.84	0.97	1.00	0.05	1.0
Abundant	NKIPC Thane	0.23	0.18	0.18	0.30	0.18	0.6
	SIC Sangli	0.20	1.00	0.31	1.00	0.10	
	KIC Ratnagiri	0.46	0.45	0.44	0.46	0.01	
	TIC Thane	0.48	0.46	0.64	1.00	0.15	
	CIPC Chandrapur	0.92	0.99	0.82	1.00	0.52	
	CADA Pune	0.24	0.24	1.00	1.00	0.19	

Note:1) Figures in red indicate values exceeding range of graph
2) Figures in red & blue excluded for Avg Per

Indicator II: Potential Utilised and created

Highly deficit Plangroup:

CADA Beed: The value of this indicator is reduced by 36% as compare to last year. The average ratio of this indicator is 0.56 for the year 2006-07, and also below State norms.

Deficit Plangroup:

AIC Akola & BIPC Buldana: Potential utiliosation on projects under these circles was 83 and 77% respectivelywhich was more than last year utilisation

CADA Jalgaon: The ratio is one for last two years, which is up to the State target.

CADA Nashik: The ratio is increased by 9% as compared to last year but it is still below (8%) to state norms.

CADA Beed: The value is reduced by 40% as compared to last year. The average ratio of the indicator for the year 2006-07 is 0.39 and is below State norms.

CADA Aurangabad: The performance of this indicator has improved over last year by 40%. The average ratio of this indicator for the year is 0.68 but still it has to attain State norms.

NIC Nanded: It has improvement over past year by 16%. The average ratio of this indicator for 2006-07 is 0.44 and is below State norms.

Normal Plangroup:

NIC Nanded: The performance of this indicator has decreased by 46% as compared to last year. The average ratio of this indicator for the year 2006-07 is 0.48 which is well below State norms.

CADA Jalgaon: The ratio is reduced by 28% as compared to last year and it is still below the state norms.

CADA Nashik: The ratio is one for last two years which is up to the State target.

YIC Yeotmal, BIPC Buldana & AIC Akola: Actual potential utilisation compared to created potential on projects under YIC and BIPC was 100%. It was 70% in case of projects under AIC Akola.

PIC Pune: Average utilised potential of Three Minor Projects comes to 1.0 this year. If was 0.91 last year.

Surplus Plangroup:

CADA Nagpur: Potential utilisation was 100% on all projects under this circle.

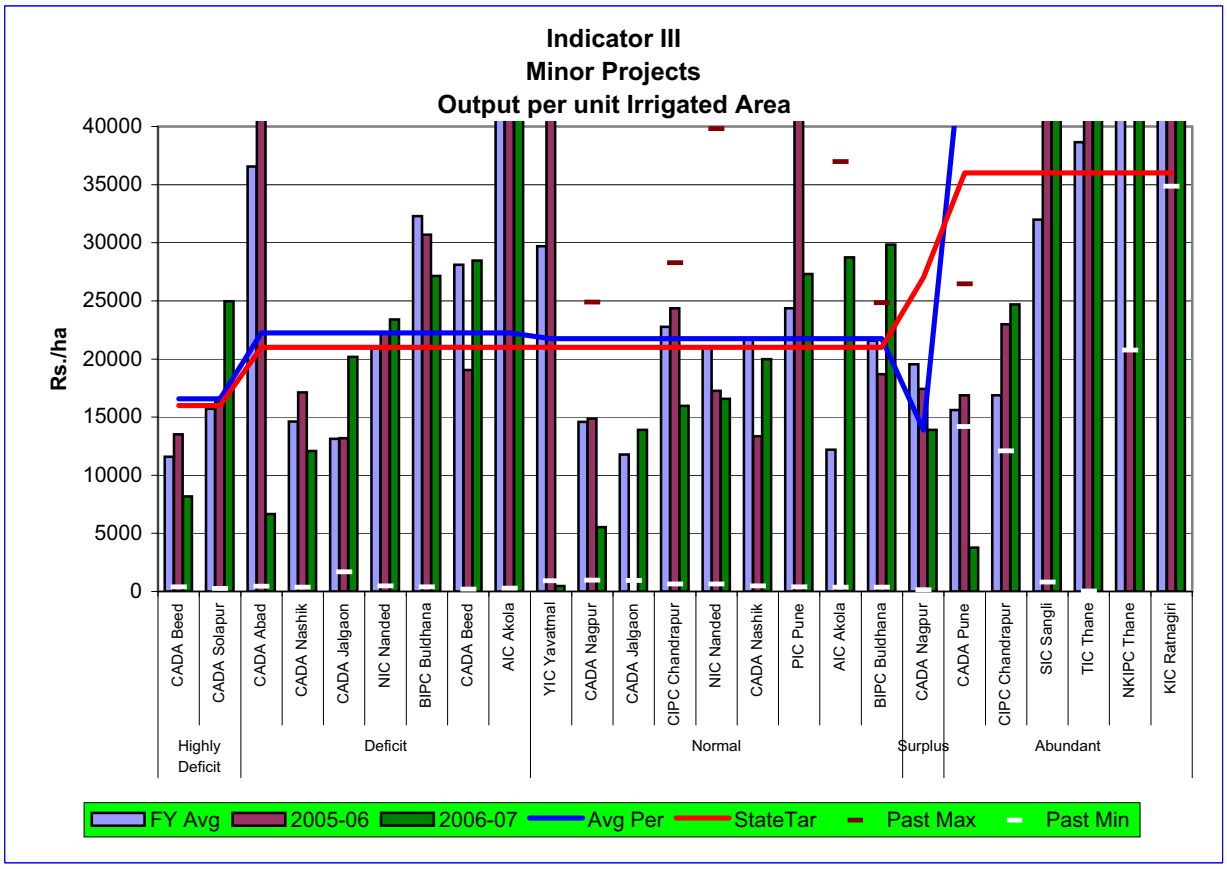
Abundant Plangroup:

CIPC Chandrapur: Potential utilisation was 82% on and average on projects under this circle.

CADA Pune: In Thoseghar M.I, projection utilized potential ratio comes to 1.00.Increased in irrigable area causes improvement than last year.

NKIPC Thane: Average utilised potential of Two M.I. Projects of this circle comes to 0.16 which is below from last year and state target.

KIC Ratnagiri: In Shirval M.I. Project annual utilised potential ratio comes to 0.45 which is below state target.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	11579	13518	8176	136095	---	16574
	CADA Solapur	15729	16380	24971	46175	---	
Deficit	CADA Abad	36548	55310	6667	67083	---	22256
	CADA Nashik	14614	17111	12088	59287	---	
	CADA Jalgaon	13135	13185	20173	818545	1672	
	NIC Nanded	20896	22248	23413	77408	456	
	BIPC Buldhana	32293	30703	27155	2753600	385	
	CADA Beed	28110	19038	28452	451906	201	
	AIC Akola	136182	173762	2710239	301710	---	
Normal	YIC Yavatmal	29693	100000	457	100000	905	21758
	CADA Nagpur	14587	14872	5530	24897	---	
	CADA Jalgaon	11771	No Water	13899	148519	925	
	CIPC Chandrapur	22772	24364	15964	28279	---	
	NIC Nanded	21027	17258	16565	39808	635	
	CADA Nashik	21778	13358	19973	375972	456	
	PIC Pune	24370	49468	27320	64726	385	
	AIC Akola	12191	367	28740	36979	---	
	BIPC Buldhana	21580	18692	29844	24825	---	
Surplus	CADA Nagpur	19545	17427	13891	139391	---	13891
Abundant	CADA Pune	15602	16875	3770	26466	14182	48956
	CIPC Chandrapur	16873	23000	24700	41569	12094	
	SIC Sangli	31986	50130	51844	94776	797	
	TIC Thane	38654	69752	57216	132711	30	
	NKIPC Thane	60625	20750	62062	83203	20750	
	KIC Ratnagiri	116292	137789	137843	137789	34861	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in red & blue excluded for Avg Per.

Indicator III: Output Per Unit Irrigated Area (Rs./ha)

Highly deficit Plangroup:

CADA Beed: The average performance of this circle has declined over past year by 40%. The Average value of this indicator is 8176 Rs./ha which is 50% below State norms of 16,000 Rs/ha.

Deficit Plangroup:

AIC Akola & BIPC Buldana: Output per unit irrigated area on all project considered together under AIC Akola are exorbitantly high. Out put on Shekdari Rs. 293857/ha. needs to be verified. On BIPC Buldhana (Except Vishwamitri) out put was excellent. It was more than Rs. 25000/ha. compared to state target due to cash crops grown in the command.

CADA Jalgaon: The out put is increased by 153% as compared to last year but it is still just below the state norms.

CADA Nashik: The out put is reduced to 70% as compared to last year and which is 58% of the State target.

CADA Beed: There is a improvement of 33% over last year with an average value of this indicator for 2006-07 to be 28452 Rs./ha. It is 27% over State norms.

CADA Aurangabad: There is a huge decline this year in average value of performance i.e. 88% over to last year. The output/irrigated area for 2006-07 is 6667 Rs./ha which is 1/3rd of State norms (21000 Rs./ha.)

NIC Nanded: There is a very slight increase over past year performance and also little above State norms.

Normal Plangroup:

NIC Nanded: There is slight decline in performance over last year but still well below State norms. The average value of indicator is 16565 Rs/ha

CADA Jalgaon: The out put is 66% to the state norms.

CADA Nashik: The out put is increased by 1.50 times to last year. But still it is just below the state norms.

AIC Akola & BIPC Buldana: On projects under AIC Akola and BIPC Buldhana, out put was excellent i.e. more than Rs. 25000/ha compared to state target. However it was much low on projects under CADA Nagpur (Rs5330/ha).

PIC Pune: Average output in three Minor Project of this circle comes to Rs. 19272/ha. This is below than last year and state target.

Surplus Plangroup:

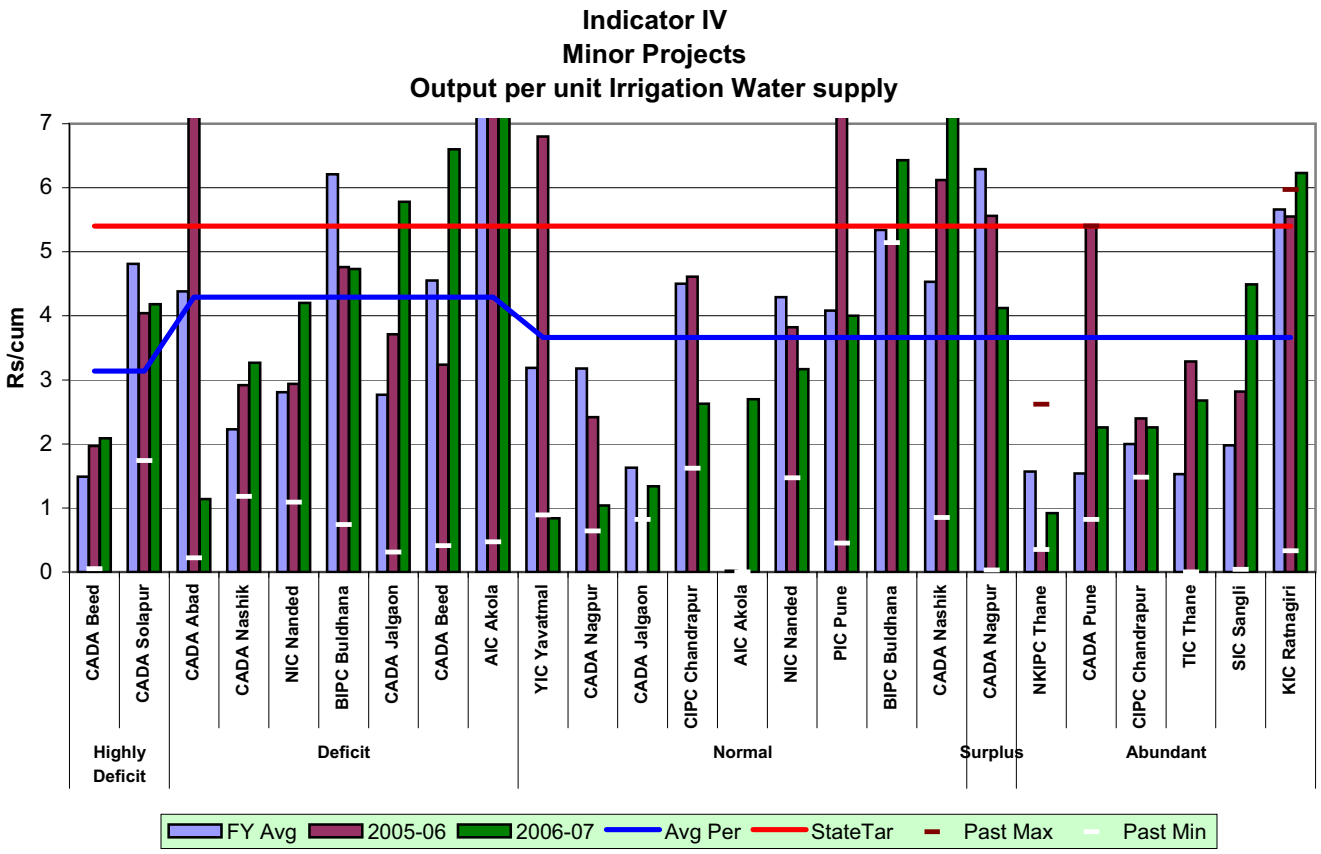
CADA Nagpur: Out put on projects under the cirle were low than state target as well as last year out put

Abundant Plangroup:

CADA Pune: Annual output in Thoseghar M.I. Project comes to Rs. 3770/ha this year, decrease from Rs. 16875/ha of last year.

NKIPC Thane: Average Agricultural output of Two Minor Projects is Rs. 1,23,423/ha which increased from Rs. 96649/ha of last year.

KIC Ratnagiri: In Shirval M.I. Project agricultural output comes to Rs. 1,37,843/ha which is same as last year.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per	State Tar
Highly Deficit	CADA Beed	1.49	1.97	2.09	10.00	0.05	3.1	2.4
	CADA Solapur	4.81	4.04	4.18	10.20	1.74		
Deficit	CADA Abad	4.38	9.06	1.14	6.20	0.22	4.3	3.2
	CADA Nashik	2.23	2.92	3.27	7.20	1.18		
	NIC Nanded	2.81	2.94	4.20	11.35	1.09		
	BIPC Buldhana	6.21	4.76	4.73	9.75	0.74		
	CADA Jalgaon	2.77	3.71	5.78	8.75	0.31		
	CADA Beed	4.55	3.24	6.60	8.25	0.41		
	AIC Akola	25.52	39.59	520.33	6.35	0.47		
Normal	YIC Yavatmal	3.19	6.80	0.84	4.50	0.89	3.7	3.2
	CADA Nagpur	3.18	2.42	1.04	9.60	0.64		
	CADA Jalgaon	1.63	0.00	1.34	4.50	0.82		
	CIPC Chandrapur	4.50	4.61	2.63	5.60	1.62		
	AIC Akola	0.02	0.00	2.70	8.50	0.00		
	NIC Nanded	4.29	3.82	3.17	6.30	1.47		
	PIC Pune	4.08	8.51	4.00	8.50	0.45		
	BIPC Buldhana	5.34	5.14	6.43	6.40	5.14		
	CADA Nashik	4.53	6.12	8.00	4.50	0.85		
Surplus	CADA Nagpur	6.29	5.56	4.12	6.30	0.03	2.6	4.1
Abundant	NKIPC Thane	1.57	0.35	0.92	2.62	0.35	3.1	5.4
	CADA Pune	1.54	5.40	2.26	5.40	0.82		
	CIPC Chandrapur	2.00	2.40	2.26	7.57	1.48		
	TIC Thane	1.53	3.29	2.68	7.60	0.00		
	SIC Sangli	1.98	2.82	4.49	12.09	0.04		
	KIC Ratnagiri	5.66	5.55	6.23	5.97	0.33		

Note: 1) Figures in red indicate values exceeding range of graph.2) Figures in red & blue excluded for Avg Per

Indicator IV: Output Per Unit Irrigation Water Supply (Rs./cum)

Highly deficit Plangroup:

CADA Beed: It has slight improvement over last years performance but it is below state norms. The average value of this indicator is 2.09 for 2006-07.

Deficit Plangroup:

AIC Akola & BIPC Buldana: Output per unit water supply observed on projects under AIC Akola was exceptionally high on account of high out put observed on Shekdari project. It was Rs 4.73/ cum on projects under BIPC Buldana which was close to target.

CADA Jalgaon: The out put per cum is more than state norms and 1.5 times to last year performance.

CADA Nashik: The out put per cum is more than state norms and performance is increased by 10% as compared to last year.

CADA Beed: The output is increased by 200% as compared to last year. It is above state norms. The average ratio of 2006-07 is 6.60.

CADA Aurangabad: The performance has drastically declined over the past year by 88%. The average ratio of this indicator for year 2006-07 is 1.14 which is very below state norms.

NIC Nanded: The performance has increased over last year by 30% and also above the state norms. The average value of indicator for 2006-07 is 4.20.

Normal Plangroup:

NIC Nanded: There is slight decline over last years performance but the average ratio is well within the range of state norms.

CADA Jalgaon: The out put is well below (42%) the state norms

CADA Nashik: The out put per cum is 2.5 times the state norms and value is increased by 31% to last year value.

AIC Akola, BIPC Buldana &YIC Yeotmal: Output on projects under BIPC Buldhana was better due to low water use per unit irrigated area. However it was observed less on projects under CADA Nagpur and AIC Akola.

PIC Pune: Average output per unit water supply in three Minor Projects comes Rs. 2.66/ha lowered from Rs. 8.51/cum of last year.

Surplus Plangroup:

CADA Nagpur: Output per unit water supply observed on projects under this circle in group was close to the state target of Rs 4.1/cum.

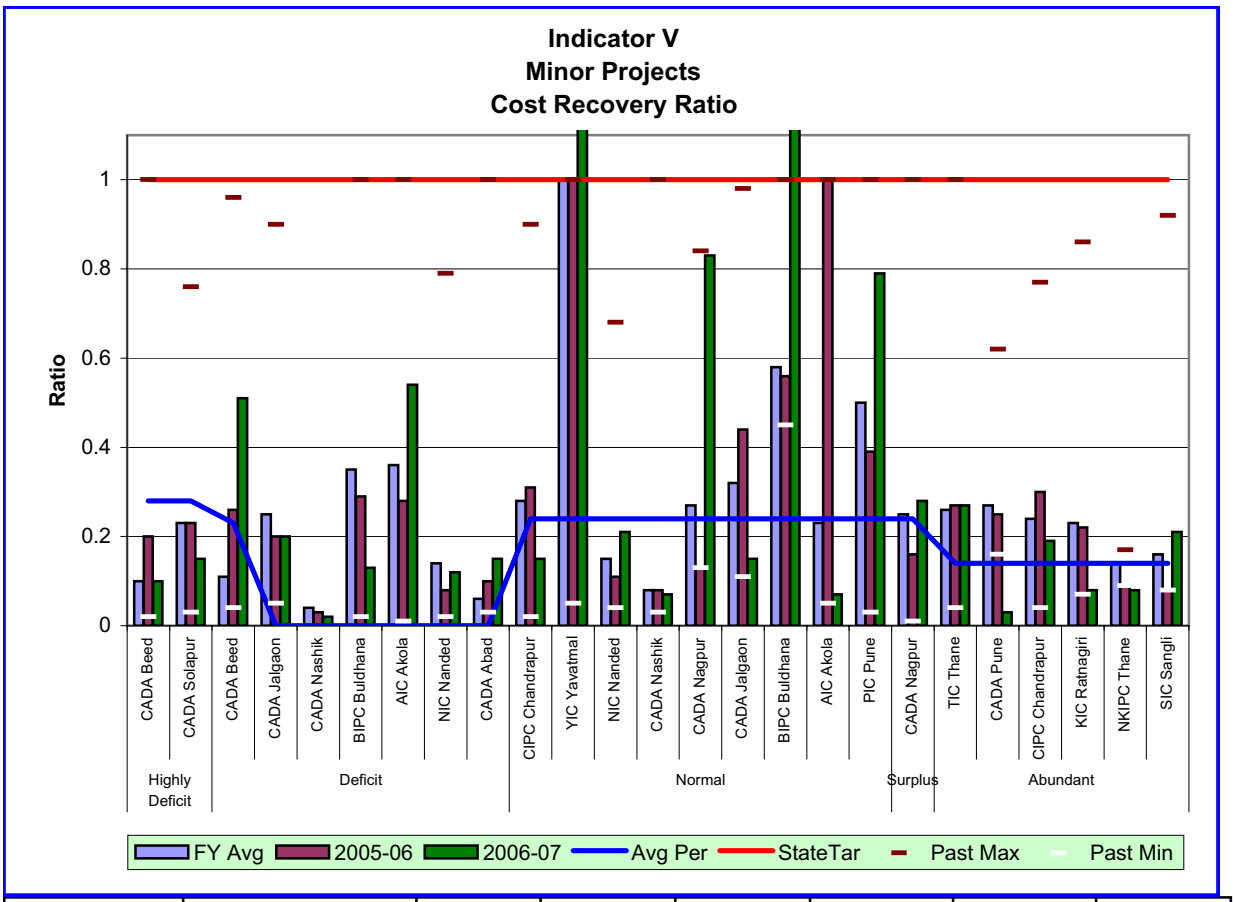
Abundant Plangroup:

CIPC Chandrapur: Out put on projects under the circle was low due to seasonal crops grown in the command

CADA Pune : In Thoseghar M.I. Project the output per unit irrigated water decrease from Rs. 5.40/cum of last year to Rs. 2.00/cum this year.

NKIPC Thane : Average agricultural output of two M.I. Projects increase from Rs. 2.95/cum of last year to Rs. 3.00 ./ cum this year. But it is below the state target.

KIC Ratnagiri: In Shirval Project the output is increased from Rs. 5.55/cum of last year to Rs. 6.23/cum this year and it is above state target.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.10	0.20	0.10	1.00	0.02	0.3
	CADA Solapur	0.23	0.23	0.15	0.76	0.03	
Deficit	CADA Beed	0.11	0.26	0.51	0.96	0.04	0.2
	CADA Jalgaon	0.25	0.20	0.20	0.90	0.05	
	CADA Nashik	0.04	0.03	0.02	4.08	0.06	
	BIPC Buldhana	0.35	0.29	0.13	1.00	0.02	
	AIC Akola	0.36	0.28	0.54	1.00	0.01	
	NIC Nanded	0.14	0.08	0.12	0.79	0.02	
	CADA Abad	0.06	0.10	0.15	1.00	0.03	
Normal	CIPC Chandrapur	0.28	0.31	0.15	0.90	0.02	0.2
	YIC Yavatmal	1.00	1.00	18.00	1.00	0.05	
	NIC Nanded	0.15	0.11	0.21	0.68	0.04	
	CADA Nashik	0.08	0.08	0.07	1.00	0.03	
	CADA Nagpur	0.27	0.13	0.83	0.84	0.13	
	CADA Jalgaon	0.32	0.44	0.00	---	0.11	
	BIPC Buldhana	0.58	0.56	1.54	1.00	0.45	
	AIC Akola	0.23	1.00	0.07	1.00	0.05	
	PIC Pune	0.50	0.39	0.79	1.00	0.03	
Surplus	CADA Nagpur	0.25	0.16	0.28	1.00	0.01	0.2
Abundant	TIC Thane	0.26	0.27	0.27	1.00	0.04	0.1
	CADA Pune	0.27	0.25	0.03	0.62	0.16	
	CIPC Chandrapur	0.24	0.30	0.19	0.77	0.04	
	KIC Ratnagiri	0.23	0.22	0.08	0.86	0.07	
	NKIPC Thane	0.14	0.09	0.08	0.17	0.09	
	SIC Sangli	0.16	0.08	0.21	0.92	0.08	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in blue excluded for Avg Per 3) No recov indicates no recovery in the year

Indicator V: Cost Recovery Ratio

Highly deficit Plangroup:

CADA Beed: The average value of this indicator is 0.1. Which is below 50% as compared to last year and well below state norm.

Deficit Plangroup:

AIC Akola & BIPC Buldana: Ratio was some what better on projects under AIC Akola (0.54), probably due to cash crops grown in command. On BIPC's projects, ratio has poor value on account of increased O & M cost, and low relasiation of revenue recovery.

CADA Jalgaon: The ratio is only 0.20, which is far below the state norms since last year.

CADA Nashik: The ratio is reduced from 0.03 to 0.02 as compared to last year and below the state norms.

CADA Beed: The performance has increased over the past year by 50% But still the average ratio is 49% below State norms. The average ratio is 0.51.

CADA Aurangabad: There is improvement in performance i.e.35% over last year. The average ratio is 0.15 which is far below the state norm.

NIC Nanded: There is improvement of 25% over past performance. The average ratio is 0.12.

Normal Plangroup:

NIC Nanded: There is improvement of 48% over past performance. The average ratio is 0.21 which is below to the state norm.

CADA Jalgaon: The ratio is reduced from 0.44 to 0.15 as compared to last year and it is below the state norms.

CADA Nashik: The ratio is 0.07 which is far below the state norms.

AIC Akola, BIPC Buldana &YIC Yeotmal: The ratio was found satisfactory on projects under BIPC Buldana but it was exceptionally high on projects under YIC Yeotmal (18) and low on projects under AIC Akola (0.07).

PIC Pune: Average cost recovery ratio of three M.I. Projects decreases from 0.63 of last year to 0.58 this year.

Surplus Plangroup:

CADA Nagpur: Cost recovery ratio was low (0.28) compared to state norm but it was more than it's last year value.

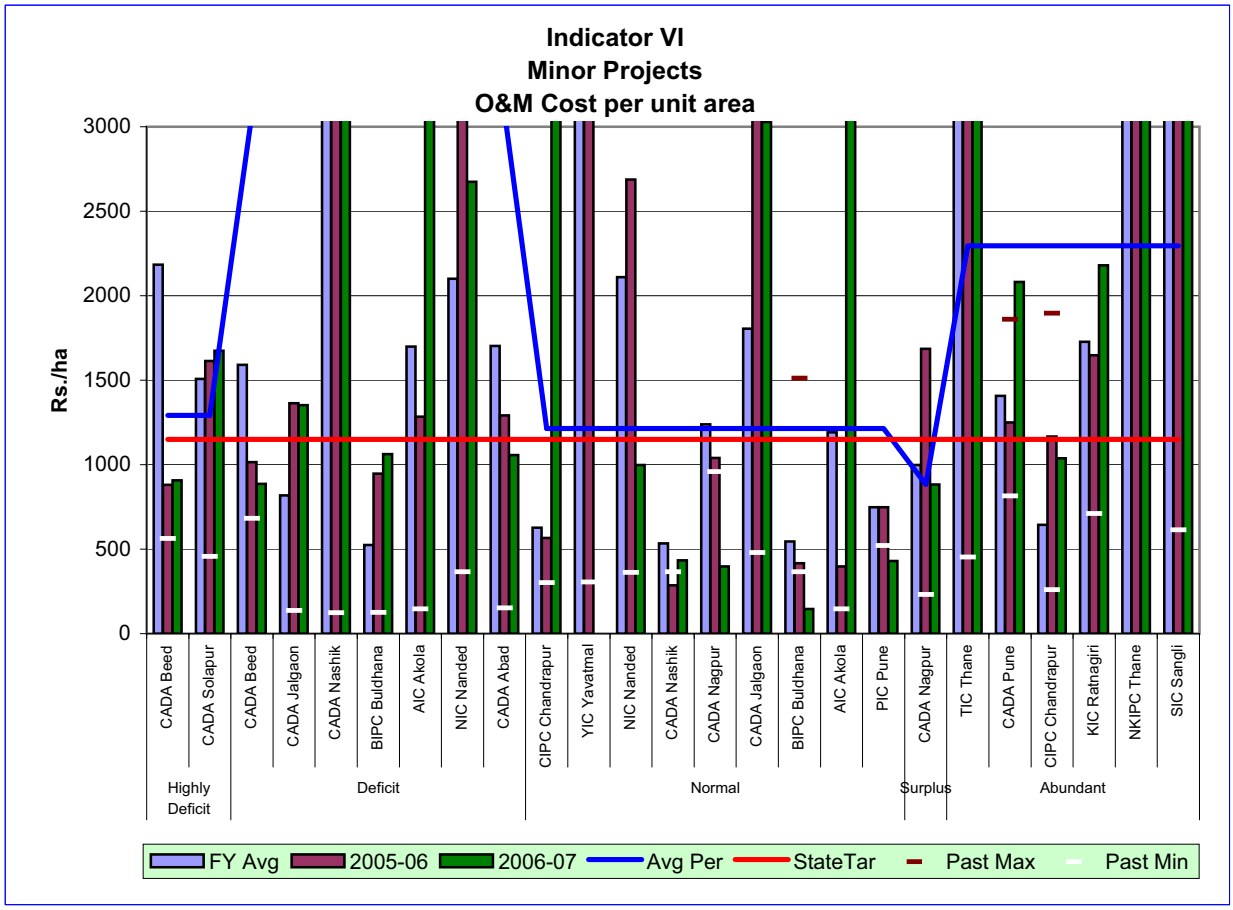
Abundant Plangroup:

CIPC Chandrapur: Cost recovery ratio was low (0.19) compared to state norm and it's last year value.

CADA Pune: In Thoseghar Project the cost recovery ratio reduces considerably from 0.33 last year to 0.03 this year.

NKIPC Thane: Average cost recovery ratio of two M.I. Project remains same this year 0.06 of last year. But it is very much low as compared to state target.

KIC Ratnagiri: In Shirval Project the cost recovery ratio lowered down from 0.28 last year to 0.08 this year. It is very much below state target.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	2183	881	907	13792	563	1291
	CADA Solapur	1508	1614	1674	6934	456	
Deficit	CADA Beed	1591	1016	887	280962	682	3075
	CADA Jalgaon	819	1363	1353	335492	137	
	CADA Nashik	3207	3303	3407	8115	123	
	BIPC Buldhana	525	947	1062	47200	125	
	AIC Akola	1699	1285	11088	22183	145	
	NIC Nanded	2100	3193	2674	10868	365	
	CADA Abad	1702	1292	1056	48385	152	
Normal	CIPC Chandrapur	627	567	3381	16020	302	1214
	YIC Yavatmal	198211	1462956	No Irr	1462956	305	
	NIC Nanded	2109	2688	998	7103	361	
	CADA Nashik	535	286	433	130431	365	
	CADA Nagpur	1239	1040	398	3854	959	
	CADA Jalgaon	1804	4310	3028	23192	480	
	BIPC Buldhana	546	416	145	1512	365	
	AIC Akola	1192	398	4938	195364	145	
	PIC Pune	748	748	430	78106	520	
Surplus	CADA Nagpur	998	1686	883	963227	231	883
Abundant	TIC Thane	3468	4284	3885	768600	452	2296
	CADA Pune	1407	1250	2081	1859	815	
	CIPC Chandrapur	643	1166	1038	1895	260	
	KIC Ratnagiri	1728	1648	2180	198071	711	
	NKIPC Thane	18519	43000	21562	43000	9678	
	SIC Sangli	10256	10222	3844	15571	614	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in red & blue excluded Avg Per

Indicator VI: O & M Cost Per Unit Irrigated Area (Rs./ha)

Highly deficit Plangroup:

CADA Beed: Though there is increase in this value over last year. The O & M cost for this year is 907 Rs./ha, still it is well below State norms.

Deficit Plangroup:

AIC Akola & BIPC Buldana: O & M cost per unit area irrigated on Vyagra (Rs8488/ha) and Mozari (Rs7519/ha) under AIC project was on account of meager potential utilisation on these porjects. It was Rs 1062 /ha on projects under BIPC Buldana which was low than state norm.

CADA Jalgaon: The O & M cost per unit area is increased by 20% to state norms.

CADA Nashik: The O & M cost per unit area is three times more than the state norms.

CADA Beed: The average value of the indicator is 887. It has decreased over last year. But still it is well within the state norms.

CADA Aurangabad: There is decrease in O & M cost per unit area over last year. Which is within the State norms. The average value is 1059 Rs./ha.

NIC Nanded: The value is reduced as compared to last year. But it is still above the State norms. The average value is 2674 Rs/ha.

Normal Plangroup:

NIC Nanded: O & M cost has decreased from 2688 (2005-06) to 998 (2006-07) which is within the State norms.

CADA Jalgaon: The O & M cost per unit area is 2.5 times more than the state norms.

CADA Nashik: The O & M cost per unit area is well below the state norms. This is due to increased irrigated area.

AIC Akola, BIPC Buldana &YIC Yeotmal: The ratio was very high (Rs 4938/ha) on account of more expenditure on Singdoh project (AIC Akola) and low potential utilisation. Where as, it was Rs 145/ha on projects under BIPC Buldana. Reasons for much deviation in achievement from target needs to be sorted out at field level.

PIC Pune: Average O & M cost per unit irrigated area of three M.I. Projects is increased to Rs. 734/ha. From Rs. 460/ha. of last year.

Surplus Plangroup:

CADA Nagpur: The ratio was well within state norm on projects (Rs.883 /ha) under the circle.

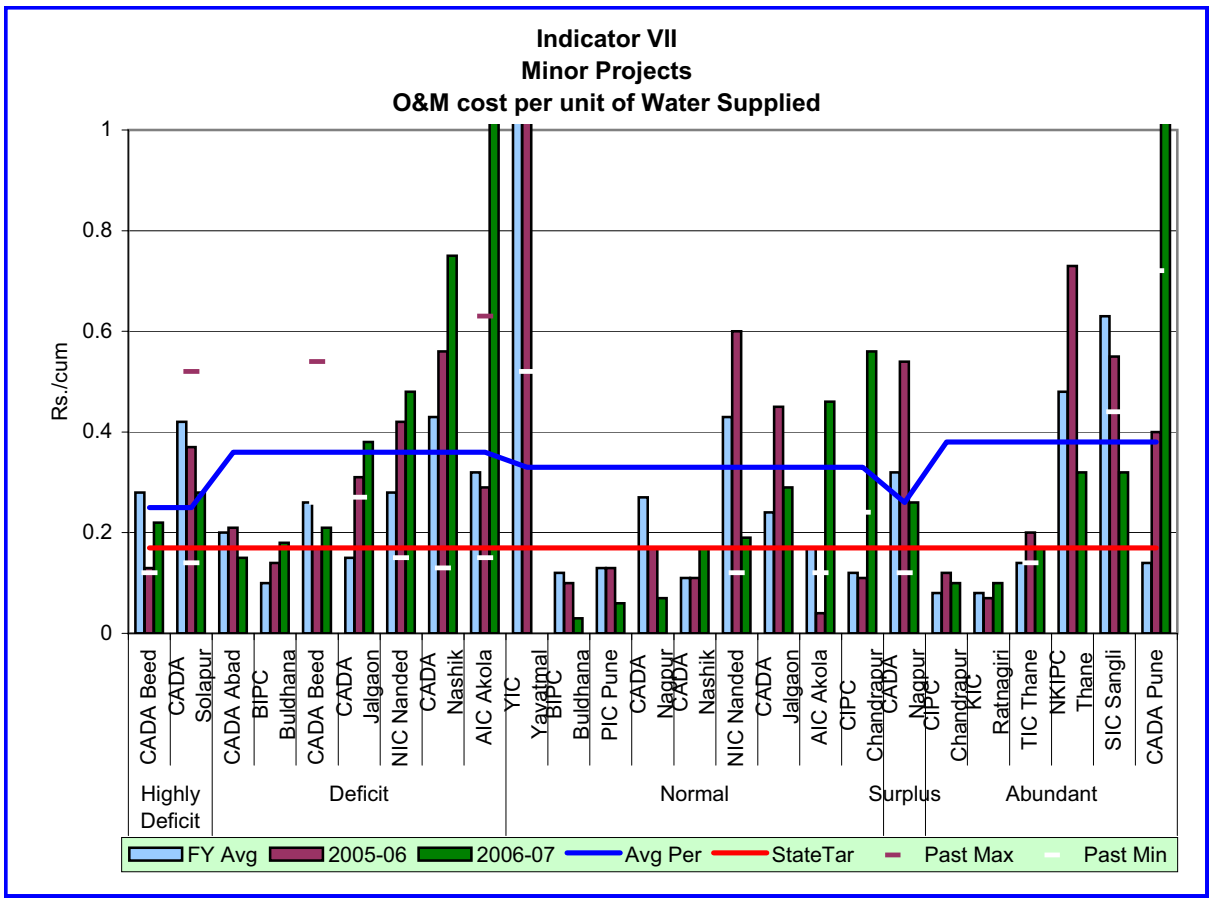
Abundant Plangroup:

CIPC Chandrapur: The ratio was well within state norm on projects (Rs.1038 /ha) under the circle.

CADA Pune: In Thoseghar M.I. Project the O & M Cost ratio increase from Rs. 938/ha to Rs. 2081/ha. The performance is very poor as compared to state norms and last year.

NKIPC Thane: Average O & M Cost ratio of two M.I. Project decrease from Rs. 22203/ha of last year to Rs. 16607/ha this year.

KIC Ratnagiri: In Shirval Project the O & M Cost ratio increase from Rs. 1289/ha to Rs. 2180/ha this year. The performance is poor as compared to state target.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.28	0.13	0.22	20.43	0.12	0.25
	CADA Solapur	0.42	0.37	0.28	0.52	0.14	
Deficit	CADA Abad	0.20	0.21	0.15	47.43	0.25	0.36
	BIPC Buldhana	0.10	0.14	0.18	21.03	0.24	
	CADA Beed	0.26	0.17	0.21	0.54	0.26	
	CADA Jalgaon	0.15	0.31	0.38	29.34	0.27	
	NIC Nanded	0.28	0.42	0.48	18.60	0.15	
	CADA Nashik	0.43	0.56	0.75	15.56	0.13	
	AIC Akola	0.32	0.29	2.04	0.63	0.15	
Normal	YIC Yavatmal	21.27	99.44	No Irri	24.00	0.52	0.33
	BIPC Buldhana	0.12	0.10	0.03	3.32	0.83	
	PIC Pune	0.13	0.13	0.06	20.77	0.52	
	CADA Nagpur	0.27	0.17	0.07	4.81	1.41	
	CADA Nashik	0.11	0.11	0.17	91.65	0.52	
	NIC Nanded	0.43	0.60	0.19	11.81	0.12	
	CADA Jalgaon	0.24	0.45	0.29	13.80	0.89	
	AIC Akola	0.17	0.04	0.46	25.00	0.12	
	CIPC Chandrapur	0.12	0.11	0.56	95.22	0.24	
Surplus	CADA Nagpur	0.32	0.54	0.26	25.19	0.12	0.26
Abundant	CIPC Chandrapur	0.08	0.12	0.10	3.42	0.27	0.38
	KIC Ratnagiri	0.08	0.07	0.10	10.23	0.47	
	TIC Thane	0.14	0.20	0.17	19.47	0.14	
	NKIPC Thane	0.48	0.73	0.32	7.32	3.31	
	SIC Sangli	0.63	0.55	0.32	9.85	0.44	
	CADA Pune	0.14	0.40	1.25	4.00	0.72	

Note: 1) Figures in red indicate values exceeding range of graph.
2) Figures in red & blue excluded foe Avg.Per

Indicator VII: Annual O & M Cost per Unit Water Supply (Rs./cum)

Highly deficit Plangroup:

CADA Beed: The average performance of this indicator for 2006-07 is 0.22 but it is above the state norms.

Deficit Plangroup:

CADA Beed: The O & M cost is increased by 20% as compared to last year. The average value is 0.21 which is above the state norms.

CADA Aurangabad: The performance has improved and well within the State norms. The average value is 0.15.

NIC Nanded: The O & M cost is increased to last year. The average value of indicator is 0.48 for 2006-07 & which is above the state norms.

CADA Jalgaon: The O & M cost per unit of water supplied is 2 times more than the state norms. The cost is increasing for last three years.

CADA Nashik: The O & M cost per unit of water supplied is 4 times more than state norms. The cost is increasing for last three years.

AIC Akola & BIPC Buldana: Due to moderate O & M expenditure and economic water use, the ratio has high value (2.04) compared to state norm on projects under AIC Akola (Deficit). It was close to state norm on projects under BIPC Buldana.

Normal Plangroup:

AIC Akola, BIPC Buldana: Excessive O&m expediture on projects under AIC Akola might have resulted high value (Rs 0.46/cum) compared to state norm of Rs 0.16/cum.

CADA Jalgaon: The O & M cost per unit of water supplied is 1.5 times more than the state norms.

CADA Nashik: The O & M cost per unit of water supplied is as per the state norms.

NIC Nanded: The O & M cost is decreased as compared to last year. The average value is 0.19 which is still above the state norms.

PIC Pune: Average O & M Cost per unit of water supply of Three M.I. Project decreases to Rs. 0.10/cum this year from Rs. 0.31/cum last year it is also below the state target.

Surplus Plangroup:

CADA Nagpur: O&M cost per unit area irrigated on projects under the circle has more value (Rs0.26/ha) than state norm and on projects under other plan groups.

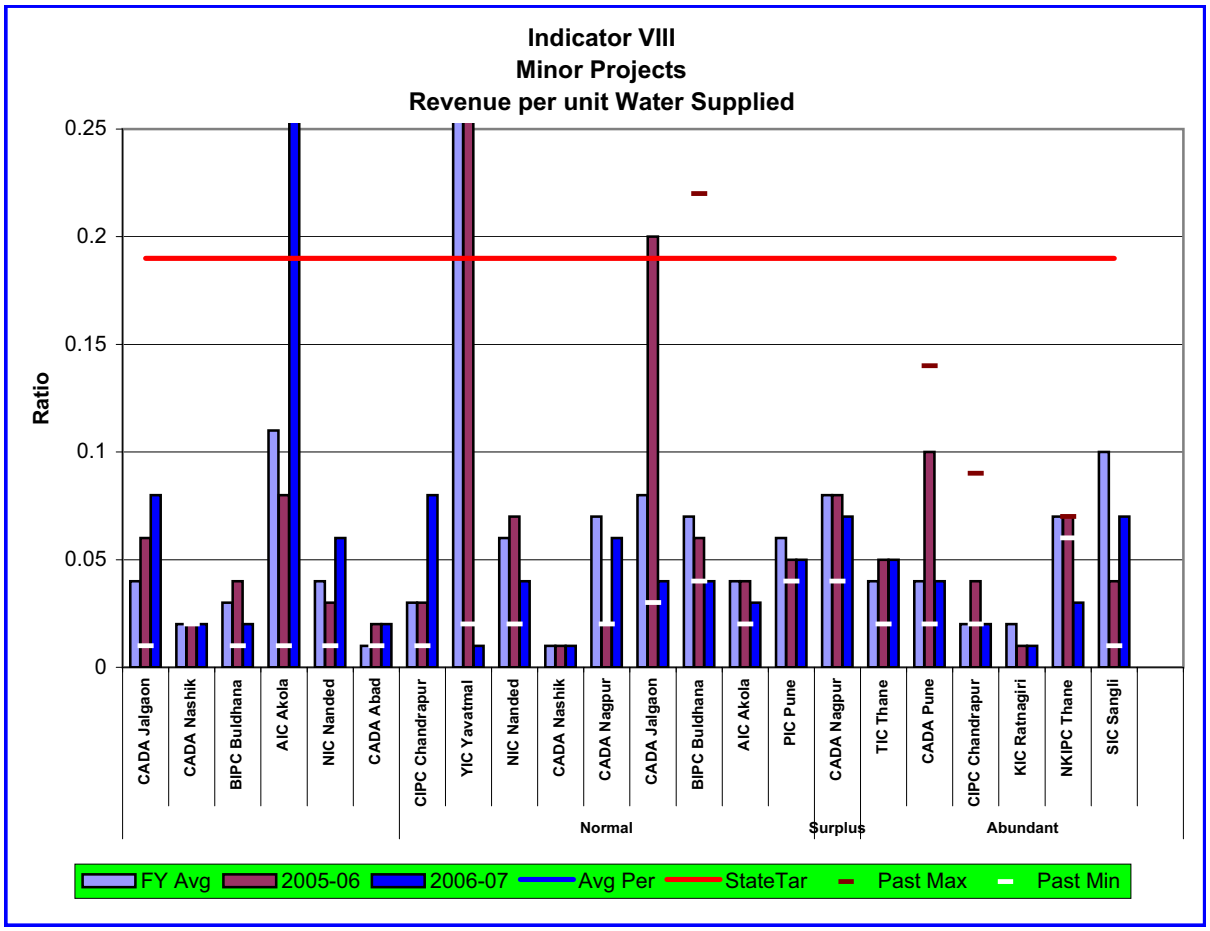
Abundant Plangroup:

CADA Pune : In Thoseghar M.I. Project the O & M Cost per unit water supply increased to Rs. 1.25/ cum this year from Rs. 0.30/cum of last year. It is also

above the state target Field Officer to do needful for excess expenditure on maintenance.

NKIPC Thane : Average O & M Cost per unit water supply of two Minor Projects decreases from Rs. 0.42/cum to Rs. 0.32 this year.

KIC Ratnagiri: In Shirval M.I. Project the O & M Cost per unit water supply increased from Rs. 0.05/cum of last year to Rs. 0.10/cum this year. This is within the state norms.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Beed	0.03	No recov	0.02	1.00	0.02	0.0
	CADA Solapur	0.09	No recov	0.04	1.00	0.03	
Deficit	CADA Beed	0.03	No recov	No recov	1.00	0.01	0.3
	CADA Jalgaon	0.04	0.06	No recov	1.00	0.01	
	CADA Nashik	0.02	0.02	0.02	1.00	0.01	
	BIPC Buldhana	0.03	0.04	0.02	1.00	0.01	
	AIC Akola	0.11	0.08	1.11	1.00	0.01	
	NIC Nanded	0.04	0.03	0.06	1.00	0.01	
	CADA Abad	0.01	0.02	0.02	1.00	0.01	
Normal	CIPC Chandrapur	0.03	No recov	No recov	8.11	0.01	
0.0	YIC Yavatmal	21.23	99.43	No recov	1.00	0.01	0.0
	NIC Nanded	0.06	0.07	0.04	1.00	0.01	
	CADA Nashik	0.01	0.01	0.01	1.00	0.02	
	CADA Nagpur	0.07	0.02	0.06	0.26	0.02	
	CADA Jalgaon	0.08	0.20	0.04	0.83	0.03	
	BIPC Buldhana	0.07	0.06	0.04	0.22	0.04	
	AIC Akola	0.04	0.04	0.03	1.00	0.02	
	PIC Pune	0.06	0.05	0.05	1.00	0.01	
Surplus	CADA Nagpur	0.08	0.08	No recov	1.00	0.01	0.0
Abundant	TIC Thane	0.04	0.05	0.05	1.00	0.01	0.0
	CADA Pune	0.04	0.10	0.04	0.14	0.01	
	CIPC Chandrapur	0.02	No recov	0.02	0.09	0.02	
	KIC Ratnagiri	0.02	0.01	0.01	0.46	0.01	
	NKIPC Thane	0.07	0.07	0.03	0.07	1.01	
	SIC Sangli	0.10	0.04	0.07	1.00	2.01	

Note: Figures in blue excluded for Avg Per.

Indicator VIII : Revenue Per Unit of Water Supplied (Rs./cum)

Highly deficit Plangroup:

CADA Beed: The average value of this indicator for minor projects under this circle is 0.02. It is well below State norms.

Deficit Plangroup:

Revenue collected per unit water supplied on all projects under all plan groups was less than 0.08/ cum against state norm of Rs.0.18 /cum. This suggests low revenue recovery.

CADA Jalgaon: There is 50% recovery in this year (06-07) as compared to state norms.

CADA Nashik: The value is 0.02. This shows that almost there is no recovery.

CADA Beed: The average value of this indicator is 0.11.

CADA Aurangabad: The average value of this indicator for minor projects under this circle is 0.02. Which is below the state norms.

NIC Nanded: The average value this indicator for minor projects under this circle is 0.06. It is 1/3rd to state norms.

Normal Plangroup:

NIC Nanded: The average value of this indicator for minor projects under the circle is 0.04. But it is still below state norms..

PIC Pune: Average revenue per unit water supplied of Three M.I. Projects is same (Rs. 0.05/cum) this year as last year. But it is below the state norms.

CADA Jalgaon: The indicator value is 0.04, which is far below the state norms. This shows that very less recovery is achieved.

CADA Nashik: The indicator value is 0.01 which far below the state norms.

Surplus Plangroup:

Abundant Plangroup:

CADA Pune: In Thoseghar M.I. Project the revenue per unit water supply decreases from Rs. 0.10/cum to Rs. 0.04/cum this year. It is also below state norms.

NKIPC Thane: Average revenue per unit water supplied of Two Minor Projects is decreased from Rs. 0.03/cum last year to Rs. 0.02/cum this year. It is also below state norms.

KIC Ratnagiri: In Shirval M.I. Tank revenue per unit of water supply is same (Rs. 0.010/cum) as last year. But it is very low as compared to state norms.

Indicator X: Land Damage Index

Highly deficit Plangroup:

Deficit Plangroup:

There is no land damage on any of the projects under any plan group in Amaravati & Nagpur region.

Normal Plangroup:

PIC Pune: In Three M.I. Projects the land damage is nil this year.

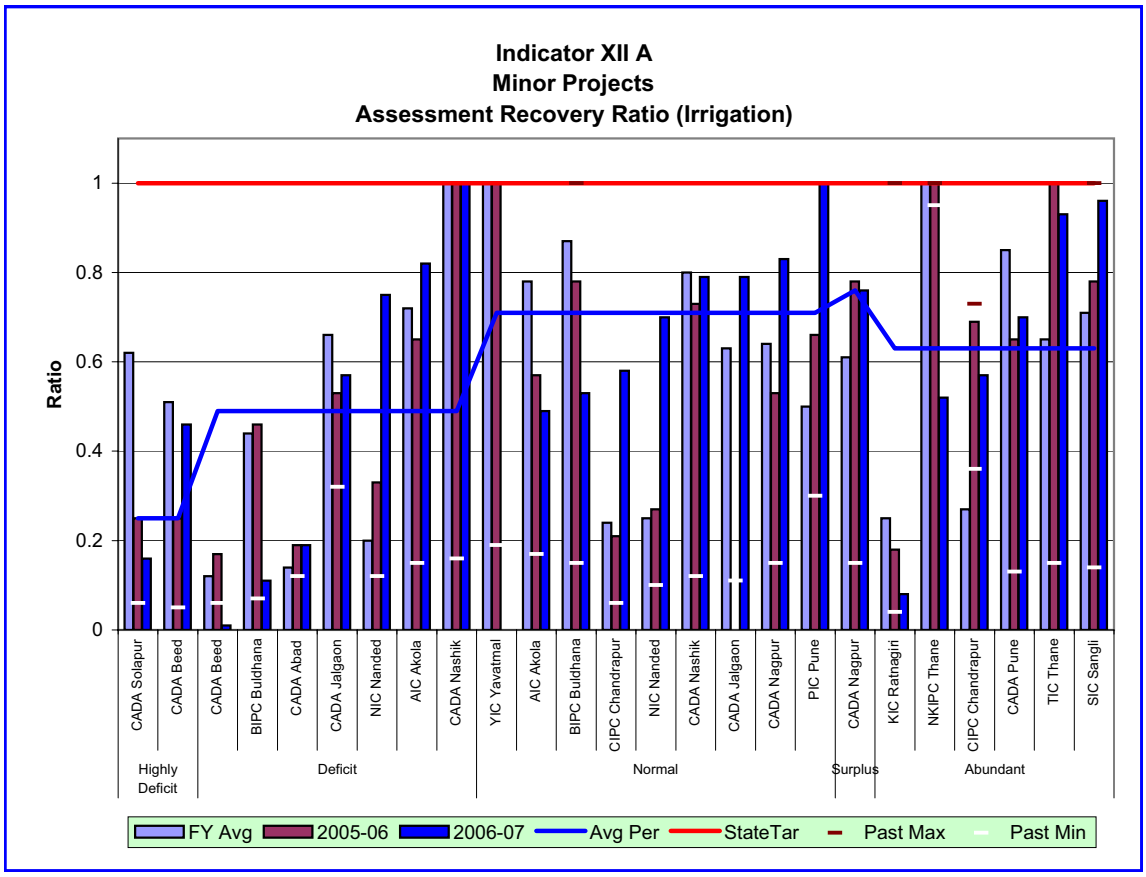
Surplus Plangroup:

Abundant Plangroup:

CADA Pune: In Thoseghar M.I. Project the land damage is nil. In Two M.I. Project the land damage is nil.

NKIPC Thane: In Two M.I. Project the land damage is nil this year.

KIC Ratnagiri: In Shirval M.I. Project the land damage is nil this year.



Plangroup	Circle	FY Avg	2005-06	2006-07	Past Max	Past Min	Avg Per
Highly Deficit	CADA Solapur	0.62	0.25	0.16	1.00	0.06	0.3
	CADA Beed	0.51	0.25	0.46	1.00	0.05	
Deficit	CADA Beed	0.12	0.17	0.01	1.00	0.06	0.5
	BIPC Buldhana	0.44	0.46	0.11	1.00	0.07	
	CADA Abad	0.14	0.19	0.19	1.00	0.12	
	CADA Jalgaon	0.66	0.53	0.57	1.00	0.32	
	NIC Nanded	0.20	0.33	0.75	1.00	0.12	
	AIC Akola	0.72	0.65	0.82	1.00	0.15	
	CADA Nashik	1.00	1.00	1.00	1.00	0.16	
Normal	YIC Yavatmal	1.00	1.00	No Recov	1.00	0.19	0.7
	AIC Akola	0.78	0.57	0.49	1.00	0.17	
	BIPC Buldhana	0.87	0.78	0.53	1.00	0.15	
	CIPC Chandrapur	0.24	0.21	0.58	1.00	0.06	
	NIC Nanded	0.25	0.27	0.70	1.00	0.10	
	CADA Nashik	0.80	0.73	0.79	1.00	0.12	
	CADA Jalgaon	0.63	No Recov	0.79	1.00	0.11	
	CADA Nagpur	0.64	0.53	0.83	1.00	---	
	PIC Pune	0.50	0.66	1.00	1.00	0.30	
Surplus	CADA Nagpur	0.61	0.78	0.76	1.00	0.15	0.8
Abundant	KIC Ratnagiri	0.25	0.18	0.08	1.00	0.04	0.6
	NKIPC Thane	1.00	1.00	0.52	1.00	0.95	
	CIPC Chandrapur	0.27	0.69	0.57	0.73	0.36	
	CADA Pune	0.85	0.65	0.70	1.00	0.13	
	TIC Thane	0.65	1.00	0.93	1.00	0.15	
	SIC Sangli	0.71	0.78	0.96	1.00	0.14	

Note: Figures in red indicate values exceeding range of graph.

Indicator XI: Equity performance.

Highly Deficit Plangroup:
CADA Beed: The utilization of potential seems to be concentrated only at head reach.
Deficit Plangroup:
CADA Beed: The middle reach has more utilization of potential in comparison with head & tail.
CADA Aurangabad: The utilization of potential seems to be well balanced in all the three reaches.
NIC Nanded: The utilization of potential is more in Middle & Head respectively.
Normal Plan group:
NIC Nanded: The potential of utilization is more in Middle.

Indicator XII (Irr) : Assessment Recovery Ratio (Irrigation)

Highly deficit Plangroup:

CADA Beed: The average value is 0.46 which is below the state norms.

Deficit Plangroup:

CADA Beed: The average value is 0.01 which is very below the State norms.

CADA Aurangabad: The average value is 0.19 which is very below the State norms.

NIC Nanded: The average value is 0.75 but still below the State norms.

CADA Jalgaon: The ratio is 0.57 which below to state norms.

CADA Nashik: The ratio is 1.00, which is as per State norms.

AIC Akola & BIPC Buldana: Recovery of irrigation revenue against assessment on projects under AIC Akola was close to the state target and more than last year revenue recovery. However reverse is the case with projects under BIPC Buldana.

Normal Plangroup:

NIC Nanded: The average value is 0.7 but still below the state norms.

CADA Jalgaon: The ratio is 0.79, which is nearer to state norms.

CADA Nashik: The ratio is 0.79, which is nearer to State norms.

AIC Akola, BIPC Buldana: Revenue recovery on projects under CADA Nagpur appears to be satisfactory (0.83)

PIC Pune: Average assessment recovery ratio of three M.I. Projects increases from 0.66 of last year to 1.00 this year.

Surplus Plangroup:

Abundant Plangroup:

CIPC Chandrapur: Revenue recovery on projects under CIPC Chandrapur was low than last year recovery of 64%.

CADA Pune: In Thoseghar M.I. tank ratio increases from 0.65 of last year to 0.70 this year. But it is below the state norms.

NKIPC Thane: Average assessment recovery ratio of two M.I. Projects increased this year to 0.55 from 0.53 last year. But it is below state norms.

KIC Ratnagiri: In Shirval Project the ratio decreases to 0.08 this year from 0.18 of last year. It is also below the state norms.

Chapter-V
Action Taken Report

Benchmarking process involves number of steps, right from Indicators selection to Monitoring of results obtained through action taken on last years performance deficiencies. Where the Benchmarking of irrigation projects has been a routine process of performance evaluation, preparation of a comprehensive, problem specific action plan for every individual irrigation projects based on the outcome of last year performance & its effective implementation plays an important role in securing the desired improvement.

Since last four years, Water Resources Department is using Benchmarking as an effective tool to evaluate the performances of irrigation projects. Project wise, Indicator wise results along with probable causes for low performances compared to past achievement as well as state targets were made available to field officers with the intention and directives to prepare and implement a project wise consolidated complete action plan. Field officers were stressed to submit the out come of such action plans with its details. Project authorities are no doubt taking the cognizance of the low performances and are taking suitable action to seek the desired improvement in Irrigation Management. But the information gathered so far indicates that instead of preparing a detail, integrated action plan, actions are taken in the form of a single activity. Some field officers (Upper Wardha, Lower Wunna, Khairbanda, Radhanagri, Bhima,Bhatsa,Surya, Kal-Amba,Khadakwasla,NRBC, Kolar, Bhandardara, Ozarkhed, Mula, Palkhed, Gangapur, Jayakwadi Stage-II, Majalgaon & Manjara) have prepared a broad action plan which can be quoted as good start in that direction.

Even with the single activity type of action plan some projects have successfully improved their performances in water use per unit area irrigated, Potential Utilisation and revenue recovery.

The details of some of the projects are as given below:

Circle	Projects	Indicator	Past performance/ State Target	Current performance
AIC Akola	Katepurna	IrrigationWater use Per unit area irrigated (Cum/Ha)	8918	6042
	Nalganga		7982*	6573
TIC Thane	Pus		21105	9097
	Bhatsa		22149	17775
	Surya		43329	19767
	Kal-Amba		27564	23995
CADA Nashik	Bhandrdara		15574	10494
	Ozarkhed		11932	10822
AIC Akola	Pus	Potential created and Utilised (%)	53 %	76 %
CADA Nagpur	Bagh		74 %	100 %
	Itiadoh		83 %	100 %
	Pench		62 %	84 %

Circle	Projects	Indicator	Past performance/ State Target	Current performance
UWPC Amaravati CADA Solapur	Upper Wardha Bhima		22% 64%	37 % 76%
CADA Aurangabad	Jayakwadi State II		57%	86%
CADA Beed	Majalgaon		36%	69%
	Manjra		45%	69%
UWPC Amaravati PIC Pune SICSangli	Upper Wardha Khadakwasla NRBC Radhanagri	Assesment Recovery Ratio (Irrigation) (%)	42 % 84% 58% 56%	58 % 87% 72% 60%
CADA Nagpur	Lower Wunna		17 %	44 %
CADA Nashik	Mula		43%	96%
	Palkhed		66%	100%
	Gangapur		38%	80%

* State target

On above background, it could be affirmed that, the set target can be effectively chased if comprehensive, detail action plan is prepared and implemented stringently.

Chapter 6

Benchmarking of Water Users Association's - A Case Study

Till the end of June 2006, a potential to the tune of 4.132 Mha has been created in the state and another 3.07 Mha shall be created in near future. At present, the Irrigation Management of created irrigation potential is managed at Water Resources Department level with 0.343 Mha managed by the 883 Water Users Associations working on Major / Medium and 155 on Minor projects. These WUA's are registered under co-operative act.

Water Resources Department, GOM has categorically taken the decision of handing over the total potential created on all projects to the Water Users Associations by the end of year 2009. Accordingly, an act namely MMISF Act 2005 has been passed in the State Assembly.

At present, Maharashtra Water sector Improvement Program (MWSIP) is under implementation through which a potential to the tune of 0.67 Mha on 286 projects shall be handed over to1539 WUAs in the stipulated period. The MMISF act 2005 is made applicable tothe projects under MWSIP. The cost of the project is Rupees 1700 crores and it is aided by the World Bank. Above mentioned act is made applicable to all projects under MWSIP.

For evaluating the irrigation performance of irrigation projects and bringing about necessary improvement in Irrigation Water Management, the state is using Benchmarking as an effective management tool for last four years.

Considering huge public capital investment in construction of number of projects along with large amount of funds investment involved in rehabilitation of irrigation system before its handing over to WUAS, evaluation of the performance of each individual WUA each year by Benchmarking was felt necessary and was under consideration for last two years. Benchmarking of WUAs will help to determine and bring necessary improvement in the over all functioning of each WUA. Also it will help the WR Department to ascertain whether the objectives of handing over the Irrigation Management to WUAs are attained or not.

6.1 Objectives of Benchmarking of WUAs

1. To determine the participation of beneficiaries in working of WUAS.
2. To ascertain whether the WUA is getting the water as per sanctioned water quota and management funds/share of revenue collected as per the agreement and guidelines or not.
3. To check the increase in area irrigated and Out Put after the irrigation management is handed over to WUA
4. To determine per ha water use (excluding well/ river lift) in the jurisdiction of WUA
5. To check the conjunctive use of wells in the command of WUA.

6 To determine the financial status / self sustainability of WUA.

7 To check whether water is judiciously/ equitably supplied to beneficiaries at Head, Middle and Tail reaches of the canal system under the jurisdiction of WUA

8 To fix the area of problems so as to take suitable action to bring necessary changes in the working of WUA and improve the performance of a distribution system, ultimately of the project.

9 To create a sense of responsibility /accountability among the office bearers of WUA and discipline among members of the association.

6.2 Proformae for data submission for Benchmarking of WUA:

For calling the data/information for benchmarking of WUA, Proforma 1 and 3 are designed in regional language (Marathi). These Proformae in English are shown on subsequent pages of this report.
For accurate evaluation of performance of WUA, 9 indicators are designed and shown in Proforma 2 in subsequent pages of this report.

6.3 Selection of WUA for benchmarking study:

Looking to the large number of WUA's formed so far, to initialise the process as a case study, it was decided to call the data of two WUAs established on major project from each revenue division. Secondly, preference was given to WUAs which are in working for a longer range of period.

Accordingly, data for 13 WUAs belonging to 8 Major projects from 6 Irrigation circle has been received and analysed broadly in this typical study.
Plan group wise classification of these WUAs shows that, 5, 7 and 1 WUA in number, belongs to Deficit, Normal and Abundant plan group respectively. Out of these selected 13 WUAs, MMISF act-2005 is applicable to two WUAs on Mula project and one WUA on Waghad project.

6.4 Methodology adopted for Benchmarking:

Considering the WUA selected are in limited numbers and it is a case study, Benchmarking is carried out by
I) comparing the performances of individual WUA with state target
ii) Comparing the performances of two WUA's on the same project,
iii) Comparing the performances of two WUA's from two different projects but from same plan group and
iv) Incase of some indicators, Benchmarking is carried out by comparing the performances of WUA's from two different Plan groups also.

6.5 Targets:

Targets for indicator 1 to 3, 6, 7 & 9 are shown in Proforma 2 and are self explanatory.

Target for indicator IV (Annual water use per unit area irrigated) is decided by reducing the target for BM of irrigation projects (7692 cum/ha) by 30% for transit losses in canal as the water supplied to WUAS is measured at off taking of the concerned Dystributory/Minor. Thus target becomes 5384 cum/ha.

Target for indicator V (Annual expenditure per ha for irrigation management) for a WUA is evaluated as follows:

Total command area of a WUA: 200 ha (Presumption)

Salary of Staff and other mandatory expenditure for IWM per annum

S.N.	Item	Amount
1	Salary of One Canal inspector	Rs 36000
2	Salary of One Labour	Rs 18000
3	Office Building Rent	Rs 6000
4	Maintenance of distribution system	Rs 4000
5	Telephone/ electricity bill	Rs 12000
6	Report publication etc	Rs 3000
7	Stationary	Rs 1000
	Total	Rs 80000

Annual expenditure per unit area irrigated = $\frac{80000}{200}$

= Rs 400 / ha

6.6 Indicator wise analysis

As mentioned here before, data of 2006-07 year for Benchmarking of WUA was received from some selected WUAS in prescribed Proformae and indicator values were obtained as shown in table 1.

Indicator wise, WUA wise findings along with charts are given in Chart I to IX Due to insufficient availability of data Indicator III (Ratio of Actual Area irrigated to the Area Irrigated before functioning of WUA) and Indicator VI (Ratio of annual expenditure by WUA to recovered water charges) are not evaluated for this year. However evaluation of WUA in respect of these indicators shall be carriedout from next year.

Indicator I: Percentage of WUA'S member to total beneficiaries in command of WUA

Except WUA's on Mula and Waghad Projects, WUAs on remaining projects has membership ranging between 54 to 90 %. It is opined that, to increase farmers

participation in irrigation water management & to increase the efficiency of WUA'S, 100% membership should be developed on each WUA.

Indicator II: Percentage of Water supplied to the sanctioned Water quota

On all projects except Nalganga, water availability was 100% However, except 3 WUA'S (one each on Majalgaon, Waghad and Warna project), water was not supplied to remaining WUA'S as per sanctioned quota. Concerned field officers should explore the reasons for the same and try to supply the water as per sanctioned quota in future. In case of WUA'S on Palkhed project, more efforts were expected at WUA as well as project level, to utilize the quota in kW that was saved in Rabbi Season due to rains.

IV Annual Irrigation water use per unit area Irrigated (Cum/ha)

1. Water use per unit area irrigated on WUA under deficit plan group was more than the water use on WUA in normal plan group.

2. In- spite of low percentage of perennial crops and distinguished increase in number of wells in Command of WUA'S of Purna project, water use per unit area irrigated was more. Reasons for such excessive water use needs to be verified.

3. Irrigation Water use per unit ha on WUA'S of Kadakwasla was low, as these WUA'S, being at tail, didn't received water as per their sanctioned quota. Where as water use on WUA'S of Palkhed project was low than normal rate as crops water requirement was sufficed by the rains in Rabbi Season.

4 Water use on WUA'S of Waghad project may be low than target on account of striking increase in no of wells in the command of Jai Yogeshwar WUA.

V Annual expenditure per Ha by WUA for irrigation management (Rs /ha)

1. Expenditure incurred on irrigation management by Krishna, Godawari (Purna), Jai Yogeshwar (Waghad) & Nanaksingh WUA (Warna) was more than the target.

2. On Krishna, Godawari WUA (Purna project) expenditure on irrigation management is more than target. So these WUA should take proper measures to maintain the economic sustainability.

3 It is of noteworthy that, despite high rate of expenditure on Irrigation Management, water use per unit ha was more on WUA'S of Purna project. Concerned WUA needs to take suitable measures to improve the situation.

VII Ratio of Water revenue remitted to Govt to Actual water revenue recovered

1. No WUA on any project had paid the recovered water charges within time limit to the Govt.

2. Krishna & Godawari (Purna project), Datt, Yogeshwar (Mula project) WUA had not paid 72 to 90% of recovered water charges to the Govt.

3. Project authorities are required to take suitable actions to recover balance water revenue immediately.

VIII Annual Output per ha of area irrigated (Rs/ha)

1. Out put per ha on all WUA's under deficit (except WUAs on Purna project) & normal plan group appears to be satisfactory compare to the fixed norm.

2. Out put per ha observed on WUA in normal plan group was more than that was observed on WUA in deficit plan group.

IX Equity performance

1 From the available data it reveals that, water was not supplied to all beneficiaries in the command by respective WUA's except Krishna and Bhagwati on Purna project.

2 In the data submitted about Krishna and Bhagwati WUA on Purna and Majalgaon project, it is mentioned that water was supplied to 100% beneficiaries for irrigation. However the details about membership (74%, 69%), ICA (1036 ha, 619ha) and actual area measured (270ha, 190ha) suggest necessity of verification of the submitted information.

6.7 Action Ahead

1. At present looking to large numbers of WUAs, Benchmarking of selected WUAs on Major project is possible at State level. After handing over of total I irrigation management of project to WUA, Benchmarking of apex(Canal, Dystributory) WUAs would be feasible at State level.
2. In case of Medium and Minor projects which are totally handed over to WUAs for irrigation management, Benchmarking of WUAs on Medium and Minor projects could be entrusted to concerned Sub division and Division respectively. In case of Major projects, Benchmarking of WUAs on Canal can be carried out at circle level.
3. To bring about necessary improvement in functioning of WUAs, monitoring of Benchmarking of Major, Medium and Minor projects WUAs at concerned Division, Circle and Chief Engineer level will be desirable.

Prescribed format for Information to be submitted for Benchmarking of Water User Association (Proforma 1)

Irrigation Year :

Name of Project	Name of Circle	Basin No.	Name of Water User Associates	Number of beneficiries in command of WUA	Number of WUA members	Sanction Quota of WUA as per agrmment (TCM)				Actual quota received to WUA (TCM)			
						Kharif	Rabbi	Hot weather	Total	Kharif	Rabbi	Hot weather	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Annual crop area measured in command WUA before establishment (ha)	Crop area measured during irrigation year (ha)	Total area irrigated in irrigation year (ha)	Expenditure on irrigation management during irrigation year (Rs)	Water cess recovery during irrigation year (Rs)	Water cess paid to Govt.during irrigation year (Rs.)	Annual income during irrigation year (Rs.)	Number WUA members in total length of channel			Number of WUA members as per actual area irrigated during the year		
							Head	Middle	Tail	Head	Middle	Tail
15	16	17	18	19	20	21	22	23	24	25	26	27

Details of Indicators used for Benchmarking of Water User Association (Proforma 2)

Indicator No	Indicator	Target / Achievement	Purpose of Indicator
Indicator No. I	Percentage of WUA members to total beneficiaries in Command of WUA	100%	To check the participation of beneficiaries in the Irrigation Management of WUA
	(Column 6 /Column 5)* 100		
Indicator No. II	Percentage of water supplied to sanction quota	100%	To check the actual water quota received compared to the sanction water quota during the irrigation year.
	(Column 14 /Column 10)* 100		
Indicator No. III	Ratio of actual area irrigated to the area irrigated before functioning of the WUA	More than 1	To check the whether area irrigated is increased or decreased after the formation of WUA.
	(Column 16 /Column 15)		
Indicator No. IV	Annual irrigation water use per unit area irrigated (Cum/ha)	Less than 5382 Cum	To check the economic, efficient use of water in irrigation management.
	(Column 14 x 1000/Column 17)		
Indicator No. V	Annual expenditure per ha for irrigation management (Rs/ha)	400	To check whether the expenditure for irrigation management is economic or not.
	(Column 18 /Column 16)		
Indicator No.VI	Ratio of annual expenditure to recovered water charges	More than 1	To check and decide the self sustainability of WUA.
	(Column 19 /Column 18)		
Indicator No. VII	Ratio of water revenue remitted to Govt. to actual water revenue recovered	More than 1	To check the actual remittance of water revenue to Govt. from the collected water charges.
	(Column 20 /Column 19)		
Indicator No. VIII	Annual Output per ha of area irrigated (Rs/ha)	As per State target for project BM	To check actual increase in income of beneficiaries due to freedom of crops and participation of farmers in irrigation management.
	(Column 21 /Column 16)		
Indicator No. IX	Equity Performance		To check equitable distribution of water in head, middle & tail reaches of WUA. Reaches are defined by equally dividing the total beneficiaries in three reaches namely head, middle and tail.
	Head	One	
	(Column 25 /Column 22)		
	Middle	One	
	(Column 26 /Column 23)		
	Tail	One	
	(Column 27 /Column 24)		

Circle wise Ancillary information of WUA in Deficit Plan group (Proforma 3)

Sr No	Item /Circle	CADA Beed	
	Project	Majalgaon	
	Name of WUA	Bhagwati	Shukleshwar
1	Jurisdiction of WUA	Minor No.1 to 7/ Tilsmukh branch/ MRBC	Minor No.8/ GM Branch Canal / MRBC
2	ICA of WUA	555 ha	725 ha
3	Is WUA included in MWSIP?	No	No
4	Date of handing over of IWM (command area) to the WUA	25-03-1998	9-10-1998
5	No of wells in command area of WUA		
	a) Before handing over	2	68
	b) Total as on today	61 (33 wells, 28 Bore wells)	93
6	Subsidy received during the irrigation year	Yes Rs.22200/-	Yes Rs. 21750/-
7	Year for which subsidy is not received	Nil	Nil
8	Dose the well water was used as an additional source for irrigation during the irrigation year	Yes	Yes
9	Area under perennial crops during the irrigation year	302 ha	167.60ha
10	No. of staff employed for irrigation management by WUA	2	2
11	Does water supply was on volumetric basis or not	Volumetric basis	Volumetric basis
12	Assessment of water charges were on volumetric basis or as per crop area measurement	On volumetric basis	On volumetric basis
13	Percentage of actual live storage to the design storage in the reservoir during the irrigation year	100%	100%
14	Reasons for less achievements compared to the set target during the irrigation year	1) Less response of members to WUA 2) Due to more numbers of wells in command there was low response to canal irrigation 3) Trend of cultivators towards cash crops	

Circle wise Ancillary information of WUA in Deficit Plan group (Proforma 3)

Sr No	Item /Circle	NIC Nanded		AIC Akola
	Project	Purna		Nalganga
	Name of WUA	Krishna	Godawari	Nalganga
1	Jurisdiction of WUA	Malegaon Minor /Dour Minor / camp colony DO No.5 to 9	Kamtha Minor 1,2,3/ Do No.10 to 15	Dy.No.142 on Nalganga main canal
2	ICA of WUA	1036 ha	619 ha	250 ha
3	Is WUA included in MWSIP?	No	No	No
4	Date of handing over of IWM (command area) to the WUA	3.7.1991	3.7.1991	28-03-1996
5	No of wells in command area of WUA			
	a) Before handing over	92	78	39
	b) Total as on today	140	102	53
6	Subsidy received during the irrigation year	No	No	20% discount on water charges total Rs.24421
7	Year for which subsidy is not received	04-05/ 05-06/ 06-07	04-05/ 05-06/ 06-07	Nil
8	Dose the well water was used as an additional source for irrigation during the irrigation year	Yes	Yes	No
9	Area under perennial crops during the irrigation year	118.50 ha	36.82 ha	12 ha
10	No. of staff employed for irrigation management by WUA	7	5	2
11	Does water supply was on volumetric basis or not	Volumetric basis	Volumetric basis	Volumetric basis
12	Assessment of water charges were on volumetric basis or as per crop area measurement	On volumetric basis	On volumetric basis	On volumetric basis
13	Percentage of actual live storage to the design storage in the reservoir during the irrigation year	100%	100%	79%
14	Reasons for less achievements compared to the set target during the irrigation year	Information not available		There is no irrigation in kharif season as there is no demand of water. As per the project report there is a provision for124 ha area in kharif, 124 ha in rabbi & 2 ha in HW season. In the irrigation year 2006-07, WUA has irrigated 126 ha in rabbi, 120 ha in HW. In HW season only one rotation was given to the cotton crop.

Circle wise Ancillary information of WUA in normal plan group (Proforma 3)

Sr No	Item /Circle	PIC Pune	
	Project	Khadkwasla	
	Name of WUA	Navnath	Sant Savtamali
1	Jurisdiction of WUA	Wadapuri Branch Km. 8.230 to 9.940 (Right side)	Wadapuri Branch Km. 8.230 to 9.940 (Left side)
2	ICA of WUA	201ha	298 ha
3	Is WUA included in MWSIP?	Yes	No
4	Date of handing over of IWM (command area) to the WUA	1/7/2005	1/7/2005
5	No of wells in command area of WUA		
	a) Before handing over	20	38
	b) Total as on today	23	42
6	Subsidy received during the irrigation year	Yes	Yes
7	Year for which subsidy is not received	Since 2005 till date subsidy not received	Since 2005 till date subsidy not received
8	Dose the well water was used as an additional source for irrigation during the irrigation year	Yes	Yes
9	Area under perennial crops during the irrigation year	15 ha	30.20 ha
10	No. of staff employed for irrigation management by WUA	4	4
11	Does water supply was on volumetric basis or not	Volumetric basis	Volumetric basis
12	Assessment of water charges were on volumetric basis or as per crop area measurement	On volumetric basis	On volumetric basis
13	Percentage of actual live storage to the design storage in the reservoir during the irrigation year	100%	100%
14	Reasons for less achievements compared to the set target during the irrigation year	1. As water is also supplied to non members, response to become a member of WUA is less. 2. As WUA is in tail reach of the branch, less quota of water was supplied as compared to the sanction quota. 3. As actual quota supplied was less than what is sanctioned, per ha water utilization as compared to the target is also less.	

Circle wise Ancillary information of WUA in normal plan group (Proforma 3)

Sr No	Item /Circle	CADA Nashik				
	Project	Mula		Waghad	Palkhed	
	Name of WUA	Datt	Yogeshwar	Jai Yogeshwar	Sant Muktabai	Jai Ambika
1	Jurisdiction of WUA	Dy.No.7 Mula Right Bank Canal	Dy.No.3/ Minor No.2/ Mula Right Bank Canal	Dy.No.18 A & 19 & Minor 8/ Waghad Right Bank Canal	Dy.14 Palkhed Left Bank Canal	Dy.10 & 11 Plkhed Left Bank Canal
2	ICA of WUA	361 ha	200.70 ha	390 ha	462 ha	534 ha
3	Is WUA included in MWSIP?	Yes	Yes	Yes	No	No
4	Date of handing over of IWM (command area) to the WUA	30/06/1989	24/10/1997	1999	10/2006	11/2002
5	No of wells in command area of WUA					
	a) Before handing over	162	88	61	379	390
	b) Total as on today	182	109	190	391	415
6	Subsidy received during the irrigation year	Nil	Nil	Nil	Yes Rs. 23100/-	Nil
7	Year for which subsidy is not received	Since 2001-2002 Subsidy not received	Since 2006-2007 subsidy not received	Nil	Nil	Received
8	Dose the well water was used as an additional source for irrigation during the irrigation year	Yes	Yes	Yes	Yes	Yes
9	Area under perennial crops during the irrigation year	177.60 Ha.	80 ha	158.4 ha	148 ha	169 ha
10	No. of staff employed for irrigation management by WUA	3	2	3	1.25	NA
11	Does water supply was on volumetric basis or not	Volumetric basis	Volumetric basis	Volumetric basis	Volumetric basis	Volumetri c basis
12	Assessment of water charges were on volumetric basis or as per crop area measurement	On volumetric basis	On volumetric basis	On volumetric basis	On volumetric basis	On volumetri c basis
13	Percentage of actual live storage to the design storage in the reservoir during the irrigation year	100%	100%	100%	100%	100%
14	Reasons for less achievements compared to the set target during the irrigation year	Information not available		Not submitted by field officers as acheivement is close to set targets.	More rain fall in command area in Rabbi season	More rain fall in command area in Rabbi season

Details of Project and WUA wise Indicator's values (Table 1)

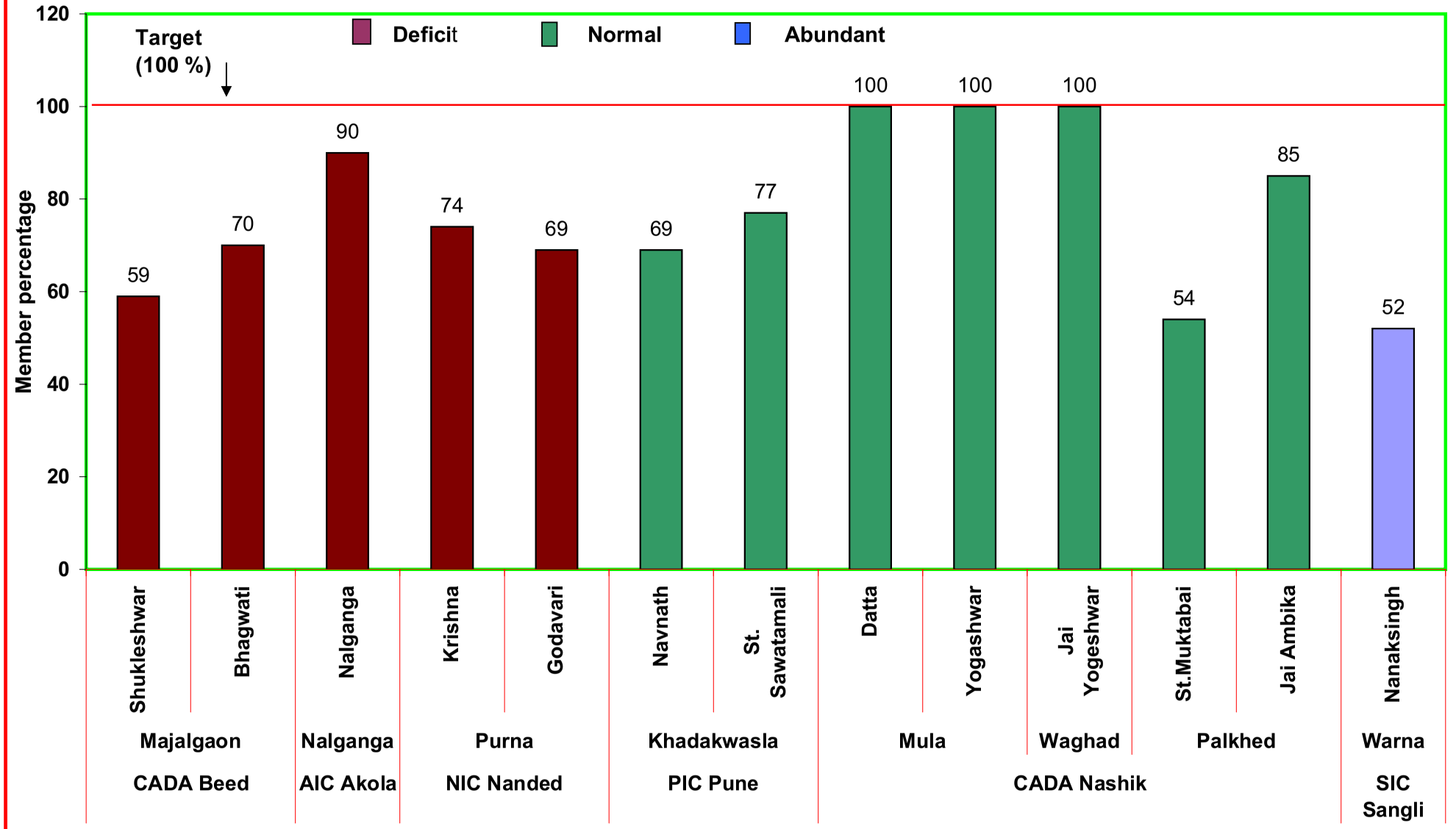
Indicator I: Percentage of WUA'S member to total beneficiaries in command of WUA				
Plan group	Circle	Project	W U A	Value
Deficit	CADA Beed	Majalgaon	Shukleshwar	59
			Bhagwati	70
	AIC Akola	Nalganga	Nalganga	90
	NIC Nanded	Purna	Krishna	74
			Godavari	69
Normal	PIC Pune	Khadakwasla	Navnath	69
			St. Sawatamali	77
	CADA Nashik	Mula	Datta	100
			Yogashwar	100
		Waghad	Jai Yogeshwar	100
		Palkhed	St.Muktabai	54
			Jai Ambika	85
Abundant	SIC Sangli	Warna	Nanaksingh	52
Indicator II: Percentage of water supplied to sanction water quota				
Plan group	Circle	Project	W U A	Value
Deficit	CADA Beed	Majalgaon	Shukleshwar	46
			Bhagwati	142
	AIC Akola	Nalganga	Nalganga	79
	NIC Nanded	Purna	Krishna	37
			Godavari	68
Normal	PIC Pune	Khadakwasla	Navnath	36
			St. Sawatamali	22
	CADA Nashik	Mula	Datta	80
			Yogashwar	70
		Waghad	Jai Yogeshwar	102
		Palkhed	St.Muktabai	28
			Jai Ambika	12
Abundant	SIC Sangli	Warna	Nanaksingh	142
Indicator IV: Annual Irrigation water use per unit area Irrigated (Cum/ha)				
Plan group	**Circle**	**Project**	**W U A**	**Value**
Deficit	CADA Beed	Majalgaon	Shukleshwar	4527
			Bhagwati	5317
	AIC Akola	Nalganga	Nalganga	4902
	NIC Nanded	Purna	Krishna	7371
			Godavari	10387
Normal	PIC Pune	Khadakwasla	Navnath	1722
			St. Sawatamali	1314
	CADA Nashik	Mula	Datta	3187
			Yogashwar	2722
		Waghad	Jai Yogeshwar	2397
		Palkhed	St.Muktabai	1440
			Jai Ambika	652

Abundant	SIC Sangli	Warna	Nanaksingh	12312
Indicator V: Annual expenditure per ha by WUA for irrigation management (Rs/ha)				
Plan group	**Circle**	**Project**	**W U A**	**Value**
Deficit	CADA Beed	Majalgaon	Shukleshwar	246
			Bhagwati	219
	AIC Akola	Nalganga	Nalganga	235
	NIC Nanded	Purna	Krishna	959
			Godavari	573
Normal	PIC Pune	Khadakwasla	Navnath	314
			St. Sawatamali	220
	CADA Nashik	Mula	Datta	267
			Yogashwar	317
		Waghad	Jai Yogeshwar	644
		Palkhed	St.Muktabai	126
			Jai Ambika	104
Abundant	SIC Sangli	Warna	Nanaksingh	431
Indicator VII: Ratio of water revenue remitted to Govt to actual water revenue recovered				
Plan group	**Circle**	**Project**	**W U A**	**Value**
Deficit	CADA Beed	Majalgaon	Shukleshwar	0.84
			Bhagwati	0.84
	AIC Akola	Nalganga	Nalganga	0.6
	NIC Nanded	Purna	Krishna	0.29
			Godavari	0.29
Normal	PIC Pune	Khadakwasla	Navnath	0.44
			St. Sawatamali	0.4
	CADA Nashik	Mula	Datta	0.1
			Yogashwar	0.3
		Waghad	JaiYogeshwar	0.5
		Palkhed	St.Muktabai	0.6
			Jai Ambika	0.8
Abundant	SIC Sangli	Warna	Nanaksingh	0.79
Indicator VIII: Annual Output per ha of area irrigated (Rs/ha)				
Plan group	**Circle**	**Project**	**W U A**	**Value**
Deficit	CADA Beed	Majalgaon	Shukleshwar	33037
			Bhagwati	31377
	AIC Akola	Nalganga	Nalganga	33579
	NIC Nanded	Purna	Krishna	23442
			Godavari	18470
Normal	PIC Pune	Khadakwasla	Navnath	26380
			St. Sawatamali	29050
	CADA Nashik	Mula	Datta	58959
			Yogashwar	51914
		Waghad	Jai Yogeshwar	109671
		Palkhed	St.Muktabai	146385
			Jai Ambika	167998
Abundant	SIC Sangli	Warna	Nanaksingh	39742

Indicator IX: Equity performance (Table 1 continued)

Plan Group	Circle	Project	WUA	Reach	Value
Defiicit	CADA Beed	Majalgaon	Shukleshwar	H	0.43
				M	0.34
				T	0.14
			Bhagawati	H	0.68
				M	0.62
				T	0.58
	AIC Akola	Nalganga	Nalganga	H	0.96
				M	0.92
				T	0.93
	NIC Nanded	Purna	Krshna	H	1.00
				M	1.00
				T	1.00
			Godavari	H	1.00
				M	1.00
				T	1.00
Normal	PIC Pune	Kadakwasla	Navnath	H	1.00
				M	1.00
				T	1.00
			St. Sawtamali	H	1.00
				M	1.00
				T	1.00
	CADA Nashik	Mula	Datta	H	0.34
				M	0.49
				T	0.50
			Yogeshwar	H	0.38
				M	0.53
				T	0.51
		Waghad	Jai Yogeshwar	H	1.00
				M	0.89
				T	0.89
		Palkhed	St. Muktabai	H	0.27
				M	0.32
				T	0.57
			Jai Ambika	H	0.19
				M	0.20
				T	0.29
Abundant	SIC Sangli	Warna	Nanaksingh	H	0.77
				M	0.37
				T	0.23

Chart I
Percentage of WUA'S member to total beneficiaries in command of WUA



* MMISF Act 2005 applicable to Datta, ४ geshwar and ai ४ geshwar WUA

Chart II
Percentage of water supplied to the sanctioned water quota

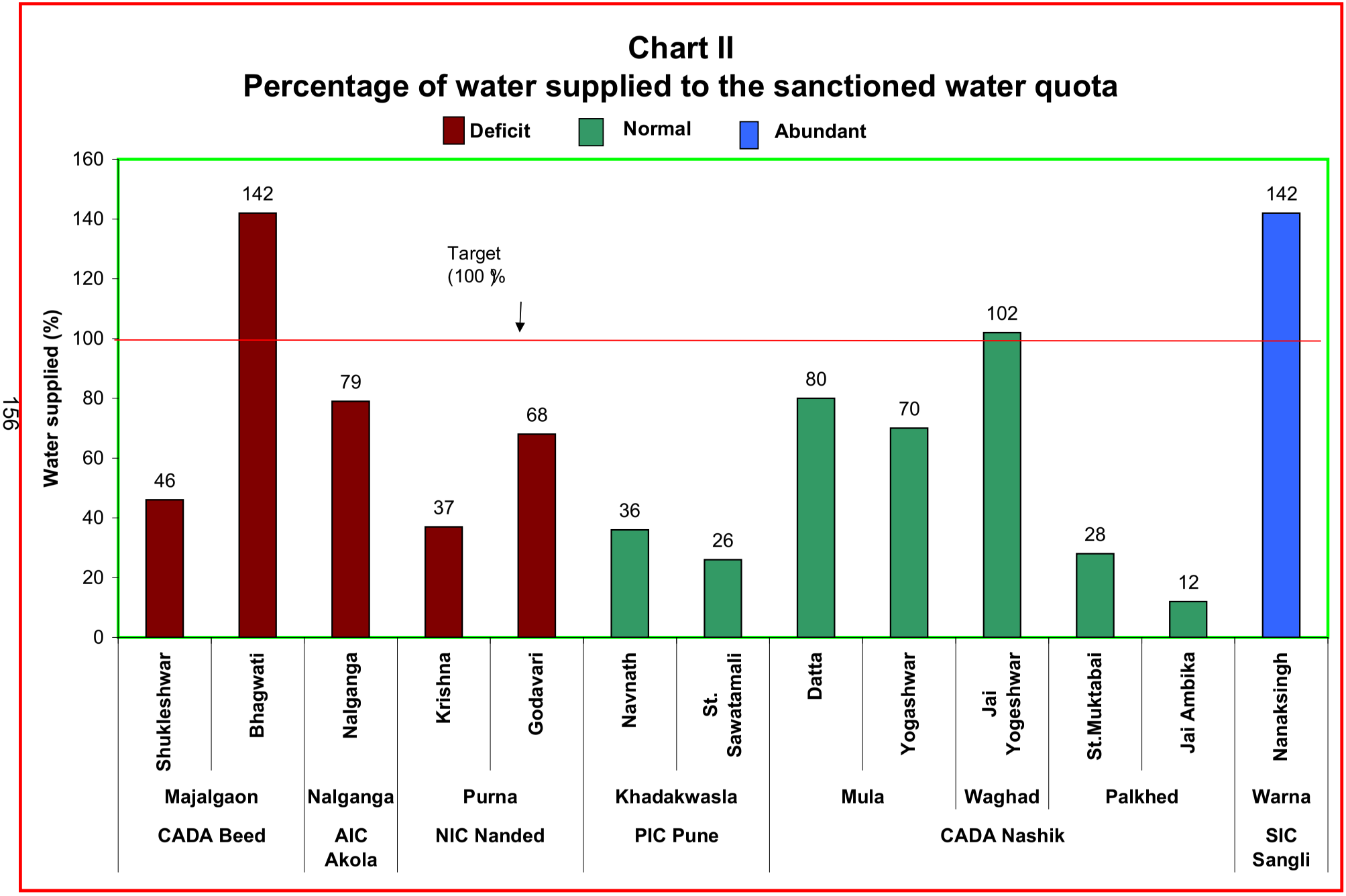


Chart IV
Annual irrigation water use per unit area irrigated (Cum/ha)

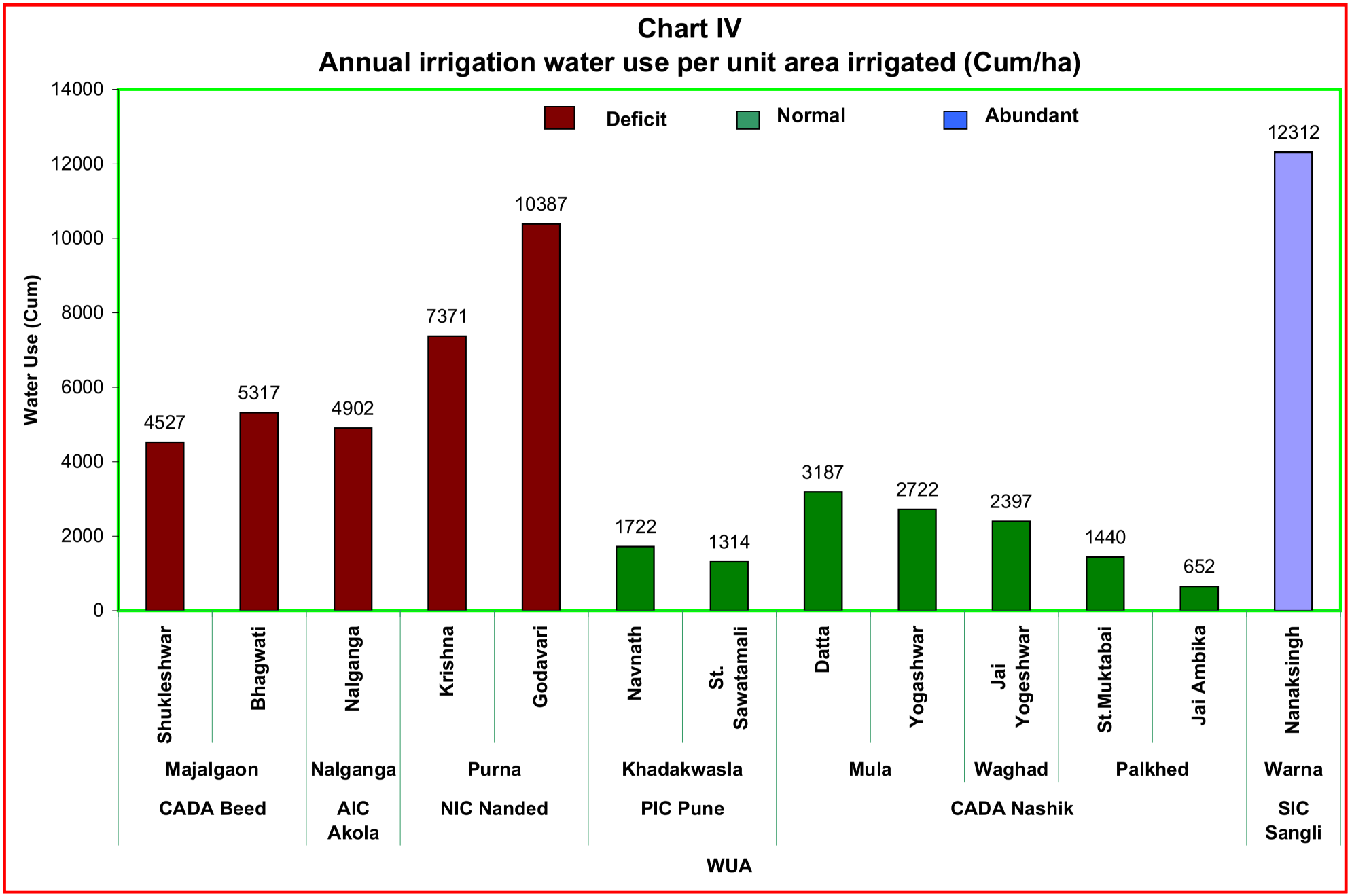
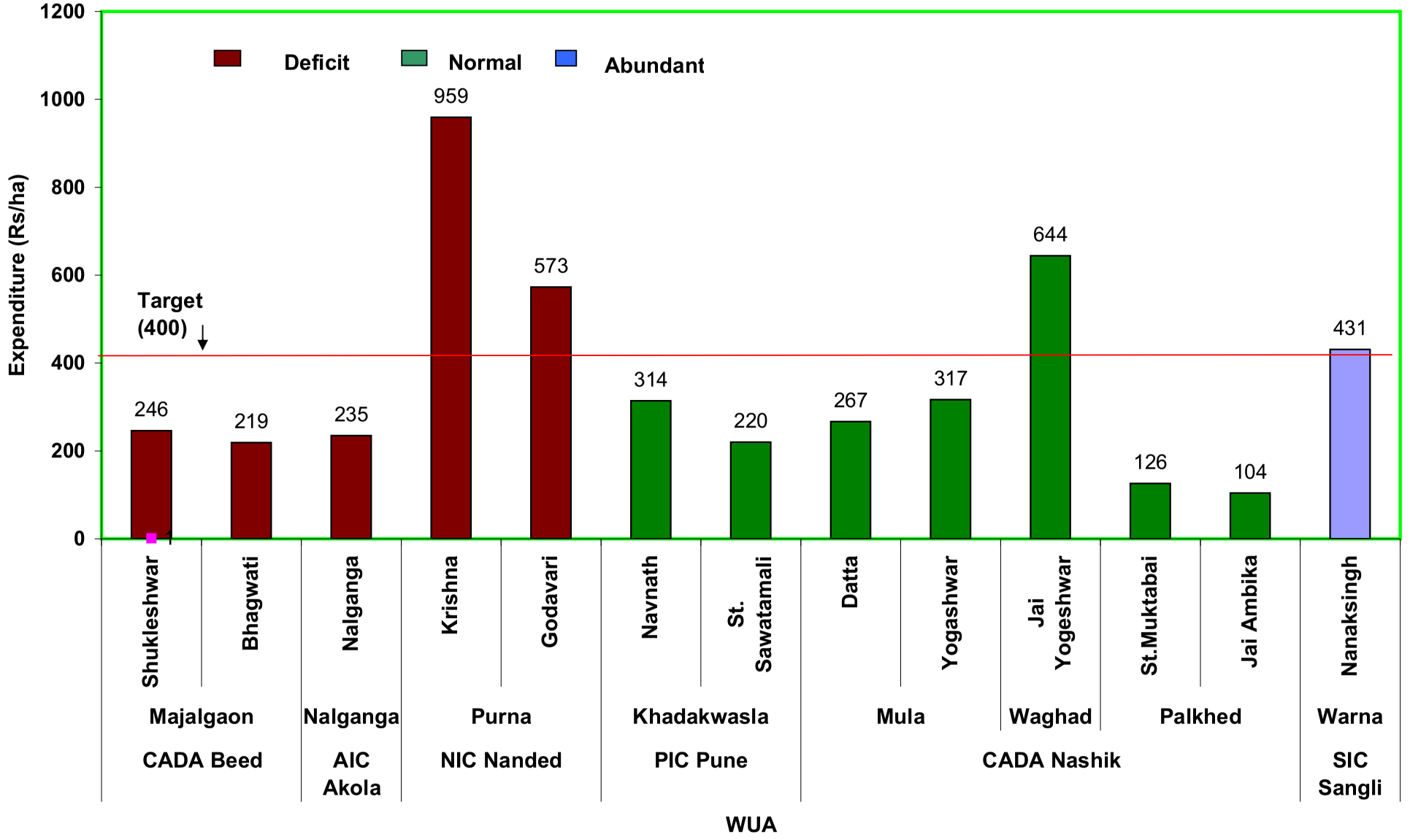


Chart V
Annual expenditure per ha by WUA for irrigation management (Rs/ha)



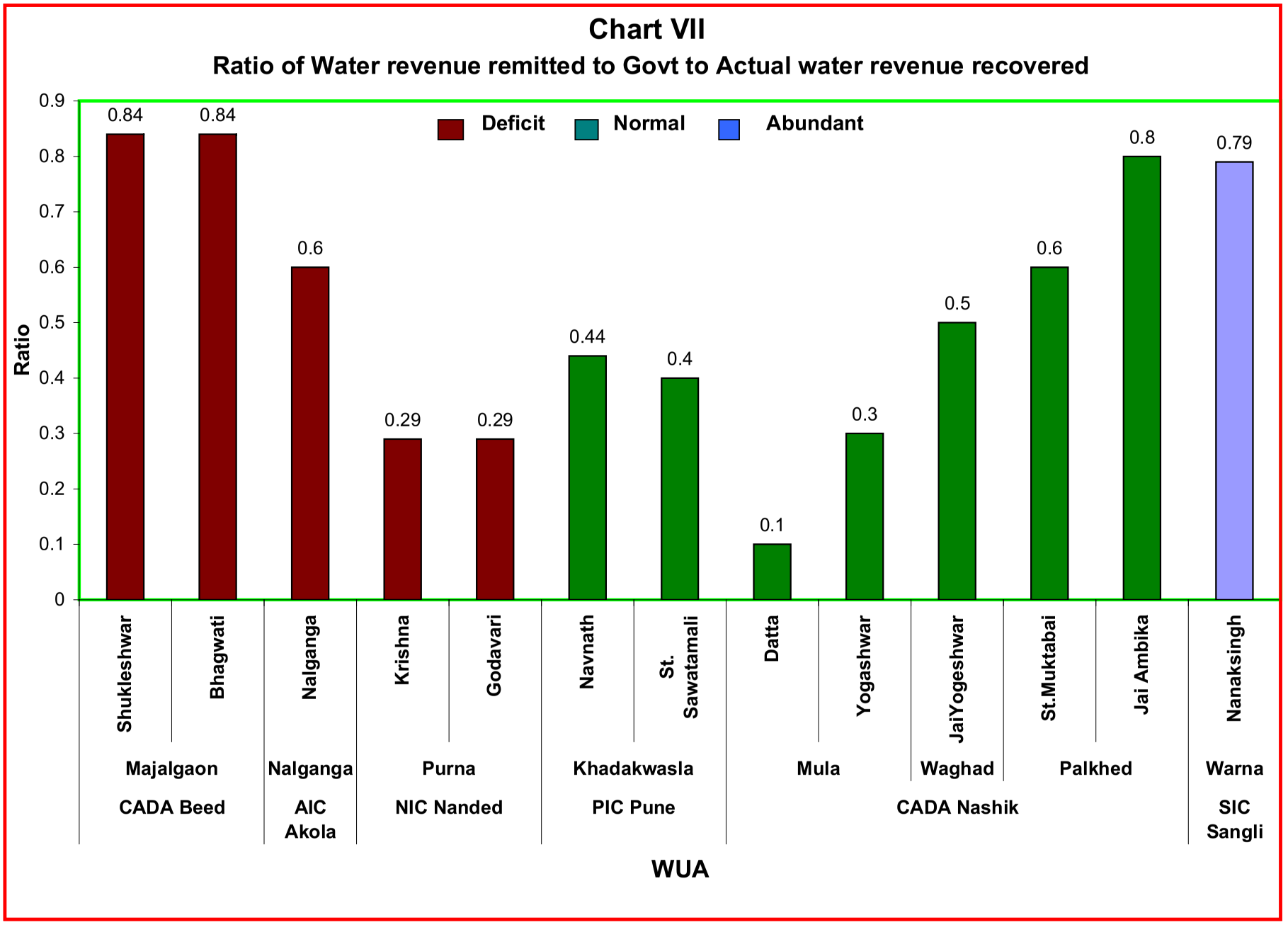


Chart VII
Ratio of Water revenue remitted to Govt to Actual water revenue recovered
Deficit
Normal
Abundant
Ratio
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.84
0.84
0.6
0.29
0.29
0.44
0.4
0.1
0.3
0.5
0.6
0.8
0.79
Shukleshwar
Bhagwati
Nalganga
Krishna
Godavari
Navnath
St. Sawatamali
Datta
Yogashwar
JaiYogeshwar
St.Muktabai
Jai Ambika
Nanaksingh
Majalgaon
CADA Beed
Nalganga
AIC Akola
Purna
NIC Nanded
Khadakwasla
PIC Pune
Mula
Waghad
Palkhed
CADA Nashik
Warna
SIC Sangli
WUA

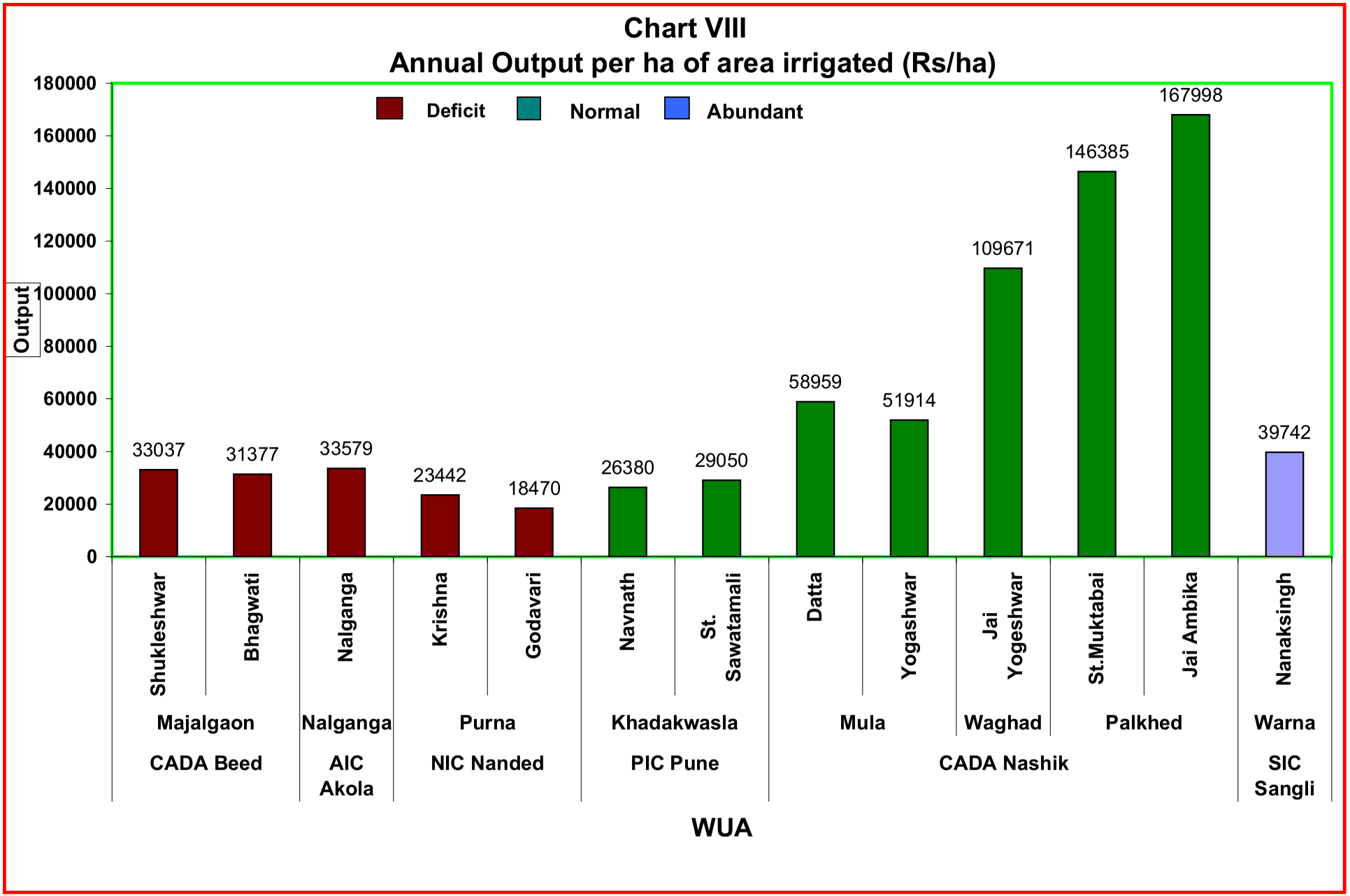
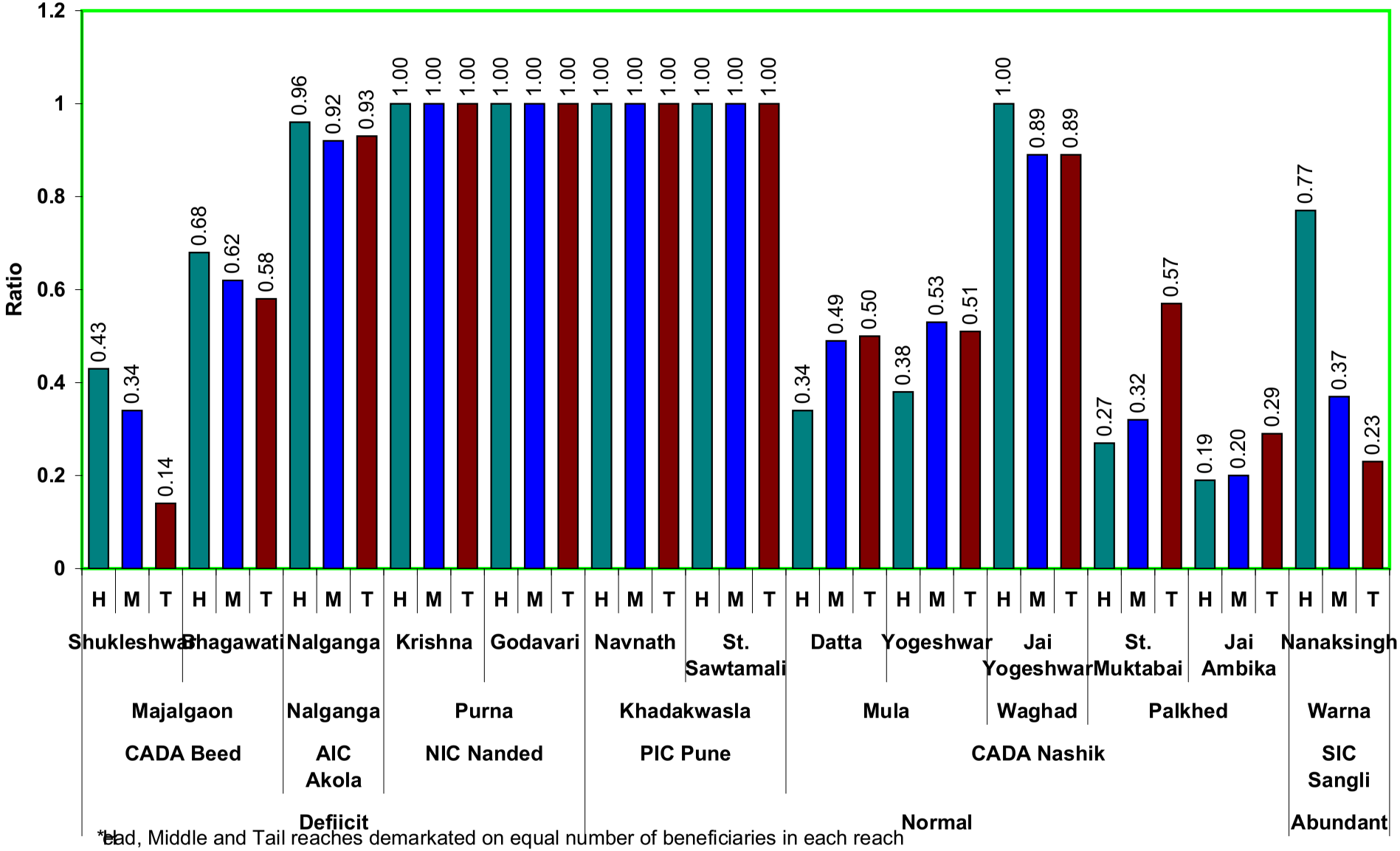


Chart VIII
Annual Output per ha of area irrigated (Rs/ha)
Deficit
Normal
Abundant
Output
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
33037
31377
33579
23442
18470
26380
29050
58959
51914
109671
146385
167998
39742
Shukleshwar
Bhagwati
Nalganga
Krishna
Godavari
Navnath
St. Sawatamali
Datta
Yogashwar
Jai Yogeshwar
St.Muktabai
Jai Ambika
Nanaksingh
Majalgaon
Nalganga
Purna
Khadakwasla
Mula
Waghad
Palkhed
Warna
CADA Beed
AIC Akola
NIC Nanded
PIC Pune
CADA Nashik
SIC Sangli
WUA

Chart IX
Equity Performance



*Head, Middle and Tail reaches demarkated on equal number of beneficiaries in each reach

BENCHMARKING OF

WATER AND LAND MANAGEMENT INSTITUTE (WALMI), AURANGABAD (2006 – 07)

1.0 INTRODUCTION

WALMI, Aurangabad (Maharashtra) is a premier training institute of its kind in India established on 1st October 1980 as an autonomous registered society under Water Resources Department, Government of Maharashtra for imparting the training in IWM.

1.1 Objectives

The main objectives of the institute are:

- To provide inservice training of interdisciplinary nature to staff engaged in Irrigation Water Management and Land Development in Water Resources and Agriculture Departments
- Action and adaptive research pertaining to Irrigation Project Commands.
- Providing consultancy services, production of training materials (in print and electronic media), conducting seminars / workshops and organizing farmers' training programmes

Training is imparted by highly qualified, experienced and well-trained faculty members. WALMI has five faculties:

- Faculty of Engineering
- Faculty of Agriculture
- Faculty of Science (Computer Applications & Hydraulics)
- Faculty of Social Sciences
- Faculty of Integrated Watershed Development & Management

An optimal mix of core faculty and senior field officers on deputation to WALMI constituting the faculty, is one of the vital factors of this institute's strength and performance.

2.0 BENCHMARKING OF WALMI

2.1 Performance Indicators

The benchmarking technique is introduced for the performance evaluation of the irrigation systems in the State of Maharashtra. Benchmarking is a continuous process of measuring one's own performance and practices against the best competitors and is a sequential exercise of learning from other's experience. The guidelines are available on the categories of performance indicators for Irrigation Systems. The benchmarking of WALMI, Aurangabad, which is a premier training institute in IWM is carried out by developing the performance indicators based on the activities of the institute. The performance is also compared with the requirement wherever possible.

WALMI, being a training institute, has developed its own performance indicators as below:

1) Institutional performance
2) Qualitative performance
3) Financial indicators
4) Environmental aspects

2.2 Institutional Performance

The institutional performance of the WALMI is assessed based on the following four indicators:

a) Strength of teaching staff

The strength of teaching staff is compared with the potential sanctioned positions and available positions over the period of last five years.

b) Annual training workload (trainee days)

The annual training workload is compared with the planned training workload and achievement for last five years.

c) Annual training workload of long term courses (Participants)

The number of participants actually participated in long term courses (25/21 week's duration) are compared with the potential strength of the long term courses for last five years.

d)Annual Farmers' training workload (Participants)

The number of participants actually participated in different farmer's training programmes are compared with the expected participants.

2.3 Qualitative Performance

The overall quality of institute's activities are assessed based on the following indicators:

a) End of Course evaluation (i) L.T.C. (ii) S.T.C.
b) Research activities
c) Revisions & Development of publications
d) Papers presented & published (state, national & international level)

2.4 Financial Indicators

This is assessed based on the actual expenses of the institute:

a) Cost of training per trainee day
b) Central Assistance for training programme

2.5 Environmental Aspects

Environmental indicators will give information about involvement of participants in the training activities to acquire the knowledge, skills and attitudes for their jobs. It will also indicate the conduciveness of environment in the institute.

a) Referencing WALMI Library
b) Visitors in WALMI

3.0 ASSESSMENT OF PERFORMANCE OF WALMI (YEAR 2002 – 2007)

(i) Strength of teaching staff

The strength of teaching staff increased during 2006 – 07 due to more number of faculty joining on deputation and also with new recruitments in the faculty. The existence of sizeable core faculty is one of the vital factors of this institute's strength and performance. (Fig.1)

(ii) Annual training workload (trainee days)

Achievement in last five years is more than the planned training workload. The assessed annual training workload of the institute is about 45000 trainee days whereas the average planning of the last five years is about 28000. The achievement for the training programme in the current year is comparatively lower than the planned because of less participation in MWSIP courses. (Fig.2)

(iii) Annual training workload of long term courses (participants)

The number of participants actually attended in LTC in last five years were more than the potential strength (Fig.3) this is because of improved response from the participants working in irrigation management.

(iv) Annual Farmers' training workload (participants)

This indicator shows that the number of farmers participated in the courses are much higher than the expected participants (Fig.4).

(v) End of course evaluation

In the method of end of course evaluation, the trainee officers are asked to give rating for various questions related to training. The average rating of end course evaluation for long term courses and short term courses (having period more than 4 days) during the year is around four, which indicates that overall quality of training as excellent (Fig.5)

(vi) Research activities

There is a continuous improvement from the year 2003 – 04. Research studies are now accelerated so that experience gained during these studies will be shared through lectures, presentation of case studies in training courses. (Fig.6).

(vii) Revisions & Development of publications

This cannot be assessed exactly on yearly basis. The fig.7 shows the actual status of this activity.

(viii) Papers / Articles presented & published (state, national & international level)

The numbers are in increasing order and is highest during the year 2003 – 04 in comparison to other years (Fig.8). The faculties are being motivated in this regard.

(ix) Cost of training per trainee day

The cost of training per trainee day is different in the different years and depends upon the number of trainee days (annual training workload) and the budget allotment. (Fig. 9). This includes the expenditure on administration and maintenance of institute's estate. The average cost of training is expected to be around Rs.3000 per trainee day.

(x) Central assistance for training programme

There is no disbursement of central assistance from the year 2005 – 06. (Fig.10).

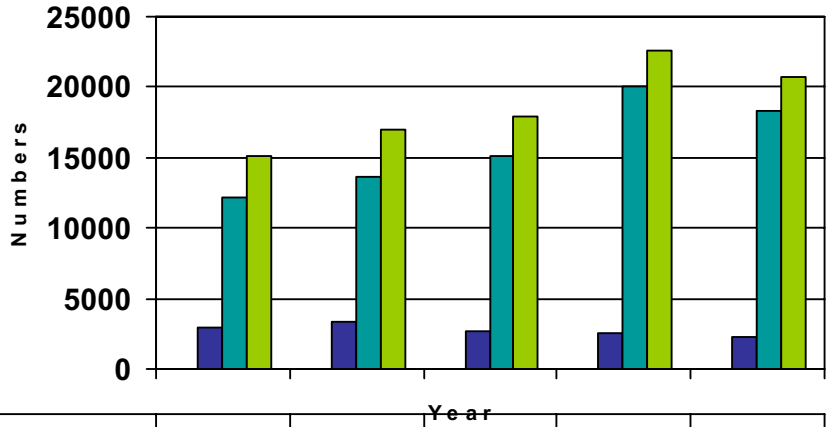
(xi) Referencing WALMI Library

This indicates that use of library is increasing among the faculties, training participants and visitors (Fig.11).

(xii) Visitors in WALMI

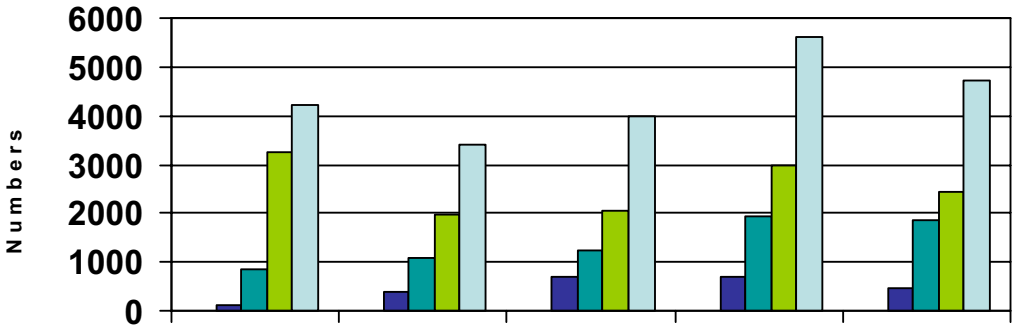
The visitors in WALMI are increasing year after year which is a good indicator for the capabilities of the WALMI (Fig.12).

Referencing WALMI Library



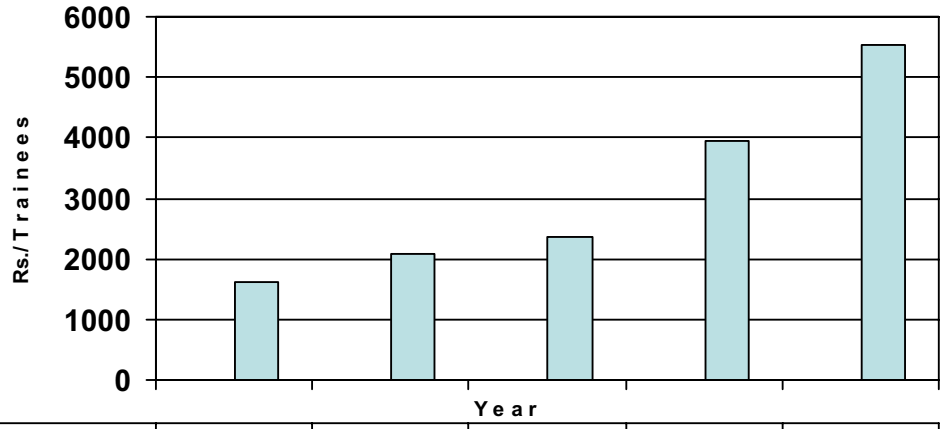
Year	02-03	03-04	04-05	05-06	06 - 07
Reading Materials Issued	2993	3327	2716	2479	2332
Reading Material Consulted	12110	13690	15148	20084	18374
Total	15103	17017	17864	22563	20706

Visitors in WALMI



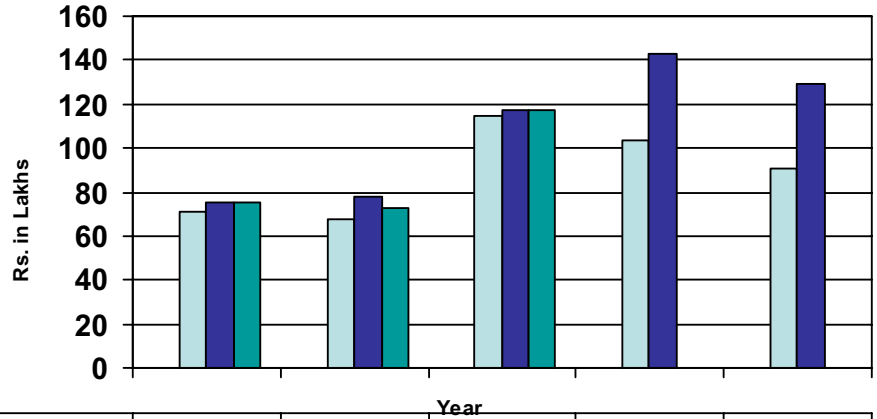
Year	02-03	03-04	04-05	05-06	06 - 07
Officers & VIPs	109	379	710	711	465
Trainee	850	1075	1220	1920	1845
Farmers	3250	1955	2050	2974	2430
Total	4209	3409	3980	5605	4740

Cost of Training per Trainee day



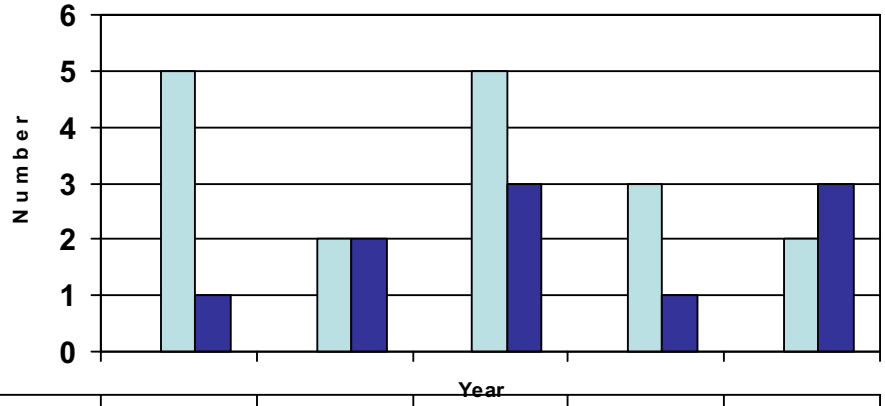
Year	02-03	03-04	04-05	05-06	06 - 07
Rs per Trainee day	1616	2079	2348	3950	5530

Central Assistance for Training Programme



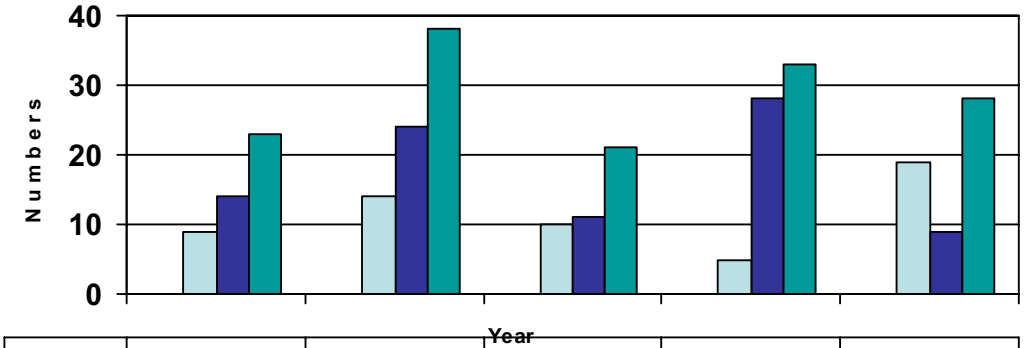
Year	02-03	03-04	04-05	05-06	06 - 07
Estimate	70.96	67.57	114.67	103.69	91.1
Expenditure	75.28	77.67	117.48	143.09	129.09
Actual Disbursement	75.28	72.905	117.48	Nil	Nil

Revisions & Development of Publications



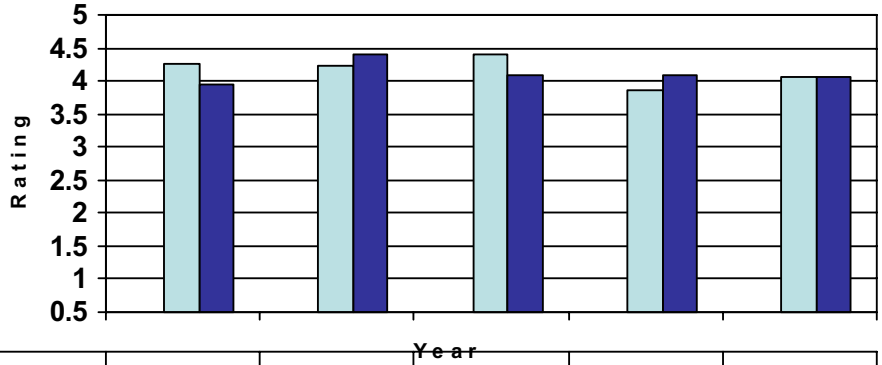
Year	02-03	03-04	04-05	05-06	06 - 07
Revisions	5	2	5	3	2
New Publications	1	2	3	1	3

Papers / Articles Presented & Published (State/National & International Level)



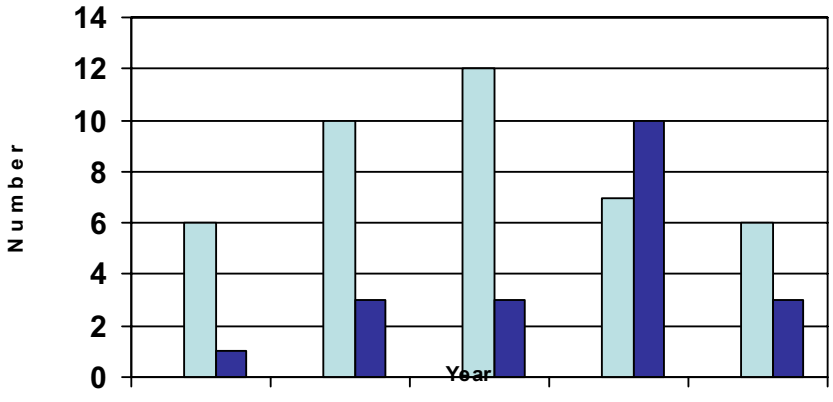
Year	02-03	03-04	04-05	05-06	06 - 07
Papers	9	14	10	5	19
Articles	14	24	11	28	9
Total	23	38	21	33	28

End of Course Evaluation



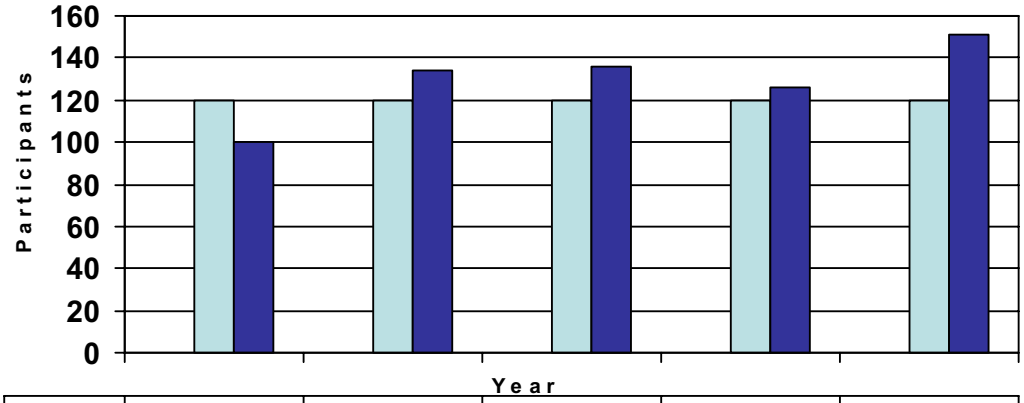
Year	02-03	03-04	04-05	05-06	06 - 07
Av. Rating for LTC	4.27	4.22	4.41	3.85	4.06
Av. Rating for STC	3.95	4.39	4.08	4.1	4.07

Research Activities



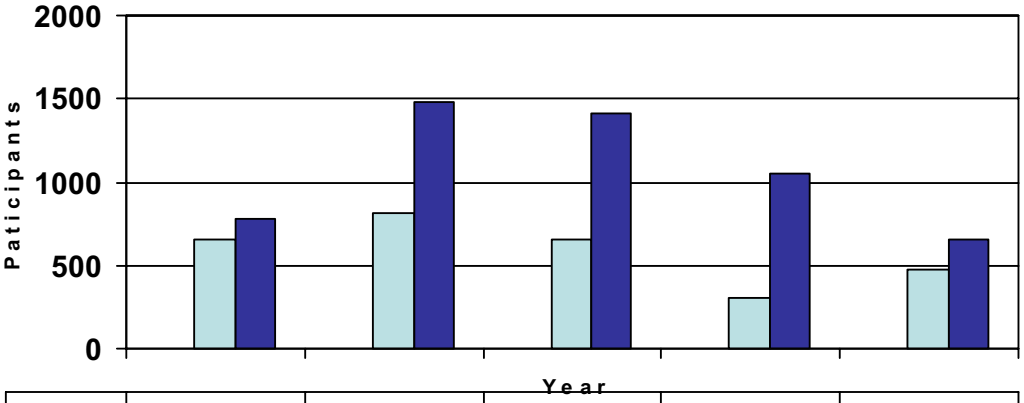
Year	02-03	03-04	04-05	05-06	06 - 07
Research Studies in Hand	6	10	12	7	6
Research Studies Completed	1	3	3	10	3

Annual Training Workload of Long-term Courses (Participants)



Year	02-03	03-04	04-05	05-06	06- 07
Planned	120	120	120	120	120
Achived	100	134	136	126	151

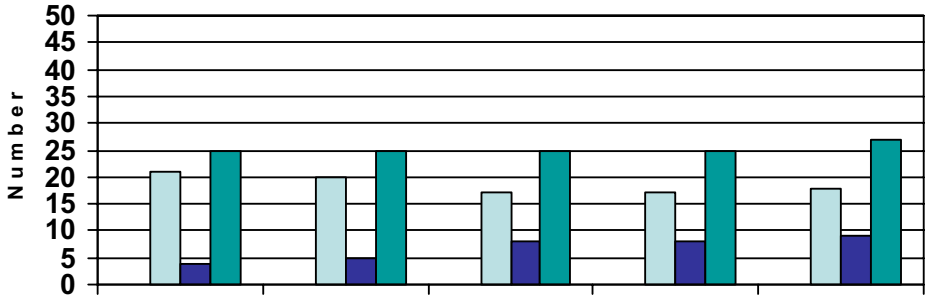
Annual Farmers Training Workload of (Participants)



Year	02-03	03-04	04-05	05-06	06 - 07
Planned	660	810	660	300	480
Achived	779	1482	1411	1055	658

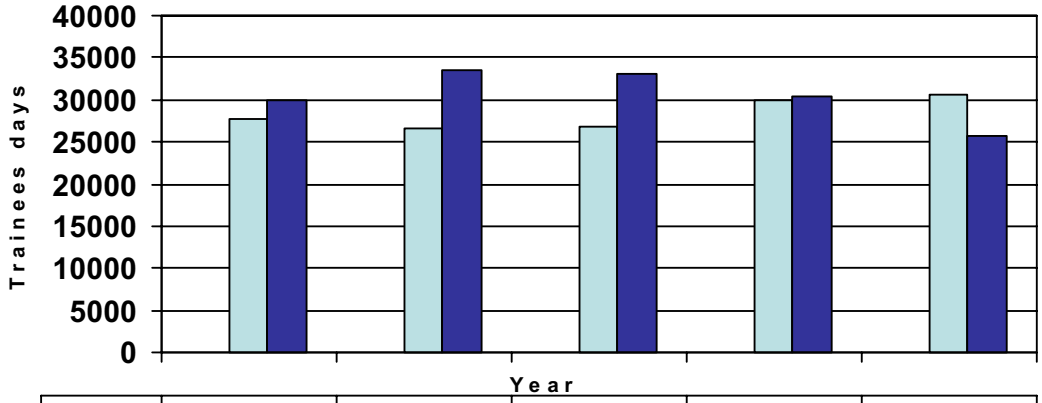
Strength of Teaching Staff

Sanctioned Strength



Year	02-03	03-04	04 - 05	05 - 06	06 - 07
Core Faculty	21	20	17	17	18
Deputationist	4	5	8	8	9
Total Faculty	25	25	25	25	27

Annual Training Workload (Trainee days)



Year	02-03	03-04	04-05	05-06	06 - 07
Planned	27676	26540	26834	29926	30630
Achived	30016	33464	33039	30440	25786

APPENDICES

Appendix-I

Abstract of guidelines issued by GOM for Benchmarking of Irrigation Projects

Government of Maharashtra, Water Resources Department vide Letter No. CDA 1004/(369/2004) CAD (works) dated 08.11.2004 issued guidelines while preparing Benchmarking report for the year 2003-04. Subsequently, additional instructions for the year 2004-05 were issued vide letter No. CDA 1004/ (369/2004) CAD – works dated 2.9.2005. Following procedure is adopted for preparation of Benchmarking report (2006-07) based on guidelines.

1) Benchmarking is taken in hand after validation of data and linking it with water audit data and data submitted to Government for Irrigation Status Report 2005-06.

2) All Projects included in report for 2005-06 are considered for 2006-07.

3) Indicators No.IX Mandays for O & M per unit area is deleted as per suggestion of core group.

4) In equity performance the head, middle and tail reaches are decided dividing the command area in to three equal parts.

5) Potential Utilised and Created is linked with availability of water. Effective potential of each project is decided based on availability of water for irrigation during the year.

6) Agricultural output is calculated at 1998-99 prices.

The five year average values from 2001-2002 to 2005-06 and values for 2005-06 are considered for comparison, for all the indicators. Absurd (nil or very high values) are not considered while calculating the average.

Revenue means the actual recovery from Irrigation, non-irrigation water cess, fishery, galper, tourism etc.

Appendix-II
State target values for indicators 2006-07

Fixing Target Values:

The State targets set for indicators mentioned in Chapter IV were introduced from the year 2002-03 and are decided based on studies and past performance. It is obvious that project size, available water storage in reservoir and agro-climatic, geographical, social conditions are different for different regions. Therefore, there will be difference in performance of irrigation projects but to improve overall State performance and for simplicity, single target for each indicator for the State is defined. Performance of projects in a circle against each indicator is collective performance.

In 2003-04, the values of some of the indicators are revised and for financial indicator of output per unit irrigated area and output per unit irrigation water supply, fixed prices of 1998-99 are considered to obviate effect of price rise. Also, for better monitoring and looking to the number of projects, the analysis is carried out considering irrigation circle as a unit and projects therein within similar plangroups of sub-basins.

The State target values set for Indicator I, III & IV are different; for different categories of the projects viz. (a) major & medium, (b) minor. For other Indicators, the targets are uniform for all types of projects.

I) Annual Irrigation Water Supply per Unit- Irrigated Area:

Irrigation system performance in Rabi and Hot weather season is 150 ha/Mm^3 and 110 ha/Mm^3 respectively. As there are Rabi and Hot weather crops in most of the major and medium project, average Irrigation system performance is (150 +110)/2=130 ha/Mm^3

Thus the water requirement per unit area = 1000000/130 = 7692 m^3/ ha.

In case of minor project as there are no crops irrigated in Hot weather the water requirement per unit area = 1000000/150 = 6666.67 m^3 / ha. Say 6667 m^3 / ha.

Hence in broad sense the water requirement per unit area works out to 7692 m^3 per ha. in case of major and medium projects and 6667 m^3 per ha. in case of minor projects.

II) Potential Created and utilized:

Utilization of created potential depends upon availability of water for irrigation. This availability further depends upon available yield & extent of Non Irrigation uses.

Therefore, percentage of water available in the reservoir that can be used for irrigation should be the target for the project. The availability of water in different reservoirs is taken from water audit data for the year 2005-06.

III) Output per unit area:

The target is decided based on five years experience in 2004-05. The same targets are used for 2005-06.

The category wise values for different plan groups are as follows.

Plan group	Major	Medium	Minor
Highly deficit	21000	23000	16000
Deficit	23000	25000	21000
Normal	26000	25000	21000
Surplus	25000	31000	27000
Abundant	32000	40000	36000

IV) Output per unit Water Supply:

Plan group	Major	Medium	Minor
Highly deficit	2.69	2.80	2.40
Deficit	2.99	3.15	3.15
Normal	3.38	3.15	3.15
Surplus	3.25	4.05	4.05
Abundant	4.16	5.40	5.40

V) Cost Recovery Ratio:

Target is same for all categories and it is 1.

VI) Total O & M Cost Per Unit Area:

Total O & M cost includes maintenance cost as well as operation cost of the irrigation system. M & R charges are considered as per Govt. norms and establishment charges are taken for staff working in a section office for irrigation water management.

	Major	Medium	Minor
M & R	200	150	100
Establishment charges	1050	1050	1050
Total	1250	1200	1150

VII) Total O & M Cost Per Unit Water Supplied:

Total O & M cost per unit water supplied for irrigation and non-irrigation use is considered as follows.

Major		Medium		Minor	
(1250/7692)	0.16	(1200/7692)	0.16	(1150/6667)	0.17

VIII) Revenue Per Unit of Water Supplied:

The targets are fixed 10 percent more than O & M cost per unit of water supplied.

Major	Medium	Minor
0.18	0.18	0.19

The State targets for Revenue per unit of water supplied for irrigation is kept as Rs. 0.18/m^3, however, for NI use the target is Rs. 0.9/ m^3 as charges of NI use are higher than irrigation use.

IX) Mandays For O & M Per Unit Area:

The Indicator is deleted.

X) Land Damage Index:

There is no target for this indicator. However, the percentage of land damaged to total ICA of the project should be minimum for all the projects.

XI) Equity Performance (head, middle and tail)

The head, middle and tail reaches is decided based on dividing the command in to 3 equal parts.

XII-I) Assessment Recovery Ratio (Irrigation)

State target is 1

XII-NI) Assessment Recovery Ratio (Non-Irrigation)

State target is 1

Appendix-III

Overview of Projects selected for Benchmarking (Major Projects)

Plan Group /SB No	Circle/ Project	Avg. Annual Rainfall mm	Designed			Year of Commencement of Irrigation	Culturable Command Area Ha	Irrigable command area Ha	Max.Live Storage observed on 15th October 2005	No. of villages in benefit zone	Avg. farm size Ha	Main crops	Area covered under WUA Ha	
			Live Storage Mm^3	Water use for Irrigation Mm^3	Water use for Non irrigation Mm^3								Proposed	Handed over
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
High deficit														
	CADA Solapur													
18AA	Bhima	500	1517.20	1444.70	116.43	1977	198035	182683	1689.11	384	1 to 2.5	Sorghum, Wheat, Groundnut, Sugarcane	119609	27309
Deficit														
	AIC Akola													
10	Katepurna	950	86.35	49.45	32.65	1972	11187	8325	56.74	30	1.5 to 2	Wheat, Peas, Cotton, Sunflower.	11187	7166
10	Nalganga	737	69.32	53.21	6.51	1963	9165	8604	5.63	31	1 to 2	Gram, Wheat, Cotton	9165	7493
	CADA Aurangabad													
2	Jayakwadi (PLBC)	755	2171.00	1064.96	329.04	1975-76	183560	141640	1927.72	355	1.5 to 2	Cottton, Wheat, Sorghum, Sunflower	118070	47482
	CADA Beed													
2	Jayakwadi (PRBC)	700	2171.00	331.39	29.68	1976-77	53910	41682	0.00	99	1.57	Cotton,Wheat,Sorghum, Sugarcane		
2	Majalgaon	840	312.00	680.28	46.88	1989-90	64295	54737	312.00	132	1 to 2	Wheat, Sorghum, Cotton, Sugarcane	21929	10597
4	Manjra	685	173.32	185.64	85.67	1980-81	23690	18223	176.50	80	2.03	-do-	5147	3259
4	Lower Terna	710	113.95	62.50	21.05	1997-98	14513	11610	37.52	63	1 to 1.5	Sorghum, Wheat, Sunflower, Groundnut, Gram	ND	
	CADA Jalgaon													
11	Girna	743	523.55	549.66	0	1962-63	79293	69350	523.55	195	3	Sugarcane, Banana, Cotton, Wheat, Sorghum	15936	116
	CADA Nashik													
11	Chankapur	1067	76.85	146.59	0	1973	19173	14042	76.85	48	0.5	Bajri, Two seasonals, Paddy, Sorghum, Groundnut, Wheat, Gram	1861	0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	NIC Nanded													
2	Vishnupuri	910	81.37	275.18	54.37	1990	37785	28340	80.79	46	2.06	-do-	1069	0
3	Purna	685	809.77	732.33	68.67	1968-69	78485	57988	499.31	232	1 to 2	Cottton, Wheat, Sorghum	24459	4486
4	Manar	850	128.68	198.06	5.94	1968	27745	23310	138.33	96	1.55	Wheat, Gram, Sugarcane, Cotton, Groundnut, Sorghum	4523	4523
	UWPC Amravati													
10	Wan	891	81.96	78.57	20.08	1998-99	22525	15100	81.96	54	1.5	-do-	22525	11675
Normal														
	AIC Akola													
6	Arunawati	913	169.67	121.65	15.62	1995	24135	20515	129.69	73	2 to 3	Cotton, Wheat, Sugarcane	24135	366
6	Pus	945	91.26	100.35	19.06	1972	13678	8215	91.26	40	1.5 to 3	Sugarcane, Sorghum, Wheat, Gram, Cotton, Groundnut.	11814	0
	CADA Akola gaon													
13	Hatnur	743	255.00	500.12	90.53	1983	47360	37838	255.00	82	1.2	Sugarcane, Banana, Groundnut	7282	0
	CADA Nashik													
1	Bhandardara	3175	304.10	419.00	0	1926	63740	23077	303.73	110	4 to 5	Sorghum, Wheat, Grass, Maize, Sunflower, Sugarcane	9300	705
1	Mula	500	608.89	540.27	87.90	1972	138792	82920	608.89	160	4 to 5	.	91719	28668
1	Ozerkhed	746	60.32	31.59	2.19	1985	14856	10400	60.31	35	0.8	Wheat, Sorghum, Gram	7849	2143
1	Palkhed	661	187.47	82.90	46.85	1976	60704	43154	6.05	144	0.8	Gram, Sorghum	50345	14144
1	Waghad	964	72.23	36.53	3.50	1981	9642	6750	70.84	23	0.6	Paddy, Onion, Vegetables, Groundnut, Bajri, Wheat, Gram, Sorghum	9557	9429
1	Darna	550	202.40	135.73	66.67	1918	88822	33170	200.22	146	2	Sugarcane, Sorghum, Bajri, Wheat, Gram, Fruits	7906	6691
1	Gangapur	500	203.85	86.78	117.07	1954	21900	15960	158.48	92	1.3	-do-	3239	1834
1	Kadwa	533	52.90	61.96	8.46	1997	15523	10117	\	42	0.47	-do-	465	345

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	CADA Pune													
17	Kukadi	790	864.64	951.29	0	1978	224699	156278	343.07	269	0.8 to 1	Wheat, Sorghum, Bajri, Vegetables, Sugarcane, Groundnut, Gram	57358	29369
17	Ghod	515	154.80	202.86	2.54	1965	41460	20500	154.80	54	1	Sugarcane, Sorghum, Bajri, Wheat, Grain	12155	301
	CIPC Chandrapur													
7	Bor	1327	127.42	109.29	6.35	1967	24055	13360	98.90	77	1.5 to 2	Cotton, Wheat	18169	10761
	NIC Nagpur													
7	Lower Wunna	1330	189.18	148.00	29	1991	21591	19500	187.88	109	2.5	Cotton, Wheat, Gram, Soybean, Sugarcane	17325	413
	NIC Nanded													
6	Upper Penganga	825	964.09	782.69	15.16	1984-85	139438	125495	401.71	356	1 to 2	Cottton, Wheat, Sorghum,	23589	7355
	PIC Pune													
17	Khadakwasla	911	712.00	602.55	204	1970	83302	62146	778.48	96	0.5 to 5	Sorghum, Bajri, Maize, Wheat, Sugarcane	83302	3180
17	Pawana	2210	274.00	96.50	168.32	1975	7468	6365	235.68	30	0.5 to 2.5	Paddy, Sorghum, Bajri, Maize, Wheat, Sugarcane	ND	
18	Bhatghar Dam N.L.B.C.	1953	666.00	386.58	33.92	1893	68767	60656	650.50	87	1 to 2	Sorghum, Wheat, Bajri, Sugarcane	68767	1252
18	N.R.B.C. (Veer Dam)	1067	266.44	860.99	0	1938	181266	65506	665.43	214	1.7	Sugarcane, Sorghum, Bajri, Wheat, Other Perenials	181266	390
	UWPC Amravati													
7	Upper Wardha	840	614.79	302.78	99.72	1994-95	83300	75000	582.86	279	1.5	Cotton, Wheat, Hy. Jowar, Chilli, Groundnut	83300	340
Surplus														
	CADA Nagpur													
8	Bagh Sirpur	1325	268.96	214.44	0	1971	0	0	207.78	0	1 to 2	-do-	29703	3511
8	Pench	1138	180.00	689.00	243	1976	126913	101200	1249.00	407	1 to 2	Paddy, Cotton, Chilly, Wheat, Gram, Sunflower, Soybean	126913	11180
8	Itiadoh	1336	318.86	412.04	0	1971	22752	17500	287.08	100	1 to 2	Paddy	22752	2123
Abndant														
	CADA Pune													
15	Krishna	872	602.73	602.73	0	1978-85	81400	74000	602.73	146	1 to 2	Sugarcane, Sorghum, Wheat, Gram	30058	8243

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	CIPC Chandrapur													
9	Asolamendha	1147	56.37	52.00	0	1918	37945	9919	42.63	67	1.5 to 2	Paddy	10317	0
9	Dina	1315	55.94	55.94	0	1974	12494	7826	37.32	66	1.5 to 2	-do-	12494	0
	SIC Sangli													
15	Radhanagari	3638	219.97	203.87	24.35	1955	35422	26560	226.25	91	0.5 to 1.5	Sugercane, Paddy, Wheat, Vegetables	47288	366
15	Tulashi	1870	89.31	91.92	42.50	1978	5711	4720	91.92	23	0.5 to 2	-do-	4495	0
15	Warna	2092	779.35	578.05	6.46	1986-87	123463	96919	773.40	332	0.8	-do-	148972	0
15	Dudhganga	2636	679.11	622.11	57	1993-94	46976	38388	672.67	125	1 to 2	Sugarcane, Paddy, Wheat	61032	2000
	TIC Thane													
21	Surya	2286	176.48	145.42	31.06	1981-82	30547	14696	158.69	64	0.25	Paddy	400	0
21	Bhatsa	2589	942.10	511.86	389.03	1985-86	29378	23000	838.63	149	0.39	-do-	ND	
21	Rajanala	3461	339.140	32.00	0.00	1958-59	3050	2542	0.00	35	0.20	Paddy	400	
22	Kal	3020	522.76	156.41	54.70	1973-74	9558	7965	332.07	127	0.20	-do-	351	0
	ND= No Data													

Overview of Projects selected for Benchmarking (Medium Projects)

Plan group/ SB No	Circle/ Project	Avg. Annual Rainfall (mm)	Designed Live Storage (Mm^3)	Designed Water use for Irrigation use (Mm^3)	Designed Water use for Non irrigation (Mm^3)	Year of Commencement of Irrigation	Culturable Command Area (ha)	Irrigable command area (ha)	Max.Live Storage observed on 15th October 2005	Total No. of farmers	No. of villages in benefit zone	Avg. farm size (ha)	Main crops	Area covered under WUA (ha)	
														Proposed	Handed over
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Highly Deficit															
	CADA Beed														
19	Banganga	685	4.93	6.35	0.59	1975	964	906	6.53	545	5.00	1 to 3	Groundnut, Sorghum, Sunflower, Wheat	540	0
19	Chandani	770	18.29	20.59	3.11	1966	2891	2024	8.95	1716	10.00	2 to 3	Sorghum, Sunflower, Wheat, Pulses	300	0
19	Jakapur	770	7.43	7.43	0.00	1979	1600	1584	5.46	1500	4.00	2 to 3	-do-	No Data	No Data
19	Kada	589	8.56	8.38	0.18	1970	1804	12214	-1.44	1407	5.00	1 to 1.5	Soghum, Wheat, Groundnut, Sugarcane, Maize, Sunflower	No Data	No Data
19	Kadi	589	5.47	5.47	0.00	1965	1190	1084	-2.11	578	4.00	0.5 to 4	Soghum, Wheat, Groundnut, Sugarcane, Sunflower	No Data	No Data
19	Kambli	589	3.1	3.10	0.00	1958	1047	972	0.00	1013	5.00	1 to 1.5	Soghum, Wheat, Groundnut, Sugarcane, Maize, Sunflower	No Data	No Data
19	Khasapur	770	13.04	13.30	2.55	1954	3575	2146	13.04	1372	15.00	2 to 3	-do-	No Data	No Data
19	Khendeshwar	685	7.85	11.28	0.00	1981	1710	1471	27.18	810	10.00	1 to 3	Groundnut, Sorghum, Sunflower, Wheat	No Data	No Data
19	Kurnoor	770	32.28	32.18	4.81	1968	6414	3644	32.28	4331	9.00	2 to 3	Groundnut, Sugarcane, Sorghum, Sunflower, Wheat	628	270
19	Mehakari	589	12.98	12.98	0.00	1966	5007	4048	-3.14	2780	8.00	1 to 1.5	Soghum, Wheat, Groundnut, Sugarcane, Maize, Sunflower	617	0
19	Ramganga	685	5.34	6.50	0.00	1977	1017	963	16.92	585	7.00	1 to 3	Groundnut, Sorghum, Sunflower, Wheat	1017	
19	Rooty	589	6.57	6.09	0.48	1938	1943	1862	35.37	1059	5.00	1 to 1.5	Sorghum, Wheat, Vegetables, Sugarcane	No Data	No Data
19	Sakat	770	13.48	15.17	0.00	1994	3140	2355	7.83	923	9.00	2 to 3	-do-	697	0
19	Talwar	589	3.23	3.23	0.00	1960	760	668	42.71	530	4.00	0.5 to 1.5	Soghum, Wheat, Groundnut, Sugarcane, Maize, Sunflower	No Data	No Data
19	Turori	770	5.73	5.73	1.70	1984	900	830	6.20	900	8.00	2 to 3	-do-	No Data	No Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	CADA Solapur														
19	Ekrukh	500	61.16	43.21	15.95	1871	6858	2610	27.89	2000	11	1 to 1.5	Sorghum, Wheat, Vegetables, Sugarcane	No Data	No Data
18 AA	Buddhihal	500	19.03	15.08	0.00	1966	5448	4251	-4.05	1883	8	0.5 to 1.5	Sorghum, Wheat, Groundnut, Sugarcane, Maize, Sunflower	5444	0
19	Hingni (P)	500	31.97	37.83	1.68	1977	6482	5629	32.00	5000	15	1 to 1.5	-do-	5714	2228
19	Javalgon	500	29.18	29.37	6.15	1997	5372	5341	19.11	4500	13	1 to 1.5	-do-	4635	1245
18 AA	Padawalkar wadi	500	2.12	2.12	0.00	1973	458	352		250	2	1 to 1.5	-do-	458	0
	PIC Pune														
19	Khairy	682	13.74	17.83	0	1989	2718	2318	13.74	1150	14	2	Sorghum, Bajri, Wheat, Groundnut	2318	0
16	Nher	508	11.79	11.79	0	1886	4324	2636	11.79	3440	18	1	Bajari, Sorghum, Wheat other Non Perennial	4324	0
19	Sina	562	52.3	67.09	0.2	1984	9677	8445	9.46	9500	26	1	Sorghum, Bajri, Wheat, Maize, Kadwal	8445	0
Deficit															
	AIC Akola														
10	Dnyanganga	732	33.93	33.80	8.69	1971	4494	4249	4.69	2962	21	1.5 to 2	Wheat, Gram, Cotton	4494	158
10	Mas	696	15.04	21.48	8.09	1982	6107	4415	0.70	2900	22	2 to 3	-do-	6100	0
11	Morna	827	41.46	46.50	0.00	1972	6464	4633	15.49	2228	29	1 to 3	Wheat, Gram, Cotton, Hy.Jawar	6539	1935
11	Nirguna	812	28.85	34.50	0.00	1979	6377	5836	21.33	4574	20	1 to 2	Wheat, Gram, Cotton, Hy.Jawar, Groundnut	6377	2565
10	Paldhag	766	7.51	10.40	0.37	1978	3082	1932	0.70	1534	14	1 to 2	Wheat, Gram, Cotton	3032	563
10	Shahanur	1440	46.04	41.12	12.45	1990	9330	7466	46.04	7347	47	1.27	Cotton, Sorghum, Wheat, Gram, Orange	9330	0
10	Sonal	860	16.92	17.95	0.00	1981	3496	2447	6.15	2347	46	1 to 2	Hy. Jawar, Sunflower, Cotton, Wheat, Gram	3293	764
10	Uma	818	11.68	10.23	0.92	1982	3007	2241	11.68	1996	21	1 to 3	Wheat, Gram, Cotton, Hy.Jawar	3007	267

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	BIPC Buldhana														
10	Mun	761	36.83	45.10	0.00	1992-93	9735	7804	3.85	2782	32	2.5	Cotton, Chilly, Sunflower	9735	0
10	Torna	711	7.9	7.75	0.11	1994-95	1725	1465	0.50	753	7	2.5	-do-	1725	0
	CADA Aurangabad														
11	Ajintha Andhari	650	7.65	5.27	2.38	1984	1967	1578	1.20	500	3	3.93	-do-	294	0
3	Dhamna	677	8.49	8.34	0.15	1973	1682	1280	0.00	510	8	2.5	-do-	696	0
11	Gadadgad	840	4.64	3.97	0.67	1971	1448	1180	3.48	820	4	1.77	-do-	1449	1449
2	Galhati	598	13.84	7.08	4.34	1964	2812	2200	11.01	1200	12	1 to 2	Sorghum, Wheat, Cotton, Tur	No Data	No Data
3	Girija	762	21.23	14.66	6.57	1990	3443	3443	0.00	4447	10	0.77	-do-	2309	278
3	Jivrekha	668	6.14	6.14	0.00	1964	2589	1064	4.78	908	6	2.5	-do-	1318	0
3	Jui	647	8.22	6.22	2.00	1960	2636	2206	0.75	880	14	2.5	-do-	434	0
3	Kalyan	567	10.48	7.35	3.03	1986	2693	2020	11.57	800	9	3	-do-	850	0
3	Kalyan Girija	663	8.42	8.42	0.00	1972	1557	1377	8.47	420	9	3	Wheat, Sorghum, Sunflower	1655	0
3	Karpara	760	24.9	21.03	2.80	1974	2862	2151	24.76	1980	7	1.5	-do-	No Data	No Data
3	Khelna	650	11.07	4.74	6.33	1967	4935	2429	4.61	1210	11	4.08	-do-	590	0
3	Lahuki	688	5.31	3.72	1.59	1977	1323	1092	1.96	1384	4	0.96	-do-	484	0
2	Masoli	780	27.37	23.44	3.94	1982	3502	2591	27.14	2067	7	1.5	-do-	805	510
3	Sukhana	688	18.49	16.56	1.93	1968	3136	2511	15.66	1150	14	2.73	-do-	1735	0
	CADA Beed														
4	Devarjan	838	10.680	7.12	0.00	1997	2853	1882	10.68	920	7	2.04	Sorghum, Wheat, Gram, Sunflower	No Data	No Data
4	Gharni	716	22.460	23.78	0.00	1969	3542	2834	22.46	1347	14	2.10	Sugarcane, Groundnut, Sorghum, Cotton, Maize, Paddy, Vegetable, Wheat, Gram	3542	0
2	Kundlika	753	37.690	37.83	0.33	1988	3927	2964	37.69	1009	13	3.91	Sugarcane, Groundnut, Sorghum, Bajri, Cotton, Sunflower	287	287
4	Masalga	673	13.590	11.54	0.00	1996	1678	1364	4.76	790	11	1.73	Sorghum, Bajri, Cotton, Sunflower, Groundnut	1664	0
4	Raigavhvan	770	11.259	8.57	0.28	1992	2267	1700	7.96	1261	8	1.30	-do-	1370	0
4	Rui	770	8.605	5.80	1.72	1994	1893	1650	7.04	250	7	1.20	-do-	No Data	No Data
4	Sakol	850	10.840	8.40	0.00	1996	2174	2064	10.95	945	7	2.18	Sorghum, Chilli, Groundnut, Maize, Paddy, Vegetables, Wheat, Gram	No Data	No Data
4	Tavarja	744	20.340	10.98	3.92	1983	4907	3603	12.26	2105	19	1.72	Sorghum, Sunflower, Wheat	No Data	No Data
4	Terna	770	19.663	10.84	4.81	1964	1928	1652	19.40	1469	9	1.50	Sugarcane	100	0
4	Tiru	684	15.290	21.19	0.00	1978	2654	2348	15.29	1741	14	1.40	Sorghum, Chilli, Groundnut, Maize, Paddy, Vegetables, Wheat, Gram	2625	2625

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
4	Vhati	880	8.270	9.93	0.00	1983	1809	1760	8.27	829	7	2.15	Sorghum, Chilli, Groundnut, Maize, Paddy, Vegetables, Wheat, Gram, Fodder	1005	0
4	Wan	533	19.37	19.31	7.64	1967	7125	5262	19.34	4630	22	1.54	Sorghum, Wheat, Sunflower, Cotton, Groundnut	265	0
	CADA Jalgaon														
11	Agnawati	743	2.76	2.90	0.58	1987	960	605	2.18	375	3	0.75	-do-	480	0
13 AA	Bhokarbari	694	6.54	8.15	0.00	1993-94	1790	1205	2.78	603	5	1.5	-do-	No Data	No Data
13 AA	Bori	694	25.15	31.30	7.08	1985-76	6504	4553	11.36	2277	15	2	-do-	839	0
13 AA	Burai	500	14.21	19.23*	0.87	1984-85	2981	2760	14.21	2524	5	1	Wheat, Cotton, Gram, Bajri, Sorghum, Onion, Maize	1297	155
13 AA	Kanoli	660	8.45	10.50	0.00	1974-75	1620	1363	6.59	1500	8	1 to 2	Wheat, Cotton, Gram, Bajri, Sorghum	449	0
11	Hiwara	810	3.6	12.30	0.00	1997	2923	2231	6.11	608	3	0.8	-do-	1580	0
11	Manyad	750	40.27	45.30	0.00	1973-74	6500	4864	20.02	4245	12	2	Sugarcane, Banana, Cotton	1908	0
13 AA	Rangavali	1055	12.89	23.05*	0.00	1983-84	5130	3134	12.82	1400	21	2 to 2.5	Sorghum, Wheat, Cotton, Vegetables	1261	0
13 AA	Tondapur	763	4.63	4.77	0.85	1998	1597	1060	0.00	712	2	0.8	-do-	380	0
	CADA Nashik														
4	G.Pargaon	685	8.5	12.36	0.00	1984	2142	1660	0.00	1792	15	3 to 4	-do-	747	0
11	Haranbari	795	33.02	47.66	0.00	1988-89	12966	9726	33.02	11150	55	0.5	Paddy, Sorghum, Groundnut, Wheat, Gram, Sugarcane	632	491
11	Kelzar	687	16.2	16.51	0.00	1988-89	5583	3394	16.22	2594	19	0.5	Bajri, Two seasonals, Paddy, Sorghum, Groundnut, Wheat, Gram	630	630
11	Nagya Sakya	528	11.24	13.72	0.00	1992.93	2400	2400	3.99	2125	11	0.5	Paddy, Sorghum, Groundnut, Wheat, Gram, Sugarcane	0	0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	NIC Nanded														
4	Karadkhed	650	11.01	11.34	6.56	1976	2510	1780	11.01	1298	11	1.93	-do-	1652	1652
2	Kudala	700	4.35	5.54	1.38	1974	676	567	4.35	428	5	1.23	-do-	No Data	No Data
4	Kundrala	630	10.41	12.81	4.21	1981	1265	1012	10.42	784	7	1.61	Wheat, Gram, Sugarcane, Cotton, Groundnut, Sorghum	1277	1277
4	Loni	1150	8.38	9.51	0.91	1981	1835	1377	8.10	1788	7	1.02	-do-	No Data	No Data
4	Mahalingi	775	4.78	4.06	1.68	1980	1015	784	4.79	568	6	1.8	-do-	1449	784
4	Pethwadaj	850	9.04	13.52	1.31	1977	1970	1478	9.03	1985	13	1	-do-	No Data	No Data
Normal															
	AIC Akola														
6	Adan	798	67.25	69.67	11.14	1979	10067	7804	67.25	14000	32	0.56	Cotton, Tur, Sugarcane, Groundnut	10067	0
6	Borgaon	988	6.61	10.86	0.35	1992	3028	2271	6.53	980	16	1.5 to 3	Groundnut, Cotton, Sorghum, Wheat, Gram, Pulses	3028	3028
6	Ekburji	986	11.97	9.08	0.76	1964	2625	2429	11.97	1700	11	1 to 2	Wheat, Gram	2625	0
6	Koradi	660	15.12	15.12	0.00	1981	5067	4061	15.89	4125	26	1 to 2	Cotton, Sorghum, Wheat, Groundnut	5067	127
6	Lower Pus	852	59.63	70.50	2.42	1990	7606	6600	59.63	1653	29	2 to 4	Sugarcane, Cotton, Sorghum, Wheat, Gram, Pulses, Vegetables	6740	0
6	Saikheda	1098	27.18	24.77	4.38	1972	3895	3116	27.18	1132	18	1.5 to 3	Cotton, Sorghum, Wheat, Gram, Pulses, Vegetables	3239	0
	CADA Aurangabad														
1	Ambadi	650	9.42	6.92	2.50	1979	2375	2147	0.00	1050	10	2.26	-do-	1467	0
1	Dheku	600	12.15	6.55	5.60	1961	3564	2712	0.00	1725	15	2.07	-do-	580	0
1	Kolhi	600	3.23	2.63	0.60	1967	1056	472	0.39	350	4	3.02	-do-	472	0
	CADA Beed														
18	Khandala	770	5.24	5.24	0.00	1974	1328	830	4.44	1300	2.00	2 to 3	-do-	296	0
	CADA Jalgaon														
13 A	Abhora	750	6.02	7.13	0.00	1985	1403	1115	3.96	450	2	0.8	-do-	580	0
13 A	Aner	970	59.2	79*	8.50	1976	9201	7180	59.21	3402	10	0.5	Wheat, Groundnut, Cotton	2154	0
13 A	Karvand	960	21.39	21.39	0.62	1968	7027	4534	10.41	2200	14	0.4	-do-	1899	0
13 A	Malangaon	780	11.32	15.02	0.00	1972	2674	1587	11.33	2675	15	0.5	-do-	647	0
12	Panzara	780	35.63	72.66*	0.71	1976	7328	6868	35.63	6500	25	0.8	Maize, Bajra, Wheat	1231	0
13 A	Suki	774	39.85	45.47	0.00	1985	8647	5128	35.66	1467	8	0.9	Groundnut, Pulses, Sorghum, Cotton	5124	3639
	CADA Nagpur														
7	Chandrabhaga	1016	8.262	8.25	0.02	1974-75	3181	2604	23.35	106	15	2.1	Orange, Wheat, Gram, Vegetable, Cotton	3181	0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	Wenna	1100	21.66	9.49	11.55	1968	2000	1214	11.07	279	10	1.33	Wheat, Cotton, Orange, Gram, Vegetables	2000	0
	CADA Nashik														
1	Adhala	500	27.6	38.74	0.00	1977	6427	3914	27.61	3646	16	3 to 4	Sorghum, Wheat, Grass, Bajri, Groundnut, Maize	1512	0
1	Alandi	614	27.57	21.00	5.67	1985	7408	6296	27.46	2000	18	3	Vegetables, Grapes, Sorghum, Sugarcane, Wheat, Gram	1837	0
1	Bhojapur	393	10.7	8.15	2.55	1973	4580	4500	9.93	4000	24	1.7	Bajri, Wheat, Sorghum, Gram	500	0
1	Mand Ohol	600	8.78	13.16	0.00	1983	2833	2266	8.78	2830	15	3 to 4	Sorghum, Wheat, Grass, Maize, Sunflower, Sugarcane	2427	0
	CIPC Chandrapur														
7	Amalnalla	1218	21.2	19.52	0.00	1981	4710	2962	21.20	1280	22	1.5 to 2	Wheat, Cotton, Gram	3771	0
7	Dongargaon	1100	4.44	3.17	0.00	1974	972	631	4.44	328	9	1.5 to 2	-do-	608	608
7	Labhansarad	1103	7.35	5.87	0.00	1987	2024	2024	7.24	725	11	1.5 to 2	Wheat, Cotton,	2024	0
7	Panchdhara	1103	8.75	8.43	0.00	1976	2262	1822	10.10	1375	14	1.5 to 2	Cotton, Wheat	2667	1974
7	Pothara	1100	34.72	34.72	0.00	1984	10910	8948	34.17	1821	33	1.5 to 2	-do-	10910	0
	NIC Nanded														
6	Dongargaon	1150	8.36	11.55	0.00	1983	1008	830	91.26	561	5	1.8	-do-	1008	1008
6	Nagzari	1150	6.56	6.18	2.92	1983	1260	960	6.39	269	6	4.68	-do-	665	0
	PIC Pune														
18	Mhaswad	533	46.21	46.21	0	1881	5804	4049	8.35	2500	11	1	Sorghum, Bajri, Groundnut	5804	0
18	Ranand	538	6.42	1.83	0	1953	3886	1093	4.98	1100	6		Kadwal, Wheat, Sorghum	3886	0
18	Tisangi	508	24.46	24.46	0	1965	5068	4049	24.09	2697	0	1	Sorghum, Bajri,	5132	0
17	Vadiwale	2845	30.39	22.18	0	1990	5564	5000	30.39	4415	26	0.15 to 1	Paddy, Wheat	5564	0
	YIC Yevatmal														
7	Nawargaon	1067	12.47	13.28	2.71	1999	2574	2056	12.47	2680	15	0.56	-do-	2574	0
Surplus															
	CADA Nagpur														
8	Bageda	1146	4.535	4.11	0.00	1974	1887	1798	2.63	1296	10	0.85	Paddy	2566	679
8	Betekar Bothali	1186	3.666	3.67	0.00	1989	1266	1315	1.80	672	4	0.75	-do-	1266	0
8	Bodalkasa	1281	19.18	16.45	2.73	1917	14665	4047	8.73	6283	36	0.21	-do-	9839	0
8	Chandpur	1200	28.87	28.87	0.00	1916	10117	6271	13.93	8274	40	0.9	-do-	10117	617
8	Chorkhamara	1267	22.8	20.80	0.00	1917	13246	4047	13.11	1210	25	0.35	-do-	13246	0
8	Chulband	1384	22.24	16.82	0.00	1976	3378	3167	14.27	2929	21	1.1	-do-	3378	0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	Kanholibara	1004	19.82	22.03	4.73	1976	4815	3371	19.71	1217	22	3	HW Groundnut, Cotton, Soybean, Wheat, Gram, Vegetables	6025	0
8	Kesamala	979	3.93	4.28	0.00	1976	937	780	3.93	126	7	1.6	-do-	937	0
8	Khairbanda	870	15.953	12.22	0.00	1915	11271	6109	11.91	6400	31		-do-	112267	0
8	Khekranala	963	23.81	29.54	0.00	1987	3810	2610	22.14	1829	14	1.5	Cotton, Wheat, Gram, Orange, Sugarcane, HW Groundnut, Soybean, Vegetables.	3144	0
8	Kolar	978	31.32	41.23	1.21	1984	8088	5940	31.32	2829	43	2.1	-do-	8088	0
8	Makardhokda	963	26.91	27.37	1.45	1980-81	5835	5477	18.71	2625	29	1.33	Paddy, Cotton, Chillies, Wheat, Sorghum, Gram, Soybean, Vegetables	3512	0
8	Managad	1609	7.081	7.83	0.00	1970	3390	1700	4.90	1006	11	0.35	-do-	3390	0
8	Mordham	1016	4.95	4.91	0.05	No data	1423	1315	4.95	406	8	2.1	Orange, Wheat, Gram, Vegetables, Cotton	1423	0
8	Pandharabodi	1290	13.25	14.51	2.15	1974-75	1044	862	12.01	754	12	2.18	Paddy, Chillies, Wheat, Gram, Soybean, Sunflower.	1030	0
8	Rengepar	1138	3.338	5.86	0.00	1977	1305	870	1.96	1044	7	0.75	-do-	1305	0
8	Sangrampur	1281	3.868	8.87	0.46	1969	1536	1094	2.15	1409	7		-do-	1194	0
8	Sorna	1255	5.733	5.73	0.00	1972	1553	933	3.71	943	8	0.75	-do-	1553	0
8	Umari	1064	5.14	5.85	0.00	1971-72	1802	1195	5.14	749	8	2	Wheat, Cotton, Orange, Gram, Vegetables, Groundnut	1902	0
	CIPC Chandrapur														
8	Chandai	1205	10.69	9.28	0.00	1983	2565	2056	8.95	1309	14	1.5 to 2	-do-	2565	0
8	Chargaon	1285	19.86	11.98	0.00	1983	1946	1500	17.74	1149	12	1.5 to 2	Paddy, Wheat	884	0
Abundant															
	CIPC Chandrapur														
9	Ghorazari	1285	38	35.00	0.00	1923	12868	3846	28.92	7181	65	1.5 to 2	Paddy	4961	0
9	Naleshwar	1147	8.18	4.29	0.00	1922	5035	1888	5.79	3097	23	1.5 to 2	-do-	2329	0
	KIC Ratnagiri														
23	Natuwadi	3632	27.230	27.23	0.00	1984	2139	2050	26.59	3629	18	0.02 to 0.05	Paddy, Groundnut, Pulses, Mango	2050	0
	SIC Sangli														
15	Chikotra	1074	43.08	43.05	0.00	2001	6833	5630	37.32	1326	27	1 to 2	Sugercane, Paddy, Wheat, Vegetables	6833	0
15	Chitri	1524	52.35	64.45	0.00	2001-02	9160	5850	52.73	2590	54	0.55	-do-	9160	0

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
15	Jangamhatti	2190	33.21	26.37	6.84	1996-97	4450	3700	26.15	8000	10	0.1	Sugercane, Maize,Chilly Wheat,Potato, GrouNo Datanut	4457	0
15	Kadavi	3418	70.67	70.56	0.00	2001	9908	9219	69.77	2211	52	0.8	-do-	9908	0
15	Kasari	4560	77.96	61.57	0.00	1989	9995	5458	76.90	3197	61	1 to 1.5	Sugercane, Paddy, Wheat	9995	0
15	Kumbhi	4985	76.5	74.81	1.68	2001	9170	8711	60.18	1773	51	0.10 to 1	Sugercane, Wheat, Groundnut, Sunflower	9170	0
15	Patgaon	3486	104.77	78.58	26.19	1996	10000	8100	79.86	3525	44	1 to 2	Sugercane, Paddy, Wheat	10000	0
	TIC Thane														
21	Wandri	2540	35.938	35.94	0.00	1984.85	3066	2044	33.28	1526	17	0.25	-do-	No Data	No Data

Overview of Projects selected for Benchmarking (Minor Projects)													
Plan Group/ SB No	Circle/ Project	Avg. Annual Rainfall (mm)	Designed Live Storage (Mm^3)	Designed Water use for Irrigation (Mm3)	Designed Water use for Non irrigation (Mm3)	Year of Commencement of Irrigation	Culturable Command Area (ha)	Irrigable command area (ha)	Max.Live Storage observed on 15th October 2005	No. of villages in benefit zone	Avg. farm size (ha)	Main crops	Area handed over to WUA (ha)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Highly Deficit													
	CADA Beed												
19	Bagalwadi	685	1.33	1.65	0	1971	441	340	1.33	3	1 to 3	Sorghum, Groundnut. Wheat Sunflower	0
19	Incharna	589	1.93	1.93	0	1971	615	555	2.20	7	0.5 to 4	Sorghum, Groundnut, Sugarcane, Maize Sunflower	No Data
19	Kini	589	1.24	1.24	0	1967	385	380	0.91	3	0.5 to 4	Sorghum, Groundnut, Sugarcane, Maize Sunflower	No Data
19	Titraj	685	1.14	1.47	0	1985	367	275	1.14	3	1 to 3	Sorghum, Groundnut. Wheat Sunflower	No Data
	Cada Solapur												
19	Mangi	500	32.70	27.50	0	1966	4000	3117	14.11	21	0.5 to 4	Sorghum, Groundnut. Sugarcane, Maize, Sunflower	931
19	Pathari	500	11.62	10.63	0.99	1905	1012	647	8.27	7	0.5 to 4	Sorghum, Groundnut. Sugarcane, Wheat, Sunflower	0
Deficit													
	AIC Akola												
3	Ancharwadi-1	737	2.34	2.66	0	1985	607	370	2.34	2	1 to 2	Wheat, Gram, Cotton	No Data
10	Jamwadi	1196	2.16	2.16	0	1978	580	406	2.16	4	1 to 2	Wheat, Gram, Cotton, Sorghum	0
10	Mozari	695	2.93	2.35	0	1977	675	475	2.93	2	1 to 2	Wheat, Gram, Cotton, Hy.Jawar.	928
10	Shekdari	911	4.56	4.88	0	1981	1975	1331	4.75	7	1.2	Cotton, Sorghum, Wheat, Gram, Orange.	1208

1	2	3	4	5	6	7	8	9	10	11	12	13	14
	BIPC Buldhana												
10	Adol	850	9..30	7.06	2.45	1991-92	1506	1585	7.20	10	3.0	-do-	329
10	Brahamanwada	753	6.18	6.08	0.00	1995-96	1495	1196	0.91	4	3.0	Cotton, Chilly, Sunflower	0
3	Kardi	766	4.89	5.52	0.00	1991-92	1197	958	0.00	8	1.5	Cotton, Chilly, Sunflower	40
3	Masural	776	8.25	7.88	2.92	1990-91	841	734	0.00	5	1.0	Cotton, Chilly, Sunflower	0
3	Mohagavan	800	5.72	4.14	0.52	1998-99	1048	706	5.83	5	3.0	Cotton, Chilly, Sunflower	190
4	Sawakhed Bhoi	66	3.79	2.61	0	1988-99	589	445	2.95	7	3.0	Cotton, Chilly, Sunflower	589
4	Shivan kd.	793	4.67	2.58	0	1995-96	712	605	3.58	6	2.0	-do-	0
3	Vidrupa	590	3.41	0.00	0.00	1990-91	1020	840	3.41	6	1.5	Cotton, Chilly, Sunflower	0
10	Vishwamitri	772	10.75	13.91	1.25	1993-94	1882	1392	5.84	7	3.0	-do-	0
10	Vyaghra	747	7.14	7.86	1.35	1991-92	1993	1615	0.00	8	1.5	Cotton, Chilly, Sunflower	40
	CADA Aurangabad												
2	Tandulwadi	653	1.994	1.99	0.00	1972	566	474	1.99	3	1.15	Wheat, Sorghum, Cotton, Gram Groundnut	No Data
	CADA Beed												
4	Bhutekarwadi	855	2.870	3.37	0	1969	1013	809	2.87	4	1.90	Sorghum, Chilli, Maize, Vegetables, Wheat, Cotton	809
4	Dhanori	770	1.389	1.41	0	1974	467	343	0.99	1	1.10	Sugarcane	No Data
4	Hiwarsinga	675	1.270	1.27	0	1989	299	257	1.28	1	1.16	Sorghum, Bajri, Cotton, Sunflower, Groundnut	No Data
	CADA Jalgaon												
11	Bambrud	743	2.18	1.97	0	1975	579	461	0.75	1	0.8	-do-	No Data
11	Chavdi	482	4.38	4.38	0	1972	388	323	4.38	2	1 to 2	Wheat, Gram, Onion, Groundnut	323
11	Dudhkheda	6350	3.366	3.37	0	1972	480	303	1.40	4	0.4	Wheat, Cotton, Gram	0
11	Galan	743	1.87	2.01	0	1968	425	340	1.27	1	0.75	Cotton, Groundnut	No Data
11	Hatgaon-1	743	1.4	1.52	0	1974-75	441	267	0.09	1	1.5	Cotton, Vegetables	No Data
11	Kunzar-2	743	1.01	1.21	0	1991-92	223	178	0.00	1	1.5	-do-	0
11	Waghala-1	743	1.21	1.21	0	1976-77	313	223	0.71	1	1.5	-do-	No Data
11	Wakdi	743	0.98	0.93	0	1975	228	183	0.89	1	0.8	-do-	No Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14
	CADA Nashik												
4	Kuttarwadi	618	1.46	2.12	0	1993	370	297	1.46	2	2 to 3	Sorghum, Wheat, Grass, Bajri, Groundnut, Maize,	No Data
	NIC Nanded												
4	B.Hipperga	850	2.05	2.93	0	1973	481	481	2.06	3	2.09	-do-	No Data
4	Daryapur	875	1.02	1.57	0	1973	230	222	1.03	3	1.35	-do-	230
2	Koshtewadi	850	0.77	1.05	0	1966	190	190	0.77	1	1.05		No Data
4	Panshewadi	850	1.58	2.02	0	1975	320	263	1.58	3	1.16	-do-	No Data
3	Purjal	830	2.656	2.66	0	1975	631	558	2.66	4	0.9		601
4	Wasur	830	0.88	1.18	0	1971	213	171	0.88	2	3.32	Wheat, Gram, Sugarcane, Cotton, Groundnut, Sorghum	213
Normal													
	AIC Akola												
6	Majara	924	3.23	2.50	0	1994	1425	1269	3.23	6	2.5 to 3	Cotton, Tur, Wheat	0
6	Singdoh	714	1.22	1.22	0	1976	246	`	2.71	3	1 to 2	Wheat, Gram, Cotton, Hy. Jawar.	0
	CADA Nagpur												
7	Wahi	1267	2.02	2.88	0	1992	442	402	1.44	5	0.85	-do-	No Data
	CADA Nashik												
1	Mahirawani	600	2.52	2.52	0	1974	949	576	2.52	9		Wheat, Gram Kh.Vegetables	No Data
	PIC Pune												
17	Thoseghar	1158	1.84	1.84	0	1996	306	270	1.84	2	0.1	Paddy, Sorghum	0
18	Chincholi patil	500	2.17	2.17	0	1977	569	455	2.17	3	0.83	Sorghum, Grain, Sunflowar, Maze	0
17	Rahu	364	9.79	9.79	0	1993	2300	1887	9.79	5	0.5 to 5	Sorghum, Bajri, Wheat, Maize, Vegetables, Paddy, Sugarcane	No Data
18	Tambve	500	4.85	4.85	0	1968	1354	750	4.85	7	0.4	Bajri, Sorghum, Kadwal	No Data
	CIPC Chandrapur												
7	Bhatala	1175	1.55	1.40	0	No Data	415	350	1.55	3	1.5 to 2	Paddy, Wheat	0
	NIC Nanded												
6	Hirdi	82	1.34	1.34	0	1983	353	283	1.34	2	0.9	-do-	No Data
6	Nichpur	1150	2.2	2.26	0.32	1973	525	385	1.91	2	4.77	Wheat, Gram, Sugarcane, Cotton, Groundnut, Sorghum	No Data
6	Pimparala	750	2.43	3.39	0	1968	749	672	2.43	5	2.2	-do-	0
6	Pota	650	1.67	2.13	0	1972	718	432	1.67	4	3.43	-do-	No Data
6	Sawana	804	2.154	1.65	0.51	1979	431	410	2.15	3	1	-do-	431
5	Amthana	755	1.16	1.47	0	1966	413	344	1.16	4	2.9	-do-	No Data

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Surplus													
	CADA Nagpur												
8	Bhadbhadya	1284	2.85	2.85	0.19	1975	800	674	2.89	3	1.11	Paddy	No Data
8	Urkudapar	1214	4.75	4.75	0	1980	1265	1012	4.75	6	2	Paddy, Chilly, Wheat, Gram	No Data
8	Wani	1190	2.021	1.98	0	1983	526	405	2.02	5	5	-do-	No Data
Abundant													
	CIPC Chandrapur												
9	Ashti	1100	1.64	1.36	0	1965	455	364	1.41	4	1.5 to 2	Wheat, Cotton, Gram	No Data
9	Lagam	1283	1.16	3.41	0	No Data	344	315	3.42	4	1.5 to 2	Paddy,	No Data
	KIC Ratnagiri												
23	Shirwal	3800	3.750	2.35	0	1979	421	200	3.68	2	0.15 to 0.0	Coconut, Arecanut, Pepper, Spices, Paddy	0
	NKIPC Thane												
21	Dhasai	2200	4.478	4.20	0	1984-85	457	340	4.47	6	0.5	Paddy, Vegetables & fruits	No Data
22	Panchanadi	3320	1.481	1.46	0	1984-85	114	91	1.46	3	0.2	Beetlenut, Coconut, Paddy	No Data
	SIC Sangli												
9	Atpadi	300	7.95	6.74	1.21	1967-68	1619	1120	7.98	5	2	Cotton, Sorghum	0
15	Benikre	1400	1.784	1.78	0	1990	358	286	1.78	1	1.5 to 2	Sorghum, Groundnut, Wheat	No Data
	TIC Thane												
21	Bhoj	2472	1.620	1.62	0	1974	216	135	1.56	3	0.35	-do-	160
22	Kalote Mokashi	3623	4.190	4.19	0	1976-77	126	105	4.19	4	0.20	Paddy	105
21	Khandpe	2377	2.000	2.00	0	1985	202	120	1.99	2	0.40	-do-	120
22	Kondgaon	3872	3.641	3.64	0	1979-80	212	188	3.64	5	NA	-do-	0
21	Mohknurd	3070	3.590	4.74	0	1975	213	173	4.36	5	0.35	-do-	0
22	Pabhre	3429	1.787	1.79	0	1978-79	174	133	1.79	3	0.20	-do-	0

Appendix-IV

River Basins & Agro- Climatic zones of Maharashtra

River Basins

The State is mainly covered by the basins of Krishna, Godavari and Tapi except the west-flowing rivers of Konkan strip. A small portion on north comes under Narmada basin. There are in all 380 rivers in the State and their total length is 19269 km. Most of the land is undulating and hilly. Comparatively, continuously hilly plateau lands are very few. Because of this, flow canal systems in Maharashtra are very expensive, though there are large number of suitable sites for building water storage reservoirs.

Number of rivers originate from Sahyadri at about 500 to 700 m elevation and flow westward to Arabian Sea through the Konkan strip. Damanganga, Surya, Vaitarna, Ulhas, Karla, Kundalika, Kal, Savitri, Vashishthi, Shastri, Gad, Karli, Tillari and Terekhol are the prominent rivers. These rivers are of shorter length holding fair amount of water during monsoon but run totally dry during summer. The natural calamities such as land erosion, salt water intrusion, land subsistence etc. are often inflicted upon Konkan.

Tapi and Narmada are the two west-flowing rivers coming from Madhya Pradesh and flowing down to Gujarat State through Maharashtra. Narmada forms 54 km long common boundary of the State along northern border. Total length of Tapi in Maharashtra is 208 km. These rivers and tributaries have rendered the land of Khandesh[1] fertile.

Wainganga flows in north-south direction. The length of Waiganga in Maharashtra is 476 km. Godavari is the principal east-flowing and longest river in Maharashtra (968 km).

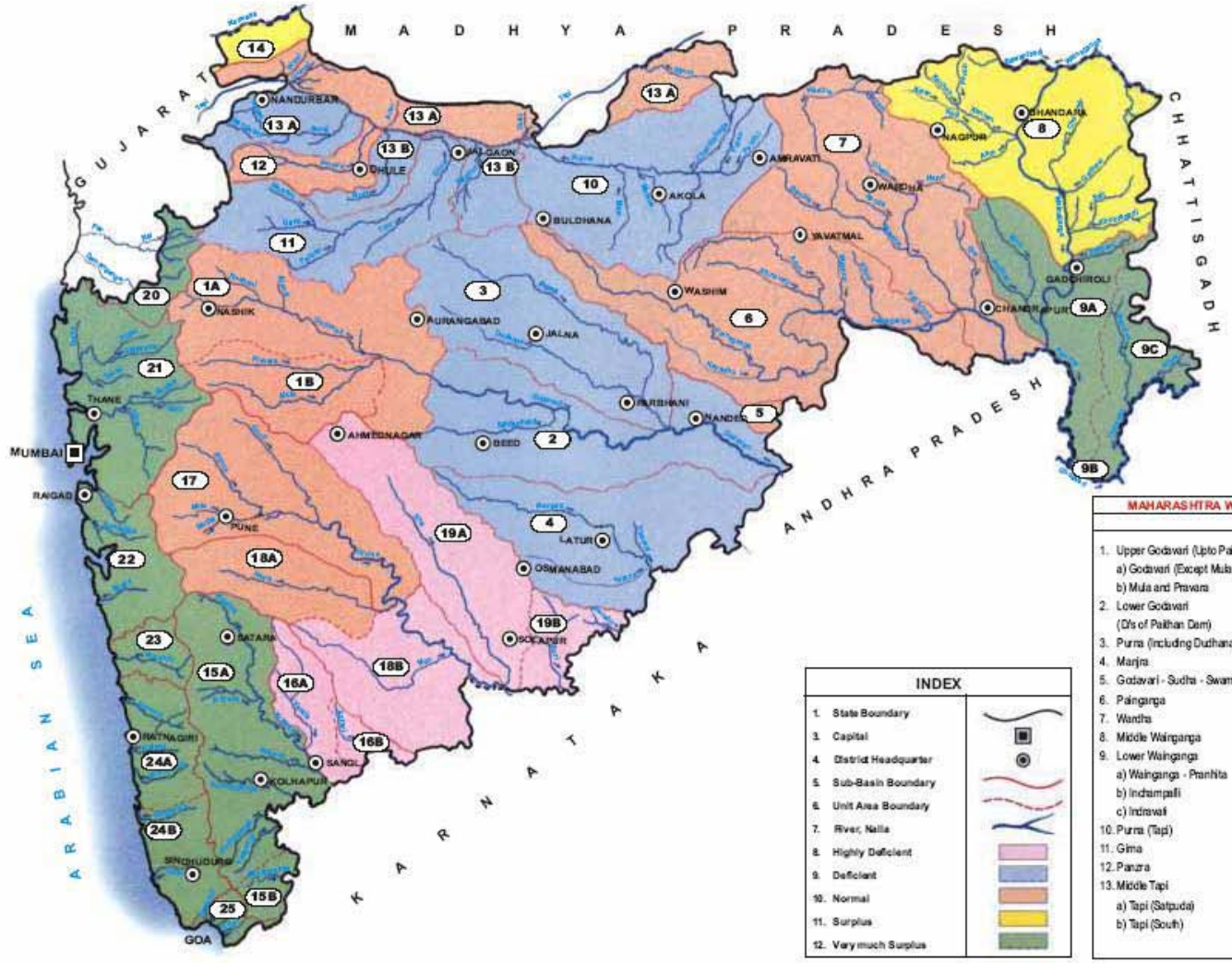
South-east flowing Bhima and mainly north-south flowing Krishna are the major rivers of South Maharashtra. The length of Bhima in Maharashtra is 451 km. It joins Krishna on the Karnataka-Andhra Pradesh boundary near Raichur.

Krishna rises near Mahabaleshwar. Krishna is 282 km long in the State.

Basin-wise water availability – (Maharashtra – India)

Sr. No	Basin	Geographical Area (Mha)	Culturable Area (Mha)	Average Annual Availability (BCM)	75% Dependable Yield (BCM)	Permissible Use As Per Tribunal Award (BCM)
1	Godavari	15.430	11.256	50.880	37.300	34.185
2	Tapi	5.120	3.731	9.118	6.977	5.415
3	Narmada	0.160	0.064	0.580	0.315	0.308
4	Krishna	7.010	5.627	34.032	28.371	16.818
5	West flowing Rivers	3.160	1.864	69.210	58.599	69.210
	Total:	30.88	22.542	163.820	131.562	125.936

SUB - BASINS IN MAHARASHTRA AS PROPOSED BY THE COMMISSION & CATEGORIZATION THEREOF IN PLANNING GROUPS



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4. District Headquarter	
5. Sub-Basin Boundary	
6. Unit Area Boundary	
7. River, Nalla	
8. Highly Deficient	
9. Deficient	
10. Normal	
11. Surplus	
12. Very much Surplus	

MAHARASHTRA WATER & IRRIGATION COMMISSION>

Sub Basin

1. Upper Godavari (Upto Paithan Dam)
   a) Godavari (Except Mula and Pravara)
   b) Mula and Pravara
2. Lower Godavari
   (D/s of Paithan Dam)
3. Purna (Including Dudhana)
4. Manjra
5. Godavari - Sudha - Swarna
6. Painganga
7. Wardha
8. Middle Wainganga
9. Lower Wainganga
   a) Wainganga - Pranhita
   b) Indrampalli
   c) Indravati
10. Purna (Tapi)
11. Girna
12. Panzra
13. Middle Tapi
    a) Tapi (Satpuda)
    b) Tapi (South)
14. Narmada
15. Upper Krishna (West)
    a) North - West
    b) South - West
16. Upper Krishna (East)
    a) Yerala
    b) Agrani
17. Upper Bhima (Upto Ujjani)
18. Remaining Bhima
    a) Neera
    b) D/s of Ujjani Including Man.
19. Sina - Bori - Benetura
    a) Sina
    b) Bori - Benetura
20. Damanganga - Par
21. North Konkan
22. Middle Konkan
23. Vashishthi
24. South Konkan
    a) Ratnagiri
    b) Sindhudurg.
25. Terekhol Tillari

Sub-basinwise planning

As per the recommendations laid down in the National Water Policy – 2002 and Maharashtra Water and Irrigation Commission's Report, the State Water Policy has been adopted by GOM in 2003.

The objectives of the Maharashtra State Water Policy are to ensure the sustainable development and optimal use and management of the State's water resources, to provide the greatest economic and social benefit for the people of the State of Maharashtra and to maintain important ecological values within rivers and adjoining lands.

The Maharashtra State Water Policy mentions that -

'To adopt an integrated and multi-sectoral approach to the water resources planning, development and management on a sustainable basis taking river basin/sub basin as a unit.'

The water resources of the State shall be planned, developed, managed with a river basin/ sub basin as a unit, adopting multisectoral approach and treating surface and sub-surface water with unitary approach.'

The geographical area of the State is 308 lakh ha and cultivable area is 225 lakh ha. This geographical area is divided mainly into five major river basins of Godavari, Krishna, Tapi, Narmada and basin groups in Konkan. There are 22 narrow basins of west flowing rivers in Konkan.

The Maharashtra Water and Irrigation Commisison has proposed delineation of five river basins basically into 25 distinct sub basins for planning of water resources development in the State. The categorisation of sub basins proposed is solely on the basis of natural availability of water. The basic characteristics of sub basins are dictated by the hydrological regime, which in turn, is a function of climate, rainfall distribution and the draining area.

The sub basins are as follows:

Sr. No.	River Basin	Names of Sub basins	Abbreviated name	Categorisation for planning on the basis of availability of natural water
I	Godavari	1) Upper Godavari (Upto Paithan Dam)	Upper Godavari	Normal
		2) Lower Godavari (D/S of Paithan Dam)	Lower Godavari	Deficit
		3) Purna (including Dudhana)	Purna Dudhana	Deficit
		4) Manjra	Manjra	Deficit
		5) Godavari-Sudha-Swarna	Remaining Godavari	Normal
		6) Painganga	Painganga	Normal
		7) Wardha	Wardha	Normal
		8) Middle Wainganga	Middle Wainganga	Surplus
		9) Lower Wainganga	Lower Wainganga	Abundant
II	Tapi	10) Purna (Tapi)	Purna Tapi	Deficit

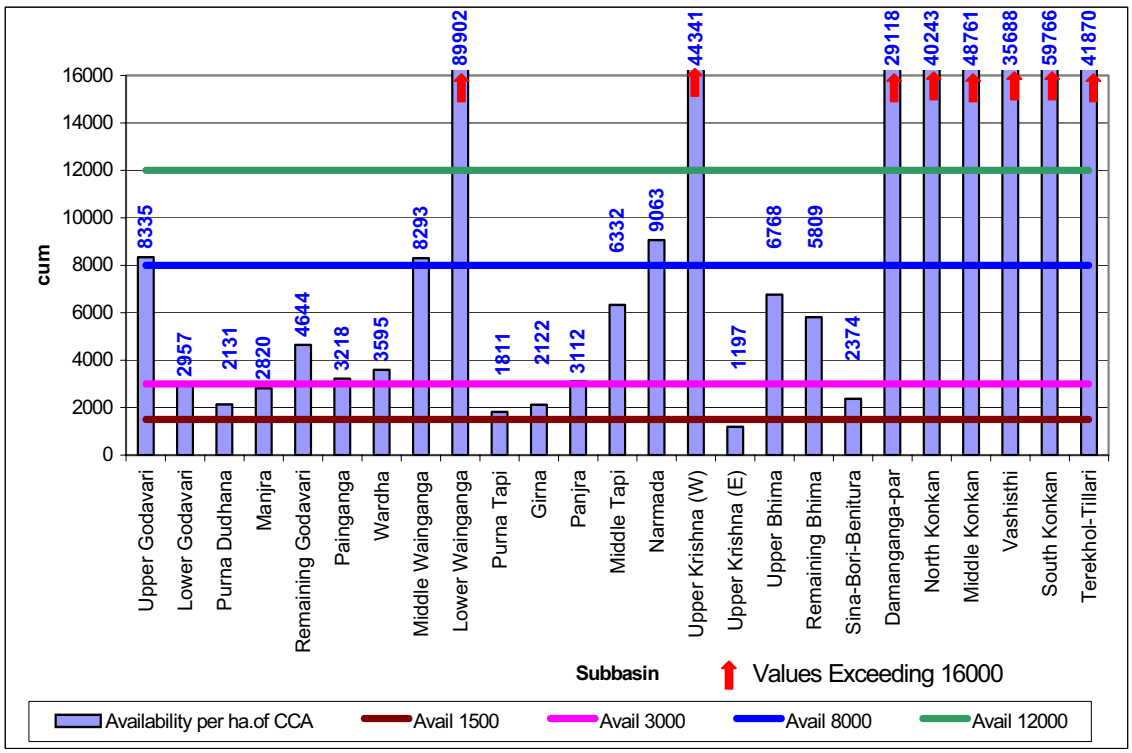
Sr. No.	River Basin	Names of Sub basins	Abbreviated name	Categorisation for planning on the basis of availability of natural water
		11) Girna	Girna	Deficit
		12) Panzara	Panzara	Normal
		13) Middle Tapi	Middle Tapi	Deficit
III	Narmada	14) Narmada	Narmada	Surplus
IV	Krishna	15) Upper Krishna (West)	Upper Krishna (W)	Abundant
		16) Upper Krishna (East)	Upper Krishna (E)	Highly Deficit
		17) Upper Bhima (Upto Ujjani)	Upper Bhima	Normal
		18) Remaining Bhima	Remaining Bhima	Normal
		19) Sina-Bori-Benetura	Sina-Bori-Benetura	Highly Deficit
V	West Flowing	20) Damanganga-Par	Damanganga-Par	Abundant
	Rivers in	21) North Konkan	North Konkan	Abundant
	Konkan	22) Middle Konkan	Middle Konkan	Abundant
		23) Vashisthi	Vashisthi	Abundant
		24) South Konkan	South Konkan	Abundant
		25) Terekhol – Tillari	Terekhol – Tillari	Abundant

Categorisation of sub basins for planning, on basis of naturally available quantum of water, is given below :

Sr. No.	Plan Group	Per ha availability (m^3)	Percent of cultivable area of State
i)	Highly Deficit Area	Below 1500	13
ii)	Deficit area	1501-3000	32
iii)	Normal area	3001-8000	34
iv)	Surplus area	8001-12000	06
v)	Abundant area	Above 12000	15

A graph showing basinwise availability of water is appended herewith.

The performance of a circle (herein called service provider) very much depends upon the availability of water, which in turn is governed by the type of sub-basin in which the project is located. Some circles are having projects located in more than one category of plan group of sub-basins. Therefore, these circles will appear more than once, in graphical representation of indicators.



Climate

Maharashtra is having mostly a seasonal climate. Four distinct seasons are noticeable in a year viz. (1) Monsoon: The rains start with the south - west winds. Mainly it rains during the four months from June to September, but it often extends up to October. (2) Post-monsoon season: October to mid December is a fair weather season with meagre rains. These are the initial months of the post-monsoon, *Rabi* crops and the condition of later depends upon the weather during these months. (3) Winter: It is generally a period of two or two-and-a-half months, from mid-December until end of February. Most of the *Rabi* crops are harvested during these months. (4) Summer: It lasts for at least three months - March to May.

There is considerable variation in weather and rainfall among the five different geographical regions of Maharashtra.

1 The coastal districts of Konkan experience heavy rains but mild winter. The weather, however, is mostly humid throughout the year.

The maximum and minimum temperatures here range between 27^0C and 40^0C and 14^0C to 27^0C respectively. The relative humidity is 81% to 95% during June to August while 30% to 65% during January - February.

2 The western parts of Nashik, Pune, Satara and Kolhapur districts show a steep reduction in rainfall from the mountainous regions towards the East. The maximum temperature ranges between 26^0C to 39^0C and the minimum temperature between 8^0C to 23^0C. The relative humidity is 81% to 99 % in August and only 20% to 39% in March.

3 The eastern part of the above four districts together with Ahmednagar, Sangli, Solapur, Aurangabad, Jalna, Beed and Osmanabad districts fall under the rain

shadow of Sahyadri Mountains and therefore the beginning and end of the rainy season is quite uncertain in these parts. The rainfall is also meagre. The climate is extreme. The summer temperature is high (maximum temperature 36^0C to 41^0C) but winter temperature is low (minimum temperature. 10^0C to 16^0C). The relative humidity in August is between 82% to 84% but only 19% to 26% in April. The rainfall increases as we go towards east viz. Parbhani, Nanded and Yavatmal. Many a times the eastern winds during the end of monsoon cause precipitation here.

4 Likewise the Tapi basin, the southern parts of Satpuda ranges and Dhule-Jalgaon districts towards west is low rainfall part like that of rain shadow region. But towards east Buldhana, Akola and Amravati districts experience a heavy rainfall. Summer temperature in this region is quite high (39^0C to 43^0C) and minimum winter temperature is found to be 12^0C to 15^0C. Relative humidity between May to August is 82% to 87% whereas in March-April it is 12% to 31%.

5 The Wainganga basin on east of Maharashtra and the hilly region still farther east is, on the whole, a zone having good rainfall, but as it is some what low lying area, the climate is even more extreme. The summer temperature is very high (39^0C to 45^0C) while it is cooler in winter as compared to other regions (12^0C to14^0C).

Rainfall

Maharashtra gets rain both from the south-west and the north-east monsoon winds. The proportion of the rainfall derived from the north-east monsoon increases towards east.

The average rainfall of the State is approximately 1360 mm. Nearly 88% of the total average rainfall occurs between June to September, while nearly 8% occurs between October to December and 4% after December. There is a considerable variation in the reliability of the rains in different parts of the State.

The steep decline in the rainfall to east of Sahyadri is strikingly noticeable. In the 30 to 50 km wide belt the average rainfall is observed to be less than 650 mm (as low as only 500 mm at some places). Thereafter, the rainfall increases steadily towards east and the average rainfall in the easternmost districts is observed to be 1400 mm.

The pre-monsoon rain during March to May is maximum in Western Maharashtra (5%) while in Marathwada it is 4%, in Vidarbha it is 3% and the minimum is in Konkan (1%).

The number of average annual rainy days is maximum 95 in Konkan, 55 in Vidarbha, 51 in Western Maharashtra and the minimum 46 in Marathwada.

Out of the total cultivable land in Maharashtra about 53% is under *Kharif* and about 30% is under *Rabi* crops. These mostly comprise of food grains and oilseeds. The rainfall during June to September affects both the *Kharif* and the *Rabi* crops. That is why the regularity of rainfall during this period is of importance. But it is seen that there is considerable fluctuation in the number of rainy days as well as the amount of rainfall from year to year. The fluctuation in rainfall is observed to be 25%, 40% and between 20% to 30% in Konkan, Central Maharashtra and Vidarbha respectively. Crop management on fields during this period thereby becomes quite difficult.

Appendix-V

Abstract of Water Rates for Irrigation Domestic and Industrial Use for the year 2006-07

	Irrigation	**Rate** Rs./ha (From 1/7/2004)
1	**Flow Irrigation**	
	Crops	
A	**Kharif**	
	Seasonals & paddy (Agreement)	238
	Groundnut,Hy.Seeds etc.	476
B	**Rabi**	
	Seasonals (except Wheat and Groundnut)	358
	Wheat	476
	Cotton,Groundnut,Paddy etc.	724
C	**Hot Weather**	
	Ground Nut	1438
	Seasonals	724
D	**Two Seasonals**	
	Kharif and Rabi	357
	Rabbi & Hot Weather	605
E	**Perenial**	
	Sugarcane,Banana	6298
2	**Lift Irrigation (water lifted from)**	
A	**Canal**	
	Kharif Crops	85
	Rabi Crops	120
	Hot Weather Crops	240
	Perenial (Sugarcane, Banana)	1810
	Other Perenial Crops	1200
B	**Reservoir**	
	Kharif Crops	40
	Rabi Crops	60
	Hot Weather Crops	120
	Perenial	910
	Other Perenial	605
C	**River**	
	Kharif Crops	35
	Rabi Crops	35
	Hot Weather Crops	60
	Perenial	450
	Other Perenial	310
3	**Lift Irrigation (Volumetric basis)**	Rs/Thousand m^3
	From canal at minor head	
A	Kharif	47.60
B	Rabi	71.40
C	Hot Weather	144.80
D	If water users contributed for construction (Royalty) for all seasons	23.80
	Non Irrigation water rates	
1	**Domestic Supply**	
A	From reservoirs,	1.50
B	canals and rivers downstream of dams	5.80
C	In case Capital Investment is done by user or contributed in proportion of water use	1.30
2	**Industrial Supply**	
A	For Colddrinks,breverages,mineral water etc. From reservoirs,	170.00

B	For Colddrinks,breverages,mineral water etc from canals and rivers downstream of dams	410.00
C	In case Capital Investment is done by user or contributed in proportion of water use	60.00
3	**Other use**	Rs/10000 Litre.
A	From reservoirs	33.00
B	Canals and rivers downstream of dams	82.00
C	In case Capital Investment is done by user or contributed in proportion of water use	12.00

APPENDIX- VI
Terms& corresponding abbreviations used in proforma for data submission for Bench Marking

Sr No	Particulars	Field Names
1	Name of Circle in short	**Circle**
2	Name of Project	**Project**
3	Sr No of Sub basin as per MWIC	**SBUnit**
4	Type of Project i.e. Major, Medium, Minor	**Type**
5	Irrigation year (1-July to 30-June)	**IrrYear**
6	Total Utilisation of water (Irrigation + Non Irrigation)	**TotalUtil**
7	Annual Irrigation water supply (mm3)	**UtilIrr**
8	Annual Irrigated area (ha)	**AreaIrr**
9	Irrigation potential utilised (ha)	**UtilPot**
10	Effective irrigation potential created (ha)	**CreatedIP**
11	Annual Output (Agricultural production) (Rs. lakhs)	**AnnualOP**
12	Annual Revenue collected for irrigation use (Rs. lakhs)	**Revenue_I**
13	Annual Revenue collected for non irrigation use (Rs. lakhs)	**Revenue_NI**
14	Annual Maintenance Cost (excluding establishment) for Irrigation Use (Rs. lakhs)	**Maint_I**
15	Annual Maintenance Cost (excluding establishment) for Non - irrigation use (Rs. lakhs)	**Maint_NI**
16	Annual Operation Cost (Establishment) for Irrigation use	**Oper_I**
17	Annual Operation Cost (Establishment) for Non Irrigation use	**Oper_NI**
18	Annual Total Land Damaged area (ha)	**LD**
19	Culturable Command Area As per Potential created	**CCA**
20	Annual irrigation potential created (I.C.A.) on canal	
21	Annual cumulative created irrigation potential in **Head** reach	**CIPHead**
22	Annual cumulative created irrigation potential in **Middle** reach	**CIPMiddle**
23	Annual cumulative created irrigation potential in **Tail** reach	**CIPTail**
24	Utilised cumulative irrigation potential in **Head** reach	**UIPHead**
25	Utilised cumulative irrigation potential in **Middle** reach	**UIPMiddle**
26	Utilised cumulative utilised irrigation potential in **Tail** reach	**UIPTail**
27	Assessment of Water charges of irrigation Utilisation Rs Lakhs	**Assess_I**
28	Recovery of Water charges of irrigation Utilisation	**Recovery_I**
29	Assessment of Water charges of Non-irrigation Utilisation	**Assess_NI**
30	Recovery of Water charges of Non-irrigation Utilisation	**Recovery_NI**

Explanatory note for terms used in proforma for data submission for Bench Marking of Water Resources projects.

1. Name of circle in short (Circle):

Name of circle to which irrigation management of the project is entrusted shall be given.

2. Name of project – (Project) ::

Mention name of project about which the data is submitted.

3. Sr. No. of sub basin as pr MWIC (sub basin no.) :

MWIC has allotted a specific number to each sub basin of the State. corresponding number of that sub basin in which the dam of the project lies to be mention under this column.

4. Type of project (Type) ::

Type of the project i.e. whether it is Major, Medium or Minor (as per administrative approval) to be mention.

5. Irrigation year (1 July to 30th June) – (Year)

Irrigation year spanning from 1st July to 30th June to be mention.

6. Total utilisation of water (Irrigation + non irrigation) - (Total util) :

It is the sum of the quantity of water utilised (in kharif, Rabbi & hot weather) for irrigation & non irrigation purpose . For irrigation, the water may have utilised from canal (flow +Lift), reservoir (Lift) and river (when water is a let out in river from the dam) Similarly, water lifted from canal, reservoir & river (where let out from storage dam) for domestic and industrial use is considered as non irrigation water use.

Total utilisation of water can be calculated from the data in proforma 6(B) for water audit.

Data to be considered for evaluation of **Total util** is shown in tabulation form in Appendix enclosed herewith.

7. Annual irrigation Water supply (Util Irr.):

It is sum of the quantity of water utilised for irrigation in all the three irrigation seasons. Water supply may be from canal (flow + Lift), reservoir, or river (when water is lifted from flow let out from storage dam). It can be obtained by substaracting non irrigation water use (sum of domestic, industrial, cultural water use either from canal , reservoir and river) from the total water use as mentioned in column 6 of this proforma for bench marking.. (Col No.7 B.M. proforma) Util.Irri. = col 6 of B.M. proforma - sum of water used for domestic, Industrial, cultural use.

8. Annual irrigated area (Area irr) :

Sum of the area under different standing crops in kharif, rabi & Hot weather seasons to which water is supplied either from canal, reservoir & river is considered as annual irrigated area. In case of projects having perennial crops, if the area under such crops, is supplied with irrigation water in two or more seasons, then such area shall be considered twice or thrice as the case may be while evaluating the annual irrigated area. In other words annual irrigated area is the summation of crop intensity in three irrigation seasons.

Annual irrigated area can be calculated by adding kharif, rabi, Hot weather area shown in sub clause 9 (A), 9 (B), 9 (c) of water audit proforma 6 (B)

Col 8 Annual irrigated area = Annual irrigated area (9 A LBC + 9A RBC +9B R Lift+ 9 **C** river (Note: Area on well & nalla to be excluded)

9. Irrigation Potential Utilised (Util Pot)

It is sum of the area under different crops grown in the command area by irrigation water supplied either from canal (flow + Lift), reservoir, or river and crop area, grown in project influenced area.

Irrigation potential utilised can be evaluated by adding together grand total of crop area assessed and shown in column 6 (for canal, reservoir, river & wells) of proforma 6 (c) of water audit.

10. Effective Irrigation potential created (E IP created)

It is the command area that has been fully developed and declared by project authorities as created potential. Though it is expected that the created potential should be fully utilised every year, it is not so possible due to number of constraints. Potential utilisation during an irrigation year mainly depends upon the availability of water for irrigation in the reservoir. Low in flow in the reservoir along with increased non irrigation use, compared to project planning compels to curtail down the water availability for irrigation. Under such condition for realistic evaluation of potential utilisation with respect to potential created , potential created needs to corrected in proportion to actual water available as compared to water considered for designed potential utilisation in project planning. Potential created thus derived is called as effective irrigation potential created.

11. Annual out put (Agricultural production)- (Annual Op.):

It is the total out put in Rs. worked out by multiplying the area (ha) under each crop by the crop yield of that year and market rate in 1998-99 as per concerned Taluka Krishi Utpanna Bajar Samiti. The crop area shall be the sum of area shown in proforma 6 (C) of water audit for irrigation on canal (flow+Lift), reservoir, river & wells.

The yield of irrigated crops considered for evaluating the total out put shall be obtained each year from the agricultural department . For projects under CADA such yield should be as per crop cutting experiments carried out in the command area of the project. In no case, the crop wise yield based on local inquiry , or staff's own guess shall be considered for such evaluation.

Also the price value of agricultural produce per quintal (or suitable unit) shall invariably be of the year 1998-99 and specified by the concerned Taluka Krishi Utpanna Bajar Samiti only. Rates for sugar & Cotton shall be obtained from sugar factory & Cotton Federation in the command area.

12. Annual Revenue collected for irrigation use (Revenue I) :

It is the total irrigation revenue recovered during the irrigation year. The revenue recovered shall comprise of (i) revenue recovered against the assessment of area irrigated during the irrigation year or an advance realized while sanctioning the water demand & (ii) recovery realized against the arrears of water recovery

13. Annual revenue collected for non irrigation use (Revenue NI) :

It is the revenue recovered on part of water supplied for domestic, industrial, cultural & fisheries etc. The revenue recovered during the irrigation year may consist of (i) advance realized from concerned agency for water reservations or water tax recovery for water supply during the irrigation year & II) revenue recovery against the arrears of pending water recovery towards the agency.

14. Annual Maintenance expenditure for irrigation use (Maint_I) :

For effective irrigation performance, certain periodical repairs are necessary to dam, its appurtenances and to canal system. The cost of such repair works paid in the irrigation year is defined as maintenance cost. Sum of operation & maintenance cost incurred during the irrigation year is called as O & M cost. As per availability of funds, expenditure incurred on repairs works carried out in previous year also have to be considered as maintenance cost of the irrigation year only. However, special note regarding such expenditure may be given along with the bench marking data.

15. **Annual Maintenance expenditure for Non irrigation use (Maint_NI) :**

Proportionate share of cost of repairs to dam & its allied components Proportionate share of repair cost to canal system is also considered as maintenance cost for non irrigation., if non irrigation water supply is from canal.

16. Annual Operation expenditure for irrigation use (O Per_I) :

Expenditure in the form of salary of staff in an irrigation section, working directly or in directly on irrigation management is considered as an operation cost. Staff personnel working on irrigation managements may belong to RT, CRT, work charged or Daily rated establishment.

17. Annual Operation expenditure for Non irrigation use (Oper_NI) :

It is sum of the expenditure incurred during the irrigation year on salary of staff working for non irrigation water supply

18. Annual total land damaged area (LD) :

Command area certified as damaged area by DIRD Pune on account of water logging, salt efflorescence shall be shown as land damaged area. Changes in the damaged area shall be as per DIRD'S report only.

19. Culturable Command Area (CCA) :

Culturable command area corresponding to potential created should be mentioned in under this column.

20. Annual Irrigation Potential Created (I.C.A.) on canal (Irr Pot (ICA)):

To check whether the irrigation water is supplied equitably to head, middle & tail reaches of canal system, the system is divided in three reaches so that command area on each reach is equal. Naturally, I.C.A. corresponding to potential created shall be considered for deciding the head, middle & tail reaches of the canal. The details about calculations of length of reaches is shown in detail in the enclosed appendix. The length of reaches thus calculated shall remain constant for all irrigations years, unless there is change in created potential. Procedure for evaluating the area irrigated in each reach is exibited in enclosed appendix. Area irrigated on reservoir lift or on river and wells shall not be considered as area irrigated in head or tail reaches.

21. Annual cumulative created irrigation potential on head reach (CIP head) :

Means one third of the area to be irrigated as per design I.C.A. on canal (CIP head)

1/3 x (Irr Pot ICA)

22 Annual cumulative created irrigation potential on middle reach (CIP Middle):

Means one third of the area to be irrigated as per design I.C.A. on canal (CIP Middle)

1/3 x (Irr Pot ICA)

23 Annual cumulative created irrigation potential on tail reach (CIP Tail) :

Means one third of the area to be irrigated as per design I.C.A. on canal (CIP Tail)=1/3 x (Irr Pot ICA)

24. Utilised cumulative irrigation potential in head reach (UIP Head) :

It means Area under standing crops irrigated in Kharif, Rabi, Hot weather by canal (flow +Lift) water in head reaches of canal system. Area of standing crops on reservoir lift, wells shall not be considered here.

25 Utilised cumulative irrigation potential in middle reach (UIP middle) :

It means Area under standing crops irrigated in Kharif, Rabi, Hot weather by canal (flow +Lift) water in middle reaches of canal system.

26. Utilised cumulative irrigation potential in tail reach (UIP tail) :

It means Area under standing crops irrigated in Kharif, Rabi, Hot weather by canal (flow +Lift) water in tail reaches of canal system. Area irrigated on river lift shall not be considered here.

27. Assessment of water charges of irrigation utilisation (AssesIrr) :

As per Govt Resolution dated शासन शुध्दीपत्रक क्र. संकीर्ण /१००२/(२०९/२००२) सिं.व्य.(धो) दिनांक ९ जून २००४ Assessments of area irrigated in hot weather season of previous irrigation year and assessment of area irrigated in kharif, rabi seasons of current irrigation year to be completed and sanctioned during the current irrigation year. Naturally assessment of water charges for irrigation in an irrigation year comprises of, sum of the assessments of above three seasons only. Even if assessment of any irrigation season other than above three seasons is completed & sanctioned during the irrigation year as an arrears of works, such assessment should not be considered as assessment of that year.

28. Recovery of water charges of irrigation utilisation (Recovery-Irr) :

It is the recovery of water charges against the assesment of (i) area irrigated in hot weather of previous irrigation year & (ii) area irrigated in kharif & rabi season of the irrigation year.

Recovery may contain the advance amount realized while sanctioning the water demand application for hot weather of current irrigation year.

29. Assessment of water charges of non irrigation utilisation (Assess NonIrr):

Assessment of water charges for supply of water for all sorts of non irrigation use during the irrigation year.

30. Recovery of water charges of Non irrigation utilisation (Recovery Non Irr) :

Recovery realized (including advances) against the assessment for supply of water for non irrigation use during the year.

Appendix_VII
Evaluation of data for Bench Marking of Water Resources Projects

For evaluating the data for Bench Marking, data about irrigation & Total Water use, area irrigated, potential utilise is to be retrieved from water audit proformae 6B & 6C. Numbers prefixed to sub captions belongs to the clause Nos in water audit proforma where from the data is retrieved.

Column 6 of BM Proforma : Total utilisation of water (Irrigation + Non Irrigation) Total Util

6A LBC Water drawn at canal head (Water use in Mm^3)

Season	Water use for			Total
	Domestic	Industrial	Irrigation	
1	2	3	4	5
Kharif				
Rabbi				
H.W.				
Total				**..... I**

6B RBC Water drawn at canal head

Season	Water use for			Total
	Domestic	Industrial	Irrigation	
1	2	3	4	5
Kharif				
Rabbi				
H.W.				
Total				**..... II**

7 Water lifted from reservoir

Season	Water use for			Total
	Domestic	Industrial	Irrigation	
1	2	3	4	5
Kharif				
Rabbi				
H.W.				
Total				**..... III**

8 Releases in to river

Season	Water use from				Total
	1 Lifts for Domestic	2 Lifts for Industrial	5 Let out for irrigation	4 Let out for cultural use	
1	2	3	4	5	6
Kharif					
Rabbi					
H.W.					
Total					**..... IV**

Total utilisation of water (Irrigation + Non Irrigation) Total Util = (I+II+III+IV)

Column 7 of BM Proforma : Annual Irrigation Water Supply (Util Irr)
Water drawn at canal head for non irrigation use.
6A LBC (Water use in Mm^3)

Season	Water use for		Total
	Domestic	Industrial	
1	2	3	4
Kharif			
Rabbi			
H.W.			
Total			 I

Water drawn at canal head for non irrigation use.
6B RBC

Season	Water use for		Total
	Domestic	Industrial	
1	2	3	4
Kharif			
Rabbi			
H.W.			
Total			 II

7 Water lifted from reservoir for Non Irrigation use.

Season	Water use for		Total
	Domestic	Industrial	
1	2	3	4
Kharif			
Rabbi			
H.W.			
Total			 III

Release in to the river for Non Irrigation use.

Season	Water use for			Total
	Domestic	Industrial	Cultural	
1	2	3	4	5
Kharif				
Rabbi				
H.W.				
Total				 IV

Annual Irrigation Water Supply (Util Irr) :

= Column 6 of BM Proforma – (I+II+III+IV) of above table.

Column 8 of BM Proforma : Annual irrigated area Ha (Area Irr)

Data shown under **actual area irrigated** in clause 9 of Water Audit proforma 6B is to be used for evaluating annual irrigated area. (AIrra)

Area in ha

Season	Actual area irrigated on				Total
	9A) LBC	9A) RBC	9B) Reservoir Lift	9C) River Lift	
1	2	3	4	5	6
Kharif					
Rabbi					
H.W.					
Total					*****.... I

Annual irrigated area Ha (AIrra) = *****

Column 9 of BM Proforma : Irrigation Potential Utilised Ha (Util Pot)

Refer water audit proforma 6C

Sr. No.	Details of Potential utilisation	Crop area assessed & shown under grand total in column 6 of proforma 6C
1	2	3
1.	Potential utilised on canals (ha)	
2.	Potential utilised on reservoir (ha)	
3.	Potential utilised on river by lift (ha)	
4.	Potential utilised on Nala & Wells (ha)	
	Total : (**Util Pot) (ha)**	=

Irrigation Potential utilised (Util Pot) = addition of potential utilisation on canals reservoir lift, river lift & Area on wells.

Column 10 of BM Proforma : Effective irrigation potential created (EIP created)

EIP created = Cumulative potential created on the project x **A/B**

where , **A** =Actual water available for irrigation during the irrigation year &

B = Water available for irrigation as per project planning

Column 11 of BM Proforma :Annual out put(Agricultural production)Annual OP

Out put can be derived by using crop wise area assessed and shown in Col 6 of water audit proforma 6C

Sr. No.	Crop Name	Area assessed & shown in col.6of 6C (ha)	Yield per Ha	Total production	Unit*	Rate per Unit	Amount in Rs. (Lacs)
1	2	3	4	5	6	7	8
				Total (Annual Out put) =			

* (Unit may be tonne/Quintals)

Column 14 & 15 of BM Proforma Annual O & M Expenditure for Irrigation & Non Irrigation Use

Annual O & M expenditure for Irrigation & Non Irrigation is to be worked out from physical figures in relevant office record. It is to be presented in the format given below which will help in analysing the expenditure per unit area irrigated.

Statement showing the O & M Cost incurred on ..... Major project during the year

Circle :				
Sr.No.	Particulars	Amount in Rs.lakh		Remarks
		Last year	Irrigation year	
1	2	3	4	5
A	Operation cost			
	i) Salary of staff			
	ii) Arrears			
	Total :			
B	Maintenance cost			
	i) Repairs to dam & allied structures			
	ii) Repairs to canal system			
	Total :			
	Grand Total :			

Column 16 & 17 of BM Proforma Annual Mandays for O & M for Irrigation & Non Irrigation: (Mandays I+NI)

Number of Mandays utilised for Irrigation & Non Irrigation on the project are to be worked out staff category wise by actual calculation and to be presented in following format.

Statement showing the details of staff personnel working on Irrigation management of .....Major Project

Circle :				
Sr. No.	Post of Staff personnel	Nos	No of working days (Mandays)	Remarks
1	2	3	4	5
1	J.E./ S.O.			
2	Assistant to J.E.			
3	Canal Inspector			
4	Patkari			
5	Measurer			
6	Daftar Karkoon			
7	Chowkidar			
8	Peon			
9	Keyman			
10	Muster clerk			
11	Mukadam			
12	Labours			
13	So on.....			

1)Working days means incumbency period during the irrigation year. 2) Mandays for O & M of irrigation & non irrigation to be decided proportion to water use irrigation & non irrigation

Column No. 20 of BM Proforma : Annual irrigation potential created (I.C.A.) on canal (Irr Pot ICA)
(Attach command plan showing the Reaches in dift. columns)
It is to be worked out by creating information in the following table.

Left Bank Canal/Right Bank Canal

Sr. No.	Branch/ Dy./ Minor/ DO No.	Section	Off taking ch. (Km.)	CCA (Ha)	ICA (Ha)	Design reaches in Km.			Actual irrigated area (ha) *		
						Head	Middle	Tail	Head	Middle	Tail
1	2	3	4	5	6	7	8	9	10	11	12
1	Dy.1					..... to	..... to	..... to			
So on											

Total = *** (I) Total = ****(II) =** (III) =**(IV)

Annual irrigation potential created (I.C.A.) on canal (Irr Pot ICA) =Total (*** I) for (LBC + RBC)**

Column No. 21,22 & 23 of BM Proforma = 1/3 x Total (I) for(LBC + RBC)

*** Actual Irrigated area on a reach shall be the the sum of area under standing irrigated crops in kharif, rabi & Hot weather on canal in that reach.**

Column No. 24 of BM Proforma = Total **(II) for (LBC + RBC)**

Column No. 25 of BM Proforma = Total **(III for (LBC + RBC)**

Column No. 26 of BM Proforma = Total **(IV) for (LBC + RB**