

Superintending Engineer, Nagpur Irrigation Circle, Nagpur

सरळ सेवा भरतीने सहाय्यक कार्यकारी अभियंता या पदावर नियुक्ती दिलेल्या अधिकाऱ्यांसाठी क्षेत्रीय
प्रशिक्षण कार्यक्रम, जलसंपदा विभाग
Field Training for Direct Recruits as Assistant Executive Engineer of Water
Resource Department.

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“क्षेत्रीय प्रशिक्षण अहवाल” “FIELD TRAINING REPORT”

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Executive Summary

Maharashtra Engineering Training Academy (META), Nashik organized training program for direct recruits - Assistant Executive Engineer of Water Resource Department (WRD), in accordance with Maharashtra Engineering Service Examination-2004.

As per schedule of training program, we were directed to undergo training at Superintending Engineer Nagpur Irrigation Circle, Nagpur from 18th to 22nd February 2008.

We joined Superintending Engineer office on 18th February 2008 and contacted to Shri Bhandari Saheb, Asst. Superintending Engineer and he shared valuable information with us. He explained about the organizational setup of the Superintending Engineer office and briefly introduced various issues related to the construction and management work of irrigation works which has special relation with the Superintending Engineer office.

On 18th February 2008, **Shri. B.S. Swami Saheb**, Superintending Engineer interacted with us; personally I felt that it was the most enjoying part of the training, since he briefly explained each and every activity related to the Water Resources Department.

As per directions of the Superintending Engineer, we decided to study various issues such as- role of Superintending Engineer in construction activity, during management of irrigation projects. The Superintending Engineer is responsible for the administration and general professional control over irrigation projects in charge of the department within his circle. He has to inspect the state of various works within his circle and to satisfy himself that the system of management prevailing is efficient and economic. He is required to ascertain the efficiency of subordinate officers and petty establishments and to report whether the staff employed in each division is actually necessary or adequate for the management. The Superintending Engineer is empowered to transfer and post the Deputy Engineers and overseers within his circle in the interest of administration. However, Executive Engineers of divisions are

consulted before posting these officers to particular sub-divisional charges under their control. It is also the duty of the Superintending Engineer to recommend removal and transfer of Executive Engineers from his circle.

Er. Swami Saheb also suggested interacting with officers and as per his directions; we completed the given study as well as learn several other things.

Speaking about the Water Resources Department, out of total geographical area of Maharashtra (307 thousand km²) only 225 lakh ha area is cultivable. The irrigable area from all available surface water is 126 lakh ha and out of which possible irrigable area due to geographical constraints and storage of water is only 85 lakh ha. Till July 2006, 41.32 lakh ha area is brought under irrigation using surface water through 54 major, 222 medium and 2726 minor irrigation projects of Water Resources Department. About 12.98 lakh ha area is irrigated by Local sector through minor irrigation projects. 74 major, 180 medium and 992 minor projects are under construction stage and they can irrigate 32.70 lakh ha thus Government of Maharashtra is trying to irrigate 85 lakh ha area through these projects.

This report includes the brief of all these studies performed and understand by me. It was very nice experience to get in depth knowledge through this training session.

Acknowledgement

I take this opportunity to express my gratitude to those whose active help and support make this report possible in the present form.

First of all, I express my sincere gratitude to **Er B.S. Swami saheb**, Superintending Engineer, Nagpur Irrigation Circle, Nagpur for insisting in me the drive to work hard and for inculcating in me the discipline to think clearly. He shared his valuable experiences with us and it was the most enjoyable part of training

It is the endless guidance and constant encouragement of **Er. J.C. Bhandari saheb**, Asst. Superintending Engineer, Nagpur and I would like to express my heartfelt gratitude to them and staff for providing us necessary technical.

Definitely the knowledge, I received during this training session was a lifetime experience and it will serve as a foundation for my career.

Last, but not least, I wish to express my gratitude towards my parents- Shivaji and Rohini, my grandparents- Rangnath and Sitabai, my uncle Raosaheb and aunty Radhika who sacrificed a lot to give me a good education.

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Chapter 1 Introduction

1.1 Program Schedule

On 18th February 2008, we joined the office of Superintending Engineer, Nagpur irrigation Circle, and contacted to **Shri. J.B. Bondre saheb**, (Superintendent) and submitted arrival report.

Then we interacted with **Er. J.C. Bhandari saheb** (Assist. Superintending Engineer) and he guided us on various issues related to Superintending Engineer office.

1.2 Organization of Superintending Engineer office

There are five divisions under the charge of Superintending Engineer, and they are listed below-

Superintending Engineer (NIC) Nagpur

Nagpur
Medium
Project Div.
Nagpur

Lower
Wardha
Project Div,
Wardha

Lower
Wardha
Canal Div,
Wardha

Minor
Irrigation
Div,
Wardha

Chandrapur
Medium
Project Div.
No.1,
Chandrapur

The Superintending Engineer office handles major projects (Lower Wardha project, Human Project) as well as Minor projects as well as Lift Irrigation Schemes. It is highly challenging job to cater such diverse projects at a time. It was opportunity for me to learn most of the aspects related to such a multi-disciplinary projects.

1.3 Classification of Irrigation Projects

Classification of irrigation projects is based on cultivable command area of the project. The classification is as shown below.

Type of Project	CCA (ha)
Minor Irrigation Projects (Local Sector) with the District Council. (ZP)	Below 100
Minor Irrigation Projects (Local Sector) with the Rural Development & Water Conservation Department.	101 to 250
Minor Irrigation Projects (State Sector) with the WRD	251 to 600
Large Minor Irrigation Projects (State Sector) with the Water Resources Department	601 to 2000
Medium Irrigation Projects (State Sector) with the WRD	2001to 10000
Major Irrigation Projects (State Sector)with the WRD	Above 10000

Chapter 2 Powers and responsibility of the officers

2.1. The Chief Engineer :

The department functions on Zonal basis headed by a Chief Engineer. All working particulars zone are handled by Chief Engineer. For the field set- up each zone has field Circles and Divisions. For the office set up one financial officer and one section officer is provided to assist the Chief Engineer to handle the financial matter.

2.2. Superintending Engineer :

A Circle officer is an administrative officer under the charge of Superintending Engineer. IT co-ordinates and supervises the activities of four to six Divisions employed on construction and/ or maintenance works. It maintains close liaison with the office of Chief Engineer in regard to works and all technical matters and with the Central Office in regard to Administrative matters concerning personnel of various categories numbering 3,000 to 4,000. It also works in close contract with the Central Design Organization and office of the Superintending surveyor of Works for layout, designs and drawings and estimates of the works entrusted to its charge. The budgetary control of the Divisions under each Circle with the Superintending Engineer, who, in turn, is accountable in this respect to the Chief Engineer concerned.

The Superintending Engineer is required to examine the books of Divisional office and sub-divisional offices during his inspection and see that the matter relating to accounts are attended to personally by the concerned officers. He has to keep a strict watch on expenditure to ensure that there is no excess and that the system of management prevailing in the units is efficient and economical.

The Superintending Engineer is responsible for the administration and general professional control over irrigation works in charge of the department within his circle. He has to inspect the state of various works within his circle and to satisfy himself that the system of management prevailing is efficient and economic. He is required to ascertain the efficiency of subordinate officers and petty establishments and to report whether the staff employed in each division is actually necessary or adequate for the management. The

Superintending Engineer is empowered to transfer and post the Deputy Engineers and overseers within his circle in the interest of administration. However, Executive Engineers of divisions are consulted before posting these officers to particular sub-divisional charges under their control. It is also the duty of the Superintending Engineer to recommend removal and transfer of Executive Engineers from his circle.

2.3. Executive Engineer

A Divisional office under the charge of a Executive Engineer, is an executive unit directly concerned with procurement of men, material and machinery for speedy and economic execution of the works in its charge and is directly responsible for proper up keep of the works account and implementation of the terms of contract entered into with various parties viz. Contractors, and supervisors.

The Executive Engineer being the Divisional Officer is also responsible for correct compilation of the works Accounts through the Junior Account officer/ Divisional Accountant attached to the Division. The Divisional officer is primarily responsible for furnishing timely information in case of likelihood of excess over the estimated cost of the works under his charge. He is required to inspect, at least once a year, the more important buildings and work under his charge and is responsible for proper measures to be taken to preserve them in good condition and prevent encroachment on Government land and buildings under his charge. Unlike in the circle office different branches exists in the Divisional office to deal with works, administration, accounts and contracts, and technical matters and to apply the Superintending Engineer, Chief Engineers and Central Office with preliminary data and information on several points for submission to higher authorities/ other Department.

4. Assistant Engineer

A Sub-divisional office under the charge of an Assistant Engineer or Assistant Executive Engineer is the field unit responsible for supervision and execution of works, according to the norms and standards laid down in designs, drawings and estimates. The successful achievement of the targets fixed by the Department for completion of each projects with due consideration for quality and

economy and/ or the proper maintenance of the buildings, structures, areas and equipment under his charge mainly depends on the faithful implementation by the Assistant Engineer/ Assistant Executive Engineer and Junior Engineer working under him of the policies and general order of the department.

Preparation of the works Accounts and Stores Accounts is the responsibility of the Assistant Engineers/ Assistant Executive Engineer concerned. He has to ensure the proper maintenance of the stores under his charge, their accounts both quantitatively as well as in monetary terms and weeding out unserviceable structures, areas and equipment under his charge once in every six months (to inspect their condition from safety point of views) and record a certificate of that effect.

5. Junior Engineer

As Junior Engineers is the primary element in the executive unit. He is responsible both for the execution of work and maintenance of accounts with which he is concerned.

1. To collect engineering data for estimates and prepare rough drawings and site plans connected therewith.
2. To supervise and see that all works under his charge are done according to the specifications, drawings, standards laid down and approved samples.
3. To keep Government material, T & P in his custody and care; maintain proper accounts of receipts issue and balances, arrange adequate watch and ward.
4. To record measurements of work done by the contractor/ departmental labour.
5. To prepare abstract of measurement at the time of preparation of bills.
6. To maintain the prescribed registers/ accounts like cement register; caube register; curing register; register of testing of fine aggregate. MAS account site order book, Account of temporary advances; Imprest Accounts, Stock Account ; T & P Account; standard M.B.s etc.
7. To verify bills, AT.D. etc.
8. To submit required returns to his superior officer.

Chapter 3, Duties, Functions and Responsibilities of Superintending Engineer

3.1 General

- a. The Superintending Engineer in charge of a Circle is responsible to his Chief Engineer for the administration and control of Water Resources works, design, research within his Circle/Directorate. His sphere of duty is comprehensive including planning, investigation, construction and maintenance of all engineering works in his Circle. He will carry out his responsibilities in these matters through the subordinate officers under his control in the best manner required under the rules.
- b. The Superintending Engineer will receive orders only from Government, Departmental superiors, Commissioner of the Division and such authorities duly empowered.

3.2 Control over personnel

q. The S.E. will have full control over the personnel working in his Circle/Directorate excepting those which are exercised by higher authorities. The transfers and postings of Class II and III establishment subordinate to him may be made by the S.E. within his Circle. He may also recommend to C.E. transfer of the members of these establishments as well as of REs. from his Circle.

(b) The S.E. is required to ascertain the efficiency of the subordinate offices and petty establishment and to satisfy himself from time to time that staff employed in each Division is actually necessary and is adequate for its management.

3.3 Inspection of Divisional Officer

- a. He will inspect every Division Office at least once in a year and forward to the Chief Engineer the result of such inspection in the format. He will also inspect every Sub-Division Office once in four years and record the findings to Chief Engineer.

Note.-*Although the A.G. is required to inspect the initial and subsidiary accounts maintained in disbursing offices, this does not relieve the S.E. from his responsibility of the maintenance of the authorized system of accounts throughout his Circle. The A.G. and S.E.*

should assist each other in the management of the accounts of the department as perfect as possible.

- b. The S.E. shall investigate excesses over subheads and if a revised estimate is considered necessary, he shall obtain and submit such an estimate to the sanctioning authority in due time.

3.4 Supervision of works

- a. The S.E. should inspect the state of the various works periodically and satisfy himself that the system of management prevailing is efficient and economical, that the different articles in store are duly verified according to the rules laid down, and that there is no accumulation of stock in any Division beyond its requirements. He is also responsible that no delay is allowed to occur In the submission of completion reports.
- b. Supervision and control of 'the assessment of revenue and its recovery within his Circle will rest with him.
- c. The S.E. shall prepare a schedule of rates for works executed in his Circle and update the same on the basis of the prevailing rates in each locality.

Chapter 4. Water Resources Department

4.1 About Maharashtra State

Maharashtra occupies main portion of the Indian Sub-continent. The geographical location of Maharashtra is bounded between latitude 16.4o to 22.1o N and longitude 72.6o to 80.9o 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, Chhattisgarh on east and Andhra Pradesh, Karnataka and Goa in south.

4.2 Physiography

The State is divided into five major regions physiographically-

1. Konkan strip on western side
2. Sahyadri ranges
3. Plateau on eastern side
4. Hilly ranges of Satpuda and adjacent area on north and
5. 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 Khandesh¹, Marathwada², Western Maharashtra and the western districts of Vidarbha³ 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 - Chhattisgarh boundary are the hills of different geological formations other than the Deccan Trap. Many eastern tributaries of Waingangā originate from this hill range. The height of this hilly plateau is around 800 m.

4.3 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 preplan 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 3.913 MHa irrigation

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.

potential using surface water resources by 2004 through 53 major, 312 medium and 2457 state sectors minor irrigation projects Besides 55 major, 121 medium, 852 State Sector minor projects and 48 lift irrigation projects are under construction in the State. The total investment in the irrigation sector up to 1 April 2004 is around Rs. 337.50 billion. The ultimate irrigation potential, through surface water and ground water resources, has been estimated as 12.6 MHa.

4.4 Water Auditing

Water auditing is a systematic & scientific examination of water accounts of the projects. It is an intelligent & critical examination by independent organization. It is a critical review of system of accounting. Water auditing is checking sector wise water use against planning, water use efficiency in irrigation and losses. As far as irrigation sector is concerned, water audit should give comparison of planned water use efficiency (i.e. ha /Mcum) versus actual water use efficiency (i.e. ha/ Mcum). This will provide information about loss of water in the system. Efforts should be made to identify the causes for it and initiate action to minimize the losses to improve the water use efficiency.

Broadly water auditing involves checking the following parameters.

1. Actual water use in various sectors against planning,
2. Whether water use for irrigation in every season is as per planning & checking the water use efficiency (ha/Mcum)
3. Checking whether the prescribed procedure for irrigation management is followed or not.
4. Whether records as per requirements are maintained or not.

4.5 Management of Systems

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

4.6 Present Status of Irrigation Utilization

In spite of various measures taken so far, there is a gap between potential created and utilized. The overall reasons for less utilization are as follows-

- i) Low water yield in the reservoirs
- ii) Diversion of irrigation water to nonirrigation uses
- iii) Tendency of farmers to grow cash crops which are highly water intensive like sugarcane
- iv) Thin & scattered irrigation resulting in low efficiency
- v) Low utilization during Kharif (Rainy) season
- vi) Reduction in storage capacity due to silting
- vii) Poor/approximate assessment of the irrigated area in the command
- viii) Non accounting of irrigated area outside the command (influence area)
- ix) Poor maintenance of the infrastructure due to financial constraints

4.7 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 2004-05 in all 774 WUAs were in full operation with operational area of 2.51 lakh ha. Besides this the number of WUAs which have been registered and entered into agreement during 2004-05 was 956 covering an area of about 4.33 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 optimize 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 distributary / minor will become the members of WUA, once the area is notified under the act.

4.8 Present Organizational Set up

The organizational 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 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 utilization of the water stored in reservoir and maintenance of public utilization system, as well as recovery of water charges through their subordinate offices.

4.9 State Water Policy

As per the recommendation laid down in the National Water Policy and Maharashtra Water and Irrigation Commission Report, the State water policy has been framed by Maharashtra

State in July 2003. The objective of the Maharashtra State water policy is 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 in a such manner that maintains important ecological values within the rivers and adjoining lands. The policy has innovative features such as water audit, benchmarking of water resources projects, water entitlement etc.

4.10 Impacts of Reforms in Water Sector

The State Government has initiated several policies and administrative reforms for development in Water Sector. Due to above reform initiatives, irrigation efficiency has been

increased from 101 ha./Mm³ to 117 ha./Mm³ and revenue in the last three year has been substantially increased. As a result of this, Government of Maharashtra has become first State in the country to met out 100% O&M expenses from water charges only. A beginning in performance improvement in irrigation sector will go long way in making water sector of the State self sufficient and sustainable one in years to come. The international commission on irrigation and drainage (ICID) has taken the cognizance of the reforms/ initiatives in water resources sector and awarded "Watsave Award 2004" to Shri S.V.Sodal, Secretary (CAD), Irrigation Department, Maharashtra.

4.11 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.

The exercise was conducted for 6 major projects in 2001-02. The number of projects covered during 2002-03 was 254 and instead of presenting data of all these projects individually, irrigation circle was considered as 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, projects under a circle in a sub basin are grouped together & comparison is made with other projects in a particular plan group.

4.12 Indicators for Benchmarking

System Performance

1. Annual Irrigation Water Supply Per Unit Irrigated Area
2. Potential Created And Utilized

Agricultural Productivity

3. Output (Agricultural Production) Per Unit Irrigated Area
4. 4 Output (Agricultural Production) Per Unit Irrigation Water Supply

Financial Aspects

5. Cost Recovery Ratio
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. Mandays For O&M Per Unit Area
10. Assessment Recovery Ratio
 - A. Irrigation
 - B. Non Irrigation

Environmental Aspects

11. Land Damage Index

Social Aspects

12. Equity Performance

Chapter 5. Backlog & removal of Regional Imbalance

To remove regional imbalance & to workout region wise backlog a committee was formed in 1982 under the Chairmanship of Dr. Dandekar. The backlog worked out by the committee is as under—

Region	Backlog in 000 ha.(SRE)
Konkan	105.58
Tapi	197.68
Krishna	238.64
Marathwada	316.71
Nagpur	110.44
Amrawati	416.87
State average=35.11	

5.1 Indicators & backlog committee in 1995-97 (by Hon. Governor) As Per Base year 1994

Region	Backlog in 000 ha.(SRE)	Financial in CRS
Konkan	76.68	384
Tapi	91.21	513
Krishna	0	0
Marathwada	430.64	2401
Nagpur	99.04	638
Amravati	685.68	3445

5.2 Indicators & backlog committee in 1995-97 (by Hon. Governor) base year 1994

Region	Backlog in 000 ha.	Financial in CRS
ROM ¹	167.9	934
Marathwada	430.64	2401
Vidarbha	784.73	4083
Moh	1383.26	7418
State average -- 35.11		

¹ Rest Of Maharashtra

5.3 Backlog in WR¹ in 1999

Region	Backlog in 000 ha.	Financial in CRS
ROM	89.68	487.91
Marathwada	284.7	2173.95
Vidarbha	570.74	3956.52
Moh	945.13	6618.38

5.4 Backlog in WR in 2002

Region	Financial in CRS
Kokan	206.55
Tapi	100.3
Krishna	0
Marathwada	1709.65
Nagpur	185.73
Amrawati	2970.8
State average = 41.43	

5.5 Backlog in WR in 2002

Region	Financial in CRS.
Rom	322.56
Marathawada	1709.65
Vidarbha	3136.51
Moh	5168.72
State average= 41.43	

5.6 Backlog in WR in 2007

Region	Backlog in 000 ha.	Financial in CRS
Kokan	69.93	285.97
Tapi	19.76	168.66
Krishna	0	0
Marathawada	284.7	2173.95
Nagpur	51.53	409.66
Amaravati	519.21	3546.89

¹ Water Resources

5.7 Governors Directives

1. Available budget for Irrigation Sector Improvement shall be distributed circlewise.
2. Budget allocation shall be as per weighted average factors.
3. Hon. Governor has given directives to remove backlog within five years(2001-02 to 2005-06.)
4. In order to remove backlog ending Mar 2002(Rs 5168.72 crores) within in next four years Rs 1292 crores are required.

5.8 Guidelines for removal of Backlog- Table

Year	Backlog	Population	Net sown area
2002-03	35	40	25
2003-04	45	30	25
2004-05	55	20	25
2005-06	65	10	25

Chapter 6 Accelerated Irrigation Benefit Programme

6.1 About AIBP

A large number of river valley projects, both multipurpose and irrigation have spilled over from Plan to Plan, mainly because of financial constraints faced by the State Governments. As a result of this, despite a huge investment having already been made on these projects, the country is not able to derive the desired benefits. There are 162 Major, 240 Medium and 74 ERM on-going irrigation projects in the country at various stages of construction at the end of VIII Plan (i.e. end of 1996-97) with spillover cost of Rs. 79,321.39 crore. This was a matter of grave concern for the Union Government and expeditious steps for the completion of some of the projects, which were in advanced stage of completion, had to be taken.

With this end in view, the Government of India had launched the Accelerated Irrigation Benefit Programme during 1996-97 for accelerating implementation of on-going irrigation/ multi-purpose projects on which substantial progress had been made and, which were beyond the resource capability of the State Governments; and, for other major and medium irrigation projects which are in advanced stage of construction and could yield benefits of irrigation in next four agricultural seasons.

Only those projects are considered under the Programme, which have the investment clearance of the Planning Commission. The Projects which are already receiving assistance from domestic agencies such as NABARD etc. are not eligible for assistance under this Programme. However, the components of such projects which are not covered under such assistance by NABARD are considered for inclusion under the AIBP. Assistance to large projects is given for their phased completion so that benefits could start flowing early with comparatively smaller investments.

Projects benefiting tribal/ drought prone areas are given due preference provided they are otherwise eligible. Priority is also given to Inter-State projects and all the party States are eligible for assistance under the Programme individually. Projects with larger irrigated area per unit of additional investment are preferred. Minor irrigation schemes are not eligible for assistance under the AIBP because of NABARD financing such schemes under the Rural Infrastructure Development Fund (RIDF).

The Central Loan Assistance (CLA) to the States is given on matching basis and is released in two installments of 50% each. The second installment is released after the States have incurred expenditure equal to the sum of the CLA already released to them and the share of the state. The Central Loan Assistance under the Programme is given in the form of loan at the rate of interest prescribed by the Ministry of Finance from time to time. The loan under the Programme is repayable in 20 equal installments together with interest on the outstanding balance commencing from the following year. However, 50% of the loan enjoys 5-years of initial grace period after which repayment of the loans will be affected in 15 equal installments. The loans actually payable in a year will be recovered in 10 equal monthly installments commencing from June every year. The projects covered under AIBP are monitored by the Central Water Commission with the help of its regional offices situated all over the country and the releases of funds are based upon their reports. The funds are released by the Ministry of Finance on the recommendations of the Ministry of Water Resources. During 1996-97, Rs. 500.00 crore was released to 52 projects in 18 States.

6.2 ABIP Norms

1. Major projects to be considered those are nearly to completion and having remaining less work.
2. The projects are taken on the priority have –
 - a. Work to be completed within 3-4 years.
 - b. 50% expenditure to be paid.
 - c. Belong to tribal majority or draught area.
 - d. Interstate plans
3. When one plan is completed then another can be considered

6.3 Conditions for Financial Assistance

1. The assistance of the Central and State share of 2:1.
2. If Projects are completed within stipulated period then the loan assistance is liberalized 30% grant.
3. New Projects are considered for assistance in lieu of completed ones.
4. Project to be completed within 3 years period, considered under fast track. The financial assistance from Central Govt. will be considered as 70% loan and 30% grants.

Chapter 7. General Conditions of Contract

7.1 Regulations for Tenders and Contracts:

It contains meaning of terms, application for registration, tender forms, Omissions and Discrepancies, Earnest Money, Care in submission of tenders, Right of department to deal with tenders, Execution of contract documents, Form of contract documents.

7.2 Standard General Conditions of Contract

1. Clause 1 contains definitions of various terms like department, Engineer, Chief Engineer, Superintending Engineer, Executive Engineer, Schedule of rates, Drawing, Constructional Plant, temporary works, site, period of Maintenance, Singular & plural, Headings & marginal headings.
2. Clause 2 pertains to 'Execution Co-relation & Intent of Contract Documents'.
3. Clause 3 pertains to 'Law governing the Contract & Compliance to other Regulation & Bye laws'.
4. Clause 4 pertains to 'Communications to be in writing'.
5. Clause 5 pertains to 'Service of Notices on Contractor'.
6. Clause 6 pertains to 'Occupation & use of Land'.
7. Clause 7 pertains to 'Assignment or subletting of Contract'.
8. Clause 8 pertains to 'Assistance by Department for Stores'.
9. Clause 9 pertains to 'Department Passes'.
10. Clause 10 pertains to 'Carriage of Materials'.
11. Clause 11 pertains to 'Use of Ballast Trains'.
12. Clause 12 pertains to 'Representation on Works'.
13. Clause 13 pertains to 'Relics & Treasures'.
14. Clause 14 pertains to 'Excavated Material'.
15. Clause 15 pertains to 'Indemnity by Contractor'.
16. Clause 16 pertains to 'Earnest money, Security Deposit & Performance Guarantee(P.G)
17. Clause 17 pertains to Extensions i.e. Time to be essence & extension of time
 - a. Extension due to modification
 - b. Extension for delay not due to Department/Contractor
 - c. Extension of time for delay due to Department
 - d. Extension of time for delay due to contractor
18. Clause 18 pertains to 18(1)&(2) 'Illegal Gratification'

19. Clause 19 pertains to
 - a. Contractors' Understanding
 - b. Commencement of Works
 - c. Accepted Programme of Work
 - d. Setting out of Works
20. Clause 17 pertains to
 - a. Compliance to Engineer's instructions
 - b. Alterations to be authorised
 - c. Extra Works
 - d. Separate Contracts in connection with Works
21. Clause 21 pertains to Instructions of Engineer's Representative'
22. Clause 22 pertains to
 - a. Adherence to specifications and Drawings
 - b. Drawings and specifications on the works
 - c. Ownership of Drawings and specifications
 - d. Compliance with contractors request to Details
 - e. Meaning and indent of specifications and Drawings
23. Clause 23 pertains to 'Working during Night'
24. Clause 24 pertains to 'Damage to Rly. Property or Private Life & Property'
25. Clause 25 pertains to 'Sheds, Store Houses and Yards'
26. Clause 26 pertains to 'Provision of Efficient & Competent Staff'
27. Clause 27 pertains to
 - a. Workmanship & Testing
 - b. Removal of Improper Work and Material
28. Clause 28 pertains to 'Facilities for Inspection'
29. Clause 29 pertains to 'Examination of Work before covering up'
30. Clause 30 pertains to Temporary Works
31. Clause 31 pertains to
 - a. Contractor to supply water for Works
 - b. Water supply from Department system
 - c. Water supply by Department Transport
 - i. Contractor to arrange supply of Electric power for works
 - ii. Electric supply form the Department system.
32. Clause 32 pertains to Property in 'Materials & Plant'
33. Clause 33 pertains to
 - a. Tools, plants & materials supplied by Departments
 - b. Hire of Department's Plant-
34. Clause 34 pertains to
 - a. Precautions during Progress of Works
 - b. Roads and Water Courses

- c. Provision of Access to Premises
 - d. Safety of Public
 - 35. Clause 35 pertains to 'Use of Explosives'
 - 36. Clause 36 pertains to
 - a. Suspension of Work
 - b. Suspension lasting more than 3 months
 - 37. Clause 37 pertains to 'Rates for items of Works'
 - 38. Clause 38 pertains to 'Demurrage and wharfage dues'
 - 39. Clause 39 pertains to 'Rates for extra items of works'
 - 40. Clause 40 pertains to
 - a. Handing over works
 - b. Clearance of site on completion
 - 41. Clause 41 pertains to 'Modifications to contract to be in writing'
 - 42. Clause 42 pertains to
 - a. Powers of Modifications to contract
 - b. Valuation of variations
 - 43. Clause 43 pertains to
 - a. Monthly Statement of Claims
 - b. Signing of "no Claim" Certificate.
 - 44. Clause 44 pertains to 'Quantities in Schedule Annexed to contract'
 - 45. Clause 45 pertains to 'Measurement of Works'
 - 46. Clause 46 pertains to
 - a. On-Account Payments.
 - b. Rounding of Amounts
 - c. "On Account" Payments not prejudicial to Final Settlement
 - 47. Clause 47 pertains to 'Maintenance of Works'.
 - 48. Clause 48 pertains to
 - a. Certificate of Completion of works
 - b. Contractor not absolved by Completion Certificate
 - 49. Clause 49 pertains to 'Approval only by Maintenance Certificate'.
 - 50. Clause 50 pertains to
 - a. Maintenance certificate
 - b. Cessation of Department's Liability
 - c. Unfulfilled Obligations
 - 51. Clause 51 pertains to
 - a. Final Payment
 - b. Post Payment Audit
 - c. Repayment of Security Deposit
- Clause 51A pertains to 'Production of vouchers etc. by the contractor'

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52. Clause 52 pertains to 'Withholding & lien in respect of sums claimed'.
 - a. Clause 52A pertains to 'Lien in respect of Claims in other Contracts'.
 53. Clause 53 pertains to 'Signature on Receipts for Amount'.
 54. Clause 54 pertains to 'Wages to Labour'
 - a. Clause 54A pertains to 'Apprentice Act'
 55. Clause 55 pertains to 'Provisions of Payments of Wages Act'
 - a. Clause 55A pertains to 'Provision of contract labour (Regulation and Abolition) Act 1970'
 56. Clause 56 pertains to 'Reporting of Accidents to Labour'
 57. Clause 57 pertains to Provision of Workmen's Compensation Act.
 - a. Clause 57A pertains to 'Provision of Mines Act'
 58. Clause 58 pertains to 'Department not to Provide Quarters for Contractors'
 59. Clause 59 pertains to
 - a. Labour Camps
 - b. Compliance to Rules for Employment of labour
 - c. Preservation of Peace
 - d. Sanitary Arrangements
 - e. Outbreak to Infectious Disease
 - f. Treatment of Contractor's Staff in Department Hospitals
 - g. Medical facilities at Site
 - h. Use of Intoxicants
 - i. Non-employment of Female labour
 - j. Restriction on the Employment of Retired Engineers of Department Services within two years of their retirement.
 60. Clause 60 pertains to
 - a. Non-employment of Labour below the Age of 15
 - b. Medical certificate of Fitness
 - c. Period of Validity of Medical fitness Certificate
 - d. Medical re-examination of labour
 61. Clause 61 pertains to
 - a. Right of Department to determine contract
 - b. Payment on Determination of Contract
 62. Clause 62 pertains to
 - a. Determination of Contract owing to Default of Contractor
 - b. Right of Department after rescission of Contract owing to default of Contractor
 63. Clause 63 pertains to 'Matters Finally determined by the Department.

64. Clause 64 pertains to
 - a. Demand for Arbitration
 - b. Obligations during Pendency of Arbitration
 - c. Appointment of Arbitrators.

Conclusion

One week training session at Superintending Engineer, Nagpur Irrigation Circle, Nagpur started on 18th February 2008 and ended on 22nd February 2008.

On 18th February 2008, Shri. B.S. Swami Saheb, Superintending Engineer, interacted with us; personally I felt that it was the most enjoying part of the training, since he briefly explained each and every activity related to the Water Resources Department. He started with the deficiency of water and non availability of ideal sites for the water resources projects, so he stressed on effective and optimum utilization of the existing sites by using technical knowledge.

As per directions of the Superintending Engineer, we learned various issues such as- role of Superintending Engineer, responsibility of Superintending Engineer, Water Use efficiency, State Water Policy, Maharashtra Water Resources Management by Farmers, Benchmarking or Irrigation Projects, Water Audit, Irrigation Backlog, Maharashtra Water Sector Improvement Project (MWSIP), Water Users' Association (WUA), Forest Act, Land Acquisition and Rehabilitation, Budgeting etc. He also suggested interacting with officers and as per his directions; we completed the given study as well as learn several other things.

This report includes the brief of all these studies performed and understand by me. It was very nice experience to get in depth knowledge through systematic schedule.

This report includes the day-to-day details of training program at Superintending Engineer office, Nagpur. It also contains the study and observations performed by me.

I am thankful to all the staff of the Superintending Engineer office, Nagpur for giving me an opportunity to learn about several administrative and technical things.

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