कार्यकारी अभियंता,
धापेवाडा उपसा सिंचन विभाग, तिरोडा.

Executive Engineer,
Dhapewada Lift Irrigation Division, Tiroda

सरळ सेवा भरतीने नियुक्ती दिलेल्या सहाय्यक कार्यकारी अभियंता/सहाय्यक अभियंता श्रेणी–१
अधिकाऱ्यांसाठी प्रतिष्ठापन प्रशिक्षण कार्यक्रम, (भाग १), जलसंपदा विभाग
Induction Training (Part I) for Direct Recruits (Assistant Executive Engineer and Assistant Engineer (Grade 1)) of Water Resource Department.

कालावधी: २१–२३ नोव्हेंबर २००७
Duration: 21-22 November 2007

"क्षेत्रीय प्रशिक्षण अहवाल"
"FIELD TRAINING REPORT"

सादरकर्ता–
Submitted by-
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Vidarbha Irrigation Development Corporation, Nagpur

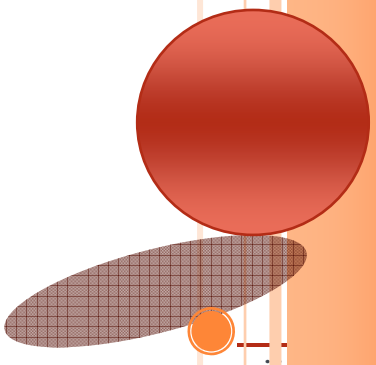
Executive Summary

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, group of Assistant Executive Engineer's was directed to undergo field training under the guidance of Superintending Engineer, Gosikhurd Lift Irrigation Circle, Aambadi, Bhandara to grasp knowledge about lift irrigation schemes.

As per direction of Superintending Engineer, Gosikhurd Lift irrigation Circle, Aamabadi, we reported to Executive Engineer- Shri. Morghade saheb, Dhapewada Lift Irrigation Division, Tiroda. There are five subdivisions headed by deputy engineers- Shri. Panday, Shri. Chandewar, Shri. Mandrile, Shri. Telang and Shri. Das. There are several Lift Irrigation Schemes undertaken through these sub-divisions under the control of Shri. Morghade Saheb.

Dhapewada Lift Irrigation Scheme is an ambitious project in Gondia district, and Stage One of this scheme is implemented on Left Bank Canal of Waingangā river near Kawalewada village of Tiroda Tahsil, Gondia district. 5000 ha land of 17 villages will be benefited through this scheme. 100 percent work of headwork is completed and about 70 percent work of canal and distributaries is completed till date. The original cost of the scheme was Rs. 24.01 Crore and Revised estimate is of Rs. 78.05 Crore. Proposal is prepared for Stage Two, with estimated cost of Rs. 917.02 crore. Five tahsils from Gondia district and three tahsils from Bhandara district will be benefited from this scheme, covering about 67,506 Ha of land. Another Lift Irrigation Scheme, which we visited was-Rajegaon Kati Lift Irrigation Scheme, which is located on Left bank canal of Bagh river, near Satona village of Gondia Tahsil. The original cost of project is about Rs. 23.37 Crore and Benefit Cost Ratio is 1.69, while revised cost of project is Rs. 41.77 crore.

While studying about the projects, I realized the great technical and management skills involved during implementation of the Lift Irrigation Schemes. It is biggest challenge to every engineer of the division, to convert all designs and drawings in to reality, without entertaining any mistake or fault. Definitely, their contribution in the success of the entire project is uncountable. I am sure that completion of the project will bring green revolution in Vidarbha region.



कार्य सारांश

महाराष्ट्र लोकसेवा आयोगामार्फ़त घेण्यात आलेल्या 'महाराष्ट्र अभियांत्रिकी सेवा परिक्षा–२००४' च्या निकालाच्या अनुसंघाने 'सहाय्यक कार्यकारी अभियंता' या पदावर नियुक्ती दिलेल्या अधिकाऱ्यांसाठी 'महाराष्ट्र अभियांत्रिकी प्रशिक्षण प्रबोधिनी', नाशिक या संस्थेद्वारे एका वर्षाच्या प्रशिक्षण कार्यक्रमाचे आयोजन करण्यात आले. या प्रशिक्षण कार्यक्रमांर्तगत, पहिल्या तुकडीतील सहाय्यक कार्यकारी अभियंत्यांचा पहिला गट क्षेत्रीय प्रशिक्षणासाठी अधीक्षक अभियंता, गोसीखुर्द उपसा सिंचन मंडळ, आंबाडी, भंडारा यांच्याकडे दि. ०५ नोव्हेंबर २००७ रोजी तीन आठवड्याच्या प्रशिक्षणासाठी रुजु झाला.

प्रशिक्षणाच्या तिसऱ्या आठवड्यामध्ये आम्हांला 'धापेवाडा उपसा सिंचन विभाग, तिरोडा' या विभागाचे कार्यकारी अभियंता–श्री. मोरघडे साहेब यांचे मार्गदर्शन लाभले. धापेवाडा उपसा सिंचन विभाग, तिरोडा ही एक महत्वाकांक्षी योजना असुन, या योजनेमधील टप्पा–१ चे शिर्ष कामे १०० टक्के पुर्ण झाले असुन कालवे प्रणालींचे ७० टक्के कामे पुर्ण झाली आहेत. गोंदिया जिल्हातील तिरोडा तालुक्यात कवलेवाडा गावाजवळ वैनगंगा नदीच्या डाव्या तीरावर ही योजना बांधण्यात आली आहे. या योजनेद्वारे तिरोडा तालुक्यातील एकुण १७ गावातील ५००० हे. क्षेत्रीय सिंचन प्रस्तावित आहे. मुळ प्रशासकीय किंमत रु. २४.०१ कोटी असुन सुधारीत किंमत रु. ७८.०५ कोटी आहे.

धापेवाडा उपसा सिंचन योजना, टप्पा–२ ही योजना गोंदिया जिल्ह्यातील तिरोडा तालुक्यात कवलेवाडा गावाजवळ वैनगंगा नदीवर प्रस्तावित आहे. सन २००३–०४ च्या दरसुचीनुसार प्रकल्पाचे किंमत रु. ९१७.०२ कोटी आहे. योजनेपासुन गोंदिया जिल्यातील पाच आणि भंडारा जिल्ह्यातील तीन तालुके असे एकुण आठ तालुके लाभान्वित होणार आहेत.

धापेवाडा उपसा सिंचन योजनेसोबत आम्ही रजेगाव काटी उपसा सिंचन योजनेला भेट दिली. सदर योजना गोंदिया तालुक्यातील सतोना गावाजवळ बाघ नदीच्या डाव्या किनाऱ्यावर प्रस्तावित आहे. बाघ नदी ही महाराष्ट्र व मध्य प्रदेशची सीमा आहे. प्रकल्प अहवालानुसार या योजनेची एकुण किंमत रु. २३.३७ कोटी असुन लाभव्यय गुणोत्तर १.६९ एवढा आहे. योजनेचा रु. ४१.७७ कोटी किमंतीचा सुधारीत प्रशासकीय मान्यता प्रस्ताव शासनास मंजुरीस्तव सादर करण्यात आलेला आहे. सदर अहवालामध्ये आम्ही प्रशिक्षणार्थींनी केलेले निरिक्षण आणि अभ्यासाच्या टिप्पण्या नोंदवल्या आहेत.

सदर विभागाचे काम पाहून विविध प्रकल्पांसंबंधीच्या आव्हानात्मक कामाची मला जाणीव झाली. या विभागाचे कार्यकारी अभियंता – श्री. मोरघडे साहेब यांच्या मार्गदर्शनाद्वारे सर्व अधिकाऱ्यांच्या व कर्मचाऱ्यांच्या संघटनात्मक, कार्यक्षम आणि सदैव मदतीसाठी तत्पर असण्याच्या स्वभावामध्येच या विभागतील यशाचे गमक सामावले आहे. या प्रकल्पाच्या यशामध्ये त्यांचा वाटा निश्चितच मोलाचा आहे व त्यातुनच या भागामध्ये हरितक्रान्ती होवून या भागाचा विकास होईल असे मला वाटते.

Acknowledgement

This report will be incomplete without a proper acknowledgment of the debt to many persons, who made it possible. It is my great pleasure to acknowledge those whose active help and support make this report possible in the present form. First of all I express my sincere gratitude to Shri. S.R. Suryavanshi- Chief Engineer for their guidance during field training.

It is the endless guidance and constant encouragement of Executive Engineer- **Shri. Morghade,** and I would like to express my heartfelt gratitude to him for providing us necessary drawings and technical information along with the stay arrangements.

I am deeply indebted to deputy engineers- Shri. Panday, Shri. Chandewar, Shri. Mandrile, Shri. Telang and Shri. Das, all technical and non-technical staff of circle office for insisting in me the drive to work hard and for inculcating in me the discipline to think clearly. Definitely the knowledge, I received during this training session was a lifetime experience and it will serve as a foundation for my career.

I am thankful to Shri. Malik, Shri. Agnihotri, and Shri. Amit Parankar, for their help during field visit.

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.

- Pravin Kolhe BE (Civil), MTech (IITK)
(Assistant Executive Engineer)

Chapter 1. Dhapewada Lift Irrigation Division, Tiroda

1.1 Introduction

Dhapewada Lift Irrigation Division is headed by Executive Engineer- Shri. Morghade saheb and there are five subdivisions to cater vast amount of lift irrigation work. The subdivisions are-

Sub-division	Place	Sub-Divisional Officer / Assistant Engineer (Gr. I)
Dhapewada Lift Irrigation Sub Division No. 2	Tiroda	Shri. Mandrile
Gosikhurd Left Bank canal subdivision No. 5[1]	Lakhandur	Shri. Panday
Medium Project sub-division	Arjuni (Morgaon)	Shri. Chandewar
Lift Irrigation Project Sub-division No. 1	Tiroda	Shri. Telang
Minor Irrigation Surveying Subdivision	Bhandara	Shri. Das

Several projects are undertaken through this division and our purpose to visit this division was to study about Lift irrigation Schemes and interact with experienced staff of division and sub-division.

As per the directions of Executive Engineer- Shri. Morghade Saheb, we visited Dhapewada Lift Irrigation Scheme, (Stage I) on 21st November 2007 with Shri. Malik. Chapter 2 presents details of this scheme. On 22nd November 2007, we planned to visit Ralegaon Kathi Lift irrigation Scheme, Gondia with Shri. Chandewar saheb and Shri. Agnihotri saheb. It was nice experience to see the components of the lift irrigation schemes.

[1] Old Name

Chapter 2. Dhapewada Lift Irrigation Scheme (Stage I)

2.1 Introduction

Dhapewada Lift Irrigation Scheme (Stage I) is implemented on Left bank of Waingangā river, near Kavalewada village of Tiroda Tahsil, Gondia district. 5000 ha of land from 17 villages of Tiroda Tahsil will be benefited from this scheme. The construction of head works is 100 percent completed and work of canal and distributaries is 70 percent completed. The original AA[1] of this scheme was Rs. 24.01 crore, while revised estimate is of Rs. 78.05 crore.

The construction of pump house, rising main, distribution chamber, manifold and work related to pump house is completed and the scheme is implemented successfully on 11th March 2005. There are 5 pumps of 800 HP capacities (each). MSEB[2] provided 33 KV electric sub-station near scheme. The earth work, lining and CD work of Bodalkasa Main canal chain age 20500m to 32100m is completed. There are 12 distributaries among work of 4 minor distributaries is completed and construction of remaining eight minor distributaries is in progress and soon it will be completed.

There are two distributaries proposed as per the plan, viz., Kawalewada and Tirda. The length of Kawalewada distributaries is 2.94km and there is minor canal-Pujaritola, for which the earthwork and various construction work is completed.

Currently 3288 ha is under irrigation and 13 WUA's[3] are proposed, one already established and the remaining are in progress.

164 ha private land and 6.50 ha Government land is required for this scheme, and 69 proposals for private land are prepared. Rs. 72.68 lakhs is distributed for 29 proposals and for remaining 40 proposals, 2/3rd amount (Rs. 38.56 lakhs) is deposited to Rehabilitation Officer. There is no need of forest land for this scheme.

2.2 Salient features of Dhapewada Lift Irrigation Scheme (Stage I)

Table: Details of the Dhapewada LIS

Sr. no.	Particulars	Stage 1	
1	No. of pumps	Total=6 (5+1 stand bye)	
2	Capacity of pumps	800 HP (each)	
3	Size of pump house	36.8x17.30m	
4	Rising main		
	a. Length	4361m	
	b. Diameter	1400mm	
	c. Thickness	10mm	
	d. Rows	2No.	
	e. Type of pipes	SWMS	
4	Static head	35.5m	
5	Friction head	7.44m	

[1] Administrative Approval
[2] Maharashtra State Electricity Board
[3] Water User Association's

6	Total head	42.94m	
7	Length of canal	11.60km	
8	Discharge in canal	4.42 m^3/sec	
9	Command area		
	a. GCA	7104 Ha	
	b. CCA	6253 ha	
	c. ICA	5000 ha	
10	BC Ratio	1.51	
11	Controlling levels		
	a. River Bed	RL 251.00m	
	b. MDDL (River)	RL 251.50m	
	c. Bed RL at Pump house	RL 241.00 m	
	d. Delivery floor of pump house	RL 271.700m	

Chapter 3. Rajegaon Kathi Lift Irrigation Scheme

3.1 Introduction

The Rajegaon Kathi Lift Irrigation Scheme is proposed on Bagh River near Satona village of Gondia Tahsil. Bagh river represents boundary of Maharashtra and Madhya Pradesh. According to AA, the original cost of project is Rs. 23.37 crore and as per revised estimate the cost is Rs. 41.77 crore. The benefit cost ration is 1.69 that means that the scheme is feasible,

The drawings of the scheme were approved from CDO[1], as per the recommendations of standing committee. At site, in river Bagh, 87 TMC[2] water storage is available out of which, 16 TMC water will be lifted to irrigate 3060 ha land. There are 3 vertical turbine pumps of 710 HP capacity (each) to lift water up to head of 33 m. The length of rising main is 7.76km, and diameter of pipe is 1200mm.

Following villages will be benefited form this project-

Arjuni	Bagoli	Badhutola	Chargaon
Gara	Savari	Sirpur	Lodhitola
Nagara	Murpar	Ravanwadi	Khatiya
Gonditola	Kochewahi	Bagholitola	Kalartola
Rajegaon	Changera	Halabitola	Ghiwari
Banath			

3.2 Salient features of Rajegaon Kathi Lift Irrigation Scheme

Table: Details of the Ragegaon Kathi LIS

Sr. no.	Particulars	Stage 1	
1	No. of pumps	Total=3	
2	Capacity of pumps	710 HP (each)	
3	Size of pump house	8.0x16m	
4	Rising main		
	f. Length	7.76km	
	g. Diameter	1200mm	
	h. Thickness	8mm	
	i. Type of pipes	SWMS	
4	Static head	37.59m	
5	Friction head	16.79m	
6	Total head	54.37m	
7	Length of canal	1.76km	
8	Discharge in canal	2.02 m^3/sec	
9	Command area		
	d. GCA	6843 Ha	

[1] Central Design Organization, Nashik
[2] Thousand Million Cubic Meter

	e. CCA	3378 Ha	
	f. ICA	3060 ha	
10	BC Ratio	1.69	

Conclusion

During our training session, we studied most of the important reports/documents related to Dhapewada Lift Irrigation Scheme, Stage one and two, Rajegaon Kathi Lift Irrigation scheme and other projects under Dhapewada Lift Irrigation Division, Tiroda. It was great experience for me, since I could realize the design of structures and various components which are associated with Lift Irrigation Schemes.

Dhapewada Lift Irrigation Scheme is an ambitious project in Gondia district, and Stage One of this scheme is implemented on Left Bank Canal of Waingangā river near Kawalewada village of Tiroda Tahsil, Gondia district. 5000 ha land of 17 villages will be benefited through this scheme. 100 percent work of headwork is completed and about 70 percent work of canal and distributaries is completed till date. The original cost of the scheme was Rs. 24.01 Crore and Revised estimate is of Rs. 78.05 Crore.

Proposal is prepared for Stage Two, with estimated cost of Rs. 917.02 crore. Five Tahsil from Gondia district and three Tahsil from Bhandara district will be benefited from this scheme, covering about 67,506 Ha of land. Another Lift Irrigation Scheme, which we visited was-Rajegaon Kati Lift Irrigation Scheme, which is located on Left bank canal of Bagh river, near Satona village of Gondia Tahsil. The original cost of project is about Rs. 23.37 Crore and Benefit Cost Ratio is 1.69, while revised cost of project is Rs. 41.77 crore.

There are several other challenging projects undertaken through this division and I feel myself fortunate to be witness of the projects which will bring green revolution in Vidarbha Region. I tried my best to gather maximum knowledge through observation and discussion with the officers and staff, and it will be helpful throughout my career.

-Pravin Kolhe
(Assistant Executive Engineer)

Photo Gallery

Approach Channel for Dhapewada Lift Irrigation Scheme.

Pump house of Dhapewada Lift Irrigation Scheme.

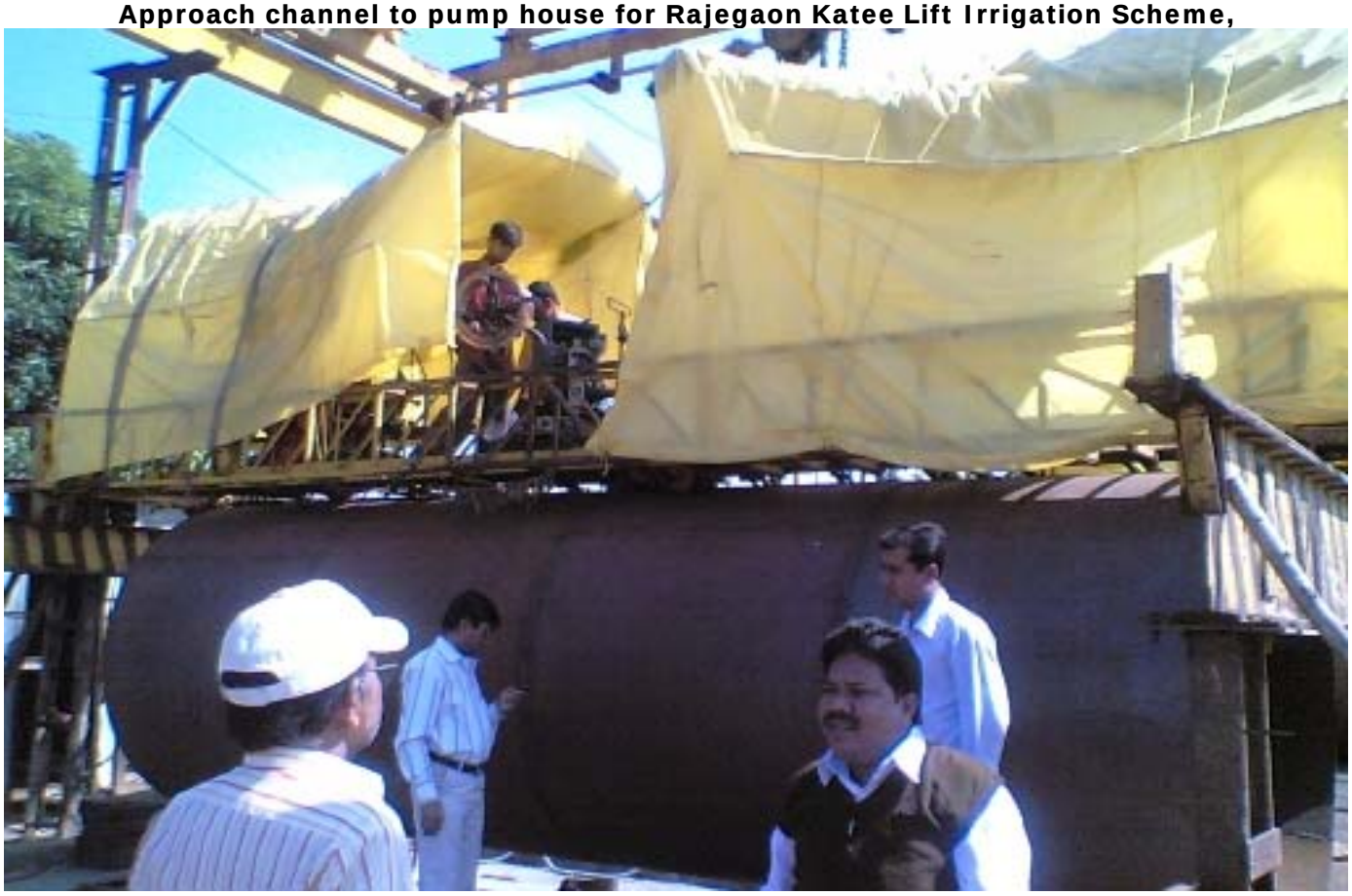
Bending of steel plates for fabrication of pipes

Water Proof testing for small diameter pipes

Water Proof Testing arrangement for Large Diameter Pipes

Head Work for Rajegaon Katee Lift Irrigation Scheme,

Approach channel to pump house for Rajegaon Katee Lift Irrigation Scheme,



Automatic Welding Adjustment