2007-08

Field Training Report

Report submitted to-

Executive Engineer,
Rehabilitation Division,
Ambadi. Dist: Bhandara
(15/10/2007-20/10/2007)

कार्यकारी अभियंता, गोसीखुर्द पुनर्वसन विभाग, भंडारा

Executive Engineer, Gosikhurd Rehabilitation Division, Bhandara

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: १ आठवडा (१५–२० ऑक्टोंबर २००७)

Duration: 1 week (15 October-20 October 2007)

"क्षेत्रीय प्रशिक्षण अहवाल"

"FIELD TRAINING REPORT"

सादरकर्ता–

Submitted by-

प्रविण कोल्हे

(सहाय्यक कार्यकारी अभियंता)

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Executive Summary

Maharashtra Engineering Training Academy (META), Nashik organized training program for direct recruits - Assistant Executive Engineer and Assistant Engineer (Grade 1) of Water Resource Department (WRD), in accordance with Maharashtra Engineering Service Examination-2004.

As per schedule of training program, first group of first division was directed to undergo field training under the guidance of Superintending Engineer, Gosikhurd Project Circle, Nagpur to observe & learn about dam, canals and rehabilitation work. After spending first week of training program started at Gosikhurd Rehabilitation Division, Nagpur, we joined Gosikhurd Rehabilitation Division, Bhandara under Shri. B.N Deshpande, Executive Engineer. The Gosikhurd Rehabilitation Division consists of five subdivisions headed by deputy engineers- Mrs. Vijayashree Burade, Shri. U.N. Wakodikar, Shri. R.B. Rathod, Shri. V.S. Meghare, Shri. H.B. Agarwal and this report consist of the abstract of the interaction with them as well as observations/study performed by us.

Land acquisition and rehabilitation is a complex process, where Civil Engineer has to play a key role by thinking socially. He contribute for the development of that region, by constructing dam/canals and other related structure, hence improving the living standard as well financial condition of the persons, generally in the downstream side of the dam. But at the same time, land acquisition for the construction purpose, he rehabilitates the persons using that land. As a psychological effect, initially people rejects that proposal, then Civil Engineer came in to picture to ensure that there will not be any in-justice with project affected person. The procedure starts with the land acquisition proposal, by following the Land Acquisition Act-1894. He is a medium between affected persons and the Government. This job involves legal procedures, official and un-official meetings with the project affected people as well as the sanctioning authority.

I am pleased to see well organized, efficient and helping nature of all the officers in this division, especially while dealing with the rehabilitation cases. Definitely, their contribution in the success of the entire project is uncountable, since they dealt with the most complex claims by fulfilling the rational demands of the affected persons. I am sure that completion of the project will improve the living standard of not only the persons in the command area, but also affected persons.

कार्य सारांश

महाराष्ट्र लोकसेवा आयोगामार्फ़त घेण्यात आलेल्या 'महाराष्ट्र अभियांत्रिकी सेवा परिक्षा–२००४' च्या निकालाच्या अनुसंघाने 'सहाय्यक कार्यकारी अभियंता' आणि 'सहाय्यक अभियंता श्रेणी–१' 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 अभियंताचा पहिला गट क्षेत्रीय प्रशिक्षणासाठी अधीक्षक अभियंता, गोसीखुर्द प्रकल्प मंडळ, नागपूर यांच्याकडे दि. ०८ आँक्टोंबर २००७ रोजी चार आठवड्याच्या प्रशिक्षणासाठी रुजु झाला. बांधकाम प्रकल्पाचे सर्वेक्षण, अन्वेषण व प्रकल्प अहवाल तयार करणे, चालू प्रकल्पांचे प्रत्यक्ष मुख्यधरण, कालवा व वितरीकाचे कामाचे नियोजन करणे व चालू बांधकामावर प्रत्यक्ष देखरेख करणे असा या प्रशिक्षणाचा पोटविषय होता.

प्रशिक्षणाच्या दुसऱ्या आठवड्यांमध्ये (१५–२० आँक्टोंबर २००७) आम्हाला श्री. भ. न. देशपांडे, कार्यकारी अभियंता, गोसीखुर्द पुनर्वसन विभाग, अंबाडी, भंडारा यांचे मार्गदर्शन लाभले. या विभागाचे पाच उपविभाग असुन श्रीमती विजयश्री बूराडे, श्री. उ. ना. वाकोडीकर, श्री. आय. बी. राठोड, श्री. वि. श. मेघरे, श्री. एच. बी. अग्रवाल, हे या उपविभागाचे उपविभागीय अभियंता/अधिकारी आहेत.. प्रस्तुत अहवालात या अधिकाऱ्यांबरोबर झालेल्या सुसंवादाचा सारांश आणि आम्ही केलेले निरिक्षण नोंदवले आहे.

भुसंपादन आणि पुनर्वसनाची प्रक्रिया अतिशय गुंतागुंतीची असुन त्यात स्थापत्य अभियंताचा सहभाग अत्यंत महत्वाचा आहे. त्याच्या सहभागातून निर्माण झालेल्या धरणासारख्या प्रकल्पांमुळे त्या भागाचा विकास होतो. साधारणतः अशा प्रकल्पांचे फ़ायदे लाभक्षेत्रामधील व्यक्तींना मिळुन त्यांचे सामाजिक आणि आर्थिक रहाणीमान उंचावते, परंतु, ज्या लोकांनी प्रकल्पासाठी त्यांच्या बहुमोल जमिनी देवुन त्याग केला आहे, अशा प्रकल्पग्रस्त व्यक्तींना कमीत कमी त्रास होइल व त्या प्रकल्पाचे फायदे त्यांनाही मिळावेत असा पुनर्वसनामागील हेतु आहे. स्थापत्य अभियंताला प्रकल्पग्रस्तांना योग्य ती भरपाई मिळवून देण्यासाठी सतत त्यांच्या आणि भुसंपादन अधिकाऱ्याच्या संपर्कात राहावे लागते.

सदर विभागाचे काम पाहून भुसंपादन व पुनर्वसन या महत्वाच्या टप्प्यामधील आव्हानात्मक कामाची मला जाणीव झाली. या विभागातील सर्वच अधिकाऱ्यांच्या व कर्मचाऱ्यांच्या संघटनात्मक, कार्यक्षम आणि सदैव मदतीसाठी तत्पर असण्याच्या स्वभावामुळे प्रकल्पग्रस्तांच्या समस्या सुटण्यास नक्कीच मदत झाली. या प्रकल्पाच्या यशामध्ये त्यांचा वाटा निश्चितच मोलाचा आहे. या प्रकल्पाच्या पुर्णत्वामुळे लाभक्षेत्रामध्ये असलेल्या लाभधारकाबरोबरच प्रकल्पग्रस्तांचासुध्दा 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.L. Kholapurkar, Superintending Engineer, Gosikhurd Project Circle, Nagpur for his guidance during field training.

It is the endless guidance and constant encouragement of Shri. B.N Deshpande, Executive Engineer, Gosikhurd Rehabilitation Division, Ambadi, and - Mrs. Vijayashree Burade, Shri. U.N. Wakodikar, Shri. R.B. Rathod, Shri. V.S. Meghare, Shri. H.B. Agarwal – Sub-Divisional Engineer/Officer and I would like to express my heartfelt gratitude to them. I am deeply indebted to all technical and non-technical staff of division and sub-division 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 my colleagues who make the stay at Girola Motel, Ambadi enjoyable. 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. Gosikhurd Project

1.1 Introduction

The major part of Vidarbha region lies in Pranhita sub-basin of Godavari region. The tributaries finally contributing to form Pranhita river are Penganga, Wardha and Wainganga.

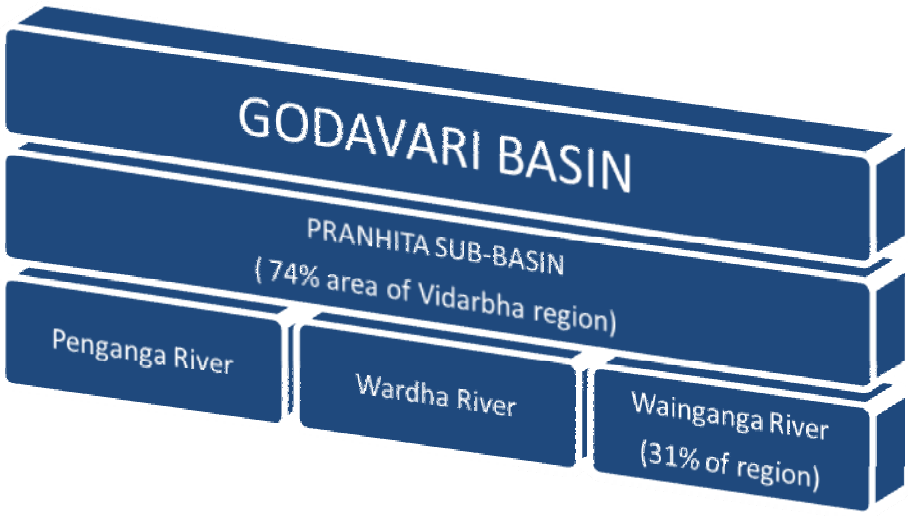

Fig. 1.1.1 Details of contribution of rivers in Vidarbha region

Wainganga originates near the village Pratapgarh at an elevation of 640 m RL in Seoni district of Madhya Pradesh and traverses almost North-South through Bhandara and Chandrapur district of Maharashtra state. Total length of Wainganga from its origin up to confluence with Wardha river is about 717 km. The total catchment area drained up to the proposed dam site of Gosikhurd project is 34,860 km^2, out of which 24,261 km^2 lies in Madhya Pradesh and 10,627 km^2 in Maharashtra state. Wainganga river has following tributaries-

Table 1.1.1 Tributaries of Wainganga river

Left bank tributaries	Right Bank tributaries
1. Thel River (MP) joins at 71 km	1. Hirri River in MP joins at 183 km
2. Bagh River (MS) joins at 257 km	2. Mawanthadi River (MS) joins at 300km
3. Chulband River (MS) joins at 415 km	3. Kanhan River (MS) joins at358 km
4. Khobragadi River (MS) joins at 450 km	4. Mayur River (MS) joins at 386 km
5. Kathani River (MS) joins at 470 km	5. Andheri River (MS) joins at 555 km
6. Dina River (MS) joins at 600 km	

Gosikhurd village is located in Pauni Tahsil of Bhandara district on Wainganga River. As per planning, Gosikhurd reservoir will be created by constructing a composite dam 8 km long with earth embankment for 5.5 m across River Wainganga. i.e. earthen dam both the right and left ban flanks of central masonry gated Ogee spillway 777 m long in the river gorge and 14 m above

foundation level. It will have battery of 43 radial gates of 15x12 m size to discharge a design flood of 52,000 m^3/sec. The maximum height of the dam will be 27 m above river bed. The barrage will submerge about 18,960 ha land of which 12,600 ha in Nagpur and Bhandara district (68 villages fully and 75 villages partially)

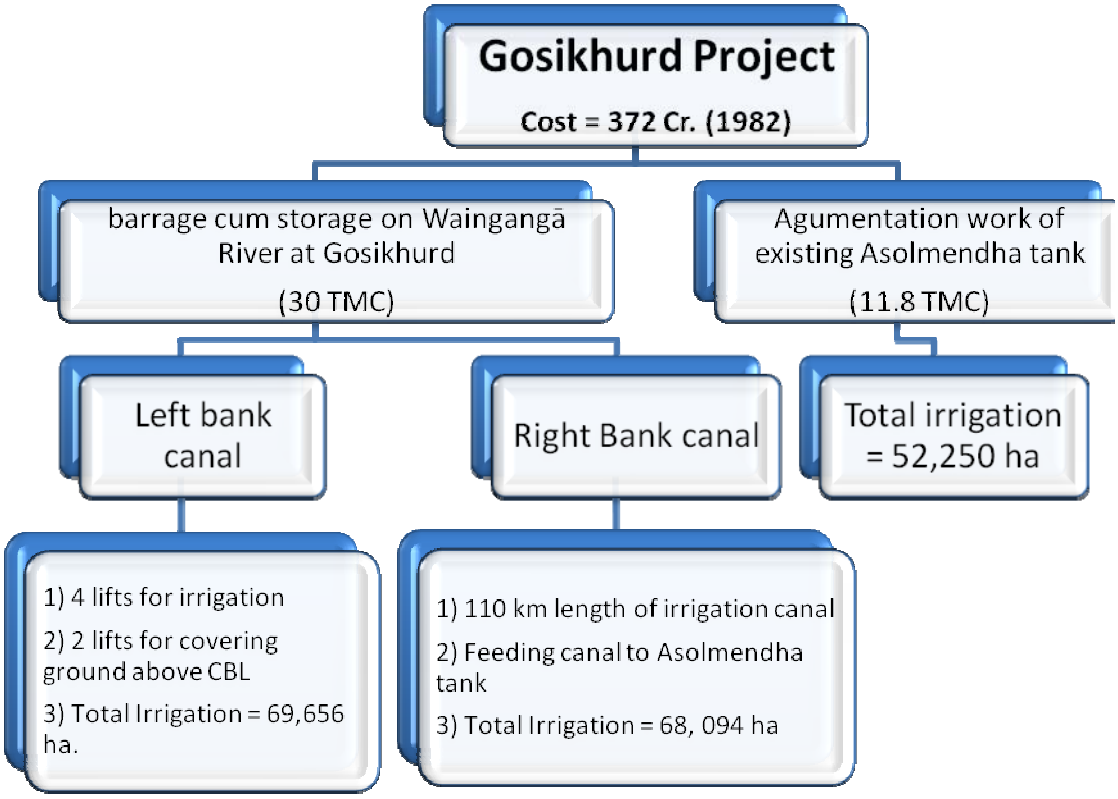

Fig. 1.1.2 Details of Gosikhurd project

The year wise percentage of development of irrigation potential –

Table 1.1.2 Year wise percentage of development of irrigation potential-

5th year of construction	20 %
6th year of construction	29 %
7th year of construction	31 %
8th year of construction	20 %

1.2 Salient features of Gosikhurd Project

a) Cost of Gosikhurd project : 316.57 Cr. (1982)
b) Cost of Asolmendha Tank : 55.62 Cr. (1982)
c) Total cost of project : 372.22 C. (1982)
d) Total irrigation : 1,90,000 ha
e) Location of dam :

Table 1.2.1 Details of dam location

State	Maharashtra
District	Bhandara
Tahsil	Pauni
Village	Gosikhurd
Toposheet No.	55 P/9
Latitude	20^{o} 52' 15'' N
Longitude	79^{o} 37' 0'' E

f) Name of river : Wainganga (Tributary of Pranhita)
g) Name of basin : Godavari
h) Catchment area :

	Madhya Pradesh	Maharashtra	Total
Gross	24,261 km^2	10,627 km^2	34,888 km^2
Free			5,902 km^2

i) Availability of water

75 % dependable mansoon yield	501.33 TMC
Past mansoon flow (4.7 %)	23.56 TMC
Total annual yield	524.89MC

1.3 Utilization

a) Irrigation utilization :

With flow canal on LBC	4.418 TMC
On lift canal	3.537 TMC
LB foreshore lift	5.610 TMC
Right bank flow canal	11.85 TMC
RC foreshore lift	6.75 TMC

b) Water supply to ordnance factory, Bhandara : 0.837 TMC
c) Feeding to Asolamendha tank : 13.766 TMC
d) Annual evaporation loss : 7.107 TMC
e) Total utilization : 53.88 TMC
f) Balance spill over : 58.704 TMC

1.4 Dams and spillway details

Table 1.4.1 Details of dam and spillway

Dam	
Type of dam	Rolled filled earthen dam
Length of dam	7.8 km (excluding spillway)
Maximum height of dam	22 m
Free board	
Over MWL	3m
Over FRL	4.5 m
Spillway	
Type of spillway	Central gated Ogee shaped masonry spillway
Length of spillway	777 m
Maximum height	10.3 m
Crest level	232 m
Design flood	52,000 m^3/sec
No. of gates	43
Size of gates	15x12 m

1.5 Prominent features of irrigation by canal

Table 1.5.1 Prominent features of irrigation by canal

Sr. No	Canal	Capacity (m^3/sec)	Length (km)	CCA (ha)	ICA (ha)	Lift head
1	Right Bank Canal	95	108	53,405	50,735	--
2	Left Bank Canal	40.50	27.5	35,860	34,067	--
3	Left bank fore shore lift- Paghora	21.11	45	21,284	20,223	35 m
4	Left bank fore shore lift- Jakh	4.47	4	4,000	3,800	35 m
5	Right bank fore shore lift- Mokhabardi	24.02	53	21,350	20,280	35 m
6	Right bank fore shore lift- Ambhora	10.24	9.10	9,100	8,645	18 m

Chapter 2. Rehabilitation

2.1 Submergence details of private and government land

Details of submergence of private land is shown in following Table 2.1.1-

Table 2.1.1 Submergence details of privet land

	District/Tahsil	Culturable (jirayat)	Follow land	Irrigated land	Total land
a) Bhandara District					
	1) Bhandara Taluka	1509.43	240.25	36.65	**1786.83**
	2) Pauni Taluka	2058.04	198.51	49.85	**2306.40**
b) Nagpur district					
	1) Kuhi Taluka	3592.45	327	77.6+0.4[1]	**3997.45**
	2) Bhivapur taluka	4025.80	390.09	91.70	**4507.59**
	Total	**11185.72**	**1156.35**	**256.20**	**12598.27**

Details of submergence of Government land is presented in following Table 2.1.2

Table 2.1.2 Submergence details of government land

District/Tahsil	Forest (revenue)	Under nalla/River	Other revenue	Goathan	Total
a) Bhandara District					
1) Bhandara Taluka	--	2374.35	132.27	137.69	**2644.31**
2) Pauni Taluka	48.26	777.30	468.50	20.50	**1314.56**
Total (Bhandara)	**48.26**	**3151.65**	**600.77**	**158.19**	**3958.87**
b) Nagpur district					
1) Kuhi Taluka	32.39	1302.60	151.96	61.78	**1548.23**
2) Bhivapur taluka	220.54	468.62	1.23	41.68	**732.07**
Total (Nagpur)	**252.93**	**1771.22**	**330.11**	**103.46**	**2457.72**

2.2 Land and habitation details

Entire submergence lies in Maharashtra state, the land likely to be submerged up to the level (FRL+0.5 m) 224.5 m is 21020 ha, which is mainly from Pauni and Bhandara talukas of Bhandara district and Kuhi and Bhivapur talukas of Nagpur district.

The habitation is proposed to be removed up to RL 244.5 m. The number of villages which would be affected by the submergence would be around 143, out of which 65 gaothans are affected fully and 78 affected partially. Talukawise details of the affected villages are given in the Table 2.2.1. Totally 13,127 structures (including 112 temples) are affected by the submergence and a total population of about 81,623 souls will be affected by this project. Taluka wise details of structures and population affected are presented in Table 2.2.2.-

[1] Area of gardens

Table 2.2.1 Taluka wise details of the affected villages

	District/Tahsil	Gaothans fully affected	Villages-Only land affected	Total
a)	**Bhandara District**			
	1) Bhandara Taluka	10	59	**69**
	2) Pauni Taluka	13	10	**23**
b)	**Nagpur district**			
	1) Kuhi Taluka	23	3	**26**
	2) Bhivapur taluka	19	6	**25**
	Total	**65**	**78**	**143**

Table 2.2.2 Taluka wise details of structures and population affected

	Tahsil	Type wise structure				Temple	Wells	Fruit bearing trees	Population
		A	B	C	D				
1)	Bhandara	227	628	2310	2686	52	142	340	46,050
2)	Pauni	31	121	927	418	10	28	313	6,087
3)	Kuhi	61	233	1900	1177	32	69	312	18,850
4)	Bhivapur	64	299	1326	563	18	57	145	10,636

2.3 Displacement of population and rehabilitation problem

65 gaothans (fully) and population of about 81,623 souls will be affected due to submergence. Land acquisition (of 21020 ha) and rehabilitation work of such magnitude will have to be attended by special efforts and to minimize the inconvenience to the affected people. It is therefore proposed to set up a post of Rehabilitation Officer (Additional Collector) with four land acquisition officers (LAO's) and two rehabilitation officers to cope up with the voluminous work involved.

Since the land going under submergence are fertile, only monetary compensation will not be adequate for sufferers. Suitable alternative land in the command area in lieu of land affected will have to be allotted to the people in exchange at reasonable rates. More ever basic necessities like well, school, roads, recreation centre will also have to be provided for which provision is made in the cost of estimate of 'B' – lands.

Some villages can also be rehabilitated in the neighboring villages in the upper part of the Wainganga river above the submergence area. There is sufficient forest land in Bramhapuri, Chandrapur and Bhandara which will be suitable for habitation and cultivation after some development of land. Persons can be accommodated in the areas getting benefit of lift irrigation at the free shores of lake. As the rehabilitation site would be within or too nearer to their districts, people will be less displaced with the rehabilitation work.

Conclusion

On 16th October 2007, we visited rehabilitation site at Matora (Bhandara district of Maharashtra state) and we observed the progress of rehabilitation work. Land acquisition and rehabilitation is a complex process, where Civil Engineer has to play a key role by thinking socially. He contribute for the development of that region, by constructing dam/canals and other related structure, hence improving the living standard as well financial condition of the persons, generally in the downstream side of the dam. But at the same time, land acquisition for the construction purpose, he rehabilitates the persons using that land. As a psychological effect, initially people rejects that proposal, then Civil Engineer came in to picture to ensure that there will not be any in-justice with project affected person.

The procedure starts with the land acquisition proposal, by following the Land Acquisition Act-1894. He is a medium between affected persons and the Government. This job involves legal procedures, official and un-official meetings with the project affected people as well as the sanctioning authority.

We are pleased to see well organized, efficient and helping nature of all the officers in this division, especially while dealing with the rehabilitation cases. Definitely, their contribution in the success of the entire project is uncountable, since they dealt with the most complex claims by fulfilling the rational demands of the affected persons. I am sure that completion of the project will improve the living standard of not only the persons in the command area, but also affected persons.

We hope that the problems related with rehabilitation will be solved by this division in coming year and completion of Gosikhurd Project will bring Green evolution in the Vidarbha region.