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Chapter - IV

A PROFILE OF PHATAKWADI DAM

4.1 Introduction:

Since the Empire of Chh. Shivaji Maharaj, the Agricultural sector has been developed in the southern Kolhapur district. The tradition of Shivaji Maharaj was strictly followed by Chh. Shahu Maharaja in his region. He was the first person who constructed 'Radhanagari Dam' in year 1902 which is the milestone in the development of agriculture sector. He was the visionary agriculturist and economist in those days especially in pre-independent. After the Independent Maharashtra government established 'Krishna Khore Vikas Mahamandal' in the year of 1996 under this irrigation department government has constructed various dams all over Maharashtra. 37 are major dams, 76 medium and 818 small dam in Maharashtra among them Kolhapur district holds 2 major, 12 medium and 43 are minor projects. Following chart indicates the detail information of dams catchment areas and storage capacity of water, Command area, number of village benefited, cost of project etc.

Table No. 4.1
Information of Dams

Sr. No.	Name of Project	Location Tehsil	Capacity (MCFT)	Command Area	No. of Villages benefited	Cost of Project in Crore
1.	Dudhganga	Radhanagari	719.12	54438	125	798.65
2.	Warana	Shahuwadi	974.19	50131	105	1117.67
Medium Projects						
3.	Kadvi	Shahuwadi	71.24	12372	53	69.74
4.	Kumbhi	Gaganbawada	76.88	11615	45	48.63
5.	Chitri	Ajara	53.41	13087	54	79.94
6.	Chikotra	Bhudargad	43.11	7884	31	134.94
7.	Phatakewadi	Chandgad		5945	842	
8.	Patgaon	Bhudargad	105.24	6249	43	82.20
9.	Jambare	Chandgad	23.23	5685	34	63.04
10.	Jangamhatti	Chandgad	34.21	4424	14	26.33
11.	Ambeblol	Ajara	35.11	6250	24	50.56
12.	Sarfnala	Ajara	18.98	3350	14	45.56

Minor Project						
Sr. No.	Name of Project	Location Tehsil	Capacity (MCFT)	Command Area	No. of Villages benefited	Cost of Project in Crore
13.	Manoli	Shahuwadi	5.20	700	6	8.71
14.	Nandari	Shahuwadi	3.21	449	6	6.05
15.	Kumbhawade	Shahuwadi	5.61	825	2	6.52
16.	Kesarkarwadi	Shahuwadi	5.68	451	2	9.52
17.	Manpaleshwar	Shahuwadi	9.11	1059	7	15.54
18.	Padsali	Panhala	6.90	1233	5	9.93
19.	Hanbarwadi	Kagal	2.67	367	3	3.73
20.	Megholi	Bhudargad	2.79	348	3	7.93
21.	Nittur-2	Chandgad	4.38	460	5	7.04
22.	Yenechawadi	Gadhinglaj	1.54	340	2	2.64
23.	Kumri	Gadhinglaj	2.59	525	4	3.47
24.	Erandol	Gadhinglaj	4.21	307	3	5.71
25.	Dhangarwadi	Gadhinglaj	2.64	295	1	3.83
26.	Jelugade	Chandgad	4.86	720	4	13.44
27.	Nittur-1	Chandgad		455	2	
28.	Here	Chandgad	3.81	354	4	9.05
29.	Khadakwad	Chandgad	1.82	280	2	5.25
30.	Terni	Chandgad	3.48	727	1	4.56
31.	Karanjaon	Chandgad	3.43	545	3	8.50
32.	Dhumani	Radhanagari		3130	25	
33.	Kandwan	Shahuwadi	5.91	450	4	9.02
34.	Faye	Bhudargad	3.93	700	5	7.16
35.	Chiwale	Bhudargad	3.48	546	4	5.88
36.	Kondoshi	Bhudargad	2.76	400	4	8.23
37.	Uchangi	Ajara	17.480	1097	10	15.12
38.	Kalasgade	Chandgad	1.91	350	1	2.45
39.	Karunbali	Gadhinglaj	2.91	545	3	4.87
40.	Olwan	Radhanagari	1.88	358	2	3.17
41.	Sawade	Radhanagari	3.61	440	2	6.47
42.	Lakikatte	Chandgad	9.21	919	6	15.22
43.	Kitwad-1,2	Chandgad	5.53	-	2	9.01

Source : Irrigation Department Report of Kolhapur District, 2010-11

Phatakwadi is one of the medium dam in Kolhapur district, which located in the west side of Chandgad tehsil.

4.2 General Description:

Ghatprabha river is a right bank tributary of river Krishna and meets Krishna near village Mangaon in Karnataka state. Ghatprabha river originates at an altitude of about 914.40 M (3000 ft.) in western Sahyadri ranges near village Ambali, Tal. Sawantwadi, Dist. Sindhudurg at initial run river flows in west coast direction through hilly track for about 32 kms and then from moderate places.

Total length of Ghatprabha river upto Maharashtra state boundary is about 67.2 kms/42 miles and catchment area upto Maharashtra state boundary is about 1852.54 sq. km. Ghatprabha river crosses the state border near village Daddi, Tal. Hukkeri, Dist. Belgaum of Karnataka state. River Tamraparni right bank tributary of Ghatprabha river joins Ghatprabha near village Daddi and crosses the state border.

4.3 Necessity of the Project:

Catchment area of the Ghatprabha river upto Maharashtra-Karnataka border lies in high rainfall zone, but terrain being hilly the rainwater is drained away quickly. As there is no other storage built up so far in this valley for irrigation. Hence there is no irrigation facility available so far in this valley, which is rich as far as availability of water in rainy seasons is concerned. Yield of the crops in rabi and hot weather season is very less due to scanty and unreliable water supply. Construction of this irrigation project across the Ghatprabha river. This scope is benefited to the cultural lands in Chandgad and Gadhinglaj talukas of Kolhapur district of Maharashtra state. Agriculture being the main livelihood for the people in the area construction of irrigation project will certainly increase the food production and production cash crops and also developed industries in both talukas. This project is help to improving the general condition of people for this remote border talukas of Kolhapur district.

4.4 History of the Project:

The project was first conceived as a storage reservoir having river outlets with series of K. T. weirs along the river on the bank which lands are to be irrigated by lift which found to be most economical method in hilly terrain. In 1969-70 three alternative sites were investigated for storage more than 3 T. M. C.

viz. 1) Near village Kanur Khurd.

2) Near village Phatakwadi

3) About 400 M. upstream village Phatakwadi taluka Chandgad, district Kolhapur. This site were selected by The Superintending Engineer Irrigation Project of investigation circle, Pune and Executive Engineer, Irrigation Project investigation Dn. Karad visited the sites on 12/01/1993 and finally approved the dam site with letter no. ZP/Ex. Engr, 3/VI-10/ Ghatprabha-Phatakwadi/6405/93, Dt. 08/11/93, Detailed survey. (Report of Kolhapur Irrigation Circle, Kolhapur 2005-06).

4.5 Present Proposal in Brief:

The present proposal envisages the construction of earthen dam across river Ghatprabha near Phatakwadi of village Tal. Chandgad, Dist. Kolhapur. The dam site location is as per Toposheet No. 481/5 latitude 15-56'-45" (N) Longitude 74-4' 20" (E) the site 4 kms away from 54th km. store of Belgaum Vengurle road. The length of the dam is 1216 M. with a maximum height of 48.30 M from the lowest river bed. A gross storage capacity is 43.75 Mcum/1543 Mcft. The stored water will be let out into the river and will be lifted through the series of K. T. Weirs constructed across on dam streamside of the river. Static head is 80 ft. (24.40 M) gross command area of about 7695 hector from Chandgad and Gadhinglaj taluka benefited by this dam.

4.6 Ghatprabha Medium Project – Tal. Chandgad, Dist. Kolhapur

Table No 4.2

Ghatprabha Medium Project, Salient Features

Sr. No.	Item	Particulars
1.	Scope of the Scheme	An irrigation project on Ghatprabha river v/s of village Phatakwadi, Tal. Chandgad, Dist. Kolhapur with lifts on both banks including an area of 4784 Ht. in Chandgad and Gadhinglaj talukas of District Kolhapur.
2.	Source	Ghatprabha river, right from tributary of river Krishna in Krishna basin.
	a) State	Maharashtra
	b) Region	Western Maharashtra
	c) District	Kolhapur
	d) Taluka	Chandgad
	e) Toposheet no.	471/4, 47 1/8, 471/5, 481/1, 48E/13
	f) Latitude	15° – 56' – 45" N
	g) Longitude	74° – 04' – 20" E
3.	Upstream utilization	Nil
4.	Yield and realization of project	
	a) Catchment area	58.83 sq. km.
	b) Average rainfall (mm/inch)	4939 mm to 9068 mm
	c) 75% dependable yield	278.41 Mcum / 9.83 T. M. C.
	d) Gross annual utilization (Mcum/TMC)	43.75 Mcum/1.545 T. M. C.
	e) % age of average annual utilization to net 75% dependable yield	16%
5	Dam and Reservoir	43.75/1.545 (Mcum/TMC)
	a) Gross capacity of reservoir at FR4 (Mcum/TMC)	
	b) Capacity of dead storage	0.15 Mcum
	c) Capacity of live storage	43.60 Mcum
	d) Annual lake evaporation (Mcum/TMC)	

Sr. No.	Item	Particulars
6.	Controlling levels	
	a) River bed level	700.00 M
	b) Sill level	710.66 M
	c) M. D. D. L.	711.10 M
	d) H. F. L.	742.35 M
	e) T. B. L.	745.79 M
	f) Submergence R. L.	747.700 M
7.	Type of Dam	
	a) Maximum height of Dam	48.30 M
	b) Length of Dam	1088 M
	c) Total Quantities of i) Earth work ii) Concrete iii) Masonry iv) Excavation	2.2 Mcum 0.03 Mcum
8.	Submergence	
	a) Land under submergence	251.00 Ha.
	b) No. of Village attached	2 village
9.	Spillway	
	a) Type	Ogree type ungatal spillway
	b) Design Hood	1452.00 Cumecs
	c) Flood depth over crest	3.44 M
	d) Tenhenght	90.00 M
10)	Command area	
	a) Cross Command area	7695 Ha.
	b) Calturable commander	5980 Ha.
	c) Irrigation commander	4787 Ha.
11)	Canals	No canal system little irrigation by constructing 6 K. T. weirs.
	a) No. of talukas benefited	Two talukas
	b) No. of villages benefited	Chandgad – 34, Gadhinglaj 12

Source: Phatakwadi Dam Report, 2005-06.

Profile of Phatakwadi Dam Report of Irrigation Department, Kolhapur Division

4.7 Selection of Dam Site:

River Ghatprabha a right bank tributary of river Krishna originates in the high riches of Sahyadri ranges near village Amboli. River Ghatprabha runs through considerably hilly region, having steep bed slopes from the toposheet study in order to utilize the water allotted in Ghatprabha basin by K. W. D. T. award 3 different sites were studied on Ghatprabha river

- viz. 1) Near village Kanur Khurd.
 2) Near village Phatakwadi (Gudawale)
 3) About 400 M. upstream of village Phatakwadi.

Dam site near village Phatakwadi was finally selected considering

- a) Cost economics of all these sites by villages affected due to submergence.
 b) Other areas under submergence.
 c) Storage capacity of the basin, study note of this site has been approved by the Govt. of Maharashtra.

4.8 Location of the Proposed Dam Site:

Proposal dam site is situated on Ghatprabha river near village Phatakwadi. Proposed dam said is about 4 kms. From Vengurle Belgaum state highway in Chandgad Taluka of Kolhapur District.

Superintending Engineer, I. P. & W. R. I. Circle, Pune & Ex. Engineer I. P. Div. Karad have inspected the site on an decided the dam alignment. This dam alignment start from left bank in Gat No. 86 of village scale Gudawale, Tal. Chandgad. It passes through Gat no. 76, 77, 78, 79 with F. B. 159. On left bank of Ghatprabha river. The geological

location is Latitude - 15.56' 45" N

Longitude - 74.4; 20" E

Toposheet No. 48 1/5

(Source: www.profileofchandgadtehsil)

4.9 Communications:

Phatakwadi dam communicate with different ways from district place Kolhapur as below.

- a) Total distance 142 kms.
- 1) By National Highway No. 4 from Kolhapur to Sankeshwar 58 kms.
 - 2) By State Highway to Gadhinglaj 15 kms.
 - 3) By State Highway from Gadhinglaj to Gudawale 65 kms.
 - 4) By Village road from Gudawale to dam site 4 kms.

It is also directly by Belgaum–Vengurle State Highway from Belgaum to dam site – 59 kms.

The nearest railway station is Belgaum on South Central Railway about 58 kms. From Dam site. Another railway station on South Central Railway at Kolhapur city which is away 150 kms.

4.10 Submergence:

Lands of the villages from Kolhapur and Sindhudurg districts of Maharashtra was under submergence of reservoir. Village Phatakwadi all land used and all 40 (120 peoples) families migrated in another area near Pundra village, Tal. Chandgad, Dist. Kolhapur and also Masurwadi village, Post Chaukul, Tal. Sawantwadi, Dist. Sindhudurg also Transfer in separate area near 220 people Gavase in Chandgad taluka and Gudawale village total area under submergence will be 251 Ha./620 acres track and all land. Total forest land overall under submergence of this dam was 12 Hectors. One forest nursery was also used for submergence. Considering flora fauna and medical shrubs, Bamboo, fruit, bearing trees, cashews nuts trees etc. 12 Ha. Land irrigation department supplied to forest department also valuation of forest trees.



4.11 Financial Aspects:

- 1) The estimated cost of the project is Rs. 3492.42 lakhs. The rates adopted are according to the approved schedule of rates of Pune Regions for the year 1994-95. The benefit cost ratio of the project is 2.4 cr.
- 2) The 1st revised cost of project is 8610 lakh the rates adopted are according to be approved schedule of rate of Pune Region for year 2002-03 the revised cost B.C. of the project is 1.62 and 2nd revise cost of the project is Rs. 13796.38 lakh. The rate of Pune Region for the year 2008-09 are adopted. The revise B.C. ratio of the project is 11.96.

4.12 Catchment Area:

Ghatprabha catchment is surrounded by Tamramparni on southwest and Hiranyakeshi catchment on north east. The river Ghatprabha originates in the hilly ranges of shooting from the Sahyadri with steep slopes. No. of stream originated from these ridges join Ghatprabha river the length of main stream upto dam site is about 10.94 km. the catchment is fan shaped hilly covered with thick forest and vegetation. Thick forest is at higher elevation. The average annual rainfall is in the range of 194.46 to 356.89 M.

4.13 Command Area:

The command lies on both the banks of river Ghatprabha upto a static head of 24.40 M/80 ft. from the river bed and covers the part area of Chandgad and Gadhinglaj talukas of Kolhapur district. Villages of Chandgad and Gadhinglaj taluka as enlisted those getting benefited by the Project.

Table No. 4.3
Command Area

Sr. No.	Name of the Village	Sr. No.	Name of the Village
Chandgad Taluka			
1.	Sade Gadawale	18.	Satwane Shirol
2.	Pilani	19.	Kenehewai
3.	Kanur Kh.	20.	Amboli
4.	Pundra	21.	Porewadi Mugli
5.	Kunur Bk.	22.	Adkur
6.	Bhogoli	23.	Bonjurde, Walkali
7.	Bijur	24.	Utsali
8.	Kurni	25.	Albadevi
9.	Mhalungo Inam	26.	Jogewadi
10.	Dhamapur	27.	Malgewadi, Sonarad
11.	Kajirne	28.	Buiuwade
12.	Gavase	29.	Phatakewadi
13.	Hindgaon	30.	Chandgad
14.	Imbrahimpur	31.	Mouje Shiragaon
15.	Kanadi	32.	Majare
16.	Sawarde Shirol	33.	Gamachiwadi
17.	Povachiwadi	34.	Sattewadi
Gadhinglaj Taluka			
1.	Yemehatti, Kalamwali		
2.	Kumri, Kandewadi		
3.	Saroli		

Source : Maharashtra Irrigation Dept. Report, 2012. p. 86

In above all village day by increases under farming land and also decrease forest, Gawtham land.

4.14 Existing Crop Pattern:

The average existing crop pattern in the commanding villages it is covered by the project is considered. The existing crop pattern is based on the revenue records in year 2011-12 that is following.

Table No. 4.4
Existing Crop Pattern of Benefited Area

Sr. No.	Name of Crop	Percentage
A)	Mean Crops (Prinial)	
	1) Sugarcane	120.66
	2) Banana	2.2
B)	Fruits	
	1) Cashew or Mango	10.00
C)	Kharif Crops (irrigated)	
	1) Vegetables	8.8
	2) Paddy	25.00
	3) Jawar	10.00
	4) Ground Nut	10.00
D)	Kharif Crops (Unirrigated)	
	1) Groundnut	7.00
	2) Pulses	7.00
	3) Vari, Nachani, Sawa	8.34
E)	Rabbi (Bagayat)	100.00
	1) Wheat	8.00
	2) Potato	6.00
	3) Other vegetables	5.00
	4) Gram	10.00
	5) Sunflower	5.00
F)	Hot Weather (Bagayat)	
	1) Groundnut	10.00
	2) Vegetables	5.00
		45.00

Source: Layout of Phatak wadi dam, pp. 88.

4.15 Structured Design of Phatak wadi Dam

Proposed dam site is situated on Ghatprabha river near village Phatak wadi. Proposed dam said checked by Superintending Engineer I. P. & W. R. I. Circle Pune & Ex. Engg. I. P. Div. Karad have inspected the site on and decided the dam alignment. Soil samples from the borrow

areas as well as on the dam alignment are collected and sent to laboratory for testing. Structural design of the cross section the testing results but before commensurate the work. For the administrative proposal construction material being same as per the construction material of the administratively approved Jambre irrigation project and Chitri irrigation project, Ajara taluka, respectively in the same district. Hence the earthen dam section adopted for this project is adopted for the time being. Final drawings were received from design consultant and all drawings are vetted by C. D. O. and Chief Engineer, Irrigation Department, Pune.

The maximum height of embankment is 48.30 M in deepest river gorge. Top width of dam 6.50 M. to facilitate traffic over the dam. This width is in conformity to CDO's standard code of practice upstream and downstream slopes and beams of the earthen bund from top to bottom. Slopes are intermittently spaced by beams.

Earthen dam is zoned on viz. outer casing hearting sand filter, Rock toe. D/S and U/S dry stone pitching etc. (Ghatprabha Medium Irrigation Project Profile, 2005-06).

4.16 Method of Irrigation:

Due to hilly nature of the command construction of canals it was not be economical therefore irrigation 'dandhras' were completed in catchment are like Hindgaon, Aakur, Kanadewadi, Pilani, Bijur-Bhogoli, Gavase, etc. Water usage by farmer lifted by electric pump diesel engines or by cooperative societies they have their own distribution systems, farmers are not using new irrigation system like sprinkler, drop system but the using more water than crops requirement.

The irrigation department not adopted distribution system of water. However they collected revenue with general for all crops. So the water is used excessively in this area which costs expensive and unnecessary. However it badly affect on environment of Chandgad in many ways like the degradation of agricultural land, increase salinity, water logging, diseases like Malaria, Dengue etc.

4.17 Indirect Benefits of the Project:

1. Due to storage of water in the reservoir, sub soil water level on downstream of dam site will be subsequently increased this benefiting the well irrigation.
2. Production of cash crop, horticulture is increased.
3. Development in industries in command area.
4. Employment opportunities to people living and improved standard of living.
5. Increased also Hydro-electric power generation in dam area.

4.18 References:

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