



**NARDAVE MEDIUM PROJECT
TAL-KANKAVLI, DIST-SINDHUDURG.**

PRE FEASIBILITY REPORT



FEBRUARY 6, 2017

Executive Engineer

Medium Project Division, Ambadpal-Kudal

Water Resources Department

Konkan Irrigation Development Corporation (KIDC), Thane

Tal Kudal Dist Sinhdhurg, 416520

Phone office 02362-244241

Email ID - kudal.mpd8@gmail.com

INDEX

1. Executive Summary	2
1.1 General description of the Project:-	2
1.2 Project site.....	2
1.3 Salient Features	3
2. Introduction of the Project/Background Information.....	7
i. Identification of the project & project proponent.....	7
ii. Brief description and Nature of the project.....	8
iii Need for the Project & its Importance.....	13
iv. Status of Project	13
3. Location of the project showing general location, specific location, Project boundary, project site approved layout with coordinates from competent Authority	14
i. Project Site.....	14
ii. General Location.....	14
ii. Details of the alternative sites considered from environmental point of view	15
4. Site Analysis	16
i. Area of the project	16
ii. Connectivity.....	16
iii. Land Form, Land use and Land ownership.....	17
iv. Topography (along with map).....	17
5. Rehabilitation and Resettlement (R and R) Plan	18
6. Project Schedule & Cost Estimate.....	20
i. Likely date of start of construction & likely date of completion (Time schedule for the project to be given).....	20
ii. Estimated project cost along with analysis in terms of economic viability of the project	20
7. Analysis of proposal (Final Recommendations).....	21
i. Introduction.....	21
ii. Project Benefited villages:	21
iii. Increase in Employment.....	22
iv. Economic Aspects.....	22

1. Executive Summary

1.1 General description of the Project:-

Nardave Medium Irrigation Project is being constructed on Gad River near village Nardave, Tal - Kankavali, Dist – Sindhudurg of Maharashtra state since 2001. The river Gad is west flowing river originating from Sahyadri Mountain and meeting in Arabian Sea near Malwan.

The Dam Site is about 25 Km from Kankavali town on Kankavali - Nardave State Highway No:120. The Kankavali is situated on the Mumbai – Goa National Highway No: 17, which is 435 Km away From Mumbai. Site is also approachable by Konkan Railway and the Nearest Railway Station is Kankavali.

The Project envisages construction of an earthen dam having a maximum height of 66.43 m, with gated spillway on right flank and an ICPO on the left flank with gross storage capacity of 123.74 Mcum. The Project on its completion will irrigate 8084 ha (Cropped Area = 12530 ha) of land on both the banks of Gad river from 49 villages of Kankavli, Kudal and Malvan Taluka of Sindhudurg District. Irrigation proposed in the project is by lift irrigation for which a series of 14 no of K.T. weirs is provided along the river course to enable lifting of water for irrigation. The project also envisages a dam foot power house with generation capacity of 3.00 MW. Provision to the tune of 10.605 Mcum for domestic and 5.958 Mcum for industrial use is made. Other benefits of the projects are fisheries and tourism.

1.2 Project site

The Dam Site is about 25 Km from Kankavali town on Kankavali - Nardave State Highway No. 120. The Kankavali is situated on the Mumbai – Goa National Highway No. 17, which is 435 Km away from Mumbai. Site is also approachable by Konkan Railway and the Nearest Railway Station is Kankavali.

1.3 Salient Features

Sr. No.	Particulars	Details														
1	Name of the Project	NARDAVE MEDIUM IRRIGATION PROJECT, Tal- kankavali, Dist - Sindhudurg														
2	Scope of the scheme	“Nardave” Medium Irrigation Project having instead of canals, series of K.T. weir are provided. Irrigable area of this project is 8084 Ha.														
3	Sources	River Gad														
4	Location	Topo sheet 47H/15, 16,11,12 Latitude 16°-12'-00"(N) Longitude 73°-54'-0"(E)														
	State	Maharashtra														
	Region	Konkan														
	District	Sindhudurg														
	Taluka	Kankavali														
5	Upstream utilization	Nil														
6	Yield & utilization of project															
	a) Catchment area	47.70 sq.km. (18.53 sq miles)														
	b) Average rainfall	4450.10 mm.														
	c) 75 % Dependable yield	126.60 Mcum.														
	d) Utilization proposed	121.78 Mcum.														
7	Dam & Reservoir															
	a) Gross capacity of storage	123.74 Mcum														
	b) Live storage	119.16 Mcum														
	c) Dead storage	4.58 Mcum														
8	Relevant levels															
	a) River Bed R.L.	127.17 M														
	b) Outlet sill level	185.00 M														
	c) M.D.D.L.R.L.	146.80 M														
	d) Full Reservoir level R.L.	190.00 M														
	e) M.W.L.	190.60 M														
	f) Top of Dam R.L.	193.60 M														
	g) Spillway crest R.L.	185 M														
9	Submergence.															
	a) Submergence	356.352 Ha.														
	b) No. of villages under submergence	Jambhalgaon Nardave. Yavteshvar. Bhairavgaon Durganagar														
	c) No. of Houses under Submergence	<table border="0"> <thead> <tr> <th>Village</th> <th>No. of Houses.</th> </tr> </thead> <tbody> <tr> <td>Jambhalgaon</td> <td>249</td> </tr> <tr> <td>Nardave</td> <td>327</td> </tr> <tr> <td>Yavteshvar</td> <td>56</td> </tr> <tr> <td>Bhairavgaon</td> <td>99</td> </tr> <tr> <td>Durganagar</td> <td>236</td> </tr> <tr> <td>Total</td> <td>967</td> </tr> </tbody> </table>	Village	No. of Houses.	Jambhalgaon	249	Nardave	327	Yavteshvar	56	Bhairavgaon	99	Durganagar	236	Total	967
Village	No. of Houses.															
Jambhalgaon	249															
Nardave	327															
Yavteshvar	56															
Bhairavgaon	99															
Durganagar	236															
Total	967															

	d) No. of Souls affected	3849
10	Type of Dam	
	a) Type	Earthen Dam with Gated spillway
	b) Maximum height of dam above river bed	66.43 Mtrs
	c) Length of Dam. i) Earthen Dam. ii) Masonary Dam	=1790 M (total=earthan dam+Spillway) (R.D.-30 M to 1479.5 M & 1505 M to 1740M) Total = 1749 M =(R.D 1479.5 M to 1520.5 M) Total = 41.00 M
	d) Total quantity of earth work	136.11 lakh cum
	e) Total quantity of concrete works	0.53 lakh cum
	f) Total quantity of excavation	
	Soft Strata	1.78 lakh cum
	Hard rock	0.20 lakh cum
	TOTAL	1.98 lakh cum
11	Waste weir	
	a) Length of the waste weir	41.00 Mtr. (Including both side pier)
	b) Type.	Gated
	c) Flood depth	2.00 M.
	d) Free Board	3.00 M.
	e) Design flood discharge	616.19 cumecs
	g) Spillway Gates	12 M x 5 M = 3 Nos.
12	Outlet (Power)	
	a) Location	RD 70 M
	b) Full supply discharge	7.66 cumecs

13. Canals – instead of canals series of K.T. weirs are provided

Sr. No.	Name of Valley	Name of K.T. weir	Chainage	Length in M	storage in TM cum
1	Gad RIVER Vally Basin	Nardave	1100 M	52	0.028
2		Jambhavade	2850 M	64	0.034
3		Kupavade	5 970 M	112	0.054
4		Digavale	8510 M	91	0.202
5		Pangamwadi	11100 M	110	0.168
6		Dariste	12250 M	91	0.191
7		Sangave	15400 M	91	0.491
8		Shivdav	17430 M.	110	0.511
9		Chichalwadi	1 8 8 70 M.	85	0.191
10		Shekhwadi	21870 M.	115	0.473
11		harkul bru.	23370 M.	103	0.337
12		Halwal	25350 M.	118	0.472
13		Kankavali	27350.M	112	0.498
14		Ramgad	38850 M	125	0.546

14	Irrigable Area	8084 Ha
	a) Taluka benefited & village 27 benefited.	Taluka - Kankavali -30 villages. Taluka - Kudal -8 villages Taluka - Malvan -10 villages Total -48
15	Proposed crop pattern	Crop % age
	1. Perennial	i) Coconut 15
		ii) With Black Pepper (Inter Crop)
		iii) Mango 30
		45
	2. Kharif	i) Kh Paddy 46
		ii) Vegatable 9
		55
	3. Rabbi (Follow on crops)	i) Rabi paddy 7
		ii) Rabbi Vegetable 15
		iii) H W Pulses 13
		iv) H W Gound nut 5
		vii) Chillies Two seasonal 15
		55
		Total 155
	(b) Existing crop pattern	i) Paddy 42
		ii) Wari/Nagali 12
		iii) Pulses 8
		iv) Seams 1
		iv) Fruits 2
		v) Grass 3
		vi) Culturable 32
		Total 100
16	Cost of the Project	1) Rs. 44670.76 lakhs. (Third Revised) (As per D.S.R.05-06)
		Third Administrative approval vide Marathi Govt. Order No. Naradave 2007/140/(47/2007)- MPR Mantralay Bombay dated – 19 th JUL 2007
	a) Cost of the Project (Original)	3243.78 lakhs (As per DSR 1986-1987)
	b) Cost of the Project (I st Revised)	10298.20 lakhs (As per DSR 1993-94)
	b) Cost of the Project (II nd Revised)	18990.67 lakhs (As per DSR 1997-1998)
17	Cost per unit of i) Irrigable area	Rs 5.526 Lakh / Ha
18	Cost per unit of storage	

Pre-Feasibility Report- Nardave Medium Project

	b) Gross storage/Mcum	Rs. 361.005 Lakh/Mcum
19	Benefit cost ratio Irrigation	1.54
20	Percentage of submergence to irrigable area.	4.40 %
21	Percentage of annual utilization to 75 % Dependable yield	96.19 %

2. Introduction of the Project/Background Information

i. Identification of the project & project proponent

The Konkan region is known for the heavy rainfall and ample amount of water, in rainy season. The rainfall in the area is +3000 mm. It is observed that due to poor irrigation



facilities storm water in rainy season flows to the Arabian Sea and villages in the Konkan region face drought in summer.

Although, the climatic conditions and soil type supports and helps grow number of economic crops, lack of adequate irrigation facilities

has curtailed agricultural activities in the region.

This has promoted Water Resource Department of Government of Maharashtra Enterprise, Konkan Irrigation Development Corporation to propose a Dam project so as to make water available to some of the area in Kankavali, Kudal and Malvan taluka in Sinhdudhurg district. One of the main objectives of the Konkan Irrigation Development Corporation (KIDC) is to provide adequate water for irrigation.

The original estimated cost of the project approved vide letter No. (Marathi) MHD/1085/(390/85)/WRI Dt.12.07.1989 for Rs. 3243.78 Lacks.(RSR 1986 -1987).

The first revised estimate as per RSR 1993-94 was approved for Rs.10298.204 lacks vide GR No. (Marathi) MHD/1096/ (70/96) MP Dt.17.11.1997); the estimated cost is again revised to Rs.18990.676 lacks (RSR 1997-1998) and IInd revised Administrative approval is accorded by Government of Maharashtra vide letter No. (Marathi) MHD/1099/67/(16/99) MP Dt.22.04.1999 .The estimated cost is again revised to Rs 44670.769 lakh (RSR 2005-06) and third revised administrative approval is accorded by Government of Maharashtra vide letter No. Marathi 2007/140(47/2007)- MP, Date-19/07/07

There is strong demand from farmers in this area for assured water supply to irrigate their crops.

ii. Brief description and Nature of the project

Components of the Project:

The major components of the project as being executed are as follows.

(I) Earthen Dam: Earthen Dam is proposed in a length of 1749 m and its maximum height and top width are 66.43 m and 6.50 m respectively. Nearly 61.50% of earth work is completed. Earthwork between RD 330 m to 702 m is completed up to RL 174.00m, RD 880 m to 1170 m is completed up to RL 175.00 m and between RD 60 m to 150 m is completed up to RL 155.00 m (Designed TBL is 193.60 m).

(II) Spillway: A cement concrete spillway having a length of 41 m. is proposed in the right flank. The spillway will have 3 Nos of Radial Gates of Size 12 X 5 m and approach channel, stilling basin and tail channel. Excavation for foundation of spillway and stilling basin up to designed level is nearing to completion. Falls are proposed in tail channel for energy dissipation construction of which are in progress. **Nearly 40% work of spillway is completed.**

(III) Irrigation cum power outlet:

Irrigation cum Power Outlet is proposed on left flank at RD 70m with discharging capacity of 7.66 cumecs and a dam foot power house having generation capacity of 3.00 MW. Generating units proposed under this project are 13.45 million units. Excavation excluding approach channel is completed. Construction of penstock for entire length as per design is completed. Construction of dry well up to RL 157.00 m is completed. **80% work of ICPO is completed.**

Work of power generation is entrusted to Laksh Power Private Limited, Mumbai on B. O. T. Same work is under supervision of Hydro Division.

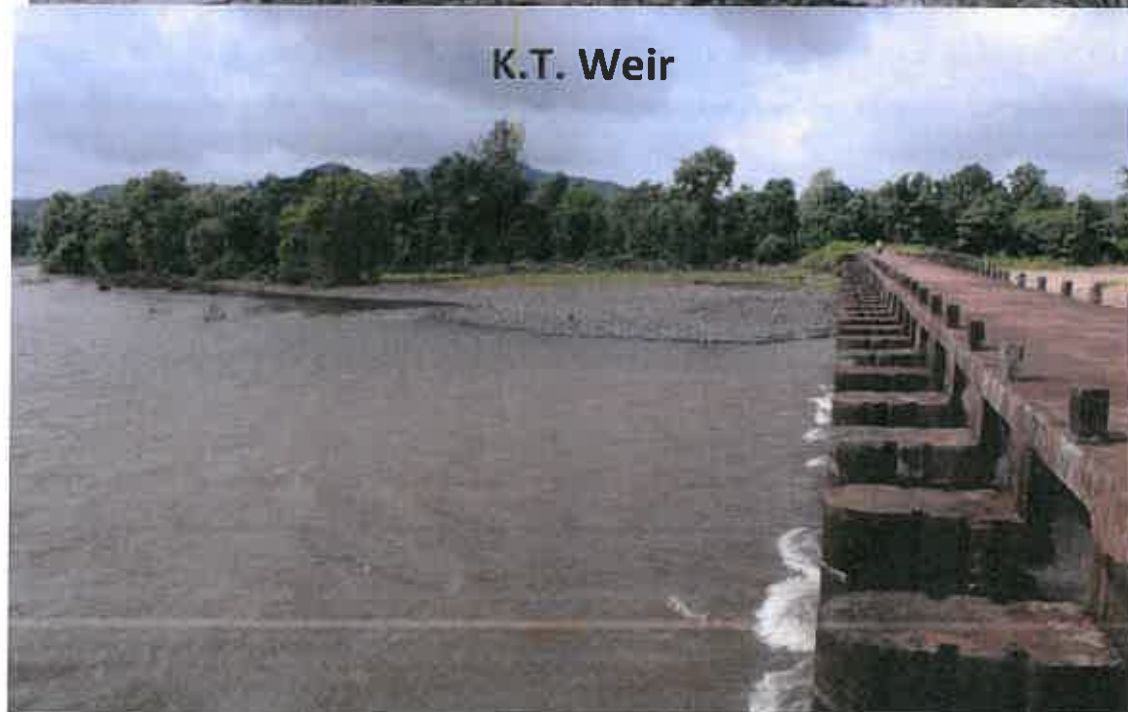
(IV) K.T. Weirs:

Due to hilly nature of the country, canals are not economical. Hence in such hilly terrain, storage is built up behind series of KT weirs from where water is lifted for irrigation domestic

and industrial use by individual beneficiaries or by formation of co-operative societies. Such schemes will have their own distribution system in the form of minors and field channels and need no special elaboration. The government will not incur any expenditure on lift schemes.

A series of 14 K.T. Weirs is proposed along the river course of Gad river to enable lifting of water for irrigating irrigable command area to the tune of 8084 ha (Cropped Area 12530 ha.)

Out of 14 K.T. weirs 10 Nos. of K.T. Weirs are completed so far and irrigation potential and its utilization to the tune of 757 ha against 8084 ha is achieved up to Dec 2016. Provision to the tune of 10.605 Mcum for domestic and 5.958 Mcum for industrial use is made. Other benefits of the project are fisheries and tourism



Land Acquisition, Rehabilitation and Resettlement:

For construction of earthen dam and its allied works, total 627.744 Ha land is required for submergence, dam seat, tail channel, alternative roads & other allied works which incorporates 582.362 ha Private Land, 11.247 ha Govt. Land and 34.135 ha Identified Forest Land. Out of this total 627.44 ha land acquisition procedure for 507.028 ha is completed and it is in possession of Water Resources Department. For remaining 120.716 ha land, present status is as under.

Sr. No.	Component	Total Land Required				Land Acqd up to 12/2016 Ha	Balance land to be acqd. ha	Acquisition of Balance land as per Land Acquisition Act			
		Private Ha	Govt Ha.	Identified Forest ha	Total Ha			Private Ha	Govt Ha.	Identified Forest ha	Total Ha
1	Submergence	320.745	11.247	24.360	356.352	257.197	99.155	63.548	11.247	24.360	99.155
2	Dam seat and tail Channel	162.247	0.000	7.630	169.877	157.977	11.900	4.270	0.000	7.630	11.900
3	Rehabilitation	85.346	0.000	0.000	85.346	83.911	1.435	1.435	0.000	0.000	1.435
4	Alternative Road	12.172	0.000	2.145	14.317	6.608	7.709	5.564	0.000	2.150	7.709
5	K.T. Weir	1.809	0.000	0.000	1.809	01.292	0.517	0.517	0.000	0.000	0.517
6	Store shed	0.043	0.000	0.000	0.043	0.043	0.000	0.000	0.000	0.000	0.000
	Grand Total	582.362	11.247	34.135	627.744	507.028	120.716	75.334	11.247	34.135	120.716

For remaining 120.716 ha land present status is as under

I	75.334 ha	Private Land	Acquisition is in progress and at Sec.11 stage
II	11.247 ha	Govt. Land	Acquisition is in progress.
III	34.135 ha	Identified Forest Land	Proposal has been submitted to Forest Department, GoI in Aug 2011. & the same has been principally accepted on certain conditions by Forest Deppt. vide letter dated 30/9/2014. Further process for clearance is in progress. The alternative land also identified in Sindhudurg Dist.
Total	120.716 ha		

As per scheduled programme for the year 2016-17 area required for the construction of main dam, waste weir, ICPO and other related ancillary works, is in possession of Water Resources department. Hence there is no any bottleneck for construction of main dam and other ancillary works during the year 2016-17 as per scheduled programme. Remaining land required is mainly for submergence of dam and land acquisition proposals for the same are well in progress. There are five villages coming under submergence and are to be rehabilitated before impounding. There are 967 no. of families are proposed to be

rehabilitated in three new gaothans with 18 civic amenities. The work is already started and present position is as below.

Present Position of Rehabilitation is as below

Sr. No.	Details of Villages Affected			Details of Rehabilitation Villages		
	Affected Village	Population	No of Families	Name of new Gaothan	Present position	
					Land of Gaothan	Creation of civic amenities
1	Durganagar	881	236	Jambhavade	Acquired	80% completed
2	Nardave	1240	327	Digawale	Acquired	90% completed
3	Bhairavgaon	426	99			
4	Yawateshwar	402	56	Sangve	Acquired	80% completed
5	Jambhalgaon	3229	249			
	Total	3849	967			

Status of completion of civic amenities is tabulated below

Sr. No.	Name of Village	% age completion of civic amenities	Total no. of PAFs/ PAFs Affected	Total no. of PAFs/ PAFs Affected
1	Digawale	90	262	0
2	Jambhavade	60	260	0
3	Sangave	85	445	0
			967	0

iii Need for the Project & its Importance

The Konkan region is known for the heavy rainfall of above 3000mm and ample amount of water, in rainy season. It is observed that due to poor irrigation facilities storm water in rainy season flows to the Arabian Sea and villages in the Konkan region face drought in summer.

Most of the population in project area is dependent on the agriculture produce. Provide adequate water supply for irrigation is the only way to improve the living standard of peoples in this area. The soil in the project area is fertile and capable for cash crops like Mango, coconut and Cashew etc if sufficient and assured water is available. The climate is favorable for high yield crops such as Mango, coconut and oil palms. This proposed project will help to improve the agriculture and employment in the project area. The major crops in proposed project area are Rice, Nagli, some seasonal vegetables, Mango and Cashew only. There is no perennial irrigation found in project area. In the project area, not single well or bore well is used for irrigation.

There is a need of such type of project to improve the livelihood, enhance the income status of peoples. The proposed Naradave Medium Irrigation Project intends to irrigate 8084 ha land of 48 villages of Kankavli, Kudal and Malvan Taluka of Sindhudurg District.

iv. Status of Project

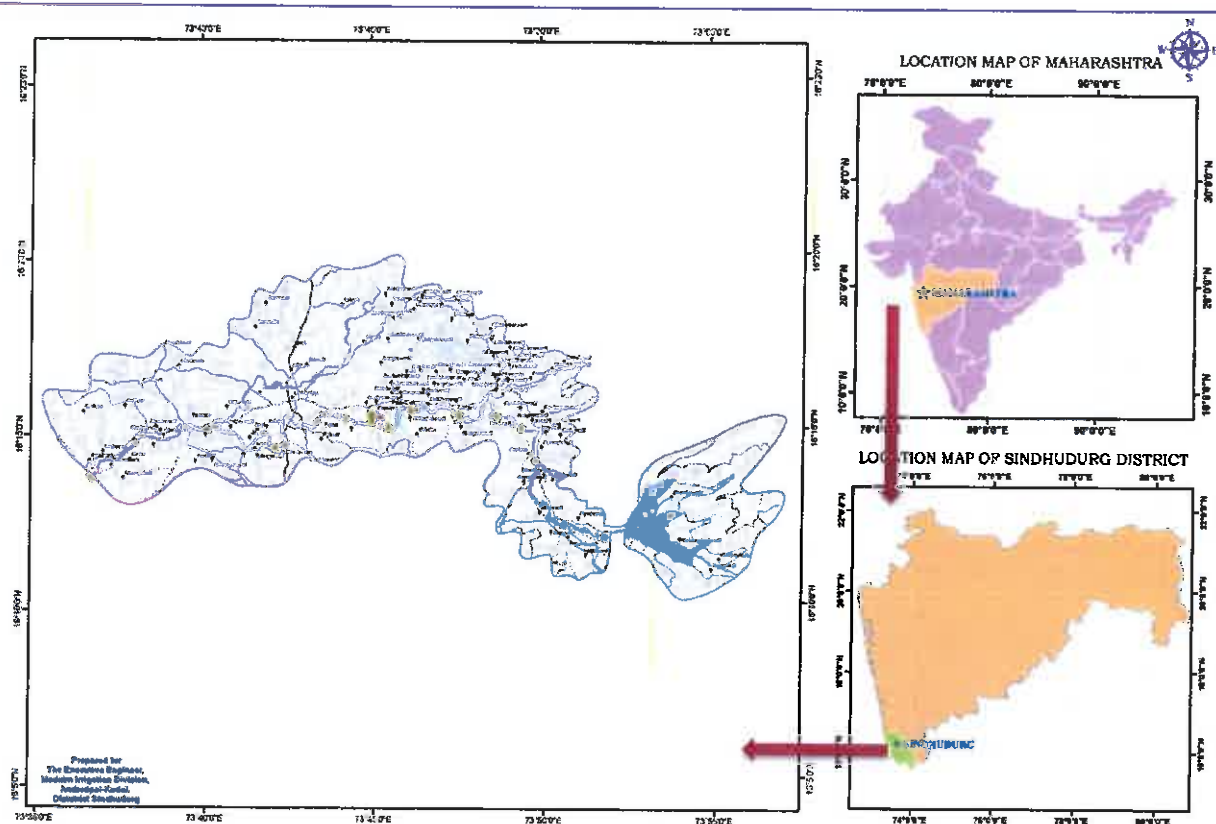
The Nardave Medium Irrigation Project has been 61.50% work of total dam is completed. 80% of ICPO completed, & 40% of Spillway work was completed, Out of 14 KT Weirs 10 were completed, Land acquisition work was 91% completed & rehabilitation work was 82% completed up to Dec.2016. The work is stopped from June 2012 for want of environmental and forest clearance. Forest principal approval are final and preparation of final proposal is in progress.

3. Location of the project showing general location, specific location, Project boundary, project site approved layout with coordinates from competent Authority

i. Project Site

Name of the Project	Nardave Medium Irrigation Project, Tal- kankavali, Dist – Sindhudurg, Maharashtra
Scope of the scheme	“Nardave” Medium Irrigation Project having instead of canals, series of K.T. weir are provided. Irrigable area of this project is 8084 Ha.
Sources	River Gad
Location	Topo sheet 47H/15, 16,11,12 Latitude 16°-12'-00"(N) Longitude 73°-54'-0"(E)

ii. General Location



ii. Details of the alternative sites considered from environmental point of view

The site is feasible on technical & financial aspects. No alternative studies has been done from environmental point of view.

4. Site Analysis

i. Area of the project

A series of 14 K.T. weirs are proposed along the river course of Gad river to enable lifting of water for irrigating irrigable command area to the tune of 8084 ha (Cropped Area 12530 ha.)

1	Yield & utilization of project	
	a) Catchment area	47.70 sq.km. (18.53 sq miles)
	b) Average rainfall	4450.10 mm.
	c) 75 % Dependable yield	126.60 Mcum.
	d) Utilization proposed	121.78 Mcum.
2	Dam & Reservoir	
	a) Gross capacity of storage	123.74 Mcum
	b) Live storage	119.16 Mcum
	c) Dead storage	4.58 Mcum
3	Submergence.	
	a) Submergence	356.352 Ha.
	d) No. of Souls affected	3849
4	Type of Dam	
	a) Type	Earthen Dam with Gated spillway
	b) Maximum height of dam above river bed	66.43 Mtrs
	c) Length of Dam.	=1790 M (total= earthan dam + Masonary dam)
	i) Earthen Dam.	(R.D.-30 M to 1479.5 M & 1505 M to1740M)
	ii) Masonary Dam	Total = 1749 M =(R.D 1479.5 M to1520.5 M) Total = 41.00 M
5	Irrigable Area	8084 Ha
	a) Taluka benefited & village 27benefited.	Taluka - Kankavali -30 villages. Taluka - Kudal -8 villages Taluka - Malvan -10 villages total -48

ii. Connectivity

The Dam Site is about 25 Km From Kankavali town on Kankavali - Nardave State Highway No:120. The Kankavali is situated on the Mumbai – Goa National Highway No: 17, which is 435 Km away From Mumbai. Site is also approachable by Konkan Railway and the Nearest Railway Station is Kankavali.

1	Location	35 Km from District Place Sindhudurg 25 Km from Taluka Place Kankavali 1 Km from nearest Village Naradave
2	Nearest Railway Station	Kankavali Railway Station

5. Rehabilitation and Resettlement (R and R) Plan

Land Acquisition, Rehabilitation and Resettlement:

For construction of earthen dam and its allied works, total 627.744 Ha land is required for submergence, dam seat, tail channel, alternative roads & other allied works which incorporates 582.362 ha Private Land, 11.247 ha Govt. Land and 34.135 ha Identified Forest Land. Out of this total 627.44 ha land acquisition procedure for 507.028 ha is completed and it is in possession of Water Resources Department. For remaining 120.716 ha land, present status is as under.

Sr. No.	Component	Total Land Required				Land Acqd up to 12/2016 Ha	Balance land to be acqd. ha	Acquisition of Balance land as per Land Acquisition Act			
		Private Ha	Govt Ha.	Identified Forest ha	Total Ha			Private Ha	Govt Ha.	Identified Forest ha	Total Ha
1	Submergence	320.745	11.247	24.360	356.352	257.197	99.155	63.548	11.247	24.360	99.155
2	Dam seat and tail Channel	162.247	0.000	7.630	169.877	157.977	11.900	4.270	0.000	7.630	11.900
3	Rehabilitation	85.346	0.000	0.000	85.346	83.911	1.435	1.435	0.000	0.000	1.435
4	Alternative Road	12.172	0.000	2.145	14.317	6.608	7.709	5.564	0.000	2.150	7.709
5	K.T. Weir	1.809	0.000	0.000	1.809	01.292	0.517	0.517	0.000	0.000	0.517
6	Store shed	0.043	0.000	0.000	0.043	0.043	0.000	0.000	0.000	0.000	0.000
	Grand Total	582.362	11.247	34.135	627.744	507.028	120.716	75.334	11.247	34.135	120.716

For remaining 120.716 ha land present status is as under

I	75.334 ha	Private Land	Acquisition is in progress and at Sec.11 stage
II	11.247 ha	Govt. Land	Acquisition is in progress.
III	34.135 ha	Identified Forest Land	Proposal has been submitted to Forest Department, GoI in Aug 2011. & the same has been principally accepted on certain conditions by Forest Deppt. vide letter dated 30/9/2014. Further process for clearance is in progress. The alternative land also identified in Sindhudurg Dist.
Total	120.716 ha		

As per scheduled programme for the year 2016-17 area required for the construction of main dam, waste weir, ICPO and other related ancillary works, is in possession of Water Resources department. Hence there is no any bottleneck for construction of main dam and other ancillary works during the year 2016-17 as per scheduled programme. Remaining land required is mainly for submergence of dam and land acquisition proposals for the same are well in progress. There are five villages coming under submergence and are to be rehabilitated before impounding. There are 967 no. of families are proposed to be

rehabilitated in three new gothans with 18 civic amenities. The work is already started and present position is as below.

Present Position of Rehabilitation is as below

Sr. No.	Details of Villages Affected			Details of Rehabilitation Villages		
	Affected Village	Population	No of Families	Name of new Gothan	Present position	
					Land of Gothan	Creation of civic amenities
1	Durganagar	881	236	Jambhavade	Acquired	80% completed
2	Nardave	1240	327	Digawale	Acquired	90% completed
3	Bhairavgaon	426	99			
4	Yawateshwar	402	56	Sangve	Acquired	80% completed
5	Jambhalgaon	3229	249			
	Total	3849	967			

Status of completion of civic amenities is tabulated below

Sr. No.	Name of Village	% age completion of civic amenities	Total no. of PAFs/ PAFs Affected	Total no. of PAFs/ PAFs Affected
1	Digawale	90	262	0
2	Jambhavade	60	260	0
3	Sangave	85	445	0
			967	0

6. Project Schedule & Cost Estimate

i. Likely date of start of construction & likely date of completion (Time schedule for the project to be given)

The work is already started and present position is discussed earlier chapter.

The Nardave Medium Irrigation Project has been 61.50% work of total dam is completed. 80% of ICPO completed, & 40% of Spillway work was completed, Out of 14 KT Weirs 10 were completed, Land acquisition work was 91% completed & rehabilitation work was 82% completed up to sep.2016. The work is stopped from June 2012 for want of environmental and forest clearance. Forest principal approval are final and preparation of final proposal is in progress.

ii. Estimated project cost along with analysis in terms of economic viability of the project

1	Cost of the Project	1) Rs. 44670.76 lakhs. (As per D.S.R.05-06)
		Administrative approval vide Marathi Govt. Order No. Naradave 2007/140/(47/2007)-MPR Mantralaya Bombay dated – 19 th July 2007
	a) Cost of the Project (Ist Revised)	Revised Amount Rs.10298.20 Lakhs (As per D.S.R. 1993-1994
	b) Cost of the Project (II nd Revised)	Revised Amount Rs. 18990.67 lakhs (As per DSR 1997-1998)
2	Cost per unit of i) Irrigable area	Rs 5.526 Lakh / Ha
3	Cost per unit of storage b) Gross storage/Mcum	Rs. 361.005 Lakh/Mcum
4	Benefit cost ratio Irrigation	1.54
5	Percentage of submergence to irrigable area.	4.40 %
6	Percentage of annual utilization to 75 % Dependable yield	96.19 %

7. Analysis of proposal (Final Recommendations)

i. Introduction

The proposed Naradave Medium Irrigation Project will provide assured irrigation facility to the area and help to enhance the income from the agriculture based activities in the region. This will boost the social as well as economic conditions of the farmers.

There is a need of such type of project to improve the livelihood, enhance the income status of peoples. The proposed Naradave Medium Irrigation Project intends to irrigate 8084 ha land of 48 villages of Kankavli, Kudal and Malvan Taluka of Sindhudurg District.

ii. Project Benefited villages:

The total 48 villages in Kankavli, Kudal & Malvan Taluka of Sindhudurg district will be benefited.

Sr No	Name of Villages	TRU	Sr No	Name of Villages	TRU
1	Savdav	Rural	25	Shivdav	Rural
2	Humarat	Rural	26	Dariste	Rural
3	Sakedi	Rural	27	Natal	Rural
4	Karanje	Rural	28	Kumbhavade	Rural
5	Harkul Kh.	Rural	29	Digavale	Rural
6	Nagave	Rural	30	Ranjangaon	Rural
7	Janavali	Rural	31	Nardave	Rural
8	Bidwadi	Rural	32	Pimpalgaon	Rural
9	Tarandale	Rural	33	Kankavli (CT)	Urban
10	Varavade	Rural	34	Ramgad	Rural
11	Kalmath	Rural	35	Gothane	Rural
12	Ashiye	Rural	36	Shrawan	Rural
13	Kasaral	Rural	37	Asagani	Rural
14	Gandhinagar	Rural	38	Kirlos	Rural
15	Rameshwarnagar	Rural	39	Asarondi	Rural
16	Bhiravande	Rural	40	Rathivade	Rural
17	Sangave	Rural	41	Gavalgaon	Rural
18	Harkul Bk.	Rural	42	Kupavade	Rural
19	Shastrinagar	Rural	43	Jambhavade	Rural
20	Nehru Nagar	Rural	44	Sonavade Tarf Kalsuli	Rural
21	Subhash Nagar	Rural	45	Ghadigaon	Rural

22	Navanagar	Rural	46	Ghotage	Rural
23	Shivajinagar	Rural	47	Bharani	Rural
24	Sambhajinagar	Rural	48	Bhutvad	Rural

Out of 48 villages, 33 villages of Kankavli taluka, 7 villages of malvan & 8 villages of Kudal taluka will be benefited.

iii. Increase in Employment

The project is expected to provide fair employment opportunities during the construction phase of the project. Employment will be generated with respect to both skilled as well as unskilled labour. Furthermore this project is also expected to generate secondary employment opportunities in the form of agro-based industries after its completion.

Estimated work force for running & maintenance of the system is of about 100 individuals. Additional direct and indirect employment will be generated due to overall development of the area.

iv. Economic Aspects

The Konkan region is known for the heavy rainfall and ample amount of water, in rainy season. The rainfall in the area is +3000 mm. It is observed that due to poor irrigation facilities storm water in rainy season flows to the Arabian Sea and villages in the Konkan region face drought in summer.

Most of the population in project area is dependent on the agriculture produce. Provide adequate water supply for irrigation is the only way to improve the living standard of peoples in this area. The soil in the project area is fertile and capable for cash crops like Mango, coconut and Cashew etc if sufficient and assured water is available. The climate is favorable for high yield crops such as Mango, coconut and oil palms. This proposed project will help to improve the agriculture and employment in the project area. The major crops in proposed project area are Rice, Nagli, some seasonal vegetables, Mango and Cashew only. There is no perennial irrigation found in project area. In the project area, not single well or bore well is used for irrigation.

There is a need of such type of project to improve the livelihood, enhance the income status of peoples. The proposed Naradave Medium Irrigation Project intends to irrigate 8084 ha land of 48 villages of Kankavli, Kudal and Malvan Taluka of Sindhudurg District.

The project is expected to enable the local people to change cropping patterns and cultivate both the cash crops as well as the perennials. This will lead to increase in the agro-based industries in the command area, which would eventually lead to the economic upliftment of the area.