OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (HEAD OF FOREST FORCE), MAHARASHTRA STATE, NAGPUR

ADDITIONAL PRINCIPAL CHIEF CONSERVATOR OF FORESTS AND NODAL OFFICER, MAHARASHTRA STATE, NAGPUR,
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No. Desk-17/Nodal/Thane/ID-13714 (78)/2864/2022-23
Nagpur – 440 001, Date :25/01/2023

To,

The Assistant Inspector General of Forests (FC),
Government of India,
Ministry of Environment, Forest and Climate Change
(Forest Conservation Division),
Indira Paryavant Bhawan, New Delhi-110003.

Sub :- Diversion of 263.5406 ha. Forest land under Forest (Conservation) Act, 1980 for construction of Sambharkund Irrigation Project at Village Mahan, Taluka Alibag Dsit. Palghar in the State of Maharashtra (Online No.FP/MH/IRRIG/142819/2021)-reg.

Ref- 1) Government of India, MoEF&CC, New Delhi vide letter No. File No.8-34/2022-FC, dated 19/12/2022.

2) The Chief Conservator of Forests (T), Thane letter No. Desk-10/FCA/CR-27(20-21)/575, dted 23/01/2023

Sir,

Government of India, Ministry of Environment, Forest and Climate Change, New Delhi vide letter under reference No.1 has sought compliance on 12 points. Accordingly, the Chief Conservator of Forests (T), Thane vide letter under reference No. 2 has submitted the compliance of shortcoming in this regard to this office. The compliance report as desired by Government of India vide letter dt.19/12/2022 is submitted as under;-

No.	Points	Compliance
i	As per DSS analysis, the calculated area (as per KML file) of forest land proposed for diversion is 261.274 ha. instead of 263.5406 ha. as given in proposal. Further the KML file of forest land under diversion is not commensure with the component wise breakup given in PART-I from on PARIVESH. This needs clarification and submission of correct KML file including different components accordingly.	The User Agency submitted that "A) The corrected KML file of forest land under diversion is submitted herewith and now the calculated area (as per KML file) of forest land proposed for diversion is verified and found to be 263.5406 ha. As given in proposal. The corrected KML file of forest land under diversion is commensurate with component wise breakup given in Part-I form on PARIVESH." The Component wise correct KML file is also submitted herewith as **(Annexure No.I)**
ii	The KML file of the Non-forest land involved in the proposal has not been submitted which is required to be done.	The User Agency sumbmitted that "The KML file of the non-forest land involved in the proposal" revised KML file is submitted herewith **(Anneuxre in C.D's)**
iii	As per DSS Analysis, it has been found that the Compensatory Afforestation has been proposed over an area of 407 ha. in seventeen (17) patches over the Forest land located under the Nanded District of Maharashtra. Wheareas the Compensatory Afforestaion has to be raised over Non forest land. Therefore the KML file, SoI toposheet Maps, Geo-referenced maps and approved CA Schmeme with Site Suitabiltiy certificated of CA on Non-Forest Land are required to be uploaded/provided.	The User Agency submitted that "The Compensatory Afforestaton (CA) non-forest land has been handed over by the Collector, Nanded's order no.CR/5643/8.1/97, dated 03/11/1997 to DCF, Nanded and subsequently the mutation of this land has been done and now it has been recorded as a forest land as per 7/12. The KML file, toposheet Maps, Geo-referenced Maps and approved CA scheme with site suitability certificates of Ca on Non-Forest land is uploaded" The same is submitted herewith as **(Anneuxre No.2)**
iv	As per DSS Analysis, it has been found that the Legal status of land for one patch near Tut	Gat No.180 is consolidated by four separate survey No.s i.e. 120/2, 110/0, 120/4, 112/1. Out

	No.180 comprising an area of 0.632 ha. not clear. Therefore, legal status of the said patch of land needs clarification.	of these survey numbers S.No.120/2 is having provisions of privat forests, legal status of others are private land. In this connection user agency submitted that "Legal status of Gut No.180 comprising of an area of 0.632 ha. is provided in the map". The same is submitted herewith as **(Annexure No.3)**
v	Satelliete imagery showns the presence of Village settelements, Road, School and the Agricultural land within the forest land proposed for diversion. The needs clarification.	The User Agency submitted that "The forest land proposed for diversion includes the private forest area on which village settlement, road, school and Agricultural land of Jambhulwaid situated in Gut No. 53,60 & 61. Khairwadi in Gut No.110 of Mahan and Sambarkundwadi in Compt No.196 of Mahan. Which is proposed for diversion and the necessary Rehabilitation and resettlement has also been proposed as per R&R plan on the rehabilitation land from village Ramraj on downstream in the command"
vi.	The State Government has reported that project will affects 129 families and will be resettled in the project command area. However as per R&R plan submitted with proposal it has been mentioned that the number of families to be displaced in 199. This variation neds clarification. Further, the copy of approval of the R&R plan by the competent authority is also required to be submitted.	The User Agency submitted that "The necessary corrections are made in the number of families affected and needs to be displaced as per R&R Plan in the prepared. The R&R Plan will be submitted to competent authority on priority and approved R&R Plan will be submitted in due course of time immediately." Prepared R&R plan is attached herewith as **(Annexure No.4)**
vii.	The detail of the alternative examined and the justification/reasons for selecting the proposed alternative shall be submitted.	The User Agency submitted that "The details of the alternative examined and the justification/reasons for selecting the proposal alternative" The same is submitted herewith as **(Annexure No.5)**
viii.	The copy of the approved CAT plan as per provisions contained in Handbook of guidelienes dated 28/03/2019 is required to be submitted.	The copy of the revised CAT Plan as per provisions contained in Handbook of guidelies dated 28/03/2019. The same is submitted herewith as **(Annexure No.6)**
ix	The Cost Benefit analysis is required to be submitted on the prescribed format keeping in view the revised NPV rates issued vide MoEF&CC letter dated 06/01/2022.	**The** Cost Benefit analysis is submitted herewith considering the revised NPV rates issued vide MoEF&CC letter dated 06/01/2022 in the prescribed format which is submitted herewith as **(Annexure No.7)**
x	The State Government shall upload the DGPS map showing the component wise requirement of forest land and the latest Survey of India topo-sheet showing the proposed forest lad for diversion on PARIVESH.	The User Agency submitted that "The DGPS map showing component-wise requirement of proposed forest land for diversion and latest survey of India toposhet maps showing the proposed forest land for diversion are uploaded on PARIVESH" Copy of the same is submitted herewith as **(Annexure No.3)**
xi.	The State Government has not submitted the copy of revenue documents indicating that the area proposed for CA is Non-Forest land and free from all encumbrances.	The User Agency submitted that "The copy of revenue documents indicating that the area proposed for CA is non-forest land and free from all encumbrances." The same is submitted herewith as **(Annexure No.8)**
xii.	The complete DGPS map and Survey of India toposheet map showing the forest land under diversion is not uploaded online. The State Government needs to upload the DGPS map showing the component wise utilization fo forest land under diversion and the latest Survey of India toposheet map showing the proposed forest land for diversion on PARIVESH.	The User Agency submitted that "The complete DGPS map & the Survey of India Toposheet map showing the forest land under diversion and also showing the component wise utilization of forest land under diversion are uploaded on PARIVESH. Copy of the same is submitted herewith as **(Annexure No.3)"**

In view of the above, it is requested that the Government of India may kindly be moved for approval under section-2 (ii) of the Forest (Conservation) Act-1980, at the earliest.

Encl-As above.

Yours sincerely,

(Naresh Zurmure)
Addl. Principal Chief Conservator of Forests
& Nodal Officer

Copy submitted to the Principal Secretary (Forests), R&FD, Mantralaya, Mumbai -32 for information.
Copy to the Chief Conservator of Forests (T), Thane for information.
Copy to the Deputy Conservator of Forests, Alibag Forest Division, Alibag for information.
Copy to the Executive Enginer, Hatawane Medium Project Division, Kamarli-Pen, Taluka Pen, Dist. Raigad for information.

Annexure - 4 (६१)

REHABILITATION AND RESETTLEMENT PLAN FOR PORPOSED SAMBARKUND MEDIUM PROJECT

Rehabilitation and Resettlement Plan for Project Affected Persons

Due to construction of Sambarkund Storage tank, 3 villages (Khairwadi, Jambhulwadi and Sambarkund wadi) will be affected. The families from these villages will be rehabilitated as per 'Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013'.

Proper compensation package is planned and will be provided to the project affected population. The trauma will remain till the farmer gets the compensation and livelihood source in case of the farmers which have lost their entire land and proper rehabilitation and resettlement for the people who have lost their houses. Therefore, this impact will be Temporary High negative impact.

The project consists of right bank canal, left bank canal.

Right Bank Canal – 15 km

Left Bank Canal – 5 km

Area under project is as follows: -

Dam seat and submergence		
1.	Private Land	148.41.77
2.	Revenue Land	23.40.00
3.	Forest Land	263.54.06
	Total	**435.35.83**

As per project report provision of Rs**4659.18**Lakhsfor land acquision and rehabilitation is made. Land acquisition awards are decleared.

Land for resettlement of PAP's is selected by PAP's. Land acquisition proposal for the rehabilitation for direct purchase rate have been fixed.

Information of PAP's

Gross storage of Sambarkund Medium Project is 49.85 Mcum. Total Land required for submergence, Dam seat, Appro

Sr. No.	Component	Forest	Non forest	Total
1	SUBMERGENCE	238.24.15	98.76.62	337.00.77
2	DAM SEAT	08.33.20	34.39.49	42.72.69
3	WASTE WEIR	05.09.21	0.00.00	05.09.21
4	TAIL CHANNAL	00.95.20	03.42.15	04.37.35
5	APPROACH ROAD TO REHABILITATION LAND	02.84.69	21.90.44	24.75.13
6	PDN	08.07.61	13.33.07	21.40.68
	Total	**263.54.06**	**171.81.77**	**435.35.83**

As far as acquisition of government land including forest land, compensation would be paid to the concerned government department/agency. The compensation for acquisition of private land would be paid to the respective landowners/ land titleholders within the provisions of Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.

Classification of PAP's

Sr. No.	Description	No. of families
1.	Open Category	66
2.	Schedule Caste	1
3.	Schedule tribe/Nationalized tribe	163
	Total	**230**

Available Public Utilities

Available public utilities at existing Goathan and distance as below:

Name of the village	Drinking water	Electric supply	Medical facility
Khairwadi	Well	Yes	Ramraj – 9 km
Jambhulwadi	Well	Yes	Ramraj – 10 km
Sambarkund wadi	Well	Yes	Ramraj – 12 km

Communication and education facility

Name of village	Distance						
	Post Office	State transport	Railway	Nursury	Primary School	High School	Higher Education
Khairwadi	Ramraj 9 km	Ramraj depo 5 km	Roha 35 km	Mahan 2 km	Mahan 2 km	Ramraj 9 km	Alibag 27 km
Jambhulwadi	Ramraj 10 km	Ramraj depo 6 km	Roha 36 km	Mahan 3 km	Mahan 3 km	Ramraj 10 km	Alibag 28 km
Sambarkund wadi	Ramraj 12 km	Ramraj depo 8 km	Roha 38 km	Mahan 5 km	Mahan 5 km	Ramraj 11 km	Alibag 30 km

Rehabilitation of PAP's

The submergence area of Sambarkund Medium Project includes three wadis viz. Khiarwadi, Jambhulwadi and Sambarkund wadi. The site selected for rehabilitation is based on the choice given by the PAP's.

The affected families in the submergence area as below-

Sr. No.	Name of village	Affected families
1.	Khiarwadi	144
2.	Jambhulwadi	48
3.	Sambarkund wadi	38
	Total	**230**

Size wise details of families as below:

Sr. No.	Name of village	Size of family		Total
		Families having 1 to 5 members	Families having more than 5 members	
1.	Khairwadi	92	52	144
2.	Jambhulwadi	29	19	48
3.	Sambarkund wadi	19	19	38

Village wise family

Name of village	Total families	Farmers	Other than farmers
Khairwadi	144	96	48
Jambhulwadi	48	24	24
Sambarkund wadi	38	1	37
Total	**230**	**121**	**109**

Amenities and infrastructure to be provided in new goathan

Resettlement	Approach road		Drinking water	Electric supply	
	To be provided from	Distance		Available	Distance
Khairwadi (Ramraj)	Ramraj	1.00 km	Water supply scheme	From Ramraj	1.00 km
Jambhulwadi (Ramraj)					
Sambarkund wadi (Ramraj)					

Amenities Communication and Educational facilities in new goathan and distance

Following amenities and infrastructural facilities are proposed to be provided at resettlement areas:

Resettlement	Available at distance							
	Primary School	High School	Higher Education	Post Office	State Transport	Railway	Market	Bank
Khairwadi (Ramraj)	0 km	Ramraj 7 km	Alibag 26 km	Ramraj 7 km	Ramraj 1 km	Roha 35 km	Alibag 26 km	Alibag 26 km
Jambhulwadi (Ramraj)								
Sambarkund wadi (Ramraj)								

Sr. No.	Existing Gaothan	No. of families	Area required for resettlement (Ha)	Place of resettlement and family wose area required	
				Ramraj	
				No. of families	Required area (Ha.)
1	Khairwadi	144	10.78	230	16.08
2	Jambhulwadi	48	3.34		
3	Sambarkund wadi	38	1.96		

Land required for resettlement

The total affected families are 230 having population of 1187 souls. These families would be relocated in village Ramraj(Ramraj). The land required for new gaothan is as below:

Resettlement	No. of families	Land required for resettlement			
		Land required for gaithan (Ha)	Land required for public facilities (50%)	Land required for future expansion	Total Land required
1	2	3	4	5	6
Khairwadi	144	6.20	3.10	1.480	10.78
Jambhulwadi	48	1.93	0.97	0.44	3.34
Sambarkund wadi	38	1.17	0.58	0.21	1.96
Total	**230**	**9.30**	**4.65**	**2.13**	**16.08**

Area shown above is based on the list of families supplied by village panchayat. The affected people hasdemanded that the resettlement should assume that the person above 21 years should be considered as a family. The land selected for resettlement is undulated, hence more land will be required than the calculated area.

PAP's Choice/preference for resettlement

A survey has been carried out for the selection of required land for shifting all the PAP's. The site selection is mainly based on the preference in general given by PAP's relocation. This information is collected from all the families, which are to be ousted from the villages going under submergence.

Name of village	Choice for resettlement/No. of families given the choice
Khairwadi	Ramraj 144
Jambhulwadi	Ramraj–48
Sambarkund wadi	Ramraj – 38
Total	**Ramraj -230**

230 affected families are willing to move at sites selected by PAP's at Ramraj gaothan.

Availability of land for resettlement

It is necessary to acquired land for resettlement of affected peoples. The selected land is warkas land. The owner of land is ready to hand over land for resettlement

Resettlement	No. of families to be resettled	*Required land*	*Available land (Govt. Land)*	*Land required for acquisition*
Ramraj	*230*	*16.085*	*16.085*	--

Amenities and infrastructure facilities to be provided in new settlement

It is observed during survey that all the villagers are meeting their eater requirement either from river water or from open wells, bore wells. The use of electricity for domestic purpose is found to be intermittent. To provide all amenities and infrastructure, suitable Govt. lands suggested for resettlement. But villagers are demanding that for convenience of farming on balance land after acquisition rehabilitation should be at nearby area. Considering the above fact site of rehabilitation has been selected. Selected site for rehabilitation is undulated. Extra expenditure will be occurred to level the sad site, approach road, drinking water facility.

Probable expenditure of rehabilitation of PAP's

The submergence area of Sambarkund Medium Project Taluka Alibag, District Raigad includes 3 wadis. The total affected families are 230 having population of 1187 souls. MoujeRamraj Taluka Alibag has been selected as rehabilitation site by Project Affected Villages. All the existing will be under submergence and some farming land will remain which will not be under acquisition. For convenience of farming on balance land, project affected farmershas selected rehabilitation site at downstream of dam at village Ramraj. The said site is undulated; hence extra expenditure will occur for site leveling, approach roads and drinking water facilities. Existing approach road is 1 to 1.5 km away from proposed rehabilitation site. To provide electricity to proposed rehabilitation site approximate 1 to 1.5 km, separate electric line will be required.

1) Land for rehabilitation
2) Levelling of land
3) Cost of houses in existing gaothan
4) Roads within the resettled villages and all weather road link to the nearest pucca road.
5) Construction of internal gutter

6) Supply of drinking water
7) Provision for drinking water for cattles
8) Grazing land as per proportion acceptable in the State
9) A resonable number of Fair Price Shop
10) Panchyat Ghar as appropriate
11) Village level Post Office, as appropriate, with facilities for opening saving accounts.
12) Appropriate seed-cum-fertilizer storage facility if needed
13) Construction of Bus Stop
14) Burial or cremation ground,
15) Common Toilet facility
16) Individual single electric connections, for each household and for public lighting.
17) Anganwadi's provided child and mother supplemental nutritional services.
18) School as per provisions of the Right of Childrens to free and Compulsory Education Act, 2009
19) Sub Health Center within 2 km range
20) Primary Health center as prescribed by the Government of India
21) Playground for Children
22) One Community center for every 100 families
23) Places for Worship and Chowapal/tree platform for every fifty families.
24) Saperate land must be earmarked for traditional tribal institutions.
25) Compound wall
26) Veterinary service center as per norms
27) Boundary stone
28) Transportation of houschold
29) Transportation Expenses

Considering all above facts general budget of expenditure for rehabilitation is prepared. General budgeted expenditure for land acquisition, preparing plots, providing essential utilities to proposed rehabilated is as below:

Ramraj (Khairwadi, Jambhulwadi, Sambarkundwadi)		
Sr. no.	**Public facility to be provided**	**Estimated cost (Rs. In Lacs)**
1.	Land acquisition	1716.00
2.	Land leveling	392.00
3.	Cost of Houses (222)	358.05
	Pakke (44)	300.00
	Zopdi, Beda (178)	58.00
4.	Approach Road	250.00
5.	Internal road	310.00
6.	Drinking water supply (Tap water)	212.50
7.	Public Toilet	24.00
8.	Village Panchayat building	20.19
9.	Primary health centre building	96.15
10.	Primary school building	124.30
11.	Community hall	36.55
12.	Open drainage system	225.00
13.	Electric supply	210.00
14.	Pick up shed	12.81
15.	Cremation center (With approach road and electric supply)	2.65
16.	Khalwadi/Gayran	150.00
17.	House Hold transportation	108.50
18 to 24	Other facilities	52.48
	Total Estimated Cost	**4659.18**

Probable expenditure of rehabilitation

Sr. No.	Resettlement Name of Village	No. of families to be rehabilitated	Population rehabilated	Estimated Cost (Rs. In Lacs)
1.	Ramraj	230	1187	**4659.18**

Information of project affected persons

Name of Village	Total population	Ladies	Gents	Literate	Illiterate	Open Category	Schedule Caste	Schedule tribes
Khairwadi	699	353	346	641	58	152	-	547
Jambhulwadi	236	114	122	214	22	28	03	205
Sambarkund wadi	252	115	137	154	98	07	-	245
Total	**1187**	**582**	**605**	**1009**	**178**	**187**	**03**	**997**

Academic information of project affected persons
Age Group 15 to 30

Name of Village	Open Category			Schedule caste			Schedule tribe		
	Up to 10th	Up to 12th	Graduate	Up to 10th	Up to 12th	Graduate	Up to 10th	Up to 12th	Graduate
Khairwadi	89	52	7	-	-	-	393	88	12
Jambhulwadi	18	4	6	1	2	-	168	15	-
Sambarkund wadi	7	-	-	-	-	-	136	11	4
Total	**114**	**56**	**13**	**1**	**2**	**-**	**697**	**114**	**16**

Village and item wise record of land required for project

Sr. no.	Name of Village	Total area of Village (Ha)	Area under Dam seat (Ha)	Area under submergence (Ha)	Area under approach road and other activities (Ha)	Total (Ha.)	Percentage to Total area
1.	*Khairwadi*	423.4353	52.7269	337.0077	-	**389.7346**	92%
2.	*Jambhulwadi*						
3.	*Sambarkund wadi*						
	Total	423.4353	52.7269	337.0077	-	**389.7346**	-

Sr. no.	Name of Village	No. of families	Farmers	Non-farmers	Farm labors	Service	Labors
1.	Khairwadi	144	96	48	288	8	144
2.	Jambhulwadi	48	24	24	72	2	72
3.	Sambarkund wadi	38	01	37	3	5	111
	Total	**230**	**121**	**7**	**363**	**15**	**327**

Details of houses go under submergence as per village Panchayat assessment register

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
1	Khairwadi	570	Kashinath Hari Munde	1	Pakke – 1
	Khairwadi	1272	Kashinath Hari Munde		Beda – 1
2	Khairwadi	838	Anusuya Kashinath Munde	1	Pakke – 1
3	Khairwadi	583	Ambaji Tanaji Kashte	1	Pakke – 1
	Khairwadi	823	Ambaji Tanaji Kashte		Pakke – 1
4	Khairwadi	582	Pandurang Dagdu Kashte	1	Pakke – 1
	Khairwadi	1081	Pandurang Dagdu Kashte		Pakke – 1
5	Khairwadi	585	Balya Malya Kashte	1	Pakke – 1
6	Khairwadi	605	Ganpat tayaWargude		Beda – 1
	Khairwadi	1078	Ganpat tayaWargude	1	Pakke – 1
7	Khairwadi	623	Khelya Taya Wargude	1	Pakke – 1
	Khairwadi	1276	Khelya Taya Wargude		Beda – 1
8	Khairwadi	587	Dinesh Balaya Kashte	1	Pakke – 1
9	Khairwadi	1282	Kashinath Malu Daroda	1	Pakke – 1
10	Khairwadi	1483	Krushna Aambaji Kashte	1	Pakke – 1
11	Khairwadi	939	Janya Posha Kashte	1	Pakke – 1
	Khairwadi	940	Janya Posha Kashte		Beda – 1
12	Khairwadi	622	Ramu Aambaji Kashte	1	Zopdi – 1 Beda – 1
13	Khairwadi	1665	Pandurang Aambai Kashte	1	Pakke – 1
14	Khairwadi	586	Kusha Ambaji Kashte	1	Pakke – 1
15	Khairwadi	942	Krushna Madhukar Kashte	1	Pakke – 1
16	Khairwadi	1252	Rama Tanaji Paradhi	1	Pakke – 1
17	Khairwadi	1279	Smt. Soni Govind Lendi	1	Pakke – 1
18	Khairwadi	826	Damu Valkya Gadkhal	1	Pakke – 1
	Khairwadi	1084	Damu Valkya Gadkhal		Pakke – 1
19	Khairwadi	624	Bhagya Govind Kashte	1	Pakke – 1
	Khairwadi	900	Bhagya Govind Kashte		Beda – 1
20	Khairwadi	825	Hashi Rama Lobhi	1	Pakke – 1
	Khairwadi	1284	Hashi Rama Lobhi	1	Zopdi – 1
21	Khairwadi	932	Ram Vaman Lobhi	1	Pakke – 1
22	Khairwadi	954	Babu Devaji Khandavi	1	Pakke – 1
	Khairwadi	626 A	Babu Devaji Khandavi		Pakke – 1
23	Khairwadi	626 B	Tanaji Babu Khandavi	1	Pakke – 1
24	Khairwadi	1701	Devai Ambaji Paradhi	1	Pakke – 1
25	Khairwadi	588	Gajanan Devaji Pardhi	1	Pakke – 1
	Khairwadi	896	Gajanan Devaji Pardhi		Beda – 1
26	Khairwadi	1670	Soma Govind Mengala	1	Pakke – 1
	Khairwadi	999	Soma Govind Mengala		Pakke – 1
27	Khairwadi	998	Krushna Govind Mengal	1	Pakke – 1
	Khairwadi	1709	Krushna Govind Mengal		Beda – 1
	Khairwadi	1287	Krushna Govind Mengal		Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
28	Khairwadi	1450	Jayesh Vithal Dhebe	1	Pakke – 1
29	Khairwadi	592	Mahadev Vitthal Dhebe	1	Pakke – 1
30	Khairwadi	1583	Jagdhish Vitthal Dhebe	1	Pakke – 1
31	Khairwadi	593	Dhakalibai Vitthal Dhebe	1	Pakke – 1
	Khairwadi	1262	Dhakalibai Vitthal Dhebe		Pakke – 1
32	Khairwadi	1762 A	Raya Tukaram Dhebe	1	Pakke – 1
33	Khairwadi	1762 B	Janu Tukaram Dhebe	1	Pakke – 1
34	Khairwadi	594 A	Janardhan Gajanan Dhebe	1	Pakke – 1
35	Khairwadi	594 B	Chandrakant Gajanan Dhebe	1	Pakke – 1
36	Khairwadi	1761	Snadeep Dhanu Dhebe	1	Pakke – 1
	Khairwadi	1026	Snadeep Dhanu Dhebe		Zopdi – 1
37	Khairwadi	1763	Tai Dhanu Dhebe	1	Pakke – 1
38	Khairwadi	837	Dhondu Zhimu Shinde	1	Pakke – 1
39	Khairwadi	894	Dharma Sonya Mengal	1	Beda – 1
	Khairwadi	589 A	Dharma Sonya Mengal	1	Pakke – 1
40	Khairwadi	589 B	Keshav Rama Mengal	1	Pakke – 1
	Khairwadi	952	Keshav Rama Mengal		Pakke – 1
41	Khairwadi	1526	Dharma Damu Gadkhal	1	Pakke – 1
42	Khairwadi	899	Kusha Janu Vargude	1	Pakke – 1
43	Khairwadi	898	Pnadharinath Tukaram Bhandvilkar	1	Pakke – 1
	Khairwadi	1772	Pnadharinath Tukaram Bhandvilkar		Farmhouse -1
44	Khairwadi	1283	Rajendra Pnadharinath Bhandvilkar	1	Beda – 1
45	Khairwadi	581	Dhani Hasha Kashte	1	Pakke – 1
	Khairwadi	1022	Dhani Hasha Kashte		Beda – 1
46	Khairwadi	596	Soma ThamaPanchanga	1	Pakke – 1
	Khairwadi	1309	Soma ThamaPanchanga		Beda – 1
	Khairwadi	1310	Soma ThamaPanchanga		Beda – 1
47	Khairwadi	949	Yashwant Dagdu Kashte	1	Pakke – 1
	Khairwadi	1285	Yashwant Dagdu Kashte		Beda – 1
48	Khairwadi	1498	Shantaram Malushi Shid	1	Pakke – 1
49	Khairwadi	834	Kamlakar Chima Gadkhal	1	Pakke – 1
50	Khairwadi	1303	Raju Maya Thombare	1	Pakke – 1
51	Khairwadi	1079	Balya Namya Mengal	1	Zopdi – 1 Beda – 1
52	Khairwadi	1083	Dama Namya Mengal	1	Pakke – 1
53	Khairwadi	941	Madhukar Posha Kashte	1	Pakke – 1
	Khairwadi	1703	Madhukar Posha Kashte		Pakke – 1
54	Khairwadi	1304	Damodar Kalu Pardhi	1	Pakke – 1
55	Khairwadi	1533	Kisan Hiraji Pachanga		Zopdi – 1 Beda – 1
56	Khairwadi	1305	Maruti Vithiba Shid	1	Pakke – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
	Khairwadi	1706	Maruti Vithiba Shid		Beda – 1
57	Khairwadi	1534	Balaram Vithoba Shid	1	Pakke – 1
	Khairwadi	1705	Balaram Vithoba Shid		Zopdi – 1 Beda – 1
58	Khairwadi	1278	Mahadev Yashya Kashte	1	Pakke – 1
59	Khairwadi	1635	Ramesh Shantaram Pawar	1	Zopdi – 1 Beda – 1
60	Khairwadi	1711	Devendra Narayan Tandel	1	Pakke – 1
61	Khairwadi	1712	Dharmendra Naraan Tandel	1	Pakke – 1
62	Khairwadi	1713	Rajendra Manohar Sakhunkar	1	Pakke – 1
63	Khairwadi	1652	Kishan Yashwant Gadkhal	1	Zopdi – 1 Beda – 1
64	Khairwadi	577	Madhukar Ganpat Darode	1	Pakke – 1
65	Khairwadi	1020	Yashwant Naravaji Gadkhal	1	Pakke – 1
66	Khairwadi	576	Chaya Soma Daroda	1	Pakke – 1
67	Khairwadi	1286	Tanaji Soma Daroda	1	Pakke – 1
	Khairwadi	1668	Tanaji Soma Daroda		Beda – 1
68	Khairwadi	572	Rama Soma Daroda	1	Pakke – 1
69	Khairwadi	1726	Govind Dama Daroda	1	Pakke – 1
70	Khairwadi	1080	Vitthal Yasha Kashte	1	Pakke – 1
71	Khairwadi	948	Mahadu Dharma Humbir	1	Pakke – 1
72	Khairwadi	575A	Pandurang Laxuman Daroda	1	Pakke – 1
	Khairwadi	1531	Pandurang Laxuman Daroda	1	Zopdi – 1 Beda – 1
73	Khairwadi	575A	Vasant Pandurang Daroda	1	Pakke – 1
74	Khairwadi	1280	Maruti Hiraji Pachanga	1	Pakke – 1
75	Khairwadi	1301	Balu Tanaji Bargude	1	Pakke – 1
76	Khairwadi	1082	Sakhu Hiraji Pachanga	1	Zopdi – 1 Beda – 1
77	Khairwadi	830	Yashya Thama Kashte	1	Pakke – 1
	Khairwadi	1021	Yashya Thama Kashte		Pakke – 1
78	Khairwadi	590	Namya Gangya Mengal	1	Pakke – 1
79	Khairwadi	625	Gangu Ganpat Kashte	1	Pakke – 1
	Khairwadi	1704	Gangu Ganpat Kashte		Pakke – 1
80	Khairwadi	833	Pandu Thama Pachanga	1	Pakke – 1
81	Khairwadi	833	Pandu Thama Pachanga	1	Pakke – 1
82	Khairwadi	1671	Hari Tanaji Vargude	1	Zopdi – 1 Beda – 1
	Khairwadi	1302	Hari Tanaji Vargude		Zopdi – 1 Beda – 1
83	Khairwadi	1672	Ganpat tayaVargude	1	Zopdi – 1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
84	Khairwadi	810	Rambhau Ramchandra Dhanvade	1	Pakke – 1
85	Khairwadi	885	Suyog Sadashiv Angre	1	Zopdi – 1 Beda – 1
86	Khairwadi	1306	Gurunath Baliram Dhag	1	Zopdi – 1 Beda – 1
87	Khairwadi	599	Gauri Yashya Mengal	1	Zopdi – 1 Beda – 1
	Khairwadi	1435	Gauri Yashya Mengal		Pakke – 1
88	Khairwadi	1253	Rama Tanaji Kashte	1	Zopdi – 1 Beda – 1
89	Khairwadi	591	Rama Malya Mengal	1	Pakke – 1
	Khairwadi	1710	Rama Malya Mengal		Beda – 1
90		1532	Rama Aalu Kashte	1	Pakke – 1
91	Khairwadi	832	Gauri Aalu Kashte	1	Pakke – 1
92	Khairwadi	836	Chaya Raya Paradhi	1	Pakke – 1
93	Khairwadi	947	Raya Malya Pardhi	1	Pakke -1
	Khairwadi	1667	Raya Malya Pardhi		Beda – 1
94	Khairwadi	579	Jaya Dagdu Kashte	1	Pakke – 1
95	Khairwadi	828	Namdev Dagdu Kashte	1	Pakke -1
96	Khairwadi	1281	Harischandra Posha Pingala	1	Zopdi -1
97	Khairwadi	946	Sonya Parshuram Darode	1	Beda – 1
	Khairwadi	1468	Sonya Parshuram Darode		Pakke – 1
98	Khairwadi	573	Chini Parshuram Darode	1	Pakke – 1
	Khairwadi	895	Chini Parshuram Darode		Zopdi – 1 Beda – 1
99	Khairwadi	598	Raghunath Aalu Kashte	1	Pakke – 1
100	Khairwadi	897	Khelya Changu Daroda	1	Pakke – 1
101	Khairwadi	835	Goma Changu Daroda	1	Pakke – 1
102	Khairwadi	574	Kashiram Posha Daroda	1	Pakke – 1
103	Khairwadi	953	Devaji Changu Daroda	1	Pakke – 1
104	Khairwadi	829	Ragini Changu Kashte	1	Pakke – 1
105	Khairwadi	1568	Dilip Namdev Kashte	1	Pakke – 1
106	Khairwadi	1297	Raghunath Govind Raut	1	Pakke – 1
107	Khairwadi	1308	Janardhan Harishchandra Dhanavade	1	Zopdi – 1 Beda – 1
108	Khairwadi	1634	Manohar Laxman Dhanavade	1	Pakke – 1
109	Khairwadi	1273	Nirmala Bhiku Dhanavade	1	Pakke – 1
110	Khairwadi	1311	Jaganath Vithal Dhanavade	1	Zopdi – 1 Beda – 1
111	Khairwadi	945	Ashok Vithal Dhanavade	1	Zopdi – 1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
112	Khairwadi	1746	Keshav Kashinath Padaval	1	Zopdi – 1 Beda – 1
113	Khairwadi	1170	Attmaram Manga Katkar		Pakke – 1
114	Khairwadi	1277	Laxuman Dharma Mengal	1	Pakke – 1
115	Khairwadi	1127	Mahesh Dattatrey Bhosale	1	Beda – 1
116	Khairwadi	1784	Milind Rambhau Dhanvade	1	Zopdi – 1 Beda – 1
117	Khairwadi	1780	Mangesh Raghunath Harpale	1	Zopdi – 1 Beda – 1
118	Khairwadi	1797	Sudhir Pandurang Dhanavde	1	Zopdi – 1 Beda – 1
119	Khairwadi	1768	Dhaya Madhu Paradhi	1	Zopdi – 1 Beda – 1
120	Khairwadi	1774	Changu Posha Pingala	1	Zopdi – 1 Beda – 1
121	Khairwadi	1274	Shridhar Bhiku Dhanavade	1	Zopdi – 1
122	Khairwadi	1781	Sharadh Balu Dhanavade	1	Pakke – 1
123	Khairwadi	1758	Suchita Sushil Chikhale	1	Beda – 1
124	Khairwadi	841	Prakash Ramesh Pawar	1	Zopdi – 1 Beda – 1
125	Khairwadi	1288	Prakash Narayan Basode	1	Zopdi – 1 Beda – 1
126	Khairwadi	1293	Anil Raghunath Pawar	1	Zopdi – 1 Beda – 1
127	Khairwadi	1800	Prakash Mahadu Hambir	1	Zopdi – 1 Beda – 1
128	Khairwadi	1853	Ganpat Damu Gadkhal	1	Zopdi – 1 Beda – 1
129	Khairwadi	1814	Nilesh Pandharinath Bahndvilkar	1	Zopdi – 1 Beda – 1
130	Khairwadi	1817	Arvind Raghunath Katkar	1	Zopdi – 1 Beda – 1
131	Khairwadi	1782	Kisan Balu Dhanavade	1	Pakke – 1
132	Khairwadi	1818	Subha Ramchandra Patil	1	Zopdi – 1 Beda – 1
133	Khairwadi	1819	Pratibha Gajanan Patil	1	Zopdi – 1 Beda – 1
134	Khairwadi	1820	Suryakant Shankar Tendulkar	1	Zopdi – 1 Beda – 1
135	Khairwadi	1821	Aruna Devichand Patil	1	Zopdi – 1 Beda – 1
136	Khairwadi	1822	Harish Ramchandra Patil	1	Zopdi – 1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
137	Khairwadi	1823	Omkar Umesh Tendulakar	1	Zopdi – 1 Beda – 1
138	Khairwadi	1785	Arun Raghunath Pawar	1	Zopdi – 1 Beda – 1
139	Khairwadi	1833	Madhukar Gopal Dhanavade	1	Zopdi – 1 Beda – 1
140	Khairwadi	1834	Sunanada Pundalik Bhandavilkar	1	Zopdi – 1 Beda – 1
141	Khairwadi	1835	Sarita Sitaram Dhanvade	1	Zopdi – 1 Beda – 1
142	Khairwadi	1848	Manoj Dattatrey Dasgaonkar	1	Zopdi – 1 Beda – 1
143	Khairwadi	1849	Pravin Dattatrey Shinde	1	Zopdi – 1 Beda – 1
144	Khairwadi	1851	Yogesh Dashrath Dolkar	1	Zopdi – 1 Beda – 1

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		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
1	Jambhulwadi	1259	Rama Raghu Pardhi	1	Pakke – 1
	Jambhulwadi	1700	Rama Raghu Pardhi		Beda – 1
	Jambhulwadi	1197	Rama Raghu Pardhi		Zopdi – 1
2	Jambhulwadi	600	Kisan Maya Kashte	1	Zopdi-1 Beda – 1
	Jambhulwadi	616	Kisan Maya Kashte		Pakke – 1
	Jambhulwadi	1562	Kisan Maya Kashte		Zopdi-1 Beda – 1
	Jambhulwadi	617	Kisan Maya Kashte		Zopdi-1 Beda – 1
3	Jambhulwadi	1289	Rami Uma Hambir	1	Pakke -1
	Jambhulwadi	620	Rami Uma Hambir		Pakke -1
	Jambhulwadi	1673	Rami Uma Hambir		Beda – 1
	Jambhulwadi	1696	Rami Uma Hambir		Zopdi-1 Beda – 1
4	Jambhulwadi	603	Smt. KamaliVaman Pingala	1	Pakke – 1
	Jambhulwadi	1307	Smt. KamaliVamanPingala		Beda - 1
5	Jambhulwadi	1089	Pandurang Hari Pingale	1	Pakke – 1
	Jambhulwadi	1338	Pandurang Hari Pingale		Beda - 1
6	Jambhulwadi	1688	Madhukar Pandurang Kashte		Zopdi-1 Beda – 1
	Jambhulwadi	1097	Madhukar Pandurang Kashte		Pakke – 1
7	Jambhulwadi	1426	Gangaram Hari Kashte		Pakke – 1
8	Jambhulwadi	1258	Ambaji Pandurang Kashte	1	Pakke – 1
9	Jambhulwadi	1090	Chaya Panga Pingale	1	Pakke – 1
	Jambhulwadi	619	Chaya Panga Pingale		Pakke – 1, Zopdi-1 Beda – 1
	Jambhulwadi	1678	Chaya Panga Pingale		Zopdi-1 Beda – 1
	Jambhulwadi	1131	Chaya Panga Pingale		Zopdi-1 Beda – 1
10	Jambhulwadi	820	Hari Goma Kashte	1	Beda – 1
	Jambhulwadi	580	Hari Goma Kashte		Pakke – 1
11	Jambhulwadi	607	Malya Goma Kashte	1	Pakke – 1
	Jambhulwadi	1679	Malya Goma Kashte		Beda – 1
	Jambhulwadi	610	Malya Goma Kashte		Beda – 1
12	Jambhulwadi	1239	Jaya Daji Kashte	1	Pakke – 1
	Jambhulwadi	1695	Jaya Daji Kashte		Pakke – 1
	Jambhulwadi	601	Jaya Daji Kashte		Zopdi-1 Beda – 1
13	Jambhulwadi	958	Dhaki Taya Hambir		Pakke – 1
	Jambhulwadi	1290	Dhaki Taya Hambir		Zopdi - 1
14	Jambhulwadi	1209	Yamuna Tukaram Shid		Beda- 1
	Jambhulwadi	1680	Yamuna Tukaram Shid		Zopdi-1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
	Jambhulwadi	1686	Yamuna Tukaram Shid		Pakke – 1
15	Jambhulwadi	1675	Manjula Hirachand Shid		Zopdi-1 Beda – 1
16	Jambhulwadi	604	Pandurang Hiraji Vargude	1	Pakke - 1
	Jambhulwadi	819	Pandurang Hiraji Vargude		Zopdi - 1
	Jambhulwadi	1697	Pandurang Hiraji Vargude		Beda – 1
17	Jambhulwadi	1129	Kashinath Umaji Hambir		Pakke - 1
18	Jambhulwadi	957	Bhagya Gama Varguda	1	Pakke - 1
	Jambhulwadi	1692	Bhagya Gama Varguda		Zopdi-1 Beda – 1
19	Jambhulwadi	1460	Laxman Bhagya Vargunde		Pakke - 1
	Jambhulwadi	1792	Laxman Bhagya Vargunde		Zopdi - 1
20	Jambhulwadi	1722	Bharat Bhagya Bargude		Zopdi-1 Beda – 1
	Jambhulwadi	1832	Bharat Bhagya Bargude		Zopdi-1 Beda – 1
21	Jambhulwadi	824	Rama Gama Varguda		Beda -1
	Jambhulwadi	608	Rama Gama Varguda		Zopdi-1 Beda – 1
	Jambhulwadi	1694	Rama Gama Varguda		Pakke - 1
22	Jambhulwadi	821	Changu Gama Varguda	1	Pakke - 1
	Jambhulwadi	1699	Changu Gama Varguda		Zopdi-1 Beda – 1
23	Jambhulwadi	1085 A	Valakya Kamalya Mengal		Pakke - 1
24	Jambhulwadi	1085 B	Dama Valakya Mengal		Pakke - 1
	Jambhulwadi	1265	Dama Valakya Mengal		Beda – 1
25	Jambhulwadi	1242	Rama Dama Bangare		Pakke - 1
26	Jambhulwadi	618	Dhaya Pandurang Hambir	1	Pakke – 1
	Jambhulwadi	1130	Dhaya Pandurang Hambir		Pakke – 1
	Jambhulwadi	1685	Dhaya Pandurang Hambir		Beda – 1
27	Jambhulwadi	606	Manglu Paku Varguda	1	Pakke – 1
	Jambhulwadi	1263	Manglu Paku Varguda		Beda – 1
28	Jambhulwadi	1088	Rama Chima Varguda		Pakke – 1
	Jambhulwadi	1674	Rama Chima Varguda		Zopdi-1 Beda – 1
	Jambhulwadi	1264	Rama Chima Varguda		Beda – 1
29	Jambhulwadi	1256	Yashawant Malu Varguda	1	Pakke – 1
	Jambhulwadi	1687	Yashawant Malu Varguda		Beda – 1
30	Jambhulwadi	1257	Madhukar Uamaji Hambir	1	Zopdi-1 Beda – 1
31	Jambhulwadi	1698	Hiraman Dhaya Pardhi	1	Pakke – 1
32	Jambhulwadi	1721	Kamlakar Ragho Paradhi	1	Zopdi-1 Beda – 1
33	Jambhulwadi	1295	Sushil Yashwant Chikale	1	Beda – 1
34	Jambhulwadi	1683	Valmilk Tanaji Sutak		Beda – 1
	Jambhulwadi	1684 B	Valmilk Tanaji Sutak		Pakke – 1
35	Jambhulwadi	1684 A	Nilesh Tanaji Sutak		Pakke – 1

Sr. No.	Name of village	Details of houses go under submergence as per village Panchayat assessment register			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
36	Jambhulwadi	816	Taramati Harishchandra Angre		Zopdi - 1
37	Jambhulwadi	1691	Kashinath Hiraji Pardhi		Zopdi-1 Beda – 1
38	Jambhulwadi	1070	Vinod Harishchandra Angre		Pakke – 1
39	Jambhulwadi	602	Smt. Bhagi Yashvant Shid	1	Zopdi-1 Beda – 1
40	Jambhulwadi	1789	Vijay Bhaskar Mahale	1	Pakke – 1, Zopdi-1 Beda – 1
41	Jambhulwadi	1790	Sudha Vikas Sakilkar	1	Pakke – 1, Zopdi-1 Beda – 1
42	Jambhulwadi	1791	Ganesh Yashvant Kanoje	1	Pakke – 1, Zopdi-1 Beda – 1
43	Jambhulwadi	1795	Anita Anant Pawar	1	Zopdi-1 Beda – 1
44	Jambhulwadi	1796	Balaram Pandurang Malusare	1	Zopdi-1 Beds – 1
45	Jambhulwadi	1824	Bhaskar Gopal Dhanavade	1	Zopdi-1 Beda – 1
46	Jambhulwadi	1852	Umesh Sitaram Patil	1	Zopdi-1 Beda – 1
47	Jambhulwadi	1855	Sushant Sitaram Pawase	1	Zopdi-1 Beda – 1
48	Jambhulwadi	1856	Anita Pradip Gaikwad	1	Zopdi-1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
1	Sambarkund wadi	1188	Prakash KamlakarLendi	1	Pakke – 1
2	Sambarkund wadi	1189 A	Dharma Kamlakar Lendi	1	Pakke – 1
3	Sambarkund wadi	1189 B	Ram Kamlakar Lendi	1	Pakke – 1
4	Sambarkund wadi	1190 A	Yashawant Kamlakar Lendi	1	Pakke – 1
5	Sambarkund wadi	1192	Namdev Yashawant Lendi	1	Pakke – 1
6	Sambarkund wadi	1193	Pandurang Kamlakr Lendi	1	Pakke – 1
7	Sambarkund wadi	1191	Ganpat Kamlakr Lendi	1	Zopdi-1 Beda – 1
8	Sambarkund wadi	1190 B & 1194	Lakshuman Yashwant Lendi	1	Zopdi-1 Beda – 1
9	Sambarkund wadi	1198	Roshan Ganpat Lendi	1	Zopdi-1 Beda – 1
10	Sambarkund wadi	1200	Dhaya Govind Lendi	1	Beda – 1
11	Sambarkund wadi	1205	Mohan Kushya Vargude	1	Zopdi-1 Beda – 1
12	Sambarkund wadi	1204	Ramesh Changa Pardhi	1	Zopdi-1 Beda – 1
13	Sambarkund wadi	1199	Pandurang Madhu Pardhi	1	Zopdi-1 Beda – 1
14	Sambarkund wadi	1206	Smt. Devaki Chaya Pardhi	1	Zopdi – 1
15	Sambarkund wadi	1195	Dhaya Madhu Pardhi	1	Zopdi-1 Beda – 1
16	Sambarkund wadi	1196	Rohidas Bhagya Lendi	1	Zopdi-1 Beda – 1
17	Sambarkund wadi	1201	Janu Valya Kashte	1	Zopdi-1 Beda – 1
18	Sambarkund wadi	1203	Hira Kanya Varguda	1	Zopdi-1 Beda – 1
19	Sambarkund wadi	1208	Kanu Bhagya Phasale	1	Zopdi-1 Beda – 1
20	Sambarkund wadi	1202	Janardhan Kamlya Pardhi	1	Zopdi – 1
21	Sambarkund wadi	1207	Dagdu Tanya Pingla	1	Zopdi-1 Beda – 1
22	Sambarkund wadi	1690	Vaman Uma Pardhe	1	Zopdi-1 Beda – 1
23	Sambarkund wadi	1767	Maruti Sonya Pardhi	1	Beda – 1
24	Sambarkund wadi	1693	Yashawant Pandu Lendi	1	Zopdi-1 Beda – 1
25	Sambarkund wadi	1771	Rama Madhu Lendi	1	Zopdi-1 Beda – 1
26	Sambarkund wadi	602	Bhagi Yashawant Shid	1	Zopdi-1 Beda – 1
27	Sambarkund wadi	1689	Damu Daji Shid	1	Zopdi-1 Beda – 1

Sr. No.	Name of village	Details of houses go under submergence as per village			Remarks
		Village panchayat house no.	Name of affected person	No. of family	Type of construction and number
28	Sambarkund wadi	1681	Mahadu Ram Shid	1	Zopdi-1 Beda – 1
29	Sambarkund wadi	1677	Malu Khilya Vargude	1	Zopdi-1 Beda – 1
30	Sambarkund wadi	1682	Kanu Hari Nirgudde	1	Zopdi-1 Beda – 1
31	Sambarkund wadi	1714	Bhima Baghya Lendi	1	Zopdi-1 Beda – 1
32	Sambarkund wadi	1271	Shila Naresh Bhandvilkar	1	Zopdi-1 Beda – 1
33	Sambarkund wadi	1769	Tanya Yeshvant Nirguda	1	Zopdi-1 Beda – 1
34	Sambarkund wadi	1770	Kashinath Ganapat Pardhi	1	Zopdi-1 Beda – 1
35	Sambarkund wadi	1766	Madhukar Govind Lendhi	1	Zopdi-1 Beda – 1
36	Sambarkund wadi	1777	Krushna Dehu Pardhi	1	Zopdi-1 Beda – 1
37	Sambarkund wadi	1776	Gangi Ganpat Nirguda	1	Zopdi-1 Beda – 1
38	Sambarkund wadi	1773	Nagya Rama Pachnga	1	Zopdi-1 Beda – 1

Place: Kamarli
Date :

Executive Engineer
Hetawane Medium Project Dn Kamarli
Tal.Pen,Dist.Raigad

(ASHISH THAKARE IFS)
Deputy Conservator of Forests
Alibag

Certificate No 17

Certificate alternative examined for linear projects

(Certificate of Project Authority)

Certified that Diversion of forestland proposal of "Sambarkund Medium Irrigation Project, Tal. Alibag Dist. Raigad" Maharashtra is irrigation and non linear project but still alternate alignments were examined.

I- Alternative alignment 1.5 Km. D/S of village Mahan.

(1) Proposed the dam alignment will be comparatively long & technically unfit.

(2) Maximum catchment area & storage is more.

(3) Comparatively less command area available.

(4) Total Mahan village have been under submergence.

(5) Some good paddy lands would have been under submergence.

(6) More forest land is required.

(7) Not acceptable to the local public.

Attempts made to find out alternate non-forest area for the proposal and reasons for the rejection of the same.

REPLY :- Alternate sites have been examined but rejected due to more cost and these are technically infeasible.

II- Alternative alignment U/S of village Mahan Selected site.

The present site is selected, as it is more attractive and economical due to following reasons.

Diversion of Forest land proposal for Non forest use under Forest (Conservation) Act 1980 for "Sambarkund Medium Irrigation Project Tal. Alibag Dist. Raigad Maharashtra

(47)

1. The proposed dam site is comparatively short.
2. Maximum catchment area is available and therefore more storage.
3. Comparatively less height of dam.
4. More command area is available.
5. A suitable foundation strata is available.
6. Comparatively less submergence area.
7. As this site is best and economically cheapest.
8. Various alternative sites are tried but more forest land is required in such alternative sites.

REPLY :- Selected due to less cost, this site is technically feasible and minimum forest area under project as compared to other sites.

Place: Kamarli

Date:

S. D. Jadhav
Executive Engineer,
Hetawane Medium Project Division,
Kamarli

(ASHISH THAKARE IFS)
Deputy Conservator of Forests
Alibag

Annexure-6 (45)

CATCHMENT AREA TREATMENT PLAN

Sambarkund Medium Project Taluka : Alibag District : Raigad

CHAPTER – I (General)

1.0 General

The river Sambarkund is one of the tributary of kundlika river valley. The proposed dam is situated up stream of village Mahan about 8 Kilometers upstream of its confluence to Kundlika River. The proposed command falls in Alibag Taluka. There is no existing or irrigation facility in this area. The main Nalla originate at an altitude of 335 M, having fan shaped catchment area. The catchment area at proposed dam site is 28.10 Sq.Km.

1.2 Climatic Condition

The rainfall in the valley is about 2500 to 5000 mm. The maximum and minimum temperatures are 31.8^0c and 17.7^0c respectively of Alibag station. The maximum precipitation is form June to October alone. The area is classified under Agro climatic zone No. IV A. Generally, the soil in command is previous and hence water drains away rapidly. Due to this there is an acute shortage of water during summer. Hence the farmer's in this area are cultivating one crop in Kharif only.

1.3 Socio Economical Facility:

The main occupation of the people in this area is agriculture. Dual facility may avail from the proposed project; the people can habituate to take double crop with availed irrigation facility, which improves General masses of the area.

1.3.1 There is Gail and H.P Gas plant in the command of proposed project. However, there is one fertilize complex near Thal Vayshet about 20 to 25 K.M. from the proposed project area and Indian Petro chemical project about a distance of 35 to 40 K.M. From the project area.

1.4 Geological features :

There are no other natural resources such as mineral ores etc. The General Geological features of the area consist of thick nearly horizontal sub sequent flows of Deccan trap basalt. Important flows includes compact basalt, amygdaloidal basalt, volcanic basalt and redtachylitic basalt.

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1.4.1 The catchment area seems to be with steep hills and camping ground forest. These forests have been lightly diminished on account of population growth. Excessive grazing etc. This leads to some extend of soil erosion.

1.4.2 A 60% of submergence area is of forest area. The said forest for storage also required forestation, which leads to the erosion of soil. Hence it is necessary to soil conservation horticultural on steep hills ground and scientific agricultural development program etc. For catchment area treatment.

1.4.3 With an view to above scheme for integrated development of catchment area treatment has been takes up with forest. Agriculture, Horticulture and soil conservation development with due consideration. The provision for marking out the expenditure over this activity may be made out development project, which are undergoing with the respectively departments.

CHAPTER – II (Catchment area)

2.1 The catchment area up to Sambarkund dam site is 28.10 Sq. Km. with steep hills and forest. The latitude and longitude of the proposed site are respectively $18^{0}32'$ and 73^{0} 3' with reference Toposheet 47 F/2. The river is originating from altitude 335M and flows towards the west and meets Kundlika River near village Bhonang. The Kundlika River is a west flowing river and joint Arabian Sea near village Salav.

2.2 The dam site falls in the influence zone of Nagothane Rain gauge station. The area falls in the rainfall range of 2500 to 5000 mm. as per Isohytal map of I.M.D. It is proposed to utilizes full yield of 75% dependability, i.e. 50.70 Mcum. being there is no upstream utilization in the catchment.

2.3 It is revealed from the census book an about 46.5% of the area is cultivated and 41.5% of the forest with about 12% other area, such as Nalla, road, west land etc. Mostly there is a paddy cultivation is in routine. The soil erosion from the field & forest may be prevented by scientific way of soil conservation, by the way of round and planting forest etc. on steep slopes.

2.4 Reserved Forest is the main type of in the catchment area.

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CHAPTER – III (River system)

3.1 The presence of stream and channel, are the important elements in the drainage basin of the catchment. The stream with higher bed grade deposits less and eroded more with the product delivered to the main stream. All the stream are non-perennial and are active only during monsoon period.

3.2 The rainfall in the catchment area is confined much devouring rainy season except one or two past monsoon falls devouring November and December. The decrease in natural precipitation occurs due to human interference in the catchment, such as unauthorized falling of trees, change in the agricultural practices, increase in the area of cultivation in the catchment etc. This results in the waste of excess flow during monsoon season.

3.3 After studding the catchment area from the Toposheet, whole area may be divided in to two number watersheds of left & right Nalla for development.

Being the right side of Nalla flows from longer distance with heavy forest, it is possible to develop the catchment area treatment with the help of forest department activities.

CHAPTER – IV (Geology)

4.1.1 Sub surface Geology have been studies on the basis of geological logging. Present Geotechnical investigation encompassing study of surface Geology. Area under investigation consists of thick nearly horizontal subsequent flows of Deccan trap basalt. Important flows include compact basalt, amygdaloidal basalt, volcanic breccias and re tachylitic basalts.

4.2 Area at the dam site consists of thick flows of amygdaloidal basalt & compact basalt. Amygdaloidal basalt in exposed at about Ch. 390 M. of the dam line bore whereas porphyritic basalt is exposed at about Ch. 360 M. of dam line. It is indicates that top of flows shows amygdaloidal structure while central part of flow is compact or porphyritic in nature. Excluding river bed there is overburden compromises of soil and angular boulders and pellets of basalt of various types. Overburden comprises boulders of vesicular laterites boulders on right bank, wherever over burden is devoid of laterite boulders on left bank.

Geological section proposed in the basis of Geological logging of cores. This indicates that there are thick flows of amygdaloidal and porphyritic basalt. Geological section along river indicates that amygdaloidal basalt occurs in the river bed.

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4.3 Area under investigation consists of thick subsequent nearly horizontal flows of Deccan trap basalt. Amygdaloidal and porphyitic basalt is exposed in river bed while most of the part of dam alignments is covered with over burden which comprises of soil and boulders of be salt and vesicular primary laterite. Geological section along the dam alignment decided on the basis of geological logging of cores from bore holes.

4.4 On the basis of Geological investigation proposed dam appears to be geological suitable for construction of 38.18 M height earthen dam.

CHAPTER – V (Soil Survey)

5.0 The project will command a gross area of 4313 ha. in Alibag Taluka of Raigad District. The command area occupied patches of plain land, near sea coast, slopping foot- hills and few wooded hills. The climate is warm and humid during most of the year. It receives an average annual rainfall of 3,000 mm., mainly during the monsoon. The area is mostly under kharif paddy and grasses.

The soils are highly leached red loams or laterite. Th depth wise distribution of soil of the area surveyed is as follows:

Sr.No.	Depth- Class	Depth	L.B.C.	R.B.C.	Total	P.C.
1.	Very Shallow	0-20	375	300	675	8.65
2.	Shallow	20-40	625	850	1,475	18.91
3.	Medium	40-250	2,525	3,025	5,550	71.15
4.	Deep	+20	75	25	100	1.29
Total			3,600	4,200	7,800	100

Nearly 70% of the area would thus appear to be medium in depth and hence irrigable. Texture of the soils is usually silt clay loam. No salinity and alkalinity of soils was observed expect for the saline near the sea-creek.

Proposed crop-pattern provides only 5% perennials, which can easily be accommodated in suitable medium soil.

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Reconnaissance soil survey Report of Sambarkund Medium Project.

5.1 Project

A storage dam is dur to be at Village Mahan on Sambarkund River (a tributary of the Kundalika river) Taluka Alibag, Raigad District which meets river kundlika at Village Bhonang.

The Right Bank PDN, 15 Km. In length, passes along the foothill slopes, and will have a branch near the village Mahajane; This branch further bifurcation and runs along the hills of the N.P.C. areas to command land to the North and South.

PDN on the left Bank will have a length of 5 Km. And will pass on the ridge of foothill slope up to Nangarwadi village, commanding areas to the west up to the Kundlika river.

A reconnaissance soil survey of the command area was therefore carried out in February-1997 to find out the suitability of soil for irrigation. The main finding of the soil survey area discussed below. A rapid, rather than detailed soil survey was undertaken on account of the necessity of quick but comprehensive report about the suitability of the soils of the area.

As per salient feature, the gross command area is 3722 ha. (R.B.C.) and 591 ha. (L.B.C.) i.e. approximately 4313 ha. But the actual area surveyed as per index plan is 7,800 ha.

5.2 Irrigation

Proposed PDN takes off from Village Mahan and has a gross command area of 4313 ha. The command area lies in Alibag Taluka covering 33 Villages. The right bank PDN commannnd area is 3722 Ha runs along the foot hills of Village Umate. Near Village Umate, there is dam constructed on local Nalla for water supply. Near Village Mahajane on the ridge, two branch PDN are proposed, one passing along Village Phanasapur, Chinchoti, Choul, on the foothills and the second along Village Walawadi, Wave and Andoshi, Sarai. These branch PDNs run along foot hills of the big hills near Wave.

The proposed left bank PDN is of 5 Km. Length having gross command area of 591 ha. Left bank PDN also runs along the ridges and foothill area of Village Rajewadi, Ramraj, Nangarwadi.

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Cropping Pattern:

5.3 Rainfall and climate:

The command area of the proposed Sambarkund project is near coastal region of Western Ghats. The area of this project comes under the high rainfall region (Annual rainfall about 3,000m) In general, the Konkan region has a tropical semi-humid climate. Average temperature is 80^0 F. (26.5^0 C) and the maximum and minimum temperature is 92^0 F (33^0C) and 65^0F. (18^0 C) respectively. Except for the rain season, there is usually a moisture deficit in the climate of the region.

Existing Cropping Pattern :

A larger area of the command is under Kharif paddy. Practically no other crop is growth in the command. But some area in the Village Ramraj and is under the garden of palm, Coconut, Betelnut etc. % of existing crops are as under:-

1.	Paddy	51
2.	Other Food crops	10
3.	Pulses	11
4.	Grass	28
	Total	100

5.4 Post project Cropping Pattern

Sr. No	Name of Crop	Percent
1	K. Paddy	56.80
2	K. vegetable	12.97
3	R. Vegetable	45.69
4	Rabi pulses	13.57
5	Strawberi	10.48
6	S. Vegetables	50.00
7	Summer Pulses	9.89
8	Water Melon	9.89
9	Mango/Cashew	15.43
10	Coconut	4.94
11	Banana	9.89
12	Miri	4.94
13	Pineapple	10.48
	Total	**254.98**

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5.4 The Object and produced of Reconnaissance soil Survey:

The reconnaissance soil survey is undertaken when a general idea of a long area required without spending much time on a more detailed survey. It involves the study if Toposheet, which are drawn to a scale of 1:63,360. The toposheet study given the general nature of the land slopes, land configuration, surface drainage etc. These broad impressions are to be supplemented by visual inspection of topography, general land slopes, pattern of classification and general nature of the soil. The soil depth and profile characteristics and general nature of the soil. The depth and profile of classification need to be determined at few places, preferably by means of open profiles.

a) Data to be obtained in the pre-irrigation soil survey:

i) Classification of soils in to shallow, medium and deep.

Shallow soils - The area with the soil depth from 0 to 40 cm.

Sub divided into very shallow 0 to 20cm.

And shallow: 20 to 40 cm.

Medium soils – The area with soil depth from 40 cm. Up to 250cm.

Deep soils – The area with soil depth from more than 250 cm.

i. Data on salinity, alkalinity.

ii. Data on soil texture and soil structure, which is of use in designing the irrigation scheduled.

b) Field and Laboratory work:

Due to undulating nature of the area traverses of the area were taken for mapping very shallow, medium and deep soil areas. Traverses were supported by pit work on grid basis where larger stretches of same type of soils were observed.

In order to study the morphology of soil, profiles were examined to study different soil characteristics at suitable places. Study of open profits is necessary for identifying soils color, texture, structure, mottling, consistence, existence of concretions, hardpan, root distribution etc. At suitable intervals infiltration tests were conducted to study the permeability of different horizons.

Observation of sub soil water levels for few scattered wells were made for the general depth of sub-soil water table and the quality of water in term of EC & PH.

For laboratory investigation samples were collected from all open profiles, natural layer wise; laboratory tests viz. Mechanical Analysis, electrical conductivity, saturation moisture, % ge shrinkage, Hydraulic conductivity were carried out.

Geology:

The underlying rock of this area is Deccan trap or basalt, uniform in composition. By weathering it gives rise to Murum. Some laterite rocks patches were also noticed.

Area close to creek is flat and rich in alluvial nut heavy concentration of salt is observed below the substrata as this area shows some marine deposits.

5.6 Right Bank Pipe Distribution Network (PDN)

Most of the area under the command is gently to very gently sloping land. The PDN alignment is on the foothill slopes.

The command area near dam site up to Village Ramraj is highly undulating. Most of the area is hilly with a few shallow soil patches.

Roha- Alibag Road Passes near the PDN alignment up to wave khind. The Right-side area of village. Bapale-Borghar, Umate, Phanasapur shallow medium soils with B to C class slopes. This soil has formed the deposition of colluviums. Deep soil is noticed near Phansapur and Agrav . The influence of creek water is observed in this part of the command area.

Most of the area of Wawe, Mahajane, Beloshi, is highly undulating with exposed rock are seen the village Khanav, Velavali, Usar and Ghotiwade.

The area of Village Velavali, Bhadane, and Dewale on road to Velavadi is shallow to medium. Most of the area is not under cultivation, being Government Forest land. In some area crop like Watermelon and Beans are taken.

Area of village Khanav and Valavadi are very shallow with patches exposed rock. Area of Revdanda choul, villages is medium having thick gardening of hard nut and coconut etc. Remaining area of the command is medium flat, having B class slope i.e. 13%.

Left Bank Pipe Distribution Network (PDN)

Area near the PDN alignment is undulating. Terrace development is noticed near the low land of village Rajwadi and Nangarwadi. All the command area is medium to soil, deposited by colluviums action.

5.7 Broad soil Classification:

Following is the depth wise break up to the total surveyed are of 7,800 ha.

Sr. No.	Soil Class	Depth	R.C.B.		L.B.C.		Total	
		Cm.	Ha.	P.C.	Ha.	P.C.	Ha.	P.C.
1.	Very Shallow	0 20	300	7.1	375	10.4	675	8.65
2.	Shallow	20-40	850	20.2	625	17.4	1,475	18.91
3.	Medium	40-250	3,025	72.0	2,525	70.1	5,550	71.15
4.	Deep	250+	25	0.6	75	2.1	100	1.29
Total			4,200	99.9	3,600	100.0	7,800	100

Nearly 70% of the command area would thus appear to be medium in depth and hence irrigable. Most of the very shallow areas comprise of exposed rock and Murum. Deep soils are also not command and occupy hardly 1.5 % of the total area.

Salinity and alkalinity of soils were not observed except for the saline sub-soils near inlet of sea e.g. Village Bhonang, Navakhar and Divi.

5.8 Board Pattern of Land Use

The perennials will not be allowed in shallow and very shallow to prevent heavy percolation losses and losses due to excessive drainage. From medium and deep soils area with high water table, cut up area and saline area are not considered suitable for irrigation and are deleted from the suitable area. Areas within ¼ mile limite of village sites are not recommended for perennial irrigation on public health ground. Exact areas could be available after detail soil survey.

Traverses of the area were made and 74 auger bores and 7 open profits were taken to fix tentative M.I. Bs. And the soil series. The soils of the areas are classified in 4 different series for identification.

The shallow and very shallow soils are grouped into one series in the command along with the two series for the medium soils. One series from the medium is located on sloping land near the foothill, and another on plain, bunded Land. Deep soil is very limited. The boundaries are shown on the map.

5.9 Characteristics of Tentative soils series.

Sr. No.	Name if Series Soil properties	Agrav I	Mahan II	Khanao III	Beloshi IV
1	Present material	Colluvium	Colluvium	Colluvium	Basalt
2	Mode of Development	Transported	Transported	Transported	In situ
3	Soil Depth (cm) Texture	0-140	100	100	25
4	Structure	Clavey	Clay loam	Clay loam	Clay loam
5	Free lime	Blocky & Massive	Sub angular Blocky	Sub angular Blocky & Massive	Sub angular Blocky & Massive
6	Mottling	Nil (maring shells present)	Nil	-	-
7	Soil drainage	Present	Nil	-	-
8	OH	Very poorly drained	Well drained	Well drained	Well drained
9	EC (mmhos/cm)	7.20-7.70	7.50-7.60	7.50	7.50
10	Irritability classes	0.32	0.11	0.11	0.18
11	Limiting Factors	IV	I – II	I-II	IV –VI
12	Extent of area Ha. P.c.	Internal Drainage 100 1.4	2150 27.6 (most extensive & suitable for irrigation	34000 43.6	Soil Depth 2150 27.4

5.10 Land Irritability Classification

The concept of land irritability classification is by itself highly qualitative. In the soils of Maharashtra, the problem in the past used to be heavy concentration of perennials and the subsoil drainage problems caused thereby. With the experience so far, it is now clear how this problem is to be tackled by the control of the extend of perennials outlet wise. At the pre-irrigation soil survey land irritability classification endeavors to state these controlling factors

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in broader terms. In various irritability classes the following percentages of perennials are permissible.

		p.c
Class I ...		12-15
Class II	...	9-12
Class III		6-9
Class IV A		3-6
Class IV B		0-3
Class V		Nil
Class VI		Nil

Sub-soil Water table

Reconnaissance soil survey was done in the month of March-1997. The wells observed in the command are drinking water wells. Generally, the sub-soil water table was seen below 3 m.

Laboratory findings:

Texture of the soil in the command is medium to find medium i.e. loam, silty clay loam. Soils in the village Bhonang, Navkhar, and Divi highly saline and slight acidity is also noticed.

Communication, Marketing and other facility:

The main communication facilities in the command are as below:

1) Alibag- Roha district road passes through the command.
2) Alibag- Pen road is also near to the command.
3) Revdanda- Alibag road partly passes through the command.
4) Alibag is the Dist. Headquarter and taluka town near the command, which has good marketing and other commercial facilities.

CHAPTER – VI (Details of soil data in command)

1) Agrav Series:

Soils of the series are developed on plain, flat land near the creek and seashore of Alibag District. They are fine textures soil having the influence of marine deposits. The soil depth is 80 cm. And above. The soil is structurally well developed. Soils are clayey with the

consistency plastic when wet. The soils are poorly drained; motting may be noticed below 60 cm.

Typical Profile :

0-20 cm	Dark brown (10 YR 4/3) dry grayish brown (10 YR 3/2) moist; clay; medium Weak sub angular blocky hard when dry, firm when moist and plastic when wet; no concretion; thin few roots; clear boundary.
20-60cm	brown (10YR 3/2) when moist; clay; medium moderate sub angular blocky; Hard when dry, firm when moist, plastic when wet; no concretions; no Roots diffused boundary.
60-140cm	Pale brown (10 YR 6/3) dry; clay; medium moderate sub angular blocky; dry hard, moist firm and plastic when; no concretion; common distinct mottles (10 YR 5/1); no roots.
140+ cm	Saline creek water.

Range in characteristics:

Color ranges from dark grayish brown to pale brown. Texture ranges from clay to silt clay.

Physiography & Relief: It occurs on flat bunded land near seashore and creeks.

Drainage: Poorly drained.

Land use and vegetation: Practically free of natural vegetation but some salt living shrubs seen near the creek (marsh).

Distribution and Extend :

Under the command of Sambarkund project in village Agrav, choul, Revadanda on flat and Belkade, Navedar, Kurual and Vanavali near creek.

Location: In this village area of Agrav.

2) Mahan Series:

Soils of the series are developed from alluvium and colluvium material of the basaltic origin on sloping lands in the command of Sambarkund project. It is moderately eroded soil having severe stoniness near the foothills. It is non- calcareous moderately will drained soils with

gravelly and cobby loam. The structural development in this series in very limited up to 25cm.

Typical profile:

0-20 cm	Very dark gray (10 YR 5/2) dry and moist; gravelly clay loam; weak fine sub angular block; slightly hard when dry and friable when moist; no effervescence; thick and few roots; clear boundary.
20-50cm	Brown (10 YR 4/3) dry dark brown (10 YR 3/3) moist; gravelly clay loam; massive breaking into blocks; loose when dry; friable when moist; no concretions; no effervescence; clear boundary.
50-100cm	Dark yellowish brown (10 YR 4/4) dry; Dark brown (10 YR 3/3) moist; gravelly loams; massive; dry loose. Friable; no concretion; no effervescence.
100+ cm	Murum.

Range in characteristics:

Color of the soils ranges from yellowish brown to dark yellowish brown. Texture ranges from clay loam to gravelly loam.

Physiography and relief: Sloping or undulating foothills

Drainage: Well drained.

Land use and vegetation: The natural vegetation is mango, babul etc. and the land is cultivated in kharif for paddy only.

Distribution and Extent: Under the command of Sambarkund project on both hill slopes area of villages Mahan, Rajewadi, Bapale, Belkade, Choul, Vincholi in Raigad district.

3) Khanao Series:

Soils of the series are dark brown to very dark brown developed from colluviums and cobbly material embedded on basaltic murum origin. The series occurs on flat bunded land

surrounded by exposed rock and murum. It is well developed regarding structure and texture. The whole solum of this series appears to be uniform. Cobbles and pebbles are observed predominantly throughout the profile. It is hard when dry and firm when moist.

Typical Profile:

0-25 cm	Dark brown (10 YR 3/3) dry very dark grayish brown (10 YR 3/2) moist; clay medium moderate sub angular block; hard when dry firm when moist; no effervescence; thick and few roots; defuse boundary.
25-50cm	Dark brown (10 YR 3/3) dry and most; clay loam; medium moderate sub angular blocky; hard when dry; friable when moist; no concretions; no effervescence; diffuse boundary.
60-100cm	When dry, firm when moist, no concretion; no effervescence with HCL.
100+ cm	Murum.

Range in Characteristics :

Soil depth ranges from 80-100cm. Texture below 20 cm. Is in the range of clay-to-clay loam. Vertical cracks are limited upto 25 cm.

Physiography and relief;

It occurs on nearly level to very gently sloping flat land.

Land use and vegetation; The land is thickly natural vegeted by forest trees and cultivated in kharif for paddy only.

Distribution and extend: Under the command of Sambarkund Project, in the village area of Knanao, Divi etc.

Location; In the villages area of Khanao.

4) Beloshi series:

Soils of the series are developed from basaltic murum. They occur on slopping foothills and on gently sloping area surrounded by exposed murum. They are moderately fine textures soils like clay loam with yellowish brown to dark yellowish brown. Rocky and stony phase are predominantly noticed along with the severe erosion.

Typical Profile:

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0-15 cm	Dark yellowish brown (10 YR 4/4) dry and dark brown (10 YR 3/3) moist; clay loam; medium moderate sub angular block; dry hard moist firm no concretions; no effervescence; thin and fine roots; clear boundary.
15-25cm	Dark yellowish brown (10 YR 3/4) dry and dark brown (10 YR 3/3) moist; clay loam; massive; dry loose, moist friable no concretions; no effervescence; clear boundary.
25+ cm	Murum.

Range in Characteristics: The texture of the soils ranges form clay loam to candy loam. The soil cover ranges from 10 to 25 cm.

Physiography and relief; Occur on slopping, undulating area surrounded by exposed rock and murum area and the very gently sloping flat land.

Drainage; Well-drained.

Land use and vegetation; Land is having poor natural vegetation like Babul and Neem. The land is cultivated only kharif for paddy.

Distribution and extend: Under the PDN command of Sambarkund Project of the village Mahan, Ramraj, Wave,Beloshi, Mahajane, Sarai, Area.

Location: In the village area of Beloshi.

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CHAPTER – VII

Inhabitation & culture

7.1 The Sambarkund catchment fully comprises with steep hilly track and maximum forest area. The Sambarkund river formed by confluence of number of small Nallas and stream, upto the proposed site of Sambarkund dam.

7.2 There is no village is under submergence. Only three pada of Mahan village may go under submergence. It is observed from the Toposheet that there are no major village in the catchment area of the project. Hence there is no question may occur for creating amenities to the people in catchment area.

7.3 The proposed command area of the project seems to be well drained and connected with each other by village roads & other roads. About all most all village in command area are electrified and hence there is no necessity of special action development. The modern amenities such as telecommunication etc. are available in the near town of Roha, Alibag, Nagothana etc.

Considering the above process, it appears that the scheme for developing of area by afforestation and soil conservation. May holds good the effect for inhabitation and culture and also improve in balanced environment.

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CHAPTER – VIII

States of Environment in catchment area.

8.1 It is known that any development may affected to that part of improvement and development of the standards of people in that area. Soil conservation is one of such type of development.

8.2 The soil is the outer most layer of earth crust. This tops layer of the soil plays the key role in agriculture activity and form the vegetable growth of the earth. The thickness of outer loose layer of earth is very less in steep hills. This may be dissent grated by wind pr weather action slowly. Due to this the process of migration is very less.

Due to hill track of catchment the rainfall being naturally more and surface run off increased due to great slope. This process results to an enormous erosive effect and form big and small stream for greater precipitation in the area. This phenomenal action in long run forms the debris which effects the environment of the area.

The consumption of forest product such as fuel wood, and fodder have also affected the erosion of soil by the process of decreasing forest growth. This in turns imbalance the environment of the area.

There is heavy paddy are in the agriculture fields of catchment and also these are unscientifically prepared agriculture fields. Hence the development of soil conservation work by bunding fields leads to the lesser erosion.

8.3 The people in the catchment area are using forest products for domestic purpose generally. It is also acceptable the use of forest goods for purposes such as building, I – Natures etc. may also leads to loss of wealth and effects to the environmental growth.

These can be substantially reduced i.e. consumption of fuel wood by replacing the conventional should by smokeless fuel efficient shoals, Gobar Gas plants, Kerosene stoves or oven L.P. Gas use. These help the improvement in the long run for balance in ecology due to saving of forest growth.

8.4 The protection of forest growth further helps in retention of moisture in the soil. The water such retained flows through underground drains. The water retained through underground drains feed the water for growth of plants. The demand to the surface soil will directly hit to the process of underground drainage, which leads to the decay of forest; which effects to the environmental less.

8.5 The degradation of catchment area has given rise to the problems such as degradation of slope, low proportion of forest cover, sub optimum density and low potential forest, over grazed pasture, increased deposition of its in lower reasons of reservoir etc.

Silt deposition in reservoir leads to the reduction of life of reservoir. The soil moisture deficiency during dry seasons and enhancement of discharge during peak flood result in flooding the valuable wealth of forest during monsoon season.

Due to excessive explication of the natural resource, not only the non- renewable nut also renewable may face serious depletion in coming days. Thus, the ecology balance gets disturbed.

8.6 Therefore the integrate development of the catchment area should account for the following may help the environmental development.

I. Passive afforestation or reforestation program, with involvement of local community and special emphasis on plantation of broad leafed species.
II. Pasture development and their rotation.
III. Research for prevention of tree decay.
IV. Prevention and control of man-made fire i.e.
Adoption three dimensional fore standing including horticulture with due emphasis on plant giving seeds etc. for growing.
V. Development of fuel fodder and timber,, diversifying agriculture with commercial crops and high valued produces, training educating and demonstrating to the local people for scientific forming, etc.
VI. Soil conservation by bunds construction to increase water retention power.
VII. Replacement of conventional chufas by smokeless chufas etc.
VIII. Restoration and preservation of environment by all possible ways.

CHAPTER - IX

Land use and soil Erosion

The catchment area treatment involves essentially combination of engineering and biological measures with emphasis on latter. It emerges all the three resource viz. Land, forest and water. The measure should envisages planed change in land use pattern which very vital for effective implementation of such project framing of such scheme involves classification of the catchment area accruing to various capabilities is produce, crop vegetation and forest. The data regarding land use contemplates to potentiality of the land and physical option available.

Once the data regarding land use and erosion characteristic are known, it would facilitate to restore the damaged and diminished forest, revive depleted land and augment water resources.

The catchment area treatment depends upon statues of soil erosion and the other erosion characteristic of the land. The entire catchment area for this purpose has been classified as (i) culturable land, (ii) forest land and (iii) other area.

The area of culturable land mainly belongs to private individual being used for growing different crops. The total area under cultivation in the catchment is 216 Ha. Which is about 12% of the total area.

Most of the forest area in the catchment is of reserved forest. The total area under forest is about 1647 Ha. Which is about 85% of the total area.

The area under Waste land and not available for cultivation is 60 Ha. Which is about 3% of the total land.

The soil erosion is very minimum considering the geological study of the area and the Nalla stream, with the forest cover etc. This can be further prevented by with the forest cover etc. This can be further prevented by compensatory afforestation, command are development and soil conservation measures of the area.

CHAPTER – X

Project Components

This project administratively approved (Revised) by Govt. of Maharashtra letter No. RAA-2020/146/F.No(50/20)/Medium Project, Mantralaya, Mumbai dated -25/06/2020 for Rs. 742.88 Crores

The catchment area of the project fully in the kundlika (West flowing) river valley. This way comprises fully in Alibag Taluka of Raigad District with small area of Roha Taluka i.e. the major area of village Mahan is in Alibag Taluka and very small area is under Roha Taluka. Area in Roha taluka is of only steep hilly area, which is negligible for providing catchment area treatment plan. There are no any other projects in the upstream catchment of the said Sambarkund project. But the Kundlika river valley is mainly covered with Kal river project.

The major area of the project in the upstream catchment is covered with forest area of Mahan village. The total area of the Mahan Village is 1923 Ha. Out of that 1647 Ha. Is the forest land. This has been extracted from censes book of Raigad District for the year 1981. The details of area and population area shown in annexure 2&3.

The requirement for improvement by proposed wood plantation is worked out in annexure – 5, which is an important and high yielding item of the development program. The type of plant's which may grow depends upon the factor like elevation of the plant location, Commercial value and the most important being type of soil. It is better situated to plant local broad leafed plants having more capacity to retain moisture and conservation of the soil.

An provision of providing smokeless chulas to about 25% of families of the catchment area is also proposed in the catchment plan as detailed in the annexure -6. An cost of F.R.L. counter plantation is also worked out in annexure – 7 and the same is provided in the action plan for the full length of F.R.L. counter periphery.

The requirement for development of soil conservation & agriculture work if the catchment area. Un-irrigated land (i.e. an about 20% area of total Un-irrigated land in the catchment) is proposed for development and worker out in the annexure-

The total cost of the whole scheme is tabulated in annexure – 4 which work out to 1,44% of the administrative approved cost project.

CHAPTER – XI

Action Plan

The successful implementation to the catchment area treatment scheme involves, (i) An organization and infrastructure to give requisite shape to the scheme. (2) Additional financial resources for funding resources for funding of the scheme (3) a phased implementation program based on rational criteria to ensure optimize utilization of resources, and (4) Monitoring and elevation to keep watch on the progress of work and to assess its impact on facilitating.

An organization, with the control authority of Divisional commissioner of various department heads may be set up for proper implementation of catchment area treatment.

The development of catchment area treatment may taken in hand debarring the proposed period of construction od Sambarkund irrigation project. Due to there will be no environmental loss of the catchment, by constructing the proposed Sambarkund irrigation project.

The program can also be implement by the respective department on their own management i.e. control authority set up for catchment area treatment program may allocate funds for various schemes of the project at the disposal of various department. The respective department can handle the monitoring evaluation and updating.

During the implemented period of scheme, watch may be kept to ensure speedy and effective implementation by fixing target, of physical program. This can be done with reference to available of financial aid. If any short fall may noticed, that may be up to dated by detailed investigation, therefore it is almost important to backup the scheme by scientific and technical studies to assess their impact. This kind of elevation would ensure quality, standard and control over unproductive expenditure.

This proposal of catchment area treatment concluded the (i) impact on silt load in the stream (ii) impact of planning different species for water retentively and soil erosion. (iii) Impact of mind foresting on natural fires and (V) Maintenance and or functioning of engineering work.

CHAPTER X.

Treatment of Catchment area of the project

Total Gross catchment area of project is 28.10 Sq. Km Total free catchment of Sambarkund Medium Project is **28.10 Sq. km** i.e. 2810 Hectare. Out of which all catchment area falls in Raigad District.

Total Forest area under catchment of the project is 2778.38 Ha. Non forest area is just 31.62 Ha. In addition to the catchment Total 263.5406 Ha of Forest land is required mainly for Dam seat , Submergence, West weir, Approach road & PDN.. Diversion of Forest land proposal under Forest conservation act 1980 with enumeration of trees under reservoir periphery from FRL to FRL -2, FRL-2 to FRL-4 & up to MDDL is already done. Government of Maharashtra under water conservation scheme is already treating catchment area under forests or non forest under Jalyukta Shivar Scheme.

Objectives of Catchment Area Treatment Plan:

The main aims of the catchment area treatment plan are:

a. **Short term:** *Containment;* Control of erosion and checking degradation of land

b. **Mid-term:** *Restoration;* Sustained restoration of the land and its resources

c. **Long-term:** Improvement in biodiversity; to put in place a diversity of plants which would lead to natural restoration and regeneration of the eco-system.

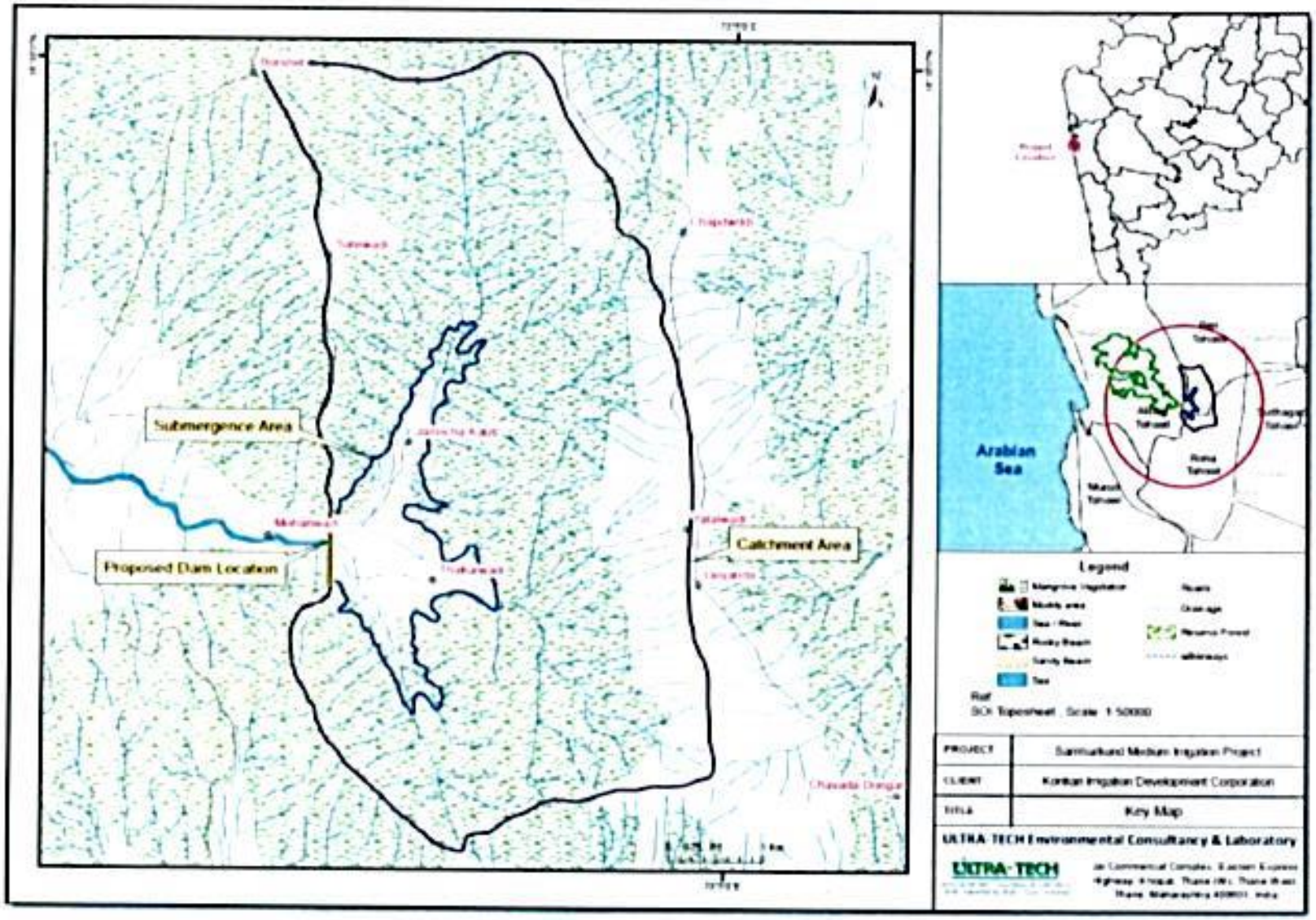
The objectives of the catchment area treatment plan may be listed as follows:

- Conservation of the important natural resources like soil and water.
- Prevention of siltation in the dam and thus maintaining the design capacity, depth and life
- Storage capacity of the dam.
- Economic up gradation of people in surrounding areas, as well as environmental conservation
- Through afforestation and reforestation activities.
- Improvement in the density and the biodiversity of flora and fauna thus making the ecosystem
- More stable and mature.

- Supplementation of production of fodder and fuel to promote livestock development.
- Increase in the soil moisture content and the groundwater table level, which will result into the betterment of soil fertility and productivity.
- Reduction in the risk associated with the crop production, by softening the severity of the dry season by water conservation structures.
- Land treatment for increased vegetation tree density in the area, are also envisaged.

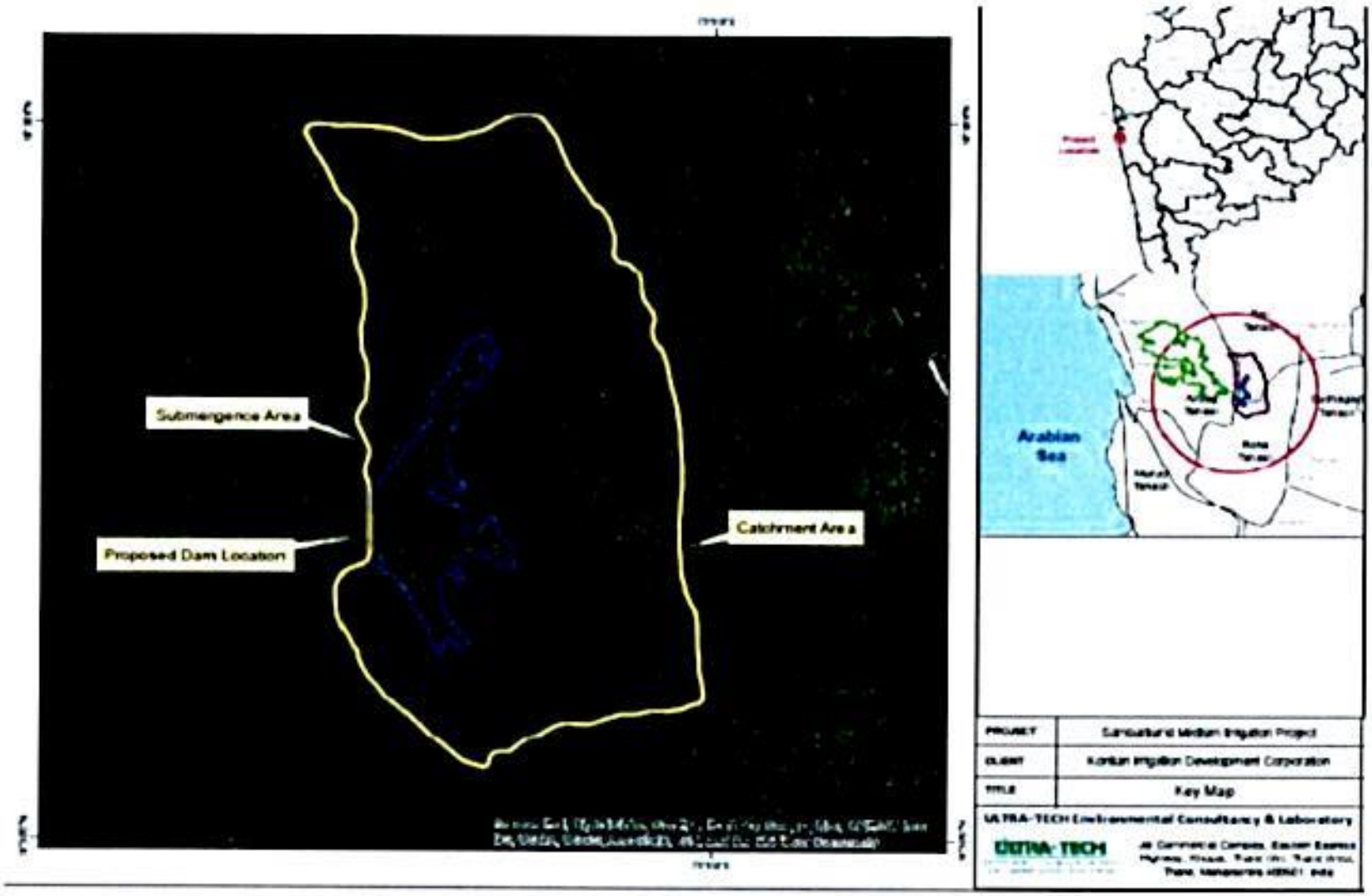
The scheme of implementation of the catchment area treatment involves various disciplines. It is advisable to take up work under each discipline simultaneously. The criteria for planning of the scheme are as below;

- The primary purpose of the scheme is to improve the environmental condition of the region. Second important object is to minimize the adverse impact of silt load on storage capacity of completed, on-going or proposed irrigation scheme. Thirdly, the most important factor the scheme is afforestation.
- The area contributing for maximum silt deposition into the stream is identified and taken up on priority.
- The treatment work will be taken from to peak to lower level.
- The under construction, proposed and under survey and investigation in the catchment area of this project are to be taken up for the treatment work.
- The catchment area of the storage tank is 28.10 Sq.km.
- The above watershed under the catchment is bringing major discharge into the main river.

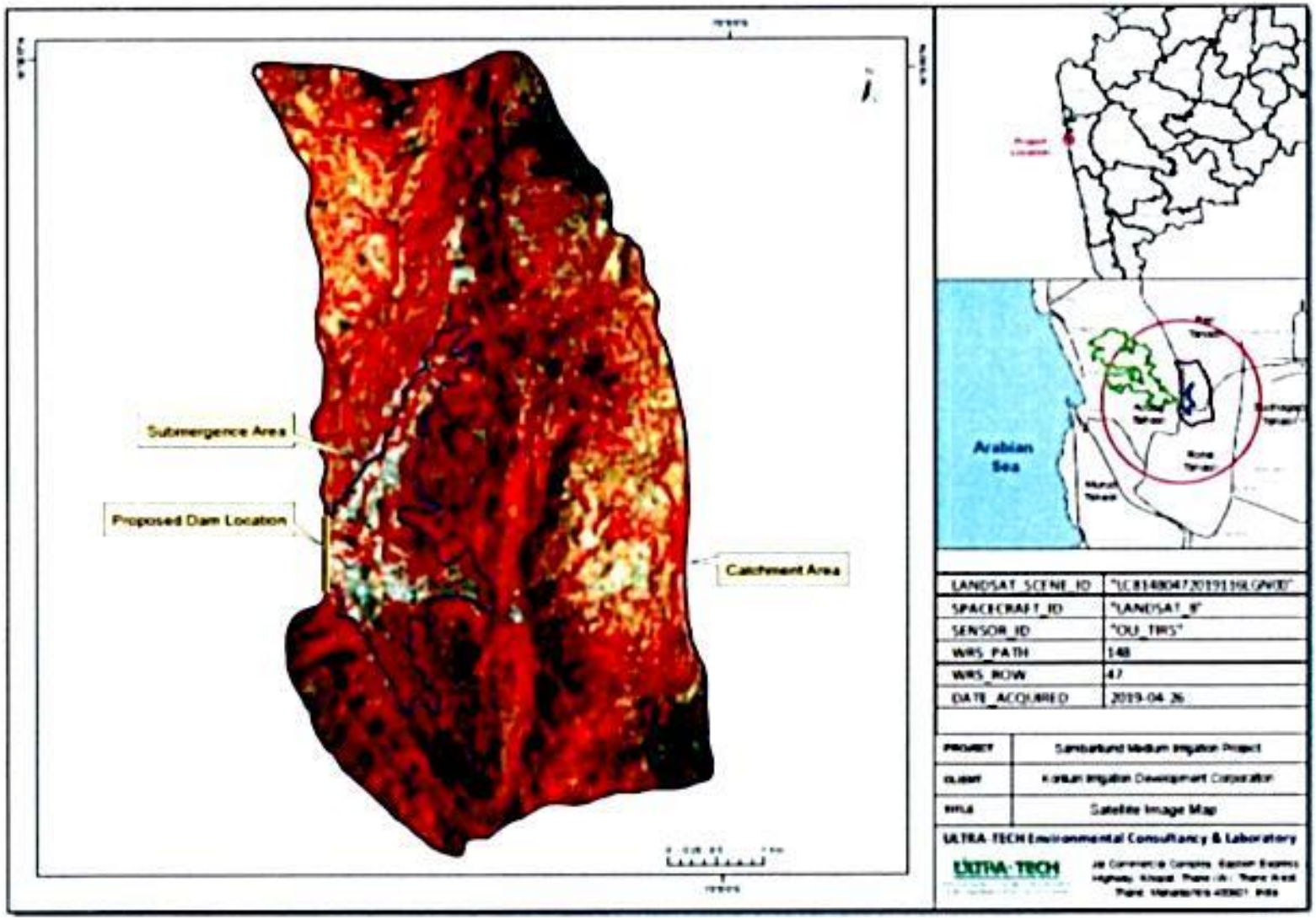


Catchment Area of Storage Tank

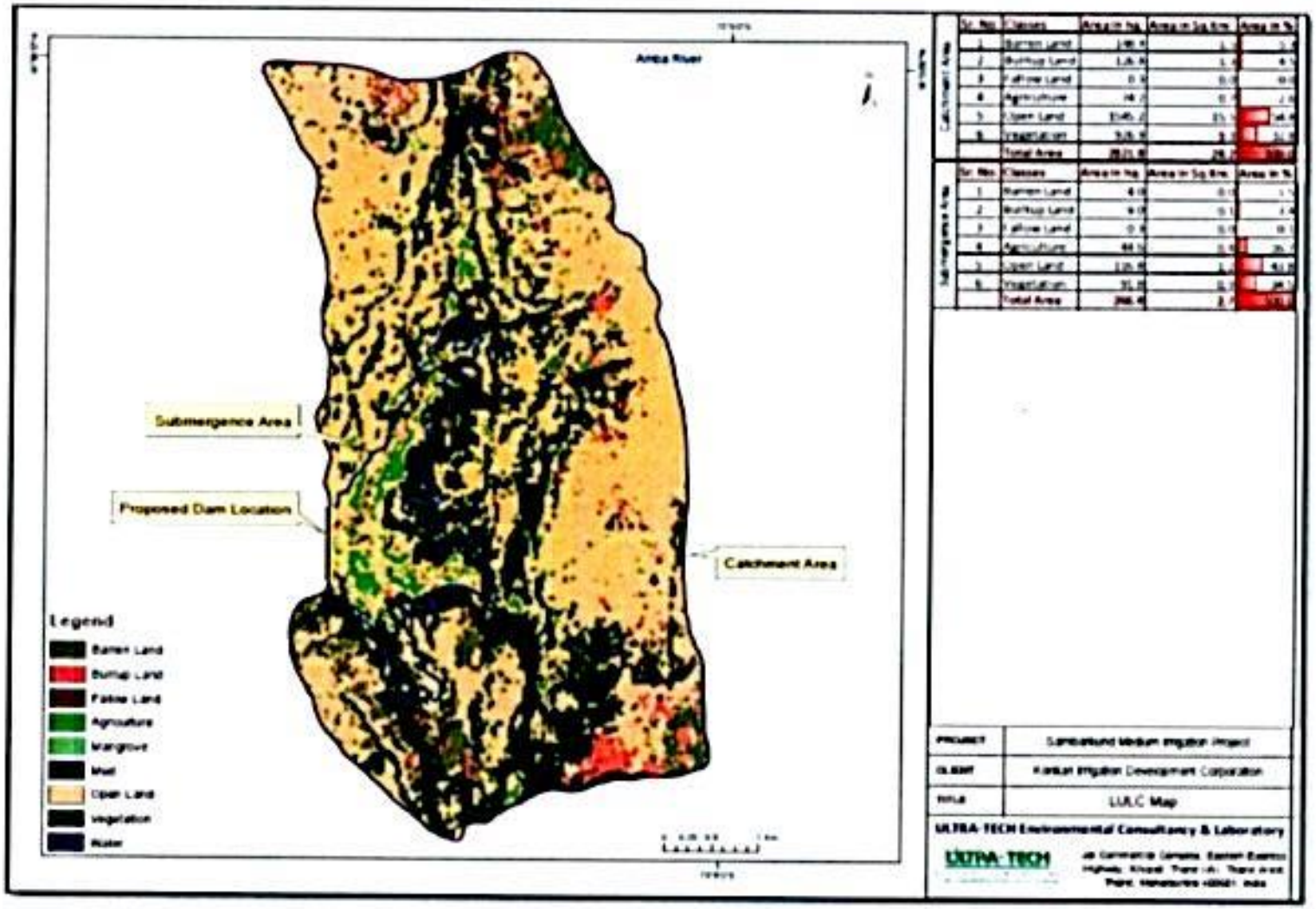
22



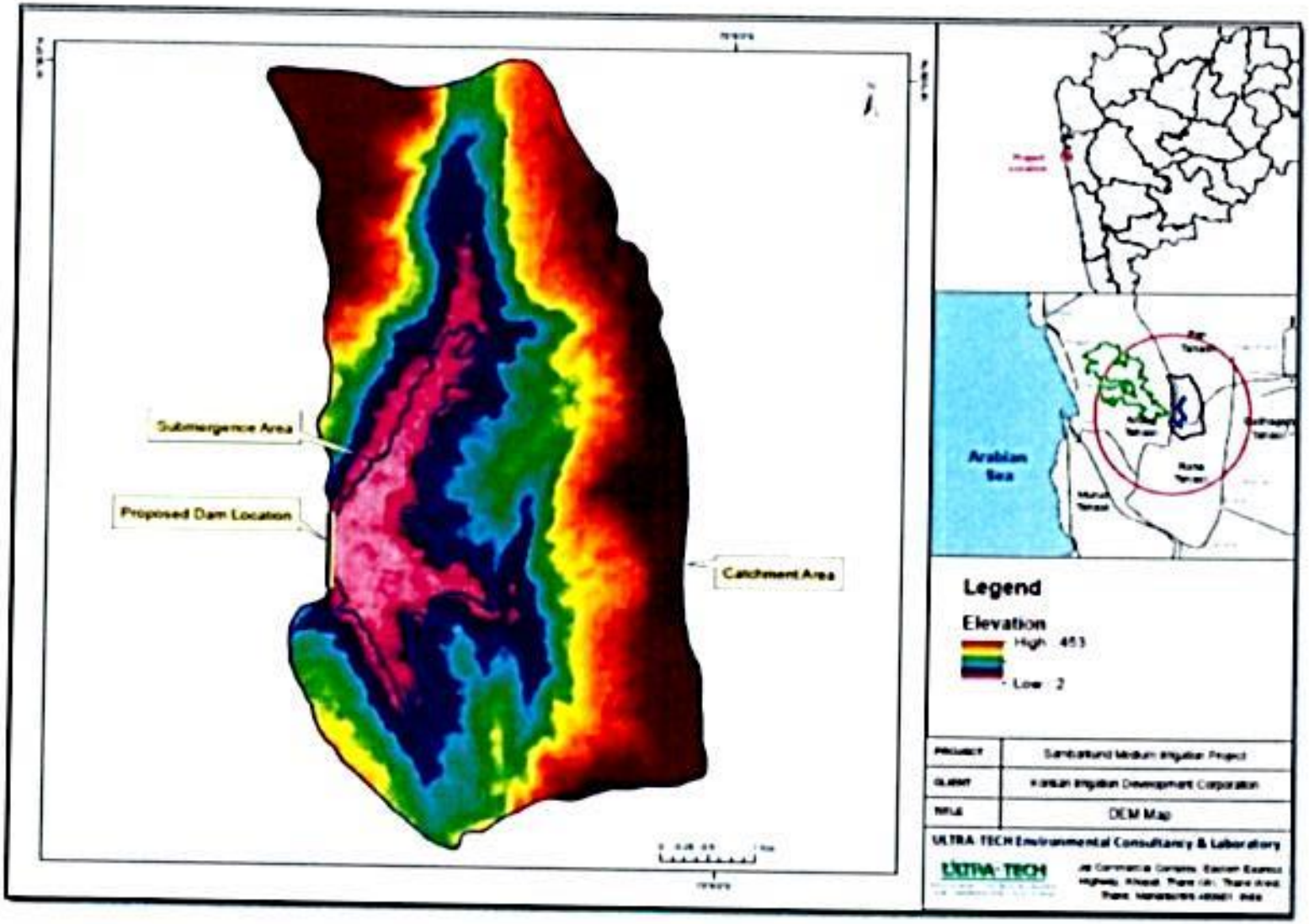
Google Image of Catchment Area of storage tank



Satellite Imagery of catchment area



LULC of Catchment Area



DEM of Catchment Area

(17)

- Details of the area from Forest Divisions under catchment of proposed Samharkund Medium
- Project. Division and Range wise statement of catchment area is as follows

Table No 1. Details of Range wise Catchment Area under Forests Divisions

Sr. No	Compartment Number no	Range	Round	Division	kind	Total Area	Catchment area under project
1	201	Alibag	Ramraj	Alibag	RF	239.57	51.4
2	195	Alibag	Umata	Alibag	RF	214.89	130.3
3	197	Alibag	Ramraj	Alibag	RF	259.20	259.20
4	196 B	Alibag	Umata	Alibag	RF	220.96	220.96
5	196 A	Alibag	Umata	Alibag	RF	220.96	220.96
6	187	wadkhal	Bidwagale	Alibag	RF	313.03	79
7	210	Nagothane	Kadsura	Alibag	RF	199.92	199.92
8	196 A PT	Alibag	Umata	Alibag	RF	220.96	220.96
9	186	Wadkhal	Bidwagle	Alibag	RF	228.24	79
10	207	Nagothane	Kadsura	Alibag	RF	188.18	5
11	214	Nagothane	Kadsure	Alibag	RF	297.46	3.5
12	211	Nagothane	Kadsura	Alibag	RF	167.94	167.94
13	209	Nagothane	Kondgaon	Alibag	RF	265.47	58.9
14	200	Alibag	Ramraj	Alibag	RF	206.39	206.39
15	199	Alibag	Ramraj	Alibag	RF	203.15	203.15
16	198	Alibag	Ramraj	Alibag	RF	262.23	262.23
17	231	Roha	Medha	Roha	RF	188.18	13.2
18	226	Roha	Sanegaon	Roha	RF	189.99	2.53
19	228	Roha	Sanegaon	Roha	RF	297.85	297.85
20	229	Roha	Sanegaon	Roha	RF	198.30	96
						4582.86	**2778.38**

Details of forest area division wise is provided in table no 2.

(16)

Table No 2. Details of Catchment Area under Forests Divisions

Sr. No	Compartment Number no	Division	kind	Total Area	Catchment area under project
1	201	Alibag	RF	239.57	51.4
2	195	Alibag	RF	214.89	130.3
3	197	Alibag	RF	259.20	259.20
4	196 B	Alibag	RF	220.96	220.96
5	196 A	Alibag	RF	220.96	220.96
6	187	Alibag	RF	313.03	79
7	210	Alibag	RF	199.92	199.92
8	196 A PT	Alibag	RF	220.96	220.96
9	186	Alibag	RF	228.24	79
10	207	Alibag	RF	188.18	5
11	214	Alibag	RF	297.46	3.5
12	211	Alibag	RF	167.94	167.94
13	209	Alibag	RF	265.47	58.9
14	200	Alibag	RF	206.39	206.39
15	199	Alibag	RF	203.15	203.15
16	198	Alibag	RF	262.23	262.23
	Total under Alibag Division			**3708.54**	**2368.80**
17	231	Roha	RF	188.18	13.2
18	226	Roha	RF	189.99	2.53
19	228	Roha	RF	297.85	297.85
20	229	Roha	RF	198.30	96
	Total under Roha Division			**874.32**	**409.58**

Treatment Measures:

The treatment measures for arresting soil erosion in the catchment were basically classified into biological measures and engineering measures.

Various treatment measures, biological as well as engineering, have been proposed in the CAT Plan to manage the catchment area in an integrated manner to prevent soil erosion and maintain the ecology of the region. Sheet erosion has been observed to be the main cause of soil erosion, followed by gully and/or rill erosion, which makes it imperative that the land needs to be covered with vegetation. Accordingly, more emphasis has been given for biological methods like plantation of tree species, greening of the slopes with hardy pioneer grass and other shrub species. The factors such as over-grazing, road construction, fuel wood and fodder collection, etc. lead to soil erosion in the region.

Suggesting Combination of Engineering & Biological Method

In the catchment area, particularly in the free draining catchment, natural landslides are not the main cause and source of soil erosion or silt in the river. Sheet erosion, followed by rill and gully are the main sources of bringing silt load in the streams which finally comes to river. To address this emphasis is given to control the gully and rill erosion by adopting various engineering and bio-engineering measures, which are discussed below.

Specific requirement for a particular structure are considered at the time of planning and after looking into the condition of the area where treatment measure is to be undertaken. Dry rubble stone masonry (DRSM) check dams, masonry retaining walls, and bioengineering methods like use of Treatment of CCT / slips/ gullies/ rills are suggested. Considering the topography as well as the nature and quantum of erosion more emphasis is given for the use of Dry rubble stone masonry (DRSM) check dams.

While preparation of catchment area treatment plan the need of each compartment is taken into consideration for example, the area where erosion problem is known the concern area is proposed for Continuous Contour Trenches (CCT) treatment and on the sloppy area nalla bunds are proposed. Total 25 Nalla bunds are also proposed, Nineteen for Alibag & Six for Roha Division. During last decade most of area is treated under various schemes. Considering large requirement of the treatment in most of areas, all crucial areas are taken into consideration for treatment. Therefore minimum 57 Ha of the treatment ie CCT and SMC (Gully Plugging) and plantation is proposed to cover maximum area under these divisions. Areas which are having good potential of soil plantation of 57 ha are also proposed to cover bank areas. In addition to this Distribution of Non conventional Energy and Fuel Saving Devices in catchment area on a cost-sharing basis, such as, LPG, Pressure cookers and Solar devices. Estimate for Soil Moisture Conservation Work / Gully Plugging/CCT Works is enclosed as *Annexure I* and Estimate for Plantation Work under Catchment Area Treatment for Sambarkund Project Tal.. Alibag Dist Raigad is enclosed as *Annexure II*. However, updated wage rate 360.76 has been calculated during preparation of these plans.

Silt Observation Site:

A silt observation site for regular monitoring of silt load coming in river has been suggested. This would ensure monitoring efficacy of implementation various treatments measures suggested as in CAT plan. Monitoring would be undertaken for a period of 10 years including 5 years for CAT plan implementation period. An amount of Rs. 2.11 million has been earmarked for this purpose. The details are given in *Table-3*.

Catchment area of the proposed project along with tending operations of the existing root stock and soil and moisture conservation works shall be carried out in this area. However, during summer present perennial water sources are insufficient for enhancement the survival of wildlife, provision of treatment in this area will help in improvement of Flora & Fauna in the catchment of Sambarkund Project.

Table 3 Cost earmarked for establishing Silt Observation center

Sr. No	Parameter	Cost (In Lakhs)
1	Cost of one laboratory	1.00
2	One observation hut at site	1.00
3	Cost for hiring services of @ one person at (Average salary- Rs 10,000/- for next 10 years) considering 10% escalation per year	19.12
	Total	**21.12**

Monitoring and Evaluation

Monitoring and evaluation is very essential for the various types of activities in CAT plan on daily, monthly and annual basis for proper execution of planned works. M & E studies including impact evaluation studies should be scheduled for the later years of the CAT Plan implementation calendar. An amount of Rs. 5 lakhs have been earmarked for Monitoring and Evaluation.

Indicators for Monitoring impact of CAT Plan would include:

- Change in silt load.
- Survival of plantations
- Changes in land-use [private holdings]
- Changes in man-animal conflicts.
- Trend of fire incidences in vulnerable areas.

Table 4 Proposed treatment in respective forest Divisions

Sr. No	Divisions	Area under Catchment in Ha.	Treatment
1	Alibag Forest Division	2368.8	Nalla bund 189 Nos (Loose Boulder) 97 Nos (Gabian Structure) +SMC 114 Ha + CCT 68.4 Ha + 25 Ha Plantation
2	Roha Forest Division	409.58	105 Nalla bund (Loose Boulder)

Catchment Area under proposed Sambarkund Medium Project Tal. Alibag Dist. Raigad falls under two Forest Divisions

1. Roha Forest Division, Roha Dist. Raigad and
2. Alibag Forest Division, Alibag Dist. Raigad

Proposed treatments under Catchment Area treatment plan are prepared in coordination with above both divisions after site inspection on catchment area from both divisions and incorporating suggestions from them treatment plan is proposed.

Table 5 Detail of Division wise and compartment wise Treatment Plan

Sr. No	Compartment Number no	Division	Total Area	Catchment area under project	Nalla Bund		SMC Works in Ha	CCT in Ha	Plantation in Ha
					Loose Boulder	Gabion Structure			
1	201	Alibag	239.57	51.4	30	0	-	-	-
2	195	Alibag	214.89	130.3	0	0	-	-	-
3	197	Alibag	259.20	259.20	16	15	57	-	-
4	196 B	Alibag	220.96	220.96	0	0	28.5	-	-
5	196 A	Alibag	220.96	220.96	0	0	28.5	-	-
6	187	Alibag	313.03	79	0	0	-	-	-
7	210	Alibag	199.92	199.92	33	23	-	22.8	-
8	196 A PT	Alibag	220.96	220.96	0	0	-	-	-
9	186	Alibag	228.24	79	0	0	-	-	-
10	207	Alibag	188.18	5	0	0	-	-	-
11	214	Alibag	297.46	3.5	0	0	-	-	-
12	211	Alibag	167.94	167.94	17	12	-	-	12.5
13	209	Alibag	265.47	58.9	0	0	-	-	-
14	200	Alibag	206.39	206.39	28	0	-	22.8	-
15	199	Alibag	203.15	203.15	34	21	-	-	-
16	198	Alibag	262.23	262.23	31	26	-	22.8	12.5
17	231	Roha	188.18	13.2	0	0	-	-	-
18	226	Roha	189.99	2.53	0	0	-	-	-
19	228	Roha	297.85	297.85	63	0	-	-	-
20	229	Roha	198.30	96	42	0	-	-	-
		Total	**4582.86**	**2778.38**	**294**	**97**	**114**	**68.4**	**25**

Suggestions on preparation of this Catchment Area Treatment Plan of proposed Sambarkund Medium Project Tal. Alibag Dist. Raigad vide following letters

1. Dy Conservator of Forests, Roha Forest Division, Roha letter No. B/20/Land /3055 / 2021-22 dated 07/01/2022

and

2. Rang Forest officer , Alibag letter No. A/20/Land /132 / 2022-23 dated 29/05/2022

Table 6 ABSTRACT:-

Sr. No.	Name of Treatment	Area in Ha. / Nos	Rate per Ha./Nos.	Estimated Cost
Range forest officer Alibag				
1	Plantation Works	25 Ha	766556.00	1,91,63,900.00
2	Continuous Contour Trench	68.4 Ha	128723.00	88,04,653.00
3	Soil Moisture Conservation Work	114 Ha	128723.00	1,46,74,422.00
4	Nalla Bund Loose Boulder (Alibag Division)	189 Nos	As per RFO	1,26,25,148.00
5	Nalla Bund Gabion Structure (Alibag Division)	97 Nos	As per RFO	1,29,24,505.00
6	Nalla Bund (Roha Division)	105 Nos	As per RFO	3,27,41,142.00
7	Distribution of Nonconventional Energy and Fuel Saving Devices in catchment area on a cost-sharing basis, such as, LPG, Pressure cookers and Solar devices		Lumpsum	10,00,000.00
8	Silt Observation center		As per table No 3	21,12,000.00
9	Monitoring and Evaluation by NGO or Environment Expert		Lumpsum	10,00,000.00
			Total	**10,50,45,770.00**

(Amount In Words: - Ten Crore Fifty lakhs Forty-five Thousand Seven Hundred and Seventy Only)

Place: Alibag
Date:-

Executive Engineer
Hetawane Medium Project On Kamarli
Tal.Pen,Dist.Raigad

(ASHISH THAKARE IFS)
Deputy Conservator of Forests
Alibag

Annexure - 7

Cost of forest diversion for Sambarkund Medium Irrigation Project Tal. Alibag Dist. Raigad Forest Area : 263.5406 Ha
Evaluation of forest losses as per parameters in table-B (COST)
New Delhi Letter No. 7-69/2011-FC(pt),Dated 01st August,2017

Parameter-1 Ecosystem services losses due to proposed forest diversion

Total forest land to be diverted is 263.5406 ha. following are the calculations are made on the basis of NPV Guidelines issued by Government of India, Ministry of Environment, Forest and Climate Change, (Forest Conservation Division), New Delhi vide no. File No.5-3/2011-FC(Vol-I)dated 6th January 2022. This cost comes at Rs. 1975.27 Lakhs

Particulars	Area		NPV Rate	Amount		Amount
Submergence	238.2415	x	1357110	323319922.1	50% Waiver	161659961
PDN	25.2991	x	1357111	34333686.9	Nil	34333686.9
	263.5406					**195993647.9**

= 195993648

Rs. 1959.94 Lakhs

Parameter-2 Loss of animal husbandry productivity, including loss of fodder

Estimated loss of animal husbandry productivity due to diversion of 263.5406 ha. of forest land @ 10% of NPV which will be Rs 197.53 Lakh

10% x 195993648 = 19599364.8

RS. 195.99 Lakhs

Parameter-3 Cost of human resettlement

Cost of Rehabilitation involved in this account is refered from First administrative approved estimate

Loss of human settlement = 4659.18 Lakhs

Parameter-4 Loss of Electric Line from Mahan Wadi of Mahan Village to Khairwadi & Jambhulwadi Total 3.00 Km. These rates are from the approved First administrative approved estimate Rs. 210 Lakhs

210.00 Lakhs

Parameter-5 possession value of forest land diverted.

At present the possession value of forest land 263.5406 ha to be diverted estimated to be 30% of the Net Present Value calculated. As detail calculation in parameter 1 NPV comes at 587.98 Lakhs

30% x 1959.94 = 587.58 Lakhs

Parameter-6 Cost of suffering to oustees : NIL

Parameter-7 Habitat fragmentation cost

This project involves forest land along river bank,nalla bank which is habitat for various wild animals and birds found in that area . But there is no Tiger project , no National park , no Wildlife sanctuary and no ecosensitive zone of protected area . habitat fragmentation cost calculated as 50% of value of maximum Net Present value realized for this project and which comes out to Rs. 979.97 Lakh

50% x 1959.94 = 979.57 Lakhs

Annexure - 7 (1)

Parameter-8 Compensatory afforestation and soil & moisture conservation cost

As the project forest diversion area is 263.5406 ha and this being a State Government project the compensatory afforestation will be taken on suitable land in possession of Forest Department I,e 268.70 ha cf land . This compensatory Afforestation will be raised and maintained for period of 10 years at the cost of User Agency calculated at prevailing wage rates of forest Department by Dy Conservator of Forests, Nanded Forest Division, Nanded and which comes out to Rs. 2008.58 Lakhs

263.5406 x 762152 = 200858000

Rs 2008.58 Lakhs

Evaluation of benefits from the project as per parameters in table-C (BENEFIT)

New Delhi Letter No. 7-69/2011-FC(pt),Dated 01st August,2017

Parameter-1 Increase in productivity attribute to the specific project. These rates are from the approved First administrative approved estimate

a) Net increase in agricultural produce for 50 years. Per year benefits are at = Rs. 145.22Lakhs x 50 = Rs. 7261 Lakhs

Rs. 7261 Lakhs

b) It is proposed to develop fisheries produced reservoir, Hence overall benefits on this account for 50 years = 14.23 Lakhs x 50 =Rs. 711.50 Lakh as per letter from Additional Commissioner fisheries, Alibag Raigad dated 03/10/2018

Rs. 711.5 lakhs

c) Animal husbandry produce 10 % of NPV = 1959.94 x 10% = 195.99

Rs. 195.99 Lakhs

Parameter-2 Benefits to economy due to specific project.

It is assumed that there will be an overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a). Thus benefit due to project on this account will be.=Rs. 3630.5 Lakhs.

50% x 7261 = 3630.5 Lakhs

Parameter-3 Number of population benefited due to specific project.

Overall 33 villages are to be benefited in the commanc area due to this project. Total population of these villages is 34429 as per **Census data 2011**, total households are 8267. Assuming increase income per family Rs.50,00/- per year to these families on this account for 50 years,for 8267 families will be Rs. 2066.75 lakh.

5000 x 8267 x 50 = 2066750000

Rs 20667.50 lakhs

Parameter-4 Economic benefit due to of direct and indirect employment due to the project.

a) Employment generated during construction period.

Generally in construction project, ratio of labour component cost to mater al component cost is 30:70. Employment generated during construction of the project ,the total cost of the project is 74288.14 Lakhs. The labour component will be about about 30% ie Rs. 22286.44 Lakhs. Project cost is from the approved First administrative approval estimate

30% x 74288.14 = 22286 442 Lakhs

b) Employment generated after construction.

It has been assessed from the statistics available for the irrigation project in operation that labour potential of 50 mandays /ha/year is generated perenially in the fiels and agro-based industries. In case of this project ICA of project is 2528 ha. assuming wages at Rs 418.56/- per day ,the employment potential that will be created during 50 years will be Rs. 2647.82 Lakhs.

50 x 418.96 x 2528 x 50 = 2647827200

Rs. 26478.27 Lakhs

c) Drinking water Benefits (As per approved First administrative approval estimate)

for 7.121 Mm3 x 0.216 x 10 = 15.38 Lakhs per year x 50 Years = Rs. 769 Lakhs Rs. 769 Lakhs

d) Industrial Benefits approved First administrative approval estimate

10.733 x 5.76 x10 = 618.22 Lakhs x 50 Years = Rs. 30911 Rs. 30911 Lakhs

Parameter-5 Economic benefits due to Compensatory afforestation.

The compensatory afforestation will be raised over the land of 268.70 ha. assuming 30% as benefit occuring through Compensatoy Afforestration Which comes out to Rs. 2008.58 lakh. @ 30% = 602.57 Lakhs

2008.58 X 30% = 602.57 lakhs

CALCULATIONS OF BENEFIT COST RATIO

Total cost (as per table -B Calculation)	=	Rs	10601.64 Lakhs
Total Benefits (as per table -C Calculation)	=	Rs	113513.78 Lakhs
Hence, Benefit/Cost ratio	=		**10.71**

Executive Engineer
Hetawane Medium Project Dn.Kamathi
Tal.Pen,Dist.Raigad

(ASHISH THAKARE IFS)
Deputy Conservator of Forests
Alibag

Cost Benefit Analysis for forest land diversion in accordance with the MoEF & CC's guidelines dated 1.8.2017

Table-B: Estimation of Benefits for forest diversion for Sambarkund Medium Project Tal. Alibag /dist. Raigad

sr. no	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion.	Total forest land to be diverted is 263.5406 ha. following are the calculations are made on the basis of NPV Guidelines dated 6th January 2022. This cost comes at Rs. **1959.94** Lakhs
2	Loss of animal husbandry productivity, including loss of fodder	Estimated 10% loss of animal husbandry productivity due to diversion of 263.5406 ha. of forest land which will be Rs **195.99** Lakhs
3	Cost of human resettlement	The cost of an account of human settlement is Rs. **4659.18 Lakhs**
4	Loss of public facilities and administrative infrastructure (Roads, building,school,dispensaries,electric lines,railways,etc) on forest land ,which would require forest land if these facilities were diverted due to the project.	Loss of Electric Line from Mahan Wadi of Mahan Village to Khairwadi & Jambhulwadi Total 3.00 Km. These rates are from the approved First administrative approved estimate **Rs. 210 Lakhs**
5	possession value of forest land diverted.	At present the possession value of forest land 263.5406 ha to be diverted estimated to be 30% of the Net Present Value calculated. As detail calculation in parameter 1 NPV comes at Rs. **587.98** Lakhs
6	Cost of suffering to oustees	Nil
7	Habitat fragmentation cost	This project involves forest land along river bank,nalla bank which is habitat for various wild animals and birds found in that area . But there is no Tiger project , no National park , no Wildlife sanctuary and no ecosensitive zone of protected area . habitat fragmentation cost calculated as 50% of value of maximum Net Present value realized for this project and which comes out to Rs. **979.97** Lakhs
8	Compensatory afforestation and soil & moisture conservation cost	As the project forest diversion area is 263.5406 ha and this being a State Government project the compensatory affprestation will be taken on suitable land in possession of Forest Department I,e 268.70 ha of land . Dy Conservator of Forests, Nanded Forest Division, Nanded and which comes out to Rs. **2008.58** Lakhs
Total Estimated Cost of forest diversion		**Rs. 10601.64 Lakhs**

Cost Benefit Analysis for forest land diversion in accordance with the MoEF & CC's guidelines dated 1.8.2017

Table-B: Estimation of cost of forest diversion for Sambarkund Medium Project Tal. Alibag /dist. Raigad

sr. no	Parameters	Remarks
1	Increase in productivity attribute to the specific project.	a) Net increase in agricultural produce for 50 years. Per year benefits are at = Rs. 145.22Lakhs x 50 = **Rs. 7261 Lakhs** b)It is proposed to develop fisheries produced reservoir, Hence overall benefits on this account for 50 years = 14.23 Lakhs x 50 =**Rs. 711.50 Lakhs** c)Animal husbandry produce 10 % of NPV = **Rs. 197.92 Lakhs**
2	Benefits to economy due to specific project.	It is assumed that there will be an overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a). Thus benefit due to project on this account will be.=**Rs. 3630.5** Lakh.
3	No. of population benefited due to specific project.	Overall 35 villages are to be benefited in the command area due to this project. Total population of these villages is 34429 as per Census data 2011, assuming 4 persons in a family i.e. 8267 families. Assuming increase income per family Rs.50,00/- per to the population on this account for 50 years,for 31666.66 families will be **Rs. 20667.50** lakhs.
4	Economic benefit due to of direct and indirect employment due to the project.	**a) Employment generated during construction period.** Generally in construction project, ratio of labour component cost to material component cost is 30:70. Employment generated during construction of the project ,the total cost of the project is 74288.14 Lakhs. The labour component will be about about 30% ie **Rs. 22286.44 Lakhs.** **b)Employment generated after construction.** It has been assessed from the statistics available for the irrigation project in operation that labour potential of 50 mandays /ha/year is generated perenially in the fiels and agro-based industries. In case of this project ICA of project is 2528 ha. assuming wages at Rs 418.96/- per day ,the employment potential that will be created during 50 years will be **Rs. 26478.27 Lakh.**
5	Economic benefits due to Compensatory afforestation.	The compensatory afforestation will be raised over the land of 268.70 ha. assuming 30% as benefit occuring through Compensatoy Afforestration Which comes out to Rs. **2008.58** lakh. @ 30% = Rs. **602.57** Lakhs
Total Benefits.		**Rs. 113513.78 Lakhs**

Executive Engineer
Hetawane Medium Project On Kamarli
Tal.Pen,Dist.Raigad

(ASHISH THAKARE IFS)
Deputy Conservator of Forests
Alibag

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Annexure - 8 (6)

Read:-

1. Hon. Divisional Commissioner, Aurangabad letter No. 95/A, Desk 2/LND/F.No.62 dated 7.1.1997
2. Conservator of Forests, Aurangabad Forest Division, Aurangabad letter No. Cell-5/Land/FCA/CA/Konkan/3368 Dated 18.12.1996
3. Dy Conservator of Forests, Nanded letter No. B/Land/Measurement/CA/7344/Year 1996.97 dated 11/02/1997

No. 1997.RB Desk.2.Land.CR.5643/8/1/97
Collector office, Nanded
Dated. 3.11.1997

Order

By the reason vide from the proposal letter No. 1... Divisional Commissioner, Aurangabad letter dated 19.10.1996 for Projects under Konkan Division under Forest (Conservation) Act 1980 under where forest land is required under following 4 districts. Said Compensatory Land is offered for Compensatory Afforestration in lieu of the forest land is ordered.

However, Forest Conservator, Forest Aurangabad & Dy Conservator of Forest, Nanded from the proposal vide reference no 2 & 3 nonforest land is requested for compensatory Afforestration.

With the above, as per powers received from the Government guideline, Revenue and Forest Department No. LND.1071/182036/A-2 dated 9/9/1971 and Government letter, revenue and Forest division letter note no. Land/2795/2209/T.704/A-4 dated 19.10.1996 with above rights. I Collector, Nanded, Maharashtra Revenue land Act 1966 sub-act 22 Taluka Kinvat, Hadgaon, Biloli and Mukhed total 1044.85 Ha. out of which suitable nonforest land 906.31 Ha. This area handing over as Compensatory Afforestration land to Dy Conservator of Forests, Nanded on following terms and condition.

Details of land to be transferred

Taluka	Name of Village	S. No./Gut no.	Handing over land in Ha.
1	2	3	4
1. Kinwat	1. Hatola	19	50.00
	2. Nagapur	70	30.00
	3. Darsangvi	88	70.00
	4. Rui	55	10.00
	5. Yewaleshwar	66	20.00
	6. Mahoor	83	25.00
	7. Saiphal	84	10.00
	8. Hingni	84	50.00
	9. Singarwadi	5	20.00
	10. Sawari	27, 117	17.00
		Total	**302.00**
2. Hadgaon			
	1. Bhanegaon	56	15.00
	2. Shiyur	227	20.00
	3. Taroda	246, 247	10.00
	4. Jagapur	123	100.00
	5. Chinchgavan	11,13	8.31
	6. Bhamni	3	10.00
	7. Malzari	29, 102	10.00
	8. Malegaon	109, 208	15.00
	9. Digras	111	15.00

	10. Pimprala	16	10.00
	11. Vikshala	243	9.00
	12. Sarsam Bk.	121	50.00
		Total	**272.31**
3. Biloli	1. Somthana	45	40.00
	2. Bahoor	408	27.00
	3. Talni	230, 367	18.00
	4. Sawali	67	45.00
	5. Sawali	81, 91	30.00
	6. Shelambi	12, 77, 86	30.00
	7. Biloli	81	7.00
	8. Hippeergathadi	1	30.00
	9. Nilegavan	15	15.00
		Total	**242.00**
4. Mukhed			
	1. Mukhed	98	50.00
	2. Kharab Khandgaon	192	40.00
		Total	**90.00**
		Total	**906.31**

Terms and Conditions: 1. Dy Conservator of Forest, Nanded will continue to be used wherever it is transferred on a daily basis. Until he does, he will not be able to give it to the people of Nanded district without the prior permission of others. There is no sale / transfer of land without permission or car on lease in any government department.
2. When D Conservator of Forest, Nanded, will not have this Land excess, then he will have to return the land to the revenue department.

~~Signed~~/-Sd/-
Collector, Nanded

Copy to:
1. Hon. Divisional Commissioner, Aurangabad Division, for information please
2. Dy Conservator of Forest, Aurangabad sent for information
3. Dy Conservator of Forest, Nanded for information and necessary action
4. Sub divisional officer, Delur and kinwat for information
5. Tahsildar Kinwat, Hadgaon, Biloli and Mukhed inform that possession of land from the respective tahsils should be provided to Dy Conservator of Forests, Nanded and possession receipts should be submitted in this office. In addition to these required notes should be made in Land records and said report should be submitted to this office
6. Taluka Land records officer, Kinwat, Hadgaon, Biloli and Mukhed measurement and permanent to be provided.

~~Signed~~/-Sd/—
For Collector, Nanded

Truely Translated

A. D. Rokade
Subdivisional Engineer,
Hetawane Project Subdivision,
Umberde Pen Dist. Raigad

वाचा: १) मा. विभागीय आयुक्त, औरंगाबाद यांचे पत्र क्र. [illegible]
एलएक्यू/पु.८२ दि. ७.१.१९९७.

२) वन संरक्षक, औरंगाबाद वन वृत्त औरंगाबाद यांचे पत्र क्र. [illegible]
[illegible]/२३८८ दि. १८.१२.१९९८.

३) उपवन संरक्षक, नांदेड यांचे पत्र क्र. [illegible]
१९९८.९७ दि. ११.३.१९९७.

...

५६४३/४

क्र. १९९७/आर.ओ.आर. [illegible]
जिल्हाधिकारी कार्यालय, नांदेड
दिनांक ३.११.१९९७

आ दे श

ज्याअर्थी प्रस्तावनेतील वाचा क्र. १ अन्वये ... विभागीय आयुक्त, औरंगाबाद यांनी शासन आदेश दि. १९.१०.१९९६ अन्वये [illegible] वन संवर्धन अधिनियम, १९८० च्या तरतुदी अंतर्गत वन [illegible] आणि जिल्ह्यातील [illegible] हस्तांतरीत करावयाची [illegible] आहे.

ज्याअर्थी, वन संरक्षक, औरंगाबाद व उपवन संरक्षक, नांदेड यांनी प्रस्तावनेतील वाचा क्र. २ व ३ अन्वये [illegible] आहे.

त्याअर्थी, शासन [illegible] क्र. [illegible]/१८३०३८/अ-२ दि. ८.८.१९७९ [illegible] क्र. [illegible] २७८५/२२०८/पु.७७/अ-४ दि. १९.१०.१९९६ अन्वये [illegible] मी, जिल्हाधिकारी, नांदेड [illegible] १९८८ चे कलम २२ [illegible] किनवट, हदगांव, [illegible] एकूण ७०५५.८५ हे.आर. [illegible] एकूण ६०८.३७ हे. आर. [illegible] उपवन संरक्षक, नांदेड यांना [illegible] हस्तांतरीत करीत आहे.

हस्तांतरीत करावयाच्या जमीनीचा तपशिल.

तालुका १.	गावाचे नाव २.	सर्वे / गट नंबर ३.	हस्तांतरीत करावयाचे क्षेत्र हे.आर. ४.
१. किनवट	१. [illegible]	१२	५०.००
	२. नागापूर	७०	३०.००
	३. दरसांगवी	८८	७०.००
	४. [illegible]	५५	१०.००
	५. [illegible]	६६	२०.००
	६. [illegible]	८३	२५.००
	७. [illegible]	८४	१०.००
	८. शिवणी	८४	५०.००
	९. [illegible]	५	२०.००
	१०. [illegible]	२७, ११७	१०.००
			एकूण : ३०२.००
२. हदगांव	१. [illegible]	५६	१५.००
	२. [illegible]	२३	२०.००
	३. [illegible]	२४६, २४७	१०.००
	४. [illegible]	१३३	१०७.००

...२

Sub Divisional Engineer
Hetawane Medium Project Sub Division
Umbarde, Tal.Pen Dist.Raigad

२६८

[२]

३. उपवन संरक्षक, [illegible]

४. उपविभागीय अधिकारी, [illegible]

५. तहसिलदार, [illegible]

६. [illegible]

[illegible signature]
जिल्हाधिकारी, [illegible]

सोबत:-

सत्यप्रत
[signature]
उपविभागीय अभियंता
हेटवणे प्रकल्प उपविभाग क्र.४
उंबर्डे, ता. पेण, जि. रायगड

[signature]
Sub Divisional Engineer
Helawane Medium Project Sub Division
Umbarde, Tal. Pen Dist. Raigad

No. FLD - 13/2012/Anau-9/F.No- 89/F-3
Revenue & Forest Department
Mantralaya, Mumbai-400 032
Date:- 29/02/2011

(2)

To,
Principal Chief Conservator of Forest (Head of Forest Force)
Maharashtra State, Nagpur

Subject: Land Raigad Chanera LP Scheme, Tal. Roha, Dist. Raigad Sanvakund Medium Project, Tal. Alibag, Dist. Raigad and Marketeti L.P. Yojana, Ta. Regarding classification of alternative non-forest areas for Mangaon, Dist. Raigad projects.

Sir,

Memorandum of Revenue Department dated 19.10.1996, Executive Engineer, R.P.V. Collage, co-editing, please be observed. Ta. Documents of Roha and Superintendent of Engineers, U.K.P.P.M. Kalwa, Thane etc. Office of Chimboda Thakurwadi Medium Project under North Konkan Irrigation Project Board .

The Chimboda-Thakurwadi Medium Project under the North Konkan Irrigation Project Board has been canceled due to non-compliance with the Government's prescribed profit ratio as well as impracticality and other ancillary reasons. But in exchange for the forest land affected by this project, 395 ha. Such alternative non-forest land has already been transferred to the Deputy Forest Conservator, Nanded Forest Department, Nanded. Due to cancellation of Chimboda-Thakurwadi medium project, 395 ha. Alternative non-forest land Chanera (60 ha.), Sambarkund (275 ha.) And Makati (60 ha.) In Raigad district.

However, there is no mention / demand in the Nasti as to exactly what land (survey number, location etc.) is required by the Forest Department for the project in Chanera, Sabarkud and Makati districts of Raigad. It is also not clear whether the alternative non-forest area in Nanded district, which was acquired in exchange for forest land acquired for the Chimboda-Thakurwadi project, has been notified.

Therefore, it is requested to submit a factual detailed report to the Government with your clear opinion on the above mentioned issues immediately.

Attached: As above

Your's

(Vijay Sabale)
Executive Officer
Revenue and Forest Department

Copy: For information and necessary action

1) Chief Conservator of Forests (T) Thane
2) Chief Conservator of Forests (T) Aurangabad
3) Dy Conservator of Forests, Nanded / Roha / Alibag

Truely Translated

A. D. Rokade
Subdivisional Engineer,
Hetawane Project Subdivision,
Umberde Pen Dist. Raigad

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(1)

क्रमांक:-एफएलडी-१३/२०१३/अनौ.-९/प्रक्र.-८९/फ-३,
महसूल व वन विभाग,
मंत्रालय, मुंबई- ४०० ०३२.
दिनांक:- २९ फेब्रुवारी, २०११

प्रति,

प्रधान मुख्य वनसंरक्षक (वन बल प्रमुख),
महाराष्ट्र राज्य, नागपूर.

विषय:- <u>जमीन - रायगड</u>

चणेरा ल.पा.योजना, ता.रोहा, जि.रायगड सांबरकुंड मध्यम प्रकल्प, ता.अलिबाग, जि.रायगड व माकटी ल.पा. योजना, ता. माणगांव, जि.रायगड या प्रकल्पांसाठी पर्यायी वनेतर क्षेत्र वर्ग करणेबाबत.

महोदय,

महसूल विभागाचे दिनांक १९.१०.१९९६ चे ज्ञापन, कार्यकारी अभियंता, रा.पा.वि., कोलाड, ता.रोहा आणि अधिक्षक अभियंता, उ.कों.पा.प्र.मं., कळवा, ठाणे आदी कार्यालयाची कागदपत्रे सहपत्रित करीत आहे, कृपया अवलोकन व्हावे.

उत्तर कोंकण पाटबंधारे प्रकल्प मंडळांतर्गतच्या चिंबोडा-ठाकूरवाडी मध्यम प्रकल्पाचा लाभव्यय गुणोत्तर शासनाच्या विहित मापदंडात बसत नसल्यामुळे तसेच अव्यवहार्यता आणि इतर अनुषंगिक कारणामुळे सदर प्रकल्प रद्द करण्यात आला आहे. परंतु सदर प्रकल्पामुळे बाधीत होणाऱ्या वन जमिनीच्या बदल्यात औरंगाबाद विभागातील ३९५ हे. इतकी पर्यायी वनेत्तर जमीन उप वनसंरक्षक, नांदेड वन विभाग नांदेड यांना पूर्वीच हस्तांतर करण्यात आलेली आहे. चिंबोडा-ठाकूरवाडी मध्यम प्रकल्प रद्द झाल्याने त्याबदल्यात वन विभागाकडे वर्ग केलेली ३९५ हे. पर्यायी वनेत्तर जमीन चणेरा (६० हे.), सांबरकुंड (२७५ हे.), व माकटी (६० हे.) या रायगड जिल्ह्यातील तीन पाणी पुरवठा प्रकल्पांच्या नावे दर्शवून सुधारणा करण्यात यावी; अशी विनंती करुन महसूल विभागाने त्यांच्या अनुषंगीक नस्तीवर वन विभागाचे अभिप्राय अपेक्षिले आहेत.

तथापि, चणेरा, सांबरकुंड व माकटी या रायगड जिल्ह्यातील प्रकल्पाकरिता वन विभागाची नेमकी कोणती (सर्व्हे नंबर, ठिकाण वगैरे) जमीन आवश्यक आहे, याबाबतचा उल्लेख / मागणी नस्तीत आढळून येत नाही. तसेच चिंबोडा-ठाकूरवाडी प्रकल्पाकरिता संपादित केलेल्या वनजमिनीच्या बदल्यात प्राप्त नांदेड जिल्ह्यातील पर्यायी वनेत्तर क्षेत्र अधिसूचित करण्यात आले आहे किंवा कसे, हे देखील स्पष्ट होत नाही.

तेव्हा, उक्त नमूद मुद्यांबाबत आपल्या सुस्पष्ट अभिप्रायासह वस्तुस्थितीदर्शक सविस्तर अहवाल शासनास तातडीने सादर करावा, ही विनंती.

<u>सहपत्र : वरीलप्रमाणे</u>

आपला,

(विजय साबळे)
कार्यासन अधिकारी
महसूल व वन विभाग

प्रत: माहिती तथा आवश्यक कार्यवाहीसाठी अग्रेषित.

१) मुख्य वनसंरक्षक (प्रा.), ठाणे.
२) मुख्य वनसंरक्षक (प्रा.), औरंगाबाद.
३) उप वनसंरक्षक, नांदेड / रोहा /अलिबाग.

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