

**SCHEME FOR
COMPENSATORY AFFORESTATION
OVER 132.752 HA. OF NON-FOREST GOVT.
LAND, 65.68 HA OF REVENUE FOREST LAND
AND 190.96 HA OF DEGRADED FOREST LAND
IN
VILLAGES DUIPANI, DUDIPANI AND
KAKHARUA PRF, ATANAKA PRF, RANJO PRF
IN PALLAHARA RANGE RESPECTIVELY OF
DEOGARH FOREST DIVISION
IN LIEU OF
KUTULISINGHA IRRIGATION PROJECT,
ATHAMALLIK, ANGUL
BY
CUTTACK INVESTIGATION DIVISION,
DoWR,CUTTACK**

CHAPTER- I

SCHEME FOR COMPENSATORY AFFORESTATION OVER 132.752 HA. OF NON-FOREST GOVT. LAND, 65.68 HA OF REVENUE FOREST LAND AND 190.96 OF DEGRADED FOREST LAND IN DUIPANI, DUDIPANI VILLAGE AND KAKHARUA PRF, ATANAKA PRF, RANJO PRF RESPECTIVELY IN PALLAHARA RANGE OF DEOGARH FOREST DIVISION AGAINST KUTULISINGHA IRRIGATION PROJECT, ATHAMALLIK ,ANGUL BY CUTTACK INVESTIGATION DIVISION,DoWR, CUTTACK

A proposal for diversion of 153.938 ha. of forest land has been submitted by the User Agency in Athamallik Forest Division in Angul District of Odisha, for which an area of 132.752 ha. of non- forest Govt. land, 65.68 Ha of revenue forest land has been identified in village Duipani and Dudipani of Pallahara Tahasil and additional 190.96 ha of degraded forest land in KAKHARUA PRF, ATANAKA PRF, RANJO PRF in Pallahara Range of Deogarh Forest Division.

However, as per recent guideline issued by the MoEF & CC, the CA scheme shall be prepared for minimum of 1000 saplings per hectare of the forest area proposed for diversion. The total nos. of plants required to be planted comes to **1,53,938 nos.** (153.938 ha X 1000). As per the report of Range officer, Pallahara, the identified Govt. land is suitable for plantation of 400 no of seedlings per ha in all villages and PRF's.

Accordingly, an additional area of 190.96 ha. @ 400 seedlings/ha (i.e, 76,384 nos. seedlings total) of degraded forest land has been identified in Deogarh Division for Compensatory Afforestation to achieve 1000 plants per hectare of required CA land.

As per the scheme total trees to be planted in non-forest Govt. land and revenue forest land comes to be (198.432ha @ 400 trees) 79,372 trees and the no.of trees planted to be planted in Degraded forest land . Therefore, total no. of Plantation shall be (76,384+ 79,372) **1,55,756 trees**. The cost estimate for this plantation has been calculated as per cost norm which is enclosed vide **Annexure-1**.

DETAIL NOTE ON KUTULISINGHA IRRIGATION PROJECT

The Kutulisinga Irrigation Project is a reservoir project proposed in Mahanadi basin on Badajora nallah (Kutuli nallah) a tributary to river Sindholjhor near village Kutulisinga in Athmallik block of Angul district. The project envisages construction of a 323 m. long and 39.15 m. height earthen dam besides a central spillway proposed in the left flank of the river.

This medium irrigation project will provide irrigation to 2540 Ha of CCA out of 3790 Ha GCA with annual irrigation of 3173 Ha in the draught prone areas under Athamallik Block.

LOCATION AND ACCESS

The project is located in Athamallik block of Angul district near village Kutulisinga at Latitude $20^{\circ} - 48' - 20''$ N and Longitude $84^{\circ} - 41' - 30''$ E vide Toposheet No. 73 D/9, 73 D/13. An Index map showing location of the project is enclosed.

The dam site, which is near village Kutulisinga is 65 kms. from Angul, District headquarters, Angul. The National Highway-42 connecting Sambalpur and capital city of the state, Bhubaneswar. The nearest railway station of East coast Railways is Boinda 30 kms from proposed dam site. The dam site is 215 kms from the state capital and nearest airport, Bhubaneswar.

RIVER AND BASIN

The Badajora nallah (Kutuli nallah) is a tributary of the river Sindholjor, which falls into river Mahanadi. This nallah originates from the hill ranges of Tabada and traverses in the east-west direction and joins Sindholjor near Thakurgarh village before it out falls to river Mahanadi near the village Koandipaleswar.

CLIMATE

The climate of the zone is sub-tropical with three prominent seasons namely Summer (March to May), Rainy (June to October) and Winter (November to February).

TEMPERATURE

The area belongs to the Sub – Tropical climatic zone. The average temperature in Summer is about 42⁰ C and in Winter it is about 10⁰C.

RAINFALL

The most part of rain fall is received from South – West Monsoon, which occurs during the period from June to October and extending up to November. About 80% of precipitation occurs during these months. The average, maximum and minimum rainfall are 1990 mm and 797 mm respectively.

COMMAND AREA

The entire area of the proposed command area depends solely on rainfall. Therefore, crop diversification or cash crop is impossible to introduce in the command area at present. The local people are adopting the cropping pattern accordingly to the distribution of rainfall and availability of soil moisture as they depend upon rain only. Kharif Paddy is the principal crop of the area. Generally, local varieties of paddy of different duration with low yield are cultivated. Besides paddy, maize, pulses and vegetables are also grown in the up lands. Local varieties of seeds are generally used by farmers.

TYPE OF SCHEME

The reservoir scheme envisages construction of a 323m. long and an earth dam of maximum 39.15m height having a central river bed spillway of 39.00 m. length. The total catchment area at the dam site is 83.30 sq.km. The total inflow into the reservoir is 1994.85 ham corresponding to a 75% dependable year after deducting 20% utilization by

the upstream and downstream stake holders. The project has an average water utilization of 75.57%.

The proposed earth dam is a homogeneous section with provision of vertical chimney to drain the seepage water through the filter drains and rock-toe.

The central spillway is Ogee crested type gated spillway is of 39.00m length. The crest level of the spillway is RL.193.00m with 3 nos. of 11m x 8m size radial gates. The spillway is planned to pass a design flood of 979.00 cumecs.

The project will provide irrigation facility to 3790ha of GCA and 2540ha of CCA with annual irrigation of 3173ha.

Two main canals namely Left main canal & Right main canal, off take from the head regulator located on the left & right sides of dam axis, respectively. The length of Left and right main canals are 11.344 km and 13.04 km. The design discharge of Left and Right main canals are 2.0 cumecs & 1.1 cumecs respectively. The full supply depth at the canal head for left & Right main canals are 0.65 m. & 0.95 m. respectively. The bed width of the left as well as the right main canal at the head reach is 4.0 m., The bed level for the left and right main canal at the head reach is 183.188 m. And 183.65 m respectively.

Besides the above irrigation facilities, the project will also provide drinking water facility to 25,874 populations dwelling in the command area at a rate of 100 lpcd.

SOCIO ECONOMIC ASPECTS

The inhabitants of this area mostly belong to schedule caste, schedule tribe and other back-ward classes. Economic status of most of the people lies below poverty line. Due to poor health and mal-nutrition, life expectancy of the people is much below the national average. Illiteracy among people is remarkably high. All these factors like poverty, illiteracy, poor health, malnutrition leads to the continuous degradation of socio-economic condition of the command area people. The people of the command solely depend upon agriculture for their day-to-day livelihood. But the agriculture is subjected to ravages of nature in the form of drought due to erratic and uneven rain fall. The agricultural lands are fertile but due to lack of irrigation, the yield per hectore is very low. The present land use practice is very primitive and traditional. The advanced technology

The present land use practice is very primitive and traditional. The advanced technology of cultivation, tools & machines and cropping pattern is yet to be practised as the erratic behaviour of monsoon poses hindrances. Farmers provided with Govt. loans and subsidized tools & plants and seeds have tried so many times to forgo the traditional method but failed miserably due to lack of assured irrigation pattern. project will accelerate the growth of economy and improve socio-economic status of the backward classes.

The reasons mentioned above coupled with direct or indirect employment potential of rural population with allowable B.C ratio justifies immediate implementation of the project.

1. INTRODUCTION OF THE IDENTIFIED CA LAND

As per Para 3.2.(ix)(a) of Guideline to F (c) Act, for Govt. of India Projects – Compensatory Afforestation will be raised in equal amount of non-forest land. Therefore, 153.938 ha of Non Forest is required for compensatory Afforestation. Accordingly, non-forest land over 132.752 ha. has been identified in 2 nos patches in Pallahara Range of Deogarh Forest Division as below. Simultaneously, 65.68 ha of revenue forest land has been identified in order to compensate the total forest area proposed for diversion. The non-forest Govt. land and revenue forest land identified in Deogarh Division will accommodate 400 nos of plants per Ha.

As per the MoEF & CC Guideline No F. No. 11-423/2011-FC Dated 08.11.2017, if the requisite no of plants @1000/ha cannot be planted on the identified non-forest land for taking up CA, then the balance no of plants will be planted in the degraded forest land as per the provisions of the working plans. The required amount of additional degraded forest land has been identified in Pallahara Range. The details of the area have been communicated by the Tahsildar, Pallahara vide his letter no.2085 dated 2.7.2020, letter no. 4286 dated 24.11.2020, letter no.- 4419 dated 4.12.2020, to this office. The details of CA land identified is as follows:

SL. NO.	VILLAGE	KHATA NO.	PLOT NO.	KISSAM	AREA (Ac)	AREA (Ha)	PATCH	TYPE OF LAND
1	DUIPANI (Kantala RI Circle)	85	146	Parbat-1	39.50	15.985	1	NON- FOREST LAND
2			147	Parbat-3	40.00	16.187		
3			154	Parbat-1	36.00	14.569		
4			155	Parbat-1	50.00	20.235		
5			156	Parbat-2	50.00	20.235		
6			157	Parbat-2	47.00	19.021		
7	DUDIPANI (Pallahara RI Circle)	58	242	Parbat-2	65.51	26.520	1	
Sub Total					328.01	132.752		
8	DUIPANI	84	90	Jungle-2	67.75	27.418	2	FOREST LAND
9			91	Jungle-1	58.90	23.843		
10		87	57	Jungle-2	35.60	14.411		
Total					490.26	198.432		
11	KAKHARUA PRF				247.273	100.07	3	DEGRADED FOREST LAND
12	ATANAKA PRF				51.075	20.67		
13	RANJO PRF				173.514	70.22		
Total					471.862	190.96		

K. Singh
Divisional Forest Officer
DEOGARH DIVISION

V. Desai
Forest Range Officer
PALLAHARA RANGE

The different operations that will be taken up for plantation are as follows.

RAISING OF NURSERY:

Seedlings required for plantation shall be raised in a temporary nursery nearer to the planting site and water sources. Nursery work will be started six months prior to the year of plantation so that quality seedling stock will be available for plantation. 20% extra seedlings shall be raised besides the actual requirement to compensate the casualties. Seedlings will be raised in polythene bags of 9" x 5" size following standard nursery practice.

ALIGNMENT AND PITTING:

Alignment and pitting will be taken up in the month of March-April, Pits of size 30cm x 30cm x 30cm will be dug maintaining a spacing of 2.5mtr x 2.5mtr @400 seedlings per ha for ANR Plantation wherever gap is available.

ACTUAL PLANTING:

The seedlings will be planted in the dugout pits of size 30cm x 30cm x 30cm with a spacing of 2.5mtr x 2.5mtr. @400 seedlings per ha. Plantation would be taken up after first regular shower of monsoon and completed by the end of July. Species would be planted as per suitability of the soil condition. Fertilizer and insecticide will be applied as per cost norm for ANR Plantation (**Enclosed**). Casualties, if any noticed, would be replaced with the excess seedlings raised for the purpose. For second year also, casualty replacement will be done for which seedlings shall be raised.

APPLICATION OF INSECTICIDES:

The plantation site, after planting good healthy seedlings, may cause influx of insects, which usually eat and damage the tender leaves and shoots of the plants. To get rid of such insect attack, application of insecticides will be taken up in required doses at desired intervals. Spraying of insecticides shall be done preferably on a sunny day in the forenoon as per requirement.

FIRELINE TRACING AND MAINTENANCE:

Fire causes heavy loss to the forest and plantation during fire season. To prevent incidence of fire, the area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be scrapped off the growth during February-March and the cut back materials and the dry leaves stacked along these lines will

FIRELINE TRACING AND MAINTENANCE:

Fire causes heavy loss to the forest and plantation during fire season. To prevent incidence of fire, the area shall be divided into suitable blocks by tracing fire lines. Boundaries of the plantation patches and these block lines will be scrapped off the growth during February-March and the cut back materials and the dry leaves stacked along these lines will be burnt under strict supervision. This operation shall be carried out for 10 years. Provision has been made in the cost norm for the purpose.

SOIL AND MOISTURE CONSERVATION MEASURE:

The site selected for Compensatory Afforestation is degraded forest land; undulating, and gullies have been formed due to erosion. So, the following special type of Soil Conservation Measures are proposed to improve the site. Halfmoon trench on the seedlings planted, Staggered trench @ 60 nos per ha and LBCD structure of 2mtr span and 3mtr span.

WATCH AND WARD:

To protect the area against grazing, fire accident and other biotic interference, there is provision for watch and ward for 10 years, Barded wire fencing around the non-forest land and vegetative fencing around forest land with 10 years maintenance cost as in the plantation norm.

MOTIVATION OF PEOPLE:

As per Govt. resolution of 2011, the villagers of the adjoining villages are to be involved in protection and management of plantation. Before execution of the work, a meeting will be conducted in the above villages and resolution regarding support to plantation activities will be made. To motivate the people in this direction, they will be provided with incentives in shape of different community articles, buildings, and different community amenities of fixed and movable type through entry point activities (EPA). Health camps shall also be organized in the villages. Thus, 15% of the plantation cost has been earmarked for expenditure on this score.

INSPECTION, MONITORING & EVALUATION:

In order to make the plantation under this Scheme successful, intensive inspection of the plantation by the field staff of Forest Department, and the Officers at the Divisional level is necessary. Moreover, frequent monitoring and evaluation shall have to be done at


“LAND SUITABILITY CERTIFICATE BY DFO CONCERNED”

The compensatory Afforestation over **132.752 Ha.** Of Non-Forest Govt. land, **65.68 Ha** of Revenue Forest Land in Duipani, Dudipani Village and **190.96 Ha** of degraded forest land identified in Kakharua PRF, Atanaka PRF, Ranjo PRF as below under Pallahara Range respectively of this Division.

SL.NO.	VILLAGE	KHATA NO.	PLOT NO.	KISSAM	AREA (Ac)	AREA (Ha)	PATCH	STATUS
1	DUIPANI	85	146	Parbat-1	39.50	15.985	1	NON-FOREST GOVT. LAND
2	(Kantala RI Circle)		147	Parbat-3	40.00	16.187	1	
3			154	Parbat-1	36.00	14.569	1	
4			155	Parbat-1	50.00	20.235	1	
5			156	Parbat-2	50.00	20.235	1	
6			157	Parbat-2	47.00	19.021	1	
7	DUDIPANI	58	242	Parbat-2	65.51	26.520	1	
SUB TOTAL					328.01	132.752		
8	DUIPANI	84	90	Jungle-2	67.75	27.418	2	REVENUE FOREST LAND
9			91	Jungle-1	58.90	23.843	2	
10		87	57	Jungle-2	35.60	14.411	2	
SUB TOTAL					162.25	65.68		
11	KAKHARUA PRF				247.273	100.07	3	PRF
12	ATANAKA PRF				51.075	20.67		
13	RANJO PRF				173.514	70.22		
SUB TOTAL					471.862	190.96		
TOTAL					962.122	389.392		

This is to certify that, the identified area is suitable for Compensatory Afforestation in ANR model plantation @ 400 seedlings per ha for all the areas and from management point of view the identified land is free from all sorts of encumbrances and encroachment. The non-forest govt. land and revenue forest land are not included in DLC record.


Forest Range Officer
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Divisional forest Officer,
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Divisional Forest Officer
DEOGARH DIVISION

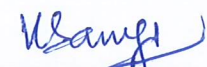
Cost Norms for AIDED NATURAL REGENERATION (ANR) @ 400 Plants per Hectare Wage rate Rs. 311.00/day						
Sl. No.	Item of Work	Preferable period of Execution	Person days	Labour (Rs)	Material (Rs)	Total (Rs)
0th Year						
1	Survey, Demarcation and Pillar Posting, GPS Reading with mapping	Nov/Dec	2	622	0	622
2	Site Preparation	Nov/Dec	2	622	0	622
3	Silvicultural Operation including clearance of weed, climber cutting, high stump cutting, singling of shoots etc	Jan/Feb	5	1555	0	1555
4	Nursery cost (6 months old seedling) part @ Rs 9.45/- seedling (Rs. 6.67 in 0th year + Rs. 2.78 in 1st year) for 440 seedling (400 + 40)	Jan-Mar	11	3421	735	4156
5	Contingency and Unforeseen Expenditures		0	0	165	165
Sub Total			20	6220	900	7120
6	Monitoring & supervision charge 5% of the total cost					356
Grand Total			20	6220	900	7476
1st Year						
1	Nursery cost (6 months old seedling) balance @ Rs. 2.78 for 440 seedlings.	Apr-Jul	5	1555	255	1810
2	Pitting 30 cm cube size	Feb/Mar	12	3732	0	3732
3	Carriage and planting including casualty replacement	Jul/Aug	10	3110	0	3110
4	Complete weeding, Soil working, manuring	Aug/Sep	12	3732	0	3732
5	Cost of Vermi compost 200 gms/plant @ Rs 20/- per kg = Rs 1600.00 and Granular Insecticide 5 gms/ plant @ Rs 80/- per kg = Rs 160.00	Aug/Sep	0	0	1760	1760
6	Cost of Chemical Fertiliser		0	0	648	648
	Urea 70 gms/plant in two subsequent doses @ Rs 6/- per kg = Rs 168.00					

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	NPK 50 gms/ plant @ Rs 24/- per kg = Rs 480.00 as basal dose					
7	Silvicultural Operation involving clearance of weeds, cutting of climbers, singling of shoot etc.	Sep/Oct	15	4665	0	4665
8	Soil conservation measures (staggered trenches of dimension 2m X 0.5m X 0.5m @ 60 nos per ha) or its equivalent	Sep/Oct	20	6220	0	6220
9	Fire line tracing and inspection path	Feb/Mar	3	933	0	933
10	Watch & Ward	Aug-Mar	7	2177	0	2177
11	Contingency and unforeseen expenditure		0	0	319	319
	Sub Total		84	26124	2982	29106
12	Monitoring & supervision charge 5% of the total cost					1455.3
	Grand Total		84	26124.0	2982	30561.30
2nd Year						
1	Casualty Replacement including cost of seedling, carriage and planting.	Jul/Aug	2	622	497.2	1119.2
2	Complete weeding and cultural operations	Sep/Oct	4	1244	0	1244
3	Soil working and manuring	Sep/Oct	4	1244	0	1244
4	Cost of fertilizers and Insecticide	Sep/Oct	0	0	1616	1616
	Vermicompost 200gms/ plant @ Rs 20/- per kg = Rs. 1600.00					
	Granular Insecticides 5 gms/ Plant for 40 plants 200 gms @ Rs 80/- per kg = Rs.16.00					
5	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
6	Soil conservation measures (Renovation of staggered trenches etc)	Sep/Oct	8	2488	0	2488
7	Watch & Ward (Whole Year)	Apr-Mar	7	2177	0	2177


Forest Range Officer
FALLAHARA RANGE


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DEOGARH DIV

8	Contingency and unforeseen expenditure		0	0	362	362
	Sub Total		26	8086	2475.2	10561.2
9	Monitoring & supervision charge 5% of the total cost					528.06
	Grand Total		26	8086	2475.2	11089.26
3rd Year						
1	Compete weeding and cultural operations	Aug/Sep	2	622	0	622
2	Soil working	Aug/Sep	2	622	0	622
3	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
4	Watch & Ward (Whole Year)	Apr-Mar	7	2177	0	2177
	Sub Total		12	3732	0	3732
5	Monitoring & supervision charge 5% of the total cost					186.6
	Grand Total		12	3732	0	3918.6
4th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
5th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
6th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622

	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
7th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
8th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
9th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65
10th Year						
1	Fire line tracing and inspection path	Feb/Mar	1	311	0	311
2	Watch, Ward & Cultural Operations	Apr-Mar	2	622	0	622
	Sub Total		3	933	0	933
3	Monitoring & supervision charge 5% of the total cost					46.65
	Grand Total		3	933	0	979.65


 Forest Range Officer
PALLAHARA RANGE


 Divisional Forest Officer
DEOGARH DIVISION

Abstract

Year	Person Days	Labour (Rs)	Material (Rs.)	Monitoring & supervision charge 5% of the total cost	Total Cost (Rs)
0th Year	20	6220	900	356	7476
1st Year	84	26124	2982	1455.3	30561.30
2nd Year	26	8086	2475.2	528.06	11089.26
3rd Year	12	3732	0	186.6	3918.6
4th Year	3	933	0	46.65	979.65
5th Year	3	933	0	46.65	979.65
6th Year	3	933	0	46.65	979.65
7th Year	3	933	0	46.65	979.65
8th Year	3	933	0	46.65	979.65
9th Year	3	933	0	46.65	979.65
10th Year	3	933	0	46.65	979.65
TOTAL	163	50693	6357.2	2852.51	59902.71

D. Zera


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ESTIMATE OF COST FOR THE UNIT COST OF LBCD STRUCTURE OF 2 MTR SPAN
SIZE


Sl. No.	Item of activity	Cost per unit(Rs.)	Total unit (No/Cum)	Total cost (in Rs.)
1.	Leveling the unshaped surface of the selected site & layout the structure foundation L.S 1 MD.	311.00	1	311.00
2.	Excavation of foundation in hard soil within initial lead of 50 mtr. Including rough dressing and breaking of clods to maximum size 5 cm to 7 cm. Laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. Bund of loose boulder structure. =2.0*4.60*0.60= 5.52 cum @ Rs 167.81 per cum.	167.81	5.52	926.31
3.	Rough Stone dry packing upto GL =2.0*4.60*0.60= 5.52 cum Above GL Cross sectional area*span=2.60*2.0=5.20 cum For Apron 1.0*0.6*0.6*1.0=0.36 cum	837.79	11.08	9282.71
	Total =5.52+5.20+0.36= 11.08 @ Rs 837.79 per cum			
	G. Total:-			10520.02


Forest Range Officer
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DEOGARH DIVISION

ESTIMATE OF COST FOR THE UNIT COST OF LB CD STRUCTURE OF 3 MTR SPAN
SIZE

Sl. No.	Item of activity	Cost per unit (Rs.)	Total unit (No/Cum)	Total cost (in Rs.)
1.	Leveling the unshaped surface of the selected site & layout the structure foundation L.S 1 MD.	311.00	1	311.00
2.	Excavation of foundation in hard soil within initial lead of 50 mtr. Including rough dressing and breaking of clods to maximum size 5 cm to 7 cm. Laying in layer not exceeding 0.3 in depth to strengthening both side U/S approx. Bund of loose boulder structure. =3.0*4.60*0.60= 8.28 cum @ Rs 167.81 per cum.	167.81	8.28	1389.47
3.	Rough Stone dry packing upto GL =3.0*4.60*0.60= 8.28 cum Above GL Cross sectional area*span=2.60*3.0=7.80 cum For Apron 1.0*0.6*0.6*1.0=0.36 cum	837.79	16.44	13773.26
	Total =8.28+7.80+0.36= 16.44 @ Rs 837.79 per cum			
	G. Total:-			15473.73


Forest Range Officer
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DEOGARH DIVISION


COST NORMS FOR VEGETATIVE FENCING

Sl. No.	Item of Work	Period of execution	Person days	Labour Cost @311.00/- (Rs.)	Material Cost (Rs.)	Total Cost (Rs.)
1	For an average of 126 meters/ha Rs. 76.19 per meter for bamboo twigs and bamboo thorn fencing (L:m=40:60)	Jun/sept	19	5909	4279.94	10188.94
2	To be strengthening by planting bamboo and other seedlings in two rows. Bamboo to be planted at 2 meters spacing in staggered manner on the two rows and the rest of the species to be planted at 1/2 meter spacing along the two rows being 2m apart. Thus 500 plant (125 Bamboo and 375 others)to be planted in two rows to cover 126m of periphery /ha. By the vegetative fence (Bamboo seeding @Rs. 12.43 per seeding X 125 =Rs. 1553.75, agave seeding @ Rs. 4.90 per seeding X 375 =Rs. 1837.5)	Jun/sept	11	3421	3391.25	6812.25
	Total		30	9330	7671.19	17001.19

Vegetative Fencing Cost Per Meter

= Rs. 17001.19/126 m.= Rs.134.92 or Rs.135.00


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Total = 480 nos

Cost of pillars PER Kilometer = 480 @ 661/- = Rs. 3,17,280.00

3. Fitting fixing of RCC pillars in position with hbg metal (4cm) in C.M (1:4:8)

(i) Digging of pits 1.5' x 1.5' x 1.5' = 3.375 cft/pit

for 480 pits, 480 x 3, 375 = 1620 cft or 45.86 cum @ Rs 12,814.00 / 100 cum = Rs. 5876.50

(ii) Fixing of pillars with 4 cm hbg metals in C.M 1:4:8

pit size 1.5' x 1.5' x 1.5' = 3.375 cft

Deduct 1/3 of butt of pillar i.e 3.375/3 = (-)1.125cft

Total c.c work per pillar	2.25cft
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for 480 pillar = 480 x 2.25 = 1080 cft or 30.577 cum @ Rs. 3702.95/cum =Rs. 1,13,225.00

4. Labour for straightening the barbed wire and fixing and clipping with pillars

70 M.d per km @ Rs 311.00/- =Rs. 21,770

5. Carriage of Barbed wire & pillars to work site

@ Rs.1000/tl. And cost of loading and unloading within 5km distance approximately

10 ltd @800/ltd = Rs.18000.00

6. Provision of one Iron gate of size (4' x 5') on LS = Rs.7500.00

Total	= Rs. 6,36,612.00
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Labour cess 1%	= Rs. 6366.00
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=6,42,978.00

Expenditure per 1Km of barbed wire fencing or say, Rs.642.40- or Rs.643/- per meter .

7. Expenditure towards maintenance for 3 years (3rd, 6th & 9th year)

@2% of cost per km = 3 x 2% x Rs. 6,42,766/- =Rs. 38,578.68

Expenditure per 1 Km of barbed wire facing including maintenance = Rs. 6,81,556.68

so, expenditure per running meter for fencing =Rs. 681.55/mt. Or say Rs. 682/-mt.

(Six hundred eighty two rupees only)

Estimate for digging of Staggered Trench along with Plantation of Agave on the mound

Earth Work in Ordinary Soil of Staggered Trench of Size 2mt x 0.5mt x0.5mt

Male Mulia 16no @ 311.00/- per MD = Rs 4976.00/-

Female Mulia 16no @ 311.00/- per MD = Rs 4976.00/-

Rs 9952.00 /- per cum

Size of Staggered Trench = 2mt x 0.5mt x0.5mt = 0.5 cum

For 100 cum earth work required = Rs 9952.00/-

For 0.5 cum earth work required = Rs 9952 x 0.5/100 = Rs 49.76/- or Rs 50/-

Abstract

Estimate for digging of Abstract one staggered trench of size 2mt x 0.5mt x0.5mt

Along with plantation of Agave on the mound in Ordinary soil.

Sl. No.	Description of Work	Amount in Rs.
1	Earth Work in excavation of staggered trench in Ordinary soil including rough dressing and leveling the beds and heaping the dugout soil at the downhill side of the trench and leveling the same Size of trench= 2mt x 0.5mt x0.5mt = 0.5 cum @9952.00 /- per 100 cum	Rs. 50.00
2	Cost of Agave planting on the dugout soil and its maintenance including weeding, cost of fertilizer etc. for seven years 3 nos. of average plants per trench @ Rs 33.00 per plant	Rs. 99.00
	Total	Rs 149.00

TOTAL COST OF PROJECT (Non-Forest land in Village Duipani & Dudipani)

1	Cost of ANR Plantation @400 plants/Ha over 132.752 ha @ Rs.59,902.71 /- per ha with 10 years maintenance	79,52,204.558
2	Barbed wire fencing around non-forest land over 7.66 km @ 6,81,556.68 with 10-year Maintenance	52,20,724.169
3	SMC measures-LBCD structure of 2mtr span @ Rs 10520.02/- for 50 structures over 132.752 ha.	5,26,001
4	SMC measures-LBCD structure of 3mtr span @ Rs 15473.73/- for 50 structures over 132.752 ha.	7,73,686.5
5	Staggered trenches 2.5 mts x 0.5 mt. to the tune of 60 nos. per ha @Rs. 8940/ha over 132.752 ha.	11,86,802.88
	Total	1,56,59,419.11
6	Add 20% escalation	31,31,883.821
7	Grand Total	1,87,91,302.93


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**COST FOR COMPENSATORY AFFORESTATION IN REVENUE FOREST
LAND (Village Duipani)**

Sl no	Items	Amount (in Rs.)
1	Cost of ANR Plantation @400 plants/Ha over 65.68 ha @ Rs.59,902.71 /- per ha with 10 years maintenance	39,34,409.993
2	Barbed wire fencing around revenue forest land over 5.23 km @ 6,81,556.68 with 10-year maintenance	35,64,541.436
3	SMC measures-LBCD structure of 2mtr span @ Rs 10520.02/- for 20 structures over 65.68 ha.	2,10,400.4
4	SMC measures-LBCD structure of 3mtr span @ Rs 15473.73/- for 20 structures over 65.68 ha.	3,09,474.6
5	Staggered trenches 2.5 mts x 0.5 mt. to the tune of 60 nos. per ha @Rs. 8940/ha over 65.68 ha.	5,87,179.2
	Total	86,06,005.629
	Add 20% escalation	17,21,201.126
	Grand Total	1,03,27,206.76


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**COST FOR COMPENSATORY AFFORESTATION IN DEGRADED FOREST
LAND (Kakharua PRF, Atanaka PRF, Ranjo PRF)**

Sl no	Items	Amount (in Rs.)
1	Cost of ANR Plantation @400 plants/Ha over 190.96 ha @ Rs.59,902.71 /- per ha with 10 years maintenance	1,14,39,021.5
2	Vegetative fencing around degraded forest land over 14.27 km @ 1,34,920/- with 10-year Maintenance	19,25,308.4
3	SMC measures-LBCD structure of 2mtr span @ Rs 10520.02/- for 60 structures over 190.96 ha.	6,31,201.2
4	SMC measures-LBCD structure of 3mtr span @ Rs 15473.73/- for 60 structures over 190.96 ha.	9,28,423.8
5	Staggered trenches 2.5 mts x 0.5 mt. to the tune of 60 nos. per ha @Rs. 8940/ha over 190.96 ha.	17,07,182.4
	Total	1,66,31,137.3
	Add 20% escalation	33,26,227.46
	Grand Total	1,99,57,364.76


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Total Cost for Compensatory Afforestation		
Sl no	Items	Amount (in Rs.)
1	Plantation over 132.752 ha of non-forest govt. land with Barbed wire fencing around non-forest land over 7.66 km with 10-year Maintenance.	1,87,91,302.93
2	Plantation over 65.68 ha of Revenue Forest land with Barbed wire fencing over 5.23 km with 10-year Maintenance.	1,03,27,206.76
3	Plantation over 190 ha of degraded forest land with Vegetative fencing.	1,99,57,364.76
	Total	4,90,75,874.45/- or 4,90,75,875/-


 Divisional Forest Officer
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