

COST BENEFIT ANALYSIS OF THE DIVERSION PROPOSAL

1) Net Present Value (NPV)	=	Rs. 17,08,980.00
2) Cost of Compensatory Afforestation (CA)	=	Rs. 33,29,780.00
3) Overhead expenditure (50% of cost of CA)	=	Rs. 5,00,504.00
4) Royalty of Trees		
(a) Sal (Pole size) = 155.36 RM x 18/- (per RM)	=	Rs. 2,797.00
(b) Sal = 7.528 Cu.m. x 11079/- (per Cu.m.)	=	Rs. 83,403.00
(c) N/Sal = 0.517 Cu.m. x 3493/- (per Cu.m.)	=	Rs. 1,806.00

Grand Total Rs. = 56,27,270.00

(Rupees Fifty Six Lakh Twenty Seven Thousand Two Hundred Seventy) only



Divisional Forest Officer,
Haltugaon Division,
Kokrajhar

SCHEME FOR COMPENSATORY AFFORESTATION

Detail scheme for Compensatory Afforestation to be carried out in lieu of 1.82 ha of forest area to be diverted for Construction of 132KV Transmission Line from in Haltugaon Division in Kokrajhar District.

1. Detail of degraded forest land / non-forest land:-

District: Kokrajhar Name of Division: Haltugaon Division

Range: Nayekgaon RF: Nadangiri & Nayekgaon PRF Pt-II Compartment No. Nil

Area to be afforested: 3.64 ha (twice the area proposed to be diverted)

2. Description of Area

ii. Topography: a. Plain land

b. Slope: Gentle

ii. Whether the area is bearing any root stock of vegetation: Almost Barren land

3.

NORM FOR 3.64 ha BLOCK PLANTATION

Area (ha)	=	3.64
Spacing (m X m)	=	2 X 2
Number of Saplings/ ha	=	2500
Length of Fence (RM)	=	724
Wage rate for the 1st year(Rs.)	=	179
Increase in wage rate for subsequent years by a factor	=	1.1
Appreciation of material costs by a factor	=	1.1

S.No.	Particulars of works	Units	Qty./ha	Total Qty.	Rate / Unit	Amount (Rs.)
A	ERECTION OF FENCING			@Rs.	179	/DL
	(a) Cost of full Chain-linked Goat Proof fencing (4' ht. with 10 Gauge, 3" dia link) to be fitted on Pre-cast RCC pillars* at 1.8 mt. apart including transportation of fencing materials to site for 724 RM @ Rs. 800 per RM as per estimate	RMs		724	800	579200
	(b) Wages of DLs for carrying, fitting, fixing etc. of fencing materials @ 20 DLs/ 100 RM	DLs		145	179	25919
	<i>Sub-total</i>					605119
B	INFRASTRUCTURE IN PLANTATION AREA					
	Construction of camp hut (at least one upto 25 ha & thereafter one per every 25 ha) as per estimate	nos.		1	150,000	150000
	Installation of ring/tube well (at least one upto 10 ha & thereafter two per every 25 ha)	nos.		1	50,000	50000

Irrigation facility with Diesel generator and hose pipes for watering the nursery and plantation (during dry spells)	nos.		1	50,000	50000
Cost of tools & implements (One unit upto 25 ha & thereafter one unit per every 25 ha)	nos.		1	10,000	10000
Cost of RCC signboard & Gate including fitting and fixing of the same (at least one upto 25 ha & thereafter one per every 25 ha)	nos.		1	60,000	60000
Camp accessories @ Rs. 10,000/ per camp	nos.		1	10,000	10000
Construction of Inspection Path 1400 RM @ Rs. 50/- RM	RMs		362	50	18100
<i>sub total</i>					348100

C	ADVANCE WORK	@Rs.			179 /DL
Site selection, surveying, demarcation, jungle cutting, burning etc. 20 DLs/ha	DLs	20	72.8	179	13031
Preparation and acquisition of polypot saplings in the field nursery for planting 2500 Nos. Seedlings/ ha @ Rs.6/- per polypot	nos.	2500	9100	6	54600
Preparation of polypot saplings in the field nursery for vacancy filling					
a) 25% mortality expected during 1st year (to be planted in the field during the 2nd year) ,i.e., 625 Seedlings/ ha @ Rs.6.5/- per polypot	nos.	625	2275	6.5	14788
b) 20% mortality expected during 2nd year (to be planted in the field during the 3rd year) ,i.e., 500 Seedlings/ ha @ Rs.7/- per polypot	nos.	500	1820	7	12740
c) 15% mortality expected during 3rd year (to be planted in the field during the 4th year),i.e., 375 Seedlings/ ha @ Rs.7.5/- per polypot	nos.	375	1365	7.5	10238
d) 10% mortality expected during 4th year (to be planted in the field during the 5th year),i.e., 250 Seedlings/ ha @ Rs.8/- per polypot	nos.	250	910	8	7280
Cost of Bamboo, making of stacking & transportation etc	nos.	625	2275	1	2275
Line alignment, carriage of stacking materials and fixing the stacking @ 5 DLs/ha	DLs	5	18.2	179	3258
Supervision and Monitoring	L.S.				10000
<i>Sub total</i>					128209

D	CREATION & 1st YEAR MAINTENANCE	@Rs.			179 /DL
Soil working, carriage of stumps, polypot seedling and planting at the plantation site including, dibbling of seeds wherever necessary to complete raising of plantation with all necessary operation @ 40 DLs/ ha	DLs	40	146	179	26062
5 weedings, mulching and fire protection works @ 18 DLs/ha/weeding	DLs	90	328	179	58640
Upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs/ha	DLs	5	18	179	3258

	Maintenance and protection of field nursery and watch and ward for the plantation area(1DL for 365 days).	DLs		365	179	65335
	Maintenance of camp huts, implements, ring/tube- well, upkeepment of plantation, signboard, documentation, upkeepment of records and other misc. work	L.S.				10000
	Awareness & Monitoring @ Rs. 800/ha	L.S.		3.64	800	2912
	Sub total					166208
E	2nd YEAR MAINTENANCE	@ Rs. 197 /DL				
	5 weedings, fire protection works @ 15 DLs/ha/weeding	DLs	75	273	197	53754
	25% Vacancy filling by 1 year old seedlings from nursery@ 10DLs/ha	DLs	10	36	197	7167
	Upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs/ha	DLs	5	18.2	197	3584
	Maintenance and protection of field nursery and watch and ward for the plantation area(1DL for 365 days).	DLs		365	197	71869
	Maintenance of camp hut, implements, ring/tube- well upkeepment of plantation, signboard, documentation, upkeepment of records etc.	L.S.				11000

	Supervision Cost	L.S.		1		2912
	Contingency L.S.	L.S.				2500
	sub total					152785
F	3rd YEAR MAINTENANCE	@ Rs. 217 /DL				
	4 weedings, fire protection works @15 DLs/ha/weeding	DLs	60	218	217	47303
	20% Vacancy filling by 2 year old seedlings from nursery@ 8DLs/ha	DLs	8	29	217	6307
	Protection work, cattle watching, upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs/ha	DLs	5	18.2	217	3942
	Maintenance and protection of field nursery and watch and ward for the plantation area(1DL for 365 days).	DLs		365	217	79055
	Maintenance of camp hut, implements, ring/tube- well upkeepment of plantation, signboard, documentation, upkeepment of records	L.S.				12100
	Supervision Cost	L.S.		1		2912
	Contingency @ 15 % over previous year	L.S.				2875
	Sub total					154495
G	4th YEAR MAINTENANCE	@ Rs. 238 /DL				
	4 weedings, fire protection works @15 dls/ha/weeding	DLs	60	218	238	52034
	15% Vacancy filling by 2 year old seedlings from nursery@ 6DLs/ha	DLs	6	22	238	5203
	Upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs/ha	DLs	5	18.2	238	4336

	Maintenance and protection of field nursery and watch and ward for the plantation area(1DL for 365 days).	DLs		365	238	86961
	Maintenance of camp hut, implements, ring/tube- well upkeepment of plantation, signboard, documentation, upkeepment of records etc.	L.S.				13310
	Supervision Cost	L.S.		1		2912
	Contingency @ 15 % over previous year	L.S.				3306
	<i>sub total</i>					168062
II	5th YEAR MAINTENANCE	@ Rs. 262 /DL				
	Climber cutting, weeding & other silvicultural works and fire protection works @ 15DLs/ha	DLs	15	73	262	19079
	10% Vacancy filling by 2 year old seedlings from nursery@ 4DLs/ha	DLs	4	15	262	3816
	Maintenance & fencing post replacement @ 3% initial cost of material			0.03	579200	17376
	Upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 4 DLs/ha	DLs	4	14 56	262	3816
	Watch and ward for the plantation area(1DL for 365 days).	DLs		365	262	95657
	Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				14641
	Supervision Cost	L.S.		1		2912
	Contingency @ 15 % over previous year	L.S.				3802
	<i>sub total</i>					161099
I	6th YEAR MAINTENANCE	@ Rs. 288 /DL				
	Climber cutting, other silvicultural works and fire protection works @15 DLs/ha	DLs	15	55	288	15740
	Upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 4 DLs/ha	DLs	4	14.56	288	4197
	Watch and ward for the plantation area(1DL for 365 days).	DLs		365	288	105223
	Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				16105
	Supervision Cost	L.S.				2912
	Contingency @ 15 % over previous year	L.S.				4373
	<i>sub total</i>					148550
J	7th YEAR MAINTENANCE	@ Rs. 317 /DL				
	Climber cutting, other silvicultural works and fire protection works @ 12 DLs/ha	DLs	12	44	317	13851
	Protection work, cattle watching, upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs / ha	DLs	5	18.2	317	5771

	Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				17716
	Supervision Cost	L.S.				2912
	Contingency @ 15 % over previous year	L.S.				5028
	<i>sub total</i>					45279
K	8th YEAR MAINTENANCE	@ Rs. 349 /DL				
	Climber cutting, other silvicultural works and fire protection works @ 8 DLs/ha	DLs	8	29	349	10158
	Protection work, cattle watching, upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs / ha	DLs	5	18.2	349	6349
	Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				19487
	Supervision Cost	L.S.				2912
	Contingency @ 15 % over previous year	L.S.				5783
	<i>sub total</i>					44688
I	9th YEAR MAINTENANCE	@ Rs. 384 /DL				
	Climber cutting, other silvicultural works and fire protection works @ 7 DLs/ha	DLs	7	25	384	9777
	Protection work, cattle watching, upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 5 DLs / ha	DLs	5	18.2	384	6983
	Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				21436
	Supervision Cost	L.S.				2912
	Contingency @ 15 % over previous year	L.S.				6650
	<i>sub total</i>					47758
M	10th YEAR MAINTENANCE	@ Rs. 422 /DL				
	Climber cutting, other silvicultural works, fire protection works @ 6 DLs/ha	DLs	6	22	422	9218
	Protection work, cattle watching, upkeepment of plantation, and making of inspection path, repairing of fence etc. on day to day basis @ 4 DLs /ha	DLs	4	14.56	422	6145

Maintenance of camp hut, implements, ring/tube- well, upkeepment of plantation, signboard, documentation & upkeepment of records etc.	L.S.				23579
Supervision Cost	L.S.				2912
Contingency @ 15 % over previous year	L.S.				7648
<i>sub total</i>					49502
Total Cost of Plantation Rs.					2219853
Overhead Expenditure (50% of the Plantation Cost) Rs.					1109927
Grand Total Cost (Plantation + Overhead Expenditure) Rs.					3329780

(Rupees Thirty Three Lakh Twenty Nine Thousand Seven Hundred Eighty) Only

5. Technical details

Technical details of Compensatory Afforestation Scheme are as follows:-

- (a) Spacing: 2m X 2m
- (b) Species: *Shorea robusta, Gmelina arborea, Michaelia champaka, Bamboo, Amlokhi, Bohera etc.*
- (c) Plantation Method: Planting through seedlings

Technically Approved by,


 Divisional Forest Officer,
 Haltugaon Division,
 Kokrajhar

Addl. Principal Chief Conservator of Forests
 cum
 CHD, Forests, BTC, Kokrajhar

4. Assessment of forest stock:-

The forest area is situated in the Haltugaon Division, Kokrajhar. The proposed project shall affect a few trees and no bamboo clumps. The details of species wise and diameter class wise enumeration of trees is enclosed herewith (Annexure-IV). The Eco-class of the proposed diversion area is Eco-Class-V.

5. Flora and Fauna and archaeological importance:-

The area does not form a part of National Park Sanctuary or Biosphere Reserve, Sample or preservation plot. So, description of the Principal Species of Flora and fauna, endemic, threatened species does not arise. Moreover the area does not have importance from archaeological view point.

6. Compensatory afforestation:-

The forest land to be diverted for the above project is 1.82 hectare. Double the area for plantation as per FC Act, 1980 of degraded forest land in Baksamara RF has been identified for Compensatory Afforestation. The Details are as follows:-

Forest Land identified for Compensatory Afforestation

<u>District</u>	<u>Division</u>	<u>Range</u>	<u>Block</u>	<u>Compartment No</u>	<u>Area</u>	<u>Working Circle</u>	<u>Felling Treatment</u>
							<u>Series</u>
Kokrajhar (Assam)	Haltugaon Division	Nayekgaon Range	Nil	Nil	3.64 Ha	Nil	Nil

The Sketch Map showing the above identified land has been enclosed as Annexure-A with the diversion proposal. The identified forest land for compensatory afforestation comprises an area of 3.64 hectare.

The above area is proposed to be covered under plantation. The Divisional Forest Officer has drawn- up compensatory afforestation Scheme with a financial outlay of Rs. 3329780.00 (Annexure-B). The Compensatory Afforestation Scheme envisages Block plantation over 3.64 hectare and fencing over 3.64 hectare.

The Divisional Forest Officer, Haltugaon Division, Kokrajhar has given Certificate regarding suitability for compensatory afforestation over 3.64 hectare (Annexure-C) The user agency has furnished undertaking to bear cost of compensatory afforestation over 3.64 Ha and deposit the amount of CA Scheme after stage-1 clearance is granted (Annexure-I)

It is not proposed to impose condition of penal afforestation since violation of FCA has not been committed. So, preparation of "Penal Afforestation Plan" does not arise with the proposal.

7. Displacement of human population:-

No dwelling village of people exist in the proposed diversion area.

8. Environment clearance:-

The environment clearance is required as per clause 2. 3 of the FCA guideline of Forest conservation Act, since the area applied for diversion is more than 1 (one) ha.

The project proponent has not stated to initiate any action to obtain NOC/ consent under the provision of Water (Prevention & Control of pollution) Act, 1974 & Air (Prevention & Control of pollution) Act, 1981 and the NOC/consent obtained from the state pollution control Board/pollution control committee.

9. Cost benefit analysis:-

The cost benefit analysis has been worked as provided in Annexure-F enclosed with the proposal. The loss of Timber, fuel wood MFP, etc. has been calculated out to be Rs. 3329780/-. Similarly the benefit that would be accrued out of the land is Rs. 1708980/-. Hence, the cost benefit analysis is calculated to be 1:2 Approx.

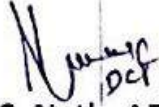
10. Violation Forest Conservation Act/Indian Forest Act:-

The user Agency has not committed violation of Forest Conservation Act. 1980.

11. Recommendation of the DFO, Haltugaon Division, Kokrajhar.

The DFO, Haltugaon Division has recommended the proposal. The proposal site is not a part of National Park. Sanctuary, Biosphere Reserve, Sample Plot, Preservation Plot or Ecologically Fragile Zone. The diversion does not affect habitat of endemic, threatened species of fauna or flora. It does not affect on any streams, water body, Forest ecosystem and biodiversity. The project does not adversely affect timber, fuel wood, MFP supply to rural masses.

The benefits from the project likely to accrue of the state are Socio-economic benefits, industrialization, rural development, power generation etc.


(Sri N. C. Nath, AFS)
Divisional Forest Officer,
Haltugaon Division,
Kokrajhar