Cost-Benefit analysis

Name of the project: Diversion of 61 Ha of Forest land for the construction of Tumkur Branch Canal in Bukkapattana and Udugere Reserve Forest, Tumkur and Chikkamagalur Districts.

Category of proposals for which Cost Benefit Analysis are applicable

Sl.No.	Nature of proposal	Applicable/ Not applicable	Remarks
1	All categories of proposals involving forest land upto 20 Ha in Plains and up to 5 Ha in hills.	Not applicable	Nil
2	Proposals for defense installation purposes and oil prospecting (Prospecting only)	Not applicable	Nil
3	Habitation, establishment of industrial units, tourist lodges/complex and other building constructions.	Not applicable	Nil
4	All other proposals involving forest land more than 20 Ha in plain and more than 5 Ha in hills including roads, transmission lines, minor medium and major irrigation projects, hydel projects, mining activities, Railway lines, location specific installation like Micro-wave station, auto repeater center, TV towers, etc.	Applicable	These are cases where a cost benefit analysis is necessary to determine whether diverting the forest land to non-forest use is in the overall public interests.
5	Proposal for renewal of Mining Lease for forest land.	Not Applicable	Nil

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್
ವಿ.ಜ.ನಿ.ನಿ., ಭ.ಮೇ.ಯೋ. ಉಪ ವಿಭಾಗ,
ನಂ.24. ಕಳ್ಳಂಬೆಳ್ಳ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

Cost Benefit analysis

I-Calculation of the Cost

Parameters for Evaluation of Loss of Forests

Name of the Project	: Construction of Tumkur Branch Canal of Upper Bhadra Project.
Quantum of Forest Applied For	: 61 Ha
Life of Project	: 50 Years
Division	: Division No.9, UBP, VJNL, Sira

Sl.No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 50 years (lakhs)
1	Ecosystem services losses due to proposed forest diversion	Economic Value of loss of eco-system services due to diversion of forest shall be the Net Present Value (NPV) of the forest land being diverted as prescribed by the Central Government (MoEF&CC). Present NPV for 1 Ha of forest land = 6.26 lakhs (density of 0.4) Present NPV for 61 Ha forest land = 61 X 6.26=381.86 lakhs	381.86	19,093.00
2	Loss of animal Husbandry Productivity, Including loss of Fodder.	10% of the NPV	38.18	1,909.30
3	Possession Value of Forest land Diverted	30% of the NPV	114.55	5,727.90
4	Habitat Fragmentation Cost	50% of the NPV	190.93	9,546.50
5	Compensatory afforestation and Soil & moisture conservation cost	Rate of C.A. for 1 Ha of forest land = 15.93 Lakh (2015-16) Value of C.A. for 61 Ha forest land = 61 X 15.93 Lakh=971.73	971.73	48,586.5
		Total	**1,659.078**	**82,953.9**

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್
ವಿ.ಜ.ನಿ.ನಿ., ಭ.ಮೇ.ಯೋ. ಉಪ ವಿಭಾಗ,
ನಂ.24. ಕಳ್ಳಂಬೆಳ್ಳ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.

Cost Benefit analysis

II-Calculation of the Benefits

Parameters for Evaluation of Benefits

(Not withstanding loss of forest)

Sl.No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 50 years (lakhs)
1	Increase in Productivity attribute to the Specific project	Net value of the Produce = Total gross receipts - Total Expenses	1,41,391.00	70,69,550.00
2	Benefits to economy due to the Specific project	Net Annual benefits	1,62,511.00	81,25,550.00
3	No of Population Benefited due to specific project	In 8 taluks as per 2011 Census	18,86,977 People	
4	Economic benefits due to of direct and indirect employment due to this project	Total employment =800 (Per day wages as per minimum wages notifications 2016-2017)	-	
		40 skilled employees X Rs. 261.87/- (per day) =Rs. 10,474.80/- Rs. 10,474.80/- (per day) X 30 days X 12 months = Rs.37,70,928.00/-p.a.	37.70	1,885.00
		760 unskilled employees X Rs. 259.28/- (per day) = Rs.1,97,052.80/- Rs. 1,97,052.80 /- (per day) X 30 days X 12 months = Rs.7,09,39,008.00 /- p.a.	709.39	35,469.50
5	Economic benefits due to Compensatory afforestation	Value of Carbon sequestration per Ha/year = Rs. 1,20,780/- (per Ha/Yr) X 61 Ha (forest land) = Rs.73,67,580.00/-	73.67	3,683.5
		Value of Bio-Prospecting per Ha/year = Rs.25,553/- (per Ha/Yr) X 61 Ha (forest land) = Rs.15,58,733.00/-	15.58	779
		Value of NTFP Ha/year= Rs.7,631/-(per Ha/Yr) X 61 Ha (forest land) = Rs.4,65,491.00/-	4.65	232.5
		Value of Eco-tourism Ha/year = Rs.65,113/-(per Ha/Yr) X 61 Ha (forest land) = Rs.39,71,893.00/-	39.71	1985.5
		Value of fodder Ha/year = Rs.7631/- (per Ha/Yr) X61 Ha (forest land) =Rs.4,65,491.00/-	4.65	232.5
		Value of Flagship species Ha/year= Rs.2,58,400/- (per Ha/Yr) X 61 Ha (forest land) =Rs. 1,57,62,400.00/-	157.62	7881.00
		Value of Ecological services of forests per Ha/Year= Rs.1,44,332/- (per Ha/Yr) X 61 Ha (forest land) =Rs. 88,04,252.00/-	88.04	4402
			3,05,033.01	**1,52,51,650.50**

ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್
ವಿಶ್ವೇಶ್ವರಯ್ಯ ಜಲ ನಿಗಮ ನಿಯಮಿತ
ಭದ್ರಾ ಮೇಲ್ದಂಡೆ ಯೋಜನಾ ವಿಭಾಗ ನಂ.09,
ಶಿರಾ, ತುಮಕೂರು ಜಿಲ್ಲೆ.

CostBenefitAnalysis

III CalculationofBenefit/CostRatio

Total Benefits (As per II calculations) =Rs. 1,52,51,650.50 Lakhs

Total Losses (As per I calculations) =Rs. 82,953.9.50 Lakhs

Hence, Benefit/Cost Ratio $\frac{1,52,51,650.50}{82,953.9}$ = **183.85**

Thus, the project gives positive Benefit/Cost Ratio with minimal environmental losses.

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಇಂಜಿನಿಯರ್
ವಿ.ಜ.ನಿ.ನಿ., ಭ.ಮೇ.ಯೋ. ಉಪ ವಿಭಾಗ,
ನಂ.24. ಕಳ್ಳಂಬೆಳ್ಳ ಕ್ಯಾಂಪ್, ಶಿರಾ.

Executive Engineer
Visvesvaraya Jala Nigama Limited,
Upper Bhadra Project Division No.9
Sira Tumkur Dist.