

**MITIGATIVE MEASURES TO BE TAKENUP IN THE FOREST AREA PROPOSAL FOR
PERMISSION AN AREA OF 168.4299 HAC 57.1255 HA (KAGHAZNAGAR RANGE)
AND 111.3044 HA. (SIRPUR RANGE) FOR LAYING OF NEW THIRD BG RAILWAY
LINE ALONG THE EXISTING TRACKS WITHIN THE RAILWAY BOUNDARY
BETWEEN MAKHUDI AND RECHINI ROAD RAILWAY STATIONS IN
KOMARAMBHEEM ASIFABAD AND MANCHERIAL DISTRICTS IN FAVOR OF SOUTH
CENTRAL RAILWAY, SECUNDERABAD IN KAGHAZNAGAR DIVISION.**

1. INTRODUCTION :

The total geographical area of Telangana State is 114840 Sq KM and the total forest area is 28809.08 Sq. Kms. which constitute to 25.19%, whereas the total geographical area of the Kaghaznagar division is 1,64,100 Ha. covering the forest area of 91719.31 Ha. in four Ranges constituting about 55.90%. The Kaghaznagar division lies between 19° 11' 30" and 19° 37'30" north latitudes and 79° 22' 30" and 79° 59'0" east longitudes.

The Kaghaznagar Division consisting of five Ranges, namely - Kaghaznagar, Sirpur, Karjelly, Bejjur and Penchikalpet Ranges.

The Forest area in the above Ranges are being utilized as the Corridor for Kawal Tiger Reserve for attracting the Tigers from Thadoba of Maharashtra State and Indiravathi of Chhathisgad State.

The Forest area in Kaghaznagar Division is known for its diversified Flora and Fauna apart from Scattered Primitive Tribal Group Habitations with unique tribal culture.

In the above scenario, the Superintending Engineer, Railways laying of new third bg railway line along the existing tracks within the railway boundary between Makhudi and Rechini road railway stations in Komarambheem Asifabad and Mancherial districts in favor of south central railway, secunderabad in kaghaznagar division in Compt No. 84 & 91 of Vempally Beat of Kaghaznagar Range and Compt No. 92 of Peddabanada Beat and Compt No. 85 & 86 of Makidi Beat of Sirpur Range.

Report - Technical :

In the above scenario, if the proposals is to be considered, it is necessary to take up the Mitigative Measures to counter the consequential problems, in order to protect the Flora and Fauna especially the extensions to the existing encroachments and fresh attempts of encroachments.

Following are the few Probable Consequential problems laying of new third bg railway line nearer to Forest Area:

- 1) Continues human interference to the Serenity of the Vicinity.
- 2) Depletion of Forest Flora.
- 3) Poaching of Wild Fauna.
- 4) Forest Fires.

Therefore, it is mandatory for addressing the above probable consequential problems with the following suitable Mitigative Measures, in order to conserve the Forest Eco System in and around the Pipeline site in Vempally, Achelly, Garlapet and Garlapet Ext - I Forest Blocks.

1. Fire Management
2. Habitat Management.
3. Water Management
4. Compensative Greenery
5. Publicity and Awareness

2. NAME OF THE SCHEME : Conservation Plan for Flora and Fauna along the Pipeline.

3. LEGAL STATUS :

- i. RF: Vempally G.O. Ms. No.146 F&RD dated 25.03.2080.
- ii. RF: Achelli notified U/s-15 vide A.P Gazette No. 11-D dated 17-03-1977, G.O Ms. No. 83 F & RD For III dated 03-02-1977.
- iii. RF: Garlapet notified U/s-4 vide G.O Ms. No. 102 Notification No. 49 dated 26-12-1954.
- iv. RF: Garlapet Ext.I notified U/s-15 vide G.O. Ms No. 128 FSR /130/55/2, dt 16-02-1956

4. DISTRIBUTION OF THE AREA:- The proposed area falls under Kaghaznagar Range, spreading in the following compartment:

Sl. No.	Division	Range	Section	Beat	RF Compts. in Corridor area
1	2	3	4	5	6
1	Kaghaznagar	Kaghaznagar	Vempally	Vempally	84
2				Vempaly	91
3		Sirpur	Sirpur	Peddabanda	92
4			Makudi	Makidi	85
5				Makidi	86

5. COMPOSITION OF THE FOREST AND WILDLIFE: - The forest area surrounding the diverted area is Teak with moderate miscellaneous forest. The main forest type is (5-A) Southern Tropical Dry Deciduous Forests. The upper canopy of these forests at some places is closed, though rather uneven and composed of a mixture of few species practically all deciduous. The height of crop is generally up to 15 m and some species tend to predominate over selected areas but most are non-gregarious. The lower canopy is entirely deciduous. An under growth of shrubs is usually present but enough light gets in to promote more of grass growth. Climbers are generally large woody species but comparatively few. In the said area the forests type Southern Tropical Dry Deciduous Forest exist in further two classes according to the presence of Teak. The characteristic trees of the teak bearing type (Dry teak forest) are *Tectona grandis* and *Terminalia spp.* At some locations the area proposed for diversion is under illegal cultivation.

Forest View

The important Flora existing in this area is as follows:

a) Flora:

Sl. No.	Botanical name	Local name
1	2	3
1	<i>Acacia ferruginea</i>	Vel sundra
2	<i>Anogeissus latifolia</i>	Tirman
3	<i>Bauhinia racemosa</i>	Ari

4	<i>Butea monosperma</i> (<i>Butea frondosa</i>)	Palas
5	<i>Cassia fistula</i>	Rela
6	<i>Chloroxylon swietenia</i>	Satin
7	<i>Cleistanthus collinus</i>	Nalla Kodsha
8	<i>Dalbergia paniculata</i>	Sopera
9	<i>Diospyros melanoxylon</i>	Abnus (Tumki)
10	<i>Feronea elephantum</i>	Kaweeet
11	<i>Garuga pinnata</i>	Garugu
12	<i>Givotia rottleriformis</i>	Punki
13	<i>Gmelina arborea</i>	Gummadi Teku
14	<i>Lannea coromandelica</i> (<i>L.Grandis</i>)	Gumpena
15	<i>Lagerstroemia parviflora</i>	Channangi
16	<i>Madhuca indica</i> (<i>Bassia latifolia</i>)	Mohwa
17	<i>Morinda tinctoria</i>	Togarmogli
18	<i>Pongamia pinnata</i>	Karanj (Kanuga)
19	<i>Prosopis spicigera</i>	Jammi
20	<i>Pterocarpus Marsupium</i>	Bijasal
21	<i>Strychnos nux-vomica</i>	Kuchala (Musti)
22	<i>Tectona grandis</i>	Teku (Sagwan)
23	<i>Terminalia tomentosa</i>	Nalla Maddi
24	<i>Terminalia belerica</i>	Tado
25	<i>Terminalia arjuna</i>	Tellamaddi
26	<i>Wrightia tinctoria</i>	Palakodsha
27	<i>Zizyphus xyloporous</i>	Gotti
28	<i>Sterculia urens</i>	Tapsi
29	<i>Hardwickia binnata</i>	Narepa
30	<i>Adina cordifolia</i>	Bandaru

Bamboo: - Dendrocalamus strictus.

Shrubs & Herbs:

Bridelia hamiltonia, *Calotropis gigantea*, *Cassia tora* *Dodonea viscosa*, *Gymnosporia spinosa*, *Ixora parviflora*, *Jasminam arborescence*, *Randia dumetorum*, *Vitex negundo*, *Cleome viscosa*, *Portulacu oleracea* and *Sida cordifolia*.

Climbers: *Zizyphus oenoplia*, *Acacia intia*, *Butea superba*, *Hemidesmus indicus*.

b) Fauna: The forest area around the mine inhabits a variety of wildlife and it acts as a Corridor area of Kawal Tiger Reserve and Tadoba Tiger Reserve. Hence the Habitat is important for Tiger and other Carnivores like Leopard, Jackal, Dhole etc.,

As per the local enquiries conducted with the local people and also direct and indirect evidences, the area is rich in wildlife. The commonly seen herbivores are Spotted deer, Sambar, Four horned antelope, Nilgai etc., Besides this many species of Arthropods, Amphibians, Reptiles, and Avifauna also exist in the said area. The commonly seen wildlife in the said area is as follows:-

Sl. No.	Common Name	Zoological Name	Local Name
1	2	3	4
1	Rhesus Macaque	Macaca mulatta	Kothi
2	Common Langur	Presbytis entellus	Kondamuchu
3	Panther	Panthera pardus	Chiruthapuli
4	Jungle Cat	Felis chaus	Jungupilli
5	Common Mongoose	Herpestes edwardsi	Mungisa
6	Jackal	Canis aureus	Nakka
7	Indian Fox	Vulpes bengalensis	Gunta Nakka
8	Sloth Bear	Melursus ursinus	Yelugubanti
9	Hare	Lepus nigricollos	Chevulapilli
10	Chowsingha	Tetracerus quadricornis	Kondagorre
11	Sambar	Cervus unicolor	Kanusu
12	Spotted Deer	Axis axis	Podala Duppi
13	Wild Boar	Sus scrofa	Adavi Pandi
14	Chameleon	Chameleon zeylanicus	Usaravelli
15	Monitor Lizard	Varanus bengalensis	Udumu
16	Python	Python molurus	Kondachiluva
17	Common Rat snake	Ptyas mucosus	Jerripothu
18	Cobra	Naja naja	Nagupamu
19	Viper	Vipera russeli	Katukarekula poda
20	Cattle egret	Bubulcus ibis	Tella konga
21	Darter	Ashina rufa	Pamutala Neeti Kaki
22	Grey Heron	Ardea cinerea	Nallakalla Konga
23	Peacock	Pavo cristatus	Nemali
24	Common Moor hen	Gallinula chloropus	Tumba kodi
25	Blue Rock pigeon	Columba livia	Pavuram
26	Spotted Dove	Streptopelia shineusis suratensis	Chukkala Guvva
27	Alexandrian Parakeet	Psittacula eupatria	Rama Chiluka

28	Common Koel	Sadya scolopacea	Kokila
29	Jungle owlet	Glaucidium radiatum	Adabvi Gudlaguba
30	Pied kingfisher	Ceryle rudis	Kilkila(Hindi)
31	Maratha wood pecker	Deadrecepes mahareteonensis	Pasupu Netthi Vadrangipitta
32	Indian pitta	Pitta brachyura	Marugujju Vadla Pitta
33	Common wood shrike	Tephrodornis pondicerianus	Pitta
34	Red vented Bulbul	Pycnonotus cafer	Bulbul(Hindi)
35	Black drango	Dicrurus adsimilis	Burugu Pitta
36	Tree pie	Dendrocitta vagabunda	Treepie
37	Pied Robin	Copsychus saularis	Nalupu Telupu Robin Pitta
38	Common myna	Acidotheres tristis	Goruvanka
39	House sparrow	Passer domesticus	Pichuka

6. Adverse Impacts on laying of new third bg railway line on Wildlife:-

The adverse impacts, due to laying of new third bg railway the surrounding forest areas and wildlife are likely to be effected are as follows:

i. Fragmentation and Edge Effect:-

Due to depletion of the Forest the habitat of the wildlife will be fragmented and certain forest areas will be depleted leading to changes in micro climatic conditions thereby causing imbalance in habitat.

ii. Degradation of Forests:

Due to easy access to the Hilly Forest area, the Flora and Fauna will became susceptible for Degradation and poaching respectively by people from plain areas

iii. Exploitation of Primitive Tribal Groups:

People from plain area exploit the innocent and the dilute their unique culture.

iv. Encroachments:-

--Nil--

v. Erosion: -

Degradation of Forest will increase soil erosion and water table depletion leading to water scarcity to the wildlife and loss of top soil effecting the vegetation. This causes scarcity of water and food to the wildlife.

vi. Forest Fires: -

The biotic interference increases the forest fires either accidentally or intentionally. The forest fires further have an adverse impact on vegetation, ie., Flora and Fauna, hardening of soil, and increase in erosion, loss of wildlife habitat etc.

7. Period of the Scheme :

The Conservation plan period is (5) years starting from 2019-20 to 2024-25 and subject to extent for another one year period after evaluation after 5th year of implementation.

8. Goal And Objectives :

a) Goal:- "To conserve, the Flora and Fauna"

"To address genetic isolation of wild animal population"

b) Objectives:

1. Protection and improvement of the eco-system through mitigative measures.
2. Improvement of water resources through Soil & Moisture Conservation measures by catchment area treatment on watershed principles.
3. Habitat improvement through improvement of fodder availability by raising (Grass Plots) and protection from fire.
4. Publicity and awareness - conservation education to the stakeholders for protecting Flora and Fauna.

9. Strategies to meet the Objectives:-

Theme Plans:-

For attaining the said objectives and for holistic treatment and management of the entire proposed area for mitigating the adverse impacts of the proposed Pipe Line, theme plans are proposed based on the objectives.

Holistic Habitat Management:

For holistic habitat management of the treatment area the following individual theme plans are proposed:

- I. Management of Eco-System through Habitat Restoration
- II. Water Conservation/ Rain water harvesting
- III. Fire management
- IV. Publicity and Awareness

The management strategies are discussed under individual theme plans.

Management of Eco-System through Habitat Restoration:

1. Management of vegetation:

The habitat is rich in Bamboo along with other species like Teak, Nallamaddi, Anduk, Palakodisa, Gumpena, etc., The habitat is with less of natural grass lands and large Forest area is infested with Mahaveera weed which suppress the growth of palatable grass species. To improve the Habitat for Wildlife the following measures to be taken.

2. Creation of natural grasslands / meadows:-

As a measure of improving folder availability even in summer season to the wild life it is proposed to create 3.500 Ha of Natural Grass Lands by providing 4 feet Chain link fence and by removal obnoxious weeds for three consecutive years at an estimated cost of 5.00 Lakhs.

I. Water Conservation/ Rain water harvesting:

The proposed area forms catchment area for a number of streams, which drain finally into Pranahita River and adjoining ponds. Most of the areas is subjected to rich topsoil erosion and even at some places along hill slopes trees are uprooted accordingly. All the rainfall in treatment area

shall be conserved in situ, improving the moisture regime and the vegetation will be lush green for longer periods providing ideal shelter and forage grounds for the wild animals. It also makes water available to the wild animals especially during the dry season. This also reduces migration of animals to villages utilizes in search of water whereby they are subjected to poaching.

Therefore it is proposed to construct (5 Nos) of Mini Percolation Tanks with an estimated cost of Rs.5.00 Lakhs and Medium Percolation Tanks (5 Nos) with an estimated cost of Rs.15.00 Lakhs

OBJECTIVES:

The main objectives of water conservation/rain water harvesting are as follows:-

- (i) To check soil erosion
- (ii) To conserve water in situ in the treatment area itself
- (iii) To improve moisture regime in treatment area and recharge ground water table.
- (iv) Improvement of vegetation of grassland and availability of sustainable food and cover to wildlife.
- (vi) Check siltation of ponds and waterholes in treatment area and maintain the water holding capacity.

It is proposed to take up the following activities for harvesting the rain water and improving the availability of water to the wild animals, and to increasing the water table and improvement of the vegetation.

Construction of Percolation Tank in the RF:-

It is proposed to take up construction of Percolation Tanks with earthen bunds for water harvesting, impounding and storage of water. This helps in availability of water all over the treatment area especially during the pinch period. The percolation tanks are in situ water harvesting structures, which help in percolation and recharge of ground water whereby water is available to the wildlife and also improves the vegetation in the treatment area. It is proposed to construct (5 Nos) of

Mini Percolation Tanks with an estimated cost of Rs.5.00 Lakhs and Medium Percolation Tanks (5 Nos) with an estimated cost of Rs.15.00 Lakhs

III. Fire Control Measures:

Fire Tracing:

- a) As a preventive measure fire tracing to a width of 10. Mtrs on either side of the gas pipeline to be taken up and these fire lines will be kept clean of any inflammable material. This will protect the forest from accidental fires due to throwing of lighted matchsticks by the traveler, shepherds etc. it is also proposed to take up fire line contour trenches where the inflammable material will be swept into the trench and control burning will be done. It is proposed to create about 15000 RMT at an estimated cost of 5.550 Lakhs.
- b) All the R.F. lines, Compartment lines and Beat boundary will be fire traced and kept clean.
- c) The pasture areas around the waterholes will be given additional protection from fire for maintenance of succulent grass fodder to the wildlife.
- d) The bamboo areas, regeneration areas with more dry material need to be protected.
- e) A follow up action of maintenance of the fire lines every year before the onset of summer shall be taken up.
- f) The local people will be involved in protection from fires and awareness programs will be conducted on importance of fire control and hazards due to fire.

IV. Publicity and Awareness:

It is proposed to give vide publicity about the importance of Forest Protection, bio diversity and the wildlife conservation. An estimated cost of Rs. 10.00 lakhs. The publicity and awareness campaigns are proposed as follows:-

- a) Sensitize the community and create awareness about the need to conserve bio-diversity through awareness campaigns, nature camps, conducting workshops, trainings etc.

- b) Arranging prompt and quick payment of compensation cases involving wild animal attacks.
- c) Building mutual confidence between protected area management and local people by frequent interaction between the two and also being responsible to the gender issues.
- d) Taking up initiatives in mobilizing community for controlling totally stopping the grazing.
- e) Display of hoardings (signage and hoardings) and brochures/pamphlets with messages of bio-diversity conservation at prominent places.
- f) Training the people, departmental staff and NGO's to enhance their technical, social, professional skills for effective planning, implementation and monitoring of the eco-development programme.
- g) Conducting regular Gram sabhas in the surrounding villages and making the people aware of the conservation. It is also proposed to take up all the habitat development activities by people's participation to develop the sense of ownership and responsibility.

FINANCIAL OUTLAY:-

The scheme is prepared with financial outlay of Rs. **275.000** Lakhs at an average of Rs. 55.00 Lakhs per annum for a period of five years.

SI No	Name of the work	Amount in Lakhs
1.		
1.	Habitat Management. a) Bore well with solar pump sets (1) No.	8.00
	b) Creation of Natural Grass Lands by providing 4 feet chain link fence and by removal of obnoxious weeds for two consecutive years 3.50 Ha	5.00
2.	Water Management. Construction of Mini Percolation tanks 5 Nos. @ 1.00 Lakh / each	5.00
	Construction of new Medium Percolation Tanks 5 Nos. @ Rs. 3.000 lakhs	15.00
	Formation of Staggered Contour Trenches 3,000 Nos. 0.506 Cmt. Per trench (3000 Nos x 0.506 cum =1518 cum) (@ Rs. 264.79 per cum)	4.019

3.	<u>Fire Management.</u>	
	Construction of Fire Watch tower includes Road connectivity	9.000
	Semi permanent structures for Night halt with solar power and Borewell	8.000
	Procurement of Fire blowers (1 Nos @ 0.50 Lakhs)	0.500
	Engaging of Fire watchers for 5 Nos for fire season from January to May for (5) months including hiring of jeep. (5 Nos x 5 months @ 8340/- PM=2.085 Lakhs + Hire Charges 5 months @ 25000/- PM= 1.250 Lakhs =3..335 Lakhs per one season Rs.3.335 lakhs x 5 seasons/years =16.675 lakhs)	16.675
	Fire fighting equipments for fire watchers (towards i.e., shoes, Glosses, Helmets, gaggles	2.500
	Formation of New Fire lines (width 5.00 Mtrs) 15,000 Rmt @ 7.458 / 1 Rmt. Per year =1.490 x 5 years	5.550
	Wireless Network equipments and connectivity	5.000
4	Procurement of GPS Hand held (10 Nos @ 0.150 Lakhs)	1.500
5	Chain link fencing throughout forest stretches where line is passing in consultation with Forest Department (1 mtr @ Rs.1200 for 15063 mts @ Rs.1200/- = 180.756 Lakhs	180.756
6	<u>Publicity & Awareness</u> Hoardings & publicity to propagate the need for conservation of Flora and Fauna of the area	10.00
	Total	275.000

Conclusion: The mitigative measures are proposed to prevent adverse effects of proposed third railway line formation to wildlife i.e., both Flora and Fauna of the area and also at the same time improving the water resources and controlling soil and water erosion. There will be unaccountable loss due to proposed third railway line passing through the Corridor Area of Kawal Tiger Reserve in Vempally, Achelly, Garlapet and Garlapet Ext-I, Reserve Forests in Kaghaznagar Division.

RD
Forest Divisional Officer
Kaghaznagar