

**SITE INSPECTION REPORT OF SHRI D.SATHIYAN, IFS, CF (CENTRAL),  
REGIONAL OFFICE (SEZ), CHENNAI, ON 730.88 Ha. OF FOREST LANDS  
PROPOSED FOR DIVERSION IN ANDHRA PRADESH FOR CONSTRUCTION OF  
BALAJI RESERVOIR, MALLEMADUGU RESERVOIR AND KAILASAGIRI CANAL  
UNDER GALERU-NAGARI SUJALA SHRAVANTHI (GNSS) PROJECT PHASE II,  
IN FAVOUR OF THE EXECUTIVE ENGINEER, GNSS DIVISION, RENIGUNTA,  
TIRUPATI AND ALSO ON THE NON-FOREST LANDS PROPOSED FOR  
COMPENSATORY AFFORESTATION**

**Date of Site Inspection:** 05.12.2018 to 07.12.2018

**1. INTRODUCTION:**

1.1. **Subject Proposal:** This site Inspection Report (SIR) is in connection with the following proposal:

Diversion of 730.88 ha of forest land i.e. 594.75 ha in Karakambadi RF, Krishnapuram RF of WLM Division, Tirupati for construction of Sri Balaji and Mallemadugu Reservoirs (for alignment of bunds, foreshore submersion) and 136.13 ha in Ramapuram RF, Adavaram RF and Nagalapuram RFs of Chittoor (East) Division for construction of Kailasagiri canal, as part of the GNSS project Phase-II, packages 10 & 11, in favour of EE, GNSS Division, Renigunta, Tirupati.

1.2. The above mentioned proposal seeking clearance under the FC Act, 1980 was directly submitted by the Government of Andhra Pradesh vide letter No. EFS01-12021/110/section.II/2018 dated 26.09.2018 to the Ministry of Environment, Forest & Climate Change, Govt. of India.

1.3. The Ministry has requested the regional Office (SEZ), Chennai to inspect the forest lands proposed for diversion under this proposal and submit a report vide F.No. 8-63/2018-FC dated 05.11.2018.

1.4. As assigned by the APCCF(C), R.O., Chennai, site inspection of some random locations within the Forest Lands (FL) proposed for diversion and the Non-Forest Lands proposed for Compensatory Afforestation (CA), was undertaken by the undersigned, from 05.12.2018 to 07.12.2018. The DFO, WLM Division





-Tirupati, the DFO, Chittoor West Division, the DFO, Chittoor (East) WL Division, the Executive Engineers in charge of Package 10 and 11 under Phase II of GNSS were present during a part or whole of the field visits.

- 1.5. The information, facts and figures mentioned in this report have been collected from various sources including the project proposal proforma and related documents received from the Government of Andhra Pradesh, the documents and information received from the Project Authority (PA) as well as the local forest officers during the field inspection.

## **2. BRIEF REPORT ON THE GNSS PROJECT :**

- 2.1. As per information provided by the User Agency (UA), the GNSS Project was conceived by the Government of Andhra Pradesh to provide irrigation facilities in the chronically drought affected areas in the districts of Kadapa, Chittoor and Nellore and approved vide G.O. Ms. No. 236, dt: 22-9-1988. This project was formulated to provide irrigation facilities to an extent of 2.60 lakh acres (1.55 lakh acres in Kadapa, 1.035 lakh acres in Chittoor and 1500 acres in Nellore), besides supply of drinking water to 20 lakh people living in the villages and towns on its banks. The total water requirement for irrigation and drinking water is about 38 TMC, which is to be met from the surplus flows of river Krishna from the Srisailem reservoir.
- 2.2. As informed by the UA, the KWDT award permitted the State of Andhra Pradesh to utilize the surplus flows available in the Krishna River over and above the 2060 TMC dependable flows. The GNSS Project has been formulated to draw 38 TMC of surplus floodwaters of Krishna River.

The proposed water utilization is as follows:

1.	Crop water requirement	=	24.00 TMC
2.	Drinking water	=	2.00 TMC
3.	Evaporation and transmission losses	=	6.00 TMC
4.	Gandikota Lift Irrigation Scheme	=	6.00 TMC
<b>Total</b>		<b>=</b>	<b>38.00 TMC</b>

- 2.3. As reported, the project envisages drawl of 38.00 TMC of surplus flood waters of river Krishna from the fore shore of the Srisailem Reservoir through the Potyreddypadu head regulator, Srisailem Right Main Canal (SRMC) and Srisailem Right Branch Canal (SRBC) system to reach Gorakallu





Reservoir and thereafter feeding 11 en-route reservoirs through the Galeru-Nagari Flood Flow Canal so as to utilize the stored water for drinking and irrigation purposes during rabi season to benefit the districts of Kadapa, Chittoor and Nellore. The total storage in these 11 reservoirs is about 33.160 TMC.

**Details of Reservoirs proposed under GNSS Project :**

Sl. No.	Name of the Reservoir & Location	F.R.L in 'M'	Gross Capacity in TMC	Live Storage in TMC	Ayacut in Acres
1	Gandikota Reservoir	+212.000	26.850	22.	110000
2	Vamikonda Sagar @ K.M. 24.330	+200.000	1.600	1.338	10,000
3	Sarvaraja Sagar @ K.M. 32.640	+201.300	3.059	2.764	25,000
4	Uddimadugu Reservoir @ K.M. 146.950	+188.600	1.040	0.900	10,000
5	Mallemadugu Reservoir @ K.M. 260.600	+120.000	2.858	2.750	30,000
6	Sri Balaji Reservoir @ K.M. 261.800	+174.000	3.000	2.963	25,000
7	Padma Sagar @ K.M. 297.021	+165.000	0.450	0.445	5,000
8	Srinivasa Sagar @ K.M. 301.621	+163.000	0.448	0.419	4,200
9	Venugopala Sagar @ K.M. 314.521	+172.000	2.683	2.448	25,800
10	Vepagunta Reservoir @ K.M. 329.221	+170.000	0.533	0.480	5,000
11	Adavikotturu Reservoir @ K.M. 338.721	+171.500	1.000	0.910	10,000
<b>TOTAL:</b>			<b>43.521 TMC</b>	<b>37.707 TMC</b>	<b>260000 Acres</b>

**2.4. Details of Mandal wise ayacut under GNSS project in Kadapa District**

Sl. No.	Package No.	Chainage (from - to)	Ayacut under the Package (in acres)	Mandal wise ayacut (in acres)		
<b>I</b>	<b>GNSS Phase-I</b>					
1	Package - I	KM. 0.00 to	5,000	Muddanuru	-	5000





		KM. 24.330				
2	Package - II	KM. 24.330 to KM. 32.640	35,000	Muddanuru	-	10000
				V.N. Palli	-	20000
				Yerraguntla	-	5000
<b>II</b>	<b>GNSS Phase -II</b>					
3	Package - 01/06	KM. 32.640 to KM. 66.150	5000	Yerraguntla	-	3000
				Vempalli	-	2000
4	Package - 02/06	KM. 66.150 to KM. 96.500	12000	Vempalli	-	7000
				Pendlimarri	-	5000
5	Package - 03/06	KM. 96.500 to KM. 119.000	25000	Pendlimarri	-	9000
				C.K. Dinne	-	10000
				Kadapa Rural	-	6000
6	Package - 04/06	KM. 119.000 to KM. 141.350	10000	Siddout	-	10000
7	Package - 05/06	KM. 141.350 to KM. 161.350	5000	Siddout	-	5000
8	Package - 06/06	KM. 161.350 to KM. 203.850	18000	Ontimitta	-	7000
				Nandaluru	-	7000
				Rajampet	-	4000
9	Package - 07/06	KM. 203.850 to KM. 240.000	40000	Rajampet	-	5000
				Pullampet	-	10500
				Obulavaripalli	-	14500
				Chitvel	-	10000
<b>Total Ayacut of Kadapa District</b>			<b>1,55,000</b>	<b>Acres</b>		
<b>Total Ayacut of Chittoor District</b>			<b>1,03,500</b>	<b>Acres</b>		
<b>Total Ayacut of Nellore District</b>			<b>1,500</b>	<b>Acres</b>		

2.5. The UA has informed that, keeping in view the large magnitude of the project and the long period required for its completion, in order to derive early benefits for the needy areas, the GNSS Project has been taken up in a phased manner. The Government have accorded administrative approval for GNSS Phase-I vide G.O. Ms. No. 53. dated 10-06-2004 for Rs. 560.00 Crores to provide irrigation facilities to an extent of 35,000 acres and the works of GNSS Phase-I are stated to be nearing completion.





**2.6. Present Status of the GNSS Scheme, Phase-I:**

**2.6.1. GNSS Phase-I, Flood Flow Canal :** As informed by the UA, the GNSS Flood Flow Canal takes off from the foreshore of Owk Reservoir to carry water up to Gandikota Reservoir. The Flood flow canal is divided in to 3 Packages in addition to the Tunnel at the end. All works of Gandikota Flood Flow Canal from Owk Reservoir to Gandikota Reservoir were completed and Presently Krishna water is stored in Gandikota Reservoir.

**2.6.2. GNSS Phase-I, Gandikota Dam:** As reported by the UA, the Gandikota Reservoir with a storage capacity of 26.85 TMC was constructed under GNSS Phase-I and was inaugurated on 22-09-2018.

**2.6.3. GNSS Phase I, Pack-II - Sarvarajasagar and Vamikondasagar :** As reported, this package consists of formation of Vamikonda Sagar (1.60 TMC) and Sarvaraja Sagar (3.06 TMC) Reservoirs and excavation of GNSS Main Canal from KM 24.330 to KM. 32.640 (8.31 KMs in length) and the works are reportedly nearing completion. The GNSS Main Canal Structures have been reportedly completed, except two. During 2017-18, 0.502 TMC of Krishna water was stored in Vamikonda Sagar Reservoir and 0.602 TMC in Sarvaraja Sagar Reservoir in 2018-19.

**2.6.4. GNSS Phase I, SH-31 Road:** As reported, since formation of Gandikota Reservoir would result in submergence of SH 31, as an alternative, construction of a High Level Bridge across Chitravathi River and formation of SH-31 above FRL of Gandikota Reservoir, were taken up. As informed, the works were completed and the alternate road was inaugurated on 06-06-2018.

**2.7. Present Status of the GNSS Project, Phase-II :** As informed by the UA, the GNSS Phase-II works are divided in to 14 Packages, out of which 1 to 7 Packages fall in Kadapa District and 8 to 14 Packages fall in Chittoor District. As informed, the state Government of A.P. have accorded administrative approval for GNSS Phase -II for Rs. 2525.91 Crores vide G.O. Ms. No.50, dated 25-03-2008. The works are in progress and are expected to be completed in 2019.





- 2.8. **Details of requirement of Forest Lands under the GNSS project:** The User Agency could not provide the details of forest Lands required /diverted for the execution of GNSS Phase -I. However, the UA has submitted the following details on the requirement of Forest Lands for the GNSS phase-II:-

<b>Details of Package wise Forest Land Requirement in Kadapa &amp; Chittoor Districts (GNSS phase-II)</b>				
				<b>in Ha</b>
<b>SI . N O</b>	<b>Name of District</b>	<b>Name of Project</b>	<b>Forest Land for which clearance sought</b>	<b>Forest clearance Received so far</b>
1	Kadapa	<b>GNSS Phase-II</b>	1275.4	0
		Pacakge-01	0	0
		Pacakge-02	101.24	Recommended by the REC for FC subject to receipt of clarification.
		Pacakge-03	433.88	
		Pacakge-04	431.28	
		Pacakge-05	309	0
		Pacakge-06	183.73	0
		Pacakge-07	0	0
2	Chittoor	Package- 8	11.84	0
		Package- 9	265.13	0
		Package- 10	359.75	0
		Package- 11	473.00	0
		Package- 12	0.00	0
		Package- 13	430.00	0
		Package- 14	0.00	0

3. **DETAILS ON THE AREAS CURRENTLY PROPOSED FOR DIVERSION :** As per the subject proposal, the UA has requested for diversion of 730.88 ha of forest land for construction of Sri Balaji and Mallemadugu Reservoirs as well as the Kailasagiri canal, under packages 10 & 11 of the GNSS project Phase-II, in Chittoor district. The proposed areas fall under the jurisdiction of the WLM Division, Tirupati and the Chittoor East (WL) Division.





**3.1. PURPOSE WISE BREAK-UP OF FL PROPOSED FOR DIVERSION :** The UA has reported the following requirement of Forest lands:

**FOR SRI BALAJI RESERVOIR (Package 11 of GNSS Phase-II):**

Foreshore submergence	: 460.06 ha
Bund portion	: 16.43 ha
Sluice area	: 0.17 ha
Total FL required	: 476.66 ha

**FOR MALLEMADUGU RESERVOIR (Package 10 of GNSS Phase-II):**

Foreshore submergence	: 118.09 ha
Total FL required	: 118.09 ha

**FOR KAILASAGIRI CANAL (Package 10 of GNSS Phase-II):**

For Canal	: 136.13 ha
Total FL required	: 136.13 ha

3.1.1. As reported, Sri Balaji Reservoir is proposed for storing 3 TMC of water, out of which 1 TMC is intended to cater to the drinking water needs of Tirupati and Tirumala in future and 2 TMC is intended to be stored as a supplement to Mallemadugu Reservoir. It is stated that Sri Balaji Reservoir has a self-catchment of 1 TMC. For this reservoir, an extent of 476.66 ha of RF land is required under Karakambadi RF. The bund of the reservoir is falling outside the RF to an extent of 60% and most of the FL requirement is due to submergence at Full Reservoir Level. Most of the Mallemadugu reservoir area lies over non forest land except the 118.09 Ha. of forest land required under Krishnapuram RF. It is stated that the existing reservoir with a storage capacity of 0.16 TMC is now proposed to be augmented to attain a storage capacity of 2.65 TMC.

3.1.2. As reported, the Kailasagiri canal takes off from the right flank of Mallemadugu reservoir for a total length of 65.500 km out of which a part runs through the forest lands. Mallemadugu Reservoir and the Kailasagiri canal are intended to provide irrigation facilities to an extent of 51050 acres in addition to stabilization of 3950 acres, duly drawing 2 TMC of water from Sri Balaji reservoir. An extent of 136.12 ha of RF land is required under Nagalapuram, Ramapuram and Adhavaram RFs for the canal.





- 3.2. **Diversions proposed under WLM Division, Tirupati:** Details of the forest lands proposed for diversion are as follows:

Division	Range	Name of the RF & Beat	Compt. No	Area & Remarks
WLM Division, Tirupati	SVNP, Tirupati	Karakambadi RF, Karakambadi Beat	145, 146, 147, 148, 149 & 150	For Sri Balaji Reservoir <b>476.66 Ha</b>
		Krishnapuram RF, Krishnapuram Beat	153, 154 & 155	For Mallemadugu reservoir <b>118.09 Ha</b>
	594.75 Ha	<b>Total:</b>		<b>594.75 Ha</b>
	<b>Legal Status:</b> 1) Karakambadi R.F. Notified U/s 15 of A.P.Forest Act, 1967, Dt: 27.01.1979. 2) Krishnapuram R.F. Notified U/s 15 of A.P.Forest Act, 1967, Dt: 29.11.1976.			

- 3.3. **Diversions proposed under Chittoor East (WL) Division:** Details of the forest lands proposed for diversion for the Kailasagiri canal, are as follows:

Range	Name of the RF	Compt. No.	Area in Ha.	Legal Status
Tirupati	Ramapuram	206	7.94	Ramapuram RF notified U/s 15 of A.P.Forest Act, 1967 vide G.O.Ms. No.1568, F&A Dept., Dt.29.07.1968.
		205	19.25	
	<b>Total:</b>		<b>27.19</b>	
Srikalahasti	Ramapuram	202	21.92	
		201	18.85	
		200	20.68	
		228	22.39	
	<b>Total:</b>		<b>83.84</b>	
	<b>Ramapuram RF Total:</b>		<b>111.02</b>	
Puttur	Nagalapuram	288	3.40	Nagalapuram RF notified U/s 15 of A.P.Forest Act, 1967 vide G.O.Ms. No.736, Dt.17.05.1972
		289	12.56	
		290	6.60	
		291	2.55	
	<b>Total:</b>		<b>25.11</b>	
	<b>Nagalapuram RF Total:</b>		<b>25.11</b>	
	<b>Grand Total:</b>		<b>136.13</b>	

- 3.4. **Forest types, Flora & Fauna:**

- 3.4.1. The DFO, WLM Division, Tirupati has reported that forests in the area proposed for diversion for Balaji Reservoir fall under 5A - Southern dry





Mixed Deciduous Forests with a patch of evergreen forests and C3-Dry Mixed Thorny Scrub forests. It is reported that the forests in the areas proposed for diversion for Mallemadugu reservoir fall under 5A - Southern dry Mixed Deciduous Forests and Southern Thorn Scrub Jungle in plain areas. The canopy density of the existing vegetation in these areas is 0.4-0.5. Presence of the following species is recorded in the areas proposed for diversion - *Hardwickia binata*, *Pterocarpus santalinus*, *Terminalia chebula*, *Holoptelea integrifolia*, *Albizia amara*, *Dolichandrone crispera*, *Bauhinia racemosa*, *Grewia rotundifolia*, *Strychnos nuxvomica*, *Syzygium cumini*, *Dalbergia paniculata*, *Gyrocarpus assiaticus*, *Lannea coramandalica*, *Derris indica*, etc.. It is reported that spotted Deer, Peacock, Snake, Hare and Wild Boar are commonly present in this area while Panther, Sloth Bear and Grey Jungle Fowl are rare. The local forest officials stated that the two reservoirs would help the cause of wildlife conservation as the resultant water body would have the potential to attract and sustain a larger population of wildlife including elephants besides improving the water table in the nearby RFs.

3.4.2. The DFO, Chittoor East WL Division, has reported that forests in the areas proposed for diversion for Kailasagiri canal fall under 5A - Southern dry Mixed Deciduous Forests with occurrence of Southern Thorn Scrub Jungle in the plains. Presence of the following species is recorded in the areas proposed for diversion - *Diospyros melanoxylon*, *Acacia chundra*, *Acacia nilotica*, *Albizia amara*, *Azadirachta indica*, *Bambax malabaricum*, *Bauhinia racemosa*, *Cassia fistula*, *Chloroxylon swietenia*, *Dalbergia paniculata*, *Dichrostachys cineraria*, *Diospyros melanoxylon*, *Dolichandrone crispera*, *Ficus arnotiana*, *Gyrocarpus americanus*, *Lannea coromandelica*, *Lannea grandis*, *Limonia alata*, *Lufa acutangula*, *Mimosa amara*, *Peltophorum*, *Phyllanthus emblica*, *Pongamia glabra*, *Pterocarpus santalinus*, *Rhamnus xylopyrus*, *Syzygium alternifolium*, *Terminalia chebula*, *Terminalia punctata*, *Wrightia tinctoria*, *Zizyphus xylopyrus*, etc. The canopy density is 0.2. It is reported that spotted Deer, Peacock, Snake, Hare and Wild Boar are commonly present in this area.

3.4.3. As per records, enumeration was carried out by laying sample plots and details of species, numbers, volume, etc. have been provided girth class

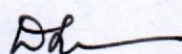
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wise, for each of the sample plots. The **Enumeration list** of trees located in the forest areas proposed for diversion has been uploaded in the web portal. The abstract data pertaining to Chittoor East WL Division indicate that 36002 trees are in the girth class of <30 cm and the species present include *Rhamnus xylopyrus*, *Manilkara hexandra*, *Pongamia glabra*, etc.; 11283 trees have been recorded in the 30-60 cm GBH with species like *Rhamnus xylopyrus*, *Dolichandrone crista*, *Diospyros melanoxylon*, *Lannea coramandelica* being dominant. *Eucalyptus* sps and *Dalbergia paniculata* are recorded in the higher girth classes. Similarly, the data pertaining to WLM Division, Tirupati indicate that 45957 trees are in the girth class of <30 cm and the species present include *Strychnos potatorum*, *Momusops hexandra*, *Diospyros melanoxylon*, *Buchanania lanzan*, *Albizia amara*, *Anoegisus latifolia*, *Zizyphus xylopyrus*, etc.; 108926 trees of the same species are recorded in the 30-60 cm GBH. *Holoptelea integrifolia*, *Lannea coramandalica*, *Dalbergia paniculata*, etc are recorded in the higher girth classes. In both divisions, Red Sanders is reported to be present within the areas proposed for diversion with trees up to 90 cm GBH and the Kailasagiri canal would pass through an old plantation of Red Sanders in Compartment no 228, Thimma Samundram Beat, Ragikunta section in SriKalahasti Range.

3.4.4. The proposed alignment of the Kailasagiri canal is passing through the forests causing physical fragmentation. However, it is stated by the local forest officials that only small animals listed above are found in the proposed FL and that the project is expected not to have much negative impact on the wildlife. Hence, neither a wildlife conservation/management plan nor any dedicated Eco bridge has been proposed by the Forest Department.

3.5. It is reported by the DFOs concerned that the forest lands proposed for diversion under the current proposal do not fall in any Wildlife sanctuary, National Park, Biosphere Reserve, Tiger Reserve, Elephant Corridor etc., but for a part which falls within the Eco sensitive Zone of the Sri Venkateshwara Wildlife Sanctuary. However, DSS analysis done at this Regional Office indicates that a part of the FL falls within the said Wildlife Sanctuary. This needs to be clarified by the State Government. It is reported that no archeological /heritage site/Defense establishment or any other important





monument is located in the area.

3.6. **ROFR ACT, 2006 Certificate and claims:** It is seen that necessary certificates issued by the concerned district Collector under RoFR Act, 2006 have been uploaded in the online portal.

3.7. **COMPENSATORY AFFORESTATION OVER NFL:** Against the proposed diversion of 730.88 Ha under the current proposal, an area of 991.88 Ha of non-forest land has been identified for carrying out Compensatory Afforestation. The details of the Revenue lands proposed for Compensatory Afforestation are as under:

Sl. No.	Name of Revenue Village, Range, Mandal	Reference to existing RF	Survey No.	Total Extent in Ha	CA extent in Ha
1	Bandrevu, Madanapalle, Peddamandyam	Separate big block, Nearby RF is T.Sadukonda (C.No.68) at 3 Kms	529	170.51	165
2	Kalicherla, Madanapalle, Peddamandyam	Abutting Musallkunta RF Compt.No.69	1	167.16	155
3	Chittiboyana palle, Madanapalle, Gurramkonda	Abutting Sangasamudram RF Compt.No.58	82	117.02	75
4	Cherlopalle Madanapalle, Gurramkonda	Abutting Sangasamudram RF Compt.No.58	259	270.22	205
5	Reddivaripalle, Madanapalle, Nimmanapalle	Separate big block, Nearby RF is Noorukuppala-konda at 105 Kms	510	266.97	150
			<b>Total</b>	<b>991.88</b>	<b>750</b>

Out of 991.88 Ha of non-forest land identified, 750 Ha is reported to be suitable for CA. The identified CA lands either occur as a single larger forest patch or are located adjoining existing reserved forests in Madanapalle range. The soil type in these CA lands is generally gravel with small sized boulders and some sheet rocks. Planting of tall seedlings using transported



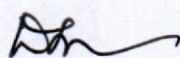


tank silt/imported soil and farmyard manure has been proposed, apart from SMC works. A financial outlay of Rs.4780 lakhs including 10 years of maintenance has been proposed. The following treatments are proposed;-

- i) Plantation under Semi Mechanical Method (SMM): Planting of seedlings in 45 CM<sup>3</sup> pits, at a spacing of 3x3 Mt resulting in 1111 No of plants per Ha and covering 165 Ha of the CA land.
- ii) Plantation under Labour Intensive Method (LIM): Planting in 0.75 CM<sup>3</sup> pits, at a spacing of 4 x4 Mt resulting in 625 No of plants per Ha and covering 250 Ha of the CA lands.
- iii) The existing tree growth component is proposed to be treated with tending & singling operations coupled with SMC works. The available gaps are proposed to be planted with Non-Timber Secondary Hardwood Species at about 200 plants per Ha. An area of 335 Ha is proposed to be treated under this method.
- iv) The balance area of 241.88 Ha having natural tree growth at hilltops is proposed to be kept under protection with suitable treatment of singling out apart from SMC works.

**3.8. CM & CD works/Structures proposed in Forest Areas :** The following structures are proposed for construction over the Kailasagiri canal by the UA within the FL proposed for diversion, for the purposes of the project. The UA has expressed its readiness to alter the location as well as dimensions of these CM&CD structures, if required, in consultation with the Forest Department, so that these structures would serve also as passages for animal movement.

S. No	Chainage @ KM	Type of Structure	Modifications Proposed by the UA in the interest of wild Animals
1-8	29.525 30.100 30.375 32.650 37.490 38.350 38.975 41.875	Under Tunnel	Cattle ramp will be provided for free movement of wild animals at structure crossing if the height of the structure is less than 1.5m





9-10	35.815 41.345	Aqueduct	Wild animals and other animals can freely pass through the structure as the vent size is more than 2.0m height.
11-12	39.625 40.970	Single Lane bridge	Wild animals, other animals and inspection vehicles can use the single lane bridge.
13-15	40.465 40.820 44.095	Super Passage	As the canal runs below the ground and the natural drain is above the canal, slab will be provided over the canal so that animals can easily pass over the structure without hindrance.

**3.9. CATMENT AREA TREATMENT PLAN:** In order to address concerns of erosion in catchment areas of the two proposed reservoirs and for Soil Moisture Conservation (SMC), the UA has submitted CAT plan in respect of each of them. In case of Sri Balaji Reservoir, the proposed CAT plan is at a cost of Rs. 203.3 Lakhs and in case of Mallemadugu Reservoir it is at a cost of Rs. 513.6 Lakhs. In these plans, undertaking SMC works and developing limited forest infrastructure have been proposed.

**3.10. JUSTIFICATION SUBMITTED BY THE UA FOR THE PROPOSED**

**DIVERSIONS :** The UA has submitted that, in case of Sri Balaji reservoir and Mallemadugu Reservoir, diversion of Forest Land is required mainly because of submersion of the existing Forest lands. In case of Kailasagiri Canal, the alignment runs in the reserved forests in part. The UA has stated that alternatives were examined to avoid the forest land but as the canal is a gravity canal it becomes inevitable to run the canal in a particular+100.000 contour and since the forest band width has come across the canal alignment there is no other way except to run the canal through the forest land. Further, it is stated that the width of diversion proposed in the forest area has been minimized to the extent possible. It is projected that, after excavation of canal and successive charging of the canal, the ground water would increase in the nearby areas to the benefit of flora and fauna. The UA has informed that an inspection path will be constructed on the side of the canal and that the dug out material will be dumped on both sides as 'spoil





Banks'. Width of the proposed forest acquisition for the canal is 65.00m that includes inspection path width, catch drain width and the spoil bank width.

**4. OBSERVATIONS ON THE PROPOSAL DOCUMENTS :** Following clarification/ additional information are required from the State Government in respect of the 2 project proposals:

- a. The Environment Clearance obtained for the whole GNSS project in the year 2006 had expired. The State Government/UA shall obtain extension of validity.
- b. DSS analysis done at this Regional Office indicates that a part of the FL proposed for diversion in WLM division, Tirupati falls within the Sri Venkateshwara Wildlife Sanctuary; this needs to be verified by the State Government and WL clearance , if required, shall be obtained.

**5. Details of the sites inspected:**

Sl. No	Details of the areas inspected
<b>Site Inspections done on 5<sup>th</sup> December, 2018</b>	
1	Inspection of Forest land proposed for Diversion in Karakambadi R.F. for Sri Balaji Reservoir, under Package 11, Phase II of GNSS.
2.	Inspection of Forest land proposed for Diversion in Krishnapuram R.F. at for Mallemadugu Reservoir, under Package 10, Phase II of GNSS.
<b>Site Inspections done on 6<sup>th</sup> December, 2018</b>	
3.	Inspection of CA land in Sy No. 510 of Reddivaripalle village of Nimmanapalle Mandal, falling in Madanapalle Range under Chittoor West division. (Total extent 266.97 Ha)
4.	Inspection of CA land in Sy No. 529 of Bendrevu village of Peddamandyam Mandal, falling in Madanapalle Range under Chittoor West Division. (Total extent 170.51 Ha)
5.	Inspection of CA land in Sy No. 1 of Kalicherla village Peddamandyam Mandal, falling in Madanapalle Range under Chittoor West Division. (Total extent 167.16 Ha)
<b>Site Inspections done on 7<sup>th</sup> December, 2018</b>	
6.	Inspection of Forest land proposed for Diversion in SriKalahasti Range of Chittoor East WL Division, for Kailasagiri canal.

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## **6. Observations on the Forest Lands (FL) proposed for diversion:**

- 6.1. Details of forest lands proposed for diversion under Package 10 & 11 are mentioned in Paras 3.1, 3.2 and 3.3. These forest lands had already been inspected and recommended by officers in the state Forest Department for diversion after due verification in the field. Few random spots of these forest lands have been inspected by the undersigned during 05<sup>th</sup>-07<sup>th</sup> November 2018, as indicated in the above table.
- 6.2. It is seen that the forest lands proposed for diversion are required mainly for the purpose of construction of two Reservoirs and one gravity canal. The UA has justified the requirement of forest land and the alignment of canal as mentioned in Para 3.10. No dedicated structure has been proposed for the movement of animals across the canal. However, the UA has proposed to have Cross Masonry & Cross Drainage (CM&CD) structures at various locations across the canal.
- 6.3. The UA has certified that the requirement of FL proposed is unavoidable and the barest minimum.
- 6.4. The UA is required to address the concerns raised in Para 4.
- 6.5. **Violations:** The officers of the State Forest Department have informed that no FC Act violation has taken place under this project.

## **7. OBSERVATIONS ON THE NON-FOREST LANDS PROPOSED FOR CA:**

- 7.1. Under GNSS Phase II, Package 10 & 11, against the proposed diversion of 730.88 ha. of FL, the User Agency has identified 991.88 Ha of NFL located in five villages as listed in Para 3.7. As reported, the additional area is proposed in order to compensate for the presence of sheet rock portion and the areas not suitable for planting. These 5 NF lands had been inspected by officers of the Forest Department; certified for its suitability and accepted by the State Forest Department for CA. Out of 991.88 Ha of non-forest lands identified, 750 Ha is reported to be suitable for CA. Random spots in 3 of the the above 5 patches of NFL, located in Reddivaripalle village (266.97 Ha), Bendrevu village (170.51 Ha) and Kalicherla village (167.16 Ha) were inspected by the undersigned on 06.12.2018. The soil in these patches is





generally hard gravel mixed with small sized boulders. Some parts of the NF lands have good tree cover existing. A CA scheme including 10 years of maintenance has been proposed with a financial outlay of Rs. 4780 lakhs. It is proposed to use transported soil for planting, where required. About 165 Ha of the CA area is proposed to be treated under Semi Mechanical Method (SMM) of planting; about 250 Ha under Labour Intensive Method (LIM) of planting; about 335 Ha by undertaking tending & singling operations coupled with SMC works while the remaining 241.88 Ha is proposed to be kept under protection with SMC interventions.

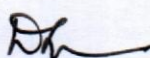
## 8. **SUGGESTIONS/ RECOMMENDATIONS:**

8.1. The identified NFLs have been inspected by the concerned DFOs for its suitability for raising Compensatory Afforestation and accepted by the State Government. These NFLs occur either as bigger individual patches or located adjacent to the existing RFs and thus are suitable for the purposes of management. Hence, **all 5 patches of NFLs proposed for CA are recommended for acceptance while insisting on the following conditions:**

a) the FD shall additionally undertake canal bank plantation on both sides of the Kailasagiri canal and plant suitable native species on the 'spoil banks', with funds to be collected from the UA.

b) the FD shall ensure planting of adequate number of Red Sanders to compensate for the felling of this endangered species.

8.2. The present proposal for diversion of FL is a part of a larger GNSS irrigation project in which Phase I as well as some packages of Phase II have been reportedly completed already or nearing completion. The UA has submitted justification for the proposed diversions as mentioned in Para 3.10 and the state authorities have certified that the requirement of forest land is unavoidable and the barest minimum for the project. The local forest officials have stated that the 2 proposed reservoirs would help attract and support more wild animals and improve the water table in the nearby forest lands. Hence, in the background of the benefits that are expected out of this





irrigation cum drinking water project to the society at large, **it is recommended that the current proposal for diversion of the forest lands may be considered for grant of clearance under FC Act** (after ensuring that the concerns mentioned in Para 4 are addressed by the UA), **by imposing suitable conditions, including the following:**

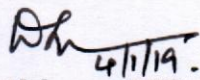
a) the State Govt. shall ensure that implementation of the 2 CAT plans for the 2 reservoirs is monitored by constituting a high-level committee with representation from the Regional Office.

b) the User Agency shall ensure that adequate CM&CD structures with suitable dimensions are located in the area proposed for diversion for the Kailasagiri canal, in consultation with FD, to ensure that these CM&CD structures also serve as Eco-bridges for animal movement.

9. **Photographs :** Relevant Photographs are enclosed in Annexure-I

This SIR is submitted,

**Encl :** Annexure I

  
4/1/19.  
**D. Sathiyar, IFS,**  
**CF(C), R.O.(SEZ), Chennai.**

**Date :** 04.01.2019.

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## **ANNEXURE-I**

### **A. PHOTOGRAPHS OF THE FOREST AREAS PROPOSED FOR DIVERSION:**



View of the forest land proposed for Diversion in Karakambadi R.F., compartment no 147 (seen at a distance) for Sri Balaji Reservoir, under Package 11, Phase II of GNSS. Part of the reservoir bund would extend into the RF. Works are going on in the adjacent non forest area.



View of the forest land proposed for Diversion in Karakambadi R.F. compartment no 150 for Sri Balaji Reservoir, under Package 11, Phase II of GNSS. Part of the reservoir bund would extend into the RF till the hillock at the back.



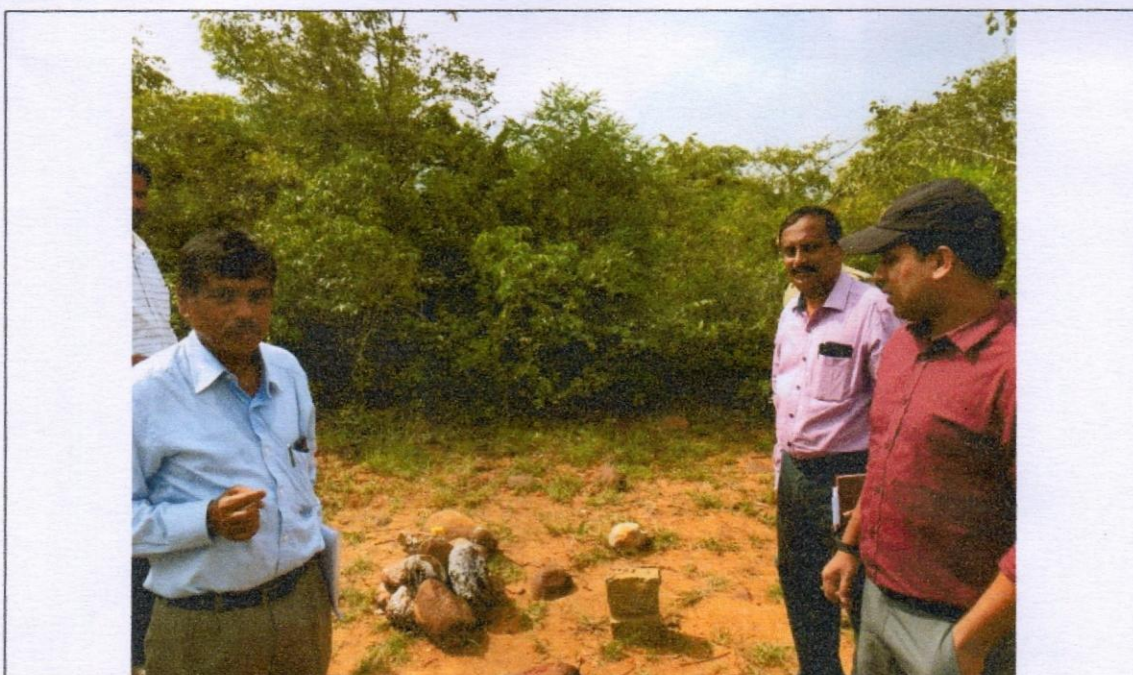


View of the forest land proposed for Diversion in Karakambadi R.F. compartment no 146 for Sri Balaji Reservoir, under Package 11, Phase II of GNSS. This area is part of submergence area at MRL.



View of the forest land proposed for Diversion in Krishnapuram R.F. at Compartment no 155 for Mallemadugu Reservoir, under Package 10, Phase II of GNSS. This area is would be affected by submergence. The MRL level is marked at the mid elevation of the hillock.





View of the forest land proposed for Diversion in SriKalahasti Range of Chittoor East WL Division, for Kailasagiri canal.

**B. PHOTOGRAPHS OF THE FOREST AREAS PROPOSED FOR DIVERSION:**



Non forest land proposed for CA at survey. No. 1 of Kalicherla village, Peddamandyam Mandal, falling in Madanapalle Range under Chittoor West Division. (Total extent 167.16 Ha)





Non forest land including the hillock proposed for CA at survey. No. 510 of Reddivaripalle village of Nimmanapalle Mandal, falling in Madanapalle Range under Chittoor West division. (Total extent 266.97 Ha – Net area taken as 150 ha)



Non forest land proposed for CA at survey. No. 529 of Bendrevu village of Peddamandyam Mandal, falling in Madanapalle Range under Chittoor West Division. (Total extent 170.51 Ha)

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