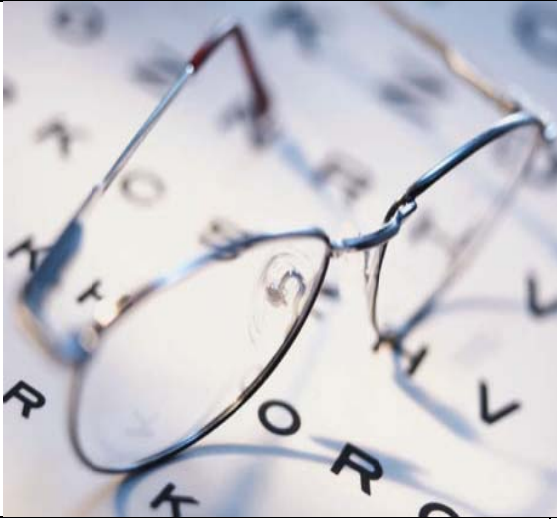


# Polavaram Dam



A  
Critical  
View  
On  
Ecological  
Governance

Displacement,  
Environmental  
Impacts,  
Forest Rights  
And  
Alternatives



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## PROLOGUE

To the inhabitants of the Godavari basin and to those beyond the basin who would be utilizing the waters of the river Godavari, we wish all happiness and prosperity.

It is our earnest hope that while making its use they will take all possible steps to prevent wastage and pollution of the waters of this holy river. We are confident that the party States will take appropriate and effective steps in this direction.

The Godavari basin is rich in forests. It is our sincere desire that the party States should preserve this national wealth with utmost care so that its usefulness and beauty remain unspoilt. (p24)

### **GODAVARI WATER DISPUTES TRIBUNAL**

#### **Chairman**

**SHRI R.S. BACHAWAT**

#### **Members**

**SHRI D.M. BHANDARI**

**SHRI D.M. SEN**

**[During the hearing of the references under section 5 (3) of the Inter State Water Disputes Act, 1956]**

## PREFACE

Seventy years have passed since the first proposal to make a dam on the Godavari in Andhra Pradesh was conceived. In all these years it has developed more controversies and conflicts. The project is still a matter of several litigations.

The Andhra Pradesh government is making valiant efforts to progress on the dam. It played a huge trick in 2005 by convincing the world that the dam and the water carrying canals were indeed different projects. Thus it found a way to invest in the canals, which receive much less attention in our environmental governance regime. Contractors were generously given advances to initiate work on different segments and the canal works have moved significantly ahead, despite several segments yet to be initiated.

The irony of the project is that while the state captures its due in the share of Godavari waters, it will hardly improve the conditions of the farmers who are slated to receive this water. Already this year, the command region which has nearly 70% irrigation had farmers agitating that the agriculture was not remunerative and to register their protest have gone on a “crop-holiday”.

The impacts of the project as it is currently being designed would be colossal. Nearly 350 habitations would be lost forever, over 4000 ha of forests will be lost, habitats of several species including some endangered will be gone forever.

This project indicates how despite its legal acceptance, “Precautionary Principles” have been sacrificed and the initial stages of implementation indicate that the “Polluter Pays Principle” is also being violated, with poor and inadequate arrangements for resettlement and open oppression against those who are “whistle blowers”.

While a number of reports and studies have been undertaken on this subject, this narrative hopes to highlight the various elements that would constitute the body of activities by the State and other players that could be called “ecological governance”.

We are thankful to Society for Promotion of Wasteland Development (SPWD) for the support and patience, particularly to Viren Lobo who initiated us into this study. We are grateful to the communities in the area who have been struggling and trying to secure their due rights and yet patient to indulge in answering all the relevant and seemingly irrelevant questions. We are thankful to Samata and the CRYNET team members for continuing to engage with us in the pursuit of seeking a fair resolution of this dam imbroglio. Our thanks to Dr J.P Rao and Bharat Bhushan for sharing their information and insights and are grateful to Er Dharma Raoji for personally explaining his alternative design.

We are thankful to our young colleagues, particularly Salim who painstakingly drew out the submergence area from toposheets using the “first-principles” and worked with B P Yadav who helped in creating these maps and figures. We consciously chose the 60 m contour for assessment as we feel this would be the closest to the zone which will definitely have “back-water” effects.

R.Sreedhar and Nishant Alag

21.12.2011

New Delhi

## EXECUTIVE SUMMARY

### 1.0 Background

This report is a part of the study being undertaken with the support of the Society for Promotion of Wasteland Development to look at a specific instance of large-scale extinction of Forest Rights in the name of “development”. Polavaram Dam with impacts spreading over three states was chosen for the analysis as it not only affects over 300 forest dwelling villages but also has serious implications to forest and environmental governance. This report is based on field information, analysis of toposheets and other maps and from proceedings of litigations on the project. It describes the project as agreed upon in the disputes panel, the current design, the challenges faced on Forest and Environmental Regulations and the Forest Rights Act. It concludes with a description of alternatives obviating such large-scale violation.

### 2.0 Polavaram - Indirasagar Project

Godavari River originates in the Sahyadri Ranges in Maharashtra and meets the Bay of Bengal in Andhra Pradesh. Mr. Sonthi Ramamurthi, Advisor to the Madras Government on Godavari River, conceived a project called Ramapadasagar in 1942. As investigations were initiated the project evolved into a much larger endeavour and has been a matter debated in the Interstate Water Disputes Tribunal. Its initial purpose included navigation as an important element. Polavaram (Indira Sagar) Multipurpose Project is by far the largest project in terms of geographical displacement of disadvantaged groups, i.e. indigenous people or tribals in the Scheduled districts of three states viz. Andhra Pradesh, Orissa and Chhattisgarh.

Over 276 tribal villages spread over 9 mandals in the agency areas of Khammam, East and West Godavari districts would be submerged under the reservoir. According to the 2001 Census, 237,000 people will be displaced. About 53.17 per cent of the displaced people will be tribals. Tribals and Dalits account for 65.75 per cent of the displaced. The displaced will have very little options as the history of resettlement and rehabilitation across the country indicates. The loss of the land, minor forest produce, tubers, leaves, indigenous medicinal systems, common property resources that support human population and livestock consequent destruction of natural resources, cultural systems and traditional knowledge threatens the very existence of these communities even beyond the submergence areas.

### 3.0 Forest Act

A complaint was preferred at the CEC of the Supreme Court on the manner in which the Forest Clearance including submergence of Sanctuary Areas were permitted by the Ministry of Environment and Forests. The CEC while clearing the project with some safeguards pointed out that the quantum of loss was so huge that a serious second thought should be given to the alternatives.

### 4.0 Environment Protection Act

An appeal was made against the Environmental Clearance of the project in the erstwhile National Environmental Appellate Authority (NEAA). The NEAA quashed the environmental clearance granted to the project on the ground of irregularity in the public hearing process. Though lot of evidence also accumulated on the substantive issues of environmental damage the Authority found

the public hearing the most unjust. However the Andhra Pradesh high court intervened and has kept the order in abeyance.

## **5.0 Forest Rights Act**

The Scheduled Tribes and Other Forest Dwellers Act was enunciated in 2006 with an avowed objective of undoing the historical injustices done to forest dwelling communities. The law itself was an outcome of struggles by several communities and institutions supporting them and the growing impossibility of industrialization in these regions due to strong objections from the communities.

The law, in brief, provides for individual and community rights to be established over land and resources traditionally being utilized by the communities and also enables their own management rights over these resources.

In the context of Polavaram Project the Central Government had chosen to ignore its own recommendations in the context of other projects where it has insisted the need to settle the rights and seek consent under this Act, but has been eventually forced to instruct the State to follow the law.

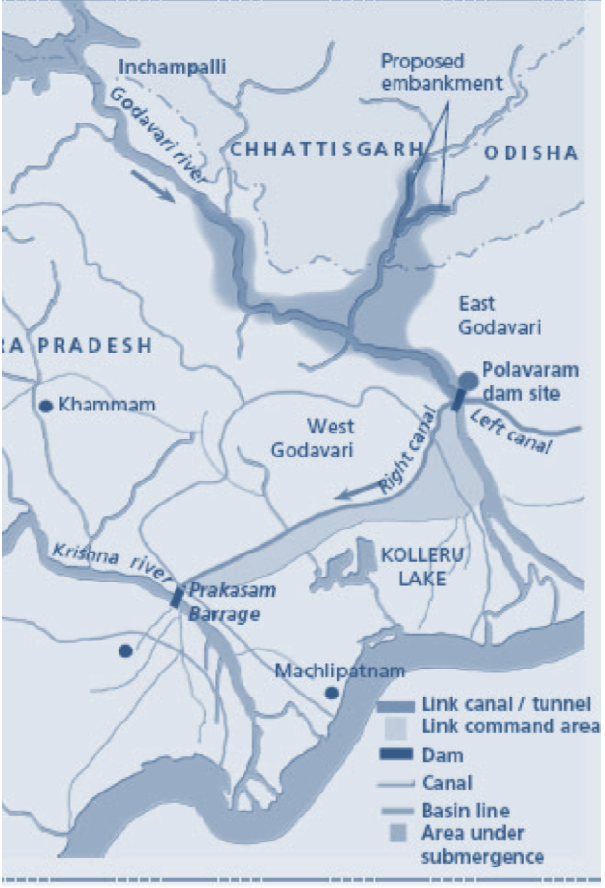
## **6.0 Alternatives**

The project has been in the limelight for all the wrong reasons – from discouraging public participation, causing irreparable ecological loss and inability to guarantee rights to the people as acknowledged within the framework of our Constitution. This report after describing the challenges made on faulty Environmental and Forest Clearances and their outcomes, indicates at the alternatives.

Environmental Good Practices demand that alternatives to the project be explored thoroughly so as to find those having least impact on people and environment. The Project authorities need to explore a number of alternatives proposed and perhaps even go beyond them. The report describes alternatives some of which virtually obviates the need for massive submergence. This calls for other institutions regulating and seeking to improve ecological governance to positively intervene.

## I Godavari River and the Polavaram Dam

1. The Godavari is the largest river in south India and the second largest in the Indian union. It rises in the Sahyadri Ranges, at an altitude of 1200 m above mean sea level near Triambakeshwar in the Nasik district of Maharashtra and flows across the Deccan plateau from the Western to Eastern Ghats. Rising in the Western Ghats about 80 km from the shore of the Arabian sea, it flows for a total length of about 1500 km in a general South – Eastern direction through the States of Maharashtra and Andhra Pradesh before it joins the Bay of Bengal, about 90 km to the south of Rajahmundry. Maharashtra, Chhattisgarh, Karnataka, Orissa and Andhra Pradesh are the five riparian states.

Twelve divisions of the Godavari basin			
Division	Segment	Riparian State/s	
G-1	Upper Godavari.	Maharashtra	
G-2	Pravara	Maharashtra	
G-3	Purna	Maharashtra	
G-4	Manjra	Maharashtra, Karnataka, Andhra Pradesh	
G-5	Middle Godavari.	Maharashtra, Andhra Pradesh	
G-6	Maner	Andhra Pradesh	
G-7	Penganga	Maharashtra, Andhra Pradesh	
G-8	Wardha	Chhattisgarh, Maharashtra, Andhra Pradesh	
G-9	Pranhita	Chhattisgarh, Maharashtra, Andhra Pradesh	
G-10	Lower Godavari	Chhattisgarh, Maharashtra, Andhra Pradesh	
G-11	Indravati	Chhattisgarh, Maharashtra, Orissa	
G-12	Sabari	Orissa, Chhattisgarh, Andhra Pradesh	

### This Day That Age – The Hindu - dated February 16, 1957: Ramapadasagar project

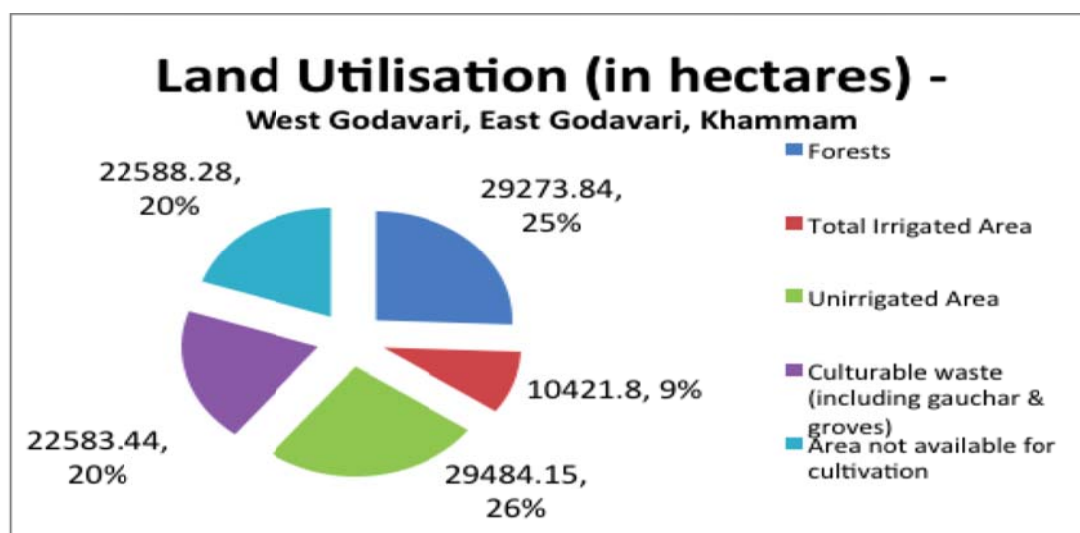
A survey of the Rs. 80-crore Ramapadasagar project in Andhra Pradesh is now being undertaken by the Government of India at the instance of the State Government. The project envisages the construction of a dam across the Godavari with Ipur as the base town and a barrage at Polavaram from where the right and left bank canals will take off. The water-spread of the reservoir will be about 1,000 square miles. A distinguishing feature of the project is said to be that the canal system from Polavaram will be extended right up to Visakhapatnam harbour. Since the canal width will be about 20 feet, barges can easily pass through it, thus affording opportunities to develop the navigational facilities. The network of navigable canals will also be extended to the hinterland providing facilities for easy and direct transport of coal from Singareni, marble available in Khammam area and timber from Central Godavari region.



2. Mr. Sonthi Ramamurthi, Advisor to the Madras Government on Godavari River, conceived a project called Ramapadasagar in 1942. Its initial purpose included navigation as an important element. As investigations were initiated the project evolved into a much larger endeavour. The objective of navigation was abandoned and power was treated as a subsidiary component and irrigation of the already well-irrigated areas remained the key objective.
3. Polavaram (Indira Sagar) Multipurpose Project is by far the largest project in terms of geographical displacement of disadvantaged groups, i.e. indigenous people or tribals in the Scheduled districts of three states viz. Andhra Pradesh, Orissa and Chhattisgarh. The current outlay of nearly Rs 20,000 crores, the Polavaram dam will have a thin sheet of water covering a very vast region (MMDL to FRL 5m) and making a very large rim area bound to be periodically inundated.
4. The State of Andhra Pradesh conceded in the Appellate Authority that the impacts would be as follows as per the 2001 Census.

Villages and Population affected under submergence (units in numbers)			
State	Villages	Families	Population
Andhra Pradesh	276	44,574	1,77,275
Chhattishgarh	16	2,335	11,766
Orissa	11	1,002	6,316

5. Current Land utilization in the three districts gives an overall glimpse of land utilization which will be partly or wholly submerged under the Polavaram Dam project.



Source: Analysed from Census of India Village Directory, 2001

- These are preliminary statistics to provide an overview of typology of likely land at stake
- 25% of forest area in villages identified under submergence (extent not known as to what percentage will be submerged unless a village boundary is demarcated)
- 9% of irrigated area in the villages as per census data



6. Other contrasting factor is the large number of marginal land holdings in the three districts, almost 20% of the total land holdings and similar area is under marginal land holdings which are less than or equal to 1 hectare.

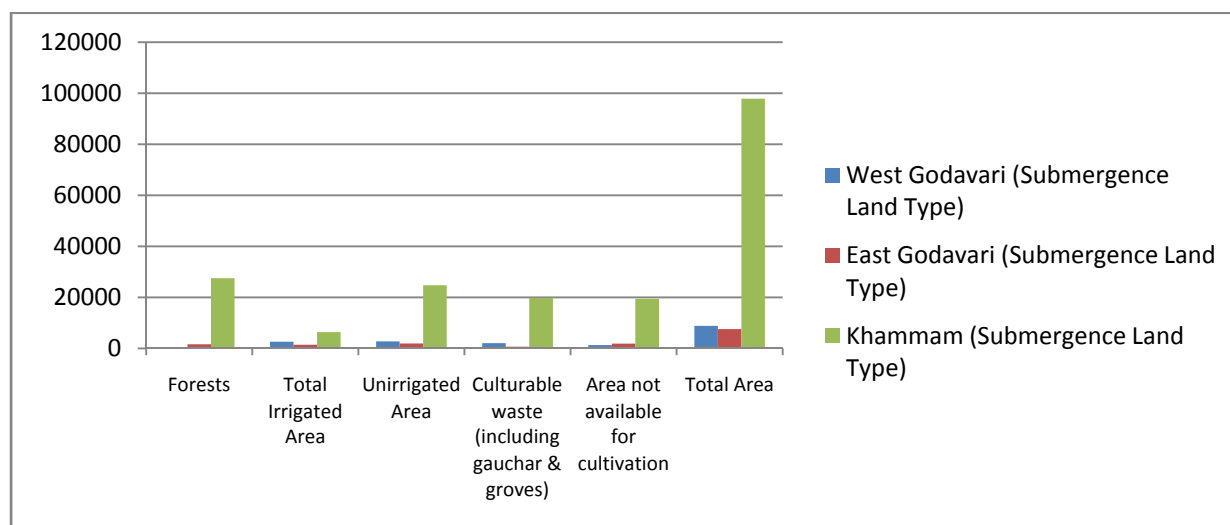
District	Marginal (upto 1.0 Hect)		Small (1.0 - 2.0 Hect)		Semi Medium (2.0 - 4.0 Hect)		Medium (4.0 - 10.0 Hect)		Large (10.0 & above)		Total	
	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area	No.	Area
East Godavari	16793	8209	10167	14654	8798	23993	4115	23370	393	5676	40266	75902
West Godavari	13797	5991	3919	5546	2461	6549	776	4333	51	769	21004	23188
Khammam	69191	34261	32633	46095	21850	57743	7483	40326	438	5948	131595	184373
Andhra Pradesh	<b>512390</b>	<b>247894</b>	<b>231753</b>	<b>326492</b>	<b>137073</b>	<b>359826</b>	<b>42454</b>	<b>233725</b>	<b>3071</b>	<b>44020</b>	<b>926741</b>	<b>1211956</b>

7. This does not include other affected people such as those in the cut-off zones in each of the rivers and streams where submergence and back-water effects would take place. Neither does it look at downstream communities that would be affected by the reduced flow of water and will have implications even for the coastal fisherfolk and thus extend beyond the affected region as discontinued systems of forests, productive land and the key elements of the ecosystem including wildlife corridors.

#### 8. Khammam District : Most Affected

District	Tehsil / Mandal	No. of Villages
Khammam	Bhadrachalam	13
	Kunavaram	48
	Chintooru	17
	Vararamchandrapuram	45
	Boorgampadu	9
	Kukunuru	34
	Velairparu	39
East Godavari	Devipatnam	42
West Godavari	Polavaram	29
<b>Total (Andhra)</b>		<b>276</b>

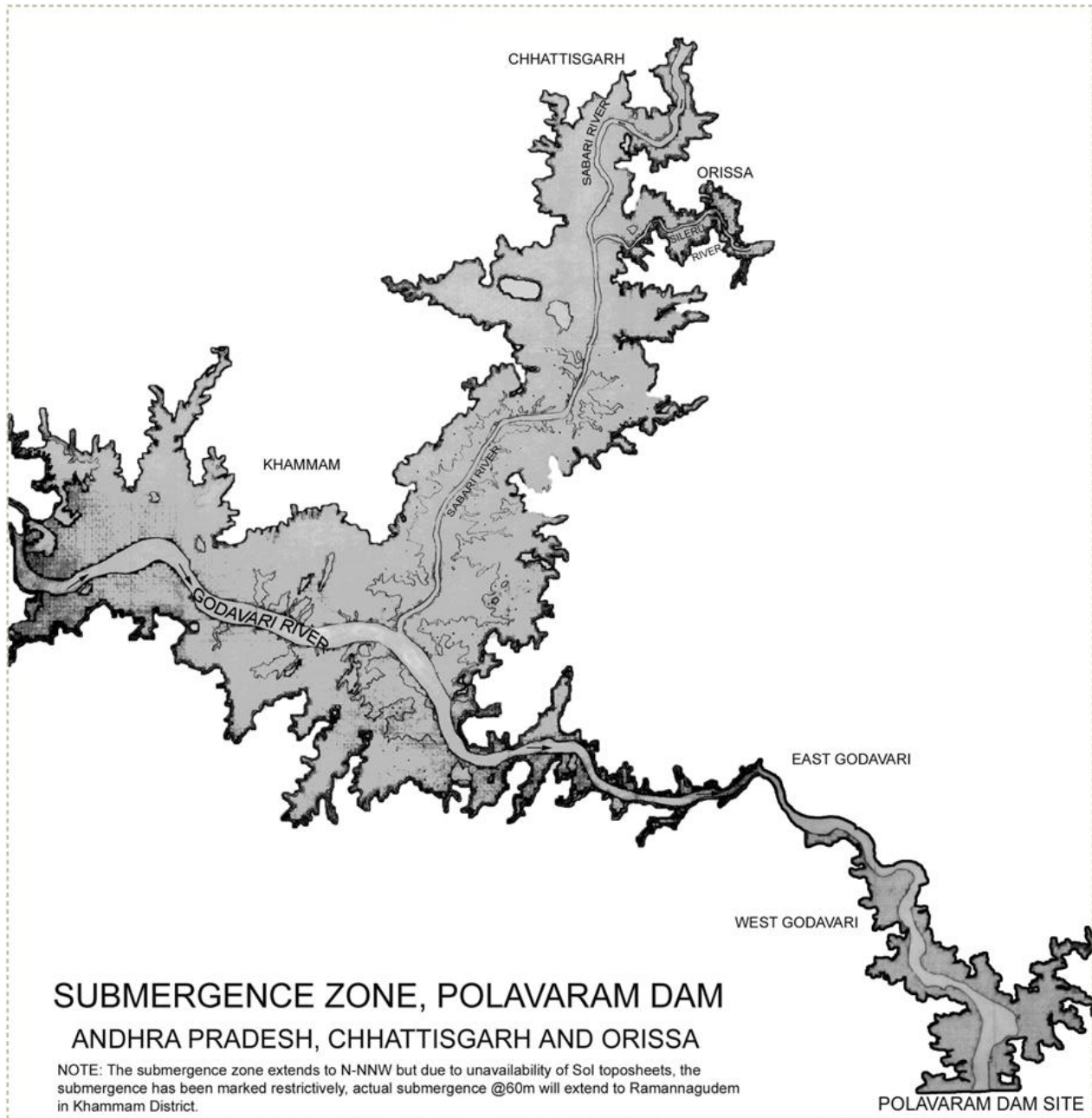
Demographic Features Among the Districts								
Districts	Total Households	(%)	Total Population	(%)	Sch. Caste Population	(%)	Sch. Tribe Population	(%)
West Godavari	8802	19.48	34354	18.80	9196	30	5458	8
East Godavari	8852	19.59	34323	18.79	4444	14	7097	10
Khammam	27521	60.92	114035	62.41	17030	56	56612	82
Total	45175	100	182712	100	30670	100	69167	100
The total Scheduled Caste population comprises 16.79% of the total population among 188 villages and also 37.86% of the Scheduled Tribe population comprises a considerable proportion of total population in the identified villages.								



## 9. Mandal-wise population and Cultivable area

Mandal Name	Population	Total Area (lakh acres)	Total Cultivable Area (lakh acres)	(%)
Polavaram (West Godavari)	43507	0.91	0.15	16.48
Devipatnam (East Godavari)	27877	1.28	0.25	19.53
Kukkunoor (Khammam)	25518	0.71	0.17	23.94
Burgampad (Khammam)	54651	0.68	0.2	29.41
VaraRamachandraPuram (Khammam)	23362	1.17	0.39	33.33
Bhadrachalam (Khammam)	78184	0.92	0.31	33.70
Velarpadu (Khammam)	20602	1.03	0.37	35.92
Chintoor (Khammam)	36694	2.36	0.94	39.83
Kunavaram (Khammam)	24572	0.5	0.26	52.00

District Name	Population	Total Area (lakh acres)	Total Cultivable Area (lakh acres)	Percentage of Cultivated Area
VISHAKAPATNAM	3816820	27.55	7.06	25.63
KHAMMAM	2170683	38.14	15.85	41.56
EAST GODAVARI	4872622	26.73	13.65	51.07
WEST GODAVARI	3796144	19.26	14.51	75.34



## II. Godavari River Water Dispute and the Bachawat Award

10. Interstate River Water Disputes Act – 1956 (IRWD Act) was first enacted on 28th August, 1956 by Indian Parliament on the eve of reorganization of states on linguistic basis to resolve the water disputes that would arise in the use, control and distribution of an interstate river or river valley. This Act further has undergone amendments subsequently and its recent amendment took place in 2002. It also validates the previous agreements.
11. The Act bars jurisdiction of Supreme Court and other courts and hence neither the Supreme Court nor any other court shall have or exercise jurisdiction in respect of any water dispute referred to a Tribunal under this Act.
12. The Godavari River Water usage was determined by the Godavari Water Disputes Tribunal headed by Justice R.S.Bachawat as the Polavaram project was a matter of contention under the Inter State Water Disputes Act 1956. The Committee gave its final award on the project on 7<sup>th</sup> July 1980.
13. The Committee noted  
  
State of Andhra Pradesh proposes to construct the Polavaram Project for the purpose of:  
  
(1) irrigating large tracts of land in its territory by a canal taking off on the right up to Krishna river and the other canal on the left upto Visakhapatnam and also by lift canals on both sides;  
(2) making available water for domestic and industrial purposes in its territory;  
(3) production of power; and  
(4) diverting water of the river Godavari into the Krishna river so that the water thus made available may be used for irrigating lands in the Krishna Delta and as a consequence more water may be available upstream of Nagarjunasagar to be utilized by the three States namely, Andhra Pradesh, Karnataka and Maharashtra.
14. There are a number of reports concerning the dam and its design and various other aspects of it and there are variations among them.
15. However even before the Tribunal, the State of Andhra Pradesh submitted Polavaram Project Report Vol. I, May 1978 (Exhibit APG-360) for its consideration. Another project report called the Polavaram Project Stage I of March 1978 (Exhibit No. APG-364) was submitted by the State of Andhra Pradesh to the Central Water Commission for securing clearance. This has also been filed before the Tribunal.
16. Under these Reports a dam is to be constructed at Polavaram to store and divert the water. Some basic features of the Project as presented in the Report (March 1978) are given below:
  - (a) FRL : + 150.00.
  - (b) Spillway crest level : + 94.00.
  - (c) Height of gates: 42 feet i.e., from EL. 94.00 to EL. 136.00.
  - (d) Breast wall from EL 136 to EL 150 and above.
  - (e) Number of gates: 50 of size 50 feet X 42 feet.
  - (f) MDDL : + 145.00.
  - (g) Live storage of the reservoir 28.31 TMC between EL. + 145.00 and + 150.00.
  - (h) Two canals, one on the right bank and the other on the left bank, each with a full supply

capacity of 10,000 cusecs.

17. The States of Maharashtra and Karnataka had been agitating for utilization of more waters of the Krishna river by diversion of Godavari water into the Krishna. To resolve this dispute, Andhra Pradesh entered into the Agreement (Annexure "C" to the Final Order) with Karnataka on the 4th August 1978. To this Agreement Maharashtra is also a party. Clause 7 of Agreement provides as follows:

" (a) Subject to the clearance of Polavaram Project by the Central Water Commission for FRL/MWL plus 150 feet the State of Andhra Pradesh agrees that a quantity of 80 T.M.C. at 75 per cent dependability of Godavari waters from Polavaram Project can be diverted into Krishna river above Vijayawada Anicut displacing the discharges from Nagarjunasagar Project for Krishna Delta, thus enabling the use of the said 80 T.M.C. for projects upstream of Nagarjunasagar.

(b) The States of Andhra Pradesh and Karnataka agree that the said quantity of 80 T.M.C. shall be shared in the proportion of Andhra Pradesh 45 T.M.C., Karnataka and Maharashtra together 35 TMC.

(c) Andhra Pradesh agrees to submit the Polavaram Project report to Central Water Commission within three months of reaching an overall agreement on Godavari waters among the five party States.

(d) Andhra Pradesh agrees to bear the cost of diversion fully.

(e) Maharashtra and Karnataka are at liberty to utilize their share of 35 T.M.C. mentioned in sub-para 7 (b) above from the date of clearance of the Polavaram Project by Central Water Commission with FRL/MWL of plus 150 feet irrespective of the actual diversion taking place.

(f) It is also agreed that if the diversion at 75 per cent dependability as stated in clause (a) above exceeds the said quantity of 80 T.M.C. due to diversion of Godavari waters from the proposed Polavaram Project into Krishna river, further diminishing the releases from Nagarjunasagar Project such excess quantity shall also be shared between the three states in the same proportion as in subclause (b) above".

18. Subsequently the Tribunal recognised that a FRL/MWL of +150 Ft cannot be sustained with submergence in other upstream states at the same level noted:

The Tribunal then considered the matter from the standpoint that the Central Water Commission may take the view that in spite of making provision for observing the safeguards, the excess submergence due to backwater effect could not reasonably be controlled except by lowering the FRL/MWL of the Polavaram Project. Under such circumstances there were two alternatives, before the Tribunal. One was not to permit excess submergence in Madhya Pradesh and Orissa and amend the Agreement dated the 4th August, 1978 in such a manner that the benefit granted to the States of Maharashtra and Karnataka remained intact. The other was to permit excess submergence of the lands of the States of Madhya Pradesh and Orissa and keep Clause 7 of the said agreement as it was. **For reasons given in the Report, the Tribunal thought fit to choose the first alternative.**

19. Considering all the aspects of the matter, the Tribunal directed that the Agreement of the 4th August, 1978 between the States of Karnataka and Andhra Pradesh be modified as follows:

"(i) In Clause 7 (a), after the words "FRL/MWL plus 150 feet" and in Cause 7 (e), after the words, "FRL/MWL of plus 150 feet" the following words be added:

‘or such other FRL/MWL as the Central Water Commission may find necessary and technically feasible keeping in view that as far as possible (i) all the areas of the State of Andhra Pradesh mentioned in the Polavaram Project Report of May, 1978 and Polavaram Project Stage-I of March, 1978 are brought under irrigation, (ii) the other benefits mentioned in the said Reports of the State of Andhra Pradesh are realized, and (iii) water to the extent of 80 T.M.C or more is diverted to the river Krishna”

“(ii) After Clause 7 (a), the following proviso be added:

“Provided that the excess submergence over and above the natural submergence due to all effects including backwater effect on account of the construction of the Polavaram Dam does not exceed the limits mentioned in the Agreement dated the 7th August, 1978 between the States of Maharashtra, Madhya Pradesh and Andhra Pradesh and the Agreement dated the 15th December, 1978 between the States of Andhra Pradesh and Orissa or in any other agreement that may be entered into hereafter.”

20. After hearing the contentions of the different parties, the Tribunal stated

It is in the national interest that the Polavaram Dam be constructed with F.R.L./M.W.L. + 150 feet. It is also considered by the Government of India that this is technically feasible.

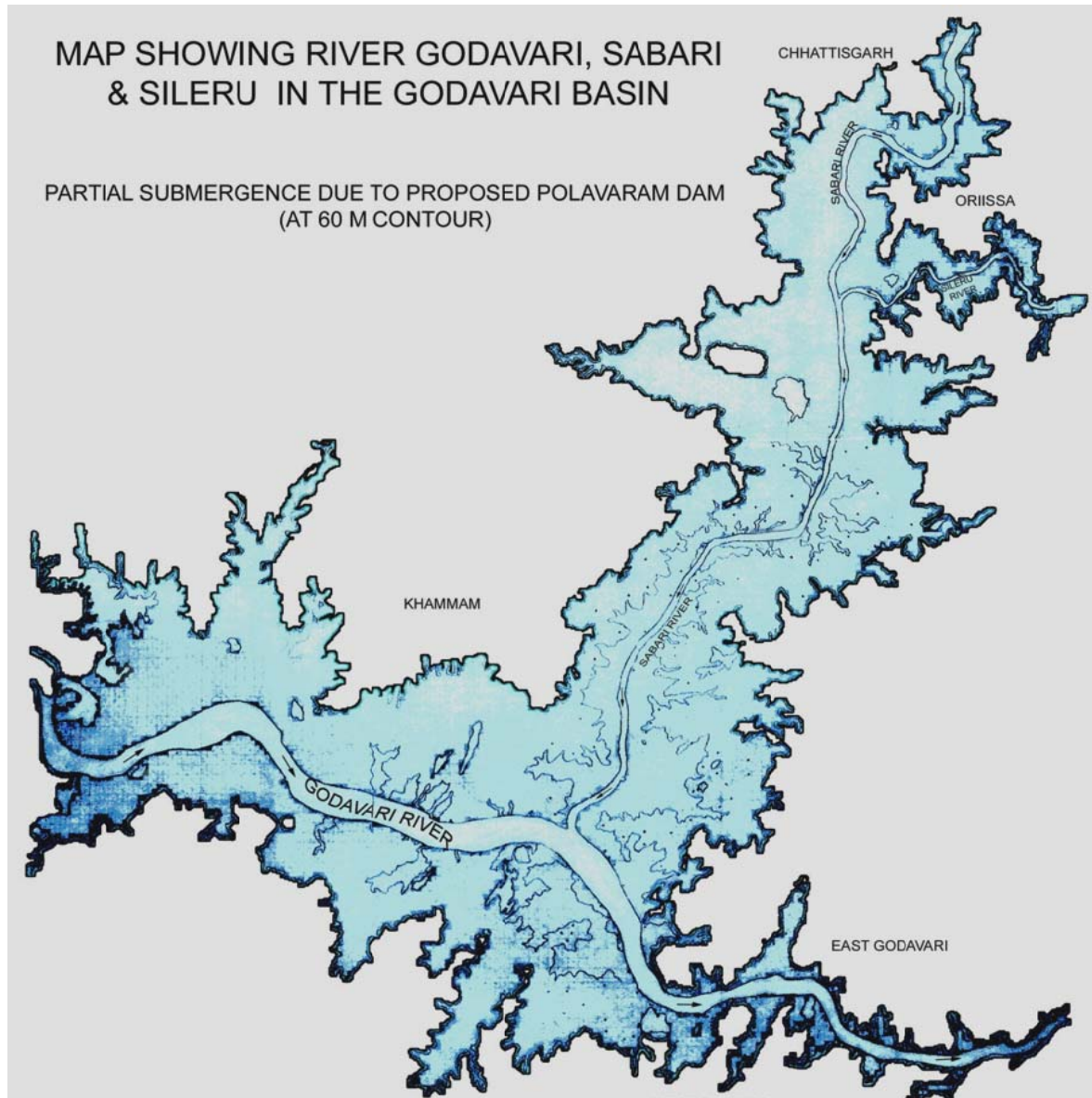
The only thing that remains to be worked out is how to design the dam and fix its operation schedule so that as far as possible the excess submergence of the areas of the States of Madhya Pradesh and Orissa does not exceed R.L + 150 feet due to all effects including backwater effect.

Besides the safeguards agreed upon by the State of Andhra Pradesh, one important safeguard that was suggested by the Tribunal is that during the monsoon period from 1st June to 30th September the reservoir level of Polavaram Dam be kept below the level to be determined by the Central Water Commission and it be made obligatory for the State of Andhra Pradesh not to exceed such limit and if the reservoir level rises above that level it is to be brought down to the lower level as soon as possible.

The other safeguard suggested was that the flood disposal capacity of the spillways at Polavaram shall be in conformity with the directions of the Central Water Commission to ensure that flood conditions at Konta/Motu are not aggravated due to backwater effect.

A further safeguard suggested was that the flood warning stations shall be established in consultation with the Central Water Commission on the main river and its major tributaries before starting operation of the Polavaram Dam. It is a happy feature of this case that the States of Andhra Pradesh, Madhya Pradesh and Orissa took note of these suggestions as also of other relevant matters and entered into an Agreement (33) on the 2nd April, 1980 regarding the design and operation of the Polavaram Project.

**21. *While the Andhra Pradesh Government contends that the current design is within the framework of the award, Chhattisgarh and Orissa have contested the design and the specific fact that the only safeguard they can have in the absence of any control over the design and operation of the dam is that the backwater effects should be limited to +150 RL.***





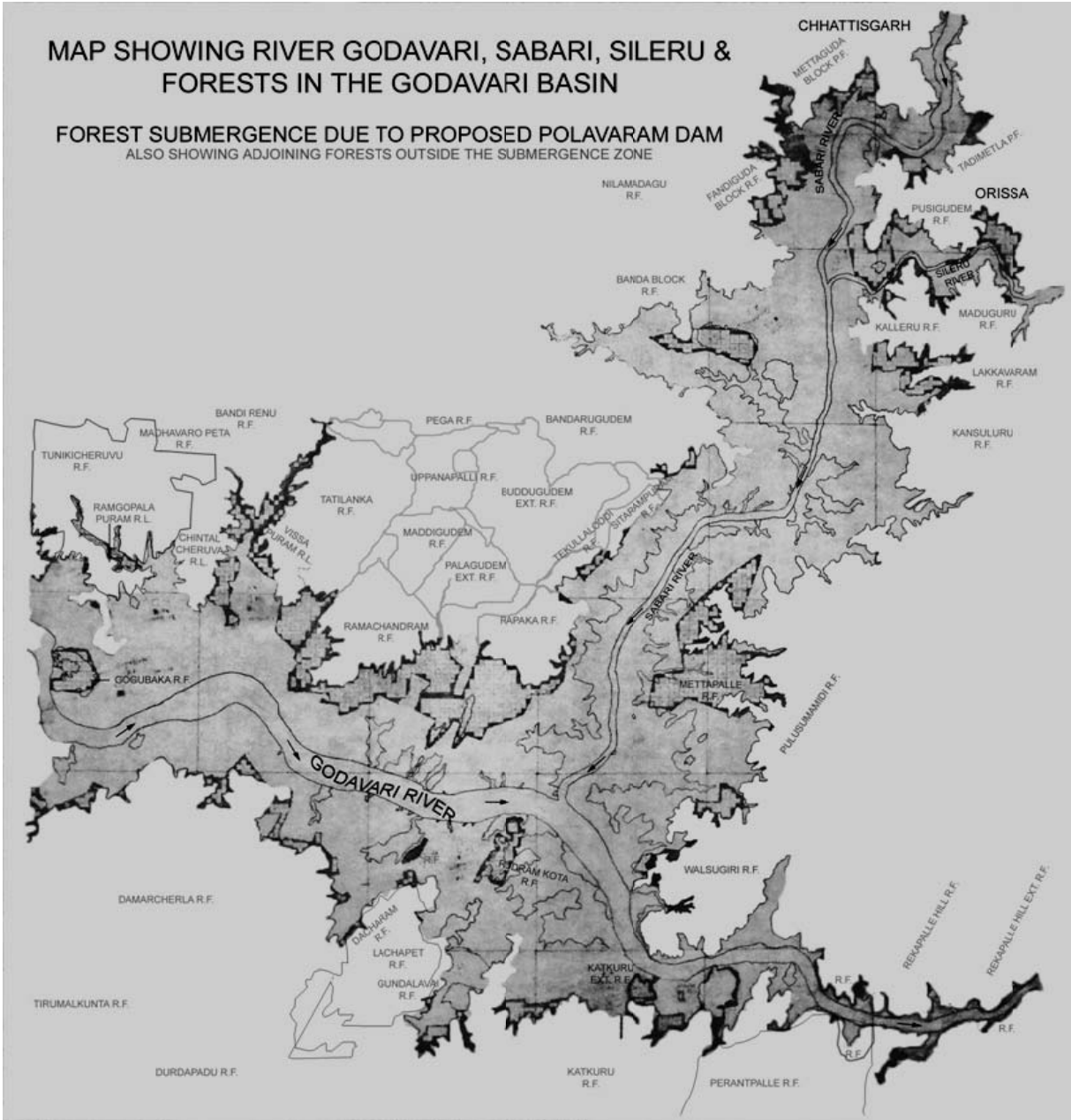
### III The Challenge of the Forest Clearance

22. The manner of the grant of the forest clearance for such a vast area was a matter of contention as an Impleadment petition under the ongoing Godavarman Case was made and referred to the Central Empowered Committee (CEC).
23. The Applicants opposing the project, who have also been supported by the State of Orissa, have taken a stand that as per the Bachawat Award dated 7.7.1980, the project has to be designed by the Central Water Commission and Operation Schedule has to be given by it alone keeping in view the back water affects and the area of submergence in the State of Andhra Pradesh, Chhattisgarh and Orissa. The Central Water and Power Research Station, Pune, an organization of the Central Water Commission is the competent authority to conduct model studies to arrive at the correct back water levels of + 150 feet with FRL upto + 150 feet or less at the dam site.
24. The CEC observed "The Polavaram Multipurpose Project being constructed at an estimated cost of Rs. 12,590.70 crores involves the use of 3833.39 ha. of forest area out of which 3,731.07 ha. forest area falls in Andhra Pradesh, 102.16 ha. in the State of Orissa and the balance 0.16 ha. in Chhattisgarh. The project involves use of 187.29 ha. of forest area falling in Papikonda Wildlife Sanctuary in Andhra Pradesh. It also involves use of 1,553 ha. of non-forest area within the said sanctuary.
25. The forest area required for the project in the State of Andhra Pradesh is virgin mixed deciduous forest of Eastern Ghat which is most important from the ecological point of view. The area contains endangered species such as Tiger, Panther, Gaur, Wild Dog, Sloth Bear, Barking Deer and other fauna. Many important species of flora are found in the area. It is a unique and rich wilderness of this country.
26. The project is designed to provide irrigation facility to the extent of 2.91 lakh ha., generation of 960 MW of hydro power, diversion of 80 TMC of water to Krishna River, providing 23.44 TMC of drinking water supply to Vizag city and enroute 540 villages and development of pisciculture and tourism. 1,95,357 persons will be affected by the project. The R&R Scheme is yet to be approved by the Ministry of Tribal Affairs. Environmental clearance to the project has been accorded. The use of forest land falling within the sanctuary has been recommended by the Standing Committee of the NBWL."
27. As per the applicant, also supported by the State of Orissa, the project work has been started without obtaining approval under the F.C. Act for the forestland falling in the State of Chhattisgarh and Orissa. This is in violation of the guidelines issued for the implementation of the F.C. Act. The proposal for seeking approval under Section 2 of the F.C. Act necessarily has to be filed in the prescribed proforma by the concerned States and not by the State of Andhra Pradesh. In the absence of model studies, the exact extent of forest area required for the project cannot be assessed.
28. This exercise has not been done so far and therefore the correct assessment of submergence of forest land, private land, displacement of village population and adverse environmental impact assessment cannot be made in any of the three affected States. The commencement of the work on the project without obtaining the clearance from the CWC is in violation of the Hon'ble Supreme Court's judgment in the case of the State of Karnataka vs. the State of Andhra Pradesh reported in (2000) 9 SCC 572 at para 52 page 641 (f).
29. On the other hand, the State of Andhra Pradesh has taken the view that all the issues pertaining to the construction of the Polavaram Project have been settled by the

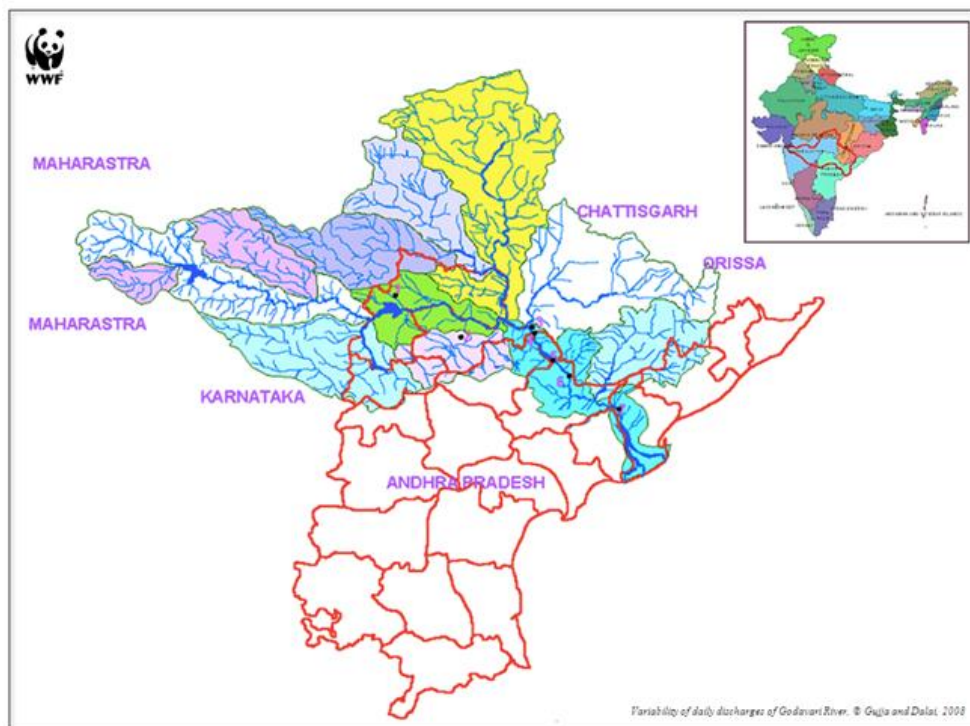
Agreement dated 2.4.1980 entered into by the State of Andhra Pradesh with the States of Orissa and Chhattisgarh and by the Bachawat Award dated 7.7.1980. As per the Award, the States of Orissa and Chhattisgarh have the option of either seeking compensation for land affected above + 150 feet level or for the construction of embankment at the project cost. In case the latter option is exercised, no land above + 150 feet level will be affected in either of these two States. This will also prevent requirement of forest land coming under submergence in these States. In any case it will be ensured that use of forest land for the project is undertaken only after obtaining the requisite approval under the F.C. Act.

30. *It has been confirmed by the State of Andhra Pradesh that it commenced the project work on the non-forest land. During the course of the hearing, the Applicant State was advised by the CEC to stop the work on the ground that the guidelines issued by the MoEF for implementation of the F.C. Act prohibit undertaking of project work on the non-forest land pending approval under the F.C. Act. The project work is reported to have since been stopped. (As of 15.11.2006)*





31. As per the applicants, the detailed survey of the wildlife and the adverse impact on the same because of part submergence of the sanctuary area has not been carried out. The project proponents have shown different figures before different authorities. **Since the actual submergence after the construction of the dam may go up by another 80 to 110 feet, the adverse impact of the project on the flora and fauna can be assessed only if an independent body like the Wildlife Institute of India, Dehradun, does studies.**
32. The forest area going under submergence is very rich from the point of view of biodiversity and contains a number of red listed species. It has wrongly been given in the EIA report that there are no endangered species of flora found in the submergence area. A unique dwarf breed of goat commonly known locally as the "Kanchu Mekha" originates in the region coming under submergence.
33. During the site visit it was also observed by the CEC that the forest area coming under submergence is virgin mixed deciduous forest of Eastern Ghat which is most sensitive, rich and important from the ecological point of view. The diversion of the above forest land should be permitted only after the other possible alternatives have been explored and the proposed area has been found to be the best alternative which cannot be avoided/foregone. ***In such a situation adequate compensation for the loss of the forest area is required to be made by adding adjoining virgin forest area to the sanctuary and by a series of special protection measures for the area.***
34. The Applicants opposing the project that the project has been designed and is being implemented without proper assessment and examination of the alternatives, which will result in much lesser submergence and displacement of tribal communities and would also be relatively cost effective, have pleaded for it.



## IV. The Challenge of the Environmental Clearance

35. The manner in which the Environmental Clearance was granted was also a matter of contest. An appeal was filed at the National Environmental Appellate Authority (NEAA). That although the project is to have its impact on the neighboring states of Chhattisgarh and Orissa, there is no specific information about these impacts. Nor has there been a public hearing in either of the states, of there is information of the project to the likely affected people or any R&R plans for them in the EIA. According to the latest estimates, the number of villages to go under submergence now is 276 from Andhra Pradesh, 13 from Chhattisgarh and 10 from Orissa. Number of affected families also has gone up to 27 798 from Andhra Pradesh, 1372 from Chhattisgarh and 814 from Orissa.
36. That the procedure for site clearance was not followed. As per the EIA Notification, the location of major Irrigation Project Site is required to be cleared regarding its suitability or otherwise by the Ministry of Environment and Forest, while initiating any investigation and surveys of the project. The Site Clearance shall be valid for a period of five years for commencing the construction. As per the information made available to the public, no such Site Clearance seems to have been obtained for the proposed Polavaram Project.
37. Environment / Ecological Impact Assessment: As per the Guidance and Checklist given in EIA Manual January 2001, the Environment / Ecological Impact Assessment is required to cover:
  - a) No Project Option or Alternate Sites considered for meeting the proposed development by the project.
  - b) Disturbance & destruction of Vegetation, Wildlife destroyed or displaced, Wildlife Habitat reduced, Ecologically Sensitive areas-- Wildlife Sanctuaries, Tribal settlements
  - c) Ecological Inventory of most endemic and endangered species affected by the project Impact on Ecology, People and Community.
38. That Impact Assessment Agency (IAA) ie MoEF, which is required to evaluate and assess the impacts of the project, ignoring the guidelines of EIA Manual, has reduced the entire EIA Process of Polavaram project to mere ritual and formality, which can be judged from the following facts:
  - a) Adequacy and Authenticity of EIA Report, EMP etc submitted by the project proponent, which are questionable, have not been subjected to thorough scrutiny
  - b) Viable alternative to proposed project to mitigate submergence of Reserve Forests.
  - c) Tribal Habitats and their displacement, has not been examined and evaluated
39. That the formality of conducting Public hearing was completed on 10-10-05, in spite of the fact that the project was overwhelmingly opposed by the public. The project proposal along with the proceedings of EPHs and NOC of Andhra Pradesh Pollution Control Board has been received by MoEF on 17-10-05, saying that the project is favored in the Public Hearing.
40. That the project proposal was considered by the Expert Committee of MoEF on River Valley Projects, met on 19-10-05 (within two days of receipt of the proposal) and recommended Environmental Clearance, subject to submission information on



corrected list of Flora & Fauna, FCC (original) of Land use and Land cover, Soil Data, R&R information etc., which is reported to have been submitted on 20-10-05, the very next day of Expert Committee meeting.

41. That Ministry of Environment & Forest accorded Environmental Clearance to the Project proposal on 25-10-05, even without Forest Clearance and other clearances from National Wildlife Board regarding Papikonda Wildlife Sanctuary, within 15 days from the date of conducting Public Hearings, 8 days from the date of receiving the proposal and 6 days from the date of Expert Committee recommending Clearance subject to submission of certain information.
42. The Polavaram Project EIA is based on outdated studies, as the report was prepared in 1985. The project relies on hydrological, forest and environment and design clearances made as far back as 1980. It then expected 150,697 people to be displaced from 226 villages. Since then the population has grown considerably. The data contained in executive summary of EIA regarding number of villages and population to be displaced does not tally with 2001 census figures and is far from ground realities. Further investigations are needed. As the present EIA is not comprehensive and contains inadequate or misleading data, the authenticity of the report is questionable and needs to be put to a thorough scrutiny.
43. That there was serious opposition at Public Hearing. The people likely to be affected by the submergence, mostly tribal people, have not been informed about details of the project since the executive summary of the so called EIA report has not been made available to them in their local language. They are also not aware of the Rehabilitation packages being offered, and in short the State administration has totally failed to make the affected people in remote villages understand the implications of the Polavaram Project. The people are by and large kept in dark about the project. This is of serious concern. The current Government of Andhra Pradesh figure is that the Polavaram will submerge 117,034 people (irrigation Department, Indrasagar Project, Documentation released for Public debate on 5-6-2005, Government of Andhra Pradesh). Earlier the Planning commission estimated that the Polavaram dam would displace 154,484 people with 10.2% belonging to the Scheduled Castes and 52.9 % to Scheduled Tribes. The Official count for the SardarSarovar dam in Gujarat is less than Polavaram at 150,720 people with 62 % belonging to tribal communities.
44. That the main part of the area of submergence falls under the Scheduled (Agency) Area with tribal people belonging to Koya, Koyadora and Kondareddy communities. A few settlements exist with a population of more than 2000 people but most are significantly smaller hamlets. The command area and thus the beneficiary from Polavaram is predominately the plains where non-tribal are in clear majority. The Polavaram project like any other major project that has been planned by the irrigation department perpetuates the tribal population as being on the losing side of development.
45. That the Polavaram Left Canal is currently being built to run parallel to the one coming from Tadipudi Lift Irrigation Project, is some parts as close as 400 m from each other. This will double the area of displacement estimated at 6600 acres in total as well as use up twice the resources for the constructions. The size of displacement caused by the left and right main canal should not be ignored given the length and size of them. The left canal is 163 Km in length with an unknown width. More than 2000 farmers in 10 villages with less than an acre of farm land are likely to be affected by the newly started construction of Polavaram 7th reach canal. People displaced by Canals have historically not been considered as Project Affected Persons (PAP) in any dam project in Andhra Pradesh.

46. The Appellant raised the following grounds in support of the Appeal:-
- (i) The procedure prescribed for issue of Site Clearance Order was not followed by Impact Assessment Authority (MoEF);
  - (ii) The Environment Impact Assessment Report (EIA Report) prepared by Respondent - 3 was based on outdated data and not comprehensive in coverage;
  - (iii) The Environment Impact Assessment made by Ministry of Environment and Forests (Respondent -1) was inadequate, and it ignored the guidelines of the EIA Manual thereby reducing the entire EIA process to mere ritual and formality in this case;
  - (iv) The Public Hearing conducted on 10.10.2005 did not follow the prescribed procedure and it was therefore defective and incomplete; and
  - (v) The Project will adversely affect large number of people, displacing 1,54,484 persons with 10.2 percent belonging to Scheduled Castes and 52.9 percent belonging to Scheduled Tribes but mainly benefiting the people from plains at the cost of the Scheduled Castes and Tribes as well as small and marginal farmers and submerging vast area of land including forest.
47. Based on the above grounds, the Appellant has prayed for the following:
- (i) Pass an order staying the operation of Environment Clearance Order granted for the project;
  - (ii) Pass an order directing that a proper EIA be re-done taking into account all the relevant factors, providing complete information about the nature of impact due to the project and taking necessary mitigative measures;
  - (iii) Pass an order declaring the Public Hearing conducted on 10.10.2005 as null and void and directing a fresh Public Hearing to be conducted following the prescribed procedure, specifically providing adequate information and documents in local language to the affected people; and
  - (iv) Pass an order directing issue of a fresh Environment Clearance Order on merits only after completing the above formalities.
48. As regards the issue of Site Clearance Order, the Appellant has not established any procedural irregularity or any violation of Rules by Respondent – 1. The Authority has perused the relevant provisions of EIA Notification and finds that there has been no violation of procedure prescribed in the Rules in the issue of Site Clearance Orders for the Project. Secondly, the Authority does not find any supportive material for contentions of the Appellant that the Environment Impact Assessment Report prepared by Respondent -3 is based on outdated data and that it is not comprehensive in coverage. A perusal of EIA Report and examination of claims made by Respondent-3 convinces this Authority that EIA Report prepared by Respondent -3 is based updated data and that it is quite comprehensive in coverage. The Authority further finds that the Impact Assessment Agency (MoEF) has made a proper and comprehensive assessment of the impact on the environment of the Project Area. Further the Authority holds that the R & R package proposed in the Project by Respondent -3 is just and adequate.
49. The Authority finds that even though the project affects the people and area of Andhra Pradesh, Orissa and Chhattisgarh, the Respondent -2 has conducted Public Hearing only in the State of Andhra Pradesh. In respect of Orissa and Chhattisgarh, Respondent – 2 had made some initial efforts but did not proceed further till the logical end; the affected people of these two States were denied the benefit of access to the required information on the Project and opportunities for expressing their views, opinion,



comments on the Project. It is at this stage that an infirmity has crept in and Respondent -2 has deviated from the procedure prescribed in the Notification 1994 resulting in violation of principles of Natural Justice. **The Public Hearing conducted by the Respondent - 2 is therefore incomplete.**

50. **ORDER** Having due regards to the facts and material placed before this Authority and arguments and counter arguments put forward by the counsels of the different parties to the appeal, the following orders are passed:

(a) *The appeal is partially allowed to the extent that the impugned Environment Clearance Order No. J-12011/74/2005-IA.I dated 25.10.2005 issued by Respondent -1 (MoEF, GOI) is quashed on the ground that the impugned order was passed taking into consideration the Public Hearing which by itself was incomplete as it was not conducted in affected areas of Orissa and Chhattishgarh resulting in denial of access to information and opportunities to the affected people to express their views/opinions etc. on the Environmental Impact of the Project and consequential violation of Principles of Natural Justice; and (b) The Respondent -3 is at liberty to restart the process of Public Hearing from the stage at which the infirmity has crept in, complete the process of and proceed further in accordance with the provisions of the relevant EIA Notifications in force.*

The Andhra Pradesh Government approached the A.P High Court to keep the order suspended as it would have meant all the activities relating to the project had to be stopped.



<http://www.hindu.com/mag/2006/01/08/stories/2006010800190400.htm>

**Polavaram: hearing on environmental clearance on November 23, 2011**

A Division Bench of the AP High Court comprising acting Chief Justice Ghulam Mohammad and Justice N. Ramamohana Rao on Monday said that all the cases pertaining to environmental clearance for Indirasagar, Polavaram project would be taken up on November 23 and finally heard.

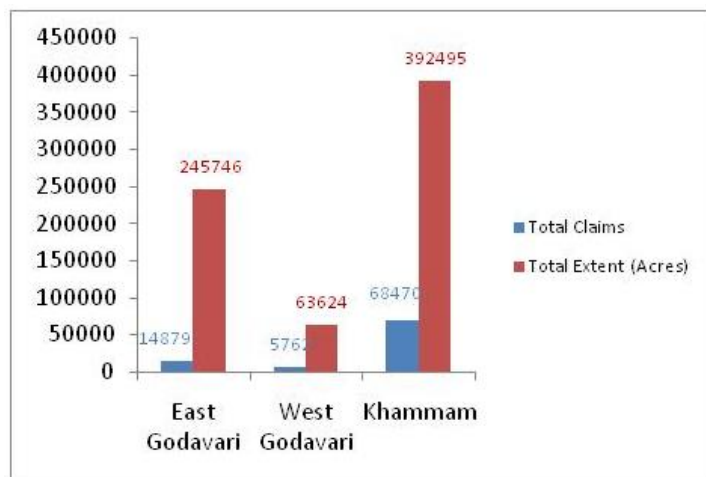
The Bench was not acceding to the request made by the State government to adjourn the case for four weeks. It may be recalled that Mountain Environics, the NGO which works with Samatha, a local NGO, filed a case before the National Environmental Appellate Authority (NEAA). The tribunal set aside the permission granted by the Ministry of Environment clearing the project. This order of NEAA was challenged by the State government and the High Court suspended the order of the NEAA.

The NGO and the governments of Orissa and Chhattisgarh filed petitions to vacate the interim orders. On an earlier occasion, another Bench had called for reports on the issue of flood waters effecting Bhadrachalam temple. On Monday, the Bench felt that the issue had to be resolved quickly. The counsel appearing for the NGO said that two other cases related to environmental clearance were pending. The Bench said that the cases involving the environmental clearance alone would be taken up, but not other disputes regarding the Polavaram project.

<http://www.thehindu.com/todays-paper/tp-national/tp-andhrapradesh/article2610658.ece>

## V. Forest Rights Act

51. The Scheduled Tribes and Other Forest Dwellers Act was enacted in 2006 with an avowed objective of undoing the historical injustices done to forest dwelling communities. The law itself was an outcome of struggles by several communities and institutions supporting them and the growing impossibility of industrialization in these regions due to strong objections from the communities.
52. In brief the law provides for individual and community rights to be established over land and resources traditionally being utilized by the communities and to also enable their own management rights over these resources.



53. In Andhra Pradesh, Tribal Welfare Department is the nodal agency looking towards implementation of Forest Rights Act. The large submergence of scheduled region under the Polavaram Dam project is incidental to design but demands a much better performance and prioritization of PESA and FRA before the physical works on the

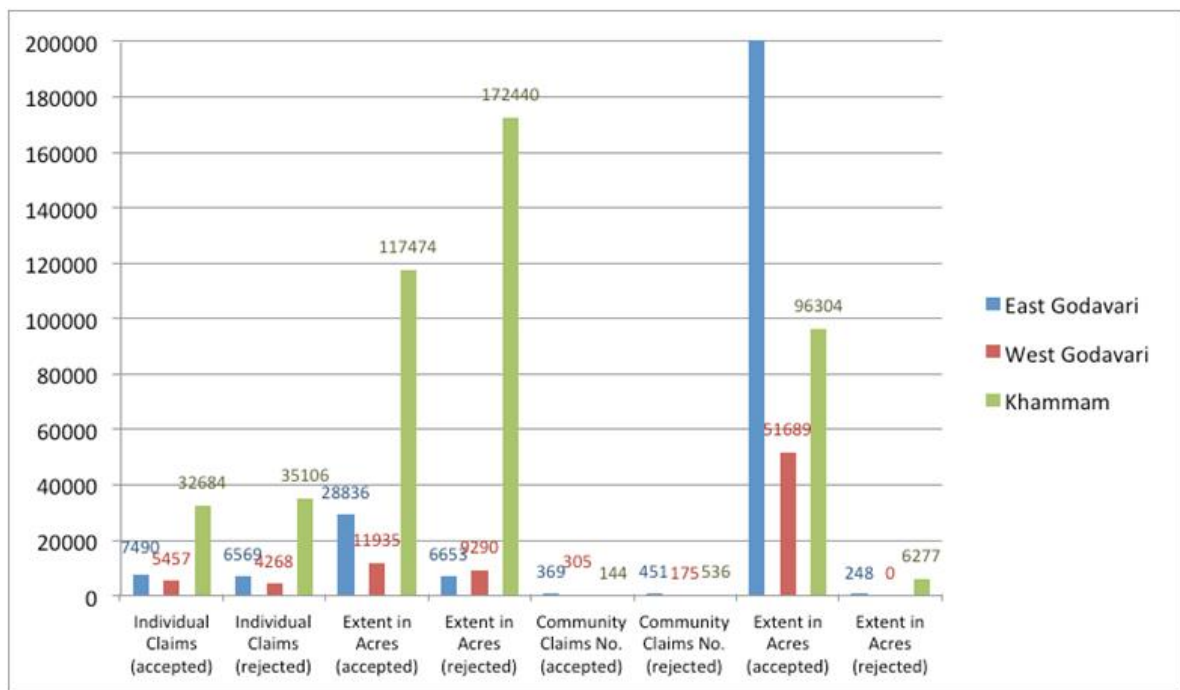
dam site begins. Already, the works over left and right canal (running length of almost 375 kms) has begun and contractors have been identified and works awarded for various sections. As per one government memo, the number of forest interface villages is around 3030 in the three primary affected districts coming under submergence. As of now only few villages in the affected zone have been taken up for settling the claims.

54. Following section provides an overview about FRA and specifically on East Godavari District.

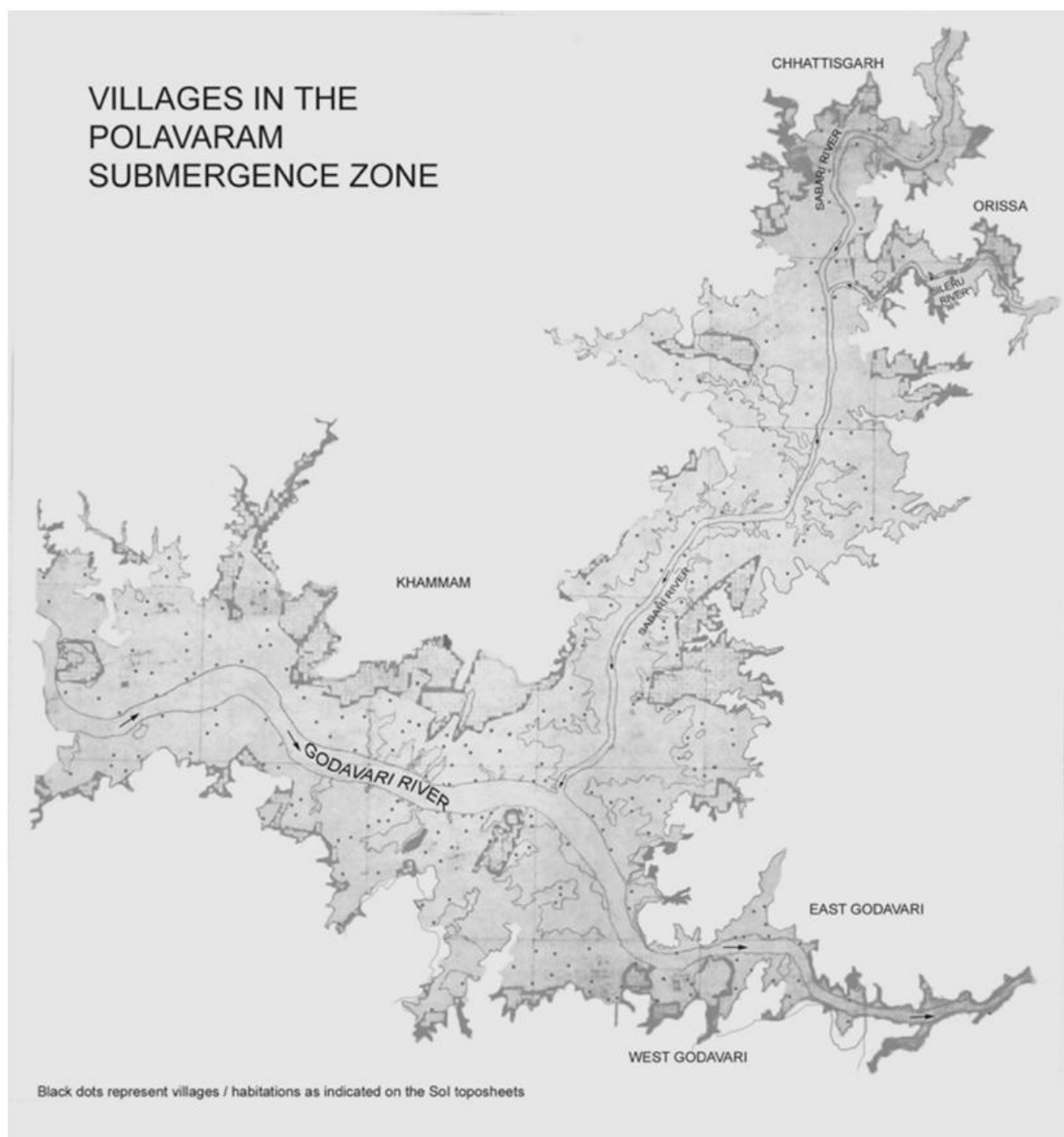
S.No.	District	No. of Forest Interface Villages	No. of Villages covered under RoFR Act	Left Over
1	Khammam	2143	633	1510
2	West Godavari	156	50	106
3	East Godavari	731	245	486
	Total	3030	928	2102

Source: Government Memo No. 355/LTR-1/2008 dated 13.01.2011

Accessed [http://www.aptribes.gov.in/pdfs/rofrgmc355\\_13012011.pdf](http://www.aptribes.gov.in/pdfs/rofrgmc355_13012011.pdf) on 22 October 2011



District East Godavari: Dots depicting location of habitations who have got claims under FRA. Coordinates are from the TWD database, accuracy issues may be there.



55. **District Wise Claims (Individual & Community) & Extent Accepted and Rejected at SDLC/DLC Level**  
(41 community claims in West Godavari were rejected by DLC)

**Final Summary Statement After Certificates Issued under FRA**

District	Certificate of titles issued					
	Individual Claims	Extent in Acres	Community Claims No.	Extent in Acres	Total Claims	Total Extent
<b>East Godavari</b>						
<i>Certificates Issued</i>	7490	28836	369	210009	7859	238845
<i>Actual claims identified at beginning</i>	14059	35489	820	210257	14879	245746
<i>Difference or Rejection</i>	-6569	-6653	-451	-248	-7020	-6901
<b>West Godavari</b>						
<i>Certificates Issued</i>	1189	2645	130	51689	1319	54334
<i>Actual claims identified at beginning</i>	5474	12001	305	51689	5779	63690
<i>Difference or Rejection</i>	-4285	-9356	-175	0	-4460	-9356
<b>Khammam</b>						
<i>Certificates Issued</i>	31961	114082	144	96304	32105	210386
<i>Actual claims identified at beginning</i>	67790	289914	680	102581	68470	392495
<i>Difference or Rejection</i>	-35829	-175832	-536	-6277	-36365	-182109
<b>TOTAL Certificates Issued (all three districts)</b>	<b>40640</b>	<b>145563</b>	<b>643</b>	<b>358002</b>	<b>41283</b>	<b>503565</b>

56. As per the applicant, the Panchayat (Extension to the Scheduled Area) Act, 1996, popularly known as PESA, makes it mandatory to consult the Gram Sabha in scheduled area for acquisition of land, rehabilitation and resettlement. Clause 4(2) of the V Schedule of the Constitution of India makes it mandatory for the State Governments to consult the Tribal Advisory Councils on all matters pertaining to the welfare and advance of the Scheduled Tribes in the State as may be referred to them by the Governor.
57. The present project will affect the life of the Scheduled Tribes in all the three States. It is therefore the Constitutional obligation on the part of the States of Chhattisgarh and Orissa to seek the advise of the Tribal Advisory Council before giving their comments for the project. The project is being implemented without obtaining permission from the National Commission for Scheduled Tribes and Scheduled Castes. The rehabilitation and resettlement package has not been approved by the Ministry of Tribal Affairs.
58. The State of Andhra Pradesh has taken a view that it will abide by the provisions of the R&R package as approved by the Ministry of Tribal Affairs. The land belonging to the tribals could be acquired for undertaking developmental activities and such acquisition does not result in diminution of scheduled areas or cessation of that part of land in the scheduled area. It also does not result in alteration of scheduled areas. Such acquisition



of land cannot be termed as contrary to Para (6) of Schedule V of the Constitution of India.

59. The meeting of the Tribal Advisory Council (TAG) which was convened on 1.7.2005 discussed the A.P. R&R Policy, 2005 and resolved that (a) Scheduled Tribes shall be given land in the ayacut and (b) it shall ensure prohibition of transfer of land in ayacut and other irrigation project. The R&R Policy is being suitably modified accordingly to provide land for land compensation to tribals in the command area or in other areas. During the 97<sup>th</sup> TAG meeting conducted on 27.2.2006 more than 80 per cent of the members agreed for the construction of the project with better implementation of R&R Policy. A report on the project was furnished to the Chairman, National Commission for Scheduled Tribes on 29.10.2005. The members of the Commission, after visiting the State, expressed satisfaction on the R&R policy.
60. The Andhra Pradesh Government claims that Gram Sabhas have been conducted in all the Village Panchayats and most of the villages have favoured the project. The project affected scheduled tribes persons are being resettled in the Schedule V area only. They are being provided with land to land compensation in scheduled area only by upholding their political, constitutional and social rights.

The Socio-economic survey for the Polavaram project in Andhra Pradesh revealed that consultations at the ground level were completely missing. Even the gram panchayats and local Mandal Parishads did not have any information about the extent of submergence or what government plans had in store for them.  
<http://www.csdindia.org/projects/documents/SocialImpactAssessment.pdf>

61. Of the 42 villages in Devipatnam Mandal (East Godavari) around 10 villages / habitations have been awarded certificates of titles as per the Tribal Welfare Department over an area of 1062 acres for individual claims. Total individual claims stand at 220 in total as of now. Details of these villages is as follows:

Panchayat Name	Village Name	Habitation Name
Ramannapalem.V	Damanapalli	Damanapalli
Thunnuru	Gonduru	Gonduru
Kondamodalu	Kondamodalu	Katanapalli
Kondamodalu	Kondamodalu	Kokkiragudem
Kondamodalu	Kondamodalu	Kondamodalu
Palem	Kothagudem	Kothagudem
Kondamodalu	Kondamodalu	Mettagudem
Kondamodalu	Kondamodalu	Peddagudem
Kondamodalu	Kondamodalu	Somarlapadu
Kondamodalu	Kondamodalu	Talluru

*Effectively 4 Panchayats*

62. Category of land awarded has been indicated as cultivable land which falls in the Kakinada Forest Division, Gokavaram Range. The number of habitations corresponding to area range is provided below for reference:

Area Range (Area Extent)	Number of claims Corresponding to Range
>0 to 1 acre	17
>1 to 2 acre	27
>2 to 3 acre	41
>3 to 4 acre	19
>4 to 5 acre	28
>5 to 6 acre	20
>6 to 7 acre	9
>7 to 8 acre	12
>8 to 9 acre	7
>9 to 10 acre (the maximum observed is 9.88 hectare)	40*
<b>Total</b>	<b>220</b>

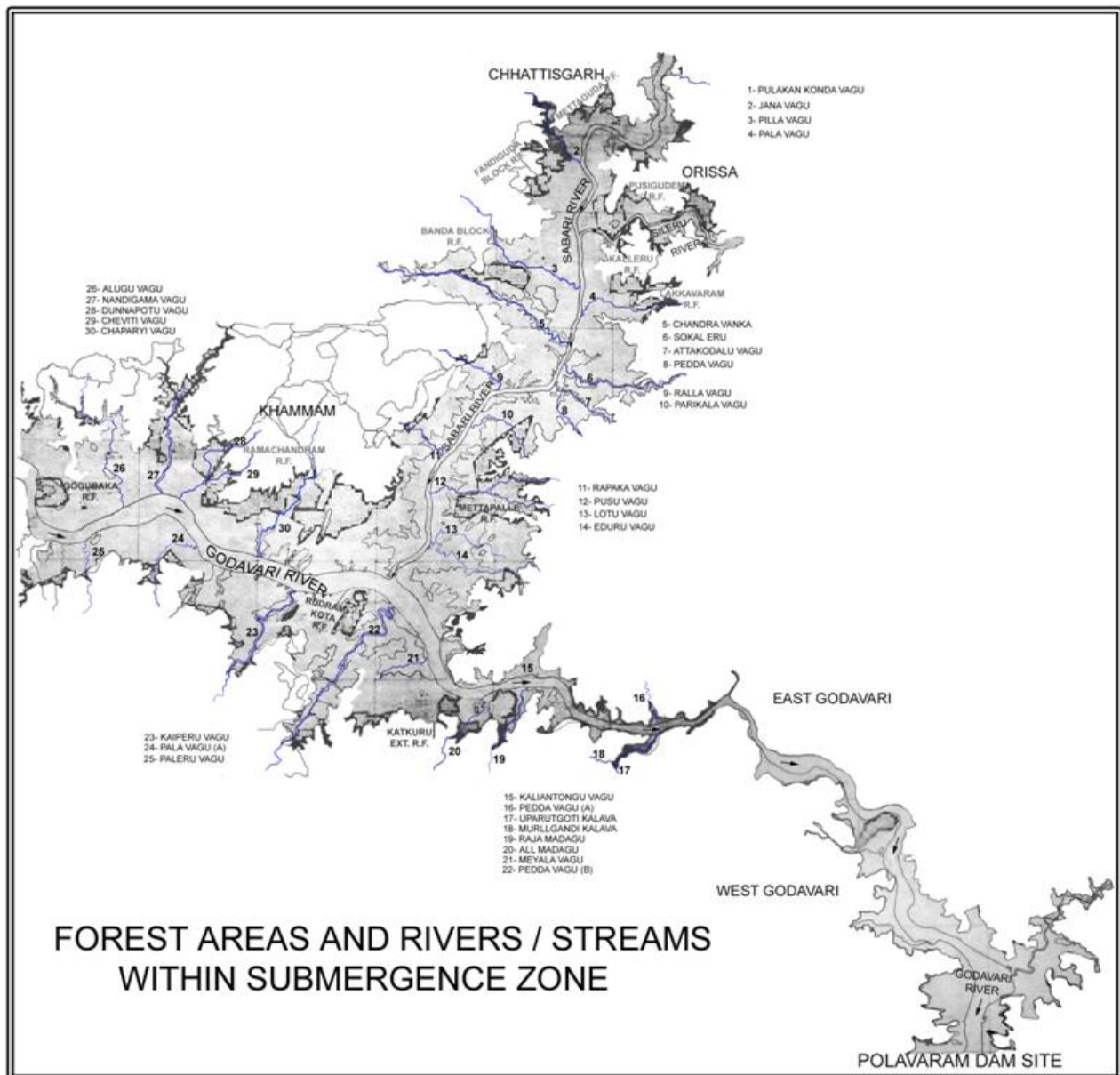
- Only 15 claimants have the maximum of 4 hectares or 9.88 acres of land among all the claimants which stands at minimal of 6.81%

63. The Central Government gave the clearance on 28.07.2010 but stated as follows:

The State Government of Andhra Pradesh submitted a compliance report vide their letter dated 02.09.2009 and a final compliance report vide letter dated 10.06.10. Accordingly, the proposal has now been approved and final clearance is given by the MoE&F.

This approval, however, is based on the clear understanding that the Government of Andhra Pradesh will take all steps to ensure that no submergence of forest land on account of this project would take place in Orissa and Chhattisgarh. Further, it is also based on the assurance of the Government of AP that there are no forest rights that need to be settled under the Scheduled Tribes and other Forest Dwellers (Recognition of Forest Right) Act, 2006 in the project area and that the approved R & R package would be implemented by the State Government in a time-bound, transparent and *pari passu* manner.





## VI. Safety of Dam and Alternatives

64. The dam break analysis made in the EIA is incomplete since the assumptions made for dam break and peak maximum flood and Geological Flood Foundation and the design of the earth dam and the spill way are totally against the engineering practices. The design of the spill way and the location of the spill way will definitely lead to the breaking up of the dam instantaneously since the earth dam is located in the centre of the river course. The dam will collapse instantaneously when maximum flood occurs. The foundation of the spill way consists of fractured and weathered rocks, and will not be able to withstand the water pressure during heavy floods. The Government has to undertake a proper study in respect of dam break analysis.
65. As per the applicant, many experts including the erstwhile Water Resources Minister, Mr. K.L. Rao, have expressed their concern about the suitability of the site for the construction of the dam. The spill way capacity is inadequate. The normal rule of thumb is to design spillway 1.5-2 times of the probable maximum flood which is not being followed. Because of diversion of water to the right in a width of 900 m and blocking the main course of the river by earth-cum-rock fill the dam will not be able to withstand the high force of the river. No rock for foundation is available until great depths. The local black soil is not suitable for the construction of earth-cum-rock fill dam. The soil from the other areas will only lead to additional costs.
66. The above has been firmly contested by the Andhra Pradesh stating that the ***present proposal with FRL/MWL + 45.72 M (+150 ft.) with gross storage capacity of 194.70 TMC and live storage capacity of 72.20 TMC*** has been firmed up after considering several alternative proposals since 1941. In 1941 the then Chief Engineer (Irrigation) made a proposal for storage reservoir with FRL + 150 ft. The proposal was revised in 1942 with FRL + 170 ft. with effective storage of 300 TMC. The proposal was further revised and enlarged. The preliminary investigations were completed during 1942-44. Thereafter the FRL was raised to + 192 ft. with storage of 588 TMC. Thirteen possible sites were investigated thoroughly and finally the Rampadasagar alignment was selected. The detailed investigations and detailed designs were carried out during 1946-47. The services of Consulting Board of Engineers consisting of top ranking engineers of world repute were engaged. The members, after detailed examination, unanimously concluded that the construction of the dam is feasible and the selected site is the best available one. At that time the estimated cost of the project was Rs.129 crores. However, because of financial constraints the project could not be undertaken.
67. Dr Biksham Ganju, Prof Shivaji Rao and others have studied the potential flood risk and find the project untenable. Polavaram intended across the river Godavari and will store 2.1 mcm of water. The specifications are for a dam with length of 2,310 m across the river to maintain +45.72 m for FRL. The dam will have a spillway designed to discharge 102,000 m cu/sec. A spillway is normally designed to expect three times the maximum observed daily discharge. If this dam is built the water spread area will be 637 sq km. The backwater (ie, water standing permanently) will extend about 110 km upstream. With the backwater effect the water level during the monsoon (not flood periods) could be around 52 MRL.
68. So when the dam is built, floods like those of 1986 and 2006 can be expected to cause massive damage both upstream and downstream. The river is narrow at Papikondalu and the water has to pass through less than 400 m. When the dam is built the water will not be able flow downstream, which can cause serious damage to the surrounding

villages. The problem has been highlighted and several experts have articulated their concerns over this.

69. During 2006, the water level at Bhadrachalam reached up to 20 m. The back water levels at Bhadrachalam could reach 61.7 m. without dam and 63.7 m with dam when river reaches the daily discharge at 48,00,000 cusecs. With this the submergence could increase at least 40% and might even double the level of 2006 floods. This is very rough estimate, but if the daily discharge reaches 50,10,000 cusecs, the damage could be catastrophic once the dam is built. Since water cannot pass through the narrow gorge of Papikondalu, the backwater spread will be immense. Here, it is important to conduct detailed modelling taking into consideration various daily discharges, the dam, the number of days that flooding might continue, as well as hypothetical data such as rainfall intensity and scenarios including the dam, excluding the dam and so on to predict the extent of submergence, damage and the damage to infrastructure etc.
70. The extent of damage in the event of Polavaram dam break has been estimated by Prof. Shivaji Rao and concluded that more than five million people will be effected of that 50,000 might die. The flood damage includes death a million cattle, massive damage to houses, roads, crops etc. Even at the very modest cost the damage might reach to \$10 billion without including the long term impact on property and ecosystems. All this might happen if the daily discharge reaches 38,80,000 cusecs. Our projection suggests that the Godavari discharge might reach even above 70,60,000 cusecs and most likely above 5,010,000 cusecs.

Any new concept will have problems in understanding in the initial stages and this alternative proposal is no exception to this. T.HanumanthaRao

71. CEC thinks it is a Case for Second Thought and wrote as a postscript to their report "though the project has a great significance for economic development of the State it is fraught with two serious issues that have so far defied satisfactory resolution."
72. Firstly, the Polavaram project involves displacement of a large population of poo living in 276 villages and 9 mandals consisting of 44574 families which fait in the submergence area. They include 6875 families of the Scheduled Castes and 21109 families of the Scheduled Tribes. The Kondareddi tribals inhabiting the Eppur village near Pochavaram assert that they have been living there since ages and depend for their livelihood on collection of bamboo and minor forest products from the adjoining forest areas. They are very vehemently opposed to any displacement since they believe that their village deity resides in the area. They say if compelled by circumstances they will move up the hills but not leave the forest area. The villagers of Ravigudam, Jidiguppa and Visumuru also oppose the Polavaram project and assert their desire to stay in and around the forest area. The general sentiment in the area is against any displacement from their ancestral villages which besides attendant difficulties threatens to disrupt their cultural moorings.
73. Some of the NGOs working in the area during the interaction with them have indicated that the people inhabiting the submergence area are organizing protests against the implementation of the project since they do not want to be displaced in the first place and secondly, because they are not quite confident about the relief and rehabilitation package being offered to them.
74. The other important issue relates to sacrifice of extensive areas of natural forests including a large part of the Papikonda Wildlife Sanctuary. The area is rich in flora and fauna and its submergence would lead to an irreparable loss of biodiversity besides

destruction of a vibrant ecosystem. These forests are also home to a host of wild animals including those protected under Schedule-I of the Wildlife (Protection) Act 1972 besides multitude of other creatures and microorganisms whose existence would be adversely affected by the project.

75. The forests of the submergence area are typical Tiger habitat where pugmarks of tiger have also been found during the recent surveys. It is common knowledge that the habitat and therefore the population of tigers in the country is dwindling.
76. The Polavaram project will further reduce the tiger habitat. These natural forest and their ecosystems can not be replaced /reconstructed by any artificial measures. Their tangible and intangible benefits can not be evaluated in money value terms. Their loss would be irreparable and would never be truly and adequately compensated by Compensatory Afforestation or other measures that may be taken with the funds created with the Net Present Value of forest land payable by the User agency.
77. ***There is, therefore, a strong case for a second thought and explore alternative location and design of the dam to avoid the colossal loss in terms of apprehended sufferings and disruption of life style of the local inhabitants.***
78. It has been stated that in 1976, two alternative proposals namely (a) barrage/diversion gated structure on permeable foundations (b) spill way on rocky foundation in the flank saddle were considered. It was decided to go for the latter. In 1978, a detailed project report was filed with the CWC for the construction of earth cum rock fill dam in the main river course and spill way in right plank saddle. In 1987 a comprehensive project report was submitted to the CWC. Fifty-seven sets of comments were received from CWC upto November 1987 and replies were filed from time to time. After submission of the comprehensive project report during November 1987, six sets of comments were received upto January 1990 and thereafter 10 sets of comments were received. During 2005 the project report was updated and filed with the CWC and the estimated cost of the project was Rs.9072 crores.
79. As per the Applicant State earth-cum-rock fill dams built all over the world are functioning well without causing any problem. The dam engineers over the years have developed to a great extent suitable technology to design and construct dam. The Polavaram project has been conceived after discussions in the various technical committees. The report on dam break analysis of Polavaram Project was got prepared from the National Institute of Hydrology, Roorkee. A flood inundation map that corresponds to the dam break flood hydrograph and its movement down stream has also been prepared. An emergency contingency strategy for meeting unforeseen disaster eventualities of heavy flooding and inundation has been prepared which include establishment of dam surveillance unit, monitoring of maximum water levels, warning, danger levels of river, special attention to areas prone to inundation, diversion of transportation goods, provision of flood lines, use of generators etc.
80. The Applicant State has also stated that in any case the design of spill way and earth cum rock fill dam will be got approved by Central Water Commission which is the premier institution in the country. The construction of the dam will be taken up as per the approved drawings of the CWC only.
81. The State of Andhra Pradesh has further stated that a Committee of Experts was constituted on 29.8.2005 to study the possibility of reducing the height of the barrage. The said Committee of Experts also examined the alternative proposal in this regard submitted by Shri Dharma Rao, former Chief Engineer and Shri T. Hanumantha Rao, Engineer-in-Chief (Retired). All the above three proposals were examined in detail by

the Expert Committee who found the proposals to be not feasible both technically and financially. These engineers have challenged the state to a technical debate on the viability of these alternatives.

82. **Shri T Hanumantha Rao's concept of Low barrages:**

The Concept of the alternative proposals AP) is to obtain a usable (live) storage of 75 TMC at a number of low barrages, instead of at one place at Polavaram Dam, since the dam which among the other things involves in huge submersions as well as risks of dam break. The storages created in these low barrages will entirely be 'Live' since water can be drawn upto bed level (Similar to flow in an unobstructed river) and hence there will be no dead storage or MDDL.

**DESIGN DETAILS of ShriHanumanthaRao's Plan**

**1. Discharges in canals (left & Right) in kharif season:**

(a) Ayacut (total) = 2.5 lakh acres @a duty of 75 ac/cusec discharge=  $\frac{2,50,000}{75} = 3333$  cusecs

(b) Krishna Diversion in 120 days = 80 TMC

Q in 1 day =  $\frac{80}{120} = \frac{2}{3}$

@ 1 TMC/day discharge = 11,574 c/s

$\frac{2}{3}$  TMC/day discharge =  $11,574 \times \frac{2}{3} = 7,716$  cusecs

(c) Domestic & Industrial water

365 days = 24 TMC

1 day =  $\frac{24}{365}$  TMC Q =  $\frac{24}{365} \times 11574 = 761$  Cusecs

Therefore Total Discharge in both the canals = a+b+c= 11,810 cusecs or  $\frac{11810}{365} = 32.36$  Cumecs

(Note: during the non Kharif season there will be pumping mainly for (c) requirement)

**2. HP of pump sets required for both left & Right canals:-**

FSL Left Canal =40.54 m

Water level in barrage (Allowing 1m lower level during 4 month flood season) = 29.48m

Therefore Static head = 11.06

Adding Friction losses @ 10% = 1.10, total Head = 12.16m

HP =  $334.5 \times 1000 \times 12.16 / 75 \times 100 / 76$  (eff. of motor 95% x eff ump 80% = 76% )

= 71,360HP or  $71360 \times 0.746 = 53235$  kw or 54MW

**3. POWER CONSUMPTION FOR PUMPING FROM RIVER TO CANALS:-**

a) Total max discharge in canals = 11810 cusecs or 334.5 cumecs

b) Total head=12.16m; HP=71.360; KW= 53235 (54 MW)

c) Maximum pumping would be in 4 months (120 days or 2880 hrs)

d) In the other days of the year, pumping for Krishna delta and drinking water will be less and power consumed during this period can be considered as 30% of the peak power consumed in 120 days.

CALCULATION OF POWER CONSUMED:

KW hrs consumed in 120 days or 2880 hrs =  $54,000 \times 2880 = 15,552 \times 10$  (power 4)

KW hrs consumed during the other days in the year (say about 30% of above)

=  $4,448 \times 10$  (power 4) or =  $20,000 \times 10$  (power 4) or  $2 \times 10$  (power 8)

Cost at Rs.1.50 per unit =  $2 \times 10$  (power 8) x 1.5=  $3 \times 10$  (power 8) or Rs.30 crores

Thus the annual notional power consumption cost=Rs.30 crores. This would be a notional profit to the irrigation Department, as hydro-power is produced with capital and maintenance cost borne by the irrigation Department.

**4. POLAVARAM LOW BARRAGES –HYDRO-POWER GENERATION**

1.Barrage D/s of Bhadrachalam:

Q= 1,00,000c/s or 2832 cumecs on an average for peak power

H=20m (water level differences between U/s and D/s 50.75-30.48 = 20.27 or 20m) M.W.=cum x Head/75 x eff x 0.746 =

$2832 \times 20 / 75 \times 0.75 \times 0.746 = 423$  MW

Very large discharge axial flow turbines will have to be used.

2. Barrage across Sabari: Q = 65000 c/s or 1841 cum and H = 14m;

$44.72-30.48:14.24$  or 14m MW =  $1841 \times 14 / 75 \times 0.75 \times 0.746 = 192$  MW

3. Low barrage at Polavaram; Q = 1 lakh c/s or 2832 cum & H = 30.48-10.48 = 20m

MW=  $2832 \times 20 / 75 \times 0.75 \times 0.746 = 423$  MW

4. Total Hydro power = 423 + 192+423 = 1038 MW

<http://www.indiawaterportal.org/blog/shivajirao32/10053>

83. There is no need to provide four prohibitively expensive barrages and obtain a storage of 222.225 TMC where as 75 TMC storage would be adequate (as contemplated in the original Polavaram Dam Proposal). These very big storages and high FRLs had

contributed to the exorbitant cost of Rs.19,108.53 crores.

84. If the Spirit and philosophy of alternative proposals are properly adopted by appropriate selection of Barrage sites, FRLs Storages and the cost of proposals would workout to Rs.7143 crores. Again very high water levels (FRLs) than required were provided and this resulted in a huge submersion of a total of 345 villages, where as the high dam at Polavaram original proposal would submerge only 276 villages. The proposal of Kunavaram barrage costing Rs.5,330 crores and submerging 202 villages has no place in the AP and has to be therefore deleted altogether.
85. The cost as per the Alternative Proposals (Rs.7143 Crores) would be lesser than the cost of Original Polavaram (Rs.8713.09 crores) and far lesser than Rs.19,108.53 Crores currently estimated. Also the number of villages submerged would be 72 as against 276 in the original Polavaram dam proposal as well as 345 which is current design. Generation of Hydropower would be higher at 1038 MW and 960MW of Original Polavaram proposal.

86. **SHRI.M.DHARMA RAO's alternate proposal:**

The alternate proposal envisages a comprehensive utilization of the existing projects and which are in the active consideration of the government in the Godavari valley. In this proposal it is not required to construct the Polavaram reservoir as now proposed.

87. The alternate proposals envisages construction of barrages and number of small balancing reservoirs across many streams joining Godavari and will be storing water throughout the year. Therefore it contributes to the improvement of ground water in the entire delta systems and will be stabilizing the ayacut of Godavari and Krishna deltas.

**88. Design Details of Shri Dharma Rao's Plan**

1. System for the Left flank requirements

In the Godavari basin Sabari river including main tributary Sileru river contributes about 200 TMC to main Godavari river. This water is available at higher level and above the F.R.L. of the proposed Polavaram Project and can be harnessed at higher level as described below.

- (a) Sileru river has got many existing hydro electric schemes which contribute regulated flow of about 4,000 cusecs for atleast 9 months in a year. This regulated flow can be harnessed at a level of about 300 ft by constructing a barrage across the river and diverting the flow into the Sokleru river valley.
- (b) Construction of a reservoir across Sokleru river to store water diverted from Sileru river
- (c) A barrage can be constructed across Sabari river at a level about +150' and at least 25% of its flow can be diverted into the canal taking off from Sokleru reservoir.
- (d) The canal taking of from the Sokleru reservoir can be aligned at suitable level and can be dropped into a reservoir across Pamuleru river.
- (e) Reservoirs also can be constructed across Pamuleru River and other hilly tributaries in this region to tap the waters of these hilly streams which contribute considerable amount of water.

All those proposals can be formulated with a comprehensive design as required altitude available for location of the barrages-reservoirs and canals. The canals and reservoirs proposed are upstream of Polavaram dam and at higher elevation and as such can supply water to the left flank requirements.

The total water thus available as a conservative estimate will be

- (1) Even if we propose to tap waters of regulated flow released from the hydro electric schemes on Sileru river in only six monsoon months the availability will be about 65 TMC from Sileru basin.
- (2) As per the norms which are being followed a diversion scheme across Sabari river where the monsoon rainfall is more than 45 inches can divert 25% of the 75% dependable yield. The 75% dependable yield of Sabari river alone excluding Sileru river is about 120 TMC and as such we can divert 30 TMC.
- (3) Sokleru, Pamuleru and other 4 or 5 minor valleys contribute about 20 TMC. All these put together will be (65+30+20) 115 TMC. The regulated flow from Sileru, balancing reservoirs on the Sokleru, Pamuleru and other tributaries and barrage across Sabari river will provide assured water supply to the left flank requirements as envisaged under the present Polavaram project.

Advantages of this system are:

- (1) Existing reservoirs on Sileru river can be improved to hold extra water, thereby increasing the hydro electric and irrigation potential.
- (2) The proposed reservoirs across Sokleru, Pamuleru and other streams will act as balancing reservoirs and will offset excess of low flows in the different valleys. These reservoirs and the Canal running at higher contour will increase ground water table in the area and will solve drinking water problems of not only Vishakhapatnam but poor people in the forest. At present there is severe water scarcity in the valley in the summer season and wild life is also suffering.
- (3) The rise in water table will contribute to forest growth and many forest species will thrive contributing to health of the people in the valley.
- (4) At present there are no proper communication facilities. The canal can be designed to have a road on the bank which will be not only useful for inspection but for communication and will act as bank for flood control.
- (5) All the villages and towns in the toes of Eastern Ghat can be supplied water from this canal as it is at higher level than the Polavaram canal.
- (6) Considerable saving can be effected in the power requirement as there will be no need to lift water from lower level to cover more ayacut and villages as in the now proposed project.
- (7) The small reservoirs, barrages and communication net work along the canal will save many heritage sites and temples, Papikondalu and will be an eco tourist destination.
- (8) Hydro electricity can be produced at the toe of the proposed balancing reservoirs on Sokleru and Pamuleru.

## II) System for the Right flank requirements

There is an existing anicut across Godavari at Dummugudem, which is proposed to be improved to store water up to +165 ft level. This anicut is at up stream location and at higher elevation than Polavaram project.

At Dummugudem anicut sufficient perennial flow of more than 35,000 Cusecs is available and at 75% dependability about 600 TMC of water is available and as such there is no dearth of water at this point.

It is important to note that assured water can be supplied from Dummugudem anicut as there are proposals of construction of Ichampally Hydro Electric Project, Singareddygudem Hydro Electric Project up stream of Dummugudem anicut and modernization of Dummugudem anicut. These three systems as they are also Hydro Electric Schemes will enable the assured water at Dummugudem anicut for diversion to the right flank of Godavari River from higher elevation than Polavaram Project. Even in Polavaram Project design Ichampalli Project plays vital role for supply of regulated flow. Further to Ichampalli Project Singareddygudem and modernization of Dummugudem schemes are added.

Therefore there will not be any dearth of water supply at Dummugudem anicut for diversion to

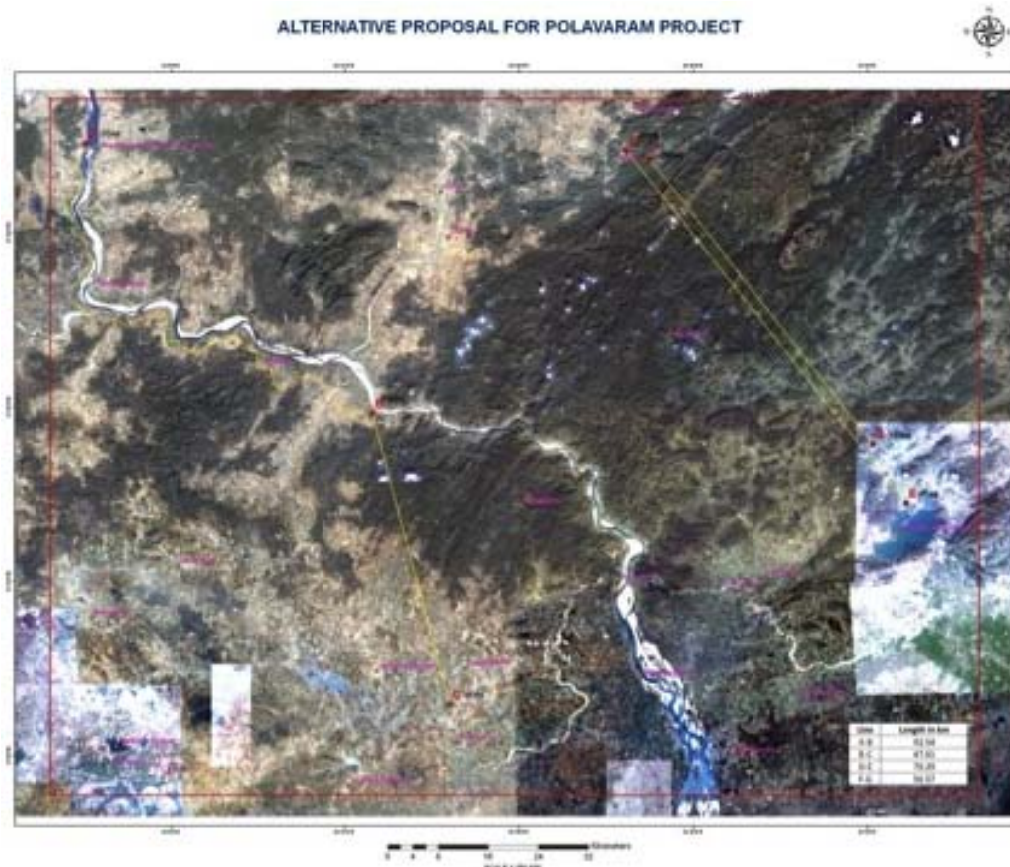


serve the right flank requirements of Polavaram Project and diversion of water into Krishna valley and Prakasam barrage.

This system can be utilized and canal can be proposed from the right flank of Dummugudem and aligned to run parallel to Godavari River upto Kinnersani River and after crossing this river encounters Godavari-Krishna ridge. A tunnel will have to be provided to cross this ridge and after this the canal can be designed to supply water on the right flank of Godavari.

Advantages of this system are:

- (1) The envisaged benefits under Polavaram Right Canal can be easily achieved by the canal taking off from Dummuguda Anicut as it will be at higher level than the present Polavaram Right Canal.
- (2) Many areas in Krishna valley particularly tail end of Nagarjunasagar canal can also be served.
- (3) As the canal enter into Krishna valley after crossing the ridge 80 Tmc of water can also be supplied to Krishna valley and ultimately into Krishna barrage.
- (4) The canal will be a garland canal running down stream of the reservoirs already constructed across many streams joining Godavari in the right flank. At least 30 Tmc of water can be harnessed at higher level by improving the existing systems on the tributaries.
- (5) This canal will supply water by gravity to large areas in Khammam, West Godavari and Krishna districts.
- (6) As the canal runs parallel to Godavari River it can also be designed to act as flood bank and to carry a road for inspection and communication purpose.

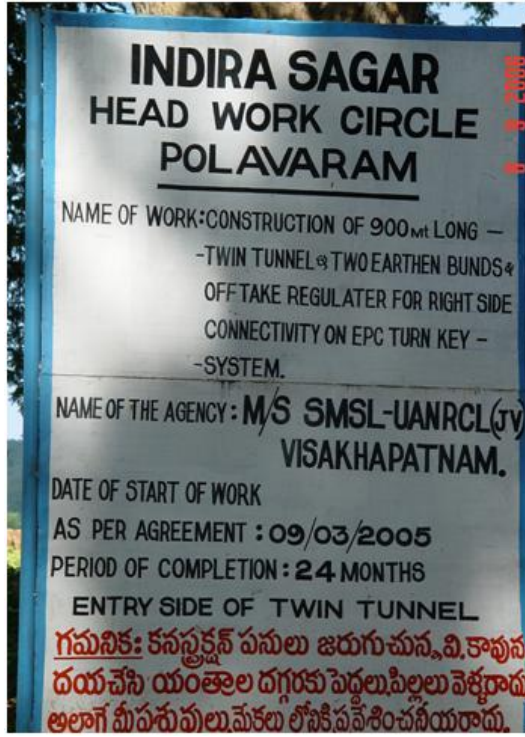


89. At this juncture it is to be pointed out that the proposed tunnel to cross the Godavari - Krishna ridge can be easily constructed, as many varieties of tunnel boring machines are available in the market. As the tunnel boring technology is easily available the

Government of Andhra Pradesh is also proposing to construct tunnels for SLBC and for other canals. Therefore it is not difficult for Government of Andhra Pradesh to take up this tunnel.

90. The feasibility of this diversion scheme from Dummugudem anicut has been studied by Khosla, Gulati Commissions earlier and recently by the Government of Andhra Pradesh in connection with the proposals of diverting Godavari waters into Krishna valley. Therefore the technical feasibility has already been established.
91. The proposed canals in the left and right flank will have dead length for certain stretch but cost of these canals including barrages, balancing reservoirs and tunnels will be far less than the construction cost of Polavaram reservoir and cost of rehabilitation of villages and people. As the proposals avoid huge submergence of lands, forest and displacement of 300 villages and two lakhs of people, it will be acceptable to the people.
92. There will be no section in the society opposing the alternate proposals as it may involve submergence of only 4 or 5 villages, that is to say the entire displacement of tribal people and submergence of 300 villages is avoided and all the envisaged benefits can be achieved without creating any animosity in the society and all sections will welcome the proposals. Further one more important aspect is that there is no submergence in the neighbouring States and there are no interstate problems.

## VII Way Ahead

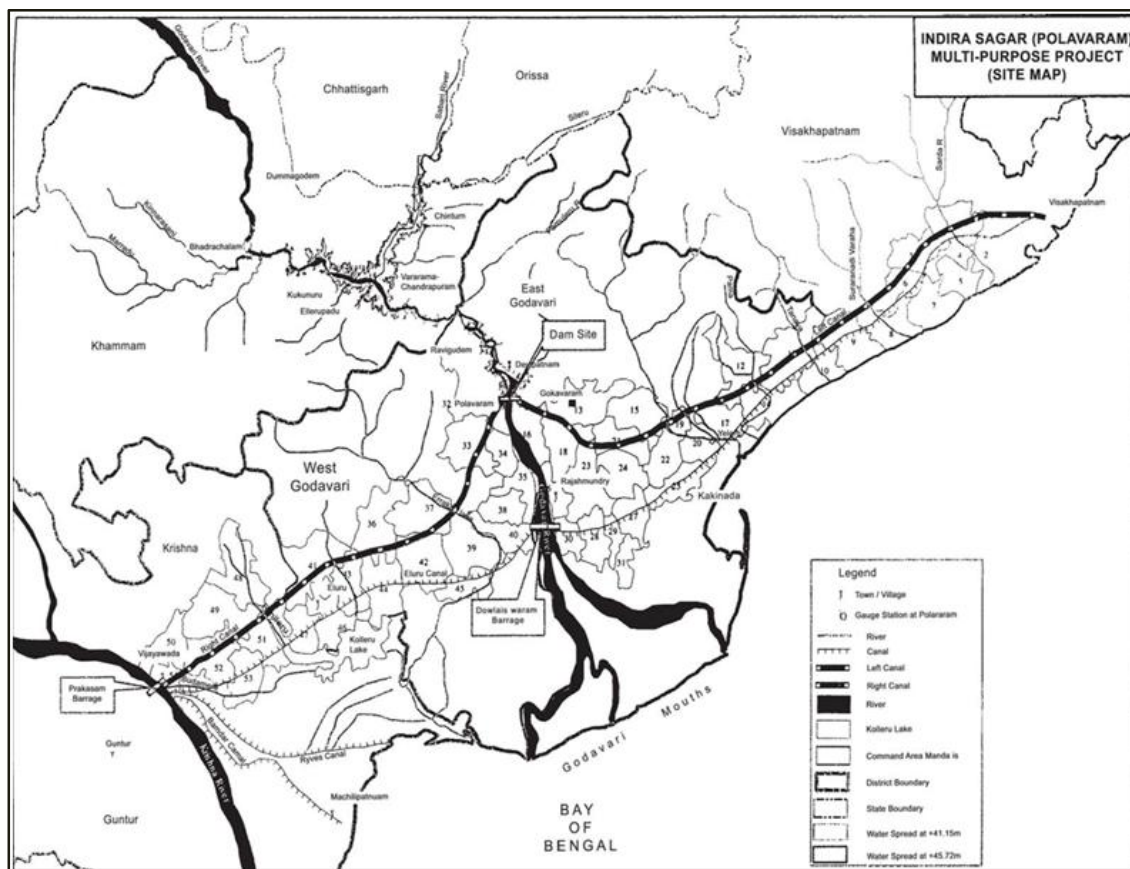


93. The Polavaram Project is currently steeped with controversies and will be a monumental failure of governance if the project goes ahead with the existing designs and is the cause for displacement of the maximum number of people, perhaps around 1-lakh families. The number of cases that have now accumulated on the project and the Supreme Court's insistence that the work should not be stopped with a caveat that it could be broken down reflects very poorly on every arm of governance. An example of how the political leader who is being accused of receiving favours from the government who in a single breath is able to talk about all aspects and laws for governing our ecological impacts. This clearly indicates that it might be not be just the science, technology and viability of the project or the recognition and establishment of rights of the citizens

that governs decision-making affecting our ecology.

94. Therefore it is important in the interest of the nation and particularly a huge number of tribals who would be affected by the mammoth project, alternative design has to be focused upon. While the two technical alternatives within the framework of the current project have been described there is also a very radical proposal by Shri.K.Sriramakrishnaiah.
95. His study revealed that about 600 TMC can be pumped without any head works across the Godavari. Utilising streams as carriers of pumped water and swapping of water from one system to the other has resulted in considerable economy, least disturbance to the environment and need less maintenance. The scheme to irrigate 58 lakh acres, providing 40 TMC for drinking and industries, 10 TMC to Hyderabad and 40 TMC to Rayalaseema is made out after detailed study of levels and topography.
96. The Godavari flows almost close to the northern border. The water is to be transported to higher levels negotiating the rising topography and over long distances. Lift irrigation is therefore a must and distances to be reached are great. The following strategies are evolved and adopted.
  1. Use of natural water resources to function as canal systems.
  2. Low head pumping arrangements.
  3. Storage reservoirs submerging only unproductive lands without much rehabilitation problems.
  4. Swapping of waters from one system to the other.
  5. Beneficiaries participation and management from investigation to execution and operation.

97. The cost per acre is as low as Rs.11,000 to 12,000. The total power required during 4 to 5 months of rainy season is about 3000 MW, which can be managed over a period of 15 to 20 years. All clearances can easily be obtained since no inter-state problems are involved and only limited problems relating to environment are involved. Water supply to the Hyderabad city can be had at 30 to 50% of the cost of bringing water from the Nagarjunasagar.
98. New financial instruments need to be developed. The beneficiaries can finance the scheme, if only suitable steps like enactments of the required acts, and create the required atmosphere. The government can act as friend, philosopher and guide, generously lending financial. Administrative and technical support when needed at the right time.
99. The current controversies could be resolved only when a serious attempt is made by the Andhra Pradesh Government and the Central Government to evolve a mechanism to sincerely evaluate the alternate models and to come up with a process by which the displacement and ecological havoc to be caused by the project is minimized.



100. Regulatory institutions of the Government must be *suo moto* seized of this rather than placing even this intellectual and judicial burden on the very same population.



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**Polavaram: KCR tells CM to cancel all bids**

Amid mounting criticism by TDP and BJP that the technical bids for the Rs 4,714-crore Polavaram Indirasagar Project were cornered by contractors allegedly close to Telangana Rashtra Samithi president K Chandrasekhar Rao, the TRS chief has written a letter to chief minister N Kiran Kumar Reddy urging the government to cancel the tenders forthwith and put a halt to the construction as advised by the Union government till the matter is adjudicated by the Supreme Court. Accusing former chief minister Y S Rajasekhara Reddy of grounding the project works in great haste, Rao in his three-page letter on Sunday stated that he had been opposing the project right from the beginning itself.

*"The project was grounded in great haste by your predecessor, violating all laws of the land namely Environment Act 1986, Forest Act 1980, PESA Act 1996 and the Bachawat award. I requested the government to look for alternatives as the project was submerging extensive tracts of scheduled areas of AP, Orissa and Chhattisgarh, displacing 73,000 STs of which 60,770 are from the state," he observed.*

Rao said he sought Sonia Gandhi's intervention in the matter in 2005 after his appeals for changing the design and plan for alternatives did not yield any results. "On her insistence, a tripartite meeting was held at AP Bhavan on July 22, 2005 with Digvijay Singh and YSR wherein it was resolved that alternatives in place of the present dam would be worked out to keep submergence to the minimum. The government made a mockery of the resolution by constituting a committee and framing the terms of reference of the committee in such a way that the committee would be compelled to say that the present project would be the answer," he stated. "When all my efforts went in vain, we knocked the doors of central empowered committee, high court and Supreme Court. The governments of Orissa and Chhattisgarh have taken a serious view of the actions of the AP government in pushing the project without obtaining the concurrence as required by law. I urged government to formulate a new design for the project keeping in view national and international norms and guidelines, including the world commission on dams," he pointed out. 'Wait till SC decides on Polavaram', "Unfortunately, the government did not pay heed to any advise from any quarter and went on completing the canals by spending Rs 3,500 crore knowing fully well that the Supreme Court was seized of the matter. I understand that the bids have been opened and tenders are yet to be finalised. Under these circumstances, I strongly urge the government to cancel the tenders forthwith and put a halt to the construction as advised by the Union government till the matter is adjudicated by the SC," he stated.

In fact, a petition has been filed in the high court challenging the state irrigation officials' decision to accept the technical bid filed by M/s SEW-Patel-AMR JV company for constructing a part of the Polavaram irrigation project in East Godavari district. The petitioner sought cancellation of the tender notification for the project and reversal of the decision. The Polavaram project, intended to create a new ayacut of 7.2 lakh acres and stabilize of 25 lakh acre of the ayacut in the Krishna and Godavari delta, would submerge 206 villages in Telangana (Khammam district) of the total 299 villages, including 23 in Orissa and Chhattisgarh and displace 1.94 lakh people. Nearly 1.2 lakh acres would be submerged, including 9,200 acres of forest land. The project proposed to generate 960 MW of power and provide drinking water to 500 villages. Earlier in the day, Congress MPs who met at minister K Jana Reddy's house along with other ministers wanted the state government to give an explanation on the latest round of controversy surrounding the Polavaram project.







Environics Trust is a not for profit research and community development organisation and an enabling institution. Environics conducts participatory research on issues of environment and human behavior and uses these outcomes for innovative community development programmes.

Environics anchors several networks and partnerships. Environics is a co-founder and promoter of the mines minerals and PEOPLE alliance (mm&P), the Indian Network on Ethics and Climate Change (INECC), the EIA Resource and Response Centre (eRc). Environics promotes and mentors environmentally sound enterprises and among these is the largest Sustainable Built environment enterprise in India - Biodiversity Conservation India Limited (BCIL).

Environics provides research and evaluatory services to International, National, State and Local Institutions and directly works with marginalised communities such as those in the mountain regions, tribals and communities adversely affected by mining and industrialisation.

Environics is an observer member of UNFCCC; Founder Members of the Editorial Board of the worlds largest community and mining portal <http://www.minesandcommunities.org> and a member of the Asian TNC Research Network. Environics is currently co-hosts the Secretariat for The Access Initiative Coalition (TAI) and Coordinates the Occupational and Environmental Health Network of India (OEHNI).

Environics currently undertakes community level activities in Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh and Gujarat and works through a number of other partners across the country.

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