

POLAVARAM MULTI-PURPOSE PROJECT

- A 25 year old "solution" for all water problems in northern Andhra Pradesh returns to haunt tribal communities

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A report prepared by Patrik Oskarsson for Samata
91-40-55637974
samatha@satyam.net.in

Address:
8-2-590/B
Road No. 1
Banjara Hills
Hyderabad
Andhra Pradesh 500034

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Introduction

As soon as the Congress Party came back to power in Andhra Pradesh in May 2004 it embarked on a Jala Yagnam, water prayer, campaign to construct as many irrigation facilities as possible for the struggling farmers during its five year term in power. Twentysix projects some of which have been delayed for more than 25 years have been taken up at an estimated cost of Rs 46,000 crore (\$10,599 million USD).¹ Of these Polavaram is one of the biggest in terms of costs and proposed benefits but also, by far, the largest cause of displacement.

Faced with opposition from villagers threatened by displacement, problems with clearances from the central government, inter-state conflicts and a lack of funders willing to support it, the Andhra Pradesh government has responded by changing no important aspects of the Polavaram multi-purpose project. The project is still very large, will cause huge displacement of mainly tribal people and is meant to solve water problems in widespread areas of both rural and urban Andhra Pradesh as well as generate power. The plans as they are known today are the same as those presented more than 20 years ago.

Polavaram is a major project on the Godavari River named after the closest town in West Godavari district of Andhra Pradesh. It is expected to cost some Rs 9,265 crore (\$2,131 million) but recently the Chief Minister put this as high as 20,000 crore (\$4,590 million). Work is scheduled to start on the extensive canal network first since this is the part of the project that will take the longest time to complete. As of now no source of reliable funding is available. Clearances for submersion in Orissa and Chhattisgarh are expected to take a long time still.

The main issue with the project is the submergence of at least 276 villages or up to 170,000 people of which 259 villages are in Andhra Pradesh, 10 in Chhattisgarh and 7 in Orissa. A majority of the people belong to Scheduled Tribes and live along the Godavari and adjacent smaller riverbeds upstream of the barrage. As so many times in India's history of water development, people from the Scheduled Areas are being asked to give up their lands to benefit non-tribals.

Villagers at the project site, outraged at work being started on the right canal without being given information, have protested at the camp site and prevented the engineers from doing any work. The Collector in Rajmundhry is issuing threats saying that any protesters will be labelled as anti-development and prosecuted. Contractors have already received its share of money for initiating the project but have made a written statement that construction will not continue without necessary clearances. If the government continues to push for implementation the Polavaram project it should be expected to be the scene of major conflicts over the next 10 to 15 years.

The government has made very little of detailed plans available to the public but prefers to communicate via press conferences. This report is based mainly on secondary information available through newspapers and similar sources combined with field reports. It is an attempt to outline some of the issues that are associated with the Polavaram project as well as describing the latest development as these are known today. Part I of the report examines the expected displacement and the compensation package that has been announced. Part II looks at the economics of Polavaram to see what the actual cost of building the project are and how it is going to be financed.

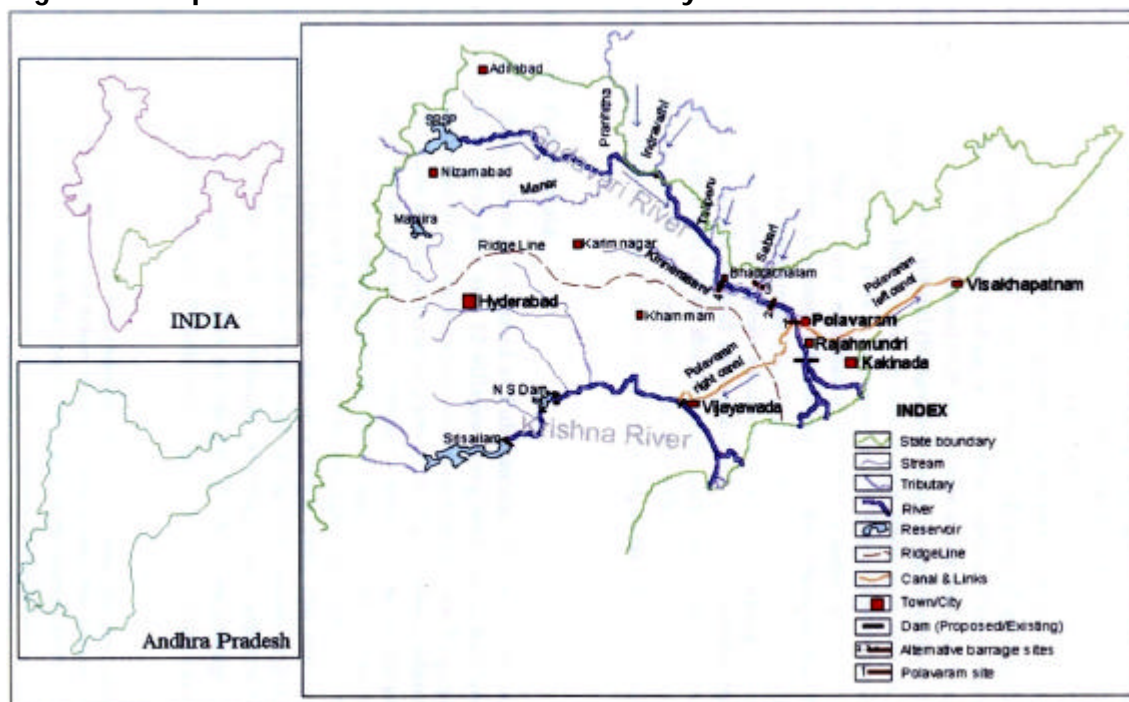
Brief Description of Polavaram

Since the Godavari river brings more water than can be used at the moment one of the main reasons for constructing Polavaram is not to let the water flow into the Indian Ocean. 644 tmcft (18 billion m³) is currently not being utilised from the Godavari and the Andhra Pradesh government wants a part of this water to be captured by Polavaram together with other major projects on the river like Dummagudem and Inchampalli.

25 years after the first inauguration ceremony Chief Minister Y. S. Rajasekhara Reddy of the Congress party laid yet another foundation stone at Polavaram in November 2004, renaming it Indirasagar. Polavaram has seen name changes from four different governments over the years. "Sriramapada Sagar", "Sri Sita Sriramapada Sagar", "Polavaram" and "Godavari Srujala Sravanti" are names that have all been used for the project.² The only actual work that has been undertaken over the last decades is the recently started work on the canals.

The central part of the Polavaram project is the barrage constructed straight across the Godavari river some 15 km north of Rajmundhry in East Godavari district. Through a number of gates power will be generated and there will also be a system to feed the left and right bank canals with water. The barrage will be constructed at a level of 150 feet (47 metres) and raise the water along the river stretch upstream in Godavari and several of its tributaries. The submersion will stretch for more than along the Sabari River, a tributary to Godavari, up to the borders of Orissa and Chhattisgarh.

Figure 1: Map over Polavaram and its Canal System



Source: T. Hanumantha Rao, "Polavaram Project: The Present Thinking and Possible Alternatives", Booklet based on transcript of key note address given on 5th January 2005 at the Press Club in Hyderabad. Centre for World Solidarity, Secunderabad, Andhra Pradesh
Map also contains alternative sites for smaller dams that according to the above author would give equal benefits as the proposed dam but with less displacement.

The right main canal will supply of 80 tmcft of water through Polavaram's to Budameru in Vijayawada, which opens into Krishna river upstream of Prakasam barrage.³ In this way the

canal will connect the Godavari and Krishna rivers. The 174 km long canal will draw 80 tmcft (226 million m³) of water from the dam site and drop it in to the Krishna. Since the canal is a major one there has also been a proposal to make it navigable for freight boats.

The Left Main Canal is designed to provide water to 12 lakh acres in north coastal districts besides meeting the drinking water needs of urban and rural areas. It will connect with Yelleru Left Main canal to bring water for industrial (Vizag steel plant) and drinking water purposes. It will also supply coastal Andhra Pradesh with irrigation water in Vishakapatnam, Vizianagaram and Srikakulam districts.

The project as it is known today consists of:

- Barrage for water diversion and power generation
- Right Main Canal that will bring water to the Krishna river delta
- Left Main Canal for drinking and industrial water to Vishakapatnam and irrigation for Vishakapatnam, Vizianagaram and Srikakulam district
- Lift Irrigation that will lift water from Godavari to Yelleru left main canal for further distribution to Vishakapatnam for mainly industrial use (probably substituted for Pushkaram and Tadipudi lift irrigation projects)

The benefits are proposed as:⁴

- Irrigation of 2.91 lakh hectares, 1.29 along the right canal and 1.62 on the left
- Stabilization of existing ayacut
- Water supply to Vishakapatnam city and industry
- Diversion of 80 TMC of water to Krishna river basin
- Generation of 720 MW of power
- Navigable canals from Polavaram to Vishakapatnam (through a system of locks)

Water in Andhra Pradesh

Despite the more than 40 rivers that flow through Andhra Pradesh cultivated areas still rely on rain for 50% of water needs. A major explanation to this is the temporary nature of the rivers where many flow only for a few months after the monsoon. At the moment groundwater usage is going up, reaching unsustainable levels in a third of the state. Due to free power and special loans groundwater usage might even overtake surface water shortly as the main source of water for agriculture.⁵

Some kind of storage of water is required to better utilise the water that is in excess during a short period of the year and then scarce for the rest. The question is how this can be done in a way that provides equity in water benefits as well as in equal share of negative consequences in costs and displacement.

A large number of irrigation projects have already been constructed in the vicinity of the Polavaram site and more are planned or under construction. The oldest dam dates to 1877, the Arthur Cotton barrage near Dowlaiswaram in East Godavari district. The Tandava reservoir was constructed in the 1970s with complete neglect of the people submerged from the dam. Local people still to this day struggle to receive fair compensation for their losses. The dam is now seeing a modernisation of its canal system.

Yeleswaram dam was built in the 1980s serving Vizag steel plant with water through a dedicated canal. This water partly due to losses from the canal has proven not to be enough and the plant can now draw water from the Godavari via the Kaniti balancing reservoir.

Surampalem and Kovvada are two recent medium irrigation projects that have just been completed. The displacement here was of five and two tribal villages respectively where the locals had to struggle to finally receive a rehabilitation package from the government. Kovvada is in West Godavari district only some 10 km from the Polavaram site.

The Sileru river has four projects; Balimela, Jolaput, Upper Sileru and Lower Sileru. Tadipudi and Pushkaram are two lift irrigation projects where work has recently been started downstream from the proposed Polavaram site. Bhupathipalem is a medium irrigation reservoir coming up very close to the Surampalem dam site.

Bhupathipalem and Musurumilli on Sitapalli Vagu river, Surampalem on Buradakalva and Kovvada on Kovvada kalva all tap water from tributaries to the Godavari. How much they will decrease the flow is not known but the flow into the main river basin will be less than what was planned in the 1980s when Polavaram was originally conceived. Irrigation officials in Andhra Pradesh are upset over the “illegal construction projects in Maharashtra” upstream despite themselves starting as many projects as they can without waiting for any central clearances.⁶

One project will inevitably have some effect that needs to be investigated on another project. A dam upstream may utilise so much water that a downstream project can not operate to full capacity. In the case of Polavaram the opposite is also true. The dam created from the Polavaram barrage will reach 145 km upstream and prevent Dummugudem hydropower to generate power as planned. When this power is not available there will be further repercussions in the plans of the government of Andhra Pradesh. Dummugudem was supposed to deliver power for Devadula (Chokka Rao) lift irrigation scheme intended to supply water to drought prone Telengana areas.

Part I - Development and Displacement at Polavaram

Displacement is the forcing of communities and individuals out of their homes, often also their homelands, for the purposes of state-defined economic development. Displacement from economic activities poses difficult trade-offs between benefits for a large number of people with losses for others. This discussion is even further complicated by historical inequities towards groups such as indigenous people and women.

Displacement from dams means not only submergence of homes and agricultural land but also the loss of livelihood resulting from access to water, forests and grazing lands. For women it means often having no compensation since they rarely own land or other property. An often neglected area is also the loss of cultural values when a community is uprooted from their ancestral home.

The human and environmental consequences of development in India have far too often been very severe. And yet there is very little discussion on what type of development the country really needs and what negative consequences are socially acceptable. This chapter details the displacement from the dam and canals at Polavaram as it is known today. It also tries to show the legal rights of project affected people especially in the Scheduled Areas and some of the difficulties of providing compensation.

The Larger Picture of Displacement

The global level of displacement from dams over the last fifty years is thought to be in the range of 40-80 million people (4-8 crore). Figures are only estimates however and studies on Indian and Chinese dam project victims state that these two countries alone could have seen as many as 26-58 million people displaced (with Indian displacement at 16-38 million).⁷

It is not only water development that forces people away from their homes however. Mining is another major source of displacement with an estimated 2.55 million people uprooted in India between 1950 and 1990.⁸ Many other types of development also cause displacement. Road and canal construction are examples of such activities where canal oustees are still to this date not considered officially as project affected people.

In India the trend has been to build fewer large dams since the early 1980s seeing the same development as in countries like Brazil and Indonesia that has resulted in less people displaced. In China the trend to build dams is accelerating however with an even higher rate of displacement in the 1990s due to the Three Gorges project and other large dams. An explanation to this phenomenon is that India like many other countries have seen increased use of global norms on resettlement of dam victims and has not repressed local struggles due to its strong democratic values.⁹

The debate on whether India should build more dams or not have never been settled however and the dam proponents have regrouped at the beginning of the 21st century to continue construction. Hydropower is now seen as a source of sustainable energy that does not contribute to global warming. Water development has been included in investment in infrastructure and the Indian government can this way yet again avail loans for major dam projects from the World Bank Group.

Even though hydropower is the largest cause of development displacement in the world it many times depend on mining or other industrial activities in cases such as when a dam is built to generate power for an aluminium smelter.

In the debate over dams it is interesting to note that in other parts of the world dams are being decommissioned and dismantled since they either form no useful function or have been found to have larger negative consequences than the benefits that they provide. As compensation for project-affected people also accounting for environmental costs becomes more comprehensive it can be predicted that India will draw similar conclusions as the rest of the world.

Displacement at Polavaram

The dam created by the barrage close to Polavaram village will flood areas 145 km along the Godavari river valley up to Dummugudem, the proposed site for another major irrigation project. Submersion will also spread along the Sabari and Sileru rivers that are tributaries to the Godavari across the borders north to Chhattisgarh and Orissa. The area of submersion is 637 km², square kilometres, (1.57 lakh acres) in total with 601 km² (1.48 lakh hectares) in Andhra Pradesh, 24 km² (5,930 hectares) in Chhattisgarh and 12 km² (2,965 hectares) in Orissa.

The current government of Andhra Pradesh figure is that Polavaram will submerge 117,034 people.¹⁰ Earlier the Planning Commission estimated that the Polavaram dam would displace 154,484 people with 10.2% belonging to Scheduled Castes and 52.9% to Scheduled Tribes. The official count for the Sardar Sarovar dam in Gujarat is less than Polavaram at 150,720 people with 62% belonging to tribal communities.¹¹

The real number of displaced from the Polavaram dam could however be much larger. The Polavaram Project Environmental Impact Appraisal Report from 1985 expected 150,697 people to be displaced from 226 villages.¹² Since then the population has grown considerably and the tribal population has been known to grow more than the average. With an 8% growth rate per decade the population would now be as much as 175,000 but further investigations are needed to fully clarify the total extent of displaced people. The latest EIA and the Economic and Rehabilitation Plan (PAPERP) document published in September 2005 by the Irrigation and CAD Department of GoAP, declares the following number of villages as proposed for displacement.

Table 1: Submergence from Polavaram in Andhra Pradesh

District	Number of Villages
Khammam	205
East Godavari	42
West Godavari	29

Recently, people from tribal and non-tribal villages located in the vicinity of the planned site for the barrage have unified to make sure that construction can not proceed without the involvement of them. In May 2005 several hundred people from the villages of Chegunapally, Devaragondi both tribal villages and non-tribal Ramayapeta and Pydipaka villages of Peddapuram mandal of East Godavari district came together to stop the work on the spillway.

The Peddapuram RDO gave a green signal to start surveying for construction of spill way even before the compensation package to the affected community had been announced.

Some time later a package was announced but the exact consequences of this package remain unknown.

The current rush to complete irrigation projects is apparently more important to the Andhra Pradesh government than bureaucratic procedures such as clearances or environmental planning. An EIA was made on the Polavaram project in 1985. A new public hearing for the Polavaram multi-purpose irrigation project was scheduled for March 28-29 2005 but plans apparently changed and the status of the hearing is currently unknown.¹³ Nobody at the project site has seen the new EIA document yet. The question is does this document even exist? Secrecy and rumours characterize the current mode of operations.

Equity and Large Dams

The main part of the area of submergence falls under the Scheduled (Agency) Area with tribal people belonging to the Koya, Koya dora and Konda reddy 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 predominantly the plains where non-tribals are in a clear majority. The Polavaram project like almost every other major project that has ever been planned by the irrigation department perpetuates the tribal population as being on the losing side of development.

Looking at displacement requires equity to be a part of the discussion. More than 60% of the displaced people of large dams in India have belonged to scheduled tribes and castes according to the India country study for the World Commission on Dams. Considering that nationally adivasis constitute only 8% of the population their representation among those affected by dams is extremely high (See Table 2).¹⁴

Table 2: Scheduled Tribe Displacement

	ST/SC Displacement	Total Displacement	Percentage
Tribal Displacement ¹	566,434	1,202,789	47.1%
Scheduled Caste Displacement ²	76,662	530,493	14.4%

¹From a selection of 23 projects

²From a selection of 17 projects

See Appendix for details over projects included in this table

Together with Scheduled Caste communities the Scheduled Tribes people make up some 60% of total displaced from dams. Out of the total population these communities are only about 32% (24%+8%). The poorest and most vulnerable people have historically been the main victims of dams.

Submergence in the Scheduled Areas create special problems for both tribals as well as non-tribals. Tribal people are likely to receive some form of compensation for their land given that they have the necessary title deeds (and title deeds can be a big issue). But land in Scheduled Areas can only be sold to other tribals meaning that there is no market price attached to the land. Therefore the government can attach a low, arbitrary sum of money that will never help the tribal to acquire new land of equal quality elsewhere.

For non-tribals in Scheduled Areas the situation may be even worse. They are legally encroachers who may have only a temporary title deed that does not give any right to compensation despite having lived on the same land for decades. See the chapter on Compensation Package below for a further discussion on the benefits awarded to dam victims of Polavaram.

Canal Displacement

Since only limited work has started at the time of writing the inevitable conflicts on compensation are happening around the extensive canal system. The Polavaram left canal is currently being built to run parallel to the one coming from Tadipudi Lift Irrigation project, in some parts as close as 400 m from each other. This will double the area of displacement estimated at 6,600 acres in total as well as use up twice the resources for the construction.¹⁵

The size of displacement caused by the left and right main canals should not be ignored given the length and size of them. The left canal is 163 km in length with an unknown width. The right canal might be even 80 metres wide and navigable by large transport ships through a system of locks. As an example 150 km of 80 m wide canal will require 2,965 acres (1,200 hectares) of land. To this there will be a need for additional land on each canal bank. Canal displacement for Left and Right Main Canals could come up to 6,523 acres (2,640 hectares).¹⁶ In comparison the medium irrigation project Peddagudda dam in Vizianagaram district is 12,000 acres.

People displaced by canals have not historically been considered as Project Affected People (PAP) in any dam project in Andhra Pradesh. A recent demand was made by the opposition party TDP that these oustees should also be included in rehabilitation plans. The government of Andhra Pradesh has agreed in point. Actual results on implementation are likely to require significant agitation however since not even dam victims can feel assured of compensation at present. The above mentioned agitations all come from the insecurity felt by farmers who do not know if they will receive any form of compensation for their lands.

Inter-State Displacement

As part of the inter-state negotiations the smaller displacement suffered in Orissa and Chhattisgarh has been discussed at high level meetings and Andhra Pradesh has promised compensation to the villages in the other states. Since inter-state conflicts are some of the most difficult to solve the Andhra Pradesh government's plan on how to move ahead with the project is to contain as much of the submersion from the dam as much to Andhra Pradesh.¹⁷ If this means that the dam will be smaller or that the submersion has simply been moved from Chhattisgarh and Orissa to Andhra Pradesh is not known. The Andhra Pradesh state government has offered to raise a protection wall or pay compensation for people in two villages marked for submergence, Motu and Kunta in Chhattisgarh and Orissa respectively.¹⁸

Another offer to the states has been a share in the water from the dam. Orissa would get 1.5 TMC water and Madhya Pradesh 5 TMC without any cost on their part for the dam or the storage of water. Also the states would be able to use the waterways for transportation at lower rates and take other advantages such as from aquaculture.

The Deputy Leader of the BJP, M.R. Tanga, said Andhra Pradesh launched the Polavaram project without waiting for the Centre's approval. It ignored the claims of Karnataka, Maharashtra, Orissa, and Chhattisgarh to Godavari waters.¹⁹ As Andhra Pradesh attempts to

stall construction of projects by the Karnataka government on the Krishna river and by Maharashtra on both Krishna and Godavari it should be expected that the other states do the same towards Andhra Pradesh. More state quarrels should be expected especially for the newly opened Krishna Water Tribunal.

Displacement, Rehabilitation & Resettlement

Agriculture in the project area is largely rain-fed, supported by wells and tanks where two crops can be had per year assuming a good monsoon. The same tanks and wells also serve as source of drinking water throughout the year. The lack of a permanent source of water has caused trouble to the farmers but for most years the rainfall of 1150 mm per year is sufficient for sustenance. Polavaram can thus be seen as an attempt to provide economic development by increased availability of water but not relief from drought as in the case with some projects in the Telengana area of Andhra Pradesh.

Of the land a vast majority is un-irrigated dry-land. The exact extent of submergence has not been detailed yet however leaving people guessing whether their lands will be submerged or not. It is not known at present how many land-holders will be affected by the project or what the size of their fields is. Another important aspect is the ratio between tribal and non-tribal people as well as what will happen to those without land who rely on work as farm workers or collection of produce from common resources such as forests.

The Polavaram project still relies on hydrological, forest and environment and design clearances made as far back as 1980. Many of the benefits of the project such as the area of land that will be irrigated should remain similar to what was estimated decades earlier but the same can not be said about the negative side. The population has increased significantly and so the decision on whether the project is in the greater interest of society needs to be re-evaluated with current information.

Clearances from central government departments are required on a number of issues despite water being a state subject according to the constitution. There is no clear constitutional or legal regulation that prescribes how a project designed at the state level should be cleared centrally however. Instead praxis has evolved from two needs, for inclusion in the planning documents of the Planning Commission and for environmental clearance by the Ministry of Environment and Forests under the Environment Protection Act and the Forest Conservation Act. For inter-state rivers, and most rivers do flow through more than one state, the central government is also involved in reaching an agreement between the states.²⁰

Rehabilitation procedures are meant to be looked at by the Central Water Commission who appraises water projects on behalf of the Planning Commission but in reality the commission remains focused on technical issues and rarely if ever look into displacement. Instead it is often the foreign credit agencies that have come to adopt norms on compensation that has forced Indian authorities to take action. Despite the law being clear on the need to rehabilitate displaced people implementation remain weak until today.

Displacement proposed under the project:

The project proposes to submerge about 44,763.84 Hectares of land in addition to 53838 ha of land for development of irrigation infrastructure, establishing rehabilitation colonies and creation of green belt, including 3223 ha of forest land. 277 settlements having 43501 households are coming under submergence in three districts of A.P ie., East and West Godavari and Khammam districts. These include submergence of 44574 households under

the dam and 15105 under the canal. The total estimated population that will be affected is 2,36,834 persons according to the 2001 census figures quoted in the PAPERP document. Of the total affected households, - male headed households are 88% and female headed households are 62-68%. The SC and ST population constitute 29,796 (12.58%) and 1,25,934 (53.17%) respectively and together constitute 65.75% of the total affected population.

Transferring Land in the Scheduled Areas

The constitution of India recognises adivasis as among the most vulnerable communities and gives many means of protection to tribals. The fifth and sixth schedules of the constitution aim to prevent acquisition, holding or disposal of the land in the scheduled areas by non-tribals. It attempts to ensure that the tribals remain in possession of the land for their economic empowerment, social status and dignity of their community.

Furthering the support most state legislatures have passed elaborate statutes to protect tribal land owners from alienation of their lands. Paradoxically no protection is extended to tribals for loss of lands to the single most important source of their expropriation, namely the state itself.

The AP Scheduled Area Land Transfer Act of 1959 (as amended in 1970) is applicable when land is to be acquired in the scheduled area.

In the United States the Fifth Amendment to the constitution requires apart from just compensation being paid that public purpose is demonstrated when the eminent domain is invoked. This is not the case in India however where what is a public good is defined by the government.

Land transfer regulations in India places considerable power in the hands of the local District Collector. Especially in the most recent amendment the right to award compensation and also to some extent decide on appeals is with the Collector. Neglected of compensation project victims have used the courts to get the compensation that is rightfully theirs in legal processes that take many years to complete.

All departments initiating land acquisition in the 5th schedule area are required to enclose with their land acquisition proposal:

- Gram Panchayat wise schedule of land proposed to be acquired (separate sheet for each gram panchayat)
- A letter of consent from each of the affected Gram Panchayat's in favour of the project.
- In case the gram sabha rejects the proposal, the LA should be accompanied with the resolution stating the purpose of rejection and recommendations from the gram sabha if no

According to the Land Transfer Act only people with clear land title deeds can be compensated in Scheduled Areas. A vast majority of the non-tribals submerged will either only have a temporary title deed or no title deed at all and cannot receive any compensation. Also they cannot hope to acquire proper title deeds in the Scheduled Areas since this would be against the reservation that has been made in the constitution for Scheduled Tribes.

Since land acquisition and resettlement problems ending up in court have slowed down construction of dams in the past the Andhra Pradesh government is now trying to proceed

with a softer approach. Instead of using the Land Acquisition Act to force the land from people the government will try to reach an agreement with people through negotiations.²¹ By not invoking the Land Acquisition Act the government hopes that people will not go to court for compensation and thus slow down the project.

The government will include funds for rehabilitation and resettlement of project-affected people in the budget of each irrigation project. It will deposit these funds with a Special Collector in the area of construction so that people will feel certain that the money is available and will be spent. Despite these government policies the ground realities are like usual where neither local people nor authorities such as the ITDA offices (Integrated Tribal Development Agency), have any knowledge about rehabilitation. The government's fervour to implement as many irrigation projects as it can during its five year mandate is rather a cause for increased concern.

According to the Panchayats (Extension to the Scheduled Areas) Act of 1996 usually known as PESA, a Gram Sabha clearance along with full information disclosure is required for development projects. Getting clearance from all the affected panchayats will be a major process that will take a long time to complete especially given the current level of secrecy that surrounds the project. Yet, this process has not even started at the time of writing.

In Andhra Pradesh, the Government Order G.O.Ms.No. 64 of the Social Welfare department of 18/4/1990 states that clearance has to be sought from the Tribal Welfare Department on any project taken up in the scheduled area. None of the ITDAs in KR Puram, Badrachlam or Rampachodavaram, has reportedly any knowledge about the project. The KR Puram Project Officer even issued a statement in the local newspaper that there has been no communication whatsoever regarding the project with the concerned departments. Until these local offices are informed it is unlikely that any efforts towards rehabilitation or even negotiations about rehabilitation can be started. The government has issued GO 68 suppressing this GO 64, dated 8-4-2005. But the earlier actions of government were in violation of GO 64 and government continues to violate GO 68 too.

Compensation Package

The days where victims of submergence could be forgotten or neglected are over largely due to the still ongoing twenty-year struggle by people affected by projects on the Narmada river. Another factor that has contributed to the increased willingness of government bodies to rehabilitate are the stringent conditions that have been put in place by reformed international lenders like the World Bank and landmark judgements by the Supreme Court.

In what could in no way be called a coincidence a compensation package for Polavaram was announced two days before a delegation of members from the irrigation department left on an 18 day tour to visit World Bank and US Exim Bank officials in the US and elsewhere. The delegation left on May 26 while the order for compensation was issued two days before on May 24, 2005.²² Compensation has to be awarded according to international funder norms and announcing a package was certainly very timely. Now potential funders will be told that the government has just announced the biggest rehabilitation package ever awarded while they negotiate for loans.

From what is known of the package awarded on May 24th it is more of a rehabilitation than a compensation package since almost all money has been earmarked for new houses and farming land. The total package is for Rs. 2,051 crores where Rs. 251 crores is for land acquisition and Rs. 1,668 crores on resettlement.

Table 3: Compensation Package for People Submerged by the Polavaram Project

Type of Compensation	Sum Awarded
Resettlement	1,668
Land Compensation	251
Other Compensation (standing crops etc.)	132
Total	2,051

Source: *The Hindu*, "Huge package for Polavaram project-displaced", Chennai, India, (May 26, 2005), <http://www.hindu.com/2005/05/26/stories/2005052610170400.htm>

For 75,177 acres (30,423 hectares) of land the compensation is, as can be seen in Table 3, Rs. 251 crore or Rs. 33,000 per acre (equivalent to Rs. 81,000 per hectare). Land costs were reportedly about Rs 60,000 to 80,000 per acre before the project work on the canal systems started. As farmers are feeling the prospects of actual implementation going up the price in the downstream area has gone up to as much as Rs 5 lakh.

The current level of compensation for land is a prime example of land acquisition in the Scheduled Areas where there is no market price attached to the land. Instead the government can assign a value and whether the compensation is fair or not will rest entirely on whether the government manages to find new land for farmers of equal quality to that which was lost. As land prices are going up in the area a significant part of the 1,600 crore will have to be spent on acquiring new land.

In Table 4 the compensation is calculated for the actual number of people and the land that is threatened with submersion. This shows that the over Rs. 2,000 crore that has been granted comes out to about 730,000 per family. This sum will cover compensation for loss of land and house and go towards building a new residence and acquiring new farmland.

Since it is not known how many people are actually eligible for compensation it seems quite likely that a lower number of families will receive more money than shown in the table whereas those with no land or appropriate papers will receive less or no compensation.

Table 4: Alternative View on Compensation Package

Compensation	Sum Awarded (rupees)
Total Compensation per village	74,311,594
Total Compensation per family	732,500
Rehabilitation money per family	595,714
Total Compensation per person	146,500
Compensation per acre of farmland	33,141
Other compensation per family	47,143

* For 276 villages, 28,000 families, 140,000 project affected people and 75,737 acres of land submerged.

One problem common to compensation packages is that they do not take into account access to common resources such as rivers, forests, lakes or grass lands. Most of the landless tribals and even many of the ones with land depend on NTFP (Non-Timber Forest Produce)

for their livelihood and once displaced they would find it difficult to strike a balance in the new environment.

3,223 hectares of land has been identified for compensatory afforestation of submerged forest from the project but where this land is and whether tribals will have access to it remains unknown.²³ One issue of potentially significant value would be for displaced people to secure exclusive fishing rights from the dam.

Part II - Irrigation Closing the State Debt Trap

To be able to access funds is one of the most critical objectives for the Andhra Pradesh government if it hopes to complete any of the irrigation projects that are currently planned. The government of Andhra Pradesh has indicated that it is willing to tap any potential source of funds. This can include floating bonds through the Andhra Pradesh Water Resources Development Corporation, loans from financial institutions and internal sources as well as assistance from Central Government channels such as the AIBP (Accelerated Irrigation Benefit Program).²⁴

The good funders for the state are the governmental and multi-lateral agencies since they can provide loans with lower interest rates than commercial banks can. A multi-lateral institute like the World Bank can give loans with lower interest and longer payment periods than a bank can since it does not have a motive of profit. In the case of Andhra Pradesh negotiating with the Austrian government, the purpose of the loan can be to promote Austrian business in Andhra Pradesh long-term leading the Austrians to accept a loss on the loan if it means that Austrian companies do better.

This section examines how and why the Polavaram multi-purpose project will be extremely expensive to complete. It also details the worldwide search of the Andhra Pradesh government for funders.

The Poor State of the State Economy

Even before the current spending spree on irrigation started the Andhra Pradesh State economy was far from healthy. The Comptroller General of India released the latest audit for the state of Andhra Pradesh in April 2005. The report shows that the debt burden of the State at the end of 2003-04 was Rs 64,545 crore up from Rs 54,831 crore the year before. Interest payments were Rs 6,856 crore, an increase of 121% since 1999.

What is even more worrying for the economy is that the average interest rate paid on borrowings was higher than the growth of the economy (measured in GSDP, Gross State Domestic Product) between 1998 and 2002. The Comptroller General warns that Andhra Pradesh is on the way to becoming locked in a debt trap.²⁵

In 2003-2004 the AP GSDP grew at a strong 11% that should imply good prospects for the state economy together with the increased efficiency on taxation. But successive governments have insisted on borrowing even more than the economy can stand without presenting a plan on how to pay back the debt or provide services to the people of the state.

Irrigation is the biggest post in the Andhra Pradesh budget apart from interest payments at Rs. 6,350 crore in 2005-2006. This allocation is not nearly enough however to match the plans. To complete the 26 projects an additional 5,500 crore will have to be spent each year for the next five years. On average this means that the government is willing to use 75% of available funds on irrigation. Apart from getting caught in debt in the future the state will have to neglect many other areas as it pours all available funds into construction of irrigation projects.

The Andhra Pradesh government is already paying a major part of available funds as repayment of debt. Foreign and domestic debts to the size of 7,000 crore has been a regular

feature of the budget. High debt payments are seriously affecting the state's ability to provide benefits such as education to its citizens.

Still the government is willing to commit itself for even further debts. Chief Minister Y. S. Rajasekhara Reddy has stated that the already large investment of 46,000 crore over the next five years may go up to 100,000 crore due to delays, changes in design and more comprehensive rehabilitation packages for affected families.²⁶

The borrowings in 2004 stood at Rs, 10,000 crores, which was unprecedented 34.2 per cent of the Gross State Domestic Product (GSDP).²⁷ Foreign aid has contributed to about 14% of total funding for water projects in India. World Bank funds constituted as much as 10% of these funds.²⁸

The list of projects in Table 5 is a non-exhaustive list of the projects currently scheduled for construction in Andhra Pradesh where loans are needed. The government of Andhra Pradesh can continue with all the projects at present with the 6,500 crores that has been allocated in the budget for the current year. This is enough money for land acquisition, advances to contractors and establishment expenditures. But if there are no funders within one or two years the projects will come to an abrupt end with significant risk of money spent going to waste.

Table 5: Upcoming water development in Andhra Pradesh

Project	Cost in crore rupees
Handri-Neeva Sujala Sravanti (Irrigation)	5,000
Galeru-Nagari Sujala Sravanti	4,567
Veligonda project	4,000
SRSP flood flow canal	2,421
Bhima lift irrigation scheme	1,570
Telugu Ganga	1,513
Kalwakurthy lift irrigation scheme	1,500
Sriramsagar II	935
Godavari lift irrigation scheme (Devadula)	900
Handri-Neeva Sujala Sravanti (drinking water scheme)	740
Pulichintala	570
Somasila	308
Total	24,024

Source: Deccan Chronicle, "YSR falls back on WB for dam funds", Hyderabad, (May 18, 2005)

Table 6 is a non-exhaustive list of irrigation projects that are currently at either the planning or the construction stage in Andhra Pradesh. Also detailed for the older projects is when they were first initiated in terms of which planning document they first appeared in. Nagarjuna Sagar is the oldest project from the days of the Second Plan in the early 1950s.

Table 6: Selection of Projects Currently Being Implemented

Project Name	Started in Plan	Estimated Original Cost	Estimated Latest Cost	Expenditure up to 9th Plan
Jurala (Priyadarshini)	VI	76.40	512.00	492.25
Nagarjuna Sagar	II	91.12	1000.00	1056.40
Pulivendula Branch Canal	IV	2.98	90.73	50.25
Singur	V	29.75	180.00	169.62
Somasila	V	17.28	467.00	397.00
Sriram Sagar Stage-I	III	40.10	2550.00	1967.30
Srisailem Left Br. Canal	VI		1186.00	487.28
Srisailem Right Branch Canal	VI	220.22	1600.00	1252.32
Telugu Ganga	VI		2149.00	1477.36
Vamsadhara Stage-I	IV	8.78	109.00	104.49
Vamsadhara Stage-II (Niradi Barrage)	VI		749.83	26.39
Yeleru Reservoir (water supply scheme)	VI	107.35	335.34	344.04
Chagalanadu	IX		85.00	42.65
Galaru Nagari Ph.II	IX		392.10	29.86
Surampalem Reservoir Scheme Phase – II	X		49.50	
Bhupathipalem Reservoir Scheme	X		47.23	
Suddavagu Irrigation Project	X		56.48	
Peddavagu Irrigation Project	X		202.59	
Valligallu Reservoir	X		143.67	

Source: Planning Commission, "10th Plan of the Planning Commission", Government of India
Water Conservation Mission, "AP Water Vision, Volume I. – A Shared Water Vision", Government of Andhra Pradesh

Already existing dams also need funds to function optimally. The World Bank has recently extended a loan of 3,000 crore for the modernisation of the left and right canals of Nagarjuna Sagar. Other infrastructure development will also drain the resources of the state government over the coming years. In the same package as the above mentioned

modernisation of Nagarjuna sagar is also 1,300 crore for municipal infrastructure and slum development and 1,600 crore for roads.²⁹

Worldwide Search for Funds

Financing was in principle agreed on after a team from Austria visited Hyderabad in June 2004. After this the Major Irrigation Minister, Ponnala Lakshmiah went to Austria in August 2004 to sign a Memorandum of Understanding for a loan of Rs. 3,400 crores for the Devadula and Dummagudem projects.³⁰ The total cost of these two projects was expected to be Rs.5500 crore and the government was planning to cover the rest through own funds.³¹

The loans would come at a low interest rate of 4.9% and assistance would be in both cash and kind (meaning e.g. equipment, technology or manpower in the project). The Austrian team offered four major benefits under transfer of technology; rubber dams, geo-membrane lining of canals, hydromatrix power generation and micro-irrigation. Austria also offered to set up a trade centre in Austria to facilitate purchases for the project (by the Andhra Pradesh government from Austria).

The central government's refusal to provide a counter-guarantee for the loan has temporarily stalled the negotiations. Instead an Andhra Pradesh state team has gone on an 18-day foreign tour to mobilise funds for irrigation projects. They will hold discussions with the World Bank and the US Exim Bank officials in the US and visit Chile and Argentina where the World Bank is financing similar projects.³²

The World Bank has funded no new dam projects in India over the last years after previous projects received a lot of criticism. The new mantra of the Bank of development through investment in infrastructure seems to change this. Loans for Indian infrastructure construction are meant to double and a large part of this should go to construction of dams. IFC (International Finance Corporation), part of the World Bank Group, is funding the private Allain Duhangan hydro power plant in Himachal Pradesh.

The Costs of Irrigation

The construction of large dams rarely fall within estimates internationally and in India this trend is even clearer. The World Commission on Dams found that among 248 dams the average cost over-run was 50% of budget. For irrigation dams the record was worse than for hydropower. Multi-purpose schemes like Polavaram are inherently more complex and one design constraint on the dam may result in lower efficiency on other parts leading to under-performance and higher costs.³³ These historical failures place a heavy burden on the planners of modern large-scale projects. Already expensive projects clearly risk costing even more.

Additional time means payment on interest on loans taken without being able to reap the benefits. Nagarjuna sagar started in 1956 is still not delivering the full benefits despite costing more than 10,000 crore rupees. In Andhra Pradesh there are 24 projects (10 major and 14 medium), who's scheduled date of completion expired long ago, still in different stages of execution in June 2004. Of them 17 were more than 20 years old. 13 projects had managed to deliver partial benefit to 32.30 lakh acres against the expected potential of 41.40 lakh acres.

The major irrigation projects under which no benefits had been achieved so far were Singur, Srisailem Right Bank Canal, Srisailem Left Bank Canal and Yeleru Reservoir. Among

medium projects no benefits were delivered by Suddavagu, Surampalem, Kovvadakalva, Jhanjavati, Pedderu, Veligallu and Gundlavagu. The delay in completion of the irrigation projects resulted in huge cost over run of 583 per cent.³⁴

A round table organised by the Andhra Pradesh centre of the Institution of Engineers organised in Hyderabad presented serious allegations against the planning and tender process for irrigation development. Once the tender process starts contractors only have 10 days to complete the bid. This has compromised the quality of the work and does not conform to standards set by International Federation of Engineering Consultants (FIDIC).³⁵

The system adopted by the government also places too much emphasis on price, something that risks compromising the quality of the delivery. The system adopted by the Government is geared to punish contractors for any delay in completion of the projects beyond the deadline laid down in the contract. Damages will be levied at 10 per cent of the contractor's quotation. On the other hand, 1 per cent incentive will be offered to those completing the works early.³⁶

To cut down on time and start construction neither plans nor tenders have been developed in a meticulous way. Tender irregularities have also been a constant political issue in the Andhra Pradesh Assembly ever since the process was taken before the Supreme Court in November 2004. TDP MLAs have been threatening to quit the parliament in case tender irregularities are not thoroughly examined. The claim is that huge sums of money are being diverted into private pockets from public funds through bad tender procedures.³⁷

Central and State Government Roles in Financing Major Projects

The current poor debt position in Andhra Pradesh like almost every other state in India should not be seen as only of their own making. The states have been forced to pay very high rates on all their lending by the central government. In fact the rate available for the central government for its projects is significantly lower than what the states can access.

The constitution of India allows only the Department of Economic Affairs of the Central government to receive foreign aid. Since 1975 it is possible for states as a part of the state planning process to seek funds through the department for certain categories of projects, among them irrigation, rural development and water supply.

The problem for the government of Andhra Pradesh is however that the interest charged by a financing agency such as the World Bank is not the rate that the government pays. As C. P. Chandrasekhar and Jayati Ghosh writes: "State governments taking on debt provided by multilateral institutions or even loans from bilateral donors have not paid the rate of interest charged by them, but a much higher rate imposed by the Centre, which is the intermediary for such transactions."³⁸

The current agreement between the states and the central government is increasing central power since the states are indebted to it. This gives the centre the strength to require states to pursue unpopular policies such as demanding fiscal responsibility. In short the debt burden can push the agenda of liberalisation onto the states.

The average state interest rate on debt has therefore consistently been more than 10% since the early 1990s. Central government rates have moved down from almost 9% in 1998 to 6.5% at present. The difference is a source of major income for the central government, as much as 20% of the fiscal deficit can be financed by charging the states higher interest rates.

It also places a lot of power in the hands of the central government since almost all the states owe it a lot of money.

The average rate of interest paid by Andhra Pradesh in the period 2003-04 was 12 per cent.³⁹ At the same time state governments can not acquire cheaper loans at market rates of 7-8% since the central government has the right to block such loans.

Polavaram Debt Payments

The latest cost estimate for Polavaram including rehabilitation costs of 2,051 crore is 9,265 crore.⁴⁰ Using data from a recent proposal for an Asian Development Bank (ADB) loan for the Chhattisgarh Irrigation project⁴¹

The sum spent on loan repayment is equal to the entire expenditure budgeted on Education + Medical & Health in 2005-2006 of Rs. 1,190 crore (729+461). Despite this there has not been a discussion on whether the investment in irrigation is giving good value for money when there are many other sectors of the society that also needs more support.

The sum spent on loan repayment is equal to the entire expenditure budgeted on Education + Medical & Health in 2005-2006 of Rs. 1,190 crore (729+461). Despite this there has not been a discussion on whether the investment in irrigation is giving good value for money when there are many other sectors of the society that also needs more support.

The sum spent on loan repayment will be at least equal to the entire state expenditure budgeted on Education + Medical & Health of Rs. 1,190 crore (729+461) for the year 2005-2006. Despite this there has not been a discussion on whether the investment in irrigation is giving good value for money when there are many other sectors of the society that also needs more support.

Table 8

Table 8 shows why it is so important for the government of Andhra Pradesh to secure funding from either the Austrian government or the World Bank. For a major project like Polavaram the difference of a few percentage points in interest rate means several thousand crores saved in interest payments.

A commercial bank like the State Bank of Hyderabad is willing to fund irrigation projects at an annual interest rate of 7% whereas the Austrian government was reported to provide loans for 4.9%. Due to the above discussed arrangement with loans charged with extra interest by the union government 4.9% or even 7% have nothing to do with the actual rates charged.

Example costs have been calculated to show the costs of financing Polavaram. This example uses 7, 10 and 12% interest rates based on the assumption that the government will loan either half or the total cost of the project at this rate. Loaning half the sum would mean that the other half would have to come from the budget. Paying more for irrigation means paying less for roads or schools. A real case scenario is naturally more complicated where a floating rate is used initially only to be converted to fixed at a later stage as well as adjusting for which currency the loan is taken in. Here the effort is to show the magnitude of costs and also discuss the long period of repayments that the people of Andhra Pradesh will have to face.

During the 7 year grace period before repayment commences interest upon interest will be accumulated to increase the amount to be paid back considerably as can be seen in Table 7.

The most alarming scenario would be a loan for 9,265 crore turned into 18,287 crore, more than twice the original sum, at 12% interest prior to repayment.

Table 7: Accumulation of Debt during Grace Period of 7 years for Loan of Rs. 9,265 Crore

Year	7% Interest	10% Interest	12% Interest
1	9,265	9,265	9,265
2	9,914	10,192	10,377
3	10,607	11,211	11,622
4	11,350	12,332	13,017
5	12,145	13,565	14,579
6	12,995	14,921	16,328
7	13,904	16,414	18,287

As shown in Table 8 the sum spent on loan repayment is equal to the entire expenditure budgeted on Education + Medical & Health in 2005-2006 of Rs. 1,190 crore (729+461). Despite this there has not been a discussion on whether the investment in irrigation is giving good value for money when there are many other sectors of the society that also needs more support.

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If half the expected project cost of 9,265 crore is loaned at 12% interest and later paid back in a period of 25 years, the total sum of interest payments will be Rs 11,201 crore rupees. If this sum is loaned at 7% interest however the total cost goes down to 5,961 crore, a difference of 5,240 crore. Loaning the entire sum at 7% interest rate would mean paying for more than an extra Polavaram project in interest payments.

The use of 12% interest rate, equal to what the Andhra Pradesh currently pays on its debt, should give the best estimate of future loan costs. Every year for the first five years of repayment **the government of Andhra Pradesh will have to pay Rs. 1,342-2,685 crore** to the financier of the project depending on if half or full project cost will be loaned.

The sum spent on loan repayment will be at least equal to the entire state expenditure budgeted on Education + Medical & Health of Rs. 1,190 crore (729+461) for the year 2005-2006.⁴² Despite this there has not been a discussion on whether the investment in irrigation is giving good value for money when there are many other sectors of the society that also needs more support.

Table 8: Example Cost of Repaying Polavaram Project Funding (Rs. Crore and USD millions respectively)*

	Loan Rs 4,633 crore			Loan Rs 9,265 crore		
	7%	10%	12%	7%	10%	12%
Interest Payments for First 5 Years	2,166 (\$498)	3,652 (\$840)	4,883 (\$1,123)	4,331 (\$996)	7,304 (\$1,680)	9,766 (\$2,246)
Interest + Instalment for First 5 Years	3,556 (\$818)	5,293 (\$1,217)	6,712 (\$1,544)	7,112 (\$1,636)	10,587 (\$2,435)	13,423 (\$3,087)
Total Sum of Interest Payments on loan	5,961 (\$1,371)	10,053 (\$2,312)	13,441 (\$3,091)	11,923 (\$2,742)	20,107 (\$4,625)	26,883 (\$6,183)
Total Payment on Loans	12,914 (\$2,970)	18,260 (\$4,200)	22,585 (\$5,195)	25,827 (\$5,940)	36,520 (\$8,340)	45,170 (\$10,389)

* 25 year payback time with 7 year initial grace period. Assumes a loan of Rs. 4,633/9,265 crore taken with a twice yearly, fixed amortization. The example does not take into account expected future inflation.

The other alternative to loaning money is to cut down on services such as roads and education delivered by the state so that the money can be taken from the regular budget. Since irrigation is already the by far biggest cost in the budget it would be difficult to allocate even more space for it.

An important question to answer is who is going to pay for the investment in the irrigation project plus the cost of interest. Will the government attempt to charge Water User Associations for the investment by raising the price for water? Or will the cost go to the tax payers in the state for the next decades?

Cost per New Hectare of Irrigated Land

Polavaram may be referred to as a multi-purpose project but the main reason for building it is to provide irrigation for the state's suffering farmers. But what is the cost of bringing new irrigated land through the scheme?

According to project documentation 2.91 lakh hectares of new land will be brought under irrigation, 1.29 lakh hectares along the right canal and 1.62 lakh hectares on the left. Another project goal is to stabilise the irrigation facilities for land in the Godavari delta that is already irrigated but it is not known how large this land is.

Table 9 details how much it will cost per hectare of new irrigated land if the cost of providing this is Rs. 2,000 or 4,000 crore. 137,457 rupees to bring one hectare of land under irrigation is a large sum of money and does not include the cost of financing discussed in the previous chapter or maintenance of dam and canals. As a comparison the value of land in the area is similar, estimated at 148,000 to 198,000 rupees per hectare.

Table 9: Example Cost of New Irrigated Land at Polavaram

Cost for Irrigation Component*	Cost per Hectar
Rs 2,000 crore	68,729 rupees
Rs 4,000 crore	137,457 rupees

* With irrigation of 2.91 lakh hectare of land along the left and right canals

The cost for newly irrigated land should also be compared to the value of the submerged land. According to the table above water for one hectare of new land is worth at least Rs. 68,729 while compensation for submerged farmland has been put at Rs. 81,891 per hectare. The land to be submerged is worth only little more than what the government of Andhra Pradesh is willing to create new irrigated land.

The data in Table 10 show India's experience of increasingly higher costs to create irrigated land. The average cost should be expected to be even higher in the 21st century as rehabilitation and resettlement of displaced people is implemented more thoroughly.

Table 10: Cost in Rs/Hectare of Creation of Irrigation Potential (Major and Medium Projects)

	Current Prices	1980-81 Prices
1st Plan (1951-56)	1,200	8,620
2nd Plan (1956-61)	1,810	9,289
3rd Plan (1961-66)	2,526	10,289
Annual (1966-69)	2,893	8,313
4th Plan (1969-74)	4,758	11,060
5th Plan (1974-78)	6,075	9,074
Annual (1978-80)	10,940	14,111
6th Plan (1980-85)	21,610	18,771
7th Plan (1985-90)	50,000	31,475
Annual (1990-92)	66,570	29,587

Source: Rangachari, R., Sengupta, N., Iyer, R.R., Banerji, P., and Singh, S. 2000. *Large Dams: India's Experience, a WCD case study prepared as an input to the World Commission on Dams, Cape Town, www.dams.org*

Conclusion

Mega projects have a history of costing mega amounts, get delayed enormously and cause especially the poorest communities dearly in terms of displacement. Sardar Sarovar and Indira Sagar on the Narmada River, Teesta in West Bengal, Tehri in Uttar Pradesh and Omkareshwar in Madhya Pradesh are only a few of the major dams that have created controversy over the last decades. Yet the days of this type of project has returned. Polavaram is at present another disaster waiting to happen for tribal people in India.

There can be no doubt that farmers in many parts of Andhra Pradesh have faced severe difficulties over the last years but it is doubtful whether this translates into a need for rushing through an ill-planned, extremely expensive dam at Polavaram that will displace thousands.

Information towards the project affected communities is close to non-existent and protest movements can only expect to spread from the current agitations for compensation along the canals to the main site once construction on the barrage starts. So far the extent of submersion is unknown leaving farmers guessing which land will be submerged. The compensation package seem more intent on pleasing foreign donors like the World Bank rather than settle the anxiety of people who risk losing all they own.

Where will land become available for all the displaced people? How can non-tribals be expected to receive any compensation when they live on Scheduled Area land? With such large negative consequences it could at least be expected of the government to present a clear plan on what benefits Polavaram would bring to the people of the state that would make the construction worth the sacrifices.

But the government relies on plans that were made up to 3 decades ago. Polavaram is exactly the same today as described in the EIA document of 1985. Communication with the public is entirely through inconsistent news reports based on press conferences. The process of holding public debates on irrigation projects is more an exercise for the political parties to try to win political points rather than holding a meaningful discussion on actual consequences.

Investing in Polavaram means paying interest and amortization of more than 1,500 crores per year out of the budget of the state for years to come. Can the state afford this and keep its other commitments? Interest payments on Polavaram will be more than three times the spending on health in the state. Considering that the Controller General of India had warned that the state was getting into a debt trap already before the current spending started this seems very unlikely. At present the only way out of the debt trap for the Andhra Pradesh government is to hope that the central government will bail the state out of its commitments.

Agriculture in Andhra Pradesh was expensive compared to other states even before the latest wave of dams were announced. Paddy was 17.7% more expensive to produce in AP compared to Punjab in 1997 while cotton was 18.3% over costs in Madhya Pradesh in the same year.⁴³ Being able to grow crops that are too expensive to find any buyers will not help farmers in distress. That is unless the government is intent on either providing water from dams for free or increase the minimum support price for agricultural products. Both options will be costly for the state. Since the government will not be able to pay will it try to foot the bill to the farmers and specifically the Water User Associations?

If not even debt for new constructions can be paid what hope is there for funds becoming available for maintenance for existing irrigation facilities? Yet again new construction is

flourishing and the neglect of what is already there is quickly forgotten. Despite these facts there is very little discussion on how the costs should be born. Political parties focus on more popular topics such as the TDP:s fight against what it claims is corruption in the tender process and CPI(M):s struggle for compensation to displaced farmers.

Appendix - Project Data

The Polavaram dam will be located on the Godavari just as it emerges from the Western Ghats on to the plains. Using a number of natural valleys the barrage will have widespread effects all the way to the border of Orissa and Chhattisgarh more than 100 km from the actual project site.

The command area is in the taluks listed below in Table 11.

Table 11: Command area of Polavaram Project

Taluk	District
Rajmundhry	East Godavari
Peddapuram	East Godavari
Pithapuram	East Godavari
Prathipadu	East Godavari
Alamuru	East Godavari
Rayavaram	East Godavari
Tuni	East Godavari
Polavaram	West Godavari
Kovvuru	West Godavari
Tadepalligudem	West Godavari
Eluru	West Godavari
Nuzvid	Krishna
Gannavaram	Krishna
Vijayawada	Krishna
Yellamanchili	Visakhapatnam
Anakapalli	Visakhapatnam

Source: "Polavaram Project Environmental Impact Appraisal Report", Irrigation Department, Government of Andhra Pradesh, May 1985

Polavaram Multi-Purpose Project	
Also Known as	Indirasagar, Godavari Srujala Sravanti, Sri Sita Sriramapada Sagar, Sriramapada Sagar
Location	Near Polavaram village, north of Rajmundhry, Polavaram mandal, West Godavari district
Status	Main dam is waiting for clearance as well as funding Right Main canal work has started and Left Main canal work is expected to start soon.
Type of Project	Major project involving irrigation dam, power project, pumps and canal system. Will also provide water for Vishakapatnam, Vizianagaram and Srikakulam districts
Estimated Cost	Rs 8,000-10,680 crore (\$1,840 – \$2,447 million), 300 crore has been allocated for the current year making the project number 3 in size in AP. Of this sum: <ul style="list-style-type: none"> • Right Main Canal - Rs. 1,353 crores (\$311.2 million) • Left Main Canal - Rs. 1,320 crores (\$303.6 million)
Source of Funding	Not yet clear. Partly self-funded by AP Government
Contractors	J. Chokka Rao – Contracted for detailed project report (supposed to be done for free by the Austrian government earlier)
Clearances	<ul style="list-style-type: none"> • Cleared by Central Water Commission • Public Hearing on 28 March 2005 • Administrative clearance for Left Main Canal • Tribal welfare dept clearance – unknown • Inter-state clearance from Orissa and Chhattisgarh pending
Storage Capacity	194.6 tmcft = 194,600 TMC (5,448.8 million m ³)
Displacement	200-276 villages, 117,034–200,000 people in West Godavari, East Godavari and Khammam districts
Irrigation Potential	2.91 lakh ha (719,074 acres) <ul style="list-style-type: none"> • 1.62 lakh ha under left main canal • 1.29 lakh ha under right main canal
Drinking Water	For Vishakapatnam and villages enroute, total 28.5 lakh people
Power Generation	720-1000 MW
Other	<ul style="list-style-type: none"> • Aims for canal to be navigable towards Krishna river • Industrial water for Vizag area industry
Land Requirements	63,691 ha = 637 km ² (60,063 ha in Andhra Pradesh, 2,398 ha in Chhattisgarh and 1,230 ha in Orissa) at full reservoir level according to old EIA document from 1985 at dam level 150 feet
Conflicts	<ul style="list-style-type: none"> • Massive displacement of adivasi communities expected, some across state borders in Chhattisgarh and Orissa • Tender irregularities according to opposition parties • Huge cost of project • Where to get funds after Austrian government withdraws • Cost of funding which will have to be paid back with interest for many years • Inter-state watersharing with Karnataka • Project based on hydrological, forest and environment, design clearances from 1980 • Telengana nationalists protest against Godavari water benefiting Krishna delta instead of Telengana

Barrage

A 1600 metre long earth and rock-filled barrage will be built across the Godavari river. It will contain 37 gates where power can be generated and also allow for diversion of water into the left and right canals. Water storage will utilise the natural valleys as much as possible with a few supporting gates where needed.

Left Main Canal

Polavaram Left Main Canal	
Also Known as	
Location	Eastern side of Godavari river, north of Rajmundhry, Polavaram mandal, West Godavari district towards Vishakapatnam
Status	Unclear
Type of Project	Will provide irrigation and drinking water for Vishakapatnam, Vizianagaram and Srikakulam districts from the Polavaram dam
Estimated Cost	Rs. 1,353 crores (\$311.2 million)
Source of Funding	Not yet clear. Partly self-funded by AP Government
Clearances	Unknown
Displacement	4 villages of 146 families
Length	163 km (main canal), supply canal 34 km, sub-canals unknown
Flow	14,000 cusecs (=14,000 m ³ /s ?) maximum flow, 20-24 tmcft (about 25%) reserved for industry in Vishakapatnam 5 TMC for Yeleru Right Main Canal
Drinking Water	For 705 villages of 31 lakh people plus Vizag city

Right Main Canal

Work on the canal has been split into sections and awarded to different contractors. As of May 2005 the canal has been marked at the starting point at the Godavari but work has been stalled due to protests.

Polavaram Right Main Canal	
Also Known as	Polavaram Right Bank Canal, Indira Sagar
Location	Western side of the Godavari river, north of Rajmundhry, Polavaram mandal, West Godavari district to Budameru in Vijayawada
Status	Work was started but later came to a halt after protests at the site
Type of Project	Navigable canal system to divert water from Godavari to Krishna. Some lift component might be part of the project to get the water into the Krishna basin.
Estimated Cost	Rs. 1,320 crores (\$303.6 million)
Source of Funding	Not yet clear. Partly self-funded by AP Government
Contractors	J. Chokka Rao – Contracted for detailed project report (supposed to be done for free by the Austrian government earlier) Madhucon among others to construct the canal
Clearances	<ul style="list-style-type: none"> • Administrative clearance for Right Main Canal • Other clearances not necessary since this is a self-funded project within AP borders?
Displacement	Not considered for a canal by the authorities
Length	174 km
Flow	80 tmcft (2,240 million m ³) is reserved for this canal,
Drinking Water	Yes
Other	Aims for canal to be navigable towards Krishna river

Polavaram Lift Irrigation

The Lift Irrigation Scheme was proposed as a temporary solution since the rest of the project was not going to be completed for a number of years and Vishakapatnam and its industry needs water urgently. Now it seems like there are two new lift irrigation projects that are being promoted in the area instead, Pushkaram for the left bank lift and Thatipudi for the right bank lift. The construction of these projects is moving ahead at high speed. Still the entire Rs 150 crore (\$35 million) will be wasted if Polavaram is implemented since that project will build duplicate and bigger canals to feed the same area as these schemes.

Yeleru left main canal can only carry water to Vishakapatnam after Polavaram dam and Left Main canal have been completed. Once construction begins it may take at least 15 years for its completion. Vishakapatnam and its industry with the Vizag Steel plant needs water quicker than this which is why a lift irrigation scheme has been conceived.

The cost in a lift irrigation scheme is not so much in the construction but in the daily usage since a lot of power is required to elevate the water. Maintenance can become a problem when pumps and other parts need to be fixed or replaced.⁴⁴

Appendix 2 - Displacement Details on Selected Projects

The data presented in this appendix is the Indian government's own figures.⁴⁵

Table 12: Scheduled Tribe Persons Displaced/to be Displaced

Name of Dam	Total People Displaced (Official)	Tribals Displaced	Percentage of Tribals Displaced
Balimela	60000	5880	9.8%
Bargi	37725	11430	30.3%
Bhakra	36000	12514	34.8%
Bisalpur	57138	5700	10.0%
Bodhghat	12700	9520	75.0%
Chandil	48500	46075	95.0%
Daman Ganga	11805	7770	65.8%
Hasdeo Bango	13585	10910	80.3%
Hirakud	75000	24975	33.3%
Icha	30800	24640	80.0%
Inchampalli	38100	29063	76.3%
Karjan	8025	7970	99.3%
Koel Karo	66000	58080	88.0%
Konar	5747	1224	21.3%
Maheshwar	20000	12000	60.0%
Mahibajajsagar	34875	26017	74.6%
Maithon	28030	15837	56.5%
Masan	29975	9292	31.0%
Nagarjunasagar	24400	8784	36.0%
Narmada Sagar (Indira Sagar)	82120	15870	19.3%
Polavaram	154484	81722	52.9%
Pong	20722	11656	56.3%
Sardar Sarovar	150720	92770	61.6%
Sondur Dam	1510	1250	82.8%
Tawa	3070	3070	100.0%
Teesta (Stage V)	1020	255	25.0%
Tultuli	13600	7019	51.6%
Ukai	80000	15120	18.9%
Upper Indravati	26630	4285	16.1%
Upper Wain	6435	1835	28.5%
Ganga Upper Wardha	11817	3466	29.3%
Total	1202789	566434	47.1%

Table 13: Scheduled Caste Persons Displaced/to be Displaced

Name of Dam	Total of People Displaced	Scheduled Caste Persons Displaced	Percentage of Scheduled Caste Persons Displaced
Bargi	37,725	3,840	10.2%
Bisalpur	57,138	5,900	10.3%
Hasdeo Bango	13,585	680	5.0%
Hirakud	75,000	10,125	13.5%
Isapur	16,940	14,399	85%
Polavaram	154,484	15,757	10.2%
Rengali	4,015	233	5.8%
Nagarjunasagar	24,400	1,708	7.0%
Narmada Sagar (Indira Sagar)	82,120	10,090	12.3%
Sondur Dam	1,510	55	3.6%
Tillari	4,274	183	4.3%
Teesta (Stage V)	1,020	25	2.5%
Upper Indravati	26,630	10,985	41.3%
Upper Wain Ganga	6,435	860	13.4%
Upper Wardha	11,817	1,195	10.1%
Warna	7,906	132	1.7%
Total	530,493	76,662	14.5%

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