Water Rights, Conflicts and Collective Action
Case of Telugu Ganga Project, India

Poster Presentation

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Case of Telugu Ganga Project, India

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Abstract

The Telugu Ganga Canal, which takes off from the Srisailam Dam, is probably the most conflict ridden river diversion project in contemporary India. The population of Chennai city has grown ten times in the span of hundred thirty years. The city has been facing severe water stress with growing urban population and failure of North East monsoons. There were occasions in the past that drinking water was transported by rail from the city of Vijayawada in Andhra Pradesh located at a distance of 432 Kms from Chennai. The problem further aggravated when Andhra Pradesh state separated from earnest while Madras Presidency in the year 1953. One of the viable options found out to meet the drinking water needs of the city is to transfer water from Krishna basin but unfortunately no part of Tamil Nadu state lies in the basin. Soon after the bifurcation of states, the Government of Tamil Nadu has raised the prospect of diverting waters from the river Krishna. The efforts of the Tamil Nadu state mediating with Maharashtra, Karnataka and Andhra Pradesh, the riparian states of Krishna River yielded some result in the year 1976. In the following year an open channel was dug to carry a discharge not exceeding 1500 cusecs from Srisailam reservoir to Pennar river basin to supply water to city of Chennai. The execution of the project has got a new dimension when Telugudesam, a new regional party came in to power in January 1983 in Andhra Pradesh. The Chief Minister of the new government had insisted on combining irrigation for the dry regions of Rayalaseema region in Andhra Pradesh. The political choices have lead to the serious delay of the project. The actual reaching of river water at the boarders of Andhra Pradesh and Tamil Nadu was on 29th September 1996. Even after the long waiting, the commitment to supply 15 TMC of water could not be materialised even in the year 2004. There have been farmers' resistance all along the upstream of the canal against the supply of canal water to Chennai city. No single approach can solve the issue of conflicting interests. The paper suggests a model of multi stakeholder institution recognising different users and their needs and frame governance rules and implements them through collective action.

Introduction

Out of India's eighteen major rivers seventeen are interstate in nature and represent various distributional issues including intense conflicts in sharing the river waters. It is easy to get tangled because there are many perceptions, multiple uses and dimensions of

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water. Water is perceived as a commodity, as commons, as a basic right, a scarce resource and a source of divinity. When we take a particular stand on water, other perceptions seems to be wrong. For instance, those who regards water as 'commons' or a 'common property resource' tend to deny vehemently that it is a 'commodity'. Contrariwise, those who see water as a 'commodity' are often blind to the other dimensions of water (Iyer 2003). The reality is an amalgamation of all these perceptions and perspectives.

All most all major problems bothering our water commons can be traced to the institutions, policy and politics of water resource management. Resolution of conflicts by administrative, judicial or political means would not be permanent as new forms of conflicts arose. The institutional aspects of water resources management continued to remain as a less studied issue. A system of Water rights[2] and their effective implementation can offer feasible solutions to manage basin resources. Basin resources donot follow the administrative boundaries. Establishment of water rights is a more durable, politically harder and legally challenging option for solving the major problems of common water resources. Saleth (1996) argues that ' it is only when legally based physical limits i.e. water quotas are set to individual and collective water withdrawals through a locally managed system of water rights, we could promote equity in the access to the resource, enforce discipline in water use, and provide an effective framework for users participation and decentralised decision making.

The paper discusses the factors that lead to the water transfers out side the Krishna river basin[3] to meet the drinking water needs of a growing metropolitan city of Chennai. The objective is to demonstrate how conflicts at basin level influence the local priorities and needs. It discusses the consultation process at local, regional and State levels and draws lessons for management of inter basin water resources. The paper is divided in to four

[2] Please refer Iyer (2003) for different perspectives of rights. They are federalist perspectives, formal law perspectives, civil society perspective, Participatory and Stakeholder perspectives, Human Rights perspective, environmentalist perspective and Economic perspective.

[3] The Krishna Water Disputes Tribunal after analyzing a flow series of 78 years from 1894-95 to 1971-72 awarded an allocation pattern in May 1976 to the three riparian States: 560 TMC for Maharashtra, 700 TMC for Karnataka and 800 TMC for the Andhra Pradesh. However the award is applicable till the year 2000 only.

main sections. The first section discusses the historical context in which the project was initiated and it's objectives. The second section discusses the implementation process. Section three, discusses the present challenges and fourth is a concluding section.

1. The Context

In developing countries irrigation take a large share about seventy to ninety percent of the available fresh water. As people grow in number their needs increase, resulting in a higher demand for more quantities of water for human consumption. Chennai city is the youngest of the four metropolitan cities[4] in the country. The city started as a colony of the natives and the British around the Fort St.George, built on the eastern shore and occupied on 24th September 1641 by the East India Company, the forerunner of the British crown. Over a period several villages and hamlets got included and the city grew in to metropolis. The population in 1870 reported as 0.37 millions and was increased to more than 4 millions by the year 2001. The increased rate of urbanisation and population growth resulted in increased demand for urban basic services. Supplying water for drinking and domestic use had become a huge task for the government.

1.1 Designs for Drinking water supply

The first planned scheme for drinking water supply for the city of Chennai was designed by Mr.Fraser, the then special Executive Engineer, and Public Works Department in 1866 and executed in 1872. He chose the near by irrigation tanks of Cholavaram and Red Hills as storages for the City water supply, built an anicut across the river Kusasthalaiar at Tamarapakkam, a convenient location to command these two tanks and excavated a supply channel to link them. From Redhills lake water was drawn trough an open Channel to the city for distribution (Souvenir, 1988). Mr. Fraser must have designed the system for a projected population of 0.47 million. Today the population is 4.6 millions living in 174 square kilometres. The development of city water supply system could not keep pace with the increase in the population. There was a paucity of adequate water resources with in the reasonable distance from the city. The only addition to the storage

[4] The other metropolitan cities are New Delhi, Bombay and Calcutta

capacity was made in 1944 with the completion of Satyamurthisagar (now known as Poondi reservoir) built on the Kusathalaiar river which carried flows only during the North East monsoon period of October to December. Due to the erratic monsoon the water supply to the city suffered during those years severely.

1.2 Acquisition of Irrigation Rights

Significant among various attempts made during the period to improve the situation are the acquisitions of irrigation rights of the ayacut under the Cholavaram and Red Hills lakes thus making these storages available wholly for water supply and raising their full tank levels in 1969. With these improvements the total capacity of the three storage reservoirs increased to 6.5 TMC (thousand million cubic feet) of water. With the growing demand for additional water resources hopes of getting Krishna waters flowing South by gravity towards Chennai (formerly known as Madras) have been entertained over a long time. A planned project known as Krishna- pennar project for harnessing the Krishna waters linked with Pennar flood flows was made after detailed engineering investigation in 1951 to irrigate 36 lakh acres in Rayalaseema, Chittor, Nellore and Chingleput Districts and to yield a power potential of 250 MW. The Madras canal of this project would have brought enough water to the city besides irrigation. But unfortunately this project was not taken up. The request made by the Tamil Nadu for 15 TMC from Krishna river for water supply to Madras was there with the Central government ever since and also with the basin states.

1.3 The Policy and Political Choices

The present section discusses the historical background and the political process that took place in case of water supply to Chennai city. The public needs are represented through the policy choices of the governments in power. I have tried to present the role of decision makers and policy managers, the choices they made, the time taken and the political and bureaucratic challenges of implementation. I argue that public decision makers confront many challenges both internal and external and hence policy decisions

are often delayed or diverted. The Telugu Ganga project is a classic example to understand these processes.

Soon after the States reorganisation in 1956, the Tamil Nadu, raised the prospects of diverting waters from the river Krishna for Chennai city in the South Zonal Committee meeting in September 1957. Representation was made to the Krishna-Godavari Commission headed by the reputed Engineer, the late revered N.D. Gulhati in 1962, which was not considered on the plea that Tamil Nadu state is not a Krishna basin state. Later the Union Minister of Irrigation announced in the Loksabha on 23rd March 1963 that the request of the Tamil Nadu government would be sympathetically considered by the three basin States. However the Krishna Waters Tribunal (KWT) which allocated the waters of Krishna River through its award in 1973[5], did not allocate any waters from Krishna river to supply drinking water Chennai. River Krishna is the second largest in the southern peninsula (next to river Godavari) divided in to twelve sub basins spreading over three Indian states. Rising in Mahadeve ranges of the Western Ghats, the river runs for nearly 1,400Km length draining the three states of Maharashtra, Karnataka and Andhra Pradesh. Following this announcement an agreement was signed among the basin States and Tamil Nadu, the beneficiary state on 14th April 1976. This was an historic land mark of co ordination and co- operation among States in India[6].

Tamil Nadu State was brought under Presidents rule from 1st Feb 1976. A second milestone in the history of this project came when the then Prime Minister of India, Mrs. Indira Gandhi, through her personal initiative obtained the concurrence of the Chief Ministers of the basin States. She announced at a public meeting at Madras (present Chennai) on 15th February 1976, that the three riparian states had agreed to spare 5 TMC each from their share of Krishna waters, to meet drinking water requirements of Madras city. It is necessary to understand that at that point of time, all the three riparian State Governments were ruled by her own party, Congress (I). This was the main reason

[5] The final award published in May 1976 about the share of river water sharing between the riparian states.
[6] While writing this section I used liberally the historical information available in the T.N government published Souvenir in the year 1988 and Mohan Krishna's paper on Telugu Ganga (2003).

behind securing the political will and the process of implementation had taken place. But from 1957 to 1976(nineteen years) was a long wait for Chennai population.

After a technical scrutiny of alternatives available it was decided in an interstate ministerial meeting held on 27th October 1977 that Tamil Nadu shall be permitted to draw 15 TMC of Krishna Waters annually from Srisailam reservoir during the period of July to October through an open lined canal. The Chief Ministers of Andhra Pradesh and Tamil Nadu again met at Hyderabad on 15th June 1978 and finalised the details for taking up the investigation of the project. As the investigations were in progress several technical issues and administrative aspects were frequently discussed during the Liaison Committee meetings and this committee generally guided and monitored the progress of investigation in both states. A scheme report had been sent to the Government of Tamil Nadu in September 1982 by the Government of Andhra Pradesh.

During the process the Government of Andhra Pradesh was also exploring alternative designs so that irrigation priorities of Rayalaseema can also be included in the project design. The new dimension that was proposed Andhra Government providing irrigation water to Rayalaseema farmers was objected initially by other riparian states. This clause had raised several new questions including the relevance of interstate agreements made between the Krishna basin states. The plans were drafted many a times to safe guard the interests of the states. Political choices have played an important role. The ruling Congress government in the Andhra Pradesh was very much particular because this would be a wise step politically.

1.4 The Investigation Phase

During the investigation phase from 1978-1983, a few important issues camp up. They proved critical for the successful launching of the project. The analysis of investigation period, provide us some clues for the factors behind the delay of the interstate project. After a brief period of Presidents rule (10th October to 10the December 1973) Jalagam.Vengalarao became the Chief Minister of Andhra Pradesh on 10th December 1973. He was in the office till 6th March 1978. Dr.Marri. Chennareddy who succeeded

the former Chief Minister, represented Government of Andhra Pradesh and M.G. Ramachandran, Chief Minister Tamil Nadu signed the documents that permitted Tamil Nadu to draw 15 TMC of water from Srisailam. But the implementation of the scheme hampered due to the individual State interests. The plans and project designs got changed many times to safeguard the interests of the participating states. The Government of Tamil Nadu insisted that their share of water can be supplied through pipelines and they have agreed to share the cost of it. Meanwhile the emergence of Telugudesam Party in to power in the State of Andhra Pradesh have added a new dimension to the already complex issue of inter basin water transfer.

1.5 The emergence of Telugudesam party

Political Changes took place in the State of Andhra Pradesh. The emergence of a regional political party called *Telugudesam* created ripples in the Congress dominated State polity in the year 1982. Where as the emergence of regional parties were visible in the state of Tamil Nadu since 1967, the Teludesam party formed by N T Ramarao (popularly known as NTR) a famous Telugu cinema actor, came in to power in January 1983, all in a matter of nine months of its formation.. The victory of Telugudesam party in to power in Andhra Pradesh, considered as the citadel of Congress party startled the political equations in the region. When the party was launched it had neither leaders trained in some ideology nor a full pledged party organisation. The party victory was ascribed to the charismatic leadership of its founder N.T.R. Andhra people reposed a great faith in him as some one who could protect the self pride of the native people. There are many explanations how Telugudesam party came in to power[7]. The explanations are beyond the context of present paper and hence not dealt in depth. The relevant point here is to discuss about the leadership of the Telugudesam party (TDP) which has its influence on the policy framework and implementation in the state. As soon as NTR came in to power the issue of supply of drinking water to Chennai had gained prominence.

[7] See for detailed explanations, Suri K.C (2002)

Mr.N.T.Rama Rao insisted on combining irrigation for the dry areas of Rayalaseema region with the water supply project. His argument was that the Andhra Pradesh has been given the right in the tribunal award to utilise the surplus water over and above that earmarked for specific projects, with out claming the use right and since he is confident of getting further quantity allotted during the impending review in 2000 year, he wanted to execute the project in advance before year 2000. This clause of Andhra Pradesh raised several questions including the relevance of the two interstate agreements signed. The government of Tamil Nadu feared that objections raised by the other two states on legal grounds once again stall the project. The Chief Minister of Andhra Pradesh was adamant in his stand and even mentioned that he would excavate a separate irrigation canal if Tamail Nadu decides to take the water from Srisailam, in a separate water supply canal with carrying capacity of 1500 cusecs, as mentioned in the earlier agreements (Mohan Krishnan, 2003).

This problem more on legal tangle was solved by the Minister of Tamil Nadu suggesting that the point of off take which is to be decided at a suitable location and government of Andhra Pradesh will ensure the agreed supply to Tamil Nadu at this point. The decision was strengthened by the friendship that was existed between the two chief ministers. Dr.M.G. Ramachandran,(popularly called as MGR) a popular cine actor became the Chief Minister of Tamil Nadu in the year 1977 and continued in the power till 1987. Both the Chief Ministers of Andhra Pradesh and Tamil Nadu were contemporaries in their respective cine careers and enjoyed a huge mass support. They could successively turn their mass base to win highest political offices. Both of them have used their friendship and have agreed on the proposal of supplying irrigation water for Rayalaseema farmers in Andhra Pradesh along with supply of drinking water to Chennai.

1.6 The Historic Agreement

The historic agreement concluded between the Chief Ministers of Andhra Pradesh and Tamil Nadu on 18th April 1983 has enabled the implementation of the scheme initiated at successive times in 1956, 1963, and 1976. This is one of the rare instances in which a

needy state though not contributing for the basin is given the benefit of water supply for its principal city by the good gesture of basin states of the river. One can see the influence of the politics in the decisions arrived and the time taken to reach an agreement on the implementation of the scheme. The project was formally inaugurated at Chennai on 25th May 1983 by Prime Minister Mrs.Indira Gandhi, who was the initial facilitator of this project way back in 1976. Chief Ministers of Maharashtra, Karnataka and Andhra Pradesh participated in the inaugural meeting, when the Chief Minister of Tamil Nadu handed over a Cheque for Rs.30 crores(0.3 billion rupees) as the first advance from Tamil Nadu for their share of the cost for starting the project.

The project was named as *Telugu Ganga* (meaning Andhra's water) by the Chief Minister of Andhra Pradesh and revived the hope that the project would complete soon and Chennai will receive its share of drinking water. The Rayalaseema farmers in Andhra Pradesh also felt good for the reason that they would receive irrigated water from the same canal for their parched fields. Since then the project has got good support from both the governments in power. After the demise of MGR for a short period less than a month his wife became the Chief Minister of Tamil Nadu. On January 27th, 1989. She was replaced by Mr. M.Karunanidhi, head of another regional party named DMK became the Chief Minister of Tamil Nadu and was in power only for three years. His government was replaced by Ms. Jayalalitha (AIDMK party) government in the year 1991 and was in power till 1996.

1.7 The New Alliances

In 1989 assembly elections in Andhra Pradesh, the ruling TDP was lost and Congress came in to power. After completion of five years in 1994 assembly elections TDP retained its power and formed the government under the leadership of NTR. As a leader NTR could not build up TDP on democratic lines. He had criticised Congress as a party lack of inner party democracy but ruled by few people at the centre. NTR thought that the party organisation at best was an extension of his own self and other leaders were unimportant for him to continue in power, because in the eye of people it was he who

mattered, not any one else. NTR style of functioning in the government was no different (Suri 2004). The invisible resistance grew in TDP that led to worst crisis in August 1995 by removing NTR from the power and the party Presidentship. Mr.Chandrababu Naidu who was known for his organisational skills and the general secretary of TDP became the Chief Minister of Andhra Pradesh in 1995. This has marked a new phase of politics in the history of Andhra State.

Soon after assuming the highest political office Chandrababu tried his best to project himself as a pragmatic leader and succeeded in controlling the Party organisation. Unlike NTR, Chandrababu gave more importance to civil servants than his own party functionaries to gain their support in ruling the state initially. In Tamilnadu, Ms.Jayalalita has completed her first term but had lost in 1996 assembly elections. Mr. Karunanidhi representing DMK party had come back to power. Soon after he assumed the seat of chief minister in the month of May 1996 he took initiative to negotiate with the Chandrababu Naidu Government in Andhra Pradesh. Both the leaders committed to their political agendas saw that the project implemented at its highest speed. After twenty years of long political movements, the water for the first time reached the boarder of Andhra and Tamil Nadu states on 29th September 1996. The visitors can see a *stupa* (pillar) at the boarder site as a witness symbol for the historic act of releasing water to Tamil Nadu State. Water has become a politically contested resource. Politicians want to make an issue so that they can get the public attention. We have many such examples in all the regions of the state as political representatives arguing for more water for their constituencies[8].

[8] One such recent incident worth mentioning was an act of resignation of six congress party legislators in September 2003 accusing the Government for not supplying water for Krishna Delta farmers. The legislators, from Krishna and Guntur districts sent their resignations to the state Congress leadership with request that they can be forwarded to assembly speaker for approval. An indefinite hunger strike was also conducted by them and vowed to continue the fast till their demands were accepted. The reaction to the situation as reported in the press that the Chief Minister was in quandary because the release of water to the Krishna Delta from the Nagarjunasagar dam on the Krishna River could anger the Rayalaseema region farmers, which is also demanding water from Srisailam, another reservoir on the same river, and Telangana, which is opposing release of water to both the regions. What the Andhra Chief Minister did was instead of setting his home right he flew to Bangalore to meet his counter part S.M Krishna and made a request to release 50TMC of water to improve the storage level in Nagarjunasagar in Andhra Pradesh. Finally the legislators were requested by the state congress President to withdraw their resignations saying there was no need for them to quit.

2. The Implementation Process

Telugu Ganga Project (TGP) envisaged using surplus Krishna river water from Srisailam Reservoir through an open unlined canal. The projects is complex in its nature since it involves inter basin transfer of water for various uses. A canal was designed to excavate from Srisailam reservoir across river Krishna to Somasila reservoir built across Pennar River. A flood flow canal of 45 kms length was excavated connecting Somasila reservoir and Kandaleru reservoir across the valley. From Kandaleru another canal was excavated to connect Pundi Reservoir in Tamil Nadu state with a toal length of 152 kms. From the states common boarder the water has to travel twenty five kilometres in Tamil Nadu region finally to fall in Poondi reservoir. The total length of the canal (from Srisailam Reservoir in Andhra Pradesh, the source up to Poondi reservoir-the storage point in Tamil Nadu to supply water to Chennai) was more than 400kms traversing two river basins and states. The project is designed to augment water supply with 995 mld capacity by the year 2002 to Chennai city and supply irrigation water to irrigate 2.56 lakh ha (5.75 lakh acres) in Rayalaseema region of Andhra Pradesh.

2.1 The Progress

Importing the Krishna water in to Rayalaseema region seems the current approach of the government to address the water needs of the region. The Telugu Ganaga, Galeru - Nagari and Handri-Neeva projects formulated for the purpose. The main problem is that while the dependable yields of the Krishna River for allocation are limited the riparian states are demanding for their legitimate share of waters. There are many problems in-between these riparian states in sharing the allocated waters. In the absence of agreements each state is seeking central government interference and also sought legal help to get sanctions.

Despite these issues Andhra Pradesh designed projects with the expectation of surplus waters of river Krishna. I argue that one can predict and we have enough evidence already available on the behaviour of politicians in constructing new irrigation projects. The Politician – Contractor – bureaucrat lobby also often respond positively to new large

irrigation projects. Out of the three projects work on Telugu Ganga project has been progressing. The drinking water component of this project ahs been completed, the work on the irrigation component of the project is slow owning to financial constraints. The local farmers are unhappy about the situation especially when they see water flowing to Chennai what ever little amount it could be.

Picture No 1: ***The sign post of struggle***: The milestones showing Andhra Pradesh boarder (151.837 km) and Tamil Nadu (0.00km)

2.2 How much water to Chennai?

The committed 15 TMC water to Chennai could not see the light even today in 2004. The government records show that the highest water released since 1996 was seven TMC in the year 2000-2001. The first year the amount of water got released was only 185 MCFTs to Chennai.

Table: Water supply to Chennai city (1996- 2002)

Dates	Quantity in mcft	In TMC
29 Sep 1996 to 28 October 1996	185.000	0.185
July 1997 to June 1998	565.211	0.565
July 1998 to Feb 1999	3298.826	3.299
July 1999 to Jan 2000	1907.124	1.907
May 2000 to June 2000	104.235	0.104
August 2000to May 2001	6594.077	6.594
July 2001 to August 2001	9.654	0.009
March 2002 to July 2002	3260.696	3.261
Total	15924.823	15.924

Source : Telugu Ganga , Krishna Water Supply project reports (confidential)

The above figures are kept very sensitive. The government of Tamil Nadu staff working at the Zero point also maintain their own records. Those records show that the cumulative supply at Zero point till 29.7. 2002 was 17.539 TMC. The difference of about 2 TMCs of water over a time period of six years can be explained as the differences in recording practices. During the discussions with both the states staff, it was known that the Tamil Nadu staff takes gauge readings for every one hour. Where as, the Andhra counterparts three times in a day record the gauge records from the same measuring well. According to a study conducted Institute of Hydraulics and Hydrology, Poondi in the year 1998, it was reported that the bed of the canal both on upstream and downstream sides are left unlined, silting up of the upstream, the basis of flow measurement cannot be dispensed with. As suggested, with an initiative of a non governmental organisation the lining of the canal had been undertaken in the year 2003 and lining work about five kilometres length was completed.

The point that can be raised here why the TGP could not achieved the designed supply of 12 TMC of water to the State of Tamil Nadu, accounting for 3 TMC of water as evaporation losses in the canal? Why successive governments in Tamil Nadu could not assert their right to receive their share of water from TGP? Now let us examine the government policy statements to find the possible reasons to answer the above questions.

The Command Area Development Agency (CADA) of Andhra Pradesh records that the government has spent during last five years funds worth 450 crores(45 millions) and achieved new irrigation in about 1.2 lakh acres in Rayalaseema and uplands of Nellore district. The total creation of irrigation potential increased to an extent of 38,000 acres. Water is also being supplied to additional 40,000 acres under K-P canal in Nellore and Chittor Districts. It also recognises the fact that government implemented plans to provide drinking water to the villages' enroot canal to Chennai in the year 2001-2002. However it did not talked about the commitment of water supply to Chennai city.

2.3 Scarcity of Resource or Management?

The successive governments both in Andhra and Tamil Nadu have tried to win the confidence of the beneficiaries of the TGP so that they can exchange them as support base for their parties. The statements by the politicians in the local press were served as the main source of information for the public.

> …The initial flows of Krishna water are expected to reach Zero Point on Thursday, even as the authorities are working over time to ensure optimal use of water. According to the information reaching here, Krishna water reached the 121st Km point this morning. Going by the present rate of speed of 15 kms a day, the flows will touch the boarder of Tamil Nadu which is still 30kms downstream, by Thursday afternoon. (The Hindu dated 11.07.2001, Chennai)

Meetings were held between the high level government officers like Chief Secretaries of both the states. The meetings of Chief Ministers[9] were also evident to discuss the issue. The information about these meetings covered in the local news papers gave further publicity to the political leaders involved.

2.4 The Chennai strategies

According to recent estimates by the government departments the city needs 800 million liters of drinking water. But gets less than 300 million liters from TGP source shares an

[9] The Tamil Nadu Chief Minister Ms. Jayalalita had a meeting with her Andhra Pradesh counterpart Mr.Chandrababu Naidu in the month of December 2002. This was followed by a high level meeting between two Chief secretaries of Tamil Nadu and Andhra Pradesh in Hyderabad on 11th Jan 2003 aided by senior officials of both states to discuss the release of drinking water fro Chennai.

officer who do not want to be quoted. As per the agreement with other Krishna riparian states, Chennai is supposed to receive 15 TMCs of water annually via poondi reservoir, which taps water from Somasila Dam and Kandaleru reservoir in Andhra Pradesh. The expected volume was 12 TMCs after evaporation and other losses. The experience was that on an average the city receives 3 TMC of water annually leaving a huge deficit to cope up by Chennai authorities. The water supply for Chennai is ensured by the Water supply and Sewerage Board (CMWSSB), constituted on 1st August 1978 by an act. Eighty percent of the drinking water needs of the city originated from the ground sources. It is peculiarity of Chennai, due to scarcity of local surface sources. The city acquired a treatment capacity of 620 mld in the year 1999 in good monsoon years. The Board enjoys the monopoly of extraction at Manali Hills, both the first ground source and the industrial district of the Chennai area. The board buys 20mld of water from farmers, under a tripartite agreement between the water board, the electricity boards and the farmers (Ruet and Zerah 2003).

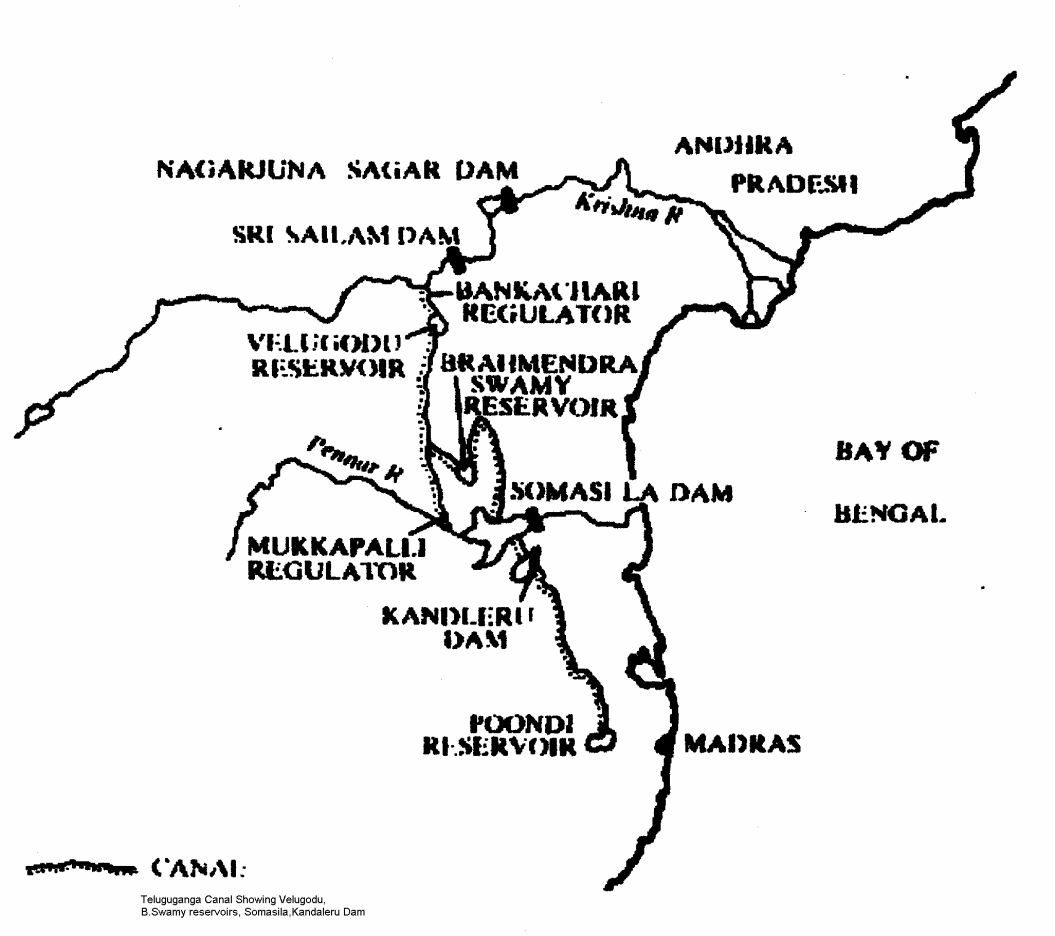
3. The Challenges

Why TGP could not meet the committed supply to Chennai? I explain this question by analysing the technical, institutional and political factors of implementation of TGP project. Among the host of factors the political factors have played a major role especially in the implementation of the various phases of the project.

3.1 Technical factors

The TGP is a network of canal connecting Srisailam -Somasila – Kandaleru – Poondi reservoirs. In the chain the projects are yet to be completed. The Kandaleru reservoir is still to complete. There are technical and fund crunches to the project completion say a senior irrigation officer at circle office based in Srikalahasti. The reservoir is designed to store 60 TMC of water. Most of the construction work is also completed. But the maximum storage of the reservoir is about 17 TMC if we see the past years records. That is less than one third of the storing capacity of the reservoir. The canal network was not

completed. There are submergence and rehabilitation issues were also there. Out of 22 identified villages under submergence families from 19 villages were moved out and compensation was paid. Rehabilitation and resettlement work is under progress and remaining three villages are yet to resettled. The flood flow canal that was constructed between Somasila Reservoir and Kandaleru reservoir was also completed. There was no ayacut contemplated under the 45 kilometres length flood flow canal. But to operate the flood flow canal required levels has to be maintained in the Somasila Reservoir.



Teluguganga Canal Showing Velugodu,
B.Swamy reservoirs, Somasila,Kandaleru Dam

3.1.1 System problems of Somasila Reservoir

The construction of Somasila reservoir was complete in the year 1989. The capacity of the reservoir was planned as 78 TMC with a contemplated ayacut in Pennar delta. There are two feeder canals named North and South Feeder canals with a length of 73and

76kms respectively. The north feeder canal irrigates an ayacut of 23,000 acres of Khariff and 23,000 acres of Rabi cultivation. The South feeder canal supply irrigation water to 16,000 acres of Khariff and 25,000 acres of Rabi ayacut.

Due to the resettlement and rehablitiation issues Somasila reservoir also facing less storage. The reservoir is designed for 78 TMC of water where as full reservoir level was not achieved. According to the senior engineer, in the year 1992 they could only store about 20 TMC. In latter years the storage went on to 25 TMC and in 2001 year 37 TMCs of water stored. In the coming years the storage will be increased to the capacity of 41 TMC still leaving fifty percent of the reservoir empty. The proposal is to use 60 TMC of water to irrigate 4lakh acres of contemplated ayacut under Somasila reservoir and supply 15 –20 TMC of water through Somasila-Kandaleru flood flow canal (SKFF) to Kandaleru reservoir. It is designed to receive water 12000cusecs discharge. With this design 1 TMC of water can be drawn per day to fill the Kandaleru reservoir in short time.

The farmers under Somasila Reservoir (Pennar Delta) argue that they cannot share their water with other farmers under K-P canal ayacut and Chennai users. They are claiming that they are not receiving their legitimate share of water, since the reservoir is not functioning at the full storage level. Hence the department cannot supply water to K-P canal until and unless the reservoir is full beyond the 40 TMC mark.

The engineer gave a very pessimistic view that in future water demands will be more and hence completion of R&R works and bringing reservoir to their fill capacity level is crucial. Since the excavation of branch canals and other network canals did not completed under K-P canal, part of the water is flowing to Chennai. If the network of canals complete and no improvement in storage levels there bound be more conflicts between farmers and other users. To irrigate the 3 lakh acres of contemplated ayacut under K-P canal, at least 30-40 TMC of water is needed. The remaining 15 TMC of water can be supplied to Chennai. To be able to do this the capacity of storage at Knadaleru should be increased and planned inflows also be released.

The unauthorised drawls also have increased as there are no user associations formed on this project. At the same time the department is not able to stop farmers because their fields are under localised and not receiving water since the excavation work is not completed. The local politicians are also in favour of the local farmers to gain their support for a re election that are facing in 2004. The irrigation staff from Chennai makes visits to the Andhra side till Kandaleru and place complaints with Chief engineer. This has become as regular practice with out much results.

The min problem with the TGP is that, the project is based on the quantum of surplus water from Krishna River. Since Krishna River basin it self facing severe scarcity[10] and fully exploited the flows in TGP will always unstable. The main canal between Srisailam and Somasila reservoir it self is not completed. In addition there are two additional reservoirs are planned and funds were diverted. These initiatives clearly show that they are implemented to make the local farmers happy and gain their vote banks for political gains. The Velugodu reservoir was designed to store 16 TMC of water with 1.25 lakh acres of command in Kurnool District. In the down stream another reservoir named on a local saint Sri.Potuluri Veera Brahmendraswamy(SPVB) reservoir was planned for another 16 TMC of water with 1.50 lakh contemplated command in Cuddaph district. The projects are facing problems of clearances and lack of funds. The more they delay the less likely that they will be completed.

Since the main canal is not completed fully, canal water will be sent in to the Kundu river from Banakacharla cross regulator (down stream of Pothireddypadu regulator). The farmers along Kundu River claim that they have the right to use the water from the river no matter the source of the water in the river. The water diverted in to the Kundu River will flow across the Kurnool district and Cuddaph district and will join in to the Pennar river. The river Pennar also receives water from its catchment area. The Somasiala

[10] Large storages had already been built on the Krishna river system (on the main river and its tributaries) for irrigation and power. The projects are: Koyna and Badra in Maharashtra, Malaprabha, Ghataprabha and Upper Krishna projects in Karnataka State, Srisailam(308 TMC of gross capacity and 211 TMC of live), Rajolibandha and Nagarjunasagar in Andhra Pradesh State. The Nagarjunasagar is the terminal reservoir with a large capacity of 11327Mm3(400 TMC). It supplies irrigation water to about 2 million acres covering five districts in the State.

reservoir hence receives the share of water of Teluguganga and Pennar river catchment. The water in Somasila has to be shared by farmers from Pennar Delta, farmers of K-P canal ayacut and Chennai population for their irrigation and drinking water needs.

3.2 Institutional factors:

3.2.1 Case of Panduru Tank Users

Panduru tank supplies irrigation water for thousand acres belong to four revenue villages. Enadivettu village receives tank water to irrigate hundred and fifty acres of wet paddy cultivation belong to the village. Enadivettu is a small habitat in Varadapalem Mandal with hundred fifty families of Chowdary community belong to forward caste in the hierarchy. During the group discussion session the Villagers shared that Panduru tank is the main source of irrigation not only for their village but for other three villages namely Panduru, Kovurupadu, and Arduru.

The tank used to receive diverted water from Rallavagu from many years. The small anicut across the vagu(riverlet) was broken and needed repairs. The farmer leaders from the four villages together made a representation to government departments and to the local MLA in the year 2001. No action was taken till now says the villagers. Since the anicut was damaged the water was not flowing to the tank. Last year only half of the aycut was served under the tank. The present year not even one acre was planted since there is no water in the tank. The villagers conducted a dharna (road blockage) so that government will respond to their demand of constructing the small anicut on Rallavagu. Since last year the farmer leaders were agitated for construction of a sluice so that water from Teluguganga canal can be received in to the tank. Since 2004 is an election time the local politician took special interest and the sluice for the tank was sanctioned and constructed. Little amount of water was channelled in to the tank also in the month of March and farmers made use of that water to give one watering to the standing groundnut crop near by the tank. The demanded anicut was yet to build. The farmers told that they will not stop their demands till the anicut is built. If they could succeed which they are very sure of, they will have two sources of water to the tank. So that with the diversion water they want to grow the paddy wet crop and rabi crop with TGP canal water. The

Yanadivettu farmers are also happy since the excavation of 2L major on 9th branch canal was progressing. The proposed length of the major was 11 kilometres with an estimated ayacut of 3008 acres of irrigated dry crop. But farmers were not very sure when the excavation will be complete. If it completed they can bring another 50 acres belong to the villagers in to irrigated dry agriculture. The case suggests the local farmers plan and their perceptions about the Teluguganga canal as a source of irrigation for their fields. The case also suggests with the completion of excavation of branch canals, major and minor canals in this area demands for irrigation water will increase many folds. As of today it was observed that the farmers next to the canals are irrigated their lands with siphoning or through diesel run water pumping machines. The practice of water pumping has been legitimised with the consent from local political leaders. These practices bound to continue even in future. In this case, the total available water in TGP should increase in order to ensure (some quantum of) water supply to Chennai.

Picture: Diesel run water pump on the canal site taken on April 17th,2004. The farmer is trying to save rabi crop

3.2.2 Case of Kambakam Tank

Kambakam is a village in Varadapalem mandal in Chittor district. The village political landscape dominated by Reddy families followed by Yadava and Muslims families. Four hamlets fall under Kambakam Revenue panchayat. The tank of Kambakam is located between the Telugu Ganga canal and Avanti leather factory. The tank supplies irrigation water to seven hundred acres belong to Kumbakam and other hamlets in the panchayat. Discussion with N.Mahidhar Reddy (served as a tank water users association president during 1997-2002) reveals that the tank is the only source of irrigation to these villages. During the year 2001 there were no rains in the region and hence the village tank did not filled. The standing wet crop was in need of at least one watering to protect the crop from dying. At that time in TGP canal water was flowing. The farmers made a request to the irrigation department to fill the tank so that they can save the standing crop. The department turned down the request of the farmers on the pretext that they can not supply water to the tanks, since it meant to supply to Chennai. "Farmers from four villages brought pressure on me as a tank president. They were very sensitive to supply water to Chennai instead of filling our stomachs. We decided to breach the canal just to fill our tank. Within few hours in the evening the tank filled and we ourselves repaired the breach. The department officers came the next morning and made police case on me as a president of the tank. The case is still pending in the local court though my term as a WUA president is over" says the President. The department should have thought about the local farmers needs while designing the project. Our fields are also fall under TGP command. But the government is not able to dig the branch canals and other majors in time. "*We donot object supplying water to Chennai in principle. But we feel bad when we donot receive water in time for our fields due to governments delay and put cases on us''* argues farmers of Kambakam Tank.

3.3 Political factors

In addition to the existing users the political representatives have promised to the local villagers that they would construct summer storage tanks for a cluster of villages. One such scheme is sanctioned in Satyaveedu constituency and the work is progressing. The

tank will be filled with canal water during summer to supply filtered water to villagers in the upstream.

3.3.1 Summer storage tanks and water supply to temple towns

The urban users from Tirupati and Srikalahasti also have added a new dimension to the issue of sharing scarce water resource. The districts have faced severe drought conditions in the past years. Both the towns are temple towns and require huge quantities of water to meet the drinking water needs of the locals and the visitors to the temples.

The Tirupati town was supplied with one tmcft of water that was drawn from Kandaleru reservoir to the Kailasagiri reservoir to ease the acute water storage in the town in the years 2003 and 2004 (The Hindu, 2003) In the view of critical drinking water position on Tirumala, the Andhra Pradesh Government had suspend the lining works of Telugu Ganga for a stretch of four kilometres for lifting water in to the canal and pumping the same to Kailasagiri reservoir. The decision was taken by the Chief Minister on 30th Jan 2003 on receiving the distressing reports from officials about water shortage prevailing in Tirupati town. The drinking water needs of Andhra state was never visualised in the original project design. The increasing water supply to towns will add new dimension to the water sharing dynamics of TGP and user rights of canal water.

3.3.2 Local demand for Somasila – Swarnamukhi canal

The local demand for a new canal proposed as Somasila- Swarnamukhi canal (S-S canal) was in the air for long now from Nellore district farmers. They farmers lobby is building up and it has got political visibility in recent years. The farmers from Vealavedu, Gollapalle, Melachuru are active and formed an association. They propose a 40 kms length canal originating from Somasila reservoir till a village called Vampalli and claim that it would benefit another fifty thousand acres of ayacut. Mr.Krishna Reddy, an ex agriculture market committee chairman argues that with one TMC of water they can cultivate 10,000 acres of irrigated dry crops. If so can't the government supply 5 TMC of water to them when compared to the promise of 15 TMC of water to Chennai? I find his argument like many farmers from the region is loaded with emotions. The fact is that out

15 TMC water allocated to Chennai the Andhra Pradesh share is only 5 TMC and the rest is by the other two riparian states. But as farmers believes the local rule that the first plot next to the sluice will receive water first, will not see the share of other states in supplying water to Chennai. There are high possibilities that the ruling governments would agree to this proposes canal, not worrying much about the availability of water but the vote banks they can earn. If this proposal materialises there will be further conflicts for already scarce water in the TeluguGanga project. That means supplying the committed quantum of water to Chennai is a remote possibility in reality.

3.4 The Non Governmental Initiative

On January 19,2002 Sri Satya Sai Baba, the founder of the Sri Satya Central Trust[11] and enjoys huge followers announced that he would do something to provide drinking water to Chennai. Soon after his statement, a 200 crore project has been designed and work was began in October 2002. The estimation of the labour creation is about 4000 workers[12] and 50 site engineers toiling round the clock.

The trust focused the lining work of the main canal in between Kandaleru and Poondi Reservoirs. In addition to lining of the canal, additional gates and storage tanks were proposed to increase the capacity o the Kandaleru reservoir from 16 tmcft to 68 tmcft. The lining will enhance the canal flows and arrest the seepage losses along the canal. The trust with the technical help of L&T a reputed construction company took up the initiative. They have invested more than 200 crores (exact amount is not available, as lower department officials are not aware) and completed the lining in many parts between Kandaleru and Poondi reservoir (K-P canal). The Sri Satya Sai Trust has plans to complete 60 kms length of canal in the first phase with the technical help of a leading private infrastructure company. The Andhra Pradesh Government initially completes 30 kms of canal lines out of 152 kms of total length. The Canal is not renamed as SaiGanga

[11] Rayalaseema districts in Andhra Pradesh has benefited in the past from the works of Sri Satya Sai Water projects. Over two million people in the Rayalaseema and Telangana areas, including the entire district of Anantapur benefited with an access to potable drinking water after completion of the trust water supply projects. The Karnataka government also invited the Trust to take up similar activities in Karnataka.

[12] Out of 4000 workers 500 workers are only Mehaboob Nagar district of Andhra Pradesh. The district is known for its backward ness and low rainfall. Migration is common phenomenon and according to estimates about 10 lakh (one million people) migrate every year in search of livelihoods to other places.

canal, recognising the contribution of Sai Trust. According to the Assistant Engineer at Satyaveedu irrigation sub division the water is reaching the '0' point much faster than earlier. In the past it used to take two days to reach water to zero point which is now reduced to half a day.

"The completion of 80 percent of the water project sponsored by Sri Satya Sai Central Trust, have raised many hopes of Chennai-ites" states the popular news daily The Hindu (dated 25, June 2003). However farmers from upstream complained that earlier they were receiving seepage or leakage water from the canal which they have sued to irrigated their irrigated dry crops. With the canal lining this has stopped and government did not complete the net work of canals proposed to supply water to their plots. The farmers from Satyaveedu and Varadapalem Mandals are un happy about the delay in the government work. As a result one can see a row of diesel run water pumps on the last reach of lined canal. The evidence suggests that the farmers find alternatives to irrigate their plots at any cost. It is an issue of food security vs drinking water users.

4. Conclusions

The object of this paper has been to understand these lessons. The key conclusion is public policies aimed to share river waters are complex and politically driven. The process of Telugu Ganga project design and implementation brings in several instances of conflict and collective action through a long process of negotiation between the participating states. The Case study shows the process of policy making and the role of political choices in sharing scarce water resource. In addition the political, the technological, economic factors played a vital role.

The Andhra Government spreads its thin resources across many incomplete irrigation projects. The government every year sanctions about 80 crores(0.8 billion) to TGP out of which 50 crores (more than half) will be spent on administration expenses only. A senior engineer shares that the TGP can not even receive funds from World Bank, as the project was designed on the basis of surplus water of river Krishna. It is anybody's common sense that the Krishna basin is a scarce water basin and ensuring designed

supplies in future is not possible if the rain fall is not enough in the catchments. In this context no financial institution will come forward to fund the project. In this context the non governmental initiative that came through Sai Trust is noteworthy.

The Cost escalation over many years due to the severe delays in completion of irrigation projects also influenced the outcome of the project. The reservoirs are not yet ready to store full capacity due to technical, financial and human factors. Where as, the demand for water has been increasing from many quarters. The legal recognition of rights of each type of user and clear governance rules to allocate water is crucial for efficient use of scarce water resource. The conflicts over scare water can be resolved through collective dialogue. Promotion of public- private partnerships in managing the scarce resources will have long term benefits.

Public policies donot merely stem from objective conditions. Political leaders have a large role to play in articulating a specific course among the available options to them. The policies that they have adopted been influenced by their own perceptions, electoral compulsions and their role in the government. The Case of TGP suggests that public policies that governed the status of the project are an outcome of the political compulsions and choices. The many interstate projects with similar issues can be tackled if the problems are addressed through a public policy framework.

There is a need for more explicit analysis of the effects of government policies on different classes, particularly the weak and marginalized sections of the society. The policy makers need to be accountable for the results of the policies made by them and implemented by bureaucracy.

There is a vital role for democratic structures that enhance the civil society participation in policy making. The civil society and other groups need to lobby for policies that promote river basin planning. As the case of TGP shows that the sanctioned access to drinking water by Chennai users are dependent and was dominated by local crop practices, rain fall patterns, system characteristics and most importantly the political

decisions. The rights of the drinking water users (who are the end users) of Chennai have been questioned all along the canal since the water was stored at many places before it reaches the final storage point. The technological complexities also seem restricted their access to resource. The stakes of Chennai drinking water users to their share of water were deprived by other users. The local priorities farmers needs have played a major role. The case study also suggests the complexities involved in the management of canal water, a common property resource with its different user rights and needs.

The political alliances and friendship in the two states will have a greater role in completion of TGP project and assurance of drinking water to Chennai. The Congress party came in to power (and form new government on May 14, 2004) by out throwing Telugudesam party and in Tamil Nadu, the AIDMK party is in rule and known close to BJP party. We have to wait and see how the new political alliances will work in this region. The fact is that the State- State and Centre-State relations will play a greater role in sharing and management of scarce resources. Interests and rights of people of different regions are articulated through their regional governments, and regional conflicts may take the form of inter state conflicts.

The paper concludes by suggesting formation of a River basin organisation which explicitly recognises stakeholder participation, public deliberations, conflict resolution, consensus building and collective action. The participation of farmers representatives, political leaders, bureaucrats, community leaders, researchers, civil society representatives and media, will have a great leverage to strengthen the performance of basin organisations and to understand the processes. The governance and politics are the key drivers for solving conflicts and to turn them in to co-operative conflicts, which eventually lead to collective management of commons.

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