

Dying Rivers of Tamil Nadu

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Abstract - Water is the prime resource responsible for sustaining life in the earth. Water within a river basin has to be properly allocated for various uses like generation of electricity, domestic supply, for irrigation, for industrial use, and in some cases for recreation as well. On par with this is the disposal of domestic waste, effluents and other pollutants forming the other side of the water distribution. To add to these are the vagaries of monsoon affecting the basin by extreme drought or flood. Rivers of Tamil Nadu can be grouped into 17 river basins (127 sub-basins) a majority of which are water-stressed. The average annual rainfall is 950 mm with bimodal distribution. Water Balance equation is the general term used to describe the flow of water in and out of a river system. It is illustrated using a water balance graph which plots the precipitation, evapotranspiration on a month wise interval. Classification of river basins into surplus basins and deficit basins is the prime requirement for allocation of water in various sectors and exchange of water from surplus basins to the deficit basins. This paper highlights the ways and means to restore, revive and replenish the available water resource in a judicious manner. To some extent the location and nature of surface water bodies (rivers, lakes, tanks, and reservoirs) are controlled by the geology and geomorphology (land forms) of the area and some data is provided on this aspect as well of the study area.

Keywords: Dying of rivers- Cauvery – Coovum - Palar Basin- Chemicals - Pollutions - Catchment Deforestation - Increasing Urbanization - Rapid Industrialization- Bio Medical Waste- Industrial Effluents.

INTRODUCTION

Aims at understanding what has been happening to rivers across India and in drawing appropriate lessons. , New Delhi highlighted the expanding ‘footprint’ of cities like Chennai anxious to secure new water supplies leading to competition for scarce resources. The problem of water pollution as well as the fallout of excessive groundwater use for agriculture in Tamil Nadu was discussed. Problems such as catchment deforestation, habitat fragmentation, dams and diversions, sand mining, incorrect land use, pollution and encroachments into rivers, contributing to dying rivers in the Western Ghats of Kerala were dealt with.

In search of a living river: Let us traverse through Tamil Nadu

The presentation began with a brief introduction on how rivers in India have carried its political, economic and social history. Today water resources in the country are under great threat due to indiscriminate use, scarcity and pollution. This not only undermines the resource base but poses a severe threat to the very foundations of our society, culture and community’s sustenance. This is the context in

which the speaker discussed the dying or dead rivers of Tamil Nadu:

1.1 Water pollution

The problem of water pollution poses a great threat to basic human living. The ramification of pollution is indeed more severe in the less developed countries that are afflicted with chronic problems of political instability, lack of political will, high level of illiteracy, unceasing poverty, increasing urbanization, rapid industrialization, high illiteracy and low level of awareness, women subordination, corruption, poor health care and poor social security system, high population density with poor rural and urban infrastructure.

Most importantly, there is the looming climate change threat and its impact on water resources, agriculture and food security. The growing menace of river pollution needs to be addressed in this context.

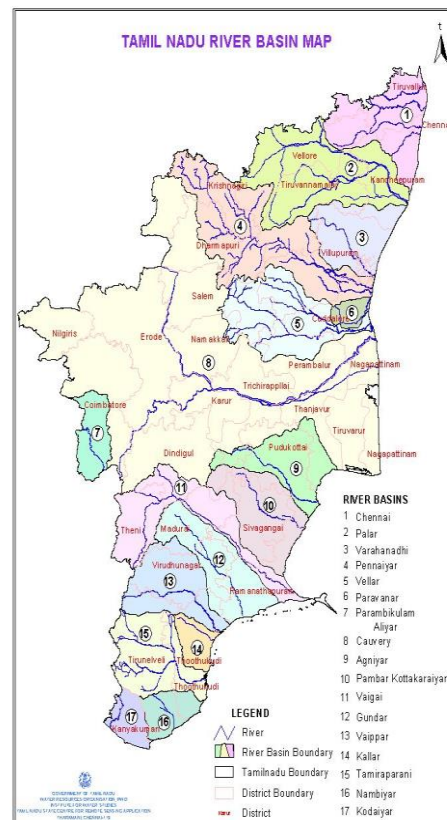


Fig 1.1 Map Showing Rivers In Tamilnadu

1.2 Invisible data

A major point was regarding the problems with existing approach of data collection and dissemination. Information on visible data is collected very selectively - such as all land

details, rainfall, crop details, water (surface and groundwater), income and consumer expenditure, assets and liabilities, livestock etc.

There are certain data which are never given importance such as on pollution of river basins, pollution levels of surface and groundwater, solid waste, bio-medical waste, urban sewage, e-waste generation and floods and droughts (socio-economic losses and expenses incurred by way mitigation).

1.3 Palar basin

How pollution, excessive groundwater exploitation and increased competition over scarce water supplies have led to a crisis in the Palar basin. It is considered the second rice bowl of the state next to Thanjavur, irrigated by a complex network of tanks and wells. Now both the rice bowls have been disfigured.

The basin is highly urbanized with a flourishing rural-urban water market. Industrial activities like tanning and dyeing has grown rapidly and become a cornerstone of the basin's economy. The basin has a very high concentration of tanneries and 75 per cent of the tanneries in the state are concentrated in this basin. These tanneries contribute to 30 per cent of the total leather exports of the country, earning Rs. 50 billion towards foreign exchange. Tanneries are highly water intensive and polluting industries, generating about 38 mld of effluent with high total dissolved solids, chromium and some traces of cyanide.

Parameter	Total pollution in Ranipet (KG/D)	Total pollution load in Vaniyambadi (KG/D)
TSS	26,635-51,980	17,707-27,135
TDS	92,465-198,246	82,409-121,103
BODS	13,734-30,292	7,293-15,565
COD	37,054-78,479	17,474-34,433
SULPHIDE	175-771	125-269
TOTAL CHROMIUM	859-3163	1,085-2,321

Agriculture in the basin is very badly affected and is marked by decreased yield, abandoned wells, polluted surface and groundwater, acute drinking water problems and serious health problems. There has been a rapid decrease in agricultural employment and thousands of people have already left their villages.

The extent of pollutants generation in two major tannery centers of the Palar basin - Ranipet and Vaniyambadi. He stated that the yield of paddy was 628 kg/ha in the affected villages and 7118 kg/ha in the unaffected villages of the Palar basin (figures for 1999).

There has been a comprehensive failure of Common Effluent Treatment Plants (CETPs). The role of Tamil Nadu Pollution Control Board (TNPCB) has been marked by lack of effective monitoring and law enforcement mechanism. As regards mitigation and regulatory measures in the basin I suggested public interest litigation and Supreme Court's intervention through what is regarded as a historic judgment. The Palar river has got the rare distinction of earning the third place among the ten most polluted rivers in the World identified by the Blacksmith Institute of New York in 1996. The criteria used for such identification were – (i) the size of the affected population (over 3.5 million) (ii) severity of the toxin(s) involved (iii) impact of children's health and development (iv) evidence of a clear pathway of contamination and (v) existing and reliable evidence of health impact.

I also discussed about the river inter-state river Cauvery. It is mainstay of Tamil Nadu and regarded as its granary. The main river takes the entire load from industries and urban waste and takes further load as it travels further down.

1.4 Noyyal: A tributary of Cauvery

The region which constitutes this river basin is traditionally a dry tract, which depended entirely on groundwater for all purposes. Over the years, there has been a secular lowering of water table, resulting in groundwater depletion in many parts. The introduction of modern mechanized pumping technologies has fundamentally altered the dynamics of agricultural water supply and use. This is all occurring in an area with marked seasonal variations in precipitation and relatively low levels of groundwater storage.

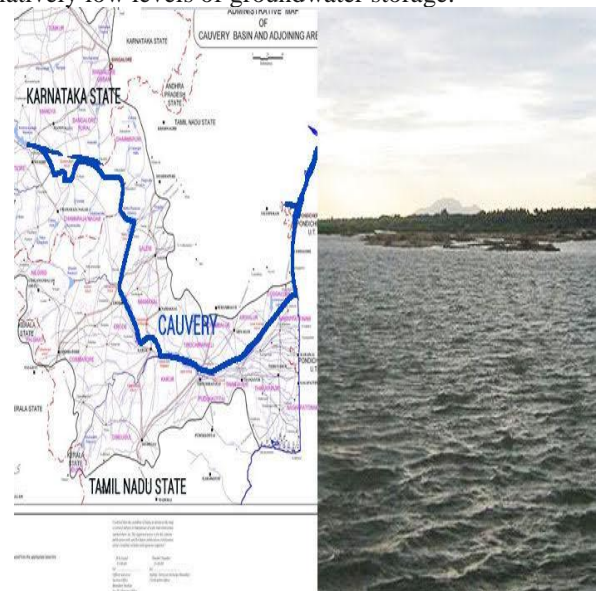


Fig 1.2 cauvery map and cauvery river

This region (Tiruppur town and its suburbs) has entered into the global map for its concentration of knit-wear industries. There are over 3000 knitting mills and over 800 dyeing and bleaching industries in this region. A very high concentration of dyeing and bleaching units in this region not only consumes a huge quantity of fresh groundwater but also discharges them back into the Noyyal river. The estimated quantity of water consumed by these units is about 100 million liters per day.

The Noyyal river looks pathetic with effluent flowing in it all through year. The threat posed by this dam can be illustrated by what has happened in February 1997. The Orathapalayam dam constructed across the Noyyal river was overflowing with effluent endangering quite a number of villages around.



Fig 1.3 cauvery check dam



Fig 1.4 cooum river , chennai

Eventually, at the time when there was no appreciable flow in the Cauvery river, the Public Works Department opened the gates of the Orathapalayam dam to let the polluted water flow down without any prior warning to the public. The effect was devastating. Considerable damage occurred to crops, animals, soils and groundwater. Several hundred animals collapsed after drinking this water. Several petitions were filed in the Court claiming for compensation. All this went in vain.

The severity of the situation was such that Government was forced to release 20,000 cusecs of water from Mettur dam with a view to reduce the pollution load in the Cauvery even though it was a dry period.

Waterways of Chennai

The waterways of Chennai namely the Cooum and Adyar river and the Buckingham canal were described. Once clean water ways they now carry sewage and industrial effluent. Chennai waterways cleaning moves have been a gross failure although over 1000 crores of rupees have been spent so far. There are reported to be about 750 sewage and effluent outfalls into these waterways carrying over 700 mld of waste water - untreated - finally mixing with Bay of Bengal.

The River Cooum, once a fresh water source is today a drainage course collecting surpluses of 75 small tanks of a minor basin. The length of the river is about 65 km, of which 18 km, fall within the Chennai city limits. This once fishing river and a boat racing ground has borne the brunt of the city's unplanned explosion.

The Buckingham canal which is the most polluted of the three major waterways in the city with nearly 60 per cent of the estimated 55 million litres of untreated sewage being let into it daily, including by Chennai Metropolitan Water Supply and Sewerage Board was also dealt with.

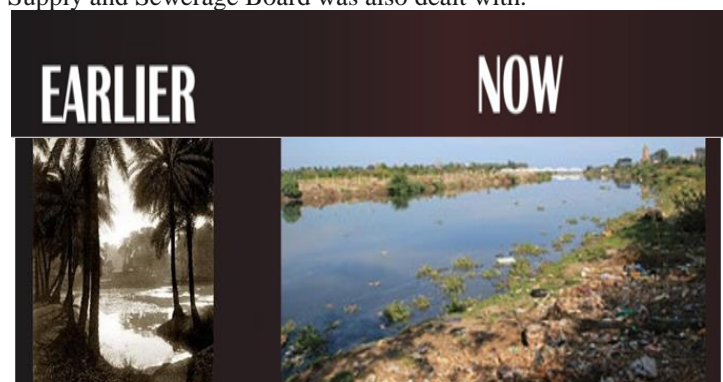


Fig 1.5 past and present condition of cooum river

I discussed issues related to the Adyar river, a flood carrier of Chennai and how it is full of municipal sewage and effluent discharged by industries. Estimated industrial pollutant loadings discharged into major rivers in Tamil Nadu was also presented.

CONCLUSION

Is it impossible to sustain industrialization and urbanization development without compromising with our rivers and water resources? On the contrary to what the neo-classical economists argue, why does the market turn out to be a mute spectator – contributing to more and more environmental and ecological damages rather than cleaning up the mess? We cannot bear if the ecology back fires! Should we wait until such time? What are the ways forward? What is the role of Pollution Control Boards and laws? Is PIL a solution?

If none of these work, what is the way out? Is there a deadlock? Or is it the curse of the democracy such as the one we have in India? Or can we renegotiate our democracy? If yes, what are the ways?

We see the ways on my presentation .

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