

The Cauvery Water War

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The Cauvery River and its tributaries form definitely the most contentious, if not the most important, watershed in southern India. About half of the watershed exists in Karnataka, the rest is in Tamil Nadu. The Cauvery, like her multi-state and multinational cousins --the Mekong (Southeast Asia), the Colorado (Western U.S.), and the Okavango (southern Africa), is peaceful river in times of good rain, but when the rains fail peace fades. The most recent of these failures occurred when the monsoons failed to feed the Tamil Nadu side of the watershed in late 1995 and early 1996. Threats of violence advanced to violence and national level intervention was eventually needed. The central government headed by then prime minister Narasima Rao eventually convinced the Karnataka government to release 6 tmcft to Tamil Nadu. The Tamil Nadu Government continued to argue that an addition 6.5 tmcft was needed. That water was not released--perhaps it was one of factors that led to the defeat of the popular Dr. J. Jayalalitha in the 1996 elections. With the return of the rains the issue has faded somewhat, but Jayalitha's loss will not soon fade from political memory nor will the underlying causes of the problem. The rest of this paper will address

1. The importance of the Cauvery to Karnataka,
2. The importance of the Cauvery to Tamil Nadu,
3. The roots of the problem, and
4. A long term solution.

The Importance of the Cauvery to Karnataka

Karnataka is demonstrably the economic powerhouse of southern India. Its capital city, Bangalore is the fastest growing city in India. It is the home a growing high tech, pharmaceutical, and chemical industries that are both water and power hungry. Bangalore, sometimes called the 'air-conditioned city' because of its mild climate is also one of the growth centers for the burgeoning Indian middle class. It houses familiar international faces such as Hewlett-Packard, IBM, Kentucky Fried Chicken and Cargill Corporation. Yet when the monsoons are weak or fail, the frailty of this amazing growth rapidly becomes evident. Power outages to the urban consumer come four to five times a week to protect the commercial users. Water is distributed on a rotational basis. First it come only a few hours per day, then it is cut for entire days. If your rotation comes at 4 a.m. then you rise early to make certain the tank is ready to receive the water. In short period of time even the typically peaceful Bangaloreans are on edge. Right now this tension only comes during periods of poor rain, but that is merely a temporary phenomenon. Industry and the urbanization will continue in Karnataka. In another five years Bangalore will merge with Mysore--once forty km from the Bangalore city limits. The

water needs and power needs will rise to the point that the free release of water to Tamil Nadu will simply not be possible without causing a dire threat to the Karnatak economy.

In the recent (1996) battle over the Cauvery water, the Chief Minister of Karnataka, Mr. Devi Gowda, called Tamil Nadu's need for the Cauvery water inflated and inaccurate. Whether he truly believed this or not was irrelevant. The people of Tamil Nadu do not vote in Karnataka. Thus, as the need for the water and electricity it generates increases, the political chiefs in Karnataka will not be able to release full quantities of water except under national order--even when the rains are good. No amount of argument from Tamil Nadu will convince the Government of Karnataka otherwise. I realize that I have simply stated Karnataka's need for the water without supplying much evidence. Whether those needs are real or imagined is irrelevant to the political decisions that will follow. The willingness to continue withholding the water even after that decision caused substantial violence in Karnataka should be sufficient evidence that the perception of that need is strong. It should also be sufficient evidence that it will happen again.

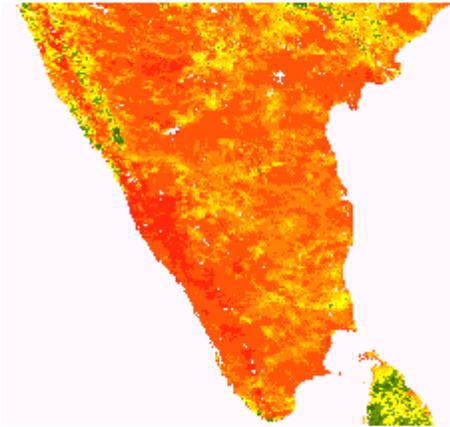
The Importance of the Cauvery to Tamil Nadu

The Cauvery is very life blood of central Tamil Nadu agriculture. [Map 1](#) shows the Tamil Nadu side of Cauvery watershed and drainage basin with an overlay of the Normalized Differenced Vegetation Index (NDVI) averages for 1992-1993 from the U.S. National Oceanic and Atmospheric Administration's (NOAA) polar satellites. This index has been used to show the health of forests (), agriculture (), and vegetation in general (). This map has been colored such that greener areas have higher NDVI values. That is, they have healthier vegetation. Dark green areas are either dense forest or two season densely cropped irrigated agriculture. The Cauvery extends like a green artery out onto the fertile delta in Thanajvur and Quiad-E-Millath districts. Coastal areas both north and south of the delta fade to the yellow indicating sparse or single season agriculture, and then to red signifying marginal agriculture or wastelands. The five districts which depend on the Cauvery for irrigation produce over 40% of the food crops for Tamil Nadu (). This is particularly significant since

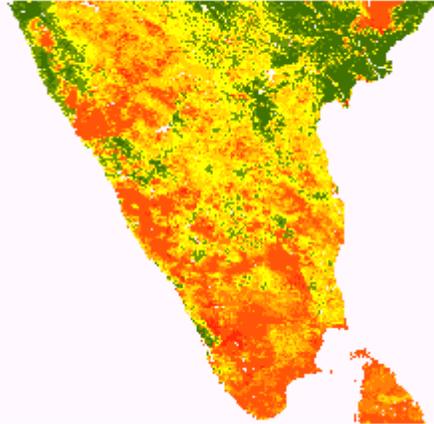
1. it is done on less than one third of the arable land,
2. it is accomplished with lower fertilizer, electricity, and groundwater than the rest of Tamil Nadu, and
3. it directly employs over 4.4 million people.

It also has the most productive sugar cane farmers in Tamil Nadu. Tamil Nadu, furthermore, has the most productive sugar cane farmers in India.

August



October



The images to above are NDVI averages for August and October. Looking down the east coast, it is evident that the Cauvery Delta is the one location in Tamil Nadu producing in those dry months.

It would appear that the Tamil Nadu government's claims that it cannot survive without the regular delivery of the Cauvery water, are more than political speculation. They are in fact, quite accurate. This especially true of the coastal plains areas. I have painted a picture, an accurate one I believe, of a bad situation that is not going to get any better of its own accord. In truth, it is likely to get much worse for the following reasons:

- Population growth in TN is higher than the average in India. Thus the demand for food, jobs, and water will likely accelerate.
- Agricultural productivity in other areas outside the Cauvery basin have come to increasingly depend on groundwater. In the inland areas water tables are falling requiring deeper wells and higher pumping expenses--when it is feasible at all. On the coast, many of these aquifers face saline intrusion. While pumping costs do not increase due to dropping water levels, that water become unusable due to increasing salinity--damage which may be irreparable.
- The increasing urban population's demand for drinking water may force the stoppage of agricultural pumping in other areas of the state--particularly Madras, Madurai, and Coimbatore.

The Roots of the Problem:

The picture painted above is not a pretty one. The horror of federal troops firing on mobs of Tamilian farmers attempting to break the floodgates in Karnataka, or conversely firing on the mob of Kanarese farmers trying to stop them seems inevitable. When the view of the future seems particularly hopeless, it can be advisable to look to the past--both recent and distant--for the roots of the problem and for potential solutions. We will do just that.

In 1837, in recognition of the necessity of healthy forests in the hills for healthy agriculture on the plains, the Tinelvelli collector, Mr. Bird, restricted grazing and dryland agriculture in the watershed of the Tambrapani. Thirty years later, R.K. Puckle, another collector restricted grazing in the watershed even further. He defined grazing limits for each village in an attempt to localize the costs of over-exploitation. He took a large step for protection--particularly from a collector by restricting any further coffee plantation at the higher altitude. His reasoning was that these plantations led to faster runoff and thus a poorer second crop in the Tinelvelli district plains. Since Tinelvelli was already a major cash earner based on its highly productive agriculture, Mr. Puckle's concern was still maximizing revenue for the crown. He just realized that that short term gains from coffee would soon be offset by losses in agriculture. His efforts were not particularly successful as plantations continued--but mostly in the lower hills. The forest were, however, described as healthy and the hills were covered with dense vegetation except for those around Papanasam and Courtalam which were described as 'very bare' (Maclean 1885).

Tinelvelli's forefront on the protection regime was maintained after the advent of a forest department and Chief Conservator of Forests for the Madras Presidency. Mr. Pennington (the collector at that time) and Colonel Beddome (the first CCF) wrote a treatise on the necessity to maintain and advance conservancy in the district. Their argument hinged on the recent degradation resulting increase in flooding which led to the increased costs of maintaining irrigation canals and forgone revenues from poor second season crops. Pennington noted that the Singampatty forest was under serious assault and doubted its continued presence without additional protection. They also argued that the escalating clearing of forest for coffee plantations was exacerbating the flooding problem and also accused the planters of illegal cutting fire hazards etc. The revenue board dismissed their reports as not justifying the loss in current revenues these coffee plantations could bring. One of those plantations--owned by the Bombay Burma Trading Company--is still the source of some conflict in the reserve.

A Long Run Solution

The early and prolonged protection effort have left the Tambrapani watershed as one of the best protected in Tamil Nadu. If we move again to map 2 we see another artery extending toward the coast in the Tinelvelli district. It is the Tambrapani. That watershed provides the irrigation potential that leaves Tineelvelli as one of the top three agricultural district in the state in terms of yield. Herein we find the key to the solution to the problem--**healthy watersheds**. The Javadis, Shevaroyas, and Pachamalais have suffered heavily (see [figure 2](#)). The lower slopes of that ghats have also been violated. [Figure 3](#) shows the current relationship between forest and altitude. The lowland forest are gone, and the lower hills are either gone or seriously degraded.

Tamil Nadu has no control over the headwaters of the Cauvery, but it does have control of the Tamil Nadu tributaries--the Bhavana and the Moyar. In the early 1800's the Vaigai flowed all year to sea. So did the Ponnayar and the Palar. Tamil Nadu has control over these watersheds as well. While climatographic reports indicate that global climate change in the last century years has left Tamil Nadu with 13 fewer rain days per year, the amount of rain has **not** decreased. Thus the rains come harder albeit more briefly. This accentuates the need for healthier watersheds. Healthier watersheds

- slow the runoff,
- increase percolation into underground aquifers,
- decrease siltation of waterway and pumps, and
- lengthen the flow period for the rivers.

This is not mere speculation or something that works, but not in India. Watershed management has worked for over a century in Tinelveli. C.C. Wilson, CCF for the Madura district, found that the watershed recovered resulting in improved stream flow in less than five years when cattle grazing and fuelwood harvest were removed. The Palni Hills Conservation Council (PHCC) found that the watersheds of the Karavakurichi Reserve Forest improved in mere two years when fuelwood harvesters were given alternate employment in tree nurseries (PHCC 1995). These are more than a few scattered stories--they are the guidebook to solving the Cauvery issue.

Yet, watershed management is no easy task. Politically motivated social forestry or village forest schemes will simply not work. These efforts show the occasional success, but are unwieldy when large areas need to be covered. Similarly commercial plantation projects are not the answer. It would be unwise to base continued agricultural survival on projects that are subject to the whims of the market. Success will require the cooperation of the Forest Department, political parties, NGO's, and local people. It will require the regeneration of 5 lakh hectares (500,000 ha.) of land at a cost of 20 crores (about 7 million dollars). That is a small amount compared to 70 crore per year spent subsidizing rice production. It is an even smaller amount compared to the 400 crore the United Nations Development Programme is spending to pipe drinking water from Angola to Central Namibia.