

Basin Profile: Cauvery River Basin**Original Report By:** Clark O'Bannon, University of Virginia**Profile Prepared By:** Adrianna Gorsky**Water Scarcity Status**

- There is not a single month during the year when the basin is not consuming more water than is actually available at a renewable rate
- Due to the lack of compromise between the two large states Karnataka and Tamil Nadu, water scarcity issues persist with little hope of a solution.
- The demands for water from the basin are growing as the population grows and a greater percentage of the population becomes concentrated in urban areas.
- The current allocation of water rights, while theoretically sufficient in times of average rainfall, fails to meet water needs during any period of drought.

Basin Overview

Karnataka/Tamil Nadu, Southeast India

Area: 72,000 square kilometers

Climate: tropical

Basin population: 36.9 million



Figure 1: Map of Cauvery River Basin (India Water Portal)

The Cauvery River is located in southeast India. The river basin, primarily contained within the two states of Karnataka and Tamil Nadu, originates in the Brahmagiri range of the Western Ghats and travels over 800 km before emptying into the Bay of Bengal. The region is characterized on the west coast by the Western Ghats mountain range, which runs along the entire western boundary of Karnataka. Moving east, Karnataka is characterized by the Deccan Plateau, a much drier region than the mountain range. As the river runs east into Tamil Nadu, there is significant change to the geography, which becomes hilly and thick in vegetation.

The Cauvery River Basin receives between 950-1150mm/year in rainfall across the entire basin, however the rainfall is not evenly distributed. The upper portion of the basin, in Karnataka, receives the majority of its rainfall between June and September, during the Southwest monsoon season. However, the lower portion of the basin, along the east coast of Tamil Nadu, takes in a greater amount of water between the months of October and December, during the Northeast monsoon season. Due to the short and intense rainy seasons, flooding and erosion are intensified, leading to greater amounts of runoff and a lower proportion of groundwater recharge than normal.

61% of the basin population lives in Tamil Nadu, and 36% in Karnataka. In 2011, 51% of the population in Tamil Nadu and 61% of the population in Karnataka lived in rural settings, leaving 49% and 39% to live in urban settings respectively. But there exists a strong trend toward urbanization in both states. The largest cities in the basin are Bangalore and Chennai, the capitals of Karnataka and Tamil Nadu, respectively. Bangalore is home to over 8.5 million people and is the 3rd largest city in all of India, while Chennai has a population of just under 5 million. Population in the region is growing at 2.5 times the global rate. It is expected that as the population continues to

rise, and urbanization continues, the overall demand for water in urban centers will become much greater than the current level.

Because the river runs through the middle of two large states, Tamil Nadu and Karnataka, the sharing of water is an issue that is brought to the forefront of many debates. The two states, locked in a stalemate over water sharing, have no incentive to change their political position. Unfortunately, the two states have not yet been able to reach an agreement over the water rights within the basin. Disagreement between the two states over water rights has been almost continuous since 1892. Multiple agreements have been made, and have either expired or been revised since that time. No long-term solutions for the basin are currently in place. Right now, there are only water allocations that require a specific volume of water to be released by dams in Karnataka, in order to reach Tamil Nadu, as determined by an agreement forced upon the states by the Central Government of India in 2007.

The main economic driver in the Cauvery River Basin is agriculture production. There are over 120 crops that are produced in the Cauvery basin each year, however a select few make up over 60% of the total production and resources. The top 7 crops by area are rice, millet (ragi), groundnuts, coconuts, sorghum, sugarcane, and coffee. Consequently, the same 7 crops also are the largest users of water in the basin.

Water Scarcity Impacts

Environmental Impacts

The environmental impact of the dams and water crisis in the Cauvery River Basin have not been studied extensively, however the studies that have been done do not show positive effects. According to a study done by Smakhtin et al. (2007), The basin is home to a number of endangered species and in some areas over 90% of the natural vegetation has been destroyed. The basin is home to a great variety of fish and plant species that have been impacted by water withdrawals and dam operations. The Cauvery River is also beginning to face dire circumstances in regards to its water quality. The drinkability of the water is in steep decline and in many places it is already unsafe. Unfortunately, this trend does not show signs of stopping and it will require cooperation in new legislation between the two states to implement any real change.

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