



# Women and Water Crisis Management in Tamil Naduwith Special Reference to Chennai Corporation

V.Sivaraman, D. Devanathan

## Abstract

All living things, including humans, animals, and plants, need water. Without water, nothing exists. Water is exclusively available on Earth; hence people can't exist on other planets. Most international, national, and state water commissions and committees say the water issue will cause a third global war. The Union, State governments, and NGOs work to solve India's water problem. Women are especially affected by India's water issue. They control the family's water for cooking, bathing, washing, and cleaning. Tamil Nadu is a fast-developing Indian state. State administration progresses with help from urban and rural local governments. Which company's machinery helps solve problems in urban and rural areas? Chennai Corporation is one of India's oldest, largest corporations. Chennai Metro Corporation created the Chennai Metro Water and Sewerage Board in 1978 to provide safe drinking water. Women with a deep connection to water are most affected. What are the strategies and techniques adopted by the Chennai Corporation to effectively manage the water crisis through its Chennai Metro water Board are discussed in this research article in detail with the water crisis and what are the problems faced by the women background of the water crisis as a homemaker.

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**Key Words:** Water, Women, Corporation, Urban, world

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## Introduction

India's urban population has doubled in the past 60 years. Aged infrastructure, urbanization, and income growth are straining Tamil Nadu's water utilities. All living things, including humans, animals, and plants, need water. Without water, nothing exists. Water is exclusively available on Earth; hence people can't exist on other planets. Chennai has no stable water supply. Even in urban regions where most people have piped water, homes typically get only a few hours and not enough (Water and Sanitation Program [WSP] 2003). Clients add well and big hauler water to the channeled supply. This article concerns Tamil Nadu's water accessibility, which influences ladies' wellbeing. Confidential big hauler administrators purchase water from perimetropolitan confidential water sources and transport it to metropolitan clients.

## Research objective

The primary target of the study is to Women and Water Crisis Management in Tamil Nadu with Special Reference to Chennai Corporation.

## Methodology

The current study might gain something from research carried out both before and after the occurrence, as well as research carried out analytically. Throughout the course of the investigation, both analytical and descriptive research approaches were applied. As a direct and immediate result of this, the inquiry that we are conducting makes use of both primary and secondary sources. The qualitative study of secondary data consisted of gathering material from reputable sources such as books, websites, and articles from newspapers, as well as reports state

**Corresponding author:** V.Sivaraman

**Address:** <sup>1,2</sup>Dept. of Pol.Sci. & Pub. Admn, Annamalai University Tamil Nadu

E-mail: sivaraman7006777@gmail.com



governments and many journals and publications from other countries across the world.

## Discussion and result

### Natural water

Hydrogen and oxygen structure water, which can be vaporous, fluid, or strong. H and O contain two different components each. Water's holiness is predominant in strict history. Water is utilized in submersions, drinks, sacred ablutions, ripeness rituals, favors, "stink eye" counteraction, and entombment customs. It's a common, essential chemical. It's a colorless, odorless liquid that dissolves many substances. Living beings depend on water's solvent flexibility. Living beings rely on watery solutions for biological activities like producing blood and digestive juices. Water exists on solar system planets and moons and beyond. Water seems colorless in little amounts, but it absorbs red light to turn blue. Aristotle thought earth, air, fire, and water were the four essential elements. For 2,200 years, people thought water was very important.

Scientists found out in the 1800s that water is made of hydrogen and oxygen. Most of the water on Earth is in the oceans, polar ice caps, and glaciers. The rest is in lakes, rivers, and the ground. As the number of people in the world grows, so does the need for clean water. Most of the time, the cleanliness of water used in industry is better than what people would expect. Water is one of the most important things on Earth. It's become the new "gold" because it can be bought, sold, wanted, saved, and used anywhere, even though it's rare in some places. It's traded on the NYSE. Some people claim water as their own to sell for profit, just like with everything else. Earth cannot support life without water. It's priceless. Water sustains all plant, animal, and human life. We use it to cook, build, and stay healthy. Water is a precious and contested resource. In many locations, drought is worsening. Resource misuse worsens water disputes and environmental damage. Water has social, spiritual, political, and environmental significance. These meanings affect water usage and consumer-supplier interactions. Sound ecosystem systems, efficient turn of events, food and energy creation, human life, and economical advancement require water. Water associates humankind and the climate and is urgent to environmental change transformation.

Water is a rights issue. As the total populace grows, adjusting contending business requests on water supplies is turning out to be more basic to

guaranteeing networks have sufficient water. Ladies and young ladies need perfect, confidential sterile offices for period and labor. People can't separate water and sterilization. Together, they decrease the worldwide infection load and further develop populace well being, instructive accomplishment, and monetary creation. In July 2010, the UN General Assembly perceived each individual's on the whole correct to 50 to 100 liters of water each day for individual and homegrown utilization. Fitting, reasonable, and clean water is required. Water costs shouldn't surpass 3% of pay. The distance between the water supply and the home can't surpass 1,000 meters, and assortment time can't surpass 30 minutes.

### Crisis water

At the point when the interest for freshwater surpasses the inventory, a water lack results. Physical and money related deficiencies of water exist. At the point when there isn't sufficient water to suit everybody's prerequisites, including environments, actual water deficiency results. The UN has long tended to the worldwide emergency brought about by deficient water supply to meet essential human necessities and rising requests on the world's water assets to address those issues through various Conferences and Summits, for example, the United Nations Water Conference (1977), the International Drinking Water Supply and Sanitation Decade Commencement Report (IDWSSD:1981-1990), and the International Conference on Water and the Environment (1992). Water deficiencies incorporate water shortfalls and questionable water sources. Environmental change and populace development are diminishing admittance to clean drinking water. 785 million individuals need safe drinking water. Over 800 children die each year from diarrhoea caused by filthy water, poor sanitation, and hygiene practises, as well as a lack of accessible or reliable water and sanitation services. Water scarcity affects communities, households, and families. Without clean, inexpensive water, they risk generations of poverty. Water shortage is the lack of freshwater to meet demand (sometimes referred to as water stress or water crisis).

### Women

Despite being historically strong in society, the economics, politics, and education, gender roles have often limited women's options and activities. In



many countries, social reform movements and constitutional changes in the 20th century lifted limits on women, allowing them to work and go to college. Violence against women in families and communities is long-standing and largely committed by men. Some ladies can't reproduce. Feminist movements and philosophies seek gender equality. Indian women confront many issues. Water, food, clothing, a place to live, a job, a lack of education, violence or the fear of violence, an acid attack, gender discrimination, sexual abuse, dowry harassment, a salary differential, and marriage delays. Women and girls bring water to their houses in underdeveloped countries.

Daily water collection takes 200 million hours. The typical Indian woman has to trek six kilometres carrying 18 kilograms of water. Her regular duties sap her strength, leaving her little time for her loved ones and no motivation to pursue money-making pastimes. If girls continue to go to school up until they reach adolescence, they are less likely to finish their education if they do not have access to basic sanitation facilities, including clean water, toilets, sanitary products, and instruction in their proper use. Addressing societal norms is an important part of helping young women manages menstrual health. Disease and infant mortality are exacerbated by a lack of sanitation, clean water, and proper hygiene during childbirth in underdeveloped countries. Safer births can be achieved through World Vision's expansion of access to water, sanitation, and hand-washing facilities in health clinics.

Let's look at some of the challenges contemporary women confront, from the right to vote to the pay gap and reproductive rights. Women work in male-dominated fields. Despite progress, sexism persists. It's less overt than in the past, but racism still permeates politics, media, education, and the workplace. Domestic abuse is another big concern for women, while men are also affected. 1.3 million Women and 835,000 men are abused by partners annually. Teen dating violence is more widespread than many realize<sup>10</sup>. Violence and abuse are multifaceted. This issue, which includes sexual and physical assault, is getting worse. Domestic abuse can affect everyone, but help is needed. One aggressive behaviour could spark a chain reaction of misperceptions.

### Women's water issue

Women are especially affected by India's water issue. They use water responsibly for cooking, bathing, washing, cleaning, etc. Women feel the

water problem. They must find food, water, sanitation, and hygiene for their families. They may trek far, wait in line, or pay exorbitant amounts for water. In order to get water for their family, they must often choose between definite death without water and death from contaminated water. Today, women will spend 200 million hours fetching water. Millions spend time looking for a place to go and collecting water.

This compensates for the 266 million hours per day they lose without a latrine at home. Water and security are everyday needs for a large number of ladies. They lack the capacity to deal with work, school, or family. Without water and washrooms, ladies can't work at home. During and during pregnancy, ladies and their unborn kids need clean water. Strolling and dealing with huge water holders when pregnant can be risky. Contaminated water can harm a pregnant woman and her baby. Women need safe water at home to preserve pregnancy health and nurture newborns.

Women may choose less suitable water sources and have less access to safe water at home and in the fields due to their lack of time and energy.

Women's opinions of the significance of hygiene and illness prevention are influenced by the high time and energy costs of fetching water

Women's health seeking behaviour and access to care are impacted by the stigma associated with water-borne disorders such urinary schistosomiasis.

Social factors like these influence how often women report having urinary schistosomiasis.

Schistosomiasis and guinea worm's incapacitating effects make it difficult for women to perform their many tasks.

This poses a threat to the family's overall nutritional and physical well-being.

Time constraints and societal influences may cause women to under-report cases of malaria and postpone obtaining treatment.

Pregnant women and their foetuses face serious health risks if their immunity to malaria is reduced.

Women may be more susceptible to osteoporosis and other bone problems if they are exposed to cadmium.

### Chennai Corporation

The Greater Chennai Corporation is the city authority that manages Chennai in the Indian province of Tamil Nadu. It was previously known as the Corporation of Madras (1668-1966) and the Corporation of Chennai (1996-2016). The



Corporation of Madras was laid out on September 29, 1688, as per an imperial contract conceded by King James II of England on December 30, 1687. It is the most seasoned metropolitan association of the Commonwealth of Nations beyond Great Britain. After Daman Municipality, which was established in 1588, it is quite possibly of the most seasoned region in Asia. With a 426 km<sup>2</sup> domain, it is Tamil Nadu's biggest civil organization. A chairman fills in as its chief, directed by 200 gathering individuals, every one of whom addresses one of the city's 200 wards. After the City of London, it is the second-most established community enterprise on the planet. The Board utilizes streams, tanks, and Veeranam Lake to supply water. India's Important River Basins

Meghna River Basin (India and Bangladesh share the Meghna River, which is a transboundary stream. The Brahmaputra River Basin (Brahmaputra bowl envelops provinces of Arunachal Pradesh, Assam, West Bengal, Meghalaya, Nagaland, and the total of Sikkim in India) is the biggest waterway bowl in the country, depleting an area of 8,61,452 square kilometers. With a greatest east-west length of 1,640 km and a most extreme north-south width of 692 km, the bowl has a hilter kilter shape.

The Godavari River Basin (The Godavari bowl reaches out over provinces of Maharashtra, Andhra Pradesh, Chhattisgarh, and Odisha as well as more modest segments in Madhya Pradesh, Karnataka, and Union region of Puducherry having an all out area of 3,15,912 Sq.km with a most extreme length and width of around 996 km and 583 km), Brahmaputra Catchment (The Brahmaputra catchment is The Pennar River Basin (Penna, otherwise called Pinakini, Pennar, Penner, Penneru, and Pennai (Tamil)) is a stream of southern India. The Nandi Hills act as the wellspring of this waterway, which from that point streams as two unmistakable streams, one in a northerly and one in a southern bearing. The Penna, which has the Tamil name, ascends in the Nandi Hills in the Karnataka state region of Chikkaballapur, streams north and east through Karnataka, then south toward Tamil Nadu. The Uttara Pinakini, otherwise called Pennai, then ventures east through the provinces of Karnataka and Andhra Pradesh until discharging into the Bay of Bengal. Its length is 597 km (371 mi), and its seepage bowl is 55,213 km<sup>2</sup> in size, with

6,839 km<sup>2</sup> in Karnataka and 49,277 km<sup>2</sup> in Andhra Pradesh. The stream bowl gets a normal of 501 mm of precipitation each year and is situated in the Eastern Ghats downpour shadow zone.)

The Cauvery River Basin, which incorporates the provinces of Tamil Nadu, Karnataka, Kerala, and the Union Territory of Puducherry, channels an area of 83,156 square kilometers, or practically 2.8% of the whole nation's expanse of land. Its most extreme length and width are around 561 km and 246 km. The stream discharges into the Bay of Bengal.), Indus Basin (Flows of the Indus River and its feeders act as Pakistan's essential wellspring of surface water assets (Jhelum, Chenab, Ravi, Sutlej, and Beas toward the east and the Kabul River toward the west). The Narmada River has an all out length of 2900 km and a waste area of roughly 966,000 km<sup>2</sup>. Prior to entering the Gulf of Cambay in the Arabian Sea, it goes through the Deccan trap between the Vindhya and Satpura scopes of slopes.

The Mahi River Basin (The Mahi bowl reaches out over territories of Madhya Pradesh, Rajasthan, and Gujarat having complete area of 35,843 Sq.km with a most extreme length and width of around 331 km and 252 km. The all out length of Mahi is 584 km.), and the Narmada River Basin (The Narmada channels an area of 99786 sq. km. Its principal feeder, the Som, enters the waterway from the right while the Anas and the Panam enter from the left.) (Is the Sabarmati River Basin a huge stream bowl? The Sabarmati bowl, which has a greatest length and width of 300 km and 150 km, spreads over the provinces of Rajasthan and Gujarat and has an area of 22,674 sq. km. , Tapi River Basin (The Tapti River (or Tapi) is a stream in focal India that runs west prior to exhausting into the Arabian Sea. It is arranged toward the south of the Narmada River. The stream goes through the territories of Maharashtra, Gujarat, and Madhya Pradesh for a distance of around 700 km.) These are terrifically significant working Union and State Rivers that give water to Chennai inhabitants, and throughout the midyear meeting, different water emergency the executive's strategies were carried out to achieve so. This will likewise resolve the issues confronting ladies. The accompanying table gives data about the CMWSSB's areas, zones, and wards.

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S.No	Region	Zones	Wards
	North Chennai	6	63
	Central Chennai	4	58
	South Chennai	5	79
	Total	15	200

The following Table Show the details about the lakes and it's Capacity of the water of Chennai city.

S.No.	Chennai city Lakes	TMC
	Poondi	3,331
	Red hills (Puzhal)	3,400
	Chembarambakkam	3,545
	Cholavaram	1091
	Veeranam	1,565
	Adambakkam Lake	1460
	Adyar River	6100
	Korattur Lake	410
	Madurantakam Lake	970
	Ayanambakkam Lake	852
	Chetpet lake	4,500
	Chitlapakkam	7002
	Porur Lake	4600
	KannankottaiThervoykan digai Lake	4915
	Thiruvallikenni river	2200
	Pallavaram Lake	300
	ICF Lake (Chennai)	851
	Tiruninravur Lake	200
	Velachery Lake	421
	Vilinjiyambakkam Lake	822

Source: [https://en.wikipedia.org/wiki/Category:Lakes\\_of\\_Chennai](https://en.wikipedia.org/wiki/Category:Lakes_of_Chennai)

The city of Chennai gets all of its water from underground aquifers. Chennai receives an average of 1,276 millimetres of precipitation per year, which helps to replenish the city's groundwater supplies. Chennai gets about 985 mld from various sources, which is much less than the 1,200 mld required for the city's needs. A sum of 2,100 mld will be expected

to satisfy this need constantly 2031. Nemelli and Minjur desalination plants; Neyveli, Minjur, and Panchetty springs; Cauvery water from Veeranam lake; Krishna stream from Andhra Pradesh; Poondi repository; Red Hills, Chembarambakkam, and Sholavaram lakes; all add to the city's water supply.

S.NO	Year	Population	Area (Sq km)	Water supply (mld)	Wards
	2011-12	5 million	426 sq Km	830 mld	155
	2012-13	8 million	459.07 sq km	800 mld	200
	2013-14	9 million	465.07 sq km	710 mld	200
	2014-15	9.6 million	465.07 sq km	1044 mld	200

Three waterways, the Cooum, the Adyar, and the south parts, run into the Bay of Bengal at this city. Kosasthalaiyar, what split the city into north and Every one of the three waterways is associated by



the Buckingham trench. The city contains four repositories: Red Hills (3,300 mcft), Cholavaram (881 mcft), Poondi (3,231 mcft), and Chembarambakkam (3,645 mcft). A fifth supply is scheduled to be fabricated. A metro can desalt the four principal supplies, which takes into consideration the capacity of 500 extra mcft of water. Consistently, the city gives 830 million liters

of water. Extra 880 mld would be given to the city from sources including the Nemeli desalination plant (100 mld), Krishna water (500 mld), Minjur desalination plant (100 mld), and Veeranam Tank (180 mld) for Cauvery water.

The present capacity of the Lakes is as following  
 CMWSSB

Lake	Capacity (In Mcft.)
Poondi	3,332
Cholavaram	1082
Red hills	3,401
Total	8,615
Chembarambakkam	3,646
Grand Total	12,261

Source:[https://chennaietrowater.tn.gov.in/rti\\_organisation.html](https://chennaietrowater.tn.gov.in/rti_organisation.html)

Presently the total water treatment capacity for Chennai City is as follows

Water Treatment Plant	Capacity (In MLD)
Kilpauk (1914/2005)	271
Puzhal (1996)	305
Veeranam Lake Source (2004)	188
Chemabarambakkam (2007)	535
Surapet(2009)	16
Minjur Desalination Plant	101
Nemmeli Desalination Plant	100
Total	1,516

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Source:[https://chennaietrowater.tn.gov.in/rti\\_organisation.html](https://chennaietrowater.tn.gov.in/rti_organisation.html)

The Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) were founded in August 1978. The Chennai Metropolitan Water Supply and Sewerage Board is responsible for encouraging and ensuring the planned development of water supply and sewerage services, as well as for operating, maintaining, and building the required infrastructure and carrying out future plans to meet

the needs of the Chennai Metropolitan area in the present and the future. The growth of the water supply from both current and new sources, as well as its augmentation, are carried out by carefully planning them, as well as by establishing the appropriate sewage disposal facilities, treating sewage as necessary, and running and maintaining those facilities.

S.No	Year	Area Office	Depo. office	S.q Km	People
	2015-2016	15	200	426	67.27
	2016-2017	15	200	426	67.27
	2017-2018	15	200	426	67.27
	2018-2019	-	200	426	74.38
	2019-2020	-	200	426	74.38
	2020-2021	15	200	426	74.56

Source : (CMWSSB , P.N. 2015-16 ,2016-17,2017-2018,2018-2019,2019-2020,2020-2021)



**Local bodies and major bulk consumers of CMWSSB**

Water supplied (in Million Litres per day)							
Sl. No	Local bodies and Bulk consumers	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
1	Pallavaram Municipality	2.90	1.90	-	-	-	-
2	Pammal Municipality	3.00	2.10	-	-	-	-
3	Anakaputhur Municipality	1.90	1.00	-	-	-	-
4	Avadi Municipality	1.10	0.80	-	-	-	-
5	Pozhichalur Village Panchayat	1.20	0.95	-	-	-	-
6	Cowl Bazar Village Panchayat	0.25	0.30	-	-	-	-
7	Railways & Government Hospital	10.00	12.00	-	-	-	-
8	Aavin	0.40	0.41	-	-	-	-
9	Cantonment (Defence Offices & Quarters)	1.60	1.60	-	-	-	-
10	Industrial consumers	22.88	25.68	-	-	-	-
11.	Hotels & other Bulk consumers	-	4.28	-	-	-	-
<b>Total</b>		<b>45.23</b>	<b>51.02</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

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Source : (CMWSSB , P.N. 2015-16 ,2016-17,2017-2018,2018-2019,2019-2020,2020-2021)

**Storage capacity of reservoirs supplying water to Chennai**

Storage Capacity (in Mcft)							
S.No	Reservoir	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
	Poondi	3,231	3,231	3231	3231	3231	3231
	Red hills (Puzhal)	3,300	3300	3300	3300	3300	3300
	Chembarambakkam	3,645	3645	3645	3645	3645	3645
	Cholavaram	881	881	881	1081	1081	1081
	Veernam	1,465	1465	1465	1465	1465	1465
	<b>Total</b>	<b>12,522</b>	<b>12522</b>	<b>12522</b>	<b>12722</b>	<b>12722</b>	<b>12722</b>

Source : (CMWSSB , P.N. 2015-16 ,2016-17,2017-2018,2018-2019,2019-2020,2020-2021)

**Rainfall in the catchment areas of the city reservoirs**

Year	Rainfall in mm		Deficit in %
	Normal	Actual	
2012	1293.42	981.80	-24.09
2013	1297.50	1064.87	-17.93
2014	1286.21	1025.80	-20.25
2015	1273.17	2155.23	+69.28
2016	1308.05	837.00	-36.03
2017	1305.82	1388.00	+6.30
2018	1313.85	880.00	-33.01



2019	1307.75	1285.33	-1.71
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Source : (CMWSSB , P.N. 2015-16 ,2016-17,2017-2018,2018-2019,2019-2020,2020-2021)

**Detail about Chennai metropolitan groundwater**

S.No	Year	Million Litres per day of water
	2015-16	60
	2016-17	25
	2017-18	215
	2018-19	65
	2019-20	35
	2020-21	35

Source : (CMWSSB , P.N. 2015-16 ,2016-17,2017-2018,2018-2019,2019-2020,2020-2021)

**Conclusion**

Water is a necessary element, without which no one could survive on this world. The women's community is impacted by the water crisis. The causes of the third global war, the water issue, will become apparent in the future. India's water crisis is commonly attributed to a lack of government planning, rising commercial privatization, industrial and human waste, and governmental corruption. Additionally, it is expected that when India's population increases to 1.6 billion people by 2050, the country's water crisis would worsen. Women are empowered to enhance their surroundings when they have access to clean water and toilets at home. They don't need to worry about the water crisis because they can take care of their families. They could start small companies to boost the revenue for their family. They have the time and the water to cultivate gardens and grow food for their family. They are also no longer subjected to dangerous circumstances when walking to distant water sources or urinating in public. When women have access to clean water at home, they have hope, health, and opportunity. Chennai the Metropolitan Water Supply and Sewerage Board, which has been operating with the aid of its machinery to the maximum degree possible, provides the women with water from its trucks, tanks, and pipelines. The Tamil Ponds and lakes have been maintained by the Metropolitan Water Supply and Sewerage Board for the purpose of storing and distributing water, but they have done gradually and by hand.

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