

# Total Dissolved Solids

The expression, “total dissolved solids” (TDS), refers to the total amount of all inorganic and organic substances - including minerals, salts, metals, cations or anions - that are dispersed within a volume of water. By definition, the solids must be small enough to be filtered through a sieve measuring 2 micrometers. TDS concentrations are used to evaluate the quality of freshwater systems. TDS concentrations are equal to the sum of positively charged ions (cations) and negatively charged ions (anions) in the water. Sources for TDS include agricultural run-off, urban run-off, industrial wastewater, sewage, and natural sources such as leaves, silt, and rocks. Piping or plumbing may also release metals into the water.

## **Effects on Environment and Human Health**

TDS is not considered primarily as pollutant, high TDS levels typically indicate hard water and may lead to scale buildup in pipes, reduced efficiency of water filters, hot water heaters, etc., and aesthetic problems such as a bitter or salty taste. Water with a high TDS concentration may indicate elevated levels of ions that do pose a health concern, such as aluminum, arsenic, copper, lead, nitrate and others.

## **Remedial Measures**

TDS can be removed by reverse osmosis and other removal methods like distillation and deionization.

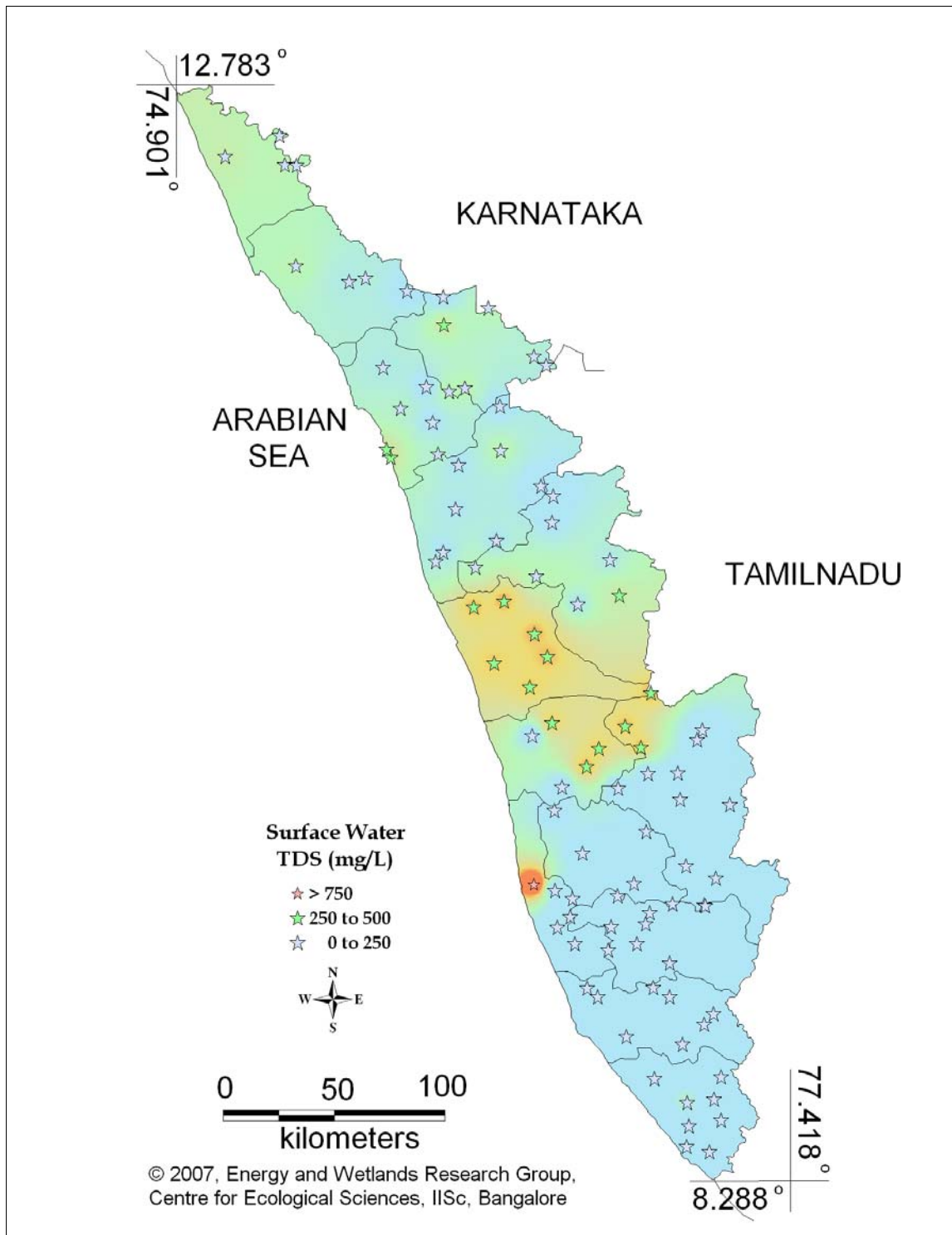


Figure 21.1: Spatial variation of TDS in Kerala's surface water

# Surface water – Total Dissolved Solids

Tolerance limit for inland surface waters subject to pollution

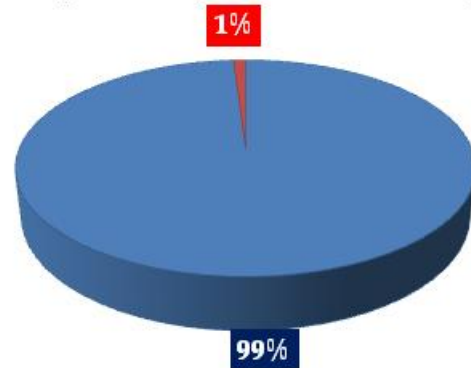
Desirable Limit: 500 mg/L

Permissible Limit: 2000 mg/L

## Total Dissolved Solids

■ 97 samples are within desirable limit (500 mg/L)

■ 1 sample is within permissible limit (2000 mg/L)



### REMARKS

Sampling site above desirable limit of TDS is:

Location	Value	District
Kuppapuram	786.00	Alappuzha

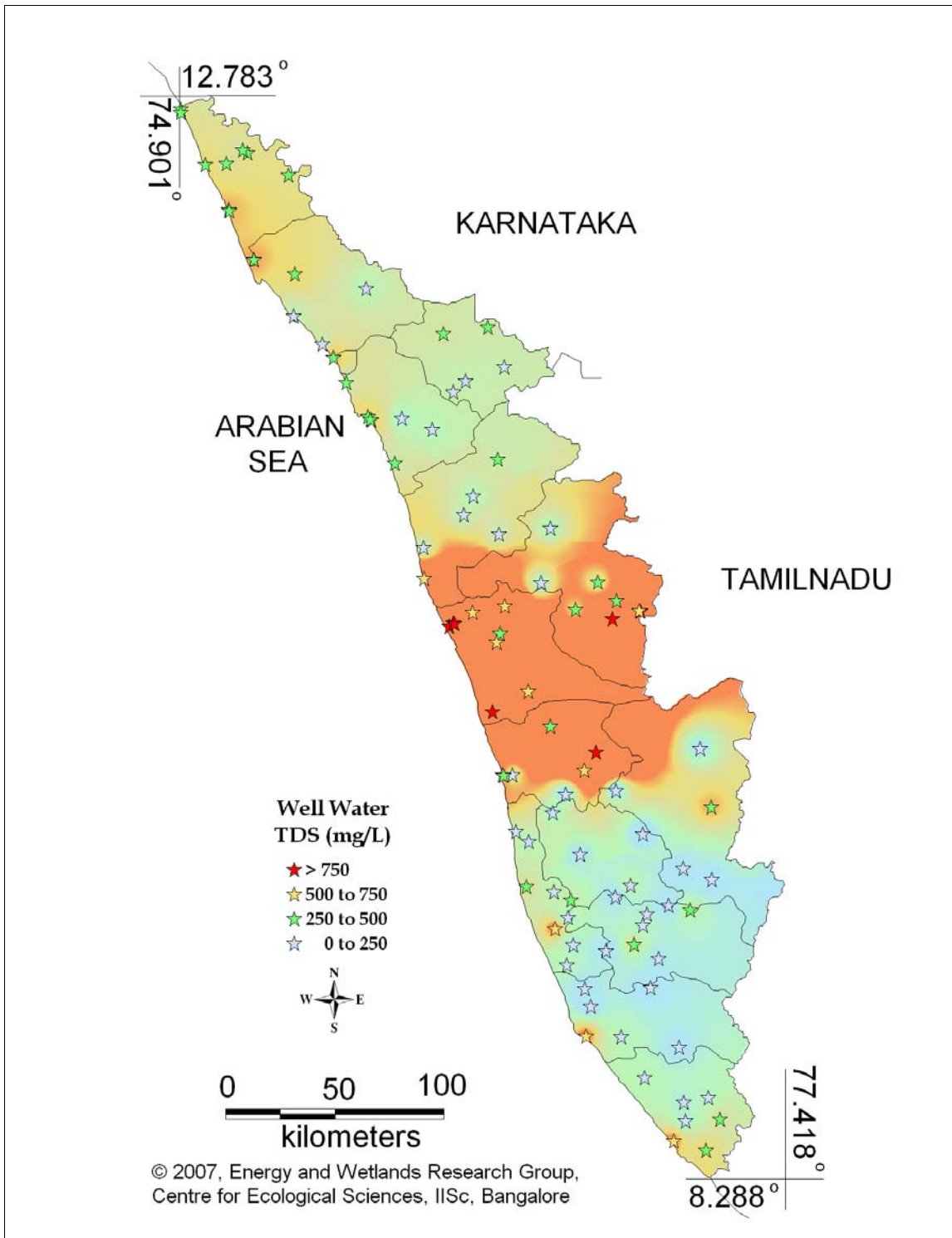


Figure 21.2: Spatial variation of TDS in Kerala's well water

# Well water – Total Dissolved Solids

Tolerance limit for inland surface waters subject to pollution

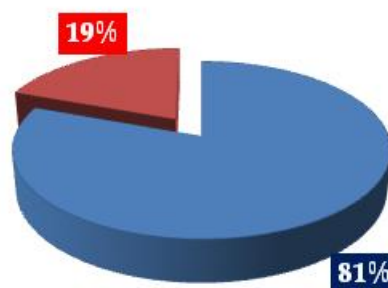
Desirable Limit: 500 mg/L

Permissible Limit: 2000 mg/L

## Total Dissolved Solids

■ 79 samples are within desirable limit (500 mg/L)

■ 19 samples are above desirable limit (>500 mg/L)



### REMARKS

Sampling sites above desirable limit of TDS are:

LOCATION	VALUE	DISTRICT
Thiruvallam	514.00	Tiruvanthapuram
Chalakydy	518.00	Thrissur
Kochupilammood	527.00	Kollam
Thrissur	531.00	Thrissur
Kannimari	539.34	Palakkad
Cherananllur	548.00	Thrissur
Veeyapuram	554.00	Alappuzha
Muvathupuzha	566.00	Kottayam
Wadakancheery	583.00	Thrissur
Fort Cochin	633.00	Ernakulam
Ponnani	644.33	Palakkad
Guruvayoor1	828.00	Thrissur
Chavakkad	870.00	Thrissur
Kollengode	995.92	Palakkad
Placimada	1190.55	Palakkad
Aluva	4060.00	Ernakulam
Kothamangalam	4220.00	Ernakulam
Guruvayoor	4480.00	Thrissur
Koodungalur	6060.00	Thrissur

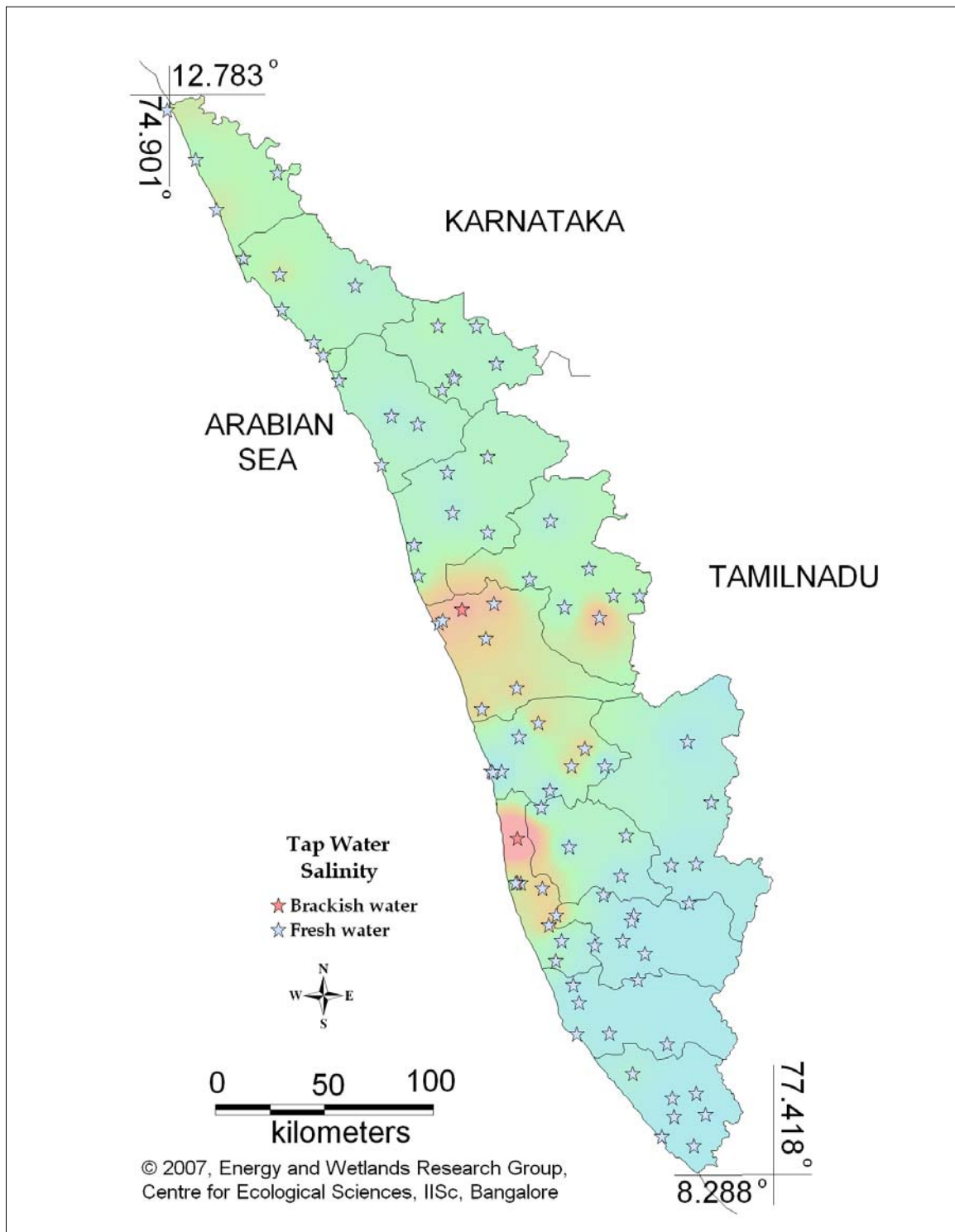


Figure 21.3: Spatial variation of TDS in Kerala's tap water

# Tap water – Total Dissolved Solids

Tolerance limit for inland surface waters subject to pollution

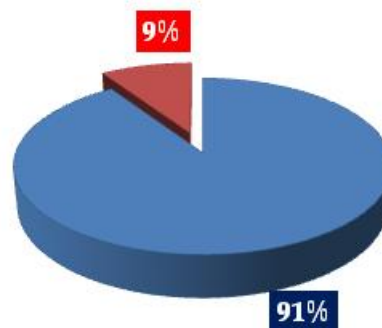
Desirable Limit: 500 mg/L

Permissible Limit: 2000 mg/L

## Total Dissolved Solids

■ 78 samples are within desirable limit (500 mg/L)

■ 8 samples are above desirable limit (>500 mg/L)



## Remarks

Sampling sites above desirable limit of TDS are:

Location	Value	District
Chenkulathukavu	517.00	Kottayam
Chavakkad	560.00	Thrissur
Guruvayoor	566.00	Thrissur
Wadakancheery	597.00	Thrissur
Kollengode-Vellanara	611.40	Palakkad
Thathampally	695.00	Alappuzha
Cherananllur	702.00	Thrissur
Kalikulam Junction	1920.00	Alappuzha