



# Influence of Palmyra Tree in WASH

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**Abstract :** Water is the elixir of life and it is required to satisfy all the needs of human and non-human living beings. The Standing Subcommittee of the Ministry of Water Resources estimated that the total water demand will rise to 1,093 BCM in 2025, which reaffirms a comfortable scenario at the aggregate level even in 2025. It is pertinent to note that around 78 percent of sewage generated in India remains untreated and is unsafely disposed of into rivers, lakes, etc and thereby contributing to contamination of more than 90 percent of the surface water (CSE, Water Management Press Release, 2016). Along with poor solid/liquid waste management, people struggle to contain plastic waste. Plastic waste has become a menace by clogging drains resulting in severe floods, especially in urban spaces. In this situation, it has been evidenced that Palmyra Trees gives a comprehensive sustainable solution need for the water and sanitation problems. This paper attempts to explore the growing the multi-purpose palm tree as the solution to manage the issues related to water and sanitation which will be discussed based on the related studies conducted in the field.

**IndexTerms – Palmyra Tree, Save the Water, Solution for water problem.**

## 1.INTRODUCTION

Water is the elixir of life and it is required to satisfy all the needs of human and others. Water is one of the basic elements among the five. Water is identification and main source for the survival of living things. Those elements have naturally self-renewing and stable. This only right science, but human sense invents more artificial and the artificial would destruct and disturb the nature, but human sense inventing more artificial and the artificial is destruct and disturbing the nature. We cannot measure the duration of the world creation, but the scientist assumes the world was 4.5 billion years ago the earth was formed. Till the day sky, air, water, land, and fire, are stable maintained by the nature, but the humans are polluting the nature by his fool of science. Namely huge companies' product the plastics but they don't know how to digest them. Is this human science? But the nature digesting everything and reproducing everything.

## 2. NEED OF THE STUDY.

The water budget based on Ministry of Water Resources estimates shows utilisable water of 1,123 billion cubic metres (BCM) against current water demand of 710 BCM, suggesting more than adequate availability at the aggregate level given current requirements. The Standing Subcommittee of the Ministry of Water Resources estimates total water demand rising to 1,093 BCM in 2025, which reaffirms a comfortable scenario at the aggregate level even in 2025. The human and earth both are living things, the man eat digestible things for living purpose, but he gives indigestible things continuously to that. So, the ratios differ in the whole elements like air, water, sky, land and fire, when ratios vary the natural disasters will occur like earthquake, drought, water problem, and so on. So, the nature calamity is nothing but human unwanted activities. In the ancient people properly known the characteristics of the nature, so they save the nature and their living arrangements was depending upon the nature, Palmyra trees are important role in water saving and livelihood in ancient Tamil People, particularly they used for construction, backing, writing purpose etc. But nowadays the scientific innovations changing the human life and create more problems. In this paper attempt the influence of the Plamyra trees on Water Access Sanitation and Hygiene (WASH).

## 3. Water

Our World filled with 97.2 percent of salty water, availability of good water 2.8 percent. The source of good water is 30.1 percent from ground water and 0.9 per cent other source. Other water means 87 per cent lakes, slough 11 per cent and rivers are 2 percent (Training Manual SIRD).

Water availability per person is dependent on population of the country and for India, per capita water availability in the country is reducing due to increase in population. The average annual per capita water availability in the years 2001 and 2011 was assessed as 1816 cubic meters and 1545 cubic meters respectively which may further reduce to 1486 cubic meters and 1367 cubic meters in the years 2021 and 2031 respectively (Ministry of Jal Shakti, 2020).

Indians using 80 per cent of good water used for agriculture, 5 per cent water using for domestic purpose and 15 per cent of the water using for factories. (NITI Aayog, 2018). India currently stores only 6% of its annual rainfall or 253 billion cubic metres ( $8.9 \times 10^{12}$  cu ft), while developed nations strategically store 250% of the annual rainfall in arid river basins. India also relies excessively on groundwater resources, which accounts for over 50 percent of irrigated area with 20 million tube wells installed. India has built nearly 5,000 major or medium dams, barrages, etc. to store the river waters and enhance ground water recharging. The important dams (59 nos) have an aggregate gross storage capacity of 170 billion cubic metres ( $6.0 \times 10^{12}$  cu ft). About 15 percent of India's food is being produced using rapidly depleting /mining groundwater resources. The end of the era of massive expansion in groundwater use is going to demand greater reliance on surface water supply systems.

As per Ministry of Housing and Urban Affairs, 135 litre per capita per day (lpcd) has been suggested as the benchmark for urban water supply. For rural areas, a minimum service delivery of 55 lpcd has been fixed under Jal Jeevan Mission, which may be enhanced to higher level by states.

Indian Council for Agriculture Research (ICAR) Director General T Mohapatra pointed out that the per capita annual water availability has declined to 1,508 cubic meter in 2014 from 5,177 cubic meter in 1951. The per capita availability of water is estimated to decline further to 1,465 cubic meter by 2025 and 1,235 cubic meter by 2050. If it declines further to around 1,000-1,100 cubic meter, then India could be declared as water-stressed country. (The Hindu Business Line, 2019). Because of Indian using the ground water then other sources. But they lack of storage habit would lead to the water issues.

#### 4. Sanitation:

Sanitation refers to public health conditions related to clean drinking water and treatment and disposal of human excreta and sewage. Many studies explore the garbage and health problems. The rapid increase in Plastic production is a major environmental problem affecting environmental, and quality of life of people. (Bandak S & Attili AB, 2017). Urbanization and population growth are solely responsible for high increasing rate of solid waste and its proper management is a major problem of Municipal Corporation (Pervez Alam & Kafeel Ahmade, 2016). Willard H. Wright, (1943) was pointed out that the widely prevailing practice of disposing of garbage by feeding it to swine provides an important avenue of infection for human trichinosis and a potential hazard for the spread of endemic typhus and plague. Most of the studies linked with the garbage and health (Ranatta Massa Yoada, et.,al.,2014, Ziraba et al.2016, Jane Grose et.al, 2012, Ljiljana Rodic and David C.Wilson, 2017.). Few studies explore the linkage the garbage dispose and the sustainable development goals (Ljiljana Rodic, 2017).

Over 1.7 billion people still do not have basic sanitation services, such as private toilets or latrines. Of these, 494 million still defecate in the open, for example in street gutters, behind bushes or into open bodies of water. In 2020, 45% of the household wastewater generated globally was discharged without safe treatment. At least 10% of the world's population is thought to consume food irrigated by wastewater. Poor sanitation is linked to transmission of diarrhoeal diseases such as cholera and dysentery, as well as typhoid, intestinal worm infections and polio. Poor exacerbates stunting and contributes to the spread of antimicrobial resistance. Poor sanitation reduces human well-being, social and economic development due to impacts such as anxiety, risk of sexual assault, and lost opportunities for education and work (WHO, 2022). Urban India generates 62 million tonnes of waste (MSW) annually, and it has been predicted that this will reach 165 million tonnes in 2030. 43 million tonnes of municipal solid waste is collected annually, out of which 31 million is dumped in landfill sites and just 11.9 million is treated (Recycling Magazine, 2020)

#### 5. Influences of Palmyra save the water

News stories on India's water crisis start peaking just as summer sets in. Images of wells and taps running dry, conflicts on drinking water, tankers being mobbed, parched earth, and failed crops dominate our news cycle. What's missing in mainstream reporting is a comprehensive and informed understanding of what makes India's water footprint both unique and challenging. India has serious water problem. **Nearly 80 percent of India's freshwater used in agriculture (ArpitJain, Reshma Anand, 2020) over half of India's cultivated land is under water-intensive crops.** According to Water Resources Group estimates if current situation continue in India the existing water level will be reduced by half of in 2030.

UNICEF reported less than 50 per cent of the population has access to safely managed drinking water (located on premises, available when needed and free of contamination). Chemical contamination of water, mainly through fluoride and arsenic, is present in 1.96 million dwellings. Moreover, two-thirds of India's 718 districts are affected by extreme water depletion, and the current lack of planning for water safety and security is a major concern (UNICEF).

India has become the world's largest extractor of groundwater, accounting for 25 per cent of the total. Some 70 per cent of our water sources are contaminated and our major rivers are dying because of pollution. India is water-stressed due to changing weather patterns and repeated droughts. And the worst suffers of this crisis are mostly women. As many as 256 of 700 districts in India have reported 'critical' or 'over-exploited' groundwater levels according to the most recent Central Ground Water Board data. Anuj Behal, Dimple Behal, (2021)

Main sources of good water is rainwater only, another source is ground water. Water is recycling process done by the Trees and plants only, but the man deforestation for their greedy, as well as using the ground water for all purpose in huge amount but they don't know importance of saving the ground water. Moreover, wasting and polluted the surface water by their ignorance. But the trees sacrificing to human particularly Palmyra trees saving the water.

Palmyra for rainwater harvesting most trees spread their roots horizontally. But the roots of Palmyra shoot straight downward vertically. Further, their tubular roots store water. This is one of the reasons why our forefathers, who were good at water management, made it a point to plant and nurture a lot of Palmyra around water bodies like rivers, tanks and wells. Planting these trees help harvest and preserve rain water free of cost. Thus, the Palmyra can be described as a slightly long magic wand which in course of time converts an arid place into a water rich land. This beneficial characteristic of Palmyra needs to be understood in the context of extreme droughts and erratic rainfall. Palm trees raised the ground water level up to 40 feet. Palmyra

tree has fibrous root system that is known for its bund-strengthening qualities, so Palmyra is known in inland and coastal trees for their soil-binding quality (L. Kanthimathi, 2020).

## 6. Palmyra interlink with WASH:

Palmyra tree directly link with the 6<sup>th</sup> goals of Sustainable Development goal, but it link with the development goals No poverty, Zero Hunger, Good Health and well-being, Decent work, Climate change and Economic growth.

Palmyra planted around water bodies; they are believed to recharge water. According to Sobhana Raj, botanist and retired principal of Scott Christian College, Nagercoil, the root has a central fibre surrounded by a spongy layer that stores water. "They played a significant role in circulation of water in aquifers," he said, citing an academic paper. "Cut root exudes water. Though it has not been proven, it's possible that the roots help in recharging water." The leathery leaves are also sturdy against heavy rains and winds. Aaron Doss, a Chennai-based travel operator, observed how the palm leaf roof of a hut at Vizhunda Mavadi village in Nagapattinam district was not damaged at all during Cyclone Gaja. According to Godson Samuel, a priest and field director of Palmyrah Nation works on palmyrah conservation, the tree shelters birds and reptiles such as snakes and monitor lizards. Peacocks rest on them and sunbirds drink nectar from the inflorescence. (Jency Samuel, 2019)

## 7. Conclusion:

Human body can digest natural things only. Likewise, Earth can digest natural things only. The natural creations are reprocessing with the sustainable technology but the human science and technologies innovations are affecting, disturbing, depends the nonrenewable resources cannot digest by the earth why? So, the earth cannot observe the artificial things and that will become as Garbage.

The biology of earth is structured basically sustainable development. Oxygen has been available since the time of the Earth without failure, how this possible? Plants are gives oxygen and the plants technology is sustainable. But the scientific modern innovations shake up the world

The man research about the world, but he cannot realize the process of sustainable oxygen process. Plants and trees are heart of the Earth, they are only giving oxygen to the living things to life but the human technologies are destroying the world but proud of their scientific development. Is this real development?

The natural science has complete technology and fulfillment, but the human science is not complete it will grow because of he doesn't know understand the nature. For example, in day time's plants gives oxygen to the Human and animals and the night time plants are breathing and human and animals are sleeping it is sustainable development. But the human makes changes in nature and the final result affect the human life. Science invents numerous machines, equipment's. But his innovations never complete. All the science and technology based on nature, or destruct the nature, are against the nature even rapidly consuming the non-renewable resource.

The man slavery to the machines, so he met many problems, especially pollution, scarcity of water, poverty, hunger, climate change, unemployment, health issues, poor quality of Education, bio-diversity etc. those problems interlinking with each other. Especially, pollution, health issues, poverty, biodiversity, etc. those are interlink with each other. At present United Nations trying to save the people. Hence, Palmyra trees products will gives sustainbale developmen of Access of Water, Sanitation and Hygiene. If the palm leaves products increased in village level will gets more benefits economically, socially, and national wise.

Descriptive Statics has been used to find the maximum, minimum, standard deviation, mean and normally distribution of the data of all the variables of the study. Normal distribution of data shows the sensitivity of the variables towards the periodic changes and speculation. When the data is not normally distributed it means that the data is sensitive towards periodic changes and speculations which create the chances of arbitrage and the investors have the chance to earn above the normal profit. But the assumption of the APT is that there should not be arbitrage in the market and the investors can earn only normal profit. Jarque bera test is used to test the normality of data.

## 8. Suggestions:

At present those who have realized the usefulness of the palm are coming forward to protect the palm tree. Tamil Nadu chief minister M K Stalin September 17, 2021 launched the Palmyra Development Mission at an outlay of Rs 3 crore. Keeping his promise made in the recently held budget session, speaker M Appavu gifted one lakh Palmyra seeds to the agriculture department in the presence of the chief minister at the secretariat. Tamil Nadu Palm Development Board also taking effort to save the palmyra but decentralized is must.

- There is an urgent need to revive, should organize awareness programm for save the palm tree
- Lake ponds should be drained and palm trees planted along the banks.
- Despite the multifarious uses of this resource, significant attention has not been paid for conserving the same. It is high time that the central and the concerned state governments should take speedy measures for sustainable management of the same.
- The Kerala Forest Research Institute has established a 'Palmetum' that has live collections of indigenous and exotic palms. This centre is used for creating awareness about conserving palms among the public.
- This Palmetum has a collection of 125 species of palms under 52 genera. There are 72 indigenous palms and 55 exotic ones. Such kind of Palmetum can be formed in Tamil Nadu as well, with the view of making people aware of conserving them.



## I. ACKNOWLEDGMENT

The preferred spelling of the word “acknowledgment” in American is without an “e” after the “g”. Avoid the stilted expression, “One of us (R.B.G.) thanks .” Instead, try “R.B.G.thanks”. Put applicable sponsor acknowledgments here; DO NOT place them on the first page of your paper or as a footnote.

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