



Water Scarcity

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Abstract- Water usage across fast developing sub continental economies is growing at unprecedented rate which is more than twice the rate of the population growth for the past century. Although there is not yet a global water shortage, about 2.8 billion people, representing more than 40% of the world's population live with some form of Water Scarcity of which almost 1.2 billion are under condition of physical water scarcity which occurs when more than 75% of river flows in countries like India & China. These conditions are prevalent in much of Southern Asia and sub-Saharan Africa. Water can often emerge as an issue in the relation between nation states.

Introduction- The report titled “Composite water Management Index” published by NITI Aayog in June 2018, mentions that India is undergoing the worst water crisis in its history and nearly 600 million people are facing high to extreme water stress. The report further mentions that India is placed at 120th amongst 122 countries in the water quality index, with nearly 70% of water being contaminated.

According to United Nations Organisation –“water for Life” decade (2005-2015) Action

Water scarcity is among the main problems to be faced by many societies and world in the 21st century. Water use has been growing at more than twice the rate of population increase in the last century, Water Scarcity already affects every continent. Around 1.2 billion people, or almost 1/5th of the world's population, live in areas of physical scarcity, and over 500 million people are approaching this situation.

- By 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and 2/3rd of world population could be under Stress conditions.

What is Water Scarcity ?

Water scarcity is either the lack of enough water (quantity) or lack of access to safe water (quality). Water scarcity is both a natural and a human-made phenomenon. There is enough freshwater on the planet for 7 billion people but it is distributed unevenly and too much of it is wasted & unsustainably managed.

How Water Scarcity is measured ?

- The absolute minimum water requirement for domestic usage is 50 litres per person per day, though 100-200 litres is often recommended.
- Considering the needs of agriculture, industry and energy sectors, the recommended minimum annual per capita requirement is about 1700 cubic metres and if this requirement is met then, it will experience only occasional or local water distress.
- If it is below 1700 cu.m = periodic / regular water distress.
- Below 1000 cu.m= Chronic water scarcity which will affect human health & well-being and in a long run the economic development of nation.
- There will be absolute Scarcity when its below 500 cu.m

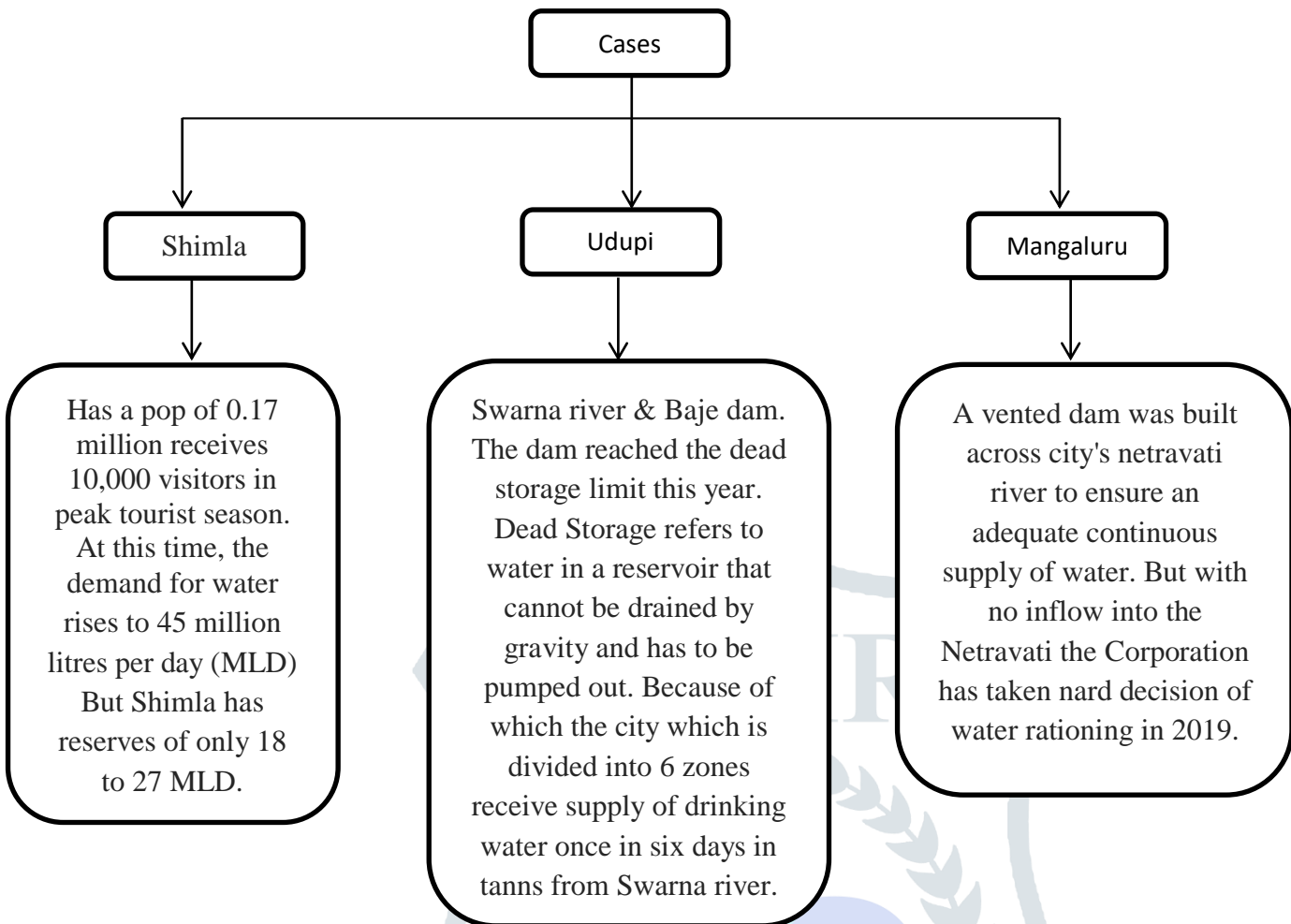
Recent Crisis of Water scarcity

In world

- Cape Town is the first major city in the world to plan to indefinitely shut off its water supply. Four million people would stop getting running water through taps. Instead they would get water stations and they would need to line up at city water stations to get it. And it's not just Cape Town, Sao Paulo, Melbourne, Jakarta, London, Beijing, Istanbul, Tokyo, Bangalore, Barcelona and Mexico City will all face their own Day zero in the next few decades, unless their water use radically changes.
- Labelled “Day Zero”, 12th April, 2018, was to be the date of largest drought induced municipal water failure in modern history- The Case of Cape Town

In India

It has been reported that Shimla, Himachal Pradesh and Udupi and Mangaluru in coastal Karnataka are on verge of becoming Tier 2 cities which would have a “Day Zero” situation Soon.



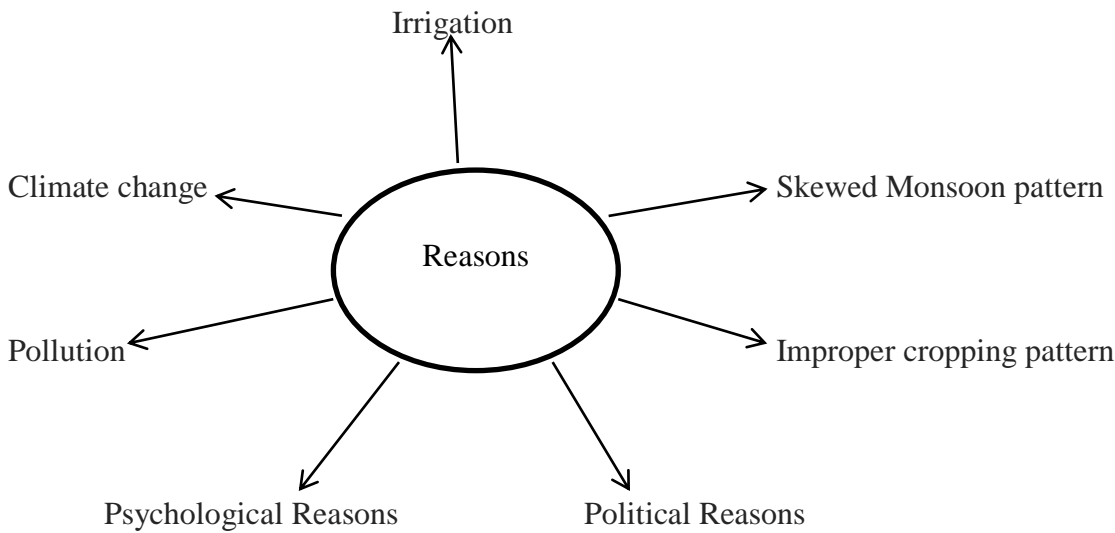
Day Zero Situation:- It is a situation when there will be no water in the taps and the use of water will become restricted for vital services only.

Water Resources available

Kuwait is one of the poorest countries in terms of water per capita and canada, one of the richest.

Reasons for Water scarcity

How have we built a world, where we don't have enough of it's most valuable Sesource?



- i. **Skewed Monsoon Pattern** → Though plentiful, Indian monsoon stays only for 4 months in a year, bringing 90% of rainfall within that time only and remaining have to be managed on ground water. Similarly majority of monsoon rain is limited to western ghats and north east while central, South-east and north India below national average rainfall, which makes them dependent on ground water and artificial reservoirs. And Same is the case of world level, Some regions receive more rainfall while some receives less rainfall because of which water is unequally distributed oven globe.
- ii. **Irrigation** → Most of the irrigation done in India is flood irrigation which leads to lot of water wastage. And most of this water is pumped up from ground water reserves. NASA Satellite data shows aquifers in northern India are decreasing by 2.9 trillion gallons in just a decade.
- iii. **Improper Cropping Pattern** → Many states have cropping patterns which doesn't suit the water availability in the region eg. - Punjab, which is a low rainfall region, is major paddy growing region and major source of irrigation is canals and groundwater. Alfa- Alfa is a common ingredient in cattle feed and growing a kilogram of it takes 510 litres of water, Arid Southern California uses over two trillion gallons of water a year to grow alfa-alfa, which they get from the Colorado River, hundreds of miles away. So growing water intensive crops in areas with low rainfall results in significant decline in available water level as well as Situation of water distress.
- iv. **Political Reasons** → Many States free of hugely subsidized electricity to farmers for irrigation which makes them draw water indiscriminately. Any effect to change this practice is considered politically harmful.
- v. **Psychological Reasons** → water prices in India don't reflect their real cost of supply and hence people don't value it. Also, it is one of the reasons why the government marquee promise of providing piped water for every Indian by 2024 has caused a certain degree of alarm among water activists. Since water is not priced to contain demand, people treat water as if there will always be enough of it. So we end up using it in absundely wasteful ways.

- vi. **Pollution** → Discharge of harmful Chemicals and human wastes into rivers has turned most rivers into drains and water they carry is unfit for domestic or agricultural .
- i. **Improved Irrigation** → A country like Israel which has very little rainfall, is net agriculture exporter mainly due to drip irrigation and Satellite aided agriculture (to determine the amount of water a field needs & when). India must adopt these methods to reduce wastage.
- ii. **Pricing** → Electricity to farmers and water to household have to be priced appropriately to bring optimize water usage. Because in many areas like Central valley, American Farmers are pumping until residential wells run dry. (Acc. to High Country News)(4 March, 2020)
- iii. **Legal Changes** → water is a State subject as per schedule 8 of Indian Constitution, which makes any nationwide law very tough to implement. This needs to be brought in concurrent list.
- iv. **River Rejuvenation** → Efforts need to be intensified to clean our rivers and prevent harmful Chemical from entering them by banning polluting industries and setting up waste treatment plants to clean water before it is Released into river.
- v. **Multifaceted Approach** → We must address Climate Change because it is estimated that even with 2°C increase globally 40% might be exposed to extreme water scarcity. So limiting global warming to 1.5°C _____ would require rapid and far-reaching transitions in energy, land, urban and infrastructure _____ and industrial systems - (source IPCC)

Conclusion: We are facing a global water crisis and its getting worse, we are at a real inflection point if we not careful, we may actually get out ahead of our ability to manage it. So we need to understand there's substitute for water of us will die in just a few days without it.

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