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India, Water Scarcity

India: Improvement of Water Scarcity

Water Scarcity affects many people in many different ways. Like many countries across the globe, India is one of the many that struggle greatly with the issue of Water Scarcity. India is facing many issues for many reasons, from overpopulation and unclean water sources to the overuse of water and waste of water resources. With causes like this, India will and is starting to look as if it has gone into what we know as a crisis. The crisis will affect many things, such as crops, exports, and most of all the population of the country.

The current population in India has greatly increased over the years and currently sits at 1.429 billion people (Wikipedia, 2025). With such a large population within the country, it is split between Urban areas and rural areas. Currently 68.8% of the population lives in Urban areas, while the other 31.2% live in rural areas of the country (What percent of the population resides in rural areas,) accor., 2011). Even as an issue, Water Scarcity causes issues such as food insecurity. India currently has 16% of the population, which is 224.3 million people, suffering from food insecurity (Sidique, U. 2023, February 27). The government, which is a Sovereign Socialist Secular Democratic Republic, has noticed the issue and is making note of it. A Sovereign Socialist Secular Democratic Republic government is a self-governing nation that aims to achieve social and economic equality through socialist policies and does not favor any particular religion (National Portal of India, 2023). This allows people to choose how they use the water source for things. The water gets used mainly on cultivated farm lands, which is roughly 60.05% of the land (India - Agricultural Land (2020). With cultivated land comes the growth of many crops and things that India chooses to use for exports to other countries. The Major crops in India would consist of rice, wheat, tea leaves, coffee, and sugarcane, while exports are things like Refined Petroleum, packaged medications, diamonds, and jewellery. With as much farmable land as there is, each farm is about 2.67 acres, which happens to be equivalent to almost 2 American football fields (OEC. 2022) (Major cropping Seasons in India: UPSC Geography Notes. (n.d.). The climate has a role in farming along with the water issues within the country. India does have a dry climate that can be cool or extremely warm. The average rainfall in the country would be between 750 and 1,500 mm (30 and 59 in) across the region, along with the temp being 63°F in January to 91°F in May (Wikipedia Contributors. (2019, May 9) (A Guide to the Weather in India (n.d.). Along with temperature and land, the geography of the land does play a role. The geography of the land for India goes from the Thar Desert in the western part of the country to the jungles

in the northeastern part of the country (National Geographic, 2014, March 21). Water Scarcity is a giant issue within the country, but not the only issue within India. India is having large issues with speech, specifically hate speech across the country. ‘Staggering’ rise had a huge rise in hate speech over the last year or so (World’s most populous nation saw a “staggering” rise in hate speech last year. (2025, February 11). With all the current issues such as hate speech, Water Scarcity, and many more challenges, it leads to an effect on families and daily life in India.

The average family size in India is about as large as five (5) to six (6) people (Dollar Street, 2025). With large families, the jobs and pay tend to fluctuate. Lots of average families have jobs that consist of a Medical assistant who makes ₹ 4,80,378 (\$5526.96) yearly, a Warehouse supervisor who makes ₹ 2,27,011 (\$2611.86) yearly, and a Nurse who makes ₹ 3,31,656 (\$3815.85) yearly (15 Common Jobs In India, 2024). With somewhat of a decent income, they have a decent selection of food for their diets. A typical day-to-day diets consist of wheat, rice, lentils, fruits, and green leafy veggies. Various diets can be followed, such as a vegetarian diet, millet-based diet, budget-friendly protein diet, and many more (Riya Lohia, 2024, August). Families acquire all the necessary things at places such as farms, local markets, and many different types of stores in their area, where they are affordable (International Trade Administration, 2022). Once things are acquired, they can prepare them in many different ways that are safe for consumption, such as a wood or clay stove, clay pots, grills, and fryers (Taste Of Home, n.d.). Along with food being affordable, there is healthcare and education to look at for families. Over the years, the ability to afford healthcare has greatly grown, but still isn’t fully accessible to everyone who doesn’t have the income for it (International Trade Administration, 2024). Just like healthcare education is accessible to. Different levels of education can be affordable, but some levels are as much as someone can afford with what little they may have (Household Social Consumption on Education in India, 2020). Utilities play a role in all of those options. If families can’t afford utilities, then they can’t even afford healthcare or an education. Utility access has had improvements so that people can access clean water across India, as well as helping with agriculturally sustained power (Chaudhary, M. 2024). Many more factors can economically impact a family or just in general with anything else. Some of these factors include growing birth rates and declining death rates, Migration of people within the country, Health care access, and the environment with climate change. (Describe the basic factors affecting the population of India, 2024). Even though all of these factors are different issues, they all do end up circling back to the main topic, water. Water is a source that affects everything, and is a topic that needs further research and attention given to it. If further research is given, then we can focus on cleaning the water sources (Stop Saving the Planet?, 2025) (SIWI, 2018). Unclean water leads to a water shortage, which leads to major issues in the future. We should focus on water issues so they do not worsen.

With water being such a large issue, it has now led to a water issue called Water Scarcity. The present status of water in India is lower than 100 cubic meters annually, making this an extremely pressing matter for everyone (Prasad, R. 2024). With the lessening status of the issue, we're looking at the trend worsening. About ¼ of people have access to clean water, and that shows that it is a giant problem because India has a pop of 1.438 billion and 1.4 billion have access to water, while 38 million don't (Prasad, R. 2024). This topic affects people within the cities, but takes a greater toll on those who live in rural areas. People in the rural areas, such as farmers, are the backbone of the country and without them, what's left of it? Due to this, with fewer and fewer crops, food prices skyrocket, which will only throw the country into what we know as poverty, and we most certainly don't want that for India, with things as they are (Das, T. 2021). That affects one of the major factors, which is demographic groups. It has a giant impact on the agricultural section due to the large amount of freshwater that is needed to farm the land. If they didn't have the water, they would cultivate less land, fewer times a year, and with less profitable crops, which would result in a loss of money. It also affects people's source of drinking water in a small urban community within the area (Harris, F., Green, R. F., Joy, E. J. M., Kayatz, B., Haines, A., & Dangour, A. D. 2017). Between cities, urban areas, and rural areas, it affects marginalized populations when it comes to water sources. It's now leaving little to no water for any of the population within the country (World Bank Group, 2022). With this, all we need to be aware of the effect it has on the environment around and near it. It does reduce the water greatly in the country, along with depriving crops of water that kills them, which amounts to a yearly 33% crop loss country-wide in India (Mohan, V. 2023). With all of the effects, it does give us a different perspective on the country and topic, a global perspective. The global perspective shows that many places live with water scarcity, and it's unfair to those people. It shows that it leads to sickness and even death among those who can't get clean water or water at all. Seeing the different perspective, we can see that multiple countries have this issue and it does affect lots of people on a global scale. India and its population are one of many affected by Water Scarcity.

The impact of having no water has left a large-scale issue in India. With the water shortage, it caused a major drought among many farms across the country, which happens to be the backbone. With no crops and water, it leads to limited things that can be eaten and drunk. With this, it is a cause for disaster, especially with the rising population in the country. With having fewer crops yearly due to the issue of no accessible water, food security issues come into play with people being unable to purchase food due to the prices rising with the loss of crops. Even with middle class families in the country, things are still very pricey even with a decently paying job. Water scarcity can and does affect everything in its path. Further solutions are being looked at to see if they can better India and find a way to bring accessible water back within the country. Each solution has its pros and cons, and with these they are being carefully looked at and chosen based on the benefits that can be given by them.

One of the more cost-effective solutions would be Water Harvesting. Rainwater harvesting has its pros and cons. Some of the pros to this are less costly, decreases the water demand, promotes both water and energy conservation, improving the quality and quantity of groundwater, and reduces soil erosion, stormwater runoff, flooding, and pollution of surface water with fertilizers, pesticides, metals, and other sediments. Although it may have many pros, it also comes with many cons. The cons consist of regular maintenance, limited rainfall which limits the supply of rainwater, if not installed correctly. It may also attract mosquitoes, other waterborne diseases, and require some technical skills for installation (byjus, 2020).

The next solution that has been looked into and proposed is watershed management. Watershed management, just like any solution, has its pros and cons. It might not have as many as some others do, but they are still there. Pros of Watershed management are that it helps replenish groundwater, maintained by locals, which then benefits the local people, and it helps increase crop production. However, even with its pros, the cons are still there. Cons of it are the costs required for building. Very few areas are ideal for a watershed, and they require a lot of maintenance, which needs to be done daily (teachoo, 2020).

The final major solution they are looking into is water irrigation systems. Not only for the people in the cities, but as well in rural and agricultural areas of the country. Irrigation systems play a major role, just as any other water management options. Irrigation though, has a bigger role in an agricultural perspective. Irrigation helps with crop growth and water regulation within fields. There are many Pros along with many Cons. Some of the Pros provide minerals as well as other nutrition by the assimilation from the mold, It helps to preserve the structure of their topsoil, prevent the disease of weeds and cause people to depend on irrigation channels. There is now an extensive irrigation system which people are using as a means of their communication. Some of the cons consist of careless and over-irrigation can lead to salt efflorescence, Irrigation becomes an obstacle in the path of free devours during the rainy season, irrigation sometimes creates unrestrained excretion and percolation of water throughout the whole passage, and the overflowing irrigated water gives insects a place to make their habitat which is harmful to surroundings giving rise to various diseases (Tanzila Bhuiyan, 2019).

With all the solutions, the best one to choose would be the water treatment solution to the issue. It may be costly, but it would purify water and make it useful for many things like farming, bathing, clothing washing, dishes, food, drinking, and more. It's more effective than water collection in the case of no rain. The purpose of it would be clean water, and it would turn the water into usable resources. Proper and

daily maintenance would need to be done to keep it in ideal shape for use and production. With this, the impact that is hoped to be left is that we can clean water and put it back into the community for usage and consumption of the people. However, this solution comes with limitations such as equipment malfunction, improper care, little maintenance, and cleaning it properly. With this plan, many of the cultural norms would be considered. The major cultural norms would consist of people using riverways and water sources to wash clothing and bathe daily. If they aren't allowed to use the riverways and water sources, then they can't use it to stay clean and have clean laundry. With all of this being a vital thing, with how many people use it, we need to consider the funding needed for it. Funds would come from the government, which would pay for equipment, tools for maintenance, a facility, and new hires. The government would be paying the hires to do the job of running the plant without them having to step in unless needed. With having funds from the government, it would also need policies within the facilities and the areas the water is being treated in. Policies for the reduction of pollution would have to be put into place, as well as limitations on water usage without pay. If you pay for a percentage of water, then you will receive the percentage of water for whatever you choose to do with it, even if it is a small payment. That will help things move along smoothly and more efficiently. With this, the country would need to look into the strengths that it has to support this plan so that it can move forward. With this, India is looking at private and public sectors of treatment plants and hopes to double the expansion of the project by the year 2030. By the year 2025, Indian water and wastewater treatment market will likely reach \$2.08 billion from \$1.31 billion in 2020, registering growth at a compound annual growth rate (CAGR) of 9.7 percent (274. 2022). With this solution, the belief that the solution to Water Scarcity is very sustainable for the country of India. If they apply all the resources, which they can if they choose to, then they can make a difference and use the water they already have. If they clean the water, they can put it back into the country for usage. Looking at statistics, this plan looks feasible. Sure it may be costly to start with, but once it pays off, it won't be an issue unless equipment has to be replaced. Once the system is up and running, country-wide in many different sectors, water will be able to be used and bought, which means money can just go back into the many plants that can be established, so the thought that the solution is not feasible is not an issue here. If this solution moves into play, the country of India will not be the only country doing this across the globe. Just like India is trying to do with treatment plants, the United States of America has already done it. In America, water plants work very well to clean water, and even over clean water to where we have water towers. Water plants have become very needed and very beneficial to the country with clean water usage. Many Americans have clean water access thanks to the water plants existing.

With the solution of a water plant, we can help fix the issue of water scarcity. By fixing the water scarcity problems, we can help prevent many more issues. Issues that go from something as simple as a water shortage issue to something as large as food security issues due to the rising cost in food, to low production because there is little to no clean water to use. If the people of India can manage to come up with a water cleaning system that can be placed in multiple areas, it wouldn't just solve one issue, it could solve many issues and help get the country back on track where they should be.

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