

Water Scarcity and the Upcoming Challenge of Sustainable Development

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ABSTRACT

The finite and unreplaceable resource known as water is essential to human existence. Only resources that are effectively managed can be renewed. As a result of this trend, by 2025, 2/3rd of the worldwide population would live in water stressed nations, and higher than 1.7 billion individuals would be living in the river-basins where the human consumption surpasses the natural resources. Water management can be a significant impediment to sustainable development, but when done correctly and fairly, it can also be a significant asset. The water footprint calculates how much water is used to produce each of the goods and services we consume. Water scarce nations import water intensive commodities from nations that use their water resources to produce water-intensive export goods. In the United Nations Watercourses Convention, the phrase "vital human needs" first appeared. In this article the researcher will be discussing about all these freshwater related issues.

Keywords: right to water, sustainable development, water footprint, water intensive crops, water scarcity.

INTRODUCTION

Water is the cornerstone for sustainable development and is necessary for economic progress, environmental sustainability, and human survival. It is essential for improving population well-being, productivity, and health and for lowering the global toll of disease. It is vital for the maintenance and development of a wide spectrum of benefits and facilities for individuals. Water is a key component in adapting to climatic changes because it serves as a fundamental connection among human society, environment, and the climate system. The Brundtland Commission specifically popularised and contextualised sustainable development in its report "Our Common Future," defining it as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations, 1987). The Brundtland Commission emphasised upon the three bedrocks for human well-being - economy, socio-political, and environmental situations. The fundamental tenet is in favour of putting strong policies in place to foster social and economic development, especially for those residing in developing nations, while simultaneously assuring that the environment is protected for future generations.

WATER SCARE NATIONS

The UN divides countries with insufficient access to water into two groups. When a nation's yearly renewable freshwater resources per person fall below this benchmark of 1,000 m³, it is referred to be "water scarcity," and when they fall between this benchmark and 1,700 m³, it is referred to as "water strained." In 1990, the UN designated 20 additional countries with a combined population of 130 million as having a water problem, in addition to eight countries with a combined population of 205 million. The regions of the world with the least access to freshwater are the Middle East and North Africa, according to population. Only six of the 19 states in the region had per capita supply greater than 1,000 m³/yr in 1990. By 2025, 3 billion individuals will reside in nations with water shortages, and roughly 1 billion individuals will be living in countries with water scarcities. The Middle East is expected to have a per capita average yearly supply of 667 m³ by 2025, which is only 15% of the global average.

The promises made by the international community to the environment and the eradication of poverty were reiterated in the Johannesburg Declaration on Sustainable Development and the Plan of Implementation, that were agreed at the World Summit on Sustainable Development in South Africa in 2002. Additionally, it improved on Agenda 21 and the Millennium Declaration by emphasising international cooperation more. [1]

Over the past ten years, academics have conducted extensive research on the connection amongst environmental changes, conflict, and safety. Extreme deforestation, soil erosion, salinization and waterlogging of the soil, toxic contamination, flooding and famine, and water and air pollution can all lead to environmental calamities that worsen tensions between nations and even start wars. The converse is also true, but little attention has been paid to this strategy.[2]

The earth's climate is also changing drastically, possibly alarmingly. The 20th century witnessed a significant increase in the average global temperature after almost a century of a steady but persistent cooling pattern. As the century went on, this increase in temperature continued to accelerate. These alterations, irrespective if caused by human activity or not, have a big impact on the world's precipitation patterns. Our solutions must be well-planned if they are to be sustainable instead of eventually self-destructive, a lot of the adaptations made during the conclusion of the Ice Age were as well. The focus of adjustments to the worldwide climatic changes would be to manage the water resources. Freshwater is, among the most crucial resources for human living, much alone development. Without air, we would expire in a matter of minutes.

We quickly perish if our water source is cut off. Depending on how much body fat we have stored and how healthy we are generally, we may survive without meals for weeks or months, as many captives in concentration camps and hunger strikers have shown.[3]

INTERNATIONAL WATERCOURSES LAW

Several well-known rivers that cross international borders include the Amazon, Colorado, Danube, Euphrates, Ganges, Jordan, Mekong, Nile, Tigris, and Zambezi. Other notable examples include lakes like the Great Lakes of North America, Lake Titicaca, Lakes Victoria, Tanganyika, Malawi/Nyasa, and Chad in Africa, as well as groundwater systems like the Guarani aquifer in South America, the Kaloo/Kalahari aquifer in Asia, and the Kaloo/Kalahari aquifer in Europe. A section of a body of water's watershed or recharge area may be outside of the country in which the water body is wholly located, as is the case with Lake Baikal in Russia.[4]

Some claim that international water law is developed from the Supreme Court of the United States' case law. Article III of the US Constitution provides the Supreme Court the authority to decide on water disputes between states since it forbids the states from starting war with one another. Ironically, the Supreme Court chose to exercise its original competence to split up interstate streams by relying on the international principle that every state has equal dignity to maintain the premise that every riparian nation is eligible to a fair portion of the inter-state river.[5]

The Helsinki Rules of 1966 and the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (UNWC) of July 08, 1997, which improved the Rules, serve as the foundation for all current definitions of fair apportionment. The UNWC is considered as a final statement of traditional laws, even though it may be implemented. The Berlin Rules, which outlined a developing vision for jointly managing rivers along with increased responsibility of protecting the environment, revised the Helsinki Rules in 2006. However, the Helsinki Rules and the UNWC's core concept essentially hasn't changed.[5]

Nations are required to utilise watercourses in an "equitable and reasonable way," according to Article 5 of the UNWC. Seven unweighted considerations are listed in Article VI that must be considered while establishing what is "equitable" and "fair."

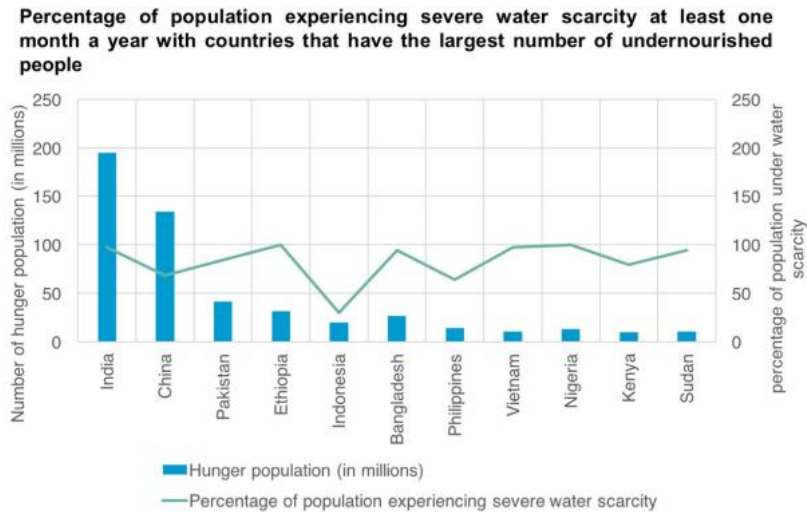
DEVELOPMENTAL ACTIVITIES

Although the principle of "equitable and reasonable use" now limits unilateral state action under the UNWC, neighbouring governments may still protest to a diversion, dam, or discharge if it could cause sufficient damage. The displacement of current uses and lost development prospects are two examples of harm. Therefore, a riparian state that is late in developing is not prevented from asserting her entitlement to an equitable distribution. Different procedural obligations, which encourage riparian nation collaboration, for example a warning about a significant water project and sufficient environmental impact assessments, support equal sharing. Additionally, supporting it is the International Court of Justice's (ICJ) endorsement of equitable distribution as a customary rule as stated in the UNWC. In the Hungary vs. Slovakia case, the ICJ ruled that the erstwhile Czechoslovakia's one-sided decision to move forward with the dam-and-lock project on the river Danube, that diverted about 80-90% of its river-flow, despite Hungary's environmental protests, robbed Hungary of the enjoyment of its rights under international law. Hungary of its claim to a fair and proportionate portion of the Danube's natural resource.

GROWING AGRICULTURAL NEEDS FOR THE GROWING POPULATION

A lack of water can have a severe impact on economic prospects, natural ecosystems, and ecosystem services, as well as on subsistence activities including access to drinking water and local fisheries.

Food imports can help countries with water shortages, but exporting products which require tons of water would make the problem worse. Many water-related problems are influenced by international trade. Uzbekistan overuses subsidised water to grow cotton for sale, and Thailand has water issues because of rice cultivation for exporting.



Source: Water Footprint Network
 Data: M.M. Mekonnen & A.Y. Hoekstra, University of Twente, and FAO

In order to grow flowers for exporting them to the Netherlands, Kenya exhausts the water resources in its lake region, while Chinese rivers become seriously contaminated by waste flows from companies making low-cost goods for the European market. International trade both helps and hurts the world's water shortage. Increased interdependence among countries, which results in a situation where net importers of goods that use a lot of water are reliant on net exporters, is another potential impact of global commerce. Water is thus comparable to oil. Many nations who don't have access to oil rely on others that have. Similar to this, nations without access to water that must import commodities with high water consumption rely on nations that use their water resources to produce water-intensive export goods.[6]

WATER FOOTPRINT

In order to more efficiently control human freshwater spending, Dutch scientist Arjen Hoekstra coined the term "water footprint" in 2002. It refers to the total amount of freshwater used by an individual, community, corporation, or nation to create the goods and services consumed. [7] Here are a few examples of items and the water used to make them: [7] 16,000 litres of water are required to produce 1 kilogramme of beef.,140 litres of water are required to make one cup of coffee.,870 litres of water are needed to make one litre of wine.,287 litres of water are required to produce one kg of potatoes.,2,925 litres of water are required to equal one kilogramme of tobacco.

The water footprint calculates how much water is utilised for producing each of the goods and services we consume. The environmental impact of a straightforward process, like growing rice, an item, like a pair of jeans, the fuel we use for our automobiles, or a whole multinational organisation can all be measured. The water footprint can even show how much water is utilised in a certain river basin or from an aquifer by a specific country or the entire planet. The water footprint estimates how much freshwater humanity uses or contaminates.[8]

The world's limited freshwater resources imply that humankind's water footprint has a limit. In a global water footprint system, permits would be given to every country. The licenses could instead take the shape of targets for lowering water footprints in comparison to a particular reference. The targets would be the responsibility of the nations to translate into national policy in order to achieve the target or maintain the permit for the year or time period. Sanctions may be used as a measure of enforcement if the established goals are not attained. Targets would need to be set, for example, according to the three components of the water footprint (green, blue, and grey); they might also be determined according to the sector of the economy or the nature of the product. Alternatively, a worldwide water pricing system might be established and negotiated by UN-Water or the UN Commission on Sustainable Development (CSD). The cost of negative externalities related to water usage, investment costs, maintenance and functional costs, a rent for water scarcity, and other costs must all be included in a global agreement on water pricing frameworks.[9]

RIGHT TO WATER

The overuse of fresh water is one of the major threats to the planet. The 2030 Agenda includes the Sustainable Development Goal "Ensuring access to water and sanitation for all" because the irresponsible use of water to make goods and services for consumers endangers the availability of water resources.

The UNWC is where the phrase "vital human needs" first appeared. According to the convention, it refers to adequate water for preserving human existence, comprising both potable water as well as water needed for producing food to avoid starvation. The use of the phrase "special attention" in Article 10(2) must be interpreted to suggest that water for crucial human requirements will most likely prioritise over other usage. In the UN General Assembly on July 28, 2010, 122 countries formally approved the "right to water." In the month of September of the same year, the UN Human Rights Council issued a resolution recognising the human right to water and sanitation as a component of the right to an adequate standard of living. [11]

CONCLUSIONS AND SUGGESTIONS

The rising demand for development and need of more agricultural output for the eight billion people can be done by adapting more sustainable practises like shifting to green technology and clean technology and using biodegradable products and cultivating crops with less wastage of water and no usage of fertilisers and pesticides. We have to cut down the emissions of CFC and also cut down the ground water depletion, and seriously take steps to stop polluting rivers, lakes and other freshwater bodies. The freshwater bodies has to managed well by the people at the ground level and the countries at the international level. The ground water depletion is a serious problem, and it must be addressed through taking steps towards replenishing the aquifers by allowing water seep into soil, rainwater harvesting, optimising water usage in agriculture by practicing drip irrigation. Water footprint of crops, products and individuals when calculated gives us the data of how much water is being used and how it can be reduced. Since the freshwater resources are limited, we have to protect them and adapt environment friendly practices.

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