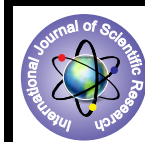


An Analysis of Demand and Supply of Water Resource in Karnataka – An Empirical Study



Economics

KEYWORDS : Water, Scarcity, Management and Rainfall

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ABSTRACT

Water has become the most commercial product of the 21st century. Water Resources management is a very important issue with regard to the conservation and the protection of water. Realizing the seriousness of the problem the UN has declared that access to clean water and sanitation as the fundamental human right in 2010. It notes that more than 1.5 million children below the age of 05 die of water related diseases. More than 884 million people across the globe do not have access to safe drinking water. In this background, the present study is to assess the condition of water scarcity in terms of agriculture, industry, and domestic use and to investigate the socio-economic implications of water scarcity. The study shows that agricultural, domestic, and industrial needs of the taluk were met by natural sources of water such as wells, ponds, streams, and rivers ten years ago.

Introduction

Water has become the most commercial product of the 21st century. This may sound bizarre, but true. In fact, water is to the 21st century, oil was to the 20th century. The stress on the multiple water resources is a result of a multitude of factors. On the one hand, the rapidly rising population and changing lifestyles have increased the need for fresh water. On the other hand, an intense competition among users in agriculture, industry and domestic sector is pushing the ground water table deeper.

To get a bucket of drinking water is a struggle for most women in the country. The virtually dry and dead water resources have lead to acute water scarcity, affecting the socio-economic condition of the society. The drought conditions have pushed villagers to move to cities in search of jobs, whereas women and girls are trudging still further. This time lost in fetching water can very well translate into financial gains, leading to a better life for the family. If opportunity costs were taken into account, it would be clear that in most rural areas, households are paying far more for water supply than the often-normal rates charged in urban areas. Also, if this cost of fetching water which is almost equivalent to 150 million women days each year, is covered into a loss for the national exchequer, it translates into a whopping 10 billion rupees per year.

Water Resources management is a very important issue with regard to the conservation and the protection of water. Water demand management is meant to manage the available water resources wisely and to deliver the necessary amount for sustainable development. In these include environmental conservation with inter and intra generation equity in mind while any policy of conservation is formulated.

The right to water is at the heart of the right to life guaranteed in Article 21 of the Constitution. That is why when adivasi women in Plachimada, Kerala started their protest against Coca Cola mining 1.5 million litres / day and leaving toxic pollution behind, the Court came in their support and ruled that water is a public good, the right to water is a fundamental rights, and water depletion and pollution is a violation of the Constitution Rights of Communities. Women have to queue up in front of the public water taps, being at the lag end of the pipeline system, they get water only after the users ahead in the pipeline finish collecting water. There are nights when water pressure dips so low that some women get it after midnight. They split their day between household chores and collecting water.

World Bank and Asian Development Bank have been giving mandate to the third world countries like India to adopt safe drinking water measures. According to them, the ground water from the bore wells is pure and safe for human consumption. Government of India as well as states has implemented this project in almost all the villages. The state bodies, since then, have

been giving subsidies to farmers to dig bore wells. This change in policy has serious consequences at ground level.

Tripathi's (2007) noted that the issue of water management, the legal and scientific dimensions of water, and the various methods of water storage such as dams etcetera. He argues that water is not a local issue. It has its implications and consequences at the global level. According to, Bandyopadhyay (2009) is wary of the rapid depletion of ground water due to the massive interventions enabled by engineering and technology. He says, "More than half of all accessible global fresh water run-offs are currently withdrawn by human interventions. Realizing the seriousness of the problem the UN has declared that access to clean water and sanitation as the fundamental human right in July 2010. It notes that more than 1.5 million children below the age of 05 die of water related diseases. More than 884 million people across the globe do not have access to safe drinking water. In this background, there is an urgent need for all people concerned to have myriad ways of conserving water so that our future generation will be able to live a decent-happy life.

Objectives:

1. To assess the condition of water scarcity in terms of agriculture, industry, and domestic use.
2. To investigate the socio-economic implications of water scarcity.

Methodology:

The present study is based on secondary data. the secondary data and information were collected from the Volumes, Research Articles, Government and Non-Government Sources, and NGOs. The geographical area of the Study is restricted to Belthangady Taluk of Dakshina Kannada district in Karnataka State.

Analysis and Discussion

Water is the biggest crisis facing India in terms of spread and severity, affecting one in every three persons. Even in Chennai, Bangalore, Shimla and Delhi, water is being rationed and India's food security is under threat. With the lives and livelihood of millions at risk, urban India is screaming for water. Due to heavy demand from the sectors mentioned above the government, industries, and private homes have been digging tube wells all over the Taluk resulting in the depletion of ground water. It is assumed that tube wells instead of providing water are actually making dry the sources of water. The study likes to find out the truth behind this belief. Water is a very important medium in a wide range of industries, where it is normally encountered as process water or as wastewater.

Furthermore, a clear trend today among industries that use large amounts of water, such as pulp & paper, steel, food & beverage, textile, etc, is to recycle and reuse water to an increasingly high degree, thereby reducing water consumption as well

as pollution – all of which lead to cost reductions. Finally, the wastewater needs to be treated so that it can be released into the municipal sewer systems and ultimately back into its source. The growing concern with environmental issues and their impact on general public awareness is one of the most noticeable phenomena of the last twenty years or so. From the question of holes in the ozone layer to conservation of forests and bio diversity, environmental issues are being raised at various levels.

From a global viewpoint fresh water is abundant and the volume of fresh water renewed by the hydrological cycle between the oceans, the atmosphere, the sun and the land is more than enough to meet the needs of five to ten times existing world population. Water quality monitoring is not yet developed in some countries, rather it is in decline. The quality of water available for drinking is posing a serious threat to the existence of life. Degradation of water quality is a consequence of human activities, land use practices and economic development. Land use practices affect the quality of water in our streams, lakes, ground water and ultimately the marine environment. Experience has shown that it is within our ability to slow and reverse water quality degradation, to improve human health and ecosystem integrity by nations putting forward a concerted effort. To accomplish this, aggressive, positive and timely policies and actions are needed. The world has a moral obligation to ensure that future generations inherit a world with clean water and healthy environment.

The apparent abundance of water is deceptive and is often taken for granted. There is a tendency to abuse and overuse it. This has led to water scarcity, for which the reasons are as follows,

1. Increasing demand for water due to rapid increase in population.
2. Bad management: India receive the second highest amount of rainfall in the world, next to Brazil, almost 1150 mm, annually, draining a total volume of 400 million hectare meters. Of this, only 100 million hectare meters is retained in the soil. The rest is carried as run off into the oceans and seas.
3. Poor ground water resources due to deforestation and over-grazing which result in soil erosion and the inability of the soil to permit water infiltration.
4. Poor storage facilities
5. Over-exploitation of ground water in water scarce areas often resulting in the intrusion of saline water in coastal areas.
6. Dumping of various types of pollutants into water bodies, reducing the usability of the available water.
7. Cultivation of hybrid varieties of paddy, wheat, cotton, sugarcane and tobacco which consume more water.
8. Evaporational loss of water stored in large reservoirs and loss by seepage in long canal system.
9. Siltation of bodies of water due to denudation of the vegetational cover in the hills and catchment areas.

It is time that effective regulatory mechanism is established by which protection of our water resources can take place. There is also a need for looking at the water laws in the other jurisdictions and rules and regulations mandating protection.

One way by which preservation of water can take place is through the system of water resources management. At present in India there is no central legislation by which water resource management can take place, but most of the states have legislation for their metropolitan by which water resource management can take place in those areas.

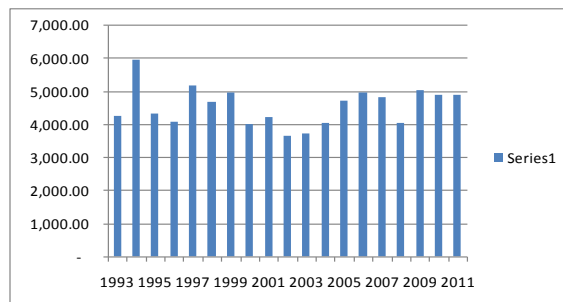
Moreover, the study likes to explore the traditional methods of rain water harvesting and conservation of water that people have been practicing for so many centuries. These methods have been relegated to derivative position due to the scientific methods introduced through western models of science. Recovering the traditional system of knowledge is part of a larger concern that is immediately connected to the topic I have chosen. Hence, a considerable effort will be invested to collect data on

people's methods of conservation of water which is viable not only economically but also ecologically.

One of the very important questions that the policy makers need to address is the close link between women and water. Women as water providers bear the worst burden of the deepening water crisis - through longer walks in search for water in rural areas, longer wait or less water in urban areas. The crisis has been aggravated by a number of factors. Industrial pollution has created an artificial scarcity by destroying safe, accessible sources of water. Most rivers treated in India as a divine mother, is now a toxic drain. Rivers that nourished people are now spreading hazards and pollution. River diversions and mega projects are also causing a water crisis. A new challenge for poor women is the privatization and commodification of water. In most cities, women's protests have forced the cancellation of contracts for handling over urban supply to private corporations for whom it is a for-profit undertaking, not the supply of a common good and a public service. Delhi's water tariffs have been increased ten fold and women are already on the streets, defending their water rights.

Water resources constitute mainly surface and groundwater, with rainfall being the basic source. The environmental concerns pertaining to water resources revolve around water resource management, specifically relate to both quantity and quality issues. The main issues of concern are conservation of existing water resources and prevention of further degradation and depletion. The associated issues include rejuvenation of degraded traditional surface water bodies, enhancing the availability of water through water harvesting measures, and recharge of ground water resources. More important is the judicious and economic use of both ground and surface water for agricultural, industrial and domestic purposes.

Karnataka is subjected to repetitive droughts. The National Irrigation Commission has identified 12 districts and 88 taluks in the state as drought-prone. But, ironically Belthangady taluk receives enough rainfall. The mean annual rainfall in the state is 1355 millimeters with more than 73% of it being received from the South-West monsoon. Whereas the taluk receives a normal rainfall of 4589 MM. The taluk received actual rainfall of 4043.53 MM during 2004, which is the highest in Dakshina Karnataka district. The taluk has 131 days normal rainy days. Actual rainy days during 2004 were 130.



The above table and graph show the average rainfall of the last 18 years in Belthangady taluk. It indicates that there is sufficient and constant rainfall that is required for the domestic, agricultural and industrial purposes. But the study wishes to find out why there is scarcity of water inspite of abundance of rainfall in Belthangady taluk.

Belthangady has maximum number of rivers and rivulets flowing across the taluk making it highly dense in water bodies. The rainfall that the taluk receives in the vast area of the Western Ghats is the First Order source of surface water. They form the natural ridges and flows into creeks and streams forming the Second Order source. They, in turn, trench into rivulets that are called the Third Order source. These rivulets and natural channels join together to form the Fourth Order namely rivers such as Nethravati and Palguni (a branch of Gurpur river). They are the large water bodies. Most of these rivers of Belthangady taluk

have their major yield of water from the rainfall during South-West monsoon, Northeast monsoon and summer rains in the Western Ghats.

The water shed areas of Belthangady taluk can be seen in the toposheets of Belthangady taluk prepared by the British Govt. in 1910. The following are some of the second and third order streams and rivulets that flow into Nethravati and Gurpur rivers: Shirlal, Shivanala, Arbi, Halemane (Galigundi), Battihalla (Vantigudde), Killur, Bangarabali, gattadka (Elniru), Aanadka, Nandikadu, Mallahalla, Kajakka, Eluvare halla, Koodabettu, Bandaje Arbi, Mundaje, Ballalarayana falls, Durgadahalli, Bidirathale (Jenukallu gudda), Doddalla, Aniyuru, Neriya, Nelithatu, and Birimale.

Summary and Conclusion

The study shows that agricultural, domestic, and industrial needs of the taluk were met by natural sources of water such as wells, ponds, streams, and rivers ten years ago. There is an absence of community participation in water shed managements in the recent past. Unregulated digging of borewells is both the cause and the effect of changing perspectives on community involvement. The industrial capitalism has been one of the important causes of individualistic growth. Historical data across the country shows that community participation in building tanks, bunds and ponds were quite common. Not only the royal class but also the subaltern groups and individuals took an active part in such enterprises. So, the indigenous methods of water management involved the participation of the community. At the same time, the study has noted indigenous systems of water management may not hold good in all circumstances. The changing times with new industries, crop pattern, urbanization, density of population etc require innovative methods of water harvesting whether rain, river or ground water.

REFERENCE

- Bandyopadhyay, Jayanta. Water, Ecosystems and Society- A Confluence of Disciplines, New Delhi: SAGE Publications India Pvt. Ltd., 2009. | • Borschberg, Peter, Martin Krieger. Water and State in Europe and Asia. New Delhi: Manohar Publishers, 2008. | • Chawla Anju, Compiled, Know about Science Water, New Delhi: Dream Land Publications, 2009. | • Shivappa R., Streams in the River- A journey into exclusive concerns, Bengaluru: M. Meenakshi Ramesh for Dhatri Pustaka, 2009. | • Tripathi, L.K. Water Resources Management, Jaipur: Oxford Book Company, 2007. |