

Title of the Minor Research

“An Analysis of the Demand and supply of water in relation to Agriculture, Industry and Domestic needs in Belthangady Taluk “

Researcher: Mr Joseph N.M. Associate Professor in Economics

1. Objectives of the Project:

The present proposal of a study “**An Analysis of the Demand and supply of water in relation to Agriculture, Industry and Domestic needs in Belthangady Taluk** “ is a study of the water condition of Belthangady Taluk. Water is a unique substance. It is one of the few materials on the Earth that exists naturally as a solid, liquid or gas. It is not possible for life on earth to exist without water. Scientists estimate that there are over one billion cubic kilometers of water on this earth, which covers nearly three fourth of the earth's surface. Though this seems an inordinately huge amount, in actual fact, less than one percent is fresh and usable and is found in lakes, ponds, rivers and groundwater. Of the remaining, ninety seven percent is found in oceans and two percent is locked up in glaciers and ice-caps.

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.

The present study attempts to conduct a survey of the use of water for Agriculture, Industry and Domestic needs in relation to its availability. It also makes an attempt to find out the various factors that create water scarcity in the Taluk though it is available in plenty.

The specific objectives of the Study are

- i. To assess the condition of water scarcity in terms of agriculture, industry, and domestic use.
- ii. To investigate the socio-economic implications of water scarcity.
- iii. To study the Economic and Ecological viability of the traditional pluri-systems of water conservation
- iv. The study likes to explore the different possibilities of water use, conservation and harvesting that may help in formulating new water policies that are people friendly.
- v. To measure the cost component of the traditional and modern methods of water conservation

Methodology

a. Area of the Study

The geographical area of the Study is restricted to Belthangady Taluk of Dakshina Kannada district in Karnataka State. Belthangady is at the foot of the Western Ghats that is considered as one of the prominent areas in the world known for biodiversity. For Belthangady, Western ghats is the main catchment area. It rejuvenates the water bodies of this place. Belthangady is known for heavy rain fall. During monsoon months the ground water level overflows. The wells, ponds, rivulets, and Tube wells are completely recharged. It has also tributaries of rivers such as Nethravati and Phalguni which provides water to Mangalore. At the policy level, the government is contemplating to divert Nethravati to supply water to southern districts like Tumkur and Bangalore.

All the same, the ground water level suddenly begins to go down from January and the hot summer witnesses drying up of tributaries, ponds, wells and even the Tube wells. As a result, the area experiences acute water scarcity in April, May, and June. It affects industrial, agricultural, and domestic use of water. Popularly, people ascribe the cause to indiscriminate use of water, water management strategies, for example, digging of Tube wells.

The thesis intends to probe the problematics of water in order to examine sources of water and management of water. It, the study hopes, can help us to explore an alternative that takes into consideration the indigenous knowledge systems to make water conservation participatory in nature.

b. Sources of Data

The required primary data shall be gathered, through administering open-ended questionnaire to users of water especially for agriculture, industry and domestic purposes. Also, the necessary secondary data and information shall be collected from the Volumes, Research Articles, Government and Non-Government Sources, and NGOs.

Contemporary Relevance of the Study

The present study “**An Analysis of the Demand and supply of water in relation to Agriculture, Industry and Domestic needs Belthangady Taluk**” is relevant to the cotemporary situations. A lot of studies are being conducted on the above topic at present. It is said half-humorously that the next World war will be fought on the issue of water. Some environmentalists predict that the world will face acute shortage of water in the next 20 years. It is ringing alarming bells in people who are really concerned with the future of the planet and its environment of which human beings are only a miniscule minority.

Besides, globalization has made water a commodity to be sold in the market place. The privatization of water is affecting the life-worlds of millions of people. The very many policies of our political leadership have been anti-people especially when it comes to an issue

like water. It is reflected in the way National Rural Drinking Water Programme (NRDWP) terms water as 'socio-economic good'. It is in this sense we need to rethink the way we have been looking at the question 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 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.

Therefore, 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

It is in this context the present study is relevant to the contemporary situations.

2. Whether objectives were achieved:

The Minor research Project on **An Analysis of the Demand and supply of water in relation to Agriculture, Industry and Domestic needs Belthangady Taluk** has enabled the researcher to reflect on the overall picture water condition of Belthangady Taluk in relation to its availability, use and scarcity. The study analyses the various factors for the water scarcity and its socio-economic implications in the Belthangady Taluk. It attempts to create awareness to protect the water resources and its economic use. Based on the data collected through field work and Government departments the study reveals that the water is available in accordance to the Agricultural, Industrial and Domestic use. But unscientific use of water resources has created a situation of scarcity. The study makes certain recommendations for the economic use of water resources. It also reveals the possibilities of undertaking watershed management programmes in the Belthangady Taluk . .of Dalits, Women and Small Farmers of Belthangadi Taluk. To this effect the objectives of the study are achieved.

3. Achievements from the project:

Through the present study the researcher has been able concentrate on the following areas;

- The study helped the researcher to understand the real conditions water resources of the Belthangady Taluk .
- The study helped the researcher to make an objective analysis of the water resources.
- Study made an attempt to explore some new possibilities of water conservation, use and harvesting.
- It helped the researcher to analyze the socio-economic implications of water scarcity.

4. Summary of the Findings:

The study on water has thrown light on various issues affecting the taluk of Belthangady in Dakshina Kannada. The first chapter delineated the scope, objectives, hypotheses and methodology. The chapter tried to problematise the question of water from an interdisciplinary perspective. It delineated the three hypotheses to be tested during the course of the research. One, the digging of borewells on a massive scale by the large landholders was the main reason for the depletion of ground water in the taluk. Two, the participation as well as non-participation of the community has consequences on water management either positively or negatively. Three, the indigenous systems of water-conservation need to be explored to make it economically viable and ecologically sustainable.

The second chapter reviewed the studies done on water across the country. It took into account both theoretical and practical aspects of the problematic. There have been interesting studies done on hegemony, gender, class and caste that are closely linked to the problem of water. The chapter also looked into the recent studies on water conservation that are technologically fine-tuned especially in the context of urbanization and the problem of water.

The third chapter made a survey of Belthangady taluk with its historical, geographical location at the foot of the Western Ghats. The topographical sheets that were prepared in 1910 have shown that Belthangady Taluk was dense with water bodies. The ridges, streams, and rivulets flow across the taluk to charge and recharge the ground water. The incessant rain in the Western Ghats has contributed much to the more than average water system in the taluk. Though the taluk does not have acute shortage of water for domestic, industrial and agricultural purposes, yet there have been alarms that the water level in the taluk has receded further. The phenomenon has to be investigated for its causes, consequences and actions that need to be taken to remedy the situation at the community as well as at the level of policy and implementation by the government.

The fourth chapter collated and analysed the data. The questionnaire was administered to a selected body of families, farmers and industrialists to seek information regarding the use of water for various purposes and the changing nature of sources of water and the possible methods of water conservation they have adopted either as individuals or as a community. The study has found that there is a departure from traditional crops such as paddy to commercial crops. Accordingly, it has had the effect on the use of water, example, areca does not require as much water as paddy. Naturally, the water is trenched out of the farm that adds to the water that already flows in the channels and rivers without being absorbed and harvested to replenish the ground water. Areca requires water during summer when

most of the wells and ridges run dry. As the indigenous systems of water harvesting have been neglected, the rich farmers have been digging tube wells to water the farm. The study has found out that the borewells in the neighbourhood has a negative impact on the wells nearby. Naturally, the water tables are depleted. It affects the agricultural work of the small and marginal farmers. They cannot afford to follow the methods of the rich due to shortage of finance. Some of them have abandoned their fields to become agricultural labourers. A few have sold their lands. A handful of them have approached the institutional moneylenders to dig borewells.

The current level of groundwater development in the country is about 34% of the utilizable ground water resources for irrigation. However, the development is not uniform all over the country and in a number of areas/pockets, intensive ground water development has led to rather critical situations and manifestations of problems like declining water levels and reduction in well discharge. The development of ground water in such areas is normally through construction of open dug wells, dug-cum-bore wells and bore wells of various designs. However, over the years, due to unregulated development of ground water coupled with frequent drought conditions in most parts of peninsular region, the water levels have started showing declining trends. At places, particularly in Kolar, Tumkur and parts of few other districts in Karnataka & Tamilnadu, the water table has declined to even more than 60m below the ground surface. Many of the bore wells in such areas have become nonfunctional and require suitable technology for undertaking artificial recharge.

In order to analyse all these reasons auditing and accounting of the water source at the micro-watershed level, assessment of the impact on the natural potentiality is possible by the scientific tools. But to eradicate the negative factors which crate imbalance in the natural process is possible by social-cultural interventions.

5. Contribution to the society:

The research work could make the following suggestions for improving the water resource management in the taluk

- Develop nature friendly water shed projects to arrest the rain water runoff in order to facilitate percolation
- Build small bunds that are ecologically sustainable
- Construct series of vented dams at strategic locations for watershed management
- Building big dams should be positively discourages because they are a big threat the rich biodiversity of Western Ghats as well as human habitation and agricultural lands

- Rainwater and surface water can be utilized during rainy season land water from the borewells can be reserved for summer when the surface water goes dry
- Toilet pits should be avoided near sources of water to prevent seepage and pollution
- Integrated water resource management programmes need to be evolved in collaboration with local community taking into account the peculiar geographical condition, socio-economic conditions and geological formations.
- While issuing licences to build houses, educational institutions and industries, rainwater harvesting has to be one of the conditions.
- Subsidies can be extended to the lower sections of the society for harvesting rainwater in their houses.
- Violators of pollution should be penalized to ensure safe and healthy drinking water.
- Mindless deforestation must be stopped in order to prevent soil erosion and destruction of precious aquifers.
- Planting of mangium and akeshia trees in the name of social forestry has to be avoided because they do not support the process of percolation. In fact they facilitate the rainwater run off during rainy season and consume water during summer.
- Modern methods of irrigation that stresses on economic use of water has to be popularized further. For example, drip irrigation.
- Treatment of effluents from industries needs to be monitored regularly to safeguard pure water for consumption.
- Hotels, Marriage halls, pilgrim centres must be encouraged to ensure proper drainage system and treatment of sewage water and solid waste management.
- Technologies can be evolved to replenish abandoned and damaged borewells and dried up wells.
- Illegal quarrying of laterite stones and hard rocks should be stopped as they destroy natural ridges and creeks as well as aquifers.
- Local bodies can clean the tank regularly to avoid silt formation. Besides, the catchment area also must be protected to prevent soil erosion.
- Regulatory body can be formed to monitor and prevent mindless digging of borewells.

Future Alternatives:

There have been attempts by different groups and communities to evolve and improvise innovative methods of water management. They are not only stories of success but also attempts by the groups involved to respond to the changing contexts precipitated by modern technologies, industries, and life styles. On the one hand, the world bodies such as World Bank and Asian Development Bank are contemplating to privatize water systems and water bodies. Some of the Multi National Companies have already invested in water 'sector' thereby commodifying the natural source of water to which everyone has the fundamental right to use. The common people are the immediate losers as they cannot afford to buy the costly water.

The future study on water, the study strongly believes, must take into account the experiments and innovations evolved by groups and communities across the country. They will throw light on pluri systems of water management that are the need of the hour. The governments whether at the centre or the state cannot take the demands of the movements by people antagonistically and repress them using force. Development of a nation cannot be insulated from the struggles of people. The principle of equity and social justice are integral parts of the question of water.