



RURAL WATER SUPPLY IN KARNATAKA STATE – A GEOGRAPHICAL STUDY

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ABSTRACT

Water is one of the most precious natural resources and a key element in the socio-economic development of a country. Nothing will quench thirst the way water can. Water is the essential part of the modern day life. The total quantity of water available on the globe is the same as it was two thousand years ago. It is important to appreciate the fact that only 3 per cent of the world's water is fresh and roughly one – third of it is inaccessible. The rest is very unevenly distributed and the available supplies are increasingly contaminated with water and pollution from industries, agriculture and households.

At the time of independence, the per capita availability of water in India was, 6008 cubic meters a year. It came down to 5,177 cubic meters a year in 1951 and to 1,820 cubic meters a year in 2001. According to mid – term appraisal (MTA) of the 10th plan, per capita availability of water is likely to fall down to 1,340 cubic meters in 2025, and 1,140 cubic meters in 2050. Former UN Secretary General, Boutros Ghali had warned in 1980's that future war could be fought over water. Ismael Serageldin, vice President, World Bank, had predicted in 1995 that "If wars of this century were fought over oil, wars of the next century will be fought over water". It is now feared that "Third World War is fought, will not be fought for territorial gains or political supremacy but of water"

Karnataka accounts for about six percent of the country's surface water resources of 17 lakh million cubic meters. After independence, demand for water had been increasing at an alarming rate due to rapid growth of population, agricultural development, urbanization, industrialization, etc. These developments have led to several inter-state disputes about sharing of these rivers like Cauvery water dispute between Karnataka, Tamil Nadu and Kerala.

KEYWORDS :

I. INTRODUCTION:-

Air, water, food, clothing and shelter are the basic requirement for a decent living and this has become particularly pernicious in rural areas. Of all the other major problems rural water supply is one of the major challenges that has been addressed by the government and attempt made towards tackling the crisis in providing safe and adequate water to the rural people. However, the problem has become still more in tense as India is huge and growing population is putting a severe strain on all of the country's natural resources. Most water sources are contaminated by sewage and agricultural runoff. India has made progress in the supply of safe water to its people, but gross disparity in cover age exists across the country. Although access to drinking water has improved. The World Bank estimates that 21% of communicable diseases in India are related to unsafe water. In India, diarrhea alone causes more than 1,600 deaths daily the same as if eight 200 person jumbo-jests crashed to the ground each day. Various dimensions of the problem have been addressed for the effective implementation of rural water supply schemes, which is dependent on a number of factors – Social, Technical, Economic, Institutional, Environmental, Legal and Political.

II. STUDY AREA:-

The Karnataka State is the eight largest State in the Country and is located in the Deccan Plateau. According to 2011 census the total population of the state is 6, 11, 30,704 accounts 5.5% of the total population of the country and ranks 9th place in the country. It extends between North latitude 11° 31' to 18° 45' and East longitude 74° 12' to 78° 40', as shown in the (fig no – 01), the length of the State from north to south 750Kms and width from east to west 400Kms. The total Geographical area of the State is 1, 90,498sq.km accounting for 5.8% of the total area of the Country.

The general elevation in the state varies between 450 to 900 mts. above mean sea level. The climate of Karnataka State varies from humid rainy monsoonal climate in the West Coast, the Ghats and malnad areas to semi arid warm dry climate on the east. There is a large variation in the rainfall with higher amounts in the Western Ghats and reducing towards the eastern plains. Along the coastal Dakshina Kannada District, the normal rainfall is about 4000mm and in the drought prone district of Bijapur, Raichur, Bellary, etc., the rainfall is of the order of 500mm to 600mm.

III. OBJECTIVES:-

Following are the specific objectives of this paper.

- To overview of Karnataka State Water Resource Situation
- Requirement of Water for Domestic purposes in rural areas of the Study Region
- To know the rural water supply

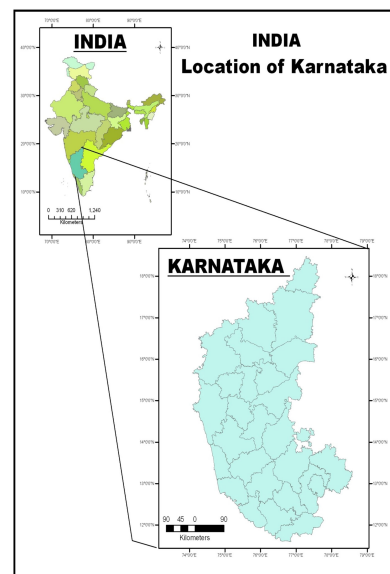
IV. DATA BASE AND METHODOLOGY:-

The present study is based on Secondary data collected from Ground Water Statistics, Government of Karnataka Water Resources Department, and internet. Data has been analyzed with the help of statistical diagrams.

V. TO OVERVIEW OF KARNATAKA STATE WATER RESOURCE SITUATION:-

(A) RAINFALL:- - The occurrence and distribution of rainfall in the State is highly erratic the annual normal rainfall is 1138mm received over 55 rainy days. It varies from as low as 569 mm in the east to as high as 4029mm in the west. About 2/3rd of the geographical area of the State receives less than 750 mm of rainfall. Even assured rainfall areas of the State experience scarcity of water in some years.

Map No:- 01



(B) SOURCES OF WATER AVAILABILITY IN KARNATAKA STATE:

Karnataka State accounts for about six percent of the country's surface water resources of 17 lakh million cubic meters. There are seven river systems in the State viz., Krishna, Cauvery, Godavari, West Flowing Rivers, North Pennar, South Pennar and Palar. Utilization of water in the West Flowing Rivers is hampered due to difficulties in construction of large storage reservoirs. Yield in the seven river basins is estimated as 3418 TMC at 50% dependability and 2934 TMC at 75% dependability. Yield in the six basins (excluding west flowing rivers) is estimated as 1396 TMC at 50% dependability and 1198 TMC at 75% dependability. The economically utilizable water for irrigation is estimated as 1695 TMC.

(C) GROUNDWATER AVAILABILITY IN KARNATAKA STATE:

Availability of ground water is estimated as 485TMC. Ground water resources have not been exploited uniformly throughout the state. Exploitation of ground water in the dry talus of North and South interior Karnataka is higher as compared to Coastal, Malnad and irrigation command areas. There is deficiency of water for drinking, agricultural and industrial use in dry taluks of North and South interior Karnataka. Where adequate surface water is available, utilization of ground water resources is minimum. In about 43 taluks there is over exploitation of ground water resources. Further, groundwater exploitation has exceeded 50% of the available ground water resources in 29 taluks of the State. These 72 taluks are critical taluks from the point of view of the ground water exploitation. In the 72 critical taluks about 4 lakh wells irrigate an area of 7.5 lakh ha. Due to over exploitation of ground water resources, more than 3 lakh dug-well have dried. Shallow bore wells have failed and yield in deep ore wells are declining. Area irrigated by ground water extraction structures is decreasing. Consequently, more than Rs.2000 crores of investment made by the individual farmers on the construction of well, pumping equipment, pipelines, development ect., have become in fruituous.

VI. REQUIREMENT OF WATER FOR DOMESTIC PURPOSES IN KARNATAKA STATE:

- When Domestic requirement of water is discussed, it is crucial to note the percentage of water unaccounted. The water unaccounted for is the difference between water released by the Water Board and the Water used by all users. The optimum level of unaccounted for water in a well managed urban water utility is around 15-20 percent (Thornton, 2002).

According to 2004, the water requirement for domestic purposes is highest is for Bangalore, Followed by Belgaum, Gulbarga and Mysore Districts. The lowest requirement is for Kodagu district (Table 2).

It is estimated that the population for Karnataka for 2050 will be 59.90 million for rural areas, and 21.08 million for urban areas. Considering the per capita requirement of 150 liters per day for rural and 220 liters per day for urban areas, the drinking water needs are 115.62 TMC for rural and 59.78 TMC for urban population.

Accordingly the total requirement for domestic water needs for urban and rural population I Karnataka in 2050 is 45604 TMC.

Table – 01 DISTRICT-WISE REQUIREMENT OF WATER FOR DOMESTIC PURPOSES IN KARNATAKA STATE (2004)

Districts	Population('000)			Domestic Water Requirement		
	Rural	Urban	Total	Rural	Urban	Total
Belgaum	3321	1053	4374	0741	86219	157284
Bagalkot	1220	498	1718	22302	40807	61767
Bijapur	1469	411	1881	2870	33688	67622
Gulbarga	2367	882	3249	43290	72211	116819
Bidar	1203	358	1561	21996	29334	56127
Raichur	1278	436	1714	23370	35684	61617
Koppal	1035	206	1241	18921	16885	44617
Gadag	655	356	1010	11978	29122	36335
Dharwad	751	917	1667	13728	75090	59956

Uttara Kannada	1004	403	1407	18353	33039	50592
Haveri	1184	311	1495	21654	25455	53753
Bellary	1372	734	2106	25082	60125	75711
Chitradurga	1285	285	1570	23502	23341	56458
Davanagere	1297	564	1861	23717	46179	66906
Shimoga	1112	593	1705	20327	48582	61294
Udupi	939	214	1153	17571	17571	41477
Chikkamangalur	953	231	1184	18937	18937	42584
Tumkur	2155	527	2682	43150	43150	96432
Kolar	1974	649	2623	53195	53195	94335
Bangalore Urban	809	5973	6782	489291	489291	243859
Bangalore Rural	1529	423	1952	34650	34650	70185
Mandya	1538	293	1832	24031	24031	65860
Hassan	1473	317	1790	25952	25952	64350
Dakshina Kannada	1214	757	1972	62036	62036	70895
Kodagu	489	78	57	6406	6406	20386
Mysore	1722	1007	2729	82488	82488	98129
Chamrajnagar	848	848	1002	12622	36048	36048
Karnataka	36194	18630	54824	1526091	1971399	1971399

Source: - Central Water Commission (www.Indiastat.com)

VII. Rural Water Supply: The norm for providing potable drinking water is 55 litres per capita per day (LPCD) with a provision of 3 litres for drinking, 5 litres for cooking, 15 litres for bathing, 10 litres for washing utensils and domestic applications, 10 litres for ablution/toilets and 12 litres for washing cloths and other uses. Habitations with a population of 100 or more will be considered for coverage under the national rural water supply norms. A 'Habitation' is a locality in a village with a cluster of families. Considering the average size of the family as 5 persons, a 'habitation' should include 20 families totaling 100 persons, with the exception in hilly areas, where the habitation can have a population of less than 100 persons. Fully Covered (FC) habitations are those with entire population is provided with drinking water as per norms. Partially Covered habitations are those where supply of drinking water is less than 55 LPCD. Habitations with access to safe drinking water source/point (from public/ private source) of at least 10 LPCD and less than to 55 LPCD, within 1.6 kms in the plains and within 100 meters in hilly areas are characterized as PC. Not Covered (NC) habitations are those where the coverage under safe water from all sources is below 10 LPCD and/or habitations with quality affected at source viz., excess salinity, iron, fluoride, arsenic or other toxic elements or biologically contaminated. Access to safe drinking water and sanitation is indispensable for a healthy life. According to the 2011 census, 3.98 crore persons live in rural areas of Karnataka in 59945 habitations (Projected figures for 2015). Among them, 11.85% (7108) are FC, 84.20% (50472) are PC and 3.95% (2365) are quality affected as on 1st April 2015. As per the National Rural Drinking Water Programme (NRDWP), the concept of FC and PC are modified from conventional LPCD supply to percentage of population covered by water supply schemes. Accordingly, there are 5673 habitations with >0 and <25 population coverage, 18218 habitations with => 25 and <50 population coverage, 15507 habitations with = >50 and < 75 population coverage, 11074 habitations with = >75 and < 100 population coverage, 7108 habitations with 100% of population coverage. 2365 habitations are found to be affected with water quality problems. District wise details are furnished in Table No – 01.

VIII. CONCLUSION: - In the process of evolution and development of life, water has been the most vital component. Water is not only a resource for existence and evolution of life but it has become the most essential element in large number of activities that the man is engaged in.

Due to rapid growth of population, agricultural development, urbanization, industrialization, mismanagement of water use etc., have leads to water scarcity in Karnataka State and it caused several inter-state disputes about sharing river water like Cauvery water dispute between Karnataka, Tamilnadu and Kerala.

Unless water resources are properly used, developed and managed, the state will face acute water crisis in future.

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