



VEDAVATHI RIVER – LIFELINE OF CHITRADURGA DISTRICT, KARNATAKA.

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ABSTRACT:

Throughout human history rivers played a very important role and were considered as the cradles of civilization. Water, essential for various human activities and rivers being natural source of water, attracted people who were nomadic in the primitive stage and made them settle on its bank and its surroundings. That is why rivers are considered the life lines of human civilization. With all advancement in science and technology humans have not yet learned to live without water. As a source of water for agriculture, industries, transportation, hydroelectricity etc., the influence of rivers on increasing population across the globe is in fact increasing day by day. This article is about a river called 'Vedavathi' and its impact in Chitradurga district of Karnataka, India. So this article is intended to study i) To study the pattern of river Vedavathi in Karnataka and Andhra Pradesh, India ii) Analysis the River Vedavathi's impact in Chitradurga District, Karnataka, India.

Key words: Primitive, Human civilization, Industries, Hydroelectricity, Globe.

INTRODUCTION: River research so far mainly focused on perennial and long length rivers and intermittent or tributaries of main Rivers research has a very short history even though they constitute more than half of the length of the world's river network. Their number and length are increasing due to land use alteration and climatic change and at the same time they are facing many threats like disturbances caused by humans and diversion of water in large scale to farming and industrial activities. This study is about such a tributary (of Tungabhadra river) called 'Vedavathi' which flows in Karnataka and Anantapur district of Andhra Pradesh in general and its impact on Chitradurga district in Karnataka particularly.

OBJECTIVES:

The main objective of this paper is to Study

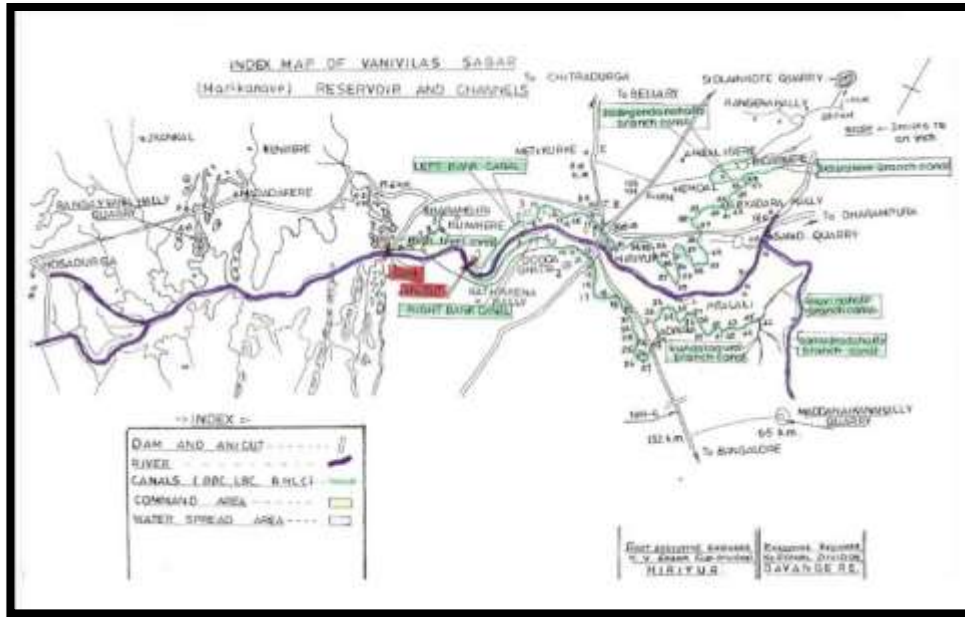
- i) To study the pattern of river Vedavathi in Karnataka and Andhra Pradesh, India
- ii) Analyse the River Vedavathi's impact in Chitradurga District, Karnataka, India.

METHODOLOGY:

This study is based on secondary data. Maps, remote sensing images in particular and literature reviews in general is analysed. The study is focused on Vedavathi river basin and study area is being limited to Chitradurga district in Karnataka, India.

STUDY AREA

INDEX MAP OF THE VANIVILAS SAGARA



Chitradurga, located 200 Kms away to the northwest of state capital Bengaluru is one of the administrative districts of Karnataka state, India. It includes six taluks namely : Chitradurga, Molakalmuru, Holalkere, Hiriya, Challakere and Hosadurga. Total geographical area is 8436 Sq. Kms. lying at 14°00' Northern latitude and 76°50' of Eastern longitude at a mean altitude of 732 meters above sea level. Chitradurga experiences a hot, seasonally dry, tropical Savanna climate, It receives low to moderate rainfall and is one of the drought prone districts in the state. The normal average annual rainfall is 573mm (actual rainfall in 2021 is 514 mm) and average annual temperature 29° C.(2021) The district lies in the valley of the Vedavathi river, tributary of Tungabhadra river flowing in the northwest. The other rivers of the district are Janagahalli, Chikkahagari, Swarnamukhi and Nayakanahallihalla. Soil types of the district comprise deep and shallow black soil, mixed red and black soil, red loamy and sandy soil. Physio graphically, the district comprises undulating plains, interspersed with sporadic ranges of hillocks. Total population of the district is 16,59,456 (2011 Census) projected population for 2021 is 18,18,420. Population of Chitradurga district in 2020/2021 is 17,85,740 (as per aadhaar uidai.gov.in February 2019 data). Agriculture is the main source of income in the district.

River Vedavathi in Karnataka and Andhra Pradesh: Two streams 'Veda' and 'Avathi', both rises in the eastern part of Sahyadri hill range in Bababudangiri in Chikmagalur district flow east and join near 'Pura' to form the Vedavathi river. After flowing through the Kadur taluk of Chikmagalur, the river enters Chitradurga district through Hosadurga Taluk. The Vedavathi river basin spreads across Hosadurga, Hiriyur and Challakere taluks of Chitradurga district. Suvarnamukhi is the major tributary of river vedavathi and it joins the river at Koodalahalli in Hiriyur taluk.

After flowing through Chitradurga district, the river Vedavathi enters Andhra Pradesh's Anantapur district through Challakere taluk. In Andhra Pradesh the river Vedavathi is called 'Hagari'. The Bhairavanithippa medium irrigation project was constructed in 1961 across Hagari (Vedavathi) at Bhairavanithippa Village taking into consideration the yield from the catchment area 14,386 Sq.Kms

located in between Vani Vilas Project and Bhairavanithippa project.

Comparison of vanivilasa project and Bhairavanithippa project

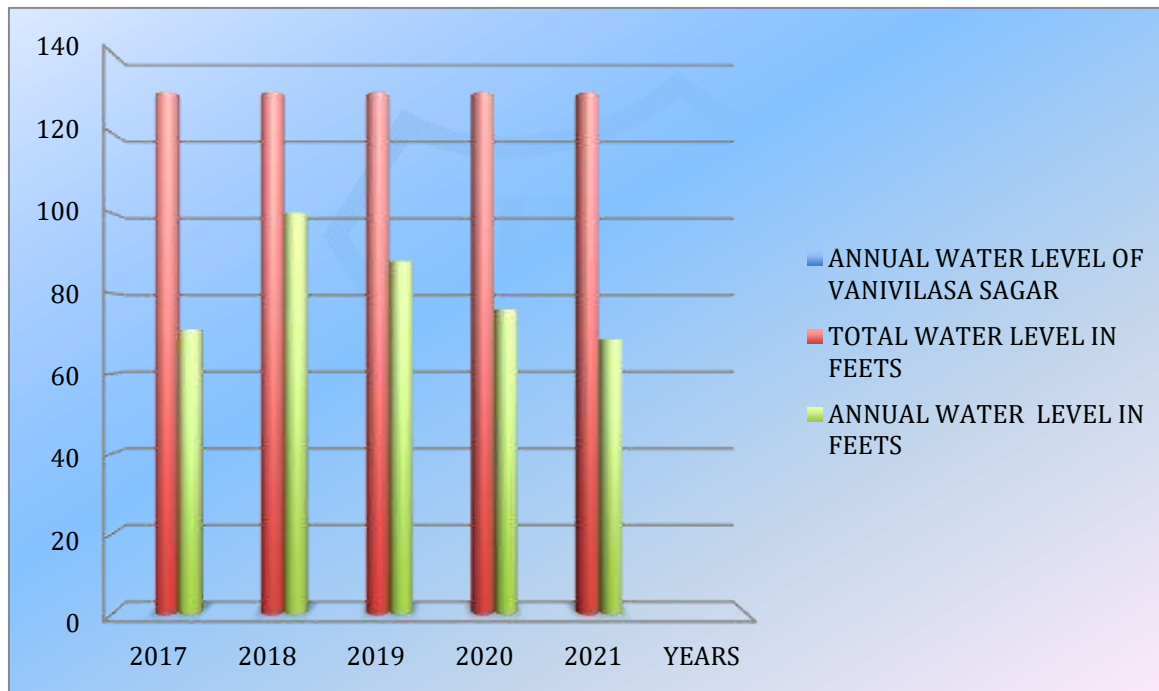
<http://vjnl.in/en/vanivilas-sagar-dam/>, Accessed on 17th June 2021.

Location	Marikanive Village, Hiriyur Taluk, Chitradurga District, Karnataka.	Bhairavanithippa Village, Gummagatta Mandal and Taluk, Anantapur District, Andhra pradesh, India.
Year of Construction	1897 – 1907	1956 – 1961
Length of Dam	1330 ft	2198 Meters
Maximum Height of dam	162 ft (above lowest foundation level) 130 ft (above lowest river bed level)	16.50 M (54 ft)
Gross Storage	30 TMC	2001.05 Mcft (Meters cubic feet)
Live Storage	28.125 TMC	1963.23 Mcft
Catchment Area	5374 Sq.km	14386 Sq.Kms
Intercepted area	3820 Sq.km	5372 Sq.Kms
Free Area	1554 Sq.km	9014 Sq.Kms
Length of Left Bank canal (KK Anicut)	48 Km (39 distributaries)	25 Kms
Length of Right canal (KK Anicut)	46.4 Km (53 distributaries)	13.80 Kms
Main dam canal discharge capacity	55 Cusecs	83 Cusecs
Left bank canal discharge capacity	325 Cusecs	181 Cusecs
Right bank canal discharge capacity	325 Cusecs	83 Cusecs
Total Ayacut area	12135 hectares	12000 Acres (4856 Hectares)
Ayacut under main dam canal	448 hectares	8240 Acres
Ayacut under left bank canal	4793 hectares	8240 Acres
Ayacut under right bank canal	3957 hectares	3760 Acres

After flowing through Anantapur district river Hagari (Vedavathi) enters Bellary district of Karnataka and flows through Bellary and Siruguppa taluk of Bellary district (it is called by name 'Hagari') and finally joins the Tungabhadra river along its right bank at Siddaragonde village in Siruguppa Taluk of Bellary district.

ANNUAL WATER LEVEL OF VANIVILASA SAGARA

YEARS	2017	2018	2019	2020	2021
TOTAL WATER LEVEL IN FEETS	130	130	130	130	130
ANNUAL WATER LEVEL IN FEETS	71	100	88	76	68.5



Above mentioned bar graph shows data of annual water level of Vanivilasa sagar and total water level is 130 feet, recent five years water level decreased drastically, in 2017 it has 71 feet, above bar graph shows second lowest water level in Vanivilasa sagar. In 2018 it has 100 feet, this is a highest water level of last five years. In 2019 it has 88 feet. In 2020 it has 76 feet, in 2021 it has 68.5 feet, it has lowest water level in Vanivilas sagar dam. This bar graph clearly shows that water level of Vanivilas sagar gradually decreased in last 5 years.

River Vedavathi impact on Chitradurga district, Karnataka: River Vedavathi enters Chitradurga district through Hosadurga taluk. Vedavathi flows through Hosadurga, Hiriyr and Challakere taluks of Chitradurga. It is a steady and seasonal river but has a huge impact on Chitradurga district due to Vani Vilasa Sagara or popularly known as 'Mari Kanive' - a dam built across Vedavathi river. It is located in Hiriyr taluk and known to be the first dam built by Sir M. Vishweshvaraiah and the oldest dam in Karnataka. The main purpose of this dam is to provide irrigation facilities to the drought prone areas of Chitradurga district. This project consists of a non overflow dam of 142 ft height built above the lowest river bed between hill abutments for a length of 1330 ft. The surplus water is discharged to the waste-weir located at 2.4 Km to north of the dam by intersecting the saddle. The length of the weir is 468 ft and designed to hold the flood discharge of 35,000 Cusecs of water under a spillage

depth of 6 ft. Vani Vilas project provides irrigation to 25,000 acres. The irrigation facility from this project flows from three canals.

i) One high level canal is taking off from the main dam on the left bank runs for 9.40 kms and has 23 distributaries with the capacity of discharging 55 Cusecs of water to around 448 hectares of agricultural land in Hiriyur and Chitradurga taluks.

ii) Left bank canal (LBC) drawing water from Kathrikeyanahalli Anicut (KK Anicut) constructed 8 Kms below the main dam. LBC is 48 Kms long with 39 distributaries and capacity of distributing 325 Cusecs water. This canal irrigates 4793 hectares of land in Hiriyur and Chitradurga taluks.

iii) Right bank canal (RBC) also draws water from Kathrikeyanahalli Anicut (KK Anicut) and has a length of 46.4 Kms with 53 distributaries with the discharging capacity of 325 cusecs water. It serves 3957 hectares of land in Hiriyur and Chitradurga taluks.

Bidarakere and Jadegondanahalli branch canals run from LBC, Hoovinahole, Samudradahalli and Kundalagura branch canals run from RBC are the branch canals and their total length is 22.6 Kms irrigates 2937 hectares of land in Hiriyur and Chitradurga taluks.

Vani Vilasa Sagara dam is also the source of domestic water in Chitradurga district.

River Vedavathi, Particularly Vani Vilas Sagar dam built across it is a boon to Chitradurga district which is otherwise would have been a complete dry land. River vedavathi is a steady and seasonal river which nurtured thousands of lives until a few years ago. But the pockets of the river slowly started disappearing and remained dry in summer due to erratic rainfall distribution in its origin and catchment areas and over exploitation of water resources. The state government decided to rejuvenate the river with the plan including construction of water harvesting structures like percolation wells, injection wells and ponds. Along with the Karnataka state government, The Art of Living (AOL), Bangalore under its 'River Rejuvenate projects' initiated to rejuvenate the Vedavathi river under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) with the support of local communities, district administration and the Rural Development and panchayati Raj (RDPR) department. Study conducted by AOL research team has shown that the cause of a river drying up is not erratic rainfall or failed monsoons, but mismanagement and unchecked over usage of water for a long period of time. AOL started river rejuvenation work in 2013-14 with the implementation of a watershed management programme which included afforestation, sustainable farming methods and its practice, and groundwater recharge. So far River rejuvenation by AOL included two phases and it is highlighted in the following table.

Vedavathi river rejuvenation by AOL:

Phase – 1	Phase - 2
<ul style="list-style-type: none"> ● Rs 6.17 crores sanctioned under MGNREGA for a comprehensive watershed management. ● Rs. 1.5 crore sanctioned by the forest department to increase green cover. ● 810 recharge structures (boulder checks, recharge wells and water ponds) undertaken. ● Recharge structure is spread over 49 villages under 10 Grama Panchayats. ● Over 2000 people provided employment under MGNREGA. ● Over 377 Sq. km covered. 	<ul style="list-style-type: none"> ● 188 crores sanctioned under MGNREGA. ● 835 structures completed till date and 619 under progress. ● 19,474 more structures to be built. ● 1,06,795 man-days of work to be generated. ● 3000 trees to be planted.

Conclusion : River conservation is crucial, as they are a very important complex ecosystem. Many issues disturb the volume and flow of rivers, especially of small and steady ones. But as they contain more than half of the length of the total river system of the earth surface and rivers cannot save themselves and they cannot be created artificially it is each human being's moral responsibility in protecting, conserving and rejuvenating the rivers for his own existence.

The River Vedavathi flows with sufficient water value only during the rainy season (june - september) is however affected by its catchment area as most its falls under drought prone areas. Topography of Vedavathi river basin has undergone changes over years. Depletion of forest in its origin place is also one of the reasons for the drying up of river during summer. Rejuvenation or reviving the Vedavathi is not a small or one time task. Te dependency on Vanivilas sagar project of River Vedavathi is increasing day by day due to poor rainfall resulting in drought situation and depletion of groundwater. Vishveshwaraya Jala Nigam Limited (VJNL) is Responsible for the proper and efficient implementation of the

Vannivilas Sagar Project. It is VJNL,s vision to meet the water needs of drought prone areas through efficient, technological and manageable systems. ‘Art of Living’ foundation’s programme of rejuvenating river Vedavathi along with government cooperation and involvement of local people of river basin are in the process of bringing life to the river Vedavathi. When it sis rejuvenated to its full volume and supply of Two TMC water to Vanivilas Sagar as part of Upper Bhadra Project results in Vanivilas Sagar Project in Karnataka Bhairavanithippa medium irrigation project in Andhara Pradesh across the river to serve to its full potential

Demerits:

- i. Construction of the dam across the seasonal river like Vedavathi and maintaining the water level throughout the year is a very difficult and challenging task for the administration.
- ii. Even though river Vedavathi’s source lies in a high rainfall region of western ghats, major part of its journey and catchment areas lies in drought prone areas of central Karnataka. Due to this dam never reached its full

capacity (130 ft) and crossed 100 ft mark in 1911,2010 and 2018 (Source: 7th September 2020. Indian Express)

- iii. Silt accumulation has effected the storage capacity of the dam.
- iv. Supply Two TMC water to Vanivilas Sagar has been proposed as part of Upper Bhadra Project Phase-1 (Source : Govt,Order No: WRD 53 VBE 2014,Banglore Date: 06-03-2015), it looks five long years for execution.(The water will flow to the river near the Kukke Samudra tank of Kadur Taluk from the Upper Bhadra project pump house and then it will be natural course thought the Vedavathi river)

Suggestion:

1. Construction of new barrages and check dams should be avoided and removal of silt from the dam has to be done regularly or whenever it is required.
2. Educating and involving the public in restoring and reviving rivers.
3. Keeping catchment areas pollution free helps in easy flow of quality and quantity rain water to the river.
4. Proper implementation of watershed management programme which includes groundwater recharge, sustainable farming methods and afforestation

References:

https://en.wikipedia.org/wiki/List_of_rivers_of_India accessed on 8th June 2021.

Thibault Datry, Scott T. Larned, Klement Tockner, 'Intermittent Rivers: A challenge for Freshwater Ecology', BioScience, Volume 64, Issue 3, P. No. 229-235, March 2014.

<https://chitradurga.nic.in/en/about-district/> accessed on 11th June 2021.

Ground water information booklet, Chitradurga district, Karnataka state, Government of India, Ministry of water resources, Central ground water board, 2013

https://en.wikipedia.org/wiki/Intermittent_river, Accessed on 11th June 2021.

https://en.wikipedia.org/wiki/Vedavathi_River, Accessed on 16th June 2021.

http://waterresources.kar.nic.in/salient_features_vv_sagar.htm, Accessed on 16th June 2021.

<https://www.krmb.gov.in/krmb/projects>, Accessed on 16th June 2021.

<http://vjnl.in/en/vanivilas-sagar-dam/>, Accessed on 17th June 2021.

<https://www.artofliving.org/in-en/projects/environmental-sustainability/water-conservation/water-table-rejuvenation>, Accessed on 18th June 2021.