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RIVER INTERLINKING (BY CANAL AND TUNNELS)

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Abstract *Water is an essential element of economic development in any region. In recent years, Maharashtra Province (India) has been plagued by regional instability due to spatial and temporal variability in rainfall and lack of efficient use of the slope of the western part of the Sahyadri slope, which receives excess rainfall and adds to it. destructive in the Arabian Sea. Par River (2000 to 3000 mm Avg. Annual Rain) originates from the Kame hills in the Sahyadri species. The river flows west towards Gujarat State (India) and adds to the wastewater of the Arabian Sea. The Par river valley faces summer water shortages as opposed to overflowing rains during the rainy season. Endless Topography limits local irrigation. In contrast, the eastern part of the Sahyadri (river valley of Girna) is an area of low rainfall (1500-2000 mm Avg. Annual Rain). Therefore, this region is constantly experiencing water shortages. Water circulation is possible at two levels for sustainable development in any region. In the intrabasin cycle of flowing water, circulation can take place within the vessel itself (Punad Project). Though the water flows between the vessels; rotation is possible from one container to another. An effort has been made on paper to research and promote the efficient use of water in the study area which is possible by circulating water from Par to Girna.*

Key Words: *Water Disposal, Irrigation, Agricultural Development, Industrial Sector, Sustainable Development, Inter-Basin Circulation and Water Transfers*.

1. INTRODUCTION

The Nashik River Linking Project is a new solution to the chronic problem of unequal water supply in the region. The paradox of floods in some parts of the country and the drought in parts of the region were the beginning of a project to connect the river. This work has provided a lasting solution to the problem of water scarcity in several parts of the region. This work has brought great benefits to all stakeholders in the urban and rural areas of the region, increasing the availability of drinking water especially in the summer and in the agricultural community and increasing agricultural land. This work has brought in many government agencies / stakeholders District Management, the Department of Irrigation, Municipal Structures and elected representatives in one place to make the project a success. In addition, the participatory approach to pregnancy planning ensured that local communities played a key role in making the project a success. The local community has provided free staff to do this work. Several landowners sacrificed part of their property to start the project. The subdivision of unproductive land makes the remaining plots of land productive due to the water being made available for irrigation. The uniformity of purpose resulted in the project being spent on recorded time and with limited funding from Government. The success of the project has led the Maharashtra District Government to encourage District Managers to consider whether it is possible to replicate this model in their areas. The Department of Administrative Services, Government of India has identified this project as a good governance initiative. The project also received the Premier's Award for Excellence in Public Administration. This Note Project aims to disseminate project background and information to make this project a success.

2. PURPOSE:

Divert water from residual water to dry and desert areas in the region. Increasing the efficiency of various water storage facilities. Provide appropriate construction techniques for canal and tunnel. And also par, nar , and girana basin water transfer to Godavari basin.

3. METHODOLOGY

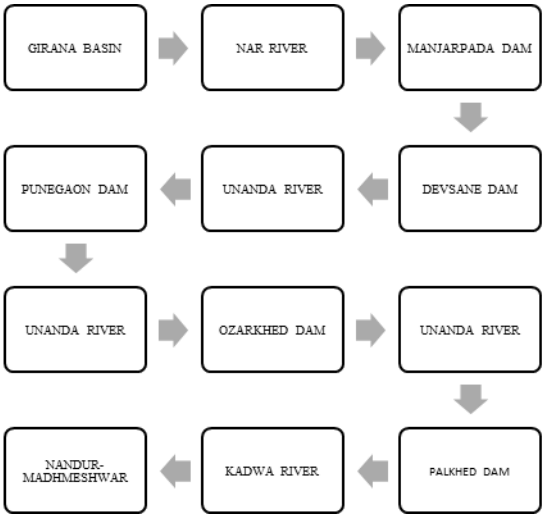
A detailed field level survey (conducted by the irrigation department) to investigate water shortages and to evaluate the effectiveness of the groundwater recharge structure. Identification and evaluation of existing infrastructure to minimize the construction of new canals. An understanding of the regional circulation understanding that can be used to divert water.

The tunnel and the canal construction method depends on the geographical specifications and geology accordingly, depending on which construction method is used. providing grouting and line to provide tunnel & trench.

This study is based on secondary data. The description of the Nashik region is attempted to mark the watershed of the river Par, Nar & Girana With the help of the following software processes such as Scanning, Georefrencing, Mosaic,

Re projection of the toposheet and creating various layers have been created. Aspect map editing, slope map, DEM (Digital Height Model) and various layers such as rivers, village area.

Tunnel system: Flow chart



4.DISCUSSION

4.1 Manjarpada Tunnel Program - Irrigation in Nasik District

A) Place of Study:

Nashik is the third largest district in Maharashtra with a total area of 15530 sq. Km. km. According to geograpy, the region includes part of the Deccan Platau, one of the oldest blocks on the

surface of the earth. A region can be broadly divided into three geographical regions, namely a) downghat konkan tract; b) the Girna pit and c) the Godavari basin.

Girna-Mosam Basin is one of the most important river basins in the Nashik region of Maharashtra and is rich in agriculture and land use. The Girna River is the main tributary of the Tapti River, and the Mosam River is the tributary of the Girnas. Population growth is one of the key factors in changing land use and is a major threat to the lowlands. The population of the Girna-Mosam area makes up 37.54 percent of the Nashik region. The average population density is 280 people per square mile. The Basin has a total area of 5829.43 square km. Between 20 ° 15 '43 "to 20 ° 53'07" latitude north and 73 ° 40'12 "to 74 ° 56'22" east length. This container can be wider

divided into four tehsils namely, Malegaon, Nandgaon, Satan, Kalwan and Deola.

B) Data Background and Method:

This study is based on secondary data. The description of the Nashik region is attempted by

marking the wetlands of the Par and Girna rivers where 46 H / 11, 46H / 15 Indian weather maps published by the Survey of India (S.O.I) were used. Digital insertion of paper sheet No.46H / 11 and 46H / 15 (1: 50,000) was made. With the help of the following software popular processes such as Scanner, Georefrencing, Mosaic, Toposheet Opposition and create various layers are created. Aspect map editing, slope map, DEM (Digital Height Model) and various layers such as rivers, village area.

C) Manjarpada: - Proposed Model Project: -

The Par rivers valley is experiencing a summer water shortage, in contrast to heavy rains during the rainy season. Consistent physiography limits local irrigation processes. During the rainy season due to good rains, Kharif plants do not need water and during Rabbi & Non-rain, due to lack of water storage, water is not made available. Using this wasteful tap water for irrigation and drinking water, the need to build a dam near Manjarpada, Tal. Surgana (Nashik) has been made since ancient times. Participating in this project is a hilly plateau with a cover of 14.75 km2 (5.76 miles2). The water holding capacity of 50% is approximately 845 million cubic meters (MCM). The length of this clay dam is 2070 mt and a maximum of 56 mt. Its total volume of strorage is 570 mcft, of which 26 are C. Inter Basin Circulation

In this project rivers flowing west (Nar-Par) will be diverted east to Godavari valley.

The planning commission has given the private sector authority over the project research; seven dams are proposed to be built under this project, which will be connected to each other by tunnels and pipelines. 89.12 million cubic meter. water (M.C.M) It is proposed that it be raised and stored at Godavari Basin.

D) Inter Basin Circulation

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E) Intra Basin Circulation

From the 7 proposed dams to be built in Par Uplift Project No. This extra water will regenerate the previously irrigated

area that was under water crisis. The rest of the additional arable land can be placed under irrigation with the right and left canals of the Girna River.The rationale for the Manjarpada project:

In this project the water of the Par river from the Kame hills of Sahyadri will be bound at the bottom of the mountain at an altitude of 700 meters above sea level (MSL). At 690.50 mt the height from the MSL near the Haladbarda valley is diverted to the Girna valley by a tunnel. After meeting the Surgana and Dindori Tahsils irrigation requirements the remaining water can be diverted to a 11.50 km tunnel. Girna.

F) Water Use:

Planning for full utilization of available water in the project area is underway. Available 845

Water economy MCM 78 MCM water will be available in Par basin. 5 weirs will be built from the bottom of the river and water will be distributed through private lift Irrigation systems. Of the remaining 291 MCM water, during the rainy season the 11.50 km long tunnel, will be excavated in the upper part of the Chankapur dam on the river Girna. 114 MCM of the Right Canal of Chankapur included under the Punad project will irrigate the first 2445 ha kharif arable land. The remaining 57 MCM water near the Left Girna canal will be raised by 10 to 50 mt and small irrigation canals in Dundhe and Ajang will be filled with 50% of their capacity. These walls are always dry due to lack of rain. One small irrigation project for each Kalwan & Baglan tehsil is proposed. The 120 Million Cubic Feet (MCF) for the Kharif,

season will be extracted from the Girana River and used by Baglan & Kalwan tehsil in accordance with environmental law. Of the 544 MCF living water stored at the Manjarpada dam, 78 mcft water will be available from Dindori & Surgana talukas, the remaining 454 mcft through a tunnel will be found at the Chankapur dam (Girna container). With this project covered during the Kharif & Rabbi period a total of 9,233 ha will be irrigated in the Nashik region.

G) Formation of tunnel

The water stored at the Mahjarpada dam will be pumped to the Chankapur dam by a 11.50 mt length of tunnel, the flow rate of the tunnel is considered to be the overflow and diverted water during the Kharif season. During the Kharif season 291 mcft water will be diverted which is considered a 40-day flow. However, the volume of the tunnel is proposed to be 20 days. The first basic level of the tunnel is proposed to be 702 mt and the final base level to be 690.50

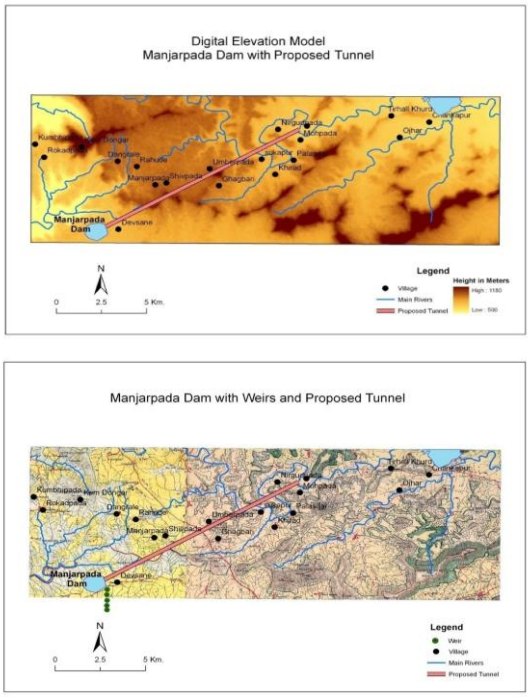


Fig no.1 connection of canal

5. Canal Irrigation System

An aqueduct ditch built to carry water to the fields for irrigation. Water is taken from a river, tank or reservoirs. Trenches can be constructed using concrete, stone, brick or any other flexible membrane that solves rigid problems such as water flow and erosion. The distribution system in the irrigation system, the arrangement of the trenches, curves and specific aspects of the irrigation canal are briefly described in this article. Any irrigation scheme i.e. direct irrigation using weir or barrage and irrigation system such as dams or pond, both require a network of irrigation canals of various sizes and capabilities. The canal system therefore includes:

1. Great ditch,

2. Branch Canal

3. Distributors or major distributors

4. Distributors small or small,

5. Drainage ditches

SR. NO.	DESCRIPTION		DETAILS	
A)	**Location**			
1	Name of the Scheme	:	Nanashi Diversion Scheme,Tal. Dindori Dist. Nashik	
2	Toposheet No	:	46 H /11	
3	Name of the River	:	West Flowing Local Nallas	
4	Tributary of River	:	Nar-Par	
5	Scheme falls in	:	Tribal Area	
6	Name of the project in which the water is to be diverted	:	karanjawan Dam (Godawari Basin)	
B)	**Hydrology**			
1	Catchment Area	:	1	Sq.Km.
2	Yield At Damsite	:	1557.60	T.C.M.
	i.e.	:	55.00	Mcft.
	Worked out by	:	Water Availability Certificate by C.E. Hydrology Projects, Nashik.	
3	Silt	:	8.73	T.C.M.
	i.e.	:	0.299	Mcft.
4	Proposed Utilization of water	:	1557.60	T.C.M.
	i.e.	:	55.00	Mcft.
5	Local Storage	:	555.36	T.C.M.
	i.e.	:	19.61	Mcft.
6	Water available for diversion	:	1002.24	T.C.M.
	i.e.	:	35.39	Mcft.
7	Details of Utilisation of water			
a	Water to be Diverted to Godawari Basin	:	1002.24	T.C.M.
	i.e.	:	35.39	Mcft.
b	Water Stored in Dam for Local use	:	555.36	T.C.M.
	i.e.	:	19.61	Mcft.
C)	**Land Acquisition**			
1	Total Private Land to be Acquired	:	23.062	Ha
2	Saral Kharedi Rate of Rs 1699000/Ha Sanctioned for Land	:	20.112	Ha
3	Additional Proposal being pepared for Land	:	2.95	Ha
4	Forest Land to be Acquired	:	3.48	Ha
	Out of 20 Private Guts, 2 Guts have been purchased ... Area = 5.59Ha. Remaininig guts could not be purchased because of the internal boundary clashes between individual Land owners.			
D)	**Irrigation (Local Use)**	:	57	Ha (ICA) (GCA 74 Ha)

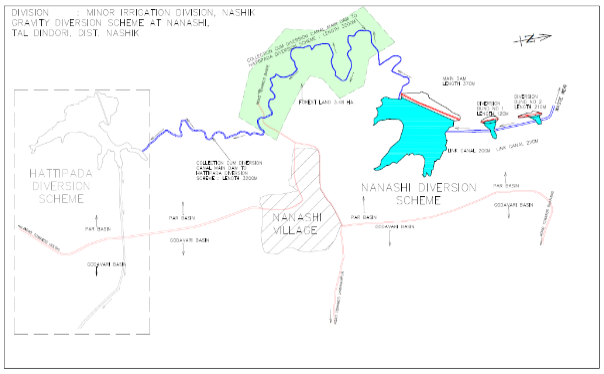


Fig no.2 layout of nanashi project

5.1 Program Canal Diversion Scheme, Nanashi, Tal. Dindori, Dist. The Nashik project is located on the west bank of the river.

According to a water supply certificate issued by the Hydrology Project, Nashik and the standard approved system, 370 meters. Area consumption of 19.61 liters of water on 54.99 liters of water is available on 1 sq. M. Drainage by a large 17-foot-long [17 m] clay dam with a capacity of 19.61 gallons and two small dams.

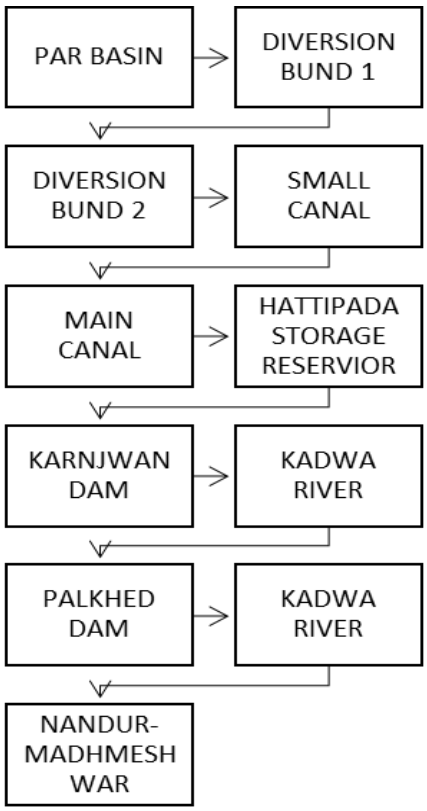
in line with the general framework of the program, the program includes the following components.

In the Nanashi region water is collected from the nalas and a small river and diverted to aid in a strange area, through a small canal that collects water and meets in a large canal to a water reservoi.

Table no.1

1.	Main earthenware	Length 370 m
2.	Turn dams No. 1 and 2	Length 120 m and 210 m
3.	Couples 1 and 2	Length 200 m and 220 m
4.	Canal diversion canal from main earthen dam to Hattipada dam	Length 3200 m

Canal irrigation system: Flow Chart



6.Benefits of the Project:

1. Diverted water of the Par river in the valley of Girna will increase its water level. Because of this water most of land will be irrigated.

2. The irrigated area due to the left and right Girna Canals will be replaced. With main canal

3. It will supply water to the canals of Girna Right and the Rabbi season. Will revitalize small Dundhe and Ajang irrigation project in Malegaon Tehsil also dindori and Yeola.

4. During the Kharif season, the floodwaters from the Girna canal, at a height of 10 to 25 mt, can be restored. For irrigation in dry session will be reusing.

5. Implementing those small canal projects and Kolhapur (KT Weirs) projects are not possible due to water shortages.

6. Under the Punad project, Chankapur Chankapur Right canals water can be supplied to Kharif plants. Also pune gov dam and ozarkhed dam capacity will be increasing.

7. Conclusion

Coordinating river projects is a major challenge and an opportunity to address water-related problems that cause droughts, floods, climate change and more. The long-term strategy for water scarcity lies in meeting the challenges of rivers by building a network of dams, lakes, wetlands, hydroelectric power plants and canals in all regions of the country. Linking rivers has many benefits. But this should be the last resort. India gets a lot of rain, but most of this rainwater falls into the water. If we take all this rainwater, India will not face water shortages in the years to come.

However, river connection is a really good solution to water scarcity, but the connection should be done after careful research and detailed research so as not to create problems for the environment or aquatic life.

So it may be a good idea to focus on local resources and consider other options available. Although the project is an excellent opportunity for our nation to succeed and solve many of our current problems, it is somehow an invitation to many others. Therefore, even if this project is important, in the current context and financial situation of the nation, it is not appropriate to continue with it.

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