



River Linking Project for Water Divergence and Drought Management

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Abstract:

River Linking is a project of linking two or more rivers by creating a network of manually created reservoirs and canals, and providing land areas that otherwise does not have river water access and reducing the flow of water to sea using this means. The river linking is an ideal solution for the water scarcity problem where there is inadequate water supply and surface source are insufficient. The population is increasing at a drastic rate and demand of water for domestic, agricultural and industrial uses is also increasing. The present study aims to assess the existing river linking schemes and potential site for linking and drought management.

Keywords: River Linking, Drought Management

Introduction

The drought is natural and man induced condition, it leads to decrease the agricultural production and its direct impact on the social and economical status of the population. The rainfall is main and fundamental source of the water for all purposes. The agriculture on the Sangli district is based on surface water, groundwater and rainfall. The source of surface and groundwater is controlled by the rainfall. In the Sangli district the distribution of rainfall decrease from west to east and Jat, Kavthe Mahankal, Atpadi, Tasgaon and eastern part of Miraj tahsil getting low rainfall and it's having the water scarcity for agriculture as well as drinking purpose. The agricultural practice in Sangli districts are based on rainfall, lift irrigation and storage water in the Koyna dam. The area of Krishna and Koyna River getting heavy rainfall during the monsoon season and surface runoff is high in the month of June to September.

River Linking is a project of linking two or more rivers by creating a network of manually created reservoirs and canals, and providing land areas that otherwise does not have river water access and reducing the flow of water to sea

using this means. It is based on the assumptions that surplus water in some rivers can be diverted to Deficit Rivers by creating a network of canals to interconnect the rivers

Existing Lift Irrigation Schemes for Water Divergence

1 Tembhu Lift Irrigation Project

Tembhu Lift irrigation Scheme has been implemented to irrigate the drought prone area from RL 650 m to 855 m i.e. above the command area of Takari Lift Irrigation Scheme. The project is administratively approved in 1996 for Rs. 1416.59 Crores. The scheme envisages lifting of 22 TMC water from Krishna river to Irrigate 80472 Ha. of lands from, Karad, Kadegaon, Tasgaon, Khanapur, Atpadi, Kavathe Mahankal, Sangola Talukas of Satara, Sangli & Solapur Districts. The water requirement is met with from Koyna, Wang and Tarali storage dams. The scheme consists of constructing Barrage across Krishna river at village Tembhu, Tal. Karad, Dist. Satara & Pump House sat various stages Rising main, Tunnels & canal, distributory network and the water is lifted in five stages at different location.

2 Takari Lift irrigation scheme

Takari Lift irrigation scheme is a section of Krishna Koyna lift irrigation project. The Takari section has proposed to provide irrigation to 27630 Ha. of land in 67 villages in above five tahsils in the district Sangli. The region consist of plain is situated along with the Yerala and Nandini enclosed with east and west contoured from 580 mts to 640 mts of height is best and suitable for easy irrigation. The areas intersperse over the western slope of the water divider of Yerala and Agrani in tahsils Tasgaon is plain sloped from east to west. Although the area under Takari Lift irrigation scheme comprised 67 villages that the actual irrigation facilities provided to only 24 villages in the region under study.

The Takari Lift irrigation scheme starts at villege satpewadi near Takari village. Pump house first is constructed on left bank of the river Krishna. About 16 pump sets of 2000 H.P. each have been set up to lift water and provide to second stage, where the again 16 pump sets of 2000 H.P. each has installed to provide water to the already constructed canal at south of Sagreshwar Sanctuary in village devarashtre in Kadegaon tahsil. The Stage 3rd is introduced and lifts water from Takari main canal at km. 6. It delivers water to chinchani ambak feder canal. The stage 3rd has 4 pumps of 1250 H.p.each. This stage provides water enclosed 1 and and also to the Sonsal K.T. Wair. The stage 4th starts from Sonsal K.T. Wair, Installed 3 pumps and provides water to sump well constructed on north western side of Sonsal village from which only Shirasgaon and Sonsal has benefited.

The irrigation has started from 2000-2001 and provides water to 24 villages under above three canals. In 24 beneficiaries' villages, 10552 Ha of the land would have to be irrigated but out of which only 4791.34 has created potential and 2357 Ha of land has been actually irrigated in the year 2006-07 for rabbi and hot weather season.

It represents that out of 24 villages 10 villages have received below 20 percent of irrigation land out of the proposed irrigated area viz. Kumbhargaon, Chinchani, wangi, Ambak, Padali, Sonsal, Shirasgaon, Shivani, Hanmantvadiye, Bhalawani and Shirgaon etc. The eight villages comprised in the category of 20 to 40 percent area and the category of 40 to

60 percent area has included in two villages viz. Asad and Kadepur. Above 80 percent of the area actual irrigated from proposed, comprised both villages viz. Devarashtre and Tupewadi. The under utilization of the proposed irrigated potential has been most marked in respect of the major project such as, in Takari scheme, The average actual irrigated land out of proposed area in actual benefited villages is about only 22.34%. This is very low as it is considered against the cost of construction. Lift irrigation requires huge amount of capital to transport the water due to which energy consumption is main aspect as it is compared to the flow irrigation project.

The Takari lift irrigation project has proposed 45 percent of the irrigation efficiency. This proportion of efficiency is not correlates the costly water from lift scheme and irrigated area proposed. The scheme lifts water through four stages, due to which the costly water has need to be taken. This costly water would have to be conveying within the lined canal and distributaries system. But the unlined canal and distributaries not only increases the problem of salinity but decreases the area under irrigation and increases the electric bill unavoidable per unit of area in the region under study.

3 Mhaisal Lift Irrigation scheme

The water is proposed to be lifted at Mhaisal for this scheme. The intake is located just upstream of Mhaisal KT weir to take advantage of the storage behind the existing KT weir. Expected rock is seen on left bank of Krishna river. The intake is fixed about 300 m upstream of KT weir to minimize the silt problem. Geology of the intake site is lava flows Deccan trap, basaltic and geru layers covered by soil. At the river banks rocks are covered by boulders sand silt and alluvium. Mhaisal lift irrigation project proposed for Sangli and Solapur district for irrigation. Central Water Commission, New Delhi recommended Krishna Koyana lift irrigation (Takari and Mhaisal) in 1989 and granted permission to lift 24.85 TMC water from Krishna river. After first approval adding sixth stage of Mhaisal permission was extended up to 25.937 TMC to lift water from Krishna river. In kharif season 6.216 TMC water will be available between 1st July to 30th September from run-off of Krishna and in fair weather and hot season 19.721 TMC from

Koyana and Warana reservoirs. Total cost of the Takari and Mhasial project in 1984 was Rs 82.83 and per hectare cost is Rs 1.85 lakh with 1.55 cost benefit ratio. But due to delay in work present cost of project is Rs. 3042.48 crore.

Command area of Mhaisal lift irrigation scheme is distributed in Sangli and Solapur district. Total command area of the present scheme is 82922 ha in Sangli and Solapur district. In Sangli district Miraj (33540), Kavathemahankal (13964), Jath (22888) and Tasgaon (2380) tahsils agricultural land comes under the command area.

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The excess water from the Krishna river basin is transferred as intra-basin water transfer for the irrigation purpose. The lift irrigation scheme on Krishna River is based on the electric pumps and these are not cost effective. As per the geographical and topographical feature for Tembhu, Takari and Mhaisahl scheme the natural flow of water is not possible. These three schemes are planned for transfer the available water and facilitate the water for irrigation purpose in the drought prone area of Sangli district. The command area of Tembhu Scheme is 80472 Ha, Takari scheme 27630 Ha and the Mhaisahl scheme is 82922 ha.

Conclusions

River linkage project in Sangli district are three namely Tembhu, Takari and Maishal. The Takari, Maishal, and Tembhu link project are partly completed and water transfer at eastern part of study region. But project cost at planning year is low but delay in the work project cost is increased by more than 500 percent. Out of these all project cost per hectare is more than Rs. 2 lakh so need to utilize natural gravity for river linkage. So using this three schemes command area is the command area of Tembhu Scheme is 80472 Ha, Takari scheme 27630 Ha and the Mhaisahl scheme is 82922 ha is increased for the agriculture.

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