

Sub basin water transfer studies in upper Krishna river basin

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ABSTRACT : In India, the Central Water Commission has classified upper Krishna river basins as Upper Krishna (NW) 15A, Upper Krishna (East Yerala) 16A, Upper Krishna East Agrani (16B), and remaining Bhima (downstream of Ujani including Man (18B)). This area is flood prone and necessitates proper water management. In these river basins, as a remedial measure, it is proposed to divert abundant water from river sub-basin 15A to Sub-basin 18B by gravity (diverting water from upper river Krishna to sub-basin of Man to Jath, Atpadi, Talukas of Sangli district and Sangola taluka of Solapur district.) through tunnels. This would be useful in contributing to minimize flood in Krishna basin and also utilization of extra water. It is proposed to divert water to feed existing water resources and small storages in Man sub-basin. This study was carried out by remote sensing and GIS techniques. Using ERDAS, ARC-INFO and Landsat7 imagery a detail topographical studies are carried out along with field survey. It helps to get actual ground levels, high flood levels and topography features to locate inlet and outlet. Satellite imagery substantiated to calculate areas under benefits and economic aspect of the proposal.

Key words : Sub basin, Remote sensing, GIS

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INTRODUCTION

To maintain quality of life and a steady state of economic growth, it would not be proper to consider problems of floods, drought, urban and rural drinking water needs, irrigation and industrial developments, power supply and pollution control compartmentally. All these problems have to be addressed in an integrated manner for the entire river basin or sub-basin. Sub-basin wise planning is to be accomplished to achieve optimum development of water resources and to realise sustainably beneficial management (Maharashtra Water and Irrigation Commission's Report, 1996. Both these subjects are quite involved, exhaustive and multidisciplinary. Moreover, there is diversity among the sub-basins in respect of factors such as geographical disposition, climate, rainfall, types of

soil, ways of land holding, population, per capita water availability, history of irrigation, current status of irrigation development, unutilised irrigation potential, cropping patterns and agricultural productivity, means of transport, industry and commerce. The planning of respective sub-basins should reflect this diversity. Therefore, planning of water of all sub-basins is not going to be of the same pattern or similar (Kale, 2003).

Water availability and its utilisation can only be assessed within the limits of a basin or sub-basin. Several sub-basins encompass extensive drought-prone areas. Large scale water conservation works will be required to be undertaken to reduce the degree of drought-proneness.

The present study about water use rights focuses Man sub basin,(18B) which is categorised by the Central Water Commission as highly deficit. In the months of June and July every year due to heavy rainfalls in Sahyadri ranges, Krishna river flows with abundant water and flood passes through Sangli District but at same time Yerala, Agrani and Man which are tributaries of Krishna remain totally dry.

Flood situation occurs in Palus, Walva, Shirala, and Miraj Talukas on the banks of Krishna. At the same time water supply

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