RAIN FALL-RUNOFF HARVESTING TOWARDS WATER RESOURCE SUSTAINABILITY AND ECOLOGICAL REGENERATION : REMOTE SENSING BASED STUDY FROM TRIBAL REGION OF WESTERN INDIA.

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ABSTRACT

Pursuant to growing environmental awareness and concern for depleting water resources the need and demand for improved environmental technologies like rainwater /rainfall-runoff water harvesting is re-emerging all over the globe. The age old traditions and structures for rainwater harvesting in some of the water scarce regions of Asia have fallen into disuse and are attracting renewed attention

In India ,as the deleterious effects of ground water depletion and pollution and its consequences are surfacing out a variety of responses are being forged to mitigate or even reverse these . One such response gaining popularity in India is revival of traditional wisdom of Rainwater Harvesting. Despite large number of dams and reservoir in India 1150Km^3 of its rainwater precipitation still run off to the seas annually in the form of untapped and rejected recharge. If a fraction of this can be stored underground in an appropriate reservoir / storage system groundwater availability could be enhanced significantly and may provide great succor to poor inhabitants of semiarid and arid regions of India which are highly water scarce region and where water table is sinking comparatively at much faster rate (10-40 cm/year).

The present study has been carried out in tribal region of Dungarpur district of Rajasthan to identify and delineate zones for developing suitable water harvesting structures through the information derived from the Remote Sensing data products .
The objective of the present work has been to enhance the water availability in the region through needed scientific and technical input. .Thus exercise involved was to identify delineate and develop such structures which may help in increasing the surface residence time of the rainfall-runoff component as well as may recharge the ground water by efficient and cost effective means so that there is enhanced and sustainable availability of the water resources to the poor people. The sustainability of the water resources may not only promote sustainable livelihood through increased productivity but may also lead to ecological regeneration in the ridge –valley landscape

The Remote Sensing data IRS -IC ,LISS-III FCC of Band 2,3,and 4 and the paper print P/R 28/51 were used for the purpose . The interpretation was also supported by ancillary data such as Survey of India Toposheets Rainfall and climatology data of the study area along with the Ground Truth information.

The Remote sensing data product was visually interpreted to generate various thematic maps such as Drainage map; Structural Map, Lithological map;Geomorphological Map;Land use and Land cover map;

Ground water potential zone was delineated and number of sites for waterharvesting structures were identified.