Drought Mitigation in *Bundelkahand* Grassland Ecosystem for Improving Livelihood -A case study

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INTRODUCTION

- *Bundelkhand* grassland ecosystem (23º20´ and 26°20´N latitude and 78°20´ and 81°40´E longitude) is an undulating rain fed region (annual rain fall, 768-1087 mm) spread over an area of 7.08 m ha in Central India.
- This region has to support 16 million human and 8.5 million animal populations.
- Area is prone to surface run off losses, severe soil erosion and increasingly more drought events.
- In-situ conservation of rain water, forage management, and environmental services are the main issues to be addressed in this biome.

METHODOLOGY

- The farm house-holds falling under the project catchment villages of major, medium and minor irrigation projects were selected randomly for the sample survey work.
- A total of 1500 house-holds in 21 sample irrigation projects were covered.
- The sample adequately represented the head; middle and tail reach of the irrigation systems.
- The carrying capacity was calculated by method of Van Wijngaarden (1985).,
- The questionnaires developed were adequately designated to give information on the physical progress In the development work.

RESULTS AND DISCUSSION

- Development funds amounting to about 1000 million US$, provided helped constructing infrastructure like check-dams, dug-wells, embankments, rising of crest height etc.
- Impact evaluation is in terms of water resource development, watershed management, crop and live-stock productivity.
- A robust and resilient management system has been developed through farmer's participatory integrated watershed management program.
- Major aim of in-situ conservation of the rain water was achieved as noted from recharging of dug wells, open wells, village ponds, and farm ponds.
- There has been a significant improvement in the surface and ground water resources.
- Initiation of restoration process of this grassland biome has increased its carrying capacity by 41%.
- An additional 25% land area has come under irrigation resulting in increase of net-sown area by 11%, cropping intensity by 6%, and farm income by 35%.

CONCLUSION

- With robust financial support, there has been a significant improvement in the water resources in the drought prone *Bundelkhand* region,
- This has resulted in increased crop productivity due availability of life-saving irrigation water for both summer (*kharif) and winter (rabi)* crops
- Restoration of the grazing land improved the carrying capacity to help increase live-stock productivity.

There is significant iimprovement in the income and lively-hood of the farming community in the region.

REFERENCES

Van Wijngaarden, W. 1985. Elephants, trees- grazer: Relationship between climate, soils, vegetation, and large herbivores in semi-arid ecosystem (Tsavo, Kenya). *ITC Publ. No.4. Enscheda, the Netherlands*