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ASSESSMENT OF TRADITIONAL DRAINAGE SYSTEM WITH SPECIAL REFERENCE TO KARNATAKA STATE, INDIA- A CASE STUDY

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Presentation outlines

- **Introduction**
- **Methodology**
- **Results and Discussion**
- **Impact Of Traditional Drainage System On
Ensuring Better Drainage**



INTRODUCTION

- India accounts for 5101 major dams for irrigation and hydro power also highest irrigated area in the world.
- Among the top ten drained area in the world India stands 6th position (5.80 m ha).
- 65 % of the population engaged in Agriculture.
- 30 % of the total cropped area (3 m ha) is under irrigation in Karnataka State.



EFFECTS OF ILL DRAINAGE



METHODOLOGY

- The study was carried out as on farm in fifty farmers field during 2012-14.
- Red sandy loam was the predominant soil type of the study area.
- Study area is located on mid reach of the command area.
- The first year was spent in interacting with farmers, visiting their field, refining the methodology.
- During second year collection of data on drained water, crop yield and feedback.



TRADITIONAL DRAINAGE SYSTEM



RESULTS AND DISCUSSION

- The annual water drained from the cultural drainage system was $250 \text{ m}^3 \text{ ha}^{-1}$. Among the systems ridges and furrow system with highest water drained ($358.50 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$).
- The mechanical drainage system drained $698 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$. The broad bed furrow drained $730 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$.
- Among the biological drainage system bamboo ($7300 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$) and eucalyptus ($3650 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$) drained higher than the traditional methods $4107 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$.

Continued.....



TRADITIONAL DRAINAGE SYSTEM



RESULTS AND DISCUSSION

- The use of appropriate crops viz. Banana, Bajra, Rice, Water melon, Buffalo grass.. has drained on an average of $704.58 \text{ m}^3 \text{ ha}^{-1} \text{ annum}^{-1}$.
- In addition, the above crops yielded economic returns.



ECO FRIENDLY SYSTEM



BIOLOGICAL SYSTEM



IMPACT OF THE STUDY

- For short term (3-6 months) drainage improvement cultural methods can be adopted.
- For better drainage in mid duration (6-9 months) both cultural and mechanical drainage system are highly suitable.
- The locations with permanent and long duration (> 1 year) drainage problem combination of cultural, mechanical and biological drainage system are more appropriate.
- Locations without options for drainage treatment still crops like Rice (*Oryza sativa.L*), Baje (*Acorus calamus.L*), Banana (*Musa paradisiacal.L*), Water melon (*Citullus lanatus*), Buffalo grass (*Boutelova dactyloides .L*).
- The traditional drainage system resulted in more human energy use for imposing various field operations by creating employment. 7 provide better livelihood.



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