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

RAMANA GOWDA, P.
drrg.btib45@gmail.com

KRISHNAMURTHY, N.
Krishnamurthynagappa@yahoo.co.in

RANJITHKUMAR, T. M.
Ranjithtm942@gmail.com
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

ICID2015  FUTURE OF DRAINAGE UNDER ENVIRONMENTAL CHALLENGES AND EMERGING TECHNOLOGIES
RESULTS AND DISCUSSION

• The annual water drained from the cultural drainage system was 250 m$^3$ ha$^{-1}$. Among the systems ridges and furrow system with highest water drained (358.50 m$^3$ ha$^{-1}$ annum$^{-1}$).

• The mechanical drainage system drained 698 m$^3$ ha$^{-1}$ annum$^{-1}$. The broad bed furrow drained 730 m$^3$ ha$^{-1}$ annum$^{-1}$.

• Among the biological drainage system bamboo (7300 m$^3$ ha$^{-1}$ annum$^{-1}$) and eucalyptus (3650 m$^3$ ha$^{-1}$ annum$^{-1}$) drained higher than the traditional methods 4107 m$^3$ ha$^{-1}$ annum$^{-1}$.

Continued.....
TRADITIONAL DRAINAGE SYSTEM
• The use of appropriate crops viz. Banana, Baje Rice, Water melon, Buffalo grass.. has drained on an average of 704.58 m³ ha⁻¹ annum⁻¹.

• In addition, the above crops yielded economic returns.
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. It provide better livelihood.
PRACTICE TO POLICY
ICID2015 - FUTURE OF DRAINAGE UNDER ENVIRONMENTAL CHALLENGES AND EMERGING TECHNOLOGIES