Design Issues in Farmer-Managed Irrigation Systems

Proceedings of an International Workshop of the Farmer-Managed Irrigation Systems Network held at Chiang Mai, Thailand from 12 to 15 December 1999

Robert Yoder and Juanita Thurston, editors

NATIONAL IRRIGATION MANAGEMENT INSTITUTE
## Contents

**Foreword**  
ix

**Overview of the Workshop**  
1

- Purpose and Objectives  
3
- Introduction to the Issues  
5
- Interpretive Summary of the Discussion  
9
- An Agenda for the Future  
17

**Papers Related to Design Outcomes**  
21

**Summaries of Papers**  
23

**Irrigation System Design and Management in Mountainous Areas**  
25
Ranjan Oad and J. Phillip King

**The Influence of Farmer Water Rights on the Design of Water-Proportioning Devices**  
37
John S. Ambler

**Institutional Support in Design and Funding of Small Farmer-Owned Irrigation Tanks in the Central Himalayas in Uttar Pradesh, India**  
53
U. C. Pande
Low-Cost Assistance to Small Farmer-Managed Irrigation Systems
Lila Nath Bhattachari

A Prefabricated Modular Weir
Wipat Kiwanoo

Analysis of the Causes of Damage to Canals and Structures Related to the Pattern of Tertiary Networks
Suprejjo Pusposatardojo

Papers Related to the Design Process

Summaries of Papers

Design for Participation: Elephant Ears, Crocodile Teeth, and Variable Crest Weirs in Northeast Thailand
Bryan Bruns

Design Issues in Farmer-Managed Irrigation Systems: Experiences in the Hills of Nepal
B. N. Acharya

Second Approximations: Unplanned Farmer Contributions to Irrigation Design
Douglas L. Vermillion

Village Water Resources and State Administration: Rehabilitating Small-Scale Weir Systems in Sri Lanka
Shyama Abeyratne

Indigenous Proportional Weirs and “Modern” Agency Turnouts: Design Alternatives in the Philippines
Ruth Amman Ram Yabes

Small Farmer Community Irrigation Projects in Nepal
Ganesh Ram Shrestha

Importance of Farmer Irrigation Association Participation in the Development of Small Irrigation Schemes: An Engineer’s Opinion
Eduardo F. Corsiga

Of Dialogue, Debate, and Development: The Use of Participatory Rural Appraisal Methods to Improve Farmer-Managed Irrigation Systems in Kenya
John Thompson

Case Studies

Summary

Interaction of Farmers and Water Resources
M. R. Wint

Design of Canals
R. K.るので

Local Management: Nirmata

Rehabilitation
C. Kapadia

Farmers
M. W. Wint

Towels
P. R. Sandle

Design
V. M. V. S."

Renovation

Country

Information

Vietnam
Jay Van

China
M.

R.

K.
Case Studies

Summaries of Case Studies

Interaction between Design and Operation and Maintenance of Farmer-Managed Irrigation Systems
M. R. Biswas

Design Issues in Farmer-Managed Irrigation Systems: Three Case Studies in Gravity Irrigation in Maharashtra, India
R. K. Patil

Local Adaptations and Basic Designs: An Example from India
Nirmal Sengupta

Rehabilitation of Village Tanks: Redesign or Consolidate?
C. Kariyawasam

Farmer-Managed Irrigation Systems: A Case Study from India
M. Venkata Reddy

Towards Farmer-Managed Irrigation Water Distribution Systems in Nigeria
P. R. Maurya, A. Ahmed, and J. K. Adewumi

Design Issues in Controlling Drought and Waterlogging/Salinity in Farmer-Managed Irrigation Systems on the North China Plain
Ren Hongzun

Country Papers

Introduction

Village Irrigation Systems in Sri Lanka: An Overview
Jayantha Perera

Crop-Share Payment System in Farmer-Managed Irrigation Projects in the Tangail District of Bangladesh
M. T. H. Miah

Reorientation towards Farmer-Managed Irrigation Systems in Nepal
K. P. Rizal