ASCE Manuals and Reports on Engineering Practice No. 57

Management, Operation and Maintenance of Irrigation and Drainage Systems

AMERICAN SOCIETY of CIVIL ENGINEERS

ASCE Manuals and Reports on Engineering Practice No. 57

Management, Operation and Maintenance of Irrigation and Drainage Systems

Second Edition

Prepared by the
Committee on Operation and Maintenance of
Irrigation and Drainage Systems of the Irrigation
and Drainage Division of the American Society
of Civil Engineers

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Published by the
American Society of Civil Engineers
345 East 47th Street
New York, N.Y. 10017-2398

ABSTRACT

Management, Operation and Maintenance of Irrigation and Drainage Systems (Manual No. 57) is a revision of the 1980 publication *Operation and Maintenance of Irrigation and Drainage Systems.* This manual presents significant new innovations and modifications of procedures that have been implemented throughout the irrigation and drainage industry, particularly in areas of management and maintenance strategies, environmental benefits and safety practices. It is intended to help irrigation and drainage districts to minimize costs while maximizing production with available resources. In addition, this revised manual should be of interest to anyone associated with irrigation and drainage systems throughout the world.

Library of Congress Cataloging-in-Publication Data

Management, operation, and maintenance of irrigation and drainage systems/prepared by the Committee on Operation and Maintenance of Irrigation and Drainage Systems of the Irrigation and Drainage Division of the American Society of Civil Engineers: editors, William R. Johnston, James B. Robertson; contributing authors, Albert J. Clemmens . . . (et al.).—2nd ed.

p. cm.—(Manuals and reports on engineering practice: no. 57)

This revision replaces the American Society of Civil Engineers (ASCE) manual no. 57, Operation and maintenance of irrigation and drainage systems, published in 1980.

Includes bibliographical references and index.

ISBN 0-87262-785-3

1. Irrigation engineering. 2. Drainage. I. Johnston, William R., 1934- . II. Robertson, James B., 1940- . III. Clemmens, Albert J. IV. American Society of Civil Engineers. Committee on Operation and Maintenance of Irrigation and Drainage Systems. V. Operation and maintenance of irrigation and drainage systems. VI. Series: ASCE manuals and reports on engineering practice; no. 57.

TC805.M37 1991

627'.52—dc20 91-3854

CIP

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Library of Congress Catalog Card No: 91-3854
ISBN 0-87262-785-3
Manufactured in the United States of America.

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Preface

This manual replaces the American Society of Civil Engineers (ASCE) Manual No. 57, Operation and Maintenance of Irrigation and Drainage Systems, written in the 1970s and published in 1980.

This revision presents significant new innovations and modifications of procedures that have been implemented throughout the irrigation and drainage industry, particularly in areas of management and maintenance strategies, environmental benefits, and safety practices.

This updated information is intended to assist irrigation and drainage districts in the proper management, operation, and maintenance of agricultural irrigation water delivery systems in minimizing costs and maximizing production with available resources. In addition, the material presented in this manual is intended to command the attention of all persons associated with irrigation and drainage systems throughout the world.

This revision is a joint effort between ASCE and the Bureau of Reclamation. Special thanks to the International Irrigation Center, Utah State University, Logan, Utah, and Westlands Water District, Fresno, California, for their contributions to this manual. All contributing personnel have varied backgrounds and experiences that enhance this unique and functional document.

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SECTION I. THE MANUAL

1.1. PURPOSE

The purpose of this manual is to assist irrigation and drainage district personnel in the management, operation, and maintenance of agricultural irrigation and drainage systems. Throughout the world, there are thousands of irrigation systems that transport water from a source of supply to farmers for crop irrigation. These irrigation systems supply water to millions of acres of land through locally or regionally controlled organizations. Improving management, operation, and maintenance of these existing systems can produce significant economic, social, and environmental benefits, to farmers directly served by the systems, to the irrigation district, and to the populace who are directly and indirectly affected. This manual is intended to encourage and facilitate such improvements.

1.2. SCOPE

This manual describes state-of-the-art management, operation, and maintenance practices and procedures in general use by existing irrigation districts throughout the United States. The term "irrigation district" describes any agency, either public or private, regardless of the specific title of the organization, that provides the service of storing, conveying, and/or furnishing irrigation water, or providing drainage services to agricultural lands. The manual does not attempt to describe the development of a water supply, the planning, designing, or construction of a new irrigation project, or the use of water on farms.

Effective management of an irrigation district and the personnel who support the physical operation is essential for the success of an irrigation enterprise. Operation and maintenance of an irrigation system includes the physical operation necessary to deliver water to the farms. This manual focuses on relevant practices and procedures used throughout the United States, but this manual could prove useful throughout the world even though economic and cultural differences may require adaptation for such use.

1.3. SUGGESTIONS FOR USE

The material presented in this manual is a guideline for developing and formulating documents that outline rules, regulations, and policies to meet specific needs of an irrigation district. However, due to varied physical and economic situations in districts, this manual cannot cover all conditions. In small districts, the documents can be brief and simple. In larger districts with complex organizational structures, more detailed documents may be desirable. An irrigation district can improve its effectiveness by establishing appropriate rules, regulations, and policies with documents that set forth both goals and procedures.