

CHAPTER 3

Rural-Agricultural Water Supply Systems: Irrigation*

INTRODUCTION

This chapter is confined to a discussion of irrigation water supply systems that are either public facilities or group facilities operated by various types of irrigation water organizations. The public bodies and other groups treated here include: mutual irrigation organizations, commercial water suppliers, irrigation districts, the U.S. Bureau of Reclamation, the Bureau of Indian Affairs, and some States and cities.

Much of the information is presented here as complete and comparable only within a broad region, such as the Western or the Eastern United States. The statistical information was supplied mainly by agricultural census publications and Bureau of Reclamation reports.

A. NATURE AND COMPOSITION OF IRRIGATION FACILITIES

1. DESCRIPTION OF FACILITIES

(a) *Physical Characteristics*

Irrigation facilities usually include several systems, the number and type varying between and within regions according to the nature of the irrigation water supply, the time that the facility was constructed, the local topography, soil conditions, etc. Irrigation facilities always include a source of fresh water. This source may be a natural lake or stream, but it is usually a constructed reservoir or a ground water source.

A water conveyance system is also present and consists of canals and ditches and/or pipes leading from the water supply source to the place of use. Large ditches and canals carry water to a system of smaller ditches, called laterals. Some large conveyance canals are hundreds of miles long.

In porous or easily eroded soil the canals and ditches are usually lined with concrete. Gravity serves to propel water from the place of storage through the conveyance system to the point of use. Pumps are used for propelling irrigation water in cases where gravity cannot be employed; for instance, to lift ground water to surface level and from there to the point of use, or to raise water to a higher elevation in a main irrigation canal.

Steel or wooden flow gates and valves, plus flow gages for measuring amounts used by individual growers are often part of the conveyance systems, also.

Water-application and land-preparation systems are typically not a public enterprise, but they are sometimes a group enterprise. Their

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