

# Water for the World

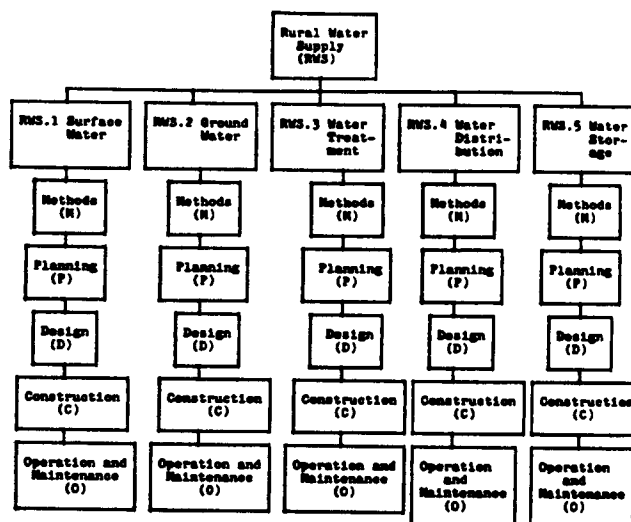


## Overview of Rural Water Supply Technical Note No. RWS. G

The technical notes on rural water supply are divided into five series as shown in Table 1: RWS.1 - Surface Water; RWS.2 - Ground Water; RWS.3 - Water Treatment; RWS.4 - Water Distribution; and RWS.5 - Water Storage. Within each series, the technical notes are organized according to methods (M), planning (P), design (D), construction (C) and operation and maintenance (O). All technical notes have both a title and a number within each category indicating where they fit on Table 1. For example, RWS.3.P.3, "Analyzing a Water Sample," is part of the Water Treatment series (3), discusses planning (P), and is the third technical note in the 3P series (3). See "Overview of Water and Sanitation System Development," HR.G, for a full discussion of the organization of the technical notes and a list of all of them. The rural water supply technical notes are listed at the end of this note.

If possible, the technical notes should be read and used in order of methods, planning, design, construction, and operation and maintenance. This will give the reader a thorough understanding of the subject covered and allow him or her to proceed with the activity in an orderly manner. The methods, planning and design technical notes were written for people with some experience with water supply systems who are responsible for project design and decision-making. The construction and operation and maintenance technical notes, in most cases, may be used by people with less experience since these activities involve little or no decision-making. Thus, the construction and operation and maintenance technical notes may be used by someone who is carrying out their tasks, but is working under another person who has consulted the methods, planning and design notes for that particular project.

**Table 1. Organization of Rural Water Supply Technical Notes**



## Sources of Further Information

The books listed below will be useful to those interested in further reading on the subjects covered by the technical notes on rural water supply.

Appropriate Technology for Water Supply and Sanitation, Richard Peachem, et al., 1981. The World Bank, 1818 H Street, N.W., Washington, D.C. 20433 U.S.A.

Ferrocement Water Tanks and Their Construction, S.B. Watt, 1978. Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN United Kingdom.

Ground Water and Wells, 1975. Johnson Division, UOP Inc., Saint Paul, Minnesota 55165 U.S.A.

Manual for Rural Water Supply, 1980. Helvetas, Swiss Association for Technical Assistance, St. Moritzstrasse 15, 8042 Zurich, Switzerland.

- Planning for an Individual Water System, 1973. American Association for Vocational Instructional Materials, Engineering Center, Athens, Georgia 30602 U.S.A.
- Slow Sand Filtration, L. Huisman and W.E. Wood, 1974. World Health Organization, Av. Appia, 1211 Geneva 27 Switzerland.
- Slow Sand Filtration for Community Water Supply in Developing Countries: A Design and Construction Manual, J.C. Van Dijk and J.H.C. Oomen, December 1978. WHO International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, the Netherlands.
- Small Community Water Supplies: Technology of Small Water Supply Systems in Developing Countries, edited by E.H. Hofkes, 1981. WHO International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, The Netherlands.
- Small Water Supplies, Sandy Cairncross and Richard Feachem, 1978. The Ross Institute of Tropical Hygiene, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London WC1E 7HT United Kingdom.
- UNICEF Guide List OLGA Rural Water Supply and Sanitation in the Developing Countries, 1975. UNICEF, United Nations, New York, New York 10017 U.S.A.
- Using Water Resources, 1977. Volunteers in Technical Assistance, 3706 Rhode Island Avenue, N.W., Mount Ranier, Maryland 20822 U.S.A.
- Village Technology Handbook, 1978. Volunteers in Technical Assistance, 3706 Rhode Island Avenue, N.W., Mount Ranier, Maryland 20822 U.S.A.
- Water Supply for Rural Areas and Small Communities, E.G. Wagner and J.N. Lanoix, 1959. World Health Organization, Av. Appia, 1211 Geneva 27, Switzerland.
- Water Treatment and Sanitation: A Handbook of Simple Methods for Rural Areas in Developing Countries, H.T. Mann and D. Williamson, 1974. Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN United Kingdom.
- Wells Construction: Hand Dug and Hand Drilled, Richard E. Brush, 1979. Peace Corps, Information Collection and Exchange, 806 Connecticut Avenue N.W., Washington, D.C. 20525 U.S.A.

## List of Technical Notes

The following is a list of all the technical notes on rural water supply.

### RURAL WATER SUPPLY

RWS.G Overview of Rural Water Supply

#### RWS.1 Surface Water

##### Methods

RWS.1.M Methods of Developing Sources of Surface Water

##### Planning

RWS.1.P.1 Planning How to Use Sources of Surface Water

RWS.1.P.2 Conducting Sanitary Surveys to Determine Acceptable Surface Water Sources

RWS.1.P.3 Selecting a Source of Surface Water

RWS.1.P.4 Choosing Where to Place Intakes

RWS.1.P.5 Evaluating Rainfall Catchments

##### Design

RWS.1.D.1 Designing Structures for Springs

RWS.1.D.2 Designing Intakes for Ponds, Lakes and Reservoirs

RWS.1.D.3 Designing Intakes for Streams and Rivers

RWS.1.D.4 Designing Roof Catchments

RWS.1.D.5 Designing Small Dams

##### Construction

RWS.1.C.1 Constructing Structures for Springs

RWS.1.C.2 Constructing Intakes for Ponds, Lakes and Reservoirs

RWS.1.C.3 Constructing Intakes for Streams and Rivers

RWS.1.C.4 Constructing, Operating and Maintaining Roof Catchments

RWS.1.C.5 Constructing Small Dams

##### Operation and Maintenance

RWS.1.O.1 Maintaining Structures for Springs

RWS.1.O.2 Maintaining Intakes

RWS.1.O.5 Maintaining Small Dams

## RWS.2 Ground Water

### Methods

RWS.2.M Methods of Developing Sources of Ground Water

### Planning

RWS.2.P.1 Planning How to Use Sources of Ground Water

RWS.2.P.2 Selecting a Method of Well Construction

RWS.2.P.3 Selecting a Well Site

### Design

RWS.2.D.1 Designing Dug Wells

RWS.2.D.2 Designing Driven Wells

RWS.2.D.3 Designing Jetted Wells

RWS.2.D.4 Designing Bored or Augered Wells

RWS.2.D.5 Designing Cable Tool Wells

### Construction

RWS.2.C.1 Constructing Dug Wells

RWS.2.C.2 Constructing Driven Wells

RWS.2.C.3 Constructing Jetted Wells

RWS.2.C.4 Constructing Bored or Augered Wells

RWS.2.C.5 Constructing Cable Tool Wells

RWS.2.C.6 Maintaining Well Logs

RWS.2.C.7 Testing the Yield of Wells

RWS.2.C.8 Finishing Wells

RWS.2.C.9 Disinfecting Wells

## RWS.3 Water Treatment

### Methods

RWS.3.M Methods of Water Treatment

### Planning

RWS.3.P.1 Determining the Need for Water Treatment

RWS.3.P.2 Taking a Water Sample

RWS.3.P.3 Analyzing a Water Sample

RWS.3.P.4 Planning a Water Treatment System

## Design

- RWS.3.D.1 Designing Basic Household Water Treatment Systems
- RWS.3.D.2 Designing a Small Community Sedimentation Basin
- RWS.3.D.3 Designing a Slow Sand Filter
- RWS.3.D.4 Designing a Small Community Disinfection Unit
- RWS.3.D.5 Water Treatment in Emergencies

## Construction

- RWS.3.C.1 Constructing a Household Sand Filter
- RWS.3.C.2 Constructing a Sedimentation Basin
- RWS.3.C.3 Constructing a Slow Sand Filter
- RWS.3.C.4 Constructing a Disinfection Unit

## Operation and Maintenance

- RWS.3.O.1 Operating and Maintaining Household Treatment Systems
- RWS.3.O.2 Operating and Maintaining a Sedimentation Basin
- RWS.3.O.3 Operating and Maintaining a Slow Sand Filter
- RWS.3.O.4 Operating and Maintaining a Chemical Disinfection Unit

## **RWS.4 Water Distribution**

### Methods

- RWS.4.M Methods of Delivering Water

### Planning

- RWS.4.P.1 Choosing Between Gravity Flow and Pumps
- RWS.4.P.2 Choosing Between Community Distribution Systems and Household Water Connections
- RWS.4.P.3 Selecting Pipe Materials
- RWS.4.P.4 Selecting a Power Source for Pumps
- RWS.4.P.5 Selecting Pumps
- RWS.4.P.6 Manufacturing Hand Pumps Locally

### Design

- RWS.4.D.1 Designing a System of Gravity Flow
- RWS.4.D.2 Determining Pumping Requirements
- RWS.4.D.3 Designing a Transmission Main

RWS.4.D.4 Designing Community Distribution Systems

RWS.4.D.5 Designing a Hydraulic Ram Pump

Construction

RWS.4.C.1 Installing Pipes

RWS.4.C.2 Installing Mechanical Pumps

RWS.4.C.3 Installing Hand Pumps

RWS.4.C.4 Constructing Community Distribution Systems

RWS.4.C.5 Constructing a Distribution System with Household Connections

Operation and Maintenance

RWS.4.O.1 Detecting and Correcting Leaking Pipes

RWS.4.O.2 Operating and Maintaining Mechanical Pumps

RWS.4.O.3 Operating and Maintaining Hand Pumps

RWS.4.O.5 Operating and Maintaining Household Water Connections

**RWS.5 Water Storage**

Methods

RWS.5.M Methods of Storing Water

Planning

RWS.5.P.1 Determining the Need for Water Storage

Design

RWS.5.D.1 Designing a Household Cistern

RWS.5.D.2 Designing a Ground Level Storage Tank

RWS.5.D.3 Designing an Elevated Storage Tank

Construction

RWS.5.C.1 Constructing a Household Cistern

RWS.5.C.2 Constructing a Ground Level Storage Tank

RWS.5.C.3 Constructing an Elevated Storage Tank

Operation and Maintenance

RWS.5.O.1 Maintaining Water Storage Tanks