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ANNOTATED BIBLIOGRAPHY #15

Non-Formal Education and the Use and Management of Water Resources: A Selected, Annotated Bibliography

Prepared by
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Non-Formal Education Information Center

1983

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TABLE OF CONTENTS

Foreword 5

1.0 General 9

2.0 Newsletters and Periodicals 41

3.0 Organizations 51

The Staff of the Non-Formal Education Information Center 54

FOREWORD

Through its series of Annotated Bibliographies, the Non-Formal Education Information Center seeks to facilitate the sharing of materials among those actively engaged in non-formal education for development. The field of non-formal education is being built not only by a diverse transnational network of researchers and practitioners, but also by persons who are themselves the beneficiaries of non-formal education. For this reason, relevant literature is burgeoning from a variety of sources often eluding those most eager to access it.

Water is critical to all life. Yet in most of the world people face serious and even life-threatening problems related to water. For example, much of the world's population does not have potable water; harnessing water for purposes of irrigation or power often involves overcoming substantial obstacles; drought may result in starvation and erosion; and in many areas where water is abundant it causes floods, harbors harmful parasites, or is spoiled by pollutants. Education has a major role to play in assisting people to learn about and address water-related problems and to make better use of available water resources.

This bibliography attempts to share with its readers some of the available materials related to water. It has been compiled from the resource collection of the Non-Formal Education Information Center and is

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the fifteenth in our series of annotated bibliographies.

No. 1 Women in Development

No. 2 Non-Formal Education and Health

No. 3 Literacy and Basic Education

No. 4 Projects, Training, and Strategies for Generating Income

No. 5 Managing Development Projects

No. 6 Children: Health, Education, and Change

No. 7 Non-Formal Education and the Handicapped in Developing Countries

No. 8 Appropriate Technology

No. 9 Nutrition and Food--Education, Policy, and Practice

No. 10 Non-Formal Education and Agriculture

No. 11 Acquiring Financial Resources for NFE Projects

No. 12 Journals and Newsletters on Non-Formal Education and Development

No. 13 Evaluation in Non-Formal Education

No. 14 Non-Formal Education and Radio

No. 15 Non-Formal Education and the Use and Management of Water Resources

The materials included in this bibliography have been brought to our attention by persons in the worldwide NFE network, thus giving a sense of the ways in which many are addressing this important area. Because of the "fugitive" nature of many of the materials, we have included full information on document sources to assist readers in acquiring items of interest.

As with most of the Center's products, this bibliography is the result of a team effort. Each team member has made important contributions. Several staff members deserve special acknowledgement, however. Karen Collamore Sullivan provided essential conceptual guidance, and she and Lela Vandenberg are responsible for the final organization and editing of the bibliography. We extend warm thanks to Doree Mehretu, Sam Oleka, Kaji Shestra, and Steve Wiley for their annotations. In recognition of others who have contributed to this publication the last page lists individuals who have served on the Center staff between 1976 and 1983.

We welcome suggestions from our readers and invite new contributions related to this area of interest.

Mary Joy Pigozzi
Director
NFE Information Center

1.0 GENERAL

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Action Peace Corps. Health and Sanitation Lessons (Africa). Peace Corps Information Collection and Exchange Reprint Series: No. 27. n.d. Peace Corps Information Collection and Exchange, 806 Connecticut Avenue, N.W., Washington, D.C. 20525, USA.

Presents over forty lesson plans for teaching subjects related to health, nutrition, and sanitation. Designed for use in home visits, pre/post-natal consultations, well-baby clinics, or primary schools, this collection includes for example, lessons on "The Importance of Washing Your Baby Well," "Diarrhea: How It Spreads and How to Avoid It," and "How to Combat Flies." Other sections contain lessons related to antenatal care, childbirth, feeding and weaning, and various illnesses such as conjunctivitis, malaria, and colds. 100 pp.

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Advisory Committee on Technology Innovation, Board on Science and Technology for International Development, Commission on International Relations, National Research Council. Supplement, Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries. 1981. National Academy of Sciences-National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418, USA.

A report on recent developments in renewable energy resources and alternative technologies, prepared to update a similar report published in 1976. Concerned with small, inexpensive energy systems that can be operated locally, this volume focuses on three areas: direct uses of solar energy; indirect uses of solar energy including energy from wind, falling water, and biomass; and other aspects of energy technologies such as geothermal energy, energy storage, pedal power, and external combustion engines. The section dealing with energy from falling water describes a small-scale hydro-electric system and the almost forgotten practice of using water to create compressed air, or hydraulic air compression. Also of interest is the discussion on the use of aquatic plants for processing sewage into biogas and fertilizer. Appendices include lists of manufacturers of energy-related devices, centers of research and development, and suggested reading. 238 pp.

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Agarwal, Anil, James Kimondo, Gloria Moreno, and Jon Tinker. Water, Sanitation, Health - For All? 1981. Earthscan, 10 Percy Street, London W1P ODR, England, UK.

The United Nations has declared the 1980's to be the International Drinking Water Supply and Sanitation Decade in light of the fact that over half of the people in less developed countries (LDCs) have unsafe drinking water and an even greater proportion have inadequate sanitation. This document discusses the global dimensions of the problem and projects the costs that will need to be incurred to solve it based on data from World Health Organization studies of water and sanitation in 75 LDC countries. Case studies from Colombia, India and Kenya present lessons learned from various regions and describe forms of appropriate technology employed. 147 pp. (Also available in French and Spanish.)

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Akerele, Olubanke. Women and the Fishing Industry in Liberia. 1979. United Nations Economic Commission for Africa, (UNECA), P.O. Box 3001, Addis Ababa, Ethiopia.

Examines the role women play in development and what happens to them as they engage in the process by looking at the participation of women in Liberia's fishing industry. Akerele concludes that the benefits to women are not proportional to the labor they provide. She also identifies the important role Liberian "Fishmammies" play in linking the formal and informal sectors in urban areas, providing important data on how change can affect women. 82 pp.

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Attfield, Harlan H.D. Composting Privy. IVS Technical Bulletin No. 5. 1978. International Voluntary Services, Inc. (IVS), G.P.O. Box 344, Dacca, Bangladesh.

Provides step-by-step instructions, with illustrations, on building a compost privy (enclosed latrine). Text is in English and Bengali. 21 pp.

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Austin, John H., Jeffrey Barrow, Quincy Francis, Stanford Graham, and Dorian Whittington. Caribbean Basin Water Management Project: Instructor's Manual and Planning Guide for Training of Trainers. 1978. Project Manager, Pan American Health Organization (PAHO)/ World Health Organization (WHO), P.O. Box 508, Bridgetown, Barbados.

An instructional guide for developing human resources as a parallel activity to improving water supply systems in the Caribbean. The authors claim that the training of para-professional personnel has often been neglected. For this reason, they are concerned with developing instructional materials and organizing workshops for training trainers to effectively improve managerial and operational competence in water supply organizations. They identify several items which should be incorporated in these workshops including defining and analyzing the tasks to be undertaken in the course, identifying and structuring performance objectives, presenting materials effectively, and defining various methods for evaluating each of these other items. Examples of instructional techniques are provided in worksheets included throughout the manual. 433 pp.

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Bell, Gwen (ed.). Strategies for Human Settlements: Habitat and Environment. 1976. East-West Technology and Development Institute, The University Press of Hawaii, Honolulu, Hawaii 96822, USA.

A collection of essays which address the critical problem that humankind faces in living on a planet containing finite amounts of resources and an ever increasing population. The contributors to this volume offer innovative and specific ideas for improving the quality of life in human settlements around the world, and explore the diverse fields of housing and improved building technologies, integrated food production, conservation, and waste disposal. Some of the essays of interest to persons involved in the development of water resources include "Growing Seafood on Shore" (pp. 67-78) in which Taylor A. Pryor discusses the potential for re-creating controlled marine environments for producing a variety of seafoods or feed for land animals. In "Simple Water Technologies" (pp. 79-83), Alvaro Ortega briefly describes a few simple water technologies for purifying salt water by using solar energy, collecting evaporated ground water, extracting airborne water, and using an atomizer or sprayer to conserve wash water. Benjamin Zur in "Controlled Irrigation" (pp. 84-90), presents two irrigation technologies which conserve more water than conventional irrigation methods. 172 pp.

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Berry, Leonard, Richard Ford, and Richard Hosier. The Impact of Irrigation on Development: Issues for a Comprehensive Evaluation Study. AID Program Evaluation Discussion Paper No. 9. 1980. The Studies Division, Office of Evaluation, Bureau for Program and Policy Coordination, Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

Irrigation is recognized as having great potential for increasing agricultural productivity, yet many irrigation projects fail to achieve their stated goals because of the disruptive effects of irrigation technologies on the environment and socio-cultural systems. In order to incorporate these adverse effects in project evaluation, the author proposes that irrigation projects be examined in terms of, not only their economic viability and efficiency, but also their environmental and social impact. Some of the practical recommendations emerging from this study of AID experience in evaluating irrigation projects are that a monitoring and evaluation component for a small number of key variables for success be written into projects and that methods for incorporating evaluation results be specified in the design of future projects. 70 pp.

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Beverly, James E., with Raymond B. Isely. WASH Project Two-and-a-Half Year Contract Summary. WASH Progress Report No. 5. 1983. Water and Sanitation for Health Project (WASH), Coordination and Information Center, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

The report includes an introduction to the purpose and function of WASH, a project aiming to provide US Agency for International Development (AID) with interdisciplinary, professional technical assistance for water and sanitation projects. Summarizes the many and varied tasks in training, technical assistance, and planning undertaken by WASH since 1980. Some examples related to water supply and sanitation include a Hand Pump Manufacturing project in the Dominican Republic, a Rural Water Supply Review in Haiti, a review of a Rural Primary Health Care Project in Zaire, and assistance with the design of a rural water supply project in Thailand. The projects are indexed separately according to type of assistance and geographical location. The report also includes a list of WASH technical and field reports indexed according to subject and country. 66 pp.

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Bhatty, K.M. Social Determinants of Water Management in Daudzai. 1979. Pakistan Academy for Rural Development, P.O. Box 362, Peshawar, Pakistan.

Based on the Pakistan Academy for Development's philosophy of development which emphasizes rural participation, this study was undertaken to identify determinants of water management decision-making in a semi-settled region of Pakistan. Water allocation among the villages in this area is specified by the Riwaj-i-Abpashi, a 19th century system of customary law which provides the overall decision-making framework for local water management. This research focused on the ways in which local water delivery systems are managed by the villagers as well as how the villagers perceive their principle water problems. Results of the analysis emphasize the important role of traditional authority in settling most water use disputes, but also suggest that the Riwaj-i-Abpashi needs to be updated, and that the major privately owned canals should be replaced by government-managed structures. 47 pp.

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Bureau d'Etudes et de Recherches pour la Promotion de la Sante. Sante et Maladie: Hygiene - Education Sanitaire. Vol. 2. n.d. Bureau d'Etudes et de Recherches pour la Promotion de la Sante, Kangu-Mayombe, Zaire.

Second in a series of three books which comprise an introduction to basic hygiene, sanitation, and nutrition. This volume provides an overview of the functions of the human body and a discussion of environmental health practices which emphasize the importance of clean water for drinking and washing. Also includes a discussion on the construction and use of latrines. Written clearly, with illustrations, this book is intended for use by health educators working with young people. In French. 105 pp.

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Caldwell, John C. The Sahelian Drought and its Demographic Implications. OLC Paper No. 8. 1975. Overseas Liaison Commission (OLC), American Council on Education, One Dupont Circle, Washington, D.C. 20036, USA.

A detailed report and analysis of the changes in the demographic characteristics of the Sahel during the drought years of 1968-1974. The author maintains that the only way to raise the standard of living of Sahelian farmers is to increase the amount of produce they can sell, thus enabling them to save the income from the good years to meet the needs of the bad years. Included are estimates of the demographic trends projected for the Sahel region for the years 1975-2025 and an extensive bibliography. 88 pp.

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Campbell, David J. Response to Drought in Maasailand: Pastoralists and Farmers of the Loitokitok Area, Kajiado District. Discussion Paper No. 267. 1979. Institute for Development Studies, University of Nairobi, P.O. Box 30197, Nairobi, Kenya.

Examines the effects of the drought years of 1972-76 on the people of the Kajiado District of Kenya. The author focuses on the relationship between changing land use patterns, the availability of resources, and the ability of the Maasai pastoralists, the Maasai farmers, and the non-Maasai farmers in the region to deal with drought. Drawing on an analysis of data obtained from a questionnaire survey, the author concludes that if contemporary trends in land use are permitted to continue unchecked, the vulnerability of both farmers and pastoralists to future drought will increase. 43 pp.

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Cawood, W.N. and P.A. Billingham. Introductory Guide to Solar Energy. Revised Edition. 1977. National Building Research Institute, Council for Scientific and Industrial Research, P.O. Box 395, Pretoria 0001, South Africa.

Presents a brief general introduction to solar energy, a discussion in greater depth of solar water heaters, and a step-by-step photographic guide for constructing a home solar water heater. This well-illustrated booklet also contains diagrams indicating the average efficiency of various types of heat absorbers, optimum storage tank size given family size and expected water usage, and solar water heating potential for different areas of South Africa. 39 pp. (Also available in Afrikaans.)

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Central Marine Fisheries Research Institute (CMFRI). Krishi Vigyan Kendra: Concept of Lab to Land. Narakkal KVK: Leaflet No. 1. n.d. CMFRI, Cochin 682018, India.

A pamphlet describing the Krishi Vigyan Kendra—an aquaculture training center for farmers. The KVK serves to transfer scientific and technical information on prawn farming developed at the Central Marine Fisheries Research Institute to local prawn farmers through a learning-by-doing training approach. 1 p.

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Centro Internacional de Investigaciones para el Desarrollo(CIID). Una Decada de Aprendizaje: Los Primeros Diez Anos de la Division de Ciencias Agricolas, Alimentos y Nutricion. 1982. CIID, Oficina Regional para American Latina y el Caribe, Apartado Aereo 53016, Bogota, Colombia; or International Development Research Center (IDRC), Box 8500, Ottawa, Ontario K1G 3H9, Canada.

A report synthesizing ten years of IDRC development research and project experience in such areas as food crop production, food preservation and storage, forestry, animal health and nutrition, and fisheries. Activities have been undertaken worldwide and the information is organized by region. Some specific topics of interest include research on fisheries productivity in the Sudan, and marine cultivation of oysters for food, pearls, and shells for handicrafts in Asia and Latin America. A chapter on lessons learned from IDRC experiences discusses ways to improve project planning, technical assistance, project evaluation, and the interaction between projects, personnel, and beneficiaries. In Spanish. 192 pp. (Also available in English and French.)

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Chavan, Arun. Verala Irrigation and Development Project (VIDP) Society: A Report. 1977. VIDP, P.B. No. 49, Ambarai Road, Sangli 416416, Maharashtra, India.

The VIDP Society is an independent farmers' organization located in the Sanghi District of India. This report explains the objectives of the project—to develop health care, communications, education and agriculture by involving project beneficiaries in a decentralized decision-making process. Since 1969 the VIDP has completed projects in land levelling, lift irrigation, well-digging for irrigation and drinking water, and canal construction, among others. 14 pp.

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Chinnery, D.N.W. Solar Water Heating in South Africa. National Building Research Institute Bulletin 44. 1971. Council for Scientific and Industrial Research, P.O. Box 305, Pretoria 0001, South Africa.

Discusses solar water heating processes and procedures as a practical proposition for most of South Africa. Explains the concept of thermo-siphon circulation in mathematical terms and then compares the absorption capacities of nine various heat absorbers developed in this research project. It also describes in detail designs and measurements required for the construction of a solar water heater, including methods of combining it with other water-heating systems. Practical problems such as architectural barriers in construction and installation of salt water heaters are considered. 79 pp.

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Clarke, Lorna. Training Field Workers In Rural Sanitation. 1981. UNICEF, P.O. Box 1063, Islamabad, Pakistan.

Report of a Pakistani training course for village level water and sanitation promotors. This document outlines the process of planning such a course by responding to a series of questions which help define the objectives, logistics, content, costs, and evaluation methods. The report provides a description of each stage of the Pakastani course which covers how to construct low cost soakpit latrines, bio-gas systems, and simple water storage and filtration systems. 32 pp.

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CODEL, Inc. Simple Assessment Techniques for Soil and Water. 1980. CODEL, Environment and Development Program, 79 Madison Avenue, New York, New York 10016, USA.

This workbook provides a number of quick, low-technology environmental tests for measuring soil ph, soil texture, soil drainage, general mineral content of water, sodium content of irrigation water, irrigation suitability of environmental conditions, and water contamination by coliform bacteria. While not intended to replace sophisticated environmental analyses, these simple tests can provide project planners with useful preliminary assessment techniques. 31 pp.

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Colombia. La Participacion Comunitaria en el Plan Nacional de Agua Potable Rural de la Argentina. S.B.R.P. No. 0014. 1973. Instituto Nacional para Programas Especials de Salud, Division de Saneamiento Basico Rural, Seccion de Promocion, Bogota, Colombia.

Summarizes the main points of the Ministry of Public Health's national plan for safe drinking water in rural Argentina. Although primarily intended for use by rural sanitary health professionals in Colombia, this report would also be beneficial for personnel of similar rural sanitation programs in other countries. It provides highlights of necessary steps to be taken by public health sanitation teams to insure completion of successful water and sanitation projects. Some of these steps include conducting a basic socio-economic study of the selected community, contacting and soliciting the support of local leaders, and educating the people about their roles, financial obligations, and responsibilities for the administration and maintenance of the project. In Spanish. 11 pp.

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Consortium on Rural Technology (CORT), and Institute of Social Studies Trust (ISS). Rural Sanitation: Technology Options. Rural Technology Series. 1981. Institute of Social Studies Trust, M-1 Kanchenjunga, 18, Barakhamba Road, New Delhi 110001, India.

A report from a workshop to analyze the feasibility of various designs of sanitary latrines, bio-gas plants, and smokeless chulahs (wood-burning brick ovens). Results of the analysis suggest, for example, that the double pit latrine is advantageous because it may be used indefinitely instead of being moved when full; it produces odorless, safe compost for fertilizer; and it does not pollute the water table even in areas where the table is high. The report also discusses double, and multiple pit systems. These gas plants utilize waste from attached latrines to produce gas for cooking stoves or other appliances. Construction plans are included for all technologies discussed. 80 pp.

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Cooke, H.J. The Problem of Drought in Botswana. Working Paper No. 17. 1978. National Institute for Research in Development and African Studies, Documentation Unit, University of Botswana and Swaziland, Private Bag 0022, Gaborone, Botswana.

Examines the definition of drought as it can be applied in Botswana, reasons why Botswana suffers from severe water shortages, and problems related to the unpredictable, and therefore unprepared for, drought. The author also looks at the immediate and possible long term effects of droughts and emphasizes that the nature of preparation for drought must lie in contingency planning. 26 pp.

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Coward, E. Walter. Patterns of Irrigation Organization in Indonesia. n.d. Available from the Non-Formal Education Information Center, Michigan State University, 237 Erickson Hall, East Lansing, Michigan 48824-1034, USA.

Describes the physical and social dynamics of two irrigation systems in Indonesia, the "subak" in Bali and the "gdongan" in Modjokuto District in Java. Each consists of physical components such as dams or canals along with an intricate socio-cultural system for allocating water rights, controlling patterns of share cropping and access to land, settling disputes, and distributing water. In a purely descriptive mode, the author details the operations of each system. 20 pp.

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Cox, Stephen and Sheldon Annis. "Community Participation in Rural Water Supply." Grassroots Development. Vol. 6, No. 1, 1982. Inter-American Foundation, 1515 Wilson Boulevard, Rosslyn, Virginia 22209, USA.

It is generally recognized that community participation often determines the success of a water and sanitation project. The author in this article turns this idea around by suggesting that water projects can be used to stimulate community participation for future self-help development projects because the introduction of potable water is given high priority by villagers; the benefits of water projects are immediate, tangible, and can be equitably distributed; and everyone in the community can play an active role in planning, building, and maintaining water and sanitation systems. Examples are drawn from Agua del Pueblo, a Guatemalan rural water and sanitation program, which believes that local involvement in development is a goal worth pursuing in its own right. pp. 3-6.

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Curruthers, Richard, Joachim Kreysler, Wally Serote, and Anna Nkwe. The Sun, Water and Bread: Report on an Appropriate Technology Workshop in Food and Nutrition. 1979. Nutrition Unit, Ministry of Health, P.O. Box 54, Gaborone, Botswana.

Report on a workshop held in Botswana for family welfare educators and home economists. The workshop was designed to give the participants 'hands on' experience using popular theater as a health education tool for organizing extension campaigns, and constructing low-cost appropriate technology devices such as solar water heaters and slow sand water filters. This report documents the activities at the workshop and provides brief descriptions of the appropriate technology devices which were introduced. 38 pp.

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Darrow, Ken, Kent Keller, and Rick Pam. Appropriate Technology Sourcebook, Volume II. 1981. Appropriate Technology Project, Volunteers in Asia, Box 4543, Stanford, California 94305, USA.

Identifies practical sources of successful small-scale technologies that can be adapted and produced elsewhere without need to import equipment or be subject to patents or royalties. All references deal with tools and techniques that are low in capital costs; usually use locally available materials and local organization; can be produced with, at most, a small metal-working shop; are understandable to individuals without a high level of Western-style education in either management or technology; create jobs utilizing local skills and labor; and, finally, utilize renewable energy sources such as wind power, solar energy, water power, methane gas, animal power, and pedal-power. This sourcebook's main function is to establish horizontal communication among groups and individuals experimenting with technology that can be understood, built, used, and maintained by villagers, with little or no dependence upon materials and skills from outsiders. The book is divided into an introductory section which defines appropriate technology, its goals, and its impact; a section listing names and addresses and other relevant information of or about publishers, sources, and bookstores which deal with appropriate technology materials; a similar section on periodicals; and extensive annotations on materials covering general practical references, tools, energy, water supply, agriculture, health care, food preservation and storage, architecture, housing and construction, print, cooperatives, beekeeping, soapmaking, and miscellaneous village industries. (This volume is a continuation of Appropriate Technology Sourcebook, Volume I, 1976, by Ken Darrow and Rick Pam.) 496 pp.

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De Pedro, Freddie B. Seven Steps to Increasing Rice Production. 1978. International Voluntary Services (IVS), GPO Box 344, Dacca, Bangladesh.

A basic guide for agricultural extension workers to help farmers increase paddy rice production through the use of high-yielding varieties. Provides step-by-step guidelines for seed selection and preservation, germinating and transplanting, land preparation, fertilizer application, crop care, harvesting, and drying. 51 pp. (Also available in Bengali.)

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El Amami, S. "The Use of Run-off Surface Water: The Meskats and Other Tunisian Techniques." African Environment. No. 11-12, Vol. 3, March 1979. Environment and Development in the Third World (ENDA), P.O. Box 3370, Dakar, Senegal.

Describes the relatively recent breakdown of traditional water-catchment systems in Tunisia. The traditional Meskat system, which collects scarce rainwater for irrigating olive groves, maintains a complex balance between the amount of available water and the number of trees grown. When the system is abandoned, due to lack of labor to maintain the infrastructure or to the expansion of the number of trees to meet growing demand for olives and olive oil, a valuable erosion control technique is lost. The author also discusses other traditional techniques and advocates re-examining and restoring, where appropriate, these traditional adaptations to specific environmental circumstances. pp. 107-122.

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Elmendorf, Mary. Women, Water and Waste: Beyond Access. 1980. Equity Policy Center (EPOC), 1302 18th Street, N.W., Suite 502, Washington, D.C. 20036, USA.

A discussion paper for the EPOC Mid-Decade Workshop, "Women, Water and Waste," held in Copenhagen in 1980, which investigates the impact of water and sanitation programs on women and children, highlighting the role of women in determining success or failure. In considering practices and attitudes toward human waste, the author brings out the importance of first understanding the socio-cultural context in order to identify constraints and motivations influencing participation in water and waste programs. A strong recommendation is made that more research be conducted to help define water-related problems clearly and devise culturally acceptable solutions that women will support. 22 pp.

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Elmendorf, Mary. Women, Water and the Decade. WASH Technical Report No. 6. 1981. Water and Sanitation for Health Project (WASH), 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

Points out the key roles related to water use and management played by women in traditional societies. In order to successfully achieve goals of better health and sanitation for people in rural areas and urban slums, development projects for water supply or waste disposal must be based on information about the knowledge, attitudes, and practices of members of targeted groups. Since women draw, carry, and determine the hygienic use of water, sanitary education should focus on them, but also, be compatible with local beliefs and behavior patterns. This document also examines the need for involving women in planning and implementation activities so that effective strategies can be developed for reaching the goal of safe water for all. 22 pp.

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Elmendorf, Mary L. and Raymond B. Isely. The Role of Women as Participants and Beneficiaries in Water Supply and Sanitation Programs. WASH Technical Report No. 11. 1981. Water and Sanitation for Health Project (WASH), 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

Presents arguments for the greater involvement of women as planners, managers, and evaluators of water and sanitation projects. Based on a review of both published and unpublished literature, this research suggests that project success can be closely tied to the participation of women at all levels. Specific program guides for incorporating women are provided, along with recommendations for future research and an extensive bibliography. Also included is a model for the evaluation of water supply and sanitation development projects illustrating the role of women in the evaluative process. 28 pp.

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Elmendorf, Mary L. and Raymond B. Isely. "Role of Women in Water Supply and Sanitation". World Health Forum. Vol. 3, No. 2, 1982. World Health Organization (WHO), 1211 Geneva 27, Switzerland.

Because women are the primary carriers and users of water, and selectors of water sources, they should be integrated in water supply and sanitation projects as planners, decision-makers, educators, trainers, and managers. In this article the authors outline the vital influence of women's views on water supply and sanitation practices and propose that women may serve as trainers in the use of new water and sanitation facilities. Attitudes and beliefs about water and human waste must be carefully considered when planning water supply and sanitation projects, as must the aesthetics of facilities and sensory perceptions of water for drinking and cooking. The authors assert that failure to take such factors into account may result in latrines and water sources being misused or not used at all. pp. 227-230.

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Elmendorf, Mary and Raymond B. Isely. Water and Sanitation-Related Health Constraints on Women's Contributions to the Economic Development of Communities. WASH Technical Report No. 17. 1982. Water and Sanitation for Health Project (WASH), Coordination and Information Center, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

An analysis of the relationship between women's health as it is affected by inadequate water supply and sanitation conditions, and women's economic productivity. Because of their extensive contact with water as users and managers of water and sanitation facilities, women are especially susceptible to water-related diseases. The authors contend that illness and poor nutritional status, partly caused by the poor quality of water along with overburdening water fetching and transportation tasks, adversely affect the productivity of women. A conceptual framework depicting the interrelatedness of water improvement and economic productivity is presented and discussed. 17 pp.

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English, H.E., and Anthony Scott (eds.). Renewable Resources in the Pacific: Proceedings of the 12th Pacific Trade and Development Conference, held in Vancouver, Canada, 7-11 September 1981. 1982. International Development Research Centre (IDRC), Box 8500, Ottawa K1G 3H9, Canada.

Based on the supposition that industrialized and developing countries must work together to avoid serious depletion of natural resources, this document presents a series of conference case studies and discussions dealing with renewable food and energy resources in the countries of the Pacific region. Such topics as forestry, fisheries, and substitutes for fossil fuels are covered, as well as related policy issues. 293 pp.

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Feachem, Richard G., David J. Bradley, Hemda Garelick, and D. Duncan Mara. Appropriate Technology for Water Supply and Sanitation: Health Aspects of Excreta and Sullage Management--A State-of-the-Art Review. 1980. World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

Written for a diverse audience of health professionals, planners, and technical experts working to improve health care systems, this document examines the relationship between human waste management practices and human health. The authors present a comprehensive overview of available knowledge concerning serious health problems caused by inadequate disposal of waste and sewage, and describe a variety of technologies and management schemes that can be applied under different circumstances. Highlighting the complex and powerful cultural beliefs concerning human waste that guide behavior throughout the world, the authors draw attention to the critical role of health education in the successful implementation of improved sanitation systems. They point out that while a great deal of effort has been focused on designing environmentally appropriate waste disposal technologies, too little consideration has been given to how well such technologies can accommodate the cultural stipulations of the intended beneficiaries. 318 pp.

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Food and Agriculture Organization of the United Nations (FAO). Rural Home Techniques. 1977. FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

A series of folders containing illustrated pamphlets which provide instructions for making simple labor-saving devices, preserving or preparing food, and constructing household furnishings and equipment. Of particular interest are Volumes 2, 4, and 6 which include descriptions of water supply and sanitation technologies. Each pamphlet contains one page of illustrations and a brief description of construction procedures. (Also available in French and Spanish.)

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Food and Agriculture Organization of the United Nations (FAO). Two Experiences with Artisanal Fishermen in Uruguay. 1978. FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Reports on two fishing cooperatives in Uruguay which were started as FAO self-help projects. Similar problems were encountered by the two cooperatives. These related to providing incentives to maximize production after the members had met their own needs, and the members' lack of previous experience with the fishing equipment. It was found that those cooperative members who owned the fishing boats maintained them adequately, whereas those who only used cooperative-owned equipment were not as conscientious. Both projects were successful in raising the standard of living of the cooperative members through careful management and coordinated operations. 28 pp.

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Food and Agriculture Organization of the United Nations (FAO). Small Farmers Development Manual. Vol. 1. 1979. FAO Regional Office for Asia and the Far East, Phra Atit Road, Bangkok 2, Thailand.

A manual for project planners and extension workers in Asia. This volume explains how to form grassroot organizations to foster self-reliance among small farmers and fisherfolk. Also included are guidelines for increasing production through group action, covering low-cost technology for irrigation, and fisheries and aquaculture, as well as sections on farm women's income-generating activities, rice production, and livestock production. 78 pp.

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Food and Agriculture Organization of the United Nations (FAO). Training Courses on Irrigation and Water Management. 1981. Land and Water Development Division, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Describes various irrigation and water management training courses which are offered in universities and other institutions around the world. Course content, the language of instruction, required admission qualifications, and duration are provided for each program along with an address for further information. 20 pp.

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Food and Agriculture Organization of the United Nations (FAO). Information Paper on the International Support Programme for Farm Water Management. 1981. FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Irrigation projects have not always resulted in the expected stream of benefits, often due to poor management at the farm or village level. In response to this weakness, the FAO established the International Support Programme for Farm Water Management which has the overall objective of helping individual countries identify and implement strategies for improving farm water management. This Information Paper describes the underlying approach, plan of action and structure of the organization, and gives brief descriptions of some of the ongoing projects which reflect its goals. 6 pp.

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Food and Agriculture Organization of the United Nations (FAO). Farmers' Participation and Organization for Irrigation Water Management. 1982. International Support Programme for Water Management, Land and Water Development Division, FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

Efficient irrigation management requires the active participation of local farmers in planning and decision-making processes. This paper aims to provide a preliminary overview of some of the broader issues concerning participatory approaches to community water supply management, and describes some of the experiences to date. Many of the projects from which information was obtained are still in the pilot stage. However, some of the key obstacles to farmers' participation indicated so far are their lack of organizational skills, as well as local factionalism and differing economic interests. Some guidelines for organizing community water users' associations are also provided. 29 pp.

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Food and Agriculture Organization of the United Nations (FAO). Guidelines: Women in Land and Water Development. 1982. Land and Water Development Division, FAO Via delle Terme di Caracalla, 00100 Rome, Italy.

Land and water development project planners frequently fail to take into account the role of women in agricultural production. This failure often results in adverse or unexpected affects on women. This set of guidelines, consisting primarily of specification of information needs and documentation, is intended to assist FAO project planners in insuring that the concerns of women have been incorporated in all stages of the development and implentation of land and water resource projects. Although designed primarily for use in planning and implementing large scale projects according to the standards of the United Nations Development Programme (UNDP), they also include suggestions for involving women in smaller scale projects. 12 pp.

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Food and Agriculture Organization of the United Nations (FAO). Report on the Expert Consultation on Training in Water Management Held in Rome, Italy, 21-24 September 1982. 1983. FAO, Via delle Terme di Caracalla, 00100 Rome, Italy.

A summary of the discussions of a group of specialists and administrators from developing countries, donor agencies, and international organizations brought together by the FAO to discuss training needs for water management programs. After describing their own efforts to provide training for professionals, technicians, farmers and others working in irrigation projects, the group focused on general issues regarding training for water management. The group concluded that current training programs are, for the most part, inadequate, and that there is a critical need to increase training programs, both in quantity and quality, in order to meet present and anticipated longterm manpower needs. Among other general recommendations, the group suggested that training should be interdisciplinary, addressing technical as well as social issues; that training programs should be designed to fit within a national policy of human resources development for irrigation management (in some cases, establishing such a national policy is a prerequisite to planning an effective training program); and that international cooperation agencies are indispensable to efforts to improve the management of irrigation water and should be encouraged to increase the amount of financial and technical support allocated for training. 28 pp.

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Fountain, Bertram and Harold Shipman. Guidelines for Development of Water/Sanitation Components of Urban Fringe and Rural Village Projects in Developing Countries. 1979. Urban Resources Consultants, Inc., Suite 500, 1025 15th Street, N.W., Washington, D.C. 20005, USA.

A two-volume publication intended for planning and development agencies responsible for helping the poor in rural villages and the urban fringe benefit from safe water supply and improved sanitation facilities. An overview of some of the problems involved in constructing water and sanitation facilities is provided, as well as descriptions of available forms of appropriate technology. A section which highlights success factors of previous projects notes that a critical component for a successful project is proper involvement of the community in which the project is located. 60 pp. The companion volume called Patents, Proprietary Processes and Methods Specific to Water Supply, Waste Disposal and Sanitation reports on the accessibility of US patented water supply and waste disposal technologies for developing countries and concludes that no technologies are currently withheld from any country because of patent restrictions. This second volume also includes an abstract of the US Patent Office Classification System related to water and sanitation, a product directory, and a list of patents of particular relevance for water and sanitation projects. 116 pp.

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Fricke, Thomas B. Bamboo-Reinforced Concrete Rainwater Collection Tanks. 1982. A.T. International, 1724 Massachusetts Avenue, N.W., Washington, D.C. 20036, USA.

A report on the results of a project to construct thousands of bamboo-reinforced concrete rain-water storage tanks in Northern Thailand. The report found that two factors contributing to the success of such projects in rural water supply are employing future owners and users in the construction of the system and using locally-available materials. As a result, over one thousand Thai Families have now been provided with adequate annual water supply. The report includes details of the project's funding structure, project plan formation, and summaries of other projects to be addressed by the Community-Based Appropriate Technology and Development Services in Thailand (CBATDS), including a water resources development and management program and an agriculture, farm management, and health training project. 50 pp.

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Gellar, Sheldon. Planning, Management, and Participatory Development Issues on Irrigation Projects: A Select Annotated Bibliography. 1981. Organization for Economic Co-operation and Development (OECD), 2, rue Andre-Pascal, 75775 Paris, Cedex 16, France.

Prepared for the Club du Sahel and the Permanent Interstate Committee for Project Control in the Sahel (CILSS), this document provides a select annotated bibliography on planning, management, and participation in irrigation projects. The bibliography concentrates on sources written by social scientists who are aware of the need for a multidisciplinary approach in order to adequately study the political, social, and economic impacts of irrigation projects. Case studies from Africa, the Middle East, Asia, Latin America, and the United States are listed, as are other bibliographies, journals, and periodicals. The materials in this bibliography are limited to those published in English. A forthcoming Club du Sahel bibliography will present sources written in French. 64 pp.

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German Adult Education Association African Bureau. Bilharzia--How Safe Is Your Water? n.d. German Adult Education Association African Bureau, P.O. Box 9298, Accra, Ghana.

A simple educational tool for teaching people to boil water before using it in order to kill the micro-organisms which cause bilharzia, or schistosomiasis. Illustrates the message with pictures and easy-to-understand explanations. 10 pp.

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German Adult Education Association African Bureau. Bilharzia--Do's and Don'ts to Stop Its Spread. n.d. German Adult Education Association African Bureau, P.O. Box 9298, Accra, Ghana.

Intended as an educational tool for community health workers and health educators, this illustrated bulletin describes in simple terms the "do's and don'ts" for maintaining clean water to limit the spread of bilharzia, or schistosomiasis.

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Glennie, Colin. A Model for the Development of a Self-Help Water Supply Program. Technology Advisory Group Working Paper No. 1. World Bank Technical Paper No. 2. 1982. Technology Advisory Group, International Bank for Reconstruction and Development, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

Presents a practical model which postulates that a self-help water supply program must start small and develop gradually within its own limits. The author identifies some essential preconditions for successful self-help projects including popular demand, a highly involved community, close supervision, and institutional support. The roles of project staff and the community, manpower needs, staff selection and training, and quality control in construction are all discussed in the context of a project passing through an initial, or "getting started", phase; a consolidation, or strengthening, phase; an expansion phase; and a maintenance phase when the project has achieved it's full capacity. 47 pp.

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Hale, P.R. and B.D. Williams. Liklik Buk: A Rural Development Handbook Catalogue for Papua New Guinea. 1977. Liklik Buk Information Center, P.O. Box 1920, Lae, Papua New Guinea.

This delightful collection is intended to promote appreciation for technology which people in villages can initiate, maintain, and control. Though designed for NFE practitioners in Papua New Guinea, the handbook should stimulate interest for all grassroots development workers. There are amply illustrated sections on crops and soils management, water resource development, food preparation, building and road construction, village arts and crafts, energy, health, and promoting village development. Interspersed throughout are lists of publications and organizations as well as editorial comments and suggestions. 270 pp.

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Heggen, Richard J. "Labor Intensity of Wastewater Treatment: An Index of Appropriate Technology." Approtech - Journal of the International Association for the Advancement of Appropriate Technology for Developing Countries (IAAATDC). Vol. 3, Nos. 2 and 3, September 1980. Approtech, IAAATDC, University of Michigan, 603 E. Madison Street, Ann Arbor, Michigan 48109, USA.

Presents a simple measure for determining the appropriate design of a waste water treatment plant for a particular society. Intended to be used to match technology with social structure, this measure consists of two labor intensity indices. On the technical side, a ratio of labor costs to physical capital costs is constructed for each proposed waste water treatment technology, and on the socio-economic side, another index is calculated relating the price of labor to the price of physical capital for a particular geographical location. The author provides examples and demonstrates how the indices can be compared to fit waste water technology to a particular socio-economic environment. He also emphasizes that this tool is still quite crude, but capable of providing one measure of suitability. pp. 13-15.

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Hofkes, E.H. Water Pumping for Rural Water Supply. ENDA Third World Documents Series, No. 21-81. 1983. Environment and Development in the Third World (ENDA), P.O. Box 3370, Dakar, Senegal.

Contains fairly technical descriptions and diagrams of many types of water pumps powered by humans, animals, wind, diesel fuel, and electricity. One of the designs is a sanitary rope and bucket pumping mechanism which dispenses water from a covered well using buckets and a crank-operated chain drive. Other designs include a swing operated pump which utilizes the pendulum action of a child on a swing, and standard cantilever hand-pumps. The author also explains the operating principles of a diagram pump, a hydraulic ram, and a centrifugal pump. 52 pp.

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Hung, T.J. Strategy for Village Development. Guidelines for Agricultural Extension Workers. UN/FAO/WES/72-007. 1976. United Nations Development Programme/Food and Agriculture Organization of the United Nations (UNDP/FAO), P.O. Box 1174, Apia, Western Samoa.

Outlines the Village Development Program which seeks to increase productivity and to encourage villager participation in all phases of the development process. The author summarizes proposals submitted by villagers in response to a government invitation. Included are proposals for non-agricultural projects--such as improving roads, electrical and water supplies, and buildings--as well as for agricultural projects. The guidelines also contain practical reference material for agricultural extension agents which cover plantation improvements, livestock and fencing, beef cattle, fisheries and boats, plantation extension, small-crop development, and coconut and pig production. 51 pp.

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Institute Masyarakat. Small Fishermen in Asia Speak Out. 1978. Asian Cultural Forum on Development (ACFOD), G.P.O. Box 2930, Bangkok, Thailand.

Reports on a seminar which brought together small-scale fisherfolk from Thailand, Philippines, Indonesia, Malasia, and Japan to share information on common problems, practical solutions, needs, and rights. Major concerns voiced by the participants were not focused entirely on the low productivity of traditional fishing gear, market control by middlemen, or chronic indebtedness, but, more so, on new problems related to the encroachment of capitalist fishing and the destruction of fishing grounds by pollution, land reclamation, or housing development. Suggestions that emerged from the conference include advocating a new approach to development planning involving direct input from small-scale farmers and, at the village level, promoting cooperative efforts to realize the rights and interests of those who depend on small boats for their livelihood. 58 pp.

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International Center for Marine Resources Development (ICMRD). New Publications. 1982. ICMRD Library, Main Library, University of Rhode Island, Kingston, Rhode Island 02881, USA.

A list of working papers, books and bibliographies concerning fisheries development and sociological and anthropological studies of fishing and fisherfolk. Entries include materials useful to administrators, project planners, and researchers, particularly in the social sciences. Most of the materials are available from ICMRD. 5 pp.

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The International Rice Research Institute (IRRI). Irrigation Efficiency System-Wide and on the Farm: Who Can Serve as Effective Watchdog? n.d. IRRI, P.O. Box 933, Manila, Philippines.

Improving water systems for irrigating rice fields in the Philippines is more a function of improving management at both the institutional and the farm level, rather than developing new engineering technology. This paper reviews two sets of projects demonstrating top-down and bottom-up approaches to irrigation system monitoring in order to determine which improvements in management can be best implemented by either of the strategies. The author advocates a system of checks and balances between sponsoring agencies and organized groups of farmers, because results of the analysis indicate that neither can effectively monitor their own performance. 24 pp.

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International Support Programme for Farm Water Management. Farmer's Participation and Organization for Irrigation Water Management. 1982. Land and Water Development Division, Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, Rome 00100, Italy.

Technical deficiencies in the design and operation of irrigation systems can only partially explain the frequently poor results of water management projects. Neglect, on the part of planners, of the social dimensions of such projects and the potential impacts on local farming communities constitutes a major constraint in achieving and sustaining improved water use. Noting that farmers are rarely consulted on the development of irrigation systems, nor are they given adequate training and information on water management, this document points out that serious obstacles to farmer's participation can also be found within the farming community itself. Primary among these is the lack of an appropriate local organization that would encourage participation and facilitate long-term local management of an irrigation system. A discussion of the establishment, organization, and functions of local-level water-users associations is presented along with brief case examples of such participatory associations found in Sri Lanka, Indonesia, the Philippines, and Pakistan. 30 pp.

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Isely, Raymond B. Facilitation of Community Organization: An Approach to Water and Sanitation Programs in Developing Countries. WASH Technical Report No. 7. 1981. Water and Sanitation for Health Project (WASH), Coordination and Information Center, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

Discusses the importance of promoting community organization for solving community problems in general, and organizing projects in water supply and sanitation, specifically. The author presents a generalized process for developing community organization, summarizing the factors necessary for success: trained personnel, information about the community, cooperation among various projects (in agriculture, education, or health, for example), and available technology and information. Community organization should be facilitated through existing community structures, to ensure proper ongoing maintenance and correct use of water supply and sanitation facilities. 14 pp.

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Isely, Raymond B., Craig R. Hafner, Daniel A. Okun, Morris A. Shiffman, Thomas Talbert, and Marjorie L. Kupper. Participants Manual for Sessions on Water Supply and Sanitation: USAID Workshop on Primary Health Care in Africa, November 15-20, 1981, Lome, Togo. WASH Technical Report No. 13. 1982. Water and Sanitation for Health Project (WASH), Coordination and Information Center, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

A collection of materials prepared for participants in sessions on water supply and sanitation held at a Primary Health Care Workshop in Togo in 1981. Background papers deal with problems in African water and sanitation projects, technical issues, and funding sources. The document also contains papers by workshop participants, worksheets, and case studies for sessions on planning, implementation, and evaluation of water supply and sanitation projects. 160 pp.

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Jackson, Ted. "Rural Sanitation Technology: Lessons from Participatory Research." Assignment Children. Reprint from No. 45/46, Spring 1979. UNICEF, Palais des Nations, 1211 Geneva 10, Switzerland.

A paper in which the author considers the application of a participatory research approach to rural sanitation programs. Noting that sanitation facilities are grossly inadequate in rural areas in many developing countries, and that efforts to improve this situation have been uncoordinated and only partially successful, he examines recent literature on self-reliance, appropriate technology, and popular participation in relation to sanitation and water supply. The reprint concludes with lessons from such research in other areas that may have implications for sanitation technology projects in rural regions. 24 pp. (Assignment Children is published in French as Les Carnets de l'Enfance.)

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The Joint Commission on Rural Reconstruction (JCRR). JCRR and Agricultural Development in Taiwan, 1948-1978. 1978. JCRR, Taipei, Taiwan, Republic of China.

An historical sketch of agricultural development in Taiwan, as carried out by the JCRR during its first 30 years of operation. This amply illustrated book describes the results of the major emphases of JCRR's early programs—implementing land reform, strengthening farmers' associations, introducing new crops and varieties, and improving farming methods—as well as specific activities related to forestry and water resources development, soil conservation, livestock and fisheries production, rural health, and agricultural extension and credit. The document also outlines future directions of the JCRR's work toward increasing farmers' income through various policies and programs. In Chinese and English. 207 pp.

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Joyce, Stephen J. and Francoise Beudot. Elements de Bibliographie sur la Secheresse au Sahel. Organisation de Cooperation et de Developpement Economiques (OCDE), Centre de Developpement, 94 rue Chardon-Lagache, 75016 Paris, France.

Begun in 1976, this annotated bibliography lists publications on the Sahel drought. Intended to provide socio-economic information on the eight member countries of the Permanent Interstate Committee for Drought Control in the Sahel (CILSS), this listing covers a wide range of topics from scientific research to social science issues related to agriculture, health, government, and industry. Updated editions are issued annually. In French.

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Kalbermatten, John M., DeAnne S. Julius, D. Duncan Mara, and Charles G. Gunnerson. Appropriate Technology for Water Supply and Sanitation: A Planner's Guide. December 1980. The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

This is Vol. 2 of a series of publications which summarize the results of a World Bank research project undertaken in 1976 on appropriate technology for water supply and waste disposal in developing countries. This particular volume provides guidelines for engineers and technicians responsible for planning and implementing sanitation projects. Part One contains an introductory overview of sanitation problems in developing countries highlighting health aspects and the need for community participation in planning, and provides an economic analysis of sanitation technologies. Part Two includes comparisons of factors affecting sanitation technologies, sequences for upgrading sanitation facilities, and a chapter containing flow charts indicating when to consider specific physical and socio-cultural variables in choosing the most appropriate technologies. In Part Three, detailed descriptions (which include drawings) are given for a wide variety of sanitation technologies for individual households, communal facilities, and off-site waste disposal and treatment. 194 pp.

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Kamat, G.S. "Water for Villages." Kurukshetrā. Vol. 30, No. 15, May 1, 1982. Kurukshetra, Publications Division, Patiala House, New Delhi 110001, India.

Emphasizes the urgent need to give substance to the United Nations declaraction on the water supply and sanitation decade which calls for the worldwide provision of safe drinking water and sanitation by 1990. The author describes the extent of the inadequacy of water supplies in rural India and suggests that an effective rural water supply scheme "must be based on a cost-effective technology, appropriate to local conditions with community participation, good management and provision for operation and maintenance." pp. 22-23.

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Karim, M. A Review of Brackishwater Shrimp Farming in Tamil Nadu and Andhra Pradesh. Working Paper No. 33. 1980. Small Scale Fisheries Promotion in South Asia, Post Bag No. 1054, Madras 600018, India.

Briefly assess the status of shrimp farming in Tamil Nadu and Andhra Pradesh, India. The author discusses some of the important components of brackishwater aquaculture including pond construction, soil and water quality, land elevation and tidal amplitude, fertilization and feeding, and the choice of seed stock. The report is intended to provide background information to be used in consultation with the FAO on development of brackishwater aquaculture in India. 22 pp.

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Karunakaran, T. (ed.). Projects on Rural Development and Appropriate Technology. 1980. Centre for Rural Development and Appropriate Technology (CRDAT), Indian Institute of Technology, Hauz Khas, New Delhi 110016, India.

CRDAT maintains that major breakthroughs in technology are needed to elevate the standard of living in rural areas and to increase rural development. This publication lists titles for research projects which CRDAT has determined to be of highest priority in developing appropriate technologies in a wide range of fields. Brief descriptions of projects already undertaken are provided. Some of the interesting topics for water related research include algae harvesting for animal feed; water treatment techniques using floride, chlorine, or slow-release disinfectants; processing sea water for crop irrigation; and tile making for irrigation and drainage. 55 pp.

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Kaufman, Marcus, with Christine Arisanti. From Ferro to Bamboo: A Case Study and Technical Manual to Yayasan Dian Desa's Rain Water Catchment Tank Project. 1983. Yayasan Dian Desa, P.O. Box 19, Bulaksamur, Yogyakarta, Indonesia.

Describes in detail a device for storing rain water for later use. Constructed from an iron or bamboo reinforced structure that is plastered with a thin layer of cement, a rainwater catchment tank can supply clean drinking water for up to three months if used properly. The author provides step by step instructions for constructing the tanks and discusses some of the history behind the development of the technology and its use in Indonesia. 48 pp.

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Kenya, Ministry of Agriculture, University of Nairobi, and Egerton College. Soil and Water Conservation in Kenya: Report of a Workshop held at the University of Nairobi, 21-23 September 1977. Occasional Paper No. 27. 1978. Institute for Development Studies, University of Nairobi, P.O. Box 30197, Nairobi, Kenya.

A collection of workshop papers covering such topics as "Cropping Systems for Soil Conservation in Kenya", "Natural Resource Conservation in Nyanza Province", and "Problems of Soil and Water Conservation within the Upper Tana Catchment". In addition, this document contains an outline of the workshop and descriptions of two field trips taken to Machakos and Murang'a District. Recommendations made by workshop participants are included which touch on areas such as national conservation policy and research and training. 161 pp.

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Kgathi, D.A. and J.B. Opschoor. Drought Impacts and Adaptations: Socio-Economic Aspects of the 1979 Kgatleng Drought. NIR Research Notes No. 6. 1981. National Institute of Development and Cultural Research (NIR), University College of Botswana, University of Botswana and Swaziland, Private Bag 0022, Gaborone, Botswana.

The authors examine the effects of Botswana's 1979 drought upon three groups of people: those with ample arable land and large cattle herds, those with little or no land and no cattle, and those "in between". They discuss various responses of the drought-stricken population, including decreased ploughing, increased beer-brewing, a search for local non-agricultural employment, food-sharing, migration, and the sale of cattle. Among their conclusions, the authors find that moderate drought affects crop production more than livestock production, and that the upper classes survive drought more readily because they have the means to neutralize its primary effects. 65 pp.

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Khan, Minhajuddin and Khan Muntazir. Economics of Khanpur Diversion Dam: A Case Study. 1981. Pakistan Academy for Rural Development, P.O. Box 362, Peshawar, Pakistan.

One means for increasing agricultural productivity is through dam diversion of river waters into irrigation systems. This research examines one such project in Pakistan, and describes the background, development, and the socio-economic impact of the project. Information was obtained through interviews, organizational records, and participant observation and revealed that the majority of those interviewed found the major drawbacks of the dam to be the irregular supply of irrigated water and, in certain areas, the over-flow of flood water from the dam. The authors provide suggestions for future planning of similar projects, highlighting the essential component of active participation by the people in all phases of the project. The survey questionnaire used in the interviews is included in the appendix. 53 pp.

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Kia, Bahman. Internal Financing of Water Supply and Sanitation in Developing Countries. Case History No. 5. 1981. United Nations Development Programme (UNDP), Division of Information, One United Nations Plaza, New York, New York 10017, USA.

Focuses on issues related to financing water and sanitation projects and reviews factors which influence costs of choosing a technology, quality and quantity standards, economies of scale, integration of programs, and community participation. The author discusses internal sources of financing water supply and sanitation projects, including fund raising and direct charges by governments, as well as traditional sources of revenue through community self-help. Extracts from field experiences and practical suggestions to consider at each stage of a water and sanitation program make this document especially useful to planners. 17 pp. (This case history can also be found as part of the International Drinking Water Supply and Sanitation Decade: Decade Dossier by UNDP.)

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Kia, Bahman. Impact of Community Water Supply and Sanitation Programmes in Developing Countries. Case History No. 6. 1981. United Nations Development Programme (UNDP), Division of Information, One United Nations Plaza, New York, New York 10017, USA.

Reviews some of the major direct and indirect impacts of investing in community water supply and sanitation programs. The most evident direct benefit is improved health, which, in turn, enhances labor productivity by reducing absenteeism due to illness and increasing workers' strength, stamina and ability to concentrate. This indirect effect results in higher incomes for workers and greater economic growth. The author also briefly discusses social impacts of community water and sanitation projects, which include better community morale, increased individual self-respect, and greater community participation. 14 pp. (This case study can also be found as part of the International Drinking Water Supply and Sanitation Decade: Decade Dossier by UNDP.)

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Koegel, R.G. Self-Help Wells. FAO Irrigation and Drainage Paper No. 30. 1977. Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

Intended for engineers, agronomists, health workers, and others involved in providing improved water supply systems, this manual reviews various methods for constructing self-help wells. Some of the technologies which are described include bored wells, percussion wells, and hydraulic rotary wells. Also includes general procedures for constructing large diameter wells. The information contained is not highly technical in nature and is well-illustrated with diagrams and photographs. 78 pp.

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Levine, Gilbert and E. Walter Coward, Jr. "Managing Water Resources for Food Production." In Center for the Analysis of World Food Issues, A Series of Papers on World Food Issues. 1979. Center for the Analysis of World Food Issues, Program in International Agriculture, Cornell University, Roberts Hall, Ithaca, New York 14853, USA.

Based on the principle that irrigated land produces higher yields than rain-fed land through intensive farming and consistent water supply, the authors contend that developing river resources for irrigation could substantially increase food production. They emphasize that there are a number of important issues which must be addressed in designing and implementing such irrigation projects. These include defining water management objectives, choosing an appropriate technology, taking into account the equitable distribution of water resource benefits, and minimizing the negative environmental impacts of developing water resources. 8 pp.

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Levine, Gilbert and Henry C. Hart. Mobilizing Local Resources for Irrigation. Report No. 22. 1981. Agricultural Development Council (ADC), 1290 Avenue of the Americas, New York, New York 10104, USA.

An interpretive summary of a seminar under the same title which pulled together a number of specialists in Asian irrigation and water management for the purpose of sharing ideas and experiences. Along with excerpts from the keynote address, which focused on the need for more farmer participation in water resources program planning and implementation, this report provides abstracts of the four thematic papers used to stimulate interaction. The discussions dealt with capturing the economic surplus generated by irrigation projects, increasing voluntary farmer participation, understanding the nature of government investment in water resources development, and recognizing the impact of problems associated with central system management. Brief summaries of participant's comments and conclusions are also included. 13 pp.

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Lowdermilk, Max and W. Robert Laitos. "Towards a Participatory Strategy for Integrated Rural Development." Rural Sociology. Vol. 46, No. 4, Winter 1981. Rural Sociological Society, University of Tennessee, 325 Morgan Hall, Knoxville, Tennessee 37916, USA.

This paper stresses local autonomy and involvement as cornerstones in rural development, and acknowledges the need to increase national commitment to such development. Important factors to be included in any rural development project are described. Finally the authors use successful water management projects in Pakistan and Egypt to outline and examine a seven-stage project development approach, the participatory research development strategy (PRDS). Evaluation for project improvement and for future project design is an important part of the approach. Authors recommend that it be included in each phase of the PRDS. pp. 687-702.

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Mann, H.T. and D. Williamson. Water Treatment and Sanitation: Simple Methods for Rural Areas. Revised Edition. 1976. Intermediate Technology Publication, 9 King Street, London WC2E 8HN, England, UK.

This booklet discusses all phases of water treatment and sanitation for rural areas. Intended for the community level technician, community development worker, or local leader, it provides practical methods for designing and constructing systems for supplying potable water and treating sewage. Various chapters describe methods which may be applied in sequence, from the selection of a water source, through the transport of water, the treatment of water, the disposal of wastes, the treatment of sewage, and the final disposal of treated wastes. 90 pp.

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Mara, Duncan. Appropriate Technology for Water Supply and Sanitation: Sanitation Alternatives for Low-Income Communities--A Brief Introduction. Transportation, Water, and Telecommunications Department, The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

This booklet was written to acquaint development planners from a variety of disciplines with low-cost technologies currently available and to provide a guide for sanitation program planning in low-income (especially urban) communities. The language is non-technical and numerous drawings and plans are included. A list of publications on appropriate technology for water supply and sanitation is given. 50 pp.

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McCay, Bonnie J. "Appropriate Technologies, Fisheries, and Resource Management." Approtech - Journal of the International Association for the Advancement of Appropriate Technology for Developing Countries (IAAATDC). Vol. 2, No. 4. March 1980. Approtech, IAAATDC, University of Michigan, 603 E. Madison Street, Ann Arbor, Michigan 48109, USA.

Technological development without regard to the long-term effects of rapid social and economic change often leads to depletion of "common property" renewable resources such as fish. As an illustration the author offers the case of Newfoundland, where new fishing boats enabled the fishermen to extend their territory and the length of the season, which ultimately brought about over-fishing and resulted in resource depletion. In response, the government of Newfoundland organized a fisheries development plan involving intermediate technology and community participation to insure that fisheries resources would be used efficiently. The author offers other examples and suggests that development "from below", as implemented in Newfoundland, based on indigenous resource management systems with careful attention paid to sociocultural realities, has relevance for developing countries as well. pp. 7-11.

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McJunkin, F. Eugene. Water and Human Health. 1982. Development Information Center, Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

Provides an overview of the relationship between water and human health. The author describes water-related diseases under classifications of water-borne diseases, hygiene diseases, water contact diseases, and water habitat vector-borne diseases, and explains the role of water as a disease transmitter in each case. A number of methods for evaluating the quality of drinking water are described, including enumeration of pathogens or indicator organisms, and a literature review summarizes research on the effectiveness of water treatment, waste treatment, and water supplies on public health. The numerous topical bibliographies scattered throughout the book are, collectively, quite substantial, and analytical summaries of a number of selected field studies are also included in the annex. 134 pp.

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Mendis, D.L.O. Some Thoughts on Technology Transfer for Irrigation and Multi-Purpose Projects in Sri Lanka. 1977. Water Resources Board, P.O. Box 34, Colombo, Sri Lanka.

Technology transfer that doesn't always live up to its expected returns is the theme of this report. It describes the ancient irrigation systems of Sri Lanka and the modern multipurpose water systems that have been introduced. The author contends that the resulting dual system of traditional and modern components is not as efficient as either by itself. The author goes on to suggest that the wholesale transfer of modern technology should be avoided, and that a careful synthesis of the traditional system with appropriate segments of the modern would be most effective. 14 pp.

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Miller, F. DeWolfe. "A Brief Assessment of Water Supply and Waste Disposal Systems in Developing Countries." Approtech. Vol. 3, No. 1, June 1980. International Association for the Advancement of Appropriate Technology for Developing Countries (IAAATDC), 603 East Madison, The University of Michigan, Ann Arbor, Michigan 48109, USA.

Reviews the prevalence of water-related diseases in Africa, Asia, Latin America, and then evaluates some recent technologies to improve sanitation and provide safe water. The author considers several alternative means which emphasize the use of local resources and appropriate design for increasing and improving a community water supply. The lists of methods includes rainwater catchment, spring boxes, wells, boreholes, infiltration galleries, and slow sand filtration. Pit latrines and waste stabilization ponds for sanitation are also examined. In conclusion, the author notes that community initiative and sustained participation in the installation and maintenance of a sanitation system is crucial for the system to be adopted. pp. 7-13.

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Natarajan, V.K. "Minor Irrigation Under W.V.D.P.: An Appraisal." Kurukshetra. Vol. 30, No. 16, May 1982. Publications Division, Patiala House, New Delhi 110001, India.

Reports on the impact of the minor irrigation scheme as a part of a midterm evaluation of the Whole Village Development Programme (W.V.D.P.) implemented in Muzaffarpur District in Bihar, India. This irrigation component consisted of the construction of tube-wells and lift schemes, along with installation of pump sets. Data were collected through discussions with officials and interviews with the beneficiaries to evaluate the impact in terms of changes in the intensity of irrigation, irrigated areas, cropping intensity, household income and employment. The results of the analysis indicated that the project was successful. pp. 11-13, 18.

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National Demonstration Water Project. Safe Water and Waste Disposal for Rural Health: A Program Guide. 1982. Development Information Center, Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

A planning guide intended for people in developing nations who are designing national level comprehensive water and sanitation programs. As the central document of AID's "Water for the World" materials, this manual is comprised of practical suggestions for planning all segments of water supply and waste disposal systems, from choosing a technology, through building support structures, developing human resources through training, facilitating community participation, and evaluating water and sanitation programs. Each chapter includes a list of references for further information and a list of the pertinent "Water for the World" Technical Notes. 232 pp. (Brief summaries of sections of this book illustrated with colorful photographs are contained in Executive Summary: Safe Water and Waste Disposal for Rural Health: A Program Guide, Program Implementation for the Decade for Water, and Program Planning for the Decade for Water all available from the address above. Also, see National Demonstration Water Project, Water for the World: How to Use Technical Notes for more information on "Water for the World" technical notes.)

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National Demonstration Water Project. Water for the World: How to Use Technical Notes. Technical Note No. HR. G. 1982. Development Information Center, Agency for International Development (AID), Department of State, Washington, D.C., 20523, USA.

Lists the titles in the series "Water for the World" Technical Notes which provide technical information on aspects of water supply and sanitation in rural areas for field personnel in developing countries. This particular volume describes the organization of the series and identifies the range of topics covered in the other volumes. 12 pp.

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O'Kelly, Elizabeth. Simple Technologies for Rural Women in Bangladesh. 2nd Edition. 1978. UNICEF, Bangladesh Women's Development Programme, Dacca, Bangladesh.

This expanded version of the first edition contains three additional chapters which relate the concept of intermediate technology to the tasks of rural women in Bangladesh. Descriptions of specific manually operated technologies cover a wide range of home and farm-related devices including, for example, water filtering and cooling systems, food coolers, stoves, food dryers and smokers, groundnut shellers, rice hullers, bamboo splitters, and water supply systems. In most cases simple drawings or photographs illustrate the mechanisms described and discussed. For those pieces of equipment which can be purchased, a list of manufacturers names and addresses is provided along with a bibliography of publications and other useful addresses. 70 pp.

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Okidi, C. Odidi. Kenya's Marine Fisheries: An Outline of Policy and Activities. Occasional Paper No. 30. 1979. Institute for Development Studies, University of Nairobi, P.O. Box 30197, Nairobi, Kenya.

Although Kenya has about 300 miles of coastline on the Indian Ocean, its marine fisheries are not at present among its leading industries. This paper reviews the contribution of marine fisheries activities to employment, the location of fishing centers and size of the catch, and the potential for growth and generation of new income as seen by interested government departments. The paper is intended to encourage conservation of marine resources, stimulate general research on fisheries, and promote discussion among the people most interested and immediately concerned. 42 pp.

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Okidi, C.O. (ed.). Natural Resources and the Development of Lake Victoria Basin of Kenya. Occasional Paper No. 34. 1979. Institute for Development Studies, University of Nairobi, P.O. Box 30197, Nairobi, Kenya.

An extensive compilation of papers emerging from a workshop intended to produce an information base for designing a regional development plan. This plan, oriented around the development of a drainage basin rather than of a region defined by political boundaries, is spearheaded by the Lake Victoria Basin Authority. The papers included in this collection are meant to give guidance to the Authority and range from resource inventories, to discussions of political issues, suggestions for appropriate land-use strategies, and recommendations for institutional organization. This is an excellent starting point for gaining an understanding of resource development in the Lake Victoria region. 607 pp.

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Okidi, C. Odidi, and Sydney Westley (eds.). Management of Coastal and Offshore Resources in Eastern Africa. Occasional Paper No. 28. 1978. Institute for Development Studies, University of Nairobi, P.O. Box 30197, Nairobi, Kenya.

A collection of papers written by policy makers, researchers, and university educators from Kenya and Tanzania on development and management of national and regional marine resources in East Africa. C. Odidi Okidi, for example, in "Conservation and Development of Coastal and Off-Shore Resources: Agenda for Research" (pp. 4-29) discusses what Kenya is doing, plans to do, and ought to do to efficiently develop its coastal and marine resources. In "Regional Perspectives to Combat Marine Pollution Around Africa," (pp. 213-229) Kaniaru surveys regional activities and assesses the potential for increasing regional cooperation to fight marine pollution. Other articles deal with marine policy, marine national parks, coastal tourism, shipping, and sub-marine geology. 255 pp.

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Padlan, Pedro G. Readings on Aquaculture: Improved Techniques of Milkfish Farming in the Iloilo Province, The Philippines. 1982. Raja Prem Kumar, Youth Charitable Organization, 20-14, Urban Bank Street, Yellamanchi 531055, India.

Provides general guidelines for using an improved natural source of food imported from Taiwan for feeding to milkfish in brackish-water ponds in the Philippines. Standard operating procedures for preparing and stocking ponds, controlling pests and diseases for both the fish and the fish food-algae, and harvesting are described for a two-crop seasonal cycle. 8 pp.

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Patel, Anil B. "Water Supply: Quantity Versus Quality." In Abhay Bang and Ashvin J. Patel (eds.), Health Care Which Way To Go?: Examination of Issues and Alternatives. n.d. Voluntary Health Association of India, C14, Community Centre Safderjang Development Area, New Delhi 110016, India.

The author advocates the view that quantity should have primacy over quality in water supply in tropical countries. One reason, he suggests is that emphasis on the quality of water supply may lead to the provision of quality water for only a few and as a result, would ignore the acute needs of the vast majority in rural areas and the urban slums. He also points out that WHO standards for drinking water, which have been developed in temperate zones, may be inappropriate for tropical zones because the coliform bacteria used for quality evaluation have different life cycles in the different climates. pp. 103-112.

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Pineo, Charles S., David W. Schnare, and G. Wade Miller. Environmental Sanitation and Integrated Health Delivery Programs. International Health Programs Monograph Series No. 4. 1981. American Public Health Association (APHA), International Health Programs, 1015 Fifteenth Street, N.W., Washington, D.C. 20005, USA.

This monograph introduces the reader to the significance of a healthy environment for human health, to environmental health program planning and development, and to the importance of local involvement in improving the environment. The authors emphasize that health care is not simply a matter of treating sick individuals. It must be provided within the context of a healthy environment with adequate sanitation including clean water for drinking, cooking, and washing. Intended as a program guide for planning environmental health projects, this resource can also serve as a practical reference for sources of technical information on environmental health. 82 pp.

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Pisharoti, K.A. Guide to the Integration of Health Education in Environmental Health Programmes. WHO Offset Publication No. 20. 1975. World Health Organization (WHO), 1211 Geneva 27, Switzerland.

Designed to stimulate governments to incorporate health education into environmental health training programs. Provide guidelines for the design, development and evaluation of training programs dealing with basic sanitary services such as water supply, waste disposal, and vector control. Offers suggestions for bringing about increased community participation in the planning and use of environmental health facilities, and for introducing environmental health education in schools. 88 pp.

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"Punta del Diablo: An Artisanal Fisherman's Cooperative in Uruguay." Ideas and Action. No. 125, 1978/6. FFHC/Action for Development, Food and Agriculture Organization (FAO), Via delle Terme Di Caracalla, 00100 Rome, Italy.

Directed towards planners and cooperative members, this interview with the PESCO cooperative's manager describes the cooperative's history, its operation, and future plans. pp. 6-12.

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Reddy, M. Venkata. "Equitable Distribution of Irrigation Water." Kurukshetra. Vol. 30, No. 9, February 1982. Publications Division, Patiala House, New Delhi 110001, India.

The author contends that the absence of a systematic approach to distributing irrigation water has often lead to reduced per unit productivity of irrigation water through wastage of excess by farmers near the headgate and through shortage for farmers in the tail-end of the water flow. A rotational water supply scheme called the Warabandi is recommended to alleviate these problems by providing an adequate, timely, and dependable supply of water to all farmers regardless of their location. The central feature of this system is the involvement and training of farmers to regulate water flow and insure that all farmers receive their shares. pp. 4-8.

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Roark, Paula. Successful Rural Water Supply Projects and the Concerns of Women. 1980. Office of Women in Development (PPC/WID), Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

Underlying this paper is the idea that change and development occur through people participating in a learning process. The author believes that project success depends on discovering and working through the "local learning system" (LLS), the culturally determined way knowledge is organized and shared. Because of their traditional roles as water carriers and managers, women's participation in related learning processes is critical. Ultimately, they are the ones to decide whether the new water source is worth the effort to use and maintain. To aid project planners, Roark offers an "LLS Operational Framework" containing four components: technology analysis, participation, information, and knowledge outcome. This framework distinguishes between service and development projects, with important implications for policy and program directions. 73 pp.

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Rybezynski, Witold, Chougrale Polprasert, and Michael McGarry. Appropriate Technology for Water Supply and Sanitation: Low Cost Technology Options for Sanitation--A State-of-the-Art Review and Annotated Bibliography. 1982. The World Bank, 1818 H Street, N W., Washington, D.C. 20433, USA.

Describes alternative approaches for collecting, treating, recycling, and disposing of human wastes. Some of the options examined include composting privies, night soil treatment, and irrigation with waste-water. The document includes an annotated bibliography of resources for low-cost sanitation technologies. 318 pp.

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Sahel Institute. Biennial Progress Report 1977 - 1979. Permanent Interstates Committee for Drought Control in the Sahel (CILSS), Sahel Institute, P.O. Box 1530, Bamako, Mali.

Established as an intra-regional coordinator of anti-drought activities, the Sahel Institute began operations in 1977. This report describes its activities in the first two years of operation, and includes summaries of the Institute's Starting Programmes which include, for example, the Sahelian Scientific and Technical Information and Documentation Network and the Demographic Research Programme in the Sahel. The institute's continuing programmes on rural radio, training, agricultural research, health-water-nutrition, and drought strategies are also outlined. 98 pp.

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Sander, William. The Impact of Two Communal Irrigation Projects in the Philippines. Discussion Paper 7917. 1979. Institute of Economic Development and Research, School of Economics, University of the Philippines, Diliman, Quezon City, Philippines.

Analyzes the economic impact of two communal irrigation systems in the Philippines. In both projects, benefits substantially exceeded costs at a societal level. Moreover, by providing the opportunity to grow at least two crops of rice per year, rather than one, they also provided employment in the local area. But, the benefits of the projects were not equally available to all community members. Tenants and leaseholders, for example, were forced to allocate a share of their crop to landlords, and to either obtain credit from private moneylenders at usurious interest rates, or to reduce their input use below optimum levels because they did not have access to institutional credit. 23 pp.

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Scotney, Norman. Developing a Health Education Component for the UNICEF Water and Sanitation Programme in Sudan. 1980. Health Behavior and Education Department, African Medical & Research Foundation, P.O. Box 30125, Nairobi, Kenya.

Presents the results of a baseline survey to assess existing health care resources and services in the South Kardofan Province of the Sudan, for use in planning a health education component in a broader water and sanitation program. The author suggests that the best time for beginning a health education program would have been when hand pumps were first introduced into the area. He goes on, however, to recommend a strategy which could be effective in the current situation and which involves identifying the important socio-economic factors of targeted communities, formulating health education objectives, developing an educator's manual, and implementing a pilot phase of the program. 25 pp.

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Shuval, H.I., C.G. Gunnerson, and D.S. Julius. Appropriate Technology for Water Supply and Sanitation: Night-Soil Composting. Vol. 10. 1981. Transportation, Water and Telecommunications Department, World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

The World Health Organization has estimated that over two-thirds of humanity live without proper facilities for human waste disposal. In response to this serious health problem, and as a contribution to the International Drinking Water Supply and Sanitation Decade, the World Bank has prepared this study of low-cost, hygienic methods of collecting, composting, and recycling "night soil" or human wastes. Research has shown that treatment at very high temperatures (55-60°C) for several hours is the only way of ensuring that all disease-causing bacterial and viral pathogens in the night soil are destroyed. One system reviewed in this report--Bellsville Aerated Rapid Composting (BARC)--achieves extremely high temperatures with simple and inexpensive mechanical equipment. In conclusion, the authors recommend that "a series of research-pilot studies be undertaken in several developing countries to test the system under varying environmental conditions and night soil quality." 91 pp.

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Simpson-Hebert, Mayling. Methods for Gathering Socio-cultural Data for Water Supply and Sanitation Projects. TAG Technical Note No. 1. 1983. Technology Advisory Group (TAG), The International Bank for Reconstruction and Development/The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

This report describes social science methods for obtaining socio-cultural data for planning and designing low-cost water supply and sanitation projects. It describes data requirements and various data collection methodologies such as participant observation, informant interviews, open-ended questionnaires, and surveys. The author also examines the selection of data collection methodology given certain constraints caused by limited funding or time, the size of the project, or the inavailability of a social scientist. The Annex provides an example of a sanitation study. 29 pp.

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Swiss Association for Technical Assistance (SATA). Manual for Rural Watersupply. 1975. SATA, P.O. Box 32, Buen, S.W. Province, Canada.

This manual contains information on a wide range of aspects of village water-supply systems, with special reference to projects and conditions in Cameroon. There are detailed drawings for standard designs of such facilities as a public wash-place, water storage and filter tanks, and a public fountain. Most of the manual, however, describes the necessary steps in planning, constructing, and maintaining a system from the initial analysis of quantity and quality of water, through projection of future needs, preparing the application for project assistance, and maintaining records, along with construction details for the delivery systems and the appropriate choices of valves, pipes, filters, and pumps. A section on maintenance discusses common problems, how to prevent them, and how to remedy them. Other sections describe a range of water sources from springs and wells to rivers and streams, with discussion of the potential water quality of each and short term and long term costs for utilizing them.

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Tapiador, D.D., H.F. Henderson, M.N. Delmendo, and H. Tsutsui. Freshwater Fisheries and Aquaculture in China. FAO Fisheries Technical Paper No. 168. FIR/T168. 1977. Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

Describes the aquacultural and fishing practices of China and ways in which the Chinese experience can be used for the further development of inland fisheries and aquaculture in other FAO member countries. The report focuses on the integration of land, water, and fishery management as it relates to aquaculture. It also emphasizes the direct involvement of local people from the initial conception of a project to the final stages of implementation and evaluation. Perhaps the most striking feature of the Chinese experience is that this integration is practiced at the farm level by farmers who are the beneficiaries of the water projects. The authors further suggest strategies for land and water development that include major schemes aimed at water conservation and flood control, such as natural-lakes management, as well as construction of reservoirs and ponds, canals and creeks, fishponds, paddy fields, water-lifting devices, and fishways. Unusual aspects of the Chinese approach to lake and reservoir fisheries are discussed regarding stocking, fertilizing, large-scale catching, subdivision and bottom grading, and clearing. Development project planners and designers can acquire some useful ideas from this report, especially ideas pertaining to farmer participation. Also contains useful information about aquaculture for all fisherfolk. 84 pp.

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Tillman, Gus. Environmentally Sound Small-Scale Water Projects: Guidelines for Planning. 1981. Volunteers in Technical Assistance (VITA), 1815 N. Lynn Street, Suite 200, Arlington, Virginia 22209, USA.

Jointly published by Coordination in Development (CODEL) and VITA, this second volume of the Guidelines for Planning Series introduces several issues of interest to persons who plan and implement small-scale water projects. It reviews basic ecological principles, describes water-related diseases in some detail, considers ways to improve community water supply and sanitation, and discusses the role of water in agriculture. A final chapter gives step-by-step guidelines for project planning. 142 pp.

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Tillman, Robert E. Environmental Guidelines for Irrigation. 1981. Office of Forestry, Environment and Natural Resources, Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

Stressing the importance of integrating socio-economic factors with environmental considerations, these guidelines provide a systematic assessment of potential impacts of irrigation projects for those concerned with their design, implementation, operation, and maintenance. Following an overview of irrigated agriculture and a discussion of the benefits of irrigation, the author analyzes the environmental problems associated with irrigated agriculture in terms of the impacts on soil, water resources, flora and fauna, socio-economic systems and human health. The appendix contains a useful environmental data checklist for planning and evaluating irrigation projects. 74 pp.

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Unesco. Appropriate Technology: A Bibliography of Books and Other Materials. November 1978. Unesco Regional Office for Education in Asia and Oceania, C.P.O. Box 1425, Bangkok, Thailand.

This bibliography includes key works on appropriate technology, divided into sections by geographic area, by continent and some countries, and by end use of the technology. In the use of technology section there are categories commonly discussed in appropriate technology literature, such as energy, agriculture, water, resources, health and sanitation, food preservation and storage, and cottage industries. In addition there are categories such as fish culture, women's concerns, educational equipment, and home improvement. The work also includes a list of periodicals, publications by and about organizations which deal with appropriate technology, and a list of names and addresses of publishers of appropriate technology literature. 103 pp.

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United Nations Development Programme (UNDP). International Drinking Water Supply and Sanitation Decade 1981-1990: Decade Dossier. 1981. UNDP, Division of Information, One United Nations Plaza, New York, New York 10017, USA.

A compilation of informative papers and case histories intended to provide an overview of the UNDP's strategies for supplying safe drinking water and sanitation in developing countries. The materials contain "how-to" papers, case studies, and a directory of countries with national water plans. Aimed at project planners and administrators, they serve to stimulate ideas for action in water and sanitation projects and offer general guidelines in areas such as community involvement, training, communication, and selection and maintenance of appropriate technologies.

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van Damme, J.M.G., W.K. Hoogendoorn, and Ir. P. Kerkhoven. Information Support to the International Drinking Water Supply and Sanitation Decade. n.d. International Reference Centre for Community Water Supply and Sanitation (IRC), Information Section, P.O. Box 140, 2260 AC Leidschendam, Netherlands.

In order to be cost-effective, technically sound, and socially appropriate, water supply and sanitation programs should be built on a good information base. The authors expand on this notion of information support and briefly describe the activities of the International Reference Center for Community Water Supply (IRC) which are directed toward providing information access and exchange for those working in water supply and sanitation programmes. 13 pp.

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Van Nostrand, John and James G. Wilson. The Ventilated Improved Double-Pit Latrine: A Construction Manual for Botswana. Technology Advisory Group (TAG) Technical Note No. 3. 1983. International Bank for Reconstruction and Development/The World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

A technical field manual intended for those supervising the construction and maintenance of Ventilated Improved Double-Pit (VIDP) latrines. VIDP latrines are designed for use in urban areas, or areas with a high water table. When one pit is full, it is capped and another pit is used. One year after capping, the waste may be removed as dry, odorless, safe compost and used for fertilizer. The manual includes detailed plans for two models of the VIDP latrine and record sheets for the inspection of latrine construction and operation. 47 pp.

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Van Wijk-Sijbesma, Christine. Participation and Education in Community Water Supply and Sanitation Programmes. Technical Paper No. 12. Revised Edition. 1981. International Reference Centre for Community Water Supply and Sanitation (IRC), P.O. Box 5500, 2280 HM Rijswijk, Netherlands.

This publication presents a thorough literature review focusing on the social and organizational, rather than strictly technological, aspects of water and sanitation projects which emphasize community participation. Many facets, including the limitations of the participatory approach, are discussed in conjunction with the stages of project planning, execution, continued maintenance, and evaluation. It is written from the perspective of the project planner as an individual, and covers not only the villager's social and cultural patterns, but also the social patterns and the expectations of the organization with which the planner may be working. 222 pp.

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Verma, Rabindra Kumar and Pramod Kumar Tripathi. "Irrigation Farmer's Organization." Voluntary Action. Vol. 24, No. 10, May 1982. Association of Voluntary Agencies for Rural Development (AVARD), 5, Deendayal Upadhyaya Marg, New Delhi 11002, India.

Discusses some of the strong reasons for developing organizations for irrigation farmers in India. The author contends that such organizations can help ensure equitable and timely distribution of irrigation water, resolve conflicts over scarce water resources, and relieve farmers of some of the administrative chores related to obtaining water for irrigation. pp. 394-395.

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Vickery, Deborah and James Vickery. Intensive Vegetable Gardening for Profit and Self-Sufficiency. Program and Training Journal, Reprint Series No. 25. March 1978. ACTION/ Peace Corps, Washington, D.C. 20525, USA.

An illustrated manual describing in detail how small farmers can increase their production of vegetables through intensive gardening in raised beds. The authors contend that with an adequate and controlled water supply for raised beds, the farmer can use less water to produce four times as many vegetables than with conventional methods on the same amount of land. Of particular interest is the chapter on water use which describes some aspects of water management, including the maintenance of a reliable supply of water, and the proper timing and application of water for the garden. Some methods for collecting, storing and distributing water are also described. These range from trickle or pitcher irrigation, in which plants receive only droplets of water at a time, to the bamboo water lift wheel and piping system. 159 pp.

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Volunteers in Technical Assistance (VITA). Village Technology Handbook. 1977. VITA, 1815 N. Lynn Street, Suite 200, Arlington, Virginia 22209, USA.

This excellent handbook describes techniques and devices which can be made and used in villages. Some of the practices suggested can be adopted on an individual basis, others require cooperation by many people and, sometimes, by government agencies. The book's aim is to gather in one publication information from many sources which has been found helpful in villages throughout the world. Instructions are accompanied by technical drawings. One can learn how to dig a well, pump water, build small earth-moving devices, irrigate, raise poultry, store food at home, make a mattress, build a bamboo shelter, mix concrete, make a solar water heater, and do silk-screen printing. References are given for further reading in the various areas, and include information on cooperatives and credit unions. 387 pp.

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Volunteers in Technical Assistance (VITA). Environmentally Sound Small Scale Agricultural Projects: Guidelines for Planning. 1979. VITA, 1815 N. Lynn Street, Suite 200, Arlington, Virginia 22209, USA.

This is a first in a series of Planning Guidelines, produced by Volunteers in Technical Assistance (VITA). With admirable clarity it explains the dynamics of an ecosystem—a complex of living organisms interacting with one another as well as non-living substances. When agriculture impinges on an ecosystem, positive or negative reactions take place; the knowledge of these is essential to farmers and agricultural planners. The booklet contains guidelines on water, soil, nutrient, and pest management. There are suggestions on how farmers could solve such problems as erosion, preparation of manure, and pest control by using simple methods that rely on local labor and materials. Of special interest is a section describing the relationship between water and agriculture. It focuses on aspects of water management which affect not only the supply of water, but also human health and the total environment. Also included are relevant questions for determining whether the environment is appropriate for an irrigation system, and suggestions for avoiding the negative effects of irrigation. 103 pp. (Also available in Spanish.)

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Water and Sanitation for Health Project (WASH). Evaluation Methods for Community Rural Water Supply and Sanitation Projects in Developing Countries: A Synthesis of Available Information. WASH Technical Report No. 4. 1981. WASH, Coordination and Information Center, 1611 N. Kent Street, Room 1002, Arlington, Virginia 22209, USA.

Provides general conceptual guidelines for evaluating water and sanitation projects. A three-phase paradigm is presented which involves, first identifying the focus of the evaluation, then selecting an evaluation methodology, and finally, implementing the evaluation. The author suggests that the evaluation can be facilitated by analyzing the project on three specific characteristics including the structure of the technical components, the administrative and technical performance of the project, and project impact. 29 pp.

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White, Alastair. Community Participation in Water and Sanitation: Concepts, Strategies and Methods. Technical Paper No. 17. 1981. International Reference Centre for Community Water Supply and Sanitation, P.O. Box 5500, 2280 HM Rijswijk, Netherlands.

Discusses the relevance and use of community participation in designing and implementing water and sanitation projects. The author suggests that the appropriate form of community participation is determined by the socio-cultural and political characteristics of the community. Community participation may range from consultation and financial contributions to self-help projects for self-sufficiency. The author also emphasizes that community participation in development projects is important because it encourages responsibility, utilizes indigenous knowledge, and frees people from dependence on the skills of "outsiders". The appendix includes an extensive list of references and various check lists for use in planning water supply projects. 180 pp.

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World Bank. Village Water Supply. 1976. World Bank, 1818 H Street, N.W., Washington, D.C. 20433, USA.

Discusses village water supply projects in terms of their planning, organization, and management; their financial resources and needs; the economic and social benefits resulting from improved water supplies; the current inadequacy of drinking water in developing countries; and the factors affecting the selection of projects for funding. The annexes include data from a survey conducted by the World Health Organization on the current status of water supplies in developing countries and projected costs for providing adequate quantities and qualities. 96 pp.

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World Scout Bureau. Scouts Can Raise Fish. n.d. World Scout Bureau, Community Development Service, P.O. Box 78, 1211 Geneva 4, Switzerland.

A pictorial step-by-step guide for teaching small-scale fish farming which provides simple instructions for choosing, constructing and maintaining the pond, and feeding and harvesting fish. 19 pp.

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2.0 NEWSLETTERS AND PERIODICALS

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Action for Development. Centre for World Development Education, 128 Buckingham Palace Road, London SW1W 9SH, England, UK.

A monthly publication which focuses on a wide range of current global issues and the impacts of development assistance activities on people in developing countries. It occasionally contains articles dealing with water related topics. For example, Stan Winer, in his article "Fish--A Success Story: Cooperation in Southern Africa" (No. 101, August 1982) describes the positive impact of international cooperation on the development of fisheries resources. Sheila Crosskey describes a seminar held to broaden awareness of the UN Declaration of the Water Decade in her article entitled "Water Decade Priorities: UK Standing Conference on World Development Seminar" (No. 100, July 1982). Philip Schofield in "The Water Project" (No. 110, May 1983) talks about his experience with a role-playing exercise in a junior school in the UK to teach students about the needs of people in developing countries.

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Appropriate Technology. Intermediate Technology Publications, 9 King Street, London WC2E 8HN, England, UK.

Initiated to meet the need for communication of appropriate technology innovations throughout the world. Most of the articles are contributed by people working in the field and cover a very wide range of topics. Diagrams and pictures are often included as well as pointers about what has and what has not been successful in designing, improving, and/or implementing the use of the technology discussed. Examples of recent articles which focus on topics concerning water and sanitation include "Women's Self-Help Efforts for Water Supply in Kenya", by Eddah Gachukia M.P. (Vol. 9, No. 3, December 1982), which highlights the cooperative efforts of rural women to address their local water supply problems and to become directly involved in alleviating these problems. In "A Low-Maintenance Solar Pump" (Vol. 10, No. 1, June 1983), Roger Bernard describes a minimum-maintenance solar water pump which can draw water from a depth of ten meters. Published quarterly.

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Asian Action. No. 36, November-December 1982. Asian Cultural Forum on Development (ACFOD), G.P.O. Box 2930, Bangkok, Thailand.

This particular issue contains a number of articles concerning water resources throughout Asia. In "Mangroves Are Gone, Misery Is On", attention is drawn to the effects that cutting mangrove trees for lumber has on the ecology of mangrove swamps. Another short article describes an appropriate technology device called the rope pump which is inexpensive to construct and can draw water from deep wells. Finally, the plight of Indonesian fisherfolk who are dependent on fish marketeers for cash income is discussed in "Fishermen of Batam Island Still Shackled by Middlemen."

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Basics. Rural Communications Services, 17 St. James Street, South Petherton, Somerset, England, UK.

Directed to rural development workers, this periodical aims to provide information on development problems in an easily understood form. Simple how-to and issue-oriented information is presented concerning agriculture, water, and sanitation, health, education, and training. Recent issues have discussed simple irrigation techniques and methods for constructing wells. Published bi-monthly.

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CCTD Newsletter. "Drought to Floods: The Situation Has Turned Worse; There's Not Enough Help." July-August 1982. Catholic Council of Thailand for Development (CCTD), 2508-2510 Soi Saensuk, Prachasongkroh Rd., Bangkok 10400, Thailand.

Reports on a severe drought which ended with extensive floods in the Northern, Northeastern, and Central Provinces of Thailand in 1982. The article describes some of the measures taken by the government to counter the lack of rain, including creating artificial rain, supplying water pumps, and providing seeds for drought-resistant crops. These measures are reported to be generally ineffective because they were misdirected or simply could not supply enough water. A number of drought-response activities by villagers are listed. The author also describes the extent and impact of the floods which followed the drought. 8 pp.

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CERES. "Water: The Critical Element." Vol. 15, No. 5, September-October 1982. Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

This issue focuses on topics concerning water use and management throughout the world. Ian Carruthers and Roy Stoner in "What Water Management Needs: A Legal Framework in the Public Interest", raise issues and questions related to the equitable distribution and efficient exploitation of groundwater resources. They emphasize that a legal framework which is sensitive to these objectives is essential for facilitating development of water resources. In her article, "Recalculating River Development Costs: The Case of the Senegal", Sophie Besses highlights the negative side effects of river development projects which include, for example, increasing the marginalization of women, disrupting traditional cultural, and replacing food crop production with export crops often subject to volatile markets. In "Harvesting Water in the Hard Rock Zones", Robert G. Thomas examines and analyses the possibilities for adapting tank and dug-well irrigation systems, successfully developed in India, to the African continent. In a fourth article "The Mekong Dream", Tom Sharp reaffirms that, in spite of recent negative prognosis, it is still technically and economically feasible to harness the Mekong River for Agri-development, power generation, and transportation. He reviews the progress made thus far and the problems encountered by rural developers mostly resulting from the political changes occuring in the region. 50 pp.

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CERES. Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

Provides thought-provoking articles on themes related to development and agriculture. Also includes relevant interviews, related world news, and reviews of important documents. Content of articles occasionally focuses on water. For example, Marie-Christine Comte, in "The Riddle of Lake Victoria" (No. 88, July-August 1981), describes the small-scale fishing industry on Lake Victoria and the trend toward more mechanized fishing techniques which are displacing the artisanal fisherfolk. Asit K. Biswes in "Applying Systems Analysis in Developing Countries" (No. 90, November-December 1982), advocates studying water management processes from a systems perspective. Six issues annually.

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CIRDAP Newsletter. Center on Integrated Rural Development for Asia and the Pacific (CIRDAP), Kotbari, Comilla, Bangladesh.

Focuses on rural development and farming in the Asia and Pacific regions. Each issue contains an update on organizational activities of CIRDAP, along with brief reports on the work of member countries in the Integrated Rural Development (IRD) Network. Project reports frequently describe activities related to water supply and sanitation. Quarterly.

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Decade Watch. Division of Information, United Nations Development Programme (UNDP), One UN Plaza, New York, New York 10017, USA.

A quarterly newsletter about activities connected with the International Drinking Water Supply and Sanitation Decade. It includes information on the funding of water and sanitation projects, accounts of successful programs in various countries, and news about recent developments in education and technology related to water and sanitation. A section on publications provides ordering information for journals, reports, and new books.

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Development Forum. United Nations University, DESI/DPI, Palais des Nations, 1211 Geneva 10, Switzerland.

Contains articles on specific development projects as well as on theoretical issues related to water supply and sanitation, agriculture, energy, women in development, literacy, radio, and nutrition. Past issues have featured an account of a self-help irrigation project in India (Vol. 9, No. 7, September 1981); a special report on some of the activities of the International Drinking Water Supply and Sanitation Decade (Vol. 9, No. 9, November 1981); a report on technologies and equipment for providing rural drinking water and sanitation (Vol. 9, No. 10, December 1981); and a response to critics of the International Water Decade (Vol. 10, No. 3, April 1982). Published monthly.

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Diarrhoea Dialogue. Appropriate Health Resources & Technologies Action Group Ltd. (AHRTAG), 85 Marylebone High Street, London W1M 3DE, England, UK.

This newsletter for primary health care workers, planners and administrators, researchers, and others focuses on diarrhoeal disease prevention and control. Concerns covered include oral rehydration, water supply, sanitation, and nutrition. Each issue contains news, reports, and letters received from health personnel worldwide. A "Practical Advice Series" presents useful information on such topics as "Choosing a Hand Pump" (No. 4, February 1981), "Persuading Children with Diarrhoea to Eat" (No. 6, August 1981), and "Carrying Out a Survey on Attitudes to Diarrhoea" (No. 9, May 1982). There is also a regular "Questions and Answers" section.

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Ecoforum. Environment Liaison Center, Atlas House, Moi/Haille Selassie Avenue, P.O. Box 72461, Nairobi, Kenya.

Provides a forum for Non-Governmental Organizations from around the world to share information and ideas on environmental issues. Monthly. In English, French, and Spanish.

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Enfo. Environmental Sanitation Information Center, Asian Institute for Technology, P.O. Box 2754, Bangkok, Thailand.

Describes on-going and recently completed projects in environmental sanitation. Announcements of conferences and seminars and new publications are also included. Quarterly.

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Horizons. Publications Division, Office of Public Affairs, Agency for International Development (AID), Department of State, Washington, D.C. 20523, USA.

A monthly magazine for development professionals. Published by the US Agency for International Development, each issue highlights various AID project activities, and presents informative articles written by persons involved in a wide range of areas of international development. Frequently contains articles highlighting water management for agriculture and rural health.

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Ideas and Action. Freedom From Hunger Campaign/Action for Development (FFHC/AD), Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

Focuses on the efforts of FAO and others to promote greater participation of people in their own development, particularly in the areas of health and nutrition. Reports on experiences in Africa, Asia, and Latin America. Discusses development issues and provides useful assessments of strengths and weaknesses of instructional materials used in different programs. Of particular interest is a special double issue on "Rural Health" (No. 145, 1982) containing several articles which consider community participation in water and sanitation projects. In another recent issue (No. 150, 1983), Kirsten Jorgensen ("Water Supply Projects in Africa: The Need to Involve the Main Users - Women!") argues for more explicit recognition, on the part of project planners of women as primary users and managers of local water supply systems. Six issues a year.

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The IDRC Reports. "Dossier: Water and Sanitation." Vol. 6, No. 3, 1977. Communications Division, International Development Research Centre (IDRC), Fox 8500, Ottawa K1G 3H9, Canada.

A special collection of articles on topics related to water and sanitation. Among these, Michael G. McGarry contends that water supply systems must be integrated with environmental health and sanitation programs in a "bottom-up" approach. A preliminary report on appropriate waste disposal technologies for developing countries compares and contrasts the sanitation needs of the Third World with the waste disposal options existing in Europe and the United States at the turn of the century. Clyde Sanger recounts China's canal-building history, commenting on the sociological effects of moving mountains and diverting rivers. Other issues of The IDRC Report occasionally contain articles related to water supply and sanitation. For example Jean-Marc Fleury describes the hydro-agricultural complex built on the delta of the Senegal River (Vol. 9, No. 4, January 1981). In the July 1977 issue, J.H. Hulse explains how polyculture -- the cultivation of several species at once -- has increased fish production twenty-fold in the community of Birahavekrishnapur in India (Vol. 6. No. 2). Another article describes a water filtration system designed at the Asian Institute of Technology (AIT) that removes nearly all particles and coliform-organisms from tropical surface waters, using granite chips and sand (Vol. 7, No. 4, December 1978).

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International Health News. Vol. 3, No. 6, December 1982. National Council for International Health (NCIH), 2121 Virginia Avenue, N.W., Suite 303, Washington, D.C. 20037, USA.

This issue of a newsletter intended for international health-related development workers contains two articles pertaining to water and sanitation. An adaptation of Helen O'Brien's Guide to U.S.-Based Agencies Involved in Water and Sanitation Projects in Developing Countries describes the human and monetary costs associated with unsafe water and poor sanitation and the needs which must be met to achieve the goal "to provide clean water and sanitation for all by the year 1990." These include money, local-level personnel, institutional support, water system maintenance capabilities, standardized equipment, better logistics and communications, more education, greater motivation, and better coordination among external donors. In "Rivers of Disease", Thomas A. Blinkhorn evaluates the performance of the Oncho Control Program, an international campaign to control onchocerciasis, or river blindness, in seven West African countries. After eight years of operation, the project has achieved notable health benefits but obstacles to complete success remain. These include reinvasion of cleared areas and development of genetic resistance to insecticides by the fly vector, lack of effective chemotherapy to treat victims of the disease, and people's resistance to repopulating cleared areas. 12 pp.

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Land and Water. Land and Water Development Division, Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100, Rome, Italy.

A technical newsletter directed to FAO fieldworkers in land and water development, providing information on a wide range of topics relevant to their work. Special sections on water, soil, and fertilizer include technical notes, project updates, information on meetings and training courses, and an annotated list of new publications.

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Lifeline. "Water." Vol. 2, No. 2, Spring 1983. Public Information Division, Save the Children, 54 Wilton Road, Westport, Connecticut 06880, USA.

This special issue devoted to water opens with an article by Peter Bourne entitled "Water --- Since the Dawn of History" in which he draws attention to the crucial importance of water for human life. Other articles describe the efforts of Save the Children to provide safe water on the Indian reservations of the Southwest USA, and in Sri Lanka, Colombia, the Middle East, and Tunisia. All of these projects emphasize the active involvement of local people in searching cooperatively for solutions to their water problems. 21 pp.

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New Internationalist. "Pure and Simple: Water and the Fight for Life." No. 103, September 1981. New Internationalist, 113 Atlantic Avenue, Brooklyn, New York 11201, USA; or New Internationalist, Montagu House, High Street, Huntingdon, Cambridgeshire PE18 6EP, England, UK.

This issue contains a range of discussions on clean water, sanitation, and irrigation. In a lead editorial, Debbie Taylor emphasizes that development of water resources can be instrumental in the war against poverty, hunger, and disease, but not without concurrent development of strategies that will alleviate the overall powerlessness of the poverty structure. Other articles of interest include "Rice and Rototillers" by Barbara Chasin and "Irrigation Irritation" by Richard Franke, both of which examine the unpleasant side-effects of water development projects. Arnold Pacey in "There's a Hole in My Bucket" stresses the importance of sensitivity in dealing with subjects such as sanitation; and Maggie Black in "An Unlikely Story" tells the tale of a successful sanitation project which combined appropriate technology with popular participation. 33 pp.

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Rural Development Participation Review. Rural Development Committee, Cornell University, 170 Uris Hall, Ithaca, New York 14853, USA.

An excellent quarterly publication designed to share knowledge and ideas on rural development participation, help develop a network of people interested in the subject, and encourage and facilitate the exchange of information. In the Winter 1981 issue (Vol. 2, No. 2), John Roberts describes "The Evolution of a Water Management Project by Participatory Demand: The Citanduy Basin Project in Indonesia", which came into being as a result of local people's needs and willingness to participate. The main goal of the project, located on the heavily populated island of Java, was to provide or improve irrigation for more than 150,000 acres. It was also intended to provide both long- and short-term training in watershed management and flood control. Local people successfully took part in the identification, planning, design, implementation, and evaluation of most of the major project components. In another issue (Vol. 2, No. 3, Spring 1981), Aklilu Lemma reports on fifteen years of studying the feasibility of community-run programs to combat schistosomiasis. In Adwa, Ethiopia, schistosomiasis among one- to five-year-olds was reduced by eighty-five percent through a community-controlled program to kill snails that carry the disease.

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Rural Progress. United Nations Economic Commission for Africa (UNECA), P.O. Box 3001, Addis Ababa, Ethiopia.

This quarterly bulletin contains articles, editorials, project descriptions, and a calendar of events pertaining to rural development in Africa. A recent issue describes the Kagera River Basin cooperative development project in East Africa which is intended to increase productive efficiency in agriculture in Tanzania, Uganda, Rwanda, and Burundi (Vol. 1, No. 4). Another issue (Vol. 2, No. 1) provides information about hydraulic rain pumps and windmill powered water-lifting devices for rural water supplies. A special issue devoted to the United Nations Water Supply and Sanitation Decade (Vol. 2, No. 2) contains the UN Action Plan for the Water Decade and a brief description of the Waringing'ombe Rural Water Supply and Sanitation Project in Tanzania.

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Science for Villages. Center of Science for Villages, Magan Sangrahalaya, Wardha 442001, Maharashtra, India.

This monthly publication contains articles on a variety of subjects related to appropriate technology. Content usually includes philosophical treatments of appropriate technology issues, data on current and projected social needs, excerpts and summaries from conferences and publications, brief descriptions and addresses of relevant technologies developed in India and other parts of the world. Some recent issues contain plans for making cement water jars from locally available materials (March 1982); a description of an appropriate technology success story in which animal driven water pumps were developed for irrigation (June 1982); an editorial on agricultural water use policies which advocates water conservation strategies rather than expensive irrigation projects for increasing food production (Feb. 1983); and plans for constructing a ventilated improved pit latrine (June 1983).

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Tranet. Transnational Network for Appropriate/Alternative Technologies, P.O. Box 567, Rangeley, Maine 04970, USA.

The major portion of this quarterly newsletter consists of news items and brief annotations of new publications on appropriate technology. A special section of a recent issue (No. 22, Spring 1982) entitled "Water and Sanitation" features a directory on water and sanitation which describes over sixty projects and publications.

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UNICEF News. "Water and Sanitation: The Pure and the Impure." Issue 103, No. 1, 1980. UNICEF, Information Division, United Nations Plaza, New York, New York 10017, USA; or UNICEF, Palais des Nations, 1211 Geneva 10, Switzerland.

This special issue opens with an article by Martin G. Bayer entitled "Making Children's Lives More Liveable" which examines the impacts of water quality on children. Other articles deal with the specific experiences of UNICEF projects in developing countries including the Sudan, India, Nepal, Angola, Kenya, Upper Volta, and Guatemala. Brief descriptions of a number of low-cost sanitation technologies are also included. Other issues frequently contain articles related to water supply and sanitation. 31 pp.

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The United Nations University Newsletter. Vol. 7, No. 2, May 1985. The United Nations University (UNU), Toho Seimei Building, 15-1 Shibuya 2-chome, Shibuya-ku, Tokyo 150, Japan.

A special issue on the United Nations University's (UNU) work in water and sanitation. Articles included deal with rural-urban tensions over shared water in Australia, the environmental impact of re-routing rivers in China, the dynamics of water use in communal rice paddy cultivation in Sri Lanka, and the potential of small-scale aquaculture as a protein source in Southeast Asia and Indonesia. One article analyzes the impact of environmental sanitation measures on curbing typhoid and cholera in Tokyo during the early part of the twentieth century. A special section provides a sampling of appropriate indigenous technologies for water use, including a wind-powered pump and a solar salt water distillery from India, a water mill from Nepal, and an Ethiopian slope terracing method. Other issues occasionally contain articles related to water and sanitation. 12 pp. (Also available in French, Spanish, and Japanese.)

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VITA News. Volunteers in Technical Assistance, Inc. (VITA), 1815 N. Lynn Street, Suite 200, Arlington, Virginia 22209, USA.

A quarterly newsletter providing information on small-scale technologies for agriculture, energy production, water supply and sanitation, small-scale industry, and education. Recent issues have included articles on terracing and irrigation to combat erosion in Haiti, and the problems of hydropower (October 1980); water catchment systems, photo-voltaic irrigation pumps, and small-scale hydropower systems (July 1981); and a water wheel used to pump water in Thailand (January 1982). Book reviews and instructions for obtaining plans and construction guides for the technologies described are also provided.

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Waterfront. UNICEF Water and Environmental Sanitation Team (WET), Programme Development and Planning Division, 866 UN Plaza, Room A415, New York, New York 10017, USA.

Low cost water supply and sanitation is the emphasis of this periodical. Waterfront readers have access to articles from newspapers; research results; descriptions of relevant projects and new publications; information on particular technologies, training and workshop opportunities, and sources of data; and a "who's who" of people active in the field.

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Waterlines. Intermediate Technology Publications Ltd., 9 King Street, London WC2E 8HN, UK.

Describes technical innovations and discusses issues associated with water supply and sanitation in developing countries. Highlights appropriate technology developed by people in the field and adaptable for use in other similar circumstances. Published quarterly.

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Watermark. United Nations Development Programme (UNDP), 1750 New York Avenue, Washington, D.C. 20006, USA.

A short newsletter describing activities which are supportive of the United Nations Water Decade project. Announces dates and places of various international meetings. Bi-monthly.

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World Health. "Water Decade 1981-1990". August-September 1980. World Health Organization (WHO), Av. Appia, 1211 Geneva 27, Switzerland.

A special issue devoted to the International Drinking Water Supply and Sanitation Decade. In "You Have Been Warned", P. Santema encourages developing countries to learn a lesson from the pollution problems confronting industrialized countries. In "The Village Pays Its Share", John Bland advocates community participation to achieve water supply and sanitation goals. Other articles review the United Nations Declaration on the Water Decade, highlight the issues of funding for water and sanitation projects, and emphasize that such projects constitute "the single most important activity" that can be undertaken to improve health and living conditions throughout the world. 39 pp.

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World Health. "Water is Life." August-September 1982. World Health Organization (WHO), Av. Appia, 1211 Geneva 27, Switzerland.

This special issue opens with a short editorial by Willy Brandt entitled "We Must Not Lose Hope" in which he encourages governments and international organizations to strengthen their cooperation toward achieving the goals of the Water and Sanitation Decade. Gregor Watters suggests in "The Decade In Europe" that the goals of the Water Decade need not apply only to developing countries; Orlando Lopez Orozco details Colombian techniques for getting water and sanitation education to rural areas; and Walter Pinto Costa describes a water and sanitation training program in Brazil. 31 pp.

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World Neighbors in Action. World Neighbors International Headquarters, 5116 N. Portland Avenue, Oklahoma City, Oklahoma 73112, USA.

A quarterly newsletter written especially for project personnel in developing countries to share information about cooperative self-help projects. Articles include, for example, a description of a farmer's irrigation cooperative in the Philippines (Vol. 2, No. 2E), and instructions for building a small dam (Vol. 4, No. 3E). Another issue has described a family association in Brazil that built its own well, and how to dig a well (Vol. 5, No. 1S). (Also available in Spanish.)

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World Water. Thomas Telford Ltd., P.O. Box 101, London EC1, England, UK.

A monthly magazine reporting on the progress being made on the United Nation's plan to provide everyone in the world with access to a safe supply of drinking water and adequate sanitation by 1990. Also available are special annual editions which bring together some of the more interesting articles from a given year.

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Yumi Kirapim. Department of the Prime Minister, Office of Village Development, and South Pacific Appropriate Technology Foundation (SPATF), P.O. Box 6937, Boroko, Papua New Guinea.

Contains short articles with specific suggestions for villagers on a wide range of topics, from contour planting to types of cookstoves. Occasionally contains articles related to water supply and sanitation. Language and format are not highly technical and numerous sketches are included. Articles in English, Melanesian Pidgin, and Motu.

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3.0 ORGANIZATIONS

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Appropriate Health Resources and Technologies Action Group (AHRTAG-UK), 85 Marylebone High Street, London W1M 3DE, England, UK.

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Appropriate Technology Project, Volunteers in Asia, Box 4543, Stanford, California 94305, USA.

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Codel, Inc., 79 Madison Avenue, New York, New York 10157, USA.

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Environment Liaison Center, Atlas House, Moi/Haille Selassie Avenue, P.O. Box 72461, Nairobi, Kenya.

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Environmental Sanitation Information Center, Asian Institute for Technology, P.O. Box 2754, Bangkok, Thailand.

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Health Behavior and Education Department, African Medical and Research Foundation, P.O. Box 30125, Nairobi, Kenya.

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International Reference Centre for Community Water Supply and Sanitation (IRC), P.O. Box 5500, 2280 HM Rijswijk, Netherlands.

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International Support Programme for Farm Water Management, Land and Water Development Division, Food and Agriculture Organization of the United Nations (FAO), Via delle Terme di Caracalla, 00100 Rome, Italy.

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National Center for Appropriate Technology (NCAT), P.O. Box 3838, Butte, Montana 59702, USA.

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National Institute of Development and Cultural Research (NIR), University of Botswana, Private Bag 0022, Gaborone, Botswana.

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Rural Missionaries Health Team, 2215 Pedro Gil, Sta Ana, Manila, Philippines.

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UNICEF Water and Environmental Sanitation Team (WET), Programme Development and Planning Division, 866 UN Plaza, Room A415, New York, New York 10017, USA.

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Volunteers in Technical Assistance (VITA), 1815 N. Lynn Street, Suite 200, Arlington, Virginia 22209, USA.

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Water Resources Board, P.O. Box 34, Colombo, Sri Lanka.

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Water and Sanitation for Health (WASH), Coordination and Information Center, 1611 North Kent Street, Room 1002, Arlington, Virginia 22209, USA.

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