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HEALTH NO. 1

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COMMUNITY WATER SUPPLY

A Selected List of References for A.I.D. Technicians

Prepared by
Health Service
Office of the War On Hunger
in cooperation with
A.I.D. Reference Center

Agency for International Development
Department of State
Washington, D. C. 20523

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INTRODUCTION

This bibliography is one of a series designed as a guide to the publications of AID and other agencies working in the field of development assistance. While AID reports and documents are the primary focus of this bibliography, materials on work by private organizations and international agencies are included to a limited extent.

AID employees should be able to benefit by the Agency's past experience. One method of benefiting from this experience is the reading of reports on past activities. The annotated listings in this particular bulletin reflect the experience of AID and other agencies in programs designed to promote the development of community water supplies through technical assistance programs.

To Obtain Retention or Loan Copies

A number of the reports listed in this bibliography were issued only in limited quantities. Reference copies of all of them are available in the Community Water Supply Branch and the AID Reference Center. An effort has been made to secure an extra loan copy whenever possible.

If a technician wishes to obtain a publication issued by an AID mission for his own files, he should address his request directly to the mission.

If the desired publication was issued by AID/Washington, the technician should address his request to the AID Community Water Supply Branch. The mailing address of the Service is:

WOH/HS/CWS
Agency for International Development
Washington, D. C. 20523

Members of the AID/Washington staff who wish to obtain copies of publications for their own files may call Mr. Arthur Holloway of the Community Water Supply Branch. If distribution copies are not available, CWSB will advise them on other sources.

In so far as the listed publications are available, they are being collected in the AID Reference Center. In cases where only one copy of a document is available, it must be used in the Center unless it is relatively short and may be duplicated easily. When two copies are available, one is for loan to staff members in Washington or AID missions. Loans to Washington staff members are for a two-week period and may be picked up in Room 1656 New State. Loans to AID overseas staff members

are made only through their own regular technical backstop office which will arrange a loan from the AID Reference Center. Loan materials should be returned to the technical backstop office.

Guides to Use of This Bibliography

1. A first point of reference should be the bibliographic classifications used in the table of contents to see if the topic of particular interest to the technician is included there.
2. The annotations of some of the larger publications included in the "General" (first) section of the bibliography will sometimes indicate coverage of a specific topic which may be of interest.
3. There has been a special effort to identify evaluative documents which report on past AID experience from the standpoint of what worked or didn't work, and why. Because of this, they are likely to provide useful guidelines to future action. Documents which give considerable attention to evaluation are items No. 21, 25, 26, 30, 32, 34, 35, 36, 38, 46, 47, 54. For staff members who have only a limited time to review evaluative materials, attention is called to item 56 on page 19, Community Water Supply in Developing Countries, A Quarter-Century of United States Assistance, and item 57 on the same page, Guidelines and Criteria For Community Water Supplies in Developing Countries. These two publications sum up AID experience for a considerable period of time and point out the lessons learned.
4. Technicians planning evaluation programs may want to refer to the papers "Objectives and Criteria for Water Supply Planning", and "Standards for Evaluating Organizational Arrangements for Water Services" which are a part of the document listed as item No. 12.
5. Attention is particularly directed to the Small Wells Manual listed as item No. 4 in this bibliography. This manual is much broader than the title indicates, covering the subject of ground water, as well as water-well design and construction. The excellent diagrams can be photographed for making slides, or hand-drawn enlargements can be made for use in training. Training Manuals containing considerable technical information are listed as items No. 24 and 29.
6. Technicians who desire materials for talks or lectures on the need for community water supply programs, or for backup material for increasing the budgets for such programs will find Water and Man's Health (item No. 5) a useful source of information.

7. Persons interested in the current status of urban water supplies should see items No. 3, 55. For a related report on rural water supplies see item No. 13.
8. AID policies with respect to its community water supply program are discussed in general in publications listed as items No. 1, 2, 7, 27.

Sources of Other Publications

The headquarters of the Pan American Health Organization are located very near the State Department at 24th St. and Virginia Ave. PAHO is the regional agency of the World Health Organization. These organizations issue a number of training manuals, technical handbook, status reports and other helpful publications. Technicians should visit this agency not only to obtain publications but also to consult with specialists in their own area of professional interest or from the country to which they are assigned.

Send In Your Ideas

Suggestions as to other subjects for bibliographies or as to the distribution or format of this bibliography, or of additional publications to be included in it (along with two copies of each), should be addressed to the Program and Technical Information staff as follows:

PPC/PRB/PTIS
Agency for International Development
Washington, D. C. 20523

A.I.D. REFERENCE LIST: COMMUNITY WATER SUPPLY

PART I. Topical References

GENERAL

1. McJunkin, Fredrick E. and Arthur H. Holloway, "The Global Water Supply Program." Nov. 1967, 197 to 207 pp.
Reprint from the PROCEEDINGS OF THE THIRD ANNUAL AMERICAN WATER RESOURCES CONFERENCE. ARC Catalog No. 614.772, M152.*

Reviews the history and objectives of the A.I.D. Global Community Water Supply Program and similar programs of other international agencies. Special emphasis is given to the current water supply situation in developing countries.

2. Okun, Daniel A., THE COMMUNITY WATER SUPPLY PROGRAM OF THE AGENCY FOR INTERNATIONAL DEVELOPMENT. Feb. 1965, 45 pp.
A.I.D./Washington. ARC Catalog. No. 614.772, 041.

A panel of specialists presided over by Dr. Okun, Professor of Sanitary Engineering at the University of North Carolina, with representatives from the Department of Health, Education and Welfare and the World Bank, as well as from A.I.D., reviews the community water supply program of A.I.D. Presents a series of detailed recommendations on the scope and direction of this program, and on related programs for sewage and waste water disposal.

3. Deiterich, Bernd H. and John M. Henderson, URBAN WATER SUPPLY CONDITIONS AND NEEDS IN SEVENTY-FIVE DEVELOPING COUNTRIES. Public Health Papers No. 23. 1963, 92 pp.
World Health Organization, Geneva. (Also available in French and Spanish editions).

Summarizes the present conditions, deficiencies and needs of urban water supply systems in 75 developing countries. Discusses the role of urban water supplies in public health and economic development, goals for improvement, and costs and means of financing more adequate systems.

* ARC is the abbreviation for AID Reference Center located in Room 1656 New State Building, AID/Washington.

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CONSTRUCTION

Cross References: See Nos. 4, 34, 56.

GROUND WATER

4. Gibson, Ulric P. and Rexford D. Singer, SMALL WELLS MANUAL. Contract No. AID/csd-1193, Task Order No. 5. Jan. 1969, 156 pp. Division of Environmental Health, School of Public Health, University of Minnesota, for the Health Service, Office of the War on Hunger, A.I.D./Washington. ARC Catalog No. 628.11, M665.

A manual covering: (1) origin, occurrence and movement of ground water, (2) ground water exploration, (3) water well design, (4) well construction, disinfection, maintenance and rehabilitation, (5) pumping equipment, and (6) sanitary protection of ground water supplies. Appendix A shows a diagram for constructing simple equipment for measuring permeability. Appendix B contains 19 useful tables and formulas. Two-page reference list. Excellent photographs and diagrams.

Cross References: See also Nos. 17, 18, 52.

HEALTH ASPECTS OF WATER

5. Miller, Arthur P., WATER AND MAN'S HEALTH. April 1962, Reprinted July 1967, 91 pp. Community Water Supply Section, A.I.D./Washington. ARC Catalog No. 614.772, M647.

The relationship and importance of water to man's health is analyzed. Water's use in preventing disease as well as its relationship to diseases is discussed. Specific diseases discussed include cholera, leptospirosis, paratyphoid fever, tularemia, typhoid fever, dracontiasis, echinococcosis, schistosomiasis, amebiasis, infectious hepatitis, diarrheal diseases, pleurodynia, and poliomyelitis. A bibliography on these diseases of 164 items appears on pp. 52-58. Chemical characteristics of drinking water are noted.

6. Collier, Richard W., BARRIO GACAO: A STUDY OF VILLAGE ECOLOGY AND THE SCHISTOSOMIASIS PROBLEM. Study series No. 9. 1960, 123 pp. Community Development Research Council, University of the Philippines, Quezon City. ARC Catalog No. PH 301.35, P552.

A field study in a particular village of Eastern Leyte in the Philippines of the major obstacles to public health work on schistosomiasis. The interrelationships between the community habitat, agricultural production, ability to afford medical services, patterns of social organization, the overall culture, and this particular disease were studied in this research project.

Cross References: See also Nos. 9, 35, 36.

MANAGEMENT

7. PROCEEDINGS OF THE WHO - A.I.D. COMMUNITY WATER SUPPLY COORDINATION MEETING. June 1967, 19 pp. Community Water Supply Program, A.I.D./Washington. ARC Cat. No. 628.1, W927.

Summarizes proceedings of a two-day conference on water supply which was attended by representatives from U.S. A.I.D., USPHS, World Health Organization, and the Pan American Health Organization. A summary of the water supply and related activities which each organization is participating in is given. Emphasis is placed on training facilities and programs, the availability of literature, the need for systematic data collection, and the problem of water supply and cholera. Copies of minutes of previous annual meetings of this coordination group are available in the Community Water Supply Section, Health Service, Office of the War on Hunger, A.I.D./Washington.

Cross References: See also Nos. 2, 3, 12, 16, 20, 30, 32, 34, 35, 37, 38, 40, 41, 44, 45, 48, 50, 51, 54, 57, 58, 59.

MATERIALS AND EQUIPMENT

8. Frick, D. W. and R. D. Fannon, Jr., FINAL REPORT ON THE DEVELOPMENT OF A WATER PUMP FOR UNDERDEVELOPED COUNTRIES TO AGENCY FOR INTERNATIONAL DEVELOPMENT. Contract No. AID/csd-1434. Sept. 29, 1967, 48 pp. Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio 43201 for Community Water Supply Section, WOH, A.I.D./Washington. ARC Cat.No. 621.64, B335.

First, a field survey of hand-operated water pumps was made in the Philippines, Thailand, East Pakistan, India, and Jordan. Based on the shortcomings of the pumps studied, lists of seven basic specifications (page 1) and of 11 pump design principles (page 33) were developed for a pump for use in developing countries. Shallow and deep-well models based

on these specifications were built and carefully tested. Results of the tests are reported. A plant layout, a list of required equipment and suggested personnel for a small foundry and machine shop for production of the pump are presented, pp. 41-45.

9. Davies, Weyburn D., A STUDY ON RURAL POPULATION WATER CONSUMPTION UNDER CONSUMPTION CONTROL CONDITIONS IMPOSED BY USE OF THE "FORDILLA" VALVE AND OTHER RELATED FACTORS. Transmitted with Airgram to A.I.D./W, TOAID A-68, July 25, 1966, 6 pp. ARC Catalog No. IR 628.1, D257.

This was a field study in an Iranian village of the conservation of water through the use of a valve which automatically shuts off after delivering a fixed amount of water. It was substituted for the regular type of faucet. The special valve cut water consumption by approximately 50% but was judged to be so expensive that it would not be used in most village situations.

10. ANALYSIS OF PRODUCTION POTENTIAL OF WATER AND SEWERAGE COMMODITIES IN EAST PAKISTAN. Financed under A.I.D. Loan No. 391-H-068. Nov. 1966, 57 pp. Camp, Dresser and McKee, Consulting Engineers in conjunction with Booz, Allen and Hamilton, Management Consultants. Report for the Directorate of the Public Health Engineering, Government of East Pakistan. ARC Catalog No. PK 628.1, C186.

This report identifies the commodity requirements of the East Pakistan water and sewerage programs, estimates the volume and value of materials required and selects those with most attractive potential for development. The agencies, both public and private, concerned with industrial development are surveyed. Recommendations are made for the Directorate of Public Health Engineering and for other agencies to promote local production of commodities and equipment.

11. Henderson, John M., DEVELOPMENT OF WITHIN-COUNTRY PRODUCTION OF MATERIALS AND EQUIPMENT FOR COMMUNITY WATER SUPPLY SYSTEMS. (Working Paper) Jan. 1961, 29 pp. plus 3 appendices. ARC Catalog No. 628.1, H496.

One method of improving the operation, maintenance and dependability of community water supply systems in developing countries is to encourage the indigenous production of equipment and construction and maintenance materials. This report summarizes the results of an inquiry addressed to ICA missions

on this subject. Detailed technical information is given on the manufacture of asbestos-cement pressure pipe, and on plastic pipe. Bibliographies are included on these latter subjects.

Cross References: See also Nos. 4, 24, 32, 45, 46.

PLANNING

12. CONTRIBUTED PAPERS BY THE DEPARTMENT OF ENVIRONMENTAL SCIENCES AND ENGINEERING TO THE INTERNATIONAL CONFERENCE ON WATER FOR PEACE. May 23-31, 1967, various pagings. Published by the above Department, School of Public Health, University of North Carolina, Chapel Hill, North Carolina. ARC Cat. No. 628.1, N864.

Papers reproduced are: (1) "Water Quality Technology: Present Capabilities and Future Prospects," (2) "An International Program in Sanitary Engineering Design," (3) "Planning and Developing Water Supply Programs in Developing Countries," (4) "Objectives and Criteria for Water Supply Planning" and (5) "Standards for Evaluating Organizational Arrangements for Water Services."

Cross References: See also Nos. 1, 14, 28, 41, 57, 58.

RESEARCH

Cross References: See Nos. 6, 8, 9, 22, 36, 46.

RURAL WATER SUPPLY

13. ASSESSMENT OF ENVIRONMENTAL SANITATION AND RURAL SUPPLY PROGRAMMES ASSISTED BY THE UNITED NATIONS CHILDREN'S FUND AND THE WORLD HEALTH ORGANIZATION (1959-1968). JC 16/UNICEF-WHO/69.2. World Health Organization (Geneva) for consideration by the United Nations Children's Fund. ARC Cat. No. 613.1, U58.

Discusses the improvement of water supplies and sewage disposal in 80 countries with special emphasis on seven of these. These are China (Taiwan), India, Kenya, Pakistan, Paraguay, Peru and Senegal. Consultants visited each of the above 7 countries to make a detailed evaluation of progress. An annex gives a hypothetical example of operation and maintenance costs for a village water supply.

14. REGIONAL SYMPOSIUM, RURAL COMMUNITY WATER SUPPLY DEVELOPMENT. July-Aug. 1964, 29 pp. USOM, A.I.D., Bangkok. ARC Catalog No. TI 628.1, S989.

Report is a summary of proceedings which identify problems in planning, finance, design, construction, operation and maintenance of rural water supply systems. Delegates were grouped in separate panels and prepared some answers to the problems cited and identified additional problems.

Cross References: See also Nos. 8, 45, 52.

SYSTEMS DESIGN

15. Cox, Charles R., GUIDES TO THE DESIGN OF WATER TREATMENT PLANTS. Aug. 1960, 87 pp. Public Health Division, United States Operations Mission, ICA, Jamaica.
ARC Catalog No. 628.16, C877.

Author draws upon experience with state sanitary engineers in the Great Lakes and the upper Mississippi River area to work out a program adapted to developing countries. It is noted that governmental regulations are a minimum requirement. The text then deals with basic criteria for water treatment plant design, including aeration, sedimentation, mixing and flocculation basins, filters, chlorination, iron and manganese removal, softening, fluoridation and laboratory facilities. Included is a standard design for a small filtration plant.

Cross References: See also Nos. 4, 19, 31, 34, 44, 50, 53, 56.

TRAINING

16. REPORT ON FOURTEENTH COURSE OF ENGINEERING MANAGEMENT OF WATER SUPPLY SYSTEMS. June 10-Aug. 23, 1968, not paged. College of Engineering and Institute for Civic Education, University of Akron, for Community Water Supply Branch, Health Service, WOH, A.I.D./Washington. ARC Catalog No. 658.15938, A315.

Report includes course outline and class schedule, a six-page bibliography and a list of reprints from the American Water Works Association which are available for course use. Well-illustrated.

17. NINTH COURSE ON GROUND WATER DEVELOPMENT. Contract No. AID/csd-1193, Task Order No. 7. 1968, 34 pp. Division of Environmental Health, School of Public Health, University of Minnesota, for A.I.D./Washington. ARC Catalog No. 658.15938, M665.

Describes the instruction program, including lectures, laboratory and field work. Gives outline of topics covered, a ten-week schedule and a two-page bibliography. Well-illustrated.

18. GROUND WATER DEVELOPMENT COURSE, ANKARA, TURKEY. Contract No. AID/csd-1193, Task Order No. 3. 1967, 3 pp. plus attachments. Division of Environmental Health, School of Public Health, University of Minnesota, for A.I.D./Washington. ARC Catalog No. TU 658.15938, M665.

Describes course on ground water development offered in cooperation with the Turkish State Hydraulic Works Agency. Attachment 3 gives a list of topics and lectures for the five weeks of regular course work. Attachment 4 outlines the three weeks of field training.

19. REPORT ON THE SEVENTH SESSION OF THE INTERNATIONAL PROGRAM IN SANITARY ENGINEERING DESIGN. 1967, 46 pp. Prepared by the Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, for the Community Water Supply Branch, A.I.D./Washington. ARC Catalog No. 628.07, N864, 7th.

Describes the supporting agencies, the professional staff and the facilities made available for this training program. Appendix C, pp. 37-41, lists the topics and lecturers for the academic part of the program. Information is given on other aspects of the program such as field trips and assignments in municipal water supply agencies, trips to professional meetings, and internships in the offices of consulting engineering firms.

20. Blair, Charles V., ENGINEERING MANAGEMENT OF WATER SUPPLY SYSTEMS. Contract No. AID/csd-1120. Sept. 1966, various pagings. The College of Engineering and the Institute for Civil Education, the University of Akron, Akron, Ohio, for the Community Water Supply Branch, A.I.D./Washington. ARC Catalog No. 658.15938, A315, 11th.

Reports on the eleventh, three-month course on Engineering Management of Water Supply Systems, including course outlines, weekly schedules, a six-page course bibliography, and a list of graduates of the program since its inception in Jan. 1962.

21. Haratani, Joseph, REPORT ON SANITARY ENGINEERING DESIGN COURSE, UNIVERSIDAD NACIONAL DE INGENIERIA, LIMA, PERU, FEB 27 TO MAR 5 1966. 1966, 9 pp. Community Water Supply Branch, A.I.D./Washington. ARC Cat. No. PE 628.07, H254.

The writer surveyed and made recommendations concerning the training program being carried out under Contract No. AID/csd-718 by the University of North Carolina at the Faculty of Sanitary Engineering of the National Engineering University in Lima, Peru.

22. Brown, James C., REPORT TO USAID/PERU ON THE PROGRAMS AND GOALS OF THE INTERNATIONAL PROGRAM IN SANITARY ENGINEERING DESIGN. Contract No. AID/csd-718. Dec. 1965, 15 pp. Department of Environmental Science and Engineering, University of North Carolina, for A.I.D./Washington. ARC Cat. No. PE 628.07, N864.

Describes the International Program in Sanitary Engineering Design and Development of the University of North Carolina which involves training programs at Chapel Hill and at the National Engineering University in Lima, Peru, and a program of investigations carried out at both locations and in other countries.

23. Okun, Daniel A., George E. Barnes, Emil T. Chanlett, Richard Cole and Charles M. Weiss, REPORTS ON GRADUATE PROGRAM IN SANITARY ENGINEERING AT THE UNIVERSITY OF SAN CARLOS, GUATEMALA. Contract No. AID/csd-12-305. 1965, 71 pp. Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill, North Carolina. ARC Catalog No. GT 628.07, N864.

Authors visited Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica to determine the current status of graduate training in sanitary engineering and then propose a plan for graduate sanitary engineering at the University of San Carlos. Curriculum, library, laboratory facilities and student recruitment are discussed and recommendations are made.

24. COURSE OF STUDY, Circa 1964, 145 pp. Water and Sewerage Technical School, Neosho, Missouri. Copies for A.I.D. staff members are also available from the Health Service, War on Hunger, A.I.D./Washington. ARC Catalog No. 628.1, W314.

Includes a complete course outline on the operation and maintenance of community water supply systems. A basic overview of the water supply and sewerage disposal industry is presented with emphasis on terminology, industry equipment, and the development of basic skills in the field. Duration of course is one academic year and is adapted for sub-professionals. U.S. A.I.D. uses the publication as a prototype for overseas training programs and has also sponsored trainees to the school in Missouri.

25. Brown, James C. and Daniel A. Okun, AN INTERNATIONAL PROGRAM IN SANITARY ENGINEERING DESIGN. Publication No. 87. July 1964, 24 pp. Department of Environmental Sciences and Engineering, School of Public Health, University of North Carolina, Chapel Hill, North Carolina. ARC Cat. No. 628.07, N864, No. 87.

Paper presented at the IX Congress of the Inter-American Association of Sanitary Engineers in Bogota, Colombia. Describes very briefly five examples of poor selection of equipment for water supply systems in less-developed countries. Emphasizes the importance of simplicity in equipment design, and cites illustrations of the application of this and other principles in the operation of the international program of this agency.

Cross References: See also Nos. 7, 12, 29, 32, 33, 39, 40, 46, 47, 54.

URBAN WATER SUPPLY

Cross References: See Nos. 3, 54, 55.

WASTE WATER TREATMENT

Cross References: See Nos. 13, 27, 37.

PART II. Worldwide Programs (see page 19)

PART III. Regional Programs

LATIN AMERICA

26. Freedman, Joseph, SUMMARY OF COMMUNITY WATER SUPPLY PROGRAMS IN CENTRAL AMERICA AND PANAMA. April 1964, 9 pp. A.I.D./ Washington. ARC Catalog No. 628.1, F853.

Reviews water supply developments in the specified area under the headings: institutions, loans, UNICEF assistance, and personnel. Brief evaluation of urban and rural supply programs

is given, along with recommendations for improvement. Lists agencies responsible for water supply and sewage facilities in each country as well as improvement of projects funded by various international and national technical assistance agencies.

27. Pineo, Charles S., INTERNATIONAL HEALTH ASSISTANCE PROGRAMS. 1963, 14 pp. Community Water Supply Branch, A.I.D./Washington. (also reprinted from the American Journal of Public Health, Vol. 54, No. 12, Dec. 1964, 2014-22 pp.) ARC Catalog No. 614, P651.

Describes briefly the history of the A.I.D. public health assistance program. The health assistance program in Peru and the AID/Brazil water supply and sewerage program are used as illustrations of trends in program development. Paper was presented before the American Public Health Association Conference in Kansas City, Nov. 11, 1963.

28. Hammerstrom, Richard J., BASES FOR THE FORMULATION OF NATIONAL PLANS FOR POTABLE WATER SUPPLIES. 1960, 27 pp. ICA/Peru. ARC Catalog No. 828.1, H224.

Discusses the critical need of Latin American countries for improved community water services, and sets forth ten principal elements which should characterize any national program in this field of activity.

MIDDLE EAST

29. MANPOWER NEEDS AND TRAINING OF ENVIRONMENTAL SANITATION PERSONNEL. CENTO Conference, Istanbul, Turkey, Sept. 7-15, 1964, 177 pp. Office of the U.S. Economic Coordinator for CENTO Affairs, c/o American Embassy, Ankara, Turkey. ARC Catalog No. 628, C397.

Discussions are summarized under the following headings: manpower requirements for environmental sanitation programs, recruitment and utilization of sanitary engineers, training of sanitary engineers, and training of sanitation personnel other than engineers. Recommendations and technical papers on related subjects are also presented.

Cross Reference on MIDDLE EAST: See also item No. 59.

PART IV Country Programs

BURMA

30. Htun, Kyaw, VILLAGE WATER SUPPLY: BURMA. Completion Report: Project No. 82-52-109. Sept. 29, 1964, 17 pp. AID/Burma.
ARC Catalog No. BR 628.1, H873.
Includes a general discussion of the country-wide problems of water supply, a brief description of the U.S. technical assistance water supply project, the organization and program of the Burmese Rural Sanitation and Water Supply Board, comments on the difficulties encountered and an evaluation of results.
31. Holloway, A. H., REVIEW OF WATER SOURCES AND TRANSMISSION FOR RANGOON, BURMA. March 1962, 3 pp, plus 23 pages in appendices. AID/Burma. ARC Catalog No. BR 628.1, H745.

Reviews and makes recommendations regarding a previous report by Malcolm Pirnie Engineers of New York titled, "Water Supply and Transmission for Rangoon, Burma." prepared in 1958. Separate appendices giving additional data cover (a) Hydrological Considerations, (B) Water Quality, (c), Transmission Facilities, (D) Economic, Social and Financial Considerations.

BRAZIL

32. Board, Leonard M., Robert R. Harris, and G. Lamar Hubbs, EVALUATION OF COMMUNITY WATER SUPPLY PROGRAMS AND CAPABILITIES IN BRAZIL. March 1968, 115 pp. Public Health Service, U.S. Department of Health, Education and Welfare under PASA with A.I.D./Washington. ARC Catalog No. BL 628.1, D419a.

Brazil was the 12th country studied as a part of the World-Wide Water Supply Project. Report covers laws and regulations, planning and organization, finance, international assistance, materials, equipment, construction, contractors, manpower, education and training, operation and maintenance.

33. Williams, James D., REPORT NO. 3 ON PUBLIC WATER SUPPLIES AND WATER SUPPLY TRAINING IN BRAZIL. Sept. 1965, 17 pp. National Center for Urban and Industrial Health, Bureau of Disease Prevention and Environmental Control, Public Health Service, U.S. Dept. of Health, Education and Welfare.
ARC Catalog No. BL 628.1, D419.

Report covers the author's third trip to Brazil in connection with a water supply development program. Emphasis is directed mainly toward a course outline for training, with emphasis on engineering plans, financing, construction and operations.

Cross Reference: See also No. 27.

CEYLON

34. Wieters, Alfred H., A REPORT ON RECONNAISSANCE SURVEY OF COMMUNITY WATER SUPPLIES OF CEYLON. May-July 1960, 63 pp. Office of Public Health, ICA/Washington.

ARC Catalog No. CE 628.1, W652.

Report covers present water policy, sources and current status of community water supplies and the agencies responsible for them, progress in meeting needs, financing improvements, water wastage, design and construction practices and costs, operational problems, sewage disposal problems, defects in administrative organization, and four alternative proposals for improving community water supplies.

ETHIOPIA

35. Spruyt, Dirk J., Francis B. Elder, Simon D. Messing, Mary K. Wade, Brooks Ryder, Julius S. Prince and Yohannes Tseghe, ETHIOPIA'S HEALTH PROGRAM - ITS IMPACT ON COMMUNITY HEALTH. Ethiopian Medical Journal, Vol. 5, No. 3, July 1967, 87 pp. Ethiopian Medical Association, Addis Ababa.

ARC Catalog No. ET 614.0963, E84.

The evaluation of public health services made in this report covers the six-year period from 1961 to 1967. Included are government and mission hospitals, clinics, dresser stations and health centers. An analysis of Health Service activities is made, diseases identified, health attitudes studied, and aspirations noted. Twelve specific recommendations for improvement are made.

36. A STUDY OF THE HEALTH IMPACT OF A PROTECTED COMMUNITY WATER SUPPLY, METHODOLOGY AND BASELINE FINDINGS. Dec. 1965, 95 pp. U.S. A.I.D., Ethiopia. ARC Catalog No. ET 613.31, U58.

Study conducted on village of Sodo, Ethiopia to establish a baseline for measuring changes in human health and its relationship to the local water supply. Attitudes toward health and drinking water are surveyed, water consumption for home and commercial use is noted as well as methods of procurement and cost. A wealth of data is included on water sources, health services, population, age, sex, household density, educational level, ethnic group, land tenure and housing.

GUATEMALA

Cross Reference: See No. 23

HONDURAS

37. Caldwell, James D., REPORT ON A REVIEW OF THE ORGANIZATION OF THE SERVICIO AUTONOMO NACIONAL DE ACUEDUCTOS Y ALCANTARILLADOS (SANAA), REPUBLIC OF HONDURAS. Jan. 1966, 19 pp. A.I.D./ Washington. ARC Catalog No. HO 354.728300871, C147.

Makes suggestions for minor modifications of proposals made by a Pan American Health Organization team for improving the water and sewerage program of SANAA. Contains specific suggestions for improving the water supply and sewage disposal systems for the central district (Tegucigalpa and Comayagua).

IRAN

38. Holloway, Arthur H., COMMUNITY WATER SUPPLY ACTIVITIES IN IRAN. Jan. 1962, 9 pp. Community Water Supply Program, A.I.D./ Washington. ARC Catalog No. IR 628.1, H745.

Status of the community water supply program in Iran is noted and recommendations are made in regard to assisting the National Water Resources Commission and the Ministry of Health. Other recommendations are made for improving training in sanitary engineering.

Cross Reference: See also No. 9

JAMAICA

39. WATER SUPPLY SYSTEMS OPERATION AND MAINTENANCE COURSE, Contract No. AID/csd-700. June 1965, 15 pp. plus 7 attachments. Published for U.S. A.I.D., Kingston, Jamaica by Water and Sewerage Technical School, Neosho, Missouri.
ARC Catalog No. JM 628.1, W314.

Includes two complete training course outlines. The first is a one-month course for supervisors, the second a three-month course for operators. Subjects included are water storage and distribution systems, water works chemistry, chlorination, pumping systems, filtration, treatment and maintenance systems.

40. Brown, Wade G., STUDY OF WATER TREATMENT PLANT OPERATION AND MAINTENANCE PROBLEMS IN JAMAICA. Final report on Contract PIO/T 532-P-52-AE-3-20034, Articles I, B, F. Nov. 1962, 31 pp. A.I.D. Mission to Jamaica. ARC Catalog No. JM 628.16, B881.

Advocates the establishment of an island-wide water authority. General discussion covers: record-keeping, plant design, maintenance, water quality testing, housekeeping, corrosion, and personnel. Comments are made on the water treatment plants in each parish. Fourteen specific recommendations are presented under the headings of personnel, plant improvement and plant operation.

41. Sterling, Clarence and Lee A. Francis, COMMUNITY WATER SUPPLY DEVELOPMENT IN JAMAICA. Final Report. Sept 17, 1960 to Mar. 20, 1961, 152 pp. USOM/ICA, Jamaica.

ARC Catalog No. JM 365.61, S838.

A detailed report covering existing conditions and problems of water supply, proposals for administrative and technical changes and the fiscal magnitude of the proposed changes. Appendices and tables contain considerable statistical material on health conditions and water needs on the island.

JORDAN

42. LeFever, Floyd F., NATIONAL HYDROLOGIC SERVICE AND PROGRAMS IN JORDAN - EVALUATIONS AND RECOMMENDATIONS. Sept. 1962. 112 pp. Geological Survey, U.S. Department of Interior (under Contract to U.S. A.I.D.) ARC Catalog No. JO 551.49, L493.

Report was prepared for the Central Water Authority, Government of Jordan to assist in establishing a hydrologic service. Surface water resources are described in detail and recommendations for data collection procedures at gauging stations and for office practices are made. Equipment requirements are noted and a training program is suggested.

43. CENTRAL WATER AUTHORITY ANNUAL REPORT 1960/61. Jan. 1962, 39 pp. Central Water Authority, The Hashemite Kingdom of Jordan, Amman. ARC Catalog No. JO 352.911, J82.

History of the organization is given. Details on the administrative organization are set forth, and projects are described. (Note: Although report is by the Government of Jordan, it reflects to a high degree actions supported by the U.S. technical assistance program.

NICARAGUA

44. Caldwell, James D., PROPOSED RURAL WATER SUPPLY PROGRAM FOR NICARAGUA. Jan. 1964, 20 pp. Community Water Supply Branch, Office of Human Resource and Social Development, A.I.D./ Washington. ARC Catalog No. NU 628.72, C147.

Discusses the planning, installation and operation of water supply systems for human use, primarily in rural communities. Current water supply systems are examined and specific recommendations are made for the Ministry of Public Health and other government agencies regarding the establishment of a central water and sewerage authority.

PAKISTAN

45. Holloway, A. H., DOMESTIC WATER SUPPLY PROGRAMS IN EAST PAKISTAN. Feb. 1963, 19 pp. A.I.D./Pakistan. ARC Cat. No. PK 628.1, 1745.

A survey covering the management, operation and maintenance of municipal and village water systems. Also discusses sanitary engineering education and the local manufacture of galvanized and cement-asbestos pipe, pipe fittings and water meters. Manpower needs were investigated.

Cross Reference: See also No. 10.

PERU

46. Brown, James C., REPORT ON THE DEVELOPMENT AND CONDUCT OF PROGRAMS OF POST GRADUATE TRAINING AND APPLIED RESEARCH IN SANITARY ENGINEERING AT THE NATIONAL ENGINEERING UNIVERSITY OF PERU. Nov. 1967, 31 pp. University of North Carolina, Chapel Hill. ARC Catalog No. PE 628.07, N864a.

Post-graduate training and research at National Engineering University (U.N.I.) Lima, Peru are discussed by the author who was in residence for two years, 1965-67, as a contract U.S. A.I.D. Advisor from the University of North Carolina. Project emphasis was placed on UNI research in the design, construction and operation of water supply and waste disposal facilities.

47. SANITARY ENGINEERING IN PERU. May 1958, 51 pp. Department of Sanitary Engineering, School of Public Health, University of North Carolina for Community Water Supply Branch, A.I.D./ Washington. ARC Catalog No. PE 628.07, N864a.

A review of training and other project activities carried out between Sept. 1954 and May 1958 by the University under Contract No. AID/csd-718 and several previous contracts. Gives an overview of sanitary engineering in Peru and the in-training program of the National Engineering University in Lima. Gives a brief history of project activities sponsored by ICA in cooperation with the two universities.

Cross References: See also Nos. 21, 22, 27.

PHILIPPINES

48. Pickard, Ralph C., Jerome B. Gilbert and Earnest Boyd, WORLD-WIDE WATER SUPPLY STUDY TEAM REPORT, PHILIPPINES. Aug.-Sept. 1967, 45 pp. Community Water Supply Program, A.I.D./Washington. ARC Catalog No. PH 628.1, D419.

A comprehensive study of water supply in the Philippines is included covering both rural and urban aspects. The team reports that not one of 8 communities studied had an adequate water supply. Inadequacies are identified and corrective suggestions are made. Some emphasis is given to regulatory legislation and enforcement.

SURINAM

49. Caldwell, James D., REPORT ON CONSULTATION VISIT TO SURINAM, April, 1962, 18 pp. Community Water Supply Program, A.I.D./Washington. ARC Catalog No. NS 628.1, C147.

An analysis of the existing community and rural water supply operations is made, needs are identified and recommendations for improvement are made. Costs are itemized and estimated for one urban sub-project.

TRINIDAD AND TOBAGO

50. Caldwell, James D., A REPORT ON THE DEVELOPMENT AND USE OF WATER IN TRINIDAD AND TOBAGO. Sept. 1963, 30 pp. Office of Human Resources and Social Development, A.I.D./Washington. ARC Catalog No. TE 628.1, C147.

Author investigates and reports on the problems of production and distribution of water, and on the establishing of a central water authority. There is a review of existing and currently planned facilities. Included in the review is the 5-year plan for a unified water and sewerage authority proposed by a consultant from the Pan American Health Organization. Recommendations are made to implement a government policy of providing water for domestic use and other purposes for every inhabitant at the lowest rates possible.

TUNISIA

51. Holloway, A.H., REPORT ON POTABLE WATER SUPPLY ACTIVITIES OF USOM/TUNISIA. Oct. 1960, 12 pp. USOM/Tunisia. ARC Catalog No. TN 628.1, H745.

Reviews the social, economic and financial factors bearing on water supply problems in Tunisia. Makes recommendations as to suitable USOM project activities in this field.

TURKEY

Cross Reference: See No. 18.

UPPER VOLTA

52. Holloway, Arthur H., DEVELOPMENT OF THE WATER RESOURCES IN THE NORTHEAST OF UPPER VOLTA. Feb. 1966, 18 pp. Community Water Supply Program, A.I.D./Washington.

ARC Catalog No. UV 333.91096625, H745.

Report prepared as a part of an effort to assist the livestock industry under an animal husbandry project. An evaluation of the land and water resources is made, the relationship with the A.I.D. animal husbandry project is noted and suggestions for locating and developing ground water resources are made.

YEMEN

53. Ruiz, Aldelmo, and J. L. Hummel, FEASIBILITY STUDY ON WATER SUPPLY AND ENVIRONMENTAL SANITATION ACTIVITY (PROJECT NO. 279-12-520-009). March 7, 1964, 18 pp. U.S. A.I.D. Taiz, Yemen. ARC Catalog No. YE 628.1, R934.

Report has ten appendices with charts, drawings and photos. There is good general background data on Taiz, and introductory information on Yemen, (i.e. economy, people, education, health, weather and ground water). Preparation of the report was done when the project was actually under way. Detailed engineering data included for water collection, storage and distribution.

INDIA

54. Boyce, Earnest, Dwight F. Metzler, and Morton W. Lieberman, REVIEW OF THE NATIONAL WATER SUPPLY AND SANITATION PROGRAM. May 1960, 73 pp. U.S. Technical Cooperation Mission to India, New Delhi. ARC Catalog No. IN 614.772, M 596.

Report was prepared by three public health engineers at the request of the Government of India. The report is based on observations in ten states and conferences with many officials at all levels. There is a critical review of the National Water Supply and Sanitation Program. A historical summary of the program is given and the sources of financial support are analyzed. Current urban and rural operations are reviewed and an analysis of the administration is given. Recommendations for legislation, training and financing are made.

URBAN WATER SUPPLY

55. Pyatt, Edwin E., and Robert C. McAllister, THE QUANTITATIVE RELATIONSHIP BETWEEN MUNICIPAL WATER SUPPLIES AND ECONOMIC DEVELOPMENT. Contract ICAC - 1424. October 1960, 1 vol., chapters separately paged. Northwestern University, Evanston, Ill. for AID/Washington. ARC Catalog No. 338.277, N 879.

Report includes two principal parts, one is an extensive annotated bibliography dealing with municipal water supply and the other with information on the same subject gathered through interviews with local officials which took place in foreign countries, primarily Puerto Rico. In addition to health, emphasis is placed on the role of water in determining industrial location.

SYSTEMS DESIGN; CONSTRUCTION

56. WATER WELL DESIGN AND CONSTRUCTION. (Draft) 1964, 119 pp. Office of Engineering, AID/Washington. ARC Catalog No. 628.11, A 265.

A manual giving practical details on how to construct water wells for a family, a village or for industrial installations. Logs, formation samples, well screens, well development, yield tests, water samples and records are discussed. A two page bibliography is included. Four appendices deal with the recommended practices for water sampling, specifications for water well construction, guide specifications for a well drilling construction contract and procedures for inspectors of well construction.

ADDENDUM

PART II Worldwide Programs

Evaluative Documents in Draft

There are two reports in process of development by the Community Water Supply Branch, which represents a special effort to sum up AID experience in this field. These publications will be issued sometime during the summer of 1969. They are listed here, although full bibliographic information is not currently available, because of their importance as evaluative documents.

57. McJunkin, Fredrick E., COMMUNITY WATER SUPPLY IN DEVELOPING COUNTRIES. A QUARTER CENTURY OF UNITED STATES ASSISTANCE, 1969. Office of International Health, U.S. Public Health Services for AID/Washington. ARC Catalog No. 628.1, D 419.

An introductory chapter discusses the role of water supply in developing countries. A second chapter gives the highlights of AID efforts to improve community water supplies on a worldwide basis with brief reports on typical activities country-by-country, but grouped on a regional basis, i.e. Near East and South Asia, East Asia and Viet-Nam, Africa, and Latin America.

58. GUIDELINES AND CRITERIA FOR COMMUNITY WATER SUPPLIES IN DEVELOPING COUNTRIES. PASA TCR 3-67. 1969. Bureau of Water Hygiene, Environmental Control Administration, U.S. Public Health Services for AID/Washington. ARC Catalog No. 628.1, D 419.

This report is a synthesis of ideas on guidelines and criteria developed from team surveys of community water supply programs in twelve developing countries, four of them in Asia and eight in Latin America. The purpose was to examine AID operations in this field and identify those factors contributing to the development of successful projects as well as those hindering such development. Chapters are devoted to (a) policies, laws and institutions, (b) program planning, (c) capital financing, (d) manpower and training, (e) technical standards, (f) project development, (g) contracts and construction, (h) operation and maintenance, (i) water utility management and (j) developing public support.

ADDENDUM

REGIONAL PROGRAMS - MIDDLE EAST AND SOUTH ASIA

59. ENGINEERING MANAGEMENT OF WATER SUPPLY SYSTEMS, REGIONAL SEMINAR.
June 1961, 179 pp. Near East - South Asia Group, ICA/Tehran, Iran.
ARC Catalog No. NEA 658.15938, N354.

Proceedings of first Near East - South Asia Regional Seminar on water supply systems. Participating countries were Iran, Iraq, Lebanon, Nepal, Turkey and the United States. In addition foreign aid advisors from India, UAR, and Pakistan participated. Among the planning and management topics discussed were: managerial qualifications, consumer service, rate structures, operation and maintenance, and record keeping.