



REGIONAL COMMITTEE

SEA/RC15/22

Fifteenth Session

21 September 1962

Agenda item 15

CONCLUSIONS AND RECOMMENDATIONS ARISING OUT
OF THE TECHNICAL DISCUSSIONS

ON

COMMUNITY WATER SUPPLIES

These discussions were held under the Chairmanship of Mr C. Rasiah of Ceylon. They occupied a half day on 19 September, almost a full day on 20 September, and a short additional session on 21 September. Discussions on the background information contained in documents SEA/RC15/6, 7 and 8 were supplemented by the views of participants, which were expressed in terms of the guidelines contained in document SEA/RC15/5. The following agreed conclusions and recommendations resulted from the discussions:

1. Conclusions

1.1 There is at present a very large proportion of the population of communities in this region not supplied with adequate amounts of safe water from piped distribution systems. The rate of population growth in communities is several times greater than the rate of new water supply construction, with the result that the general situation is growing worse instead of better. The resulting adverse effect on the health of the public is serious. Concurrently, the lack of good community water supplies significantly retards the economic, industrial and social advancement of communities. It is estimated that the rate of water supply construction for the next fifteen years will need to be about eight times the present rate, throughout the Region as a whole in order to provide 80 percent of the population of communities with piped water.

1.2 Some countries of the Region, aware of the need to find a solution to the water supply problem, have embarked upon community water supply programmes. Other countries have not yet started taking action in this direction. For the most part, the existing programmes are not geared to the greatly expanding needs. There are shortages of trained and experienced technical personnel, of management personnel, of critical construction materials and of arrangements for financing. In some countries procedural difficulties frequently lead to long delays in getting waterworks construction underway. There is an obvious need to review and overhaul the entire system relating to the provision of engineering services, administration, financing and management if satisfactory progress is to be made.

RECOMMENDATIONS

1.3 In almost all cases sources of international exchange are necessary through international loans or credits; however, international sources cannot provide all the capital costs for all water supplies in all countries of the world. The general situation is that local, state or national financing must be relied upon for the major proportion of capital costs of water supply construction. The capital required for an effective national water supply programme represents a small percentage of the capital available for investment in most countries of this region. There have been examples of cases where capital expenditures have been planned for construction of community water supplies, but where, for various reasons, the expenditure has not been taken up. Financing agencies and banks are more likely to provide loans for water supply when they can be assured that the schemes will be operated on a businesslike basis.

1.4 In the present stage of development of the majority of the communities of this region, the methods, equipment and the basic design factors commonly used in the highly developed and wealthier countries are often economically and technically beyond reach. There is a great need to devise and develop systems of water treatment and distribution and of preservation of water resources which are inexpensive to construct and simple to operate and maintain. To this end, there is a concurrent need for research and development and for a realistic re-appraisal of the fundamental bases of engineering design. Measures must be found to make fuller use of local materials, local skills and the principles of self help. Research and development should lead to standards for design, determination of design periods, maintenance, operation and management applicable to the conditions in the different countries of the Region.

1.5 Shortages of trained and experienced personnel impose serious restrictions on the rate of new water supply construction and on the exercise of satisfactory operation and management of schemes completed. In general, there are shortages of professional engineers, waterworks operators and technicians, skilled artisans, and management personnel of the higher grades. At present, training facilities are not adequate to create these categories of personnel in sufficient numbers and in time to carry forward an otherwise feasible programme. Incentives to take up public health engineering and other branches of water supply operation are necessary.

1.6 Public health agencies have several well-recognized and constructive functions relating to community water supply programmes and the preservation of water resources, all arising from their over-riding responsibility for protecting and improving the health of population groups. The statutory functions and the manner in which these are exercised vary from country to country. There are, however, four types of action which all health agencies are empowered to take - namely, to expose conditions hazardous to health, to establish and enforce reasonable standards for water quality, to assist in establishing priorities relating to water works improvement and construction, and to stimulate responsible governmental agencies to effective action. Health agencies in this region have not all been equally aggressive and effective in carrying out these and other comparable functions, or in developing their programmes to keep pace with growing critical needs. It is very necessary that local authorities be alive to their responsibilities in the field of water supplies.

2. Recommendations

2.1 In view of the need for co-ordinating limited resources in finance, materials and manpower, and for relating community water supply to the broader aspects of water resource development and conservation, it is recommended that, in general, community water supply programmes should be developed on a state or national basis. National programmes and their organizational structures should allow for integration or co-ordination of the functions of planning, financing, engineering, management and supervision of the health aspects of water supply. The pattern of organization should recognize the need for national or state water and drainage boards and should be adapted to the needs and requirements of each country, but it should ensure, so far as possible, that comprehensive, long-range plans are developed, and that a phased programme is worked out, consistent with the resources available. National programmes should allow for initiative on the part of communities or localities ready to go ahead with their own resources, and should avoid interposing difficulties and administrative bottlenecks.

2.2 A systematic effort should be made to accumulate and record fundamental data on: water resources available or needed, now and in future, for community water supplies; the existence and nature of water supply systems; amounts of water used and required, now and in the early future; costs of construction and operation of water supplies, and the quality of water served to the public. The collection, tabulation, analysis and publication of such data should be the function of a central authority or agency. For each community at present served with a piped system, the following basic information is the least that should be accumulated:

- Total population
- Proportion of the population served from the piped system
- Volume of water supplied, per person served per day
- Ratio of water currently produced to the designed capacity of the system
- Quality of water provided to consumers as compared with the recognized standard of purity
- Cost of production of water per unit volume, and revenues

Health agencies may promote and collaborate in the collection of data on community water supplies.

2.3 Considering the limited economic and technical resources generally available in this region for water supply development and operation, it is recommended that a consistent, co-ordinated programme for research and development be undertaken by governments, institutions and universities, leading towards the development of materials, methods and systems of water treatment, distribution and management which are inexpensive to construct and simple to operate and maintain. It is recommended that WHO should make itself responsible for the collection of information on the progress and results of such research and development and for its diffusion to Member States within the Region. It is further recommended that WHO should stimulate and co-ordinate such research and development by all appropriate means at its disposal.

2.4 A fundamental requirement of a public water supply is that it should be of safe quality. It is recommended that governments should adopt official standards for drinking water quality, and that these standards should not be less rigid than the WHO International Standards for Drinking Water. In the case of very small communities having little or no transient population, some exercise of judgement might be allowed to the official local health agency, considering local conditions and prevailing levels of immunity to water-borne diseases and the importance of having a sufficient quantity of water for human consumption and hygienic requirements. Even in these cases, the tolerable limits of water quality should be clearly stated and enforced, and water failing to meet the WHO standards should nevertheless be declared unsafe, particularly for small children.

2.5 It is recommended that all public water supply schemes be managed and operated in accordance with sound principles of business administration. As a general principle, all water distributed should be paid for. Individual consumers, particularly those with water piped into the house, should pay for water consumed. In the case of public outlets, where water may be distributed free to consumers, payment should be made to the water authority from public funds, in proportion to the amount of water delivered. In establishing water rates, consideration should be given to the consumer's capacity to pay. The water rate should, where possible, be related to the basic minimum wage, to take into account fluctuations in the purchasing power of the local currency. Allowance might be made for meter installation or service connections upon an instalment or easy payment plan.

2.6 In view of serious shortages of public health or sanitary engineers, waterworks operators and technicians, overseers, skilled artisans and other categories of personnel, it is recommended that governments, with assistance from WHO and other external agencies as appropriate, should plan and carry forward training courses for these categories of personnel. For basic or refresher training of engineers, chemists, bacteriologists and comparable professional or scientific grades, it is recommended that a training programme be developed and carried out in close association with existing universities and institutes. For other categories, it is suggested that training programmes should include both theoretical and practical training, possibly on an "in-service" basis.

2.7 Considering the need to minimize foreign exchange requirements for imported waterworks equipment, and the desirability of fostering the local production of such equipment, it is recommended that designers of community water supplies should make the fullest possible use of locally produced items. The use of substitute materials does not necessarily impair the usefulness of the system. Concrete or cement-asbestos pipe, for example, can usually be substituted for cast-iron pipe; plastic pipe can be used extensively in small systems. Increased use of substitute materials will encourage local manufacture. Governmental economic policies should be adapted to encourage the local manufacture of waterworks materials and equipment.

2.8 Consistent with the provision of a twenty-four-hour supply, the policy of making waterworks designs as simple as possible should be supported, both to reduce construction costs and to permit a level of operating skill in keeping with local situations. The repair and maintenance of complicated control devices may, for example, require a degree of mechanical skill far beyond that possessed by local artisans.

2.9 Considering that a specific application of a water treatment process is strictly limited as to the quality of water that it can treat successfully, and that the cost of water treatment rises substantially as the quality of the raw water goes down, it is recommended that steps be taken now to control any present pollution of water destined for community water supplies and to prevent future pollution, particularly by the discharge of sewage or of harmful and toxic industrial wastes.

2.10 Taking into consideration the huge financial requirements for the construction of community water supplies to cover a sizeable backlog and to meet the needs of speedily growing communities, it is recommended that whenever technically and economically practicable, ground water should be further exploited as a source to avoid unnecessary initial and operating costs of water production. To this end, it is recommended that surveys of ground water resources should be carried out in every country and that engineering personnel should be trained in ground water development.

2.11 Similar financial considerations also apply to the design of water supplies systems. Appropriate standards should be adopted in line with the rapid rate of economic growth of communities. This implies, for example, that design periods could be modified and per capita allowances reduced to realistic figures during the early life of the system, although provision should be made for the future in the basic design.

2.12 It is also recommended that public opinion be mobilized by health agencies, the engineering profession and all others interested in the subject of water supply development, to the end that community water supply will become a programme of first priority of the governments of the Region.

2.13 In establishing priorities for piped water supplies, among the factors considered, the incidence of water-borne diseases and the existence of public health activities in the community concerned should be included. The prevention of disease through provision of safe water supply often has a marked influence on the costs of medical care and treatment.

2.14 It is recommended that governments should develop comprehensive financing plans and should press for loans from international banking or loan agencies at terms and under conditions suitable for water supply construction.

2.15 It is recommended that attention be given to the provision of sewerage and drainage concurrently with the development of water supplies.

2.16 It is recommended that increased attention be given to the supply of water to communities serving as pilgrimage centres.

2.17 It is recommended that WHO should undertake or encourage the development of simple measures for emergency water treatment.

2.18 It is recommended that studies be taken up by the governments of the Region, in consultation with WHO, leading toward fluoridation for the improvement of dental health.