RECOMMENDATIONS TO ECE GOVERNMENTS ON SELECTED WATER PROBLEMS IN ISLANDS AND COASTAL AREAS WITH SPECIAL REGARD TO DESALINATION AND GROUND WATER

Prepared by the Seminar on Selected Water Problems in Islands and Coastal Areas with special regard to Desalination and Ground Water, held in Malta in 1978, and endorsed by the Committee on Water Problems at its tenth session.

The availability of water is a key factor in socio-economic development. Small islands and isolated coastal areas are confronted with particular water problems due to their limited water resources. It was generally agreed at the seminar that a proper management of all available water resources including groundwater utilization and desalting and water re-use techniques as well as the establishing of appropriate policies for water conservation, under both quality and quantity aspects, may facilitate the solution of those problems.

It is therefore recommended that:

1. The exploitation of water resources should be rationalized through the integrated management of surface and ground water in terms of both quantity and quality;

2. In coastal areas and islands, especially those with limited water resources, all feasible measures should be taken in order to reduce both surface and groundwater losses to the sea and in this respect exploitation of all sources, in particular of brackish karst coastal and submarine springs should be undertaken;

3. The model approach, especially the use of simple global models, should be encouraged in order to make the best use of field data. In this respect particular use could be made of the combination of global and grid models in order to define the impact of water exploitation on aquifers, on run-off and river flow, and on other relevant aspects;

4. Protection zones should be established for areas where water is abstracted for human consumption. Appropriate legal,

administrative and economic measures should be taken to prevent the contamination of aquifers used for drinking water supply. In this respect, land-use planning, based on appropriate hydrogeological information, should also be regarded as an important tool in preventive measures;

5. Research into the effects of known water pollutants with long-term, low-level exposure characteristics should be encouraged;

6. Artifical recharge of water should be considered, esecially in countries with limited water resources. Where treated sewage or polluted water is used for this purpose, attention should be paid to the quality aspects;

7. In areas experiencing a shortage of water resources, priority should be given to the supply of potable water for drinking purposes;

8. Recycling in industry and use of treated sewage for irrigation of certain crops should be encouraged under appropriate sanitary conditions. The use of treated sewage for human consumption should be avoided as far as possible.

9. Advanced methods of detecting water leakages in distribution systems should be developed in order to reduce water losses;

10. For water distribution in islands and coastal areas, the possibility of using dual pipe connexions for good quality and brackish/sea water may be considered;

11. Desalination should also be considered as a possible means of producing a suitable water supply in arid and semi-arid coastal and island areas. The cost and reliability of the process selected should always be compared, for each site, with those of other means of water supply, such as transport of water by tanker or pipeline, underground water development, rain water catchment and water re-use. The final decision may call for an integration of different techniques. An interdisciplinary attitude should prevail in these comparative studies;

12. In view of the ever-increasing cost of energy, further efforts should be made in developing desalination processes with a possibly lower energy consumption. The use of alternative

sources of energy (geothermal, solar, wind, etc.) should be considered, taking into account local conditions;

13. Due consideration should be given to new water-saving technologies in order to curb water consumption;

14. Appropriate co-ordination should be established between existing water institutions in islands and coastal areas with a view to a proper national water management.