

## 2. Water and Sanitation in the Context of Environmental Health

### 2.1 Environmental Health

This review is concerned primarily with water and sanitation in emergencies. But agencies considering any interventions in this area ought to be aware of the wider issues relating to environmental health programmes. Environmental health relates to the impact that their environment can have on a population. Environmental health programmes include technical inputs related to water, the disposal of excreta and solid waste, vector control, shelter and the promotion of hygiene. As such water and sanitation programmes contribute only in part to the overall environmental health of a population. Consider, for example, the lack of adequate shelter in sub-zero temperatures, or the impact crowded conditions in a refugee camp can have on the transmission rates of communicable diseases. Modifying an environment to make it less favourable to disease-carrying organisms such as flies and rats (referred to as vector control), or minimising the areas of stagnant water around a populated area by means of good drainage, can play a significant role in reducing the transmission cycle of a number of diseases.

There is a growing recognition that water and sanitation needs should not be looked at in isolation, but should form part of a holistic programme attempting to address the total environmental health needs of an emergency-affected community.

Environmental health interventions should be designed to complement each other, the goal being to gain the maximum benefit from any single intervention. The success of an environmental health programme largely depends upon how the component parts relate to each other and water and sanitation can be considered as the

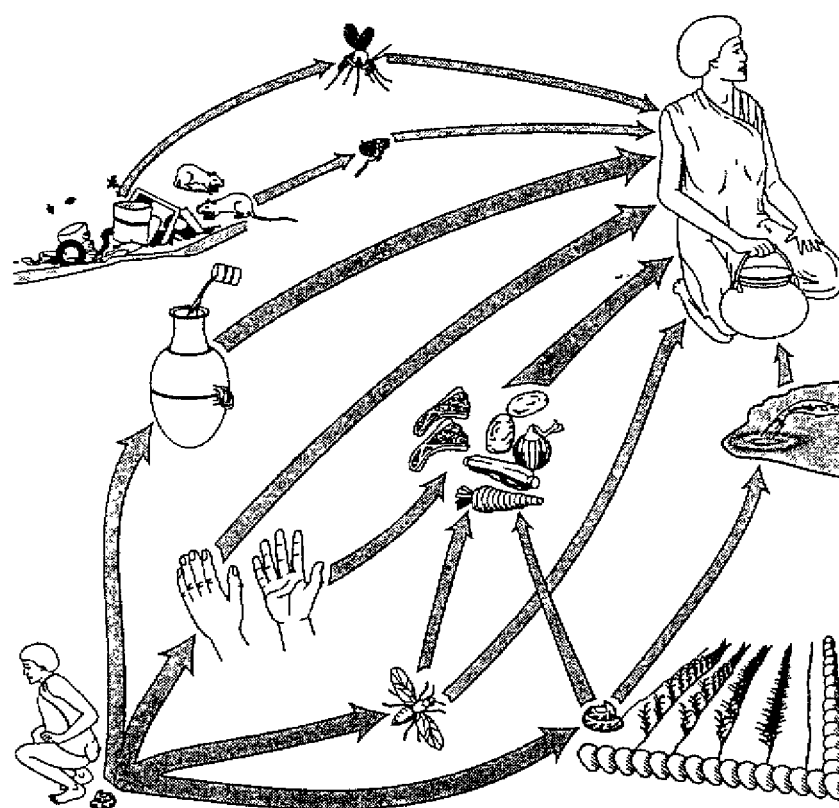
#### **Box 1**

##### ***Sanitation***

The term 'sanitation' is often taken to refer only to the disposal of human excreta. The concept of 'environmental sanitation' will be used throughout this review and refers to the hygienic disposal of human excreta, solid wastes, wastewater and the control of disease vectors.

foundation of such a programme. As a general guide it is unrealistic to expect to improve the health of a community unless there is understanding of the diseases that are most likely to affect them. Certain infectious diseases either rely on water (water-borne) or lack of adequate hygiene (water-washed) for their transmission. The aim of a water and sanitation programme in an emergency is to attempt to modify the environment in which the disease-carrying organisms are simultaneously most vulnerable and threatening to humans.

**Figure 1 Excreta-related Disease Transmission Routes**



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*'Hardware' and 'software':* *The Hardware* is made up of the programme elements involved in the supply of water and the construction of latrines. Thus in the water field the 'hardware' elements include the logistics of tankering

operations, well deepening, borehole drilling and the construction of piped distribution systems. In the sanitation field the 'hardware' elements include the construction materials; digging the pits; making the squatting slabs; construction of the shelter and maintenance of the finished latrine.

*The Software* is made up of the human aspects of water and latrine use and hygiene practices. In the water field these include attitudes towards the location of a new source, gender aspects of water collection and use, traditional beliefs about water quality, individual and group attitudes to the maintenance of water sources, etc. In the sanitation field the 'software' elements include individual and group attitudes towards defecation, the use of latrines, personal and community hygiene, knowledge of and attitudes towards the faecal-oral transmission routes, etc. The 'software' elements of sanitation are particularly important to the success of sanitation programmes. Providing latrines (ie. the 'hardware') is comparatively easy. Ensuring people use them in the way they are designed to be used and gain most benefit from them is much more difficult.

Human-caused and natural disasters expose populations to considerable health risks by disrupting their established patterns of water use, defecation and waste disposal. Displaced populations are often accommodated in camps where population densities are considerably greater than in even the most

densely settled rural areas. It is vital therefore that they follow sanitation practices which reduce the risk of major outbreaks of diarrhoeal disease; control of defecation practices can play a large part in this. Invariably this means the use of latrines and improving personal hygiene. Whilst some displaced populations are already familiar with latrines and others are able to adapt to their use without much difficulty, many displaced people are not familiar with them. Their arrival in a densely populated camp will force them to realise that their

#### **Box 2**

**Disasters do not generate 'new' diseases but by altering the environment may increase the transmission of diseases which already exist in the region. (UNICEF, 1986)**

old habits pose a sudden threat to their health, and will require them to change their life-long defecation practices.

The 'software' aspects of sanitation programmes are therefore of crucial importance, but this is not sufficiently recognised by agencies. They are too easily satisfied with counting the number of latrines they have built rather than looking at how they are used and the impact they are having on the health of the affected populations. Differences in attitude and approach to the software aspects of water and particularly sanitation programmes probably represent the greatest area of disagreement between relief agencies. Agency responsibility extends, or should extend, far beyond the construction of pit latrines, and every effort should be made to ensure that the community for whom the latrines have been provided at considerable expense derives the maximum health benefit from them. This entails a great deal of time-consuming consultation and commitment on the part of skilled primary health workers.

Water is the single most important provision for any population; people can survive much longer without food than they can without water. In an emergency situation, the provision of water should be looked upon as a dynamic process, aiming to move from initially providing sufficient quantities of reasonable quality water to improving the quality and use of the available water. Adopting such an evolutionary approach will go some way to helping people derive the greatest benefit from the intervention. For example, displaced people who are living in a camp for the first time may find their normal washing practices inadequate for their current densely

### **Box 3**

**Try putting yourself in the position of a person who for the whole of his/her life has either defecated in the fields, in the bush or in a very basic latrine offering nothing more than a small amount of privacy and a shallow hole. Now, after being forced to leave your home and most of your possessions and endure a long and probably traumatic journey, you are being asked to dig a deep latrine, use a dark and probably smelly shelter every time you want to defecate and also to place a cover over the hole you have just used. What is the point?**

populated living conditions. The provision of bathing facilities, and encouraging people to use them more frequently, may have a significant impact upon their environmental health in helping to prevent the spread of skin diseases.

People will always use the available water facilities if there are no alternatives; if they do not, they will not survive. Hygienic excreta disposal, on the other hand, is not fundamental to immediate survival needs. Greater difficulties will therefore be experienced when encouraging people to use sanitation facilities, and the 'software' aspects of sanitation provision acquire a greater relevance than those of water.