ANNEX 3

Default assumptions

A3.1 Drinking-water consumption and body weight

Global data on the consumption of drinking-water are limited. In studies carried out in Canada, the Netherlands, the United Kingdom and the USA, the average daily per capita consumption was usually found to be less than 2 litres, but there was considerable variation between individuals. As water intake will vary with climate, physical activity and culture, the above studies, which were conducted in temperate zones, can give only a limited view of consumption patterns throughout the world. At temperatures above 25 °C, for example, there is a sharp rise in fluid intake, largely to meet the demands of an increased sweat rate (ICRP, 1992; see also Howard & Bartram, 2003).

In developing guidelines for microbial hazard, per capita daily consumption of 1 litre of unboiled water was assumed.

In developing the guideline values for potentially hazardous chemicals, a daily per capita consumption of 2 litres by a person weighing 60 kg was generally assumed. The guideline values set for drinking-water using this assumption do, on average, err on the side of caution. However, such an assumption may underestimate the consumption of water per unit weight, and thus exposure, for those living in hot climates, as well as for infants and children, who consume more fluid per unit weight than adults. The higher intakes, and hence exposure, for infants and children apply for only a limited time, but this period may coincide with greater sensitivity to some toxic agents and less for others. Irreversible effects that occur at a young age will have more social and public health significance than those that are delayed. Where it was judged that this segment of the population was at a particularly high risk from exposure to certain chemicals, the guideline value was derived on the basis of a 10-kg child consuming 1 litre per day or a 5-kg bottle-fed infant consuming 0.75 litre per day. The corresponding daily fluid intakes are higher than for adults on a body weight basis.

A3.2 Inhalation and dermal absorption

The contribution of drinking-water to daily exposure includes some indirect routes – such as inhalation of particles and droplets containing microbes and volatile

substances, and dermal contact during bathing or showering – as well as direct ingestion.

In most cases, available data are insufficient to permit reliable estimates of exposure by inhalation and dermal absorption of contaminants present in drinking-water. It was not always possible, therefore, to address intake from these routes specifically in the derivation of the guideline values. However, that portion of the total tolerable daily intake (TDI) allocated to drinking-water is generally sufficient to allow for these additional routes of intake (see section 8.2.2). Should there be reason to believe that potential inhalation of volatile compounds and dermal exposure from various indoor water uses (such as showering) are not adequately addressed, authorities could consider taking this into account in setting national standards or guidelines.