Preface

Halfway through the past half century a few wise folk realised that we could no longer do wrong and stupid things to the water environment. We needed to start doing the right things – even if they could only be done a little badly. Rapid increases in the global population, in industrialisation, urbanisation and privatisation, together placed immense strains on local water resources. The dangerous consequences of farmers being tempted to pull more and more water out of limited local water environments became painfully evident. The inappropriate production of crops that love to grow at temperatures at which we humans need expensive air conditioning devastated vast tracts of land. We dried up one of the biggest inland seas in the world in Central Asia, at least one major river in the US and another one in China. Capitalism and communism proved to have the same self-destructive tendencies.

Environmental activists were the first to spot that societies had been doing too many wrong things spectacularly well. The global atmosphere on which we all depend had been heated and polluted, so that climate changed. Surface water resources and groundwater had been over-pumped and polluted locally. Damaged water-resource hotspots became evident. Each local crisis reinforced the paradox that the most water-scarce regions were actually

'exporting' water – in the form of the water embedded in water-intensive crops – to regions that were much better endowed with water.

Between 1800 and the 1970s politicians liked the things that engineers had done for them. Engineers had shown that it was possible to banish discomfort, ill-health and reduce social strife. But by the 1970s water engineers found themselves having to catch up with new ideas on the value of water. Urgent problems associated with massive environmental uncertainties could no longer be automatically remedied by concrete infrastructures. The voice given to the environment changed the discourse.

This book acknowledges the massive contribution of the hydraulic mission. But the main purpose is to draw attention to two of the very important agents who will in future determine whether or not the population of the world will be water secure. The first is the farmer. The second is ourselves – the consumers of food. Farmers, by deploying a lot of inputs wisely – or not – determine whether they get high crop yields that use water effectively. We consumers, and our food choices, at the other end of the supply chain determine how much water is diverted into crop and livestock production. Our food preferences, our tendencies to waste food, our increasing longevity and our other demographic tendencies, determine the demands made on the water environment.

The aim of this book is to get both food consumers and farmers to grasp their role in future global water security. Other agents in the food supply chain – the food commodity traders, the food processing and retailing corporations – are also important target audiences. As are the governments of over-powerful economies that distort global trade.

Currently, and increasingly in future global financial markets, sovereign wealth funds will determine global water and food security and whether it has been achieved by sustainably intensive means.

The concept of virtual-water 'trade' and water footprints will be used to explore the food supply chain and trade relations. It will be shown that global commodity production and trade enable local water security. The concept of virtual water, coined in the early 1990s, has had to live with the anger that its revelations sparked. Governments and societies existing in blissful apparent water security made possible by virtual-water 'trade', easily constructed arguments that resisted its adoption. Two decades on they can still drown the idea if it distresses their citizens. But it is now commonplace for virtual water to have a prominent place in any analysis of water security. And understanding the vital role that virtual water plays in global water security will help consumers, their governments and corporations to make the choices that will secure livelihoods, societies – and the future of our planet.

The water-footprint statistics used in the book should be regarded as first approximations. They have been developed by Arjen Hoekstra and his network of researchers. New approaches, heroic assumptions and reliance on global datasets have been unavoidable. More accurate numbers based on more precise methods are being developed at the national and sub-national levels.