**AE3 GLOBALISED WORLD**

 **Hidden water**

1. While most of the poor have too little water to meet their needs, the relatively well-off consume enormous amounts. Indeed, few realize quite how much water someone living a Western urban lifestyle –

 whether in Europe or North America or among the middle classes in developing countries – actually uses.

1. It’s not the obvious uses that really add up. On average, each person drinks not much more than 5 litres of water daily. Even after washing and flushing the lavatory, it increases to only around 150 litres each. But that is just the start. The numbers begin to soar when the water needed to produce food and clothes is added in. It takes between 2,000 and 3,500 litres of water to grow a kilo of rice. That is more water than many families use in a week. It takes 1,000 litres to grow a kilo of wheat, and 500 litres for a kilo of potatoes. And when you start feeding grain to animals to make meat and milk and cheese, the numbers become even more startling. It takes 11,000 litres – that’s 11 tonnes – to grow the food for enough cows to make fill roughly 25 bathtubs with the water needed to grow the cotton to one hamburger. Growing cotton for clothes is no better. You could make just one t-shirt. In all, an average citizen of the United States consumes nearly 2.5 million litres of water a year – about three times as much as a Kenyan or a Chinese.  **Where does it all come from?**

1. Some water falls as rain on fields. But most of the water that farmers use for growing the food and cotton consumed around the world is taken from water collected from rivers or pumped from underground. In some places, two, three or even four times more water is taken to irrigate crops than a generation ago – and as a result these once abundant sources are drying up. Many places are in danger of running out of water. In India, farmers are taking 100 cubic kilometres more water from underground sources every year than the rains replace.

#  Virtual water

1. As rivers run dry and underground water tables fall, countries have tried to get round such local crises through trade. Not in water itself – which is too heavy and expensive to transport far. Instead, more and more dry and densely populated countries are importing thirsty crops rather than growing them themselves.
2. Economists call the water needed to grow these traded crops ‘virtual water’. Think of it this way: every tonne of wheat arriving at a dockside carries with it, in virtual form, the 1,000 tonnes of water needed to grow it. All sorts of traded products require water for

their production: it takes, for example, about 400,000 litres of water to manufacture a car. But about 90 per cent of the ‘virtual water’ trade is in food and cotton. The biggest exporters are the United States of America, Australia and Canada, while major importers

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include Japan and Europe and, increasingly, China, which no longer has enough water to grow the food it needs. Without the trade, some countries would starve. There would be water wars. **F** Climate change means that more and more countries are likely to suffer droughts in future. Who will feed them? In such a world, countries that rely on importing virtual water could be in trouble.

#  Technical solutions not enough

**G** What can be done to provide enough water? There are some technical solutions. Coastal regions can desalinate seawater, for instance. That may be sufficient for providing drinking water, but too expensive for the big users – like farmers. Some countries will build more reservoirs to catch the water in their rivers. But in more and more places, the rivers are already drying up. A global study published recently showed that a quarter of the world’s people live in river basins where the water is already fully used. Moving water over the hills from one river basin to another – from wet regions to drier regions – is also possible. China is spending $60 billion on a series of vast canals to move water from the wet south to the arid north. But it is very costly, because water is heavy and expensive to pump long distances.

#  Getting it right

1. First, we need to get better at catching the rain where it falls. Reviving ancient methods of capturing the rain and pouring it into wells to be used during dry season is one possible solution. People in water-rich countries also need to use more water-efficient techniques, such as turning off the tap while brushing teeth, using a bucket rather than a hosepipe to water the garden or wash the car, or not always flushing the lavatory.
2. But agriculture, as the biggest user of water, especially in the driest countries, can contribute the most. Tens of millions of farmers worldwide still irrigate their crops simply by flooding their fields. Most of the water evaporates and little, in practice, reaches the plants. But cheap, modern systems of drip irrigation can deliver it drop by drop close to the crop roots, cutting demand by 50 per cent or more.
3. So there are solutions. If water is used right, everyone can be fed and have water. But first it must be properly valued. It must be treasured, not wasted.

Adapted from: Pearce, F. 2008, ‘Hidden water’, *TUNZA*, vol. 6, no. 3. pp. 4-5.

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