

## 2 *The Water Crisis*

This section briefly summarises the main aspects of the water crisis, both globally and looking at different parts of the world.

### GLOBALLY

Water stress is defined as a situation in which the total resource is between 1,000m<sup>3</sup> and 1,700m<sup>3</sup> per year per person. Water scarcity is a situation in which the resource is less than 1,000m<sup>3</sup> per year per person. Fourteen African countries already face water stress or scarcity and another 11 will join that list in the next 25 years.

- Agriculture**
- Agriculture is the largest user of water; as population grows, the need for more food to be grown will increase this further. It is predicted that water shortages will become the main limitation on sufficient food being grown.
  - Water is generally used far less efficiently than it could be. If the land is flooded, water evaporates and salts are drawn to the surface. This salinisation and waterlogging are serious environmental problems. Irrigation is efficient when the right amount of water is applied at the point of need, and any excess drains away below the root zone.
  - Where no controls exist on how farmers use groundwater for irrigation, this can lead to overuse and falling groundwater tables.
- Rise in population and rise in demand**
- In 1990–1995, consumption of fresh water rose 600%: more than twice the rate of population growth.
  - The figures for 1999 show that current need was not being met.
  - With the worldwide rise in population, there have been increasing conflicts between households, farming and industry in their demand for water. To tackle this, strong governance and political will are needed.
- Pollution**
- With growing industrialisation and the use of nitrates and other chemicals in agriculture, pollution of waterways is a major problem. Discharges by industry are rarely treated, as few environmental regulations exist or are enforced.
  - Sewage is one of the commonest types of pollution: Asia's rivers, for example, contain ten times as many bacteria as is considered safe. Throughout the world, diseases caused by polluted water account for many deaths, particularly of children.

- Mining activities easily pollute groundwater. Mercury pollution from gold mining is a major problem in many areas of the world.

**Poor water quality** Eutrophication, weeds and salt water also threaten water quality. When the quality falls, freshwater fishing is threatened. This has an effect on people's income and their nutrition, as fish is an important source of protein for millions of people across the world.

**Mismanagement and lack of management of renewable water resources** Inadequate infrastructure in most countries means that water resources are not managed properly, and not enough investment is put into this. As people move from the countryside to towns, basic water services need to be provided, but without a good infrastructure this is very difficult to do. Water needs to be seen as a public good and as a commodity with a value. It is free at the point of supply but not at the point of use: by then value has been added to it. This is something that needs to be discussed and understood at every level of society.

**Conflict** In Africa and the Middle East particularly, rivers are shared between two or more countries. There are growing fears about the possibility of conflict over water issues, as demand grows.

**Debt** The burden of debt has been a major factor in restricting the ability of many governments to meet their citizens' most basic needs, as they have spent more on servicing their debt than on basic services. Although the 1980s were the International Drinking Water Supply and Sanitation Decade, it was also the time when most of the current international debt was built up!

**Natural disasters**

- Flooding kills more people and causes more damage than any other natural disaster.
- Floods, cyclones, storm surges, drought and other disasters affect many countries.
- The frequency of natural disasters is increasing. Scientists predict that global warming will increase extreme weather patterns: there will be more floods and storms in some areas, and more droughts in others.

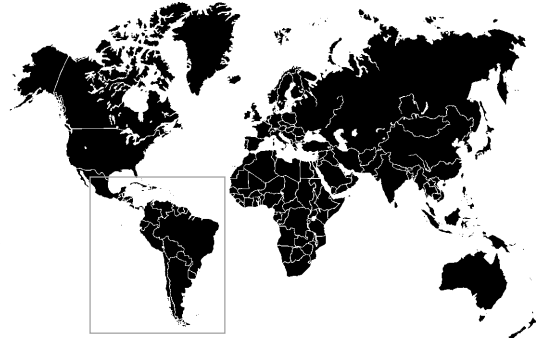
## REGION BY REGION

In the context of this global crisis, each region has its own pressure points and problems. The following pages give an overview of some of these.

## LATIN AMERICA

### Central America

- In 1995 70% of the population had access to a piped public water supply. In 1998 Hurricane Mitch devastated water services, particularly in Honduras and Nicaragua, and progress in all aspects of development was set back.
- Access to water and other natural resources is a major issue because of the monopoly of land ownership by a small elite. Environmental degradation of water resources has been caused primarily by poverty linked to the lack of access to land. In Honduras the loss of wetlands is a major threat to the environment.
- Water resources cannot be managed adequately in the interests of all, as long as there is unequal land distribution.



### South America

- South America is usually seen as a middle-income region, but 20% of the population have no access to water and more than 30% have no sanitation. Despite the many water resources within the region, Argentina, Bolivia, Chile and Peru have semi-arid or arid areas and Peru has particularly bad water shortages.
- Governmental regulation and management of water resources have had many failings, and there are few examples of consistent water policies that look to the long term. So pollution and depletion of water are common.

- *Extremely rich in water resources, with some of the largest and longest rivers in the world. Yet two-thirds of the territory is arid or semi-arid.*
- *Since 1980 significant progress made in sanitation coverage, but access to safe drinking water has not improved so quickly. Growing poverty gap between rich and poor: so the poor have a major problem of accessing safe, affordable water.*
- *Many current patterns of water use are unsustainable, and national policies do not usually consider sustainability.*
- *Lack of co-ordination between different regulatory bodies controlling water use in many countries.*
- *Many countries do not encourage the involvement of groups with a specific interest in water issues and representing poor communities and indigenous people.*
- *Mining activities are common in most countries in Latin America, and pollution of groundwater by industry is doubling every 15 years.*
- *Increasing cost of supplying water to cities. In Lima alone, upstream pollution has increased treatment costs by about 30%. Over the next 40 years, the population of cities will rise threefold and domestic demand for water will increase fivefold. Pressure will increase on governments to turn to private companies to run water utilities. In the case of large cities, multi-national water companies will compete to win contracts. Profit-making will be put above the needs of the community or of the environment.*

## AFRICA

### North Africa and the Eastern Mediterranean

- North Africa has the lowest rainfall in Africa with many countries facing severe water shortages.
- Lack of water is becoming an obstacle to further social and economic development.
- High population growth expected, with further pressure on water resources.
- Situation between many countries is already tense because of competition for water, and could worsen.

### West Africa

	URBAN POPULATION	RURAL POPULATION
SAFE DRINKING WATER	62%	40%
SAFE SANITATION	59%	25%

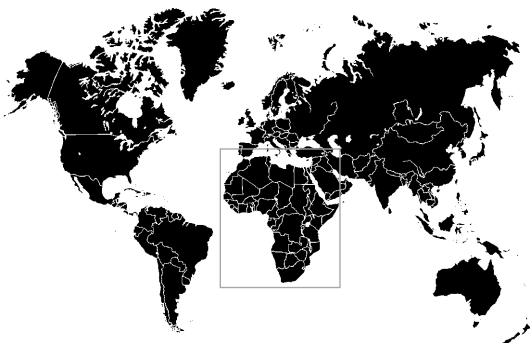
- Water-related diseases are common eg: malaria, guinea-worm, cholera.
- Many lakes and rivers, so some countries have large water resources but others have severe shortage.
- Desertification and deforestation spreading south from Sahara. Lake Chad has shrunk to less than 1/12th its size in 1960s. Rainfall in Sahel has decreased steadily since 1970s.
- Water laws exist, but are rarely accepted or enforced, because of:
  - political instability and conflict
  - governments' inability to impose them
  - lack of grassroots participation in formulating these laws
  - lack of understanding of alternative ways of meeting people's needs.

### East Africa

- By 2025, nine countries will face water shortages.
- Extreme variability in rainfall: droughts and floods.
- Several major shared water resources eg: the Nile, Lake Victoria. But no co-operative agreements between countries governing their use. Conflicts are likely to increase as water grows more scarce.
- Water quality in many lakes: a growing problem. Invasive aquatic plants have seriously affected Lake Victoria and the Nile.
- Ethiopia: only 25% of people have access to safe water and sanitation.
- Uganda: only 30% of rural people had access to safe water in 1994.
- Kenya: over 60% of people do not have access to adequate water.

### Southern Africa

- Some areas have plenty of water, even floods. Others have regular droughts.
- AIDS: catastrophic effects. But preventable water-related diseases are still primary cause of death.
- Conflict over water most likely here: almost entirely dependent on rainfall and rivers for water supply. Every major river shared by two or more countries. Already several regional disputes unresolved.



## Predicted water stress and water scarcity in Africa in 2025

By the year 2025, 25 African countries will be subject to water scarcity or water stress.



Source: John Hopkins 1998

## ASIA

- *One in three Asians has no access to a safe drinking water source operating at least part of the day and within 200 metres of their home. Almost one in two have no access to sanitation.*
- *In West Asia water is the most precious and limited natural resource.*
- *Critical level of water resources because the volumes withdrawn far exceed the natural rate of replenishment.*
- *Massive population growth in China and India and a rising standard of living, leading to increased industrial and personal consumption. The amount of freshwater drawn from all sources increased more in Asia during the last 100 years than anywhere else in the world.*
- *It is expected that India will be water-stressed by 2025, and China even sooner.*
- *Natural hydrological cycles severely disrupted by water development programmes.*
- *Important watersheds damaged by intensive deforestation resulting in reduced river levels and depleted wetlands.*
- *Demand for water is growing most quickly in urban and industrial sectors. With competing demands, countries will need to allocate and manage freshwater fairly.*
- *500,000 children die every year because of a lack of water, dirty water and poor sanitation.*

### South Asia

- Large amounts of investment are needed, not for complex technologies but because the coverage is so low.
- Mega-cities are growing with large slum districts. Many governments cannot keep up with the rate of expansion, particularly in informal settlements where people have no land rights. Countryside: sanitation poorly provided. So in both cities and country: high levels of water-related diseases.
- By 2025 the use of water resources in India will need to have doubled in order to meet demand from all sectors. This would mean more efficient use of water, recycling and reclaiming it, and capturing more.

### Southeast Asia

- By 2025, the region's population will be about 50% larger in each country.
- Humid climate: a good deal of rain and abundant water resources. Problems of poor access to drinking water and sanitation come from a failure of governance. Many precious water resources are not treated with respect: rivers are the most polluted in the continent.

## Greater Mekong and China

In China:

- The first signs of water shortages; by 2025 they are expected to be severe.
- The agricultural production needed to feed the large population demands a great deal of water. China has only 8% of the world's freshwater resources and supports 22% of the world's population.
- 1950–1980, Beijing – Daily demand for water increased by 100 times.

In Vietnam:

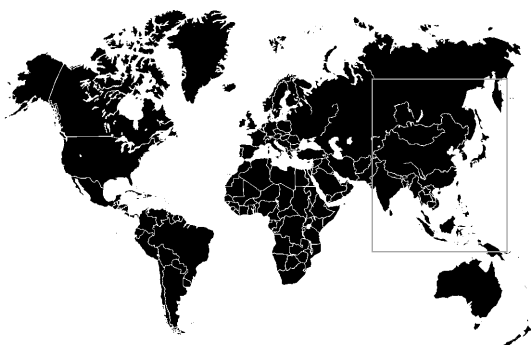
- Approximately 90% of people rely on unprotected sources of water; 50% have no sanitation.
- Inadequate water and sanitation: the biggest causes of children's deaths.

In Cambodia:

- 82% of rural households have no sanitation.
- Droughts and floods in five of the last nine years have destroyed harvests.
- The largest lake, Tonle Sap, supplying 40% of the country's fish protein, is being rapidly depleted.
- Many rivers in the Mekong region have been heavily polluted by natural processes but also by industry.

## Central Asia

- Largest source of freshwater is surface water.
- Obstacles to safe drinking water, especially around the Aral Sea are:
  - poor quality
  - lack of chemicals to purify the water
  - a weak distribution system.
- One of the main causes of infant deaths is poor quality drinking water.



## MIDDLE EAST

- *Water is the most limited natural resource.*
- *Groundwater is in constant decline because the amount withdrawn far exceeds the rate at which the supply is replenished.*
- *Syria: rivers and springs have dried up because of overuse of groundwater.*
- *Severe pollution by industry and agriculture of surface water and groundwater has led to concerns over the impact on health.*
- *New methods are being used more and more to increase the use of water resources, such as desalination and recycling wastewater. But the population is growing faster than this development. If the current situation continues, it will cause major environmental problems and possibly conflict.*



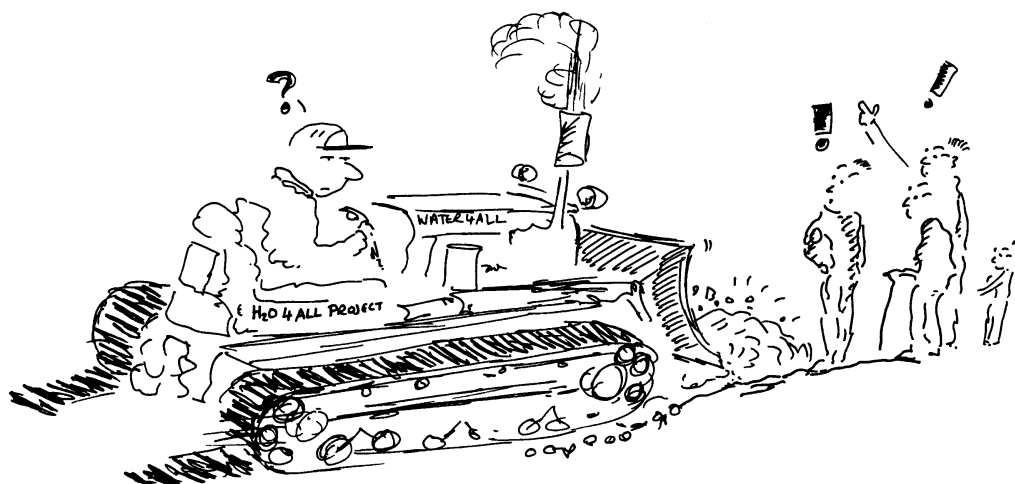
## OBSTACLES TO SOLVING THE CRISIS

As we look around the world it is clear that the water crisis is not simply the result of weather patterns or misfortune. What turns natural phenomena into a crisis is at least partly a failure of governance.

### The poor excluded from decision-making

Water is a natural resource that is crucial to each person's life, so each person should be able to have a say in how it is provided, managed and paid for. In the North, water provision has been based on expensive technology run by highly skilled engineers.

This approach has frequently been introduced to developing countries where the results have often been less successful because of the different levels of technology and skills available. A lack of community participation in decision-making around new water projects has led to many projects being unsustainable in the long term.

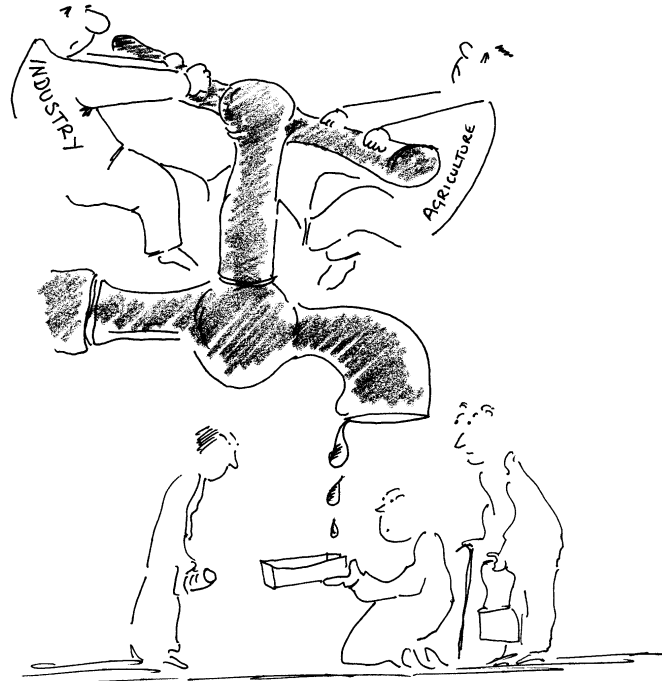


This is not to say that large-scale complex solutions to problems are always wrong, but they can make it even more difficult for communities to find a way of having their views and potential contributions taken into account. New and innovative ways need to be found which encourage government and business to involve local communities – particularly in urban areas – in planning, building, operating and maintaining water services.

### Failure to manage water effectively at a national level

Alongside the involvement of communities in water provision, firm policies need to be in place at regional and national level. Currently in most countries there is no system to prioritise the various demands on water from agriculture, households, industry and the environment. Much water use is unsustainable, and access to water is uneven, with the poor losing out the most. Integrated management at national level is crucial, to ensure that all sectors and departments are properly co-ordinated. This requires political will at the highest level because integration is notoriously difficult to achieve. At local level such integration needs input from local communities, through encouraging their participation in political decisions and through including

them in the local management of water resources. Without both political will and this grassroots input, integrated water resource management is likely to fail at both national and regional level.



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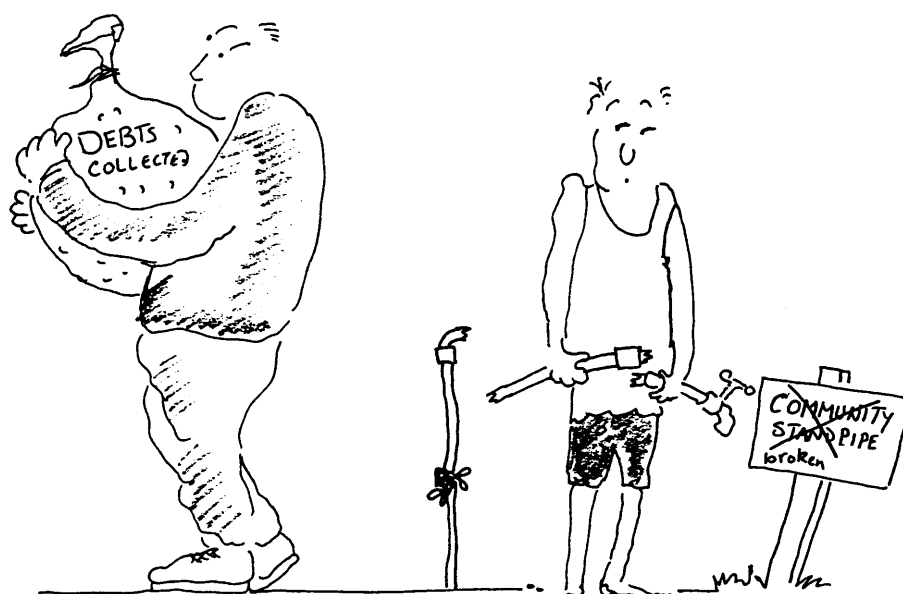
### **Lack of effective government regulation and infrastructure**

The increase in water pollution, especially in developing countries, is a result of several factors. Firstly, heavy industry has become more common as some countries have developed economically, and as Northern companies have moved their operations South to reduce costs. Secondly, a lack of strong government regulation concerning environmental waste has allowed unscrupulous companies to pollute land, water, sea and air. Finally, there has been an increase in human waste and sewage pollution as a result of population growth and urbanisation. These factors combined have had serious consequences for water quality, both in the ground and on the surface.

### **Failure of international economic system**

Despite the enormous growth of the global economy in the last ten years, governments have failed to provide a basic water and sanitation service to half the world's poor. Whilst the last few years have seen unprecedented economic growth in some countries, others, particularly in Africa, have been disadvantaged by the international trading system and their own problems of conflict and corruption. The crippling burden of debt owed by developing countries to foreign donors has drained money away from key services such as water and sanitation.

Even within countries where there has been sustained economic growth, the gap between rich and poor has widened. Multi-national companies have grown in number and influence, often exploiting the poorest and their environment. Cities have been favoured by economic growth leaving rural areas neglected and poorer. Yet the phenomenal urban growth has resulted in city infrastructure being unable to cope with providing basic services to poorer inhabitants.



### **Failure at international level to put water on the agenda**

In the last 10–20 years there have been several international initiatives and high-level conferences which have aimed to solve water problems. Despite some progress being made, the situation worldwide remains a matter of urgency and could worsen significantly. Although water has been seen as an important issue, we have been better at talking about the problems and the solutions, than at providing finances and taking action. As a consequence, many organisations have appeared, all trying to contribute to solutions but with very little co-ordination between them. Meanwhile, governments show through continued low levels of investment, how little importance they really give to the provision of this basic human right.

