

No food security without water security



Feeding the hungry has been a global priority for decades. Progress was made from the 1960s to the mid-1990s as the amount of food increased faster than population. Nevertheless, there are still 925 million people today who go to bed hungry, a tragic failure of the global community. There are many reasons for this, among which are price volatility, access to markets, trade rules, poverty, war, competition for agricultural produce for non-food uses, unequal food distribution, environmental degradation, desertification, and natural disasters.

And there are new challenges such as rising-income nations where the appetite for water-intensive foods is increasing. Leaders need to wisely, and quickly, manage the resource without which we have no food: water. The human and financial cost of bad water management is already high, and will only increase as our world gets thirstier.

The usual suspect: agriculture

Agricultural irrigation uses 70–75% of global freshwater withdrawals and up to 95% in South and Central Asia. These withdrawals are expected to increase. This has to change.

One way is to grow more 'crop per drop'. Where agriculture depends on irrigation, this means making irrigation more efficient, for example, by switching from flood irrigation to more efficient drip irrigation. Another step to improve efficiency would be to ensure that water is supplied when it is most needed during the cultivation season, and to grow crops that need less water. Increasing agricultural production while at the same time managing scarce water resources and preserving fragile ecosystems calls for an integrated approach to land and water management.

Other issues go beyond the influence of water managers. For instance, we need more research to produce crops that are drought tolerant. And we need to reduce losses in the supply chain with minimal waste in transport, storage, processing, selling, and in our homes. Wasted food is wasted water. Some observers say that 30–50% of food is lost or wasted. If it is 50%, that is equal to half the annual water withdrawals used for irrigation. *(continued)*

A Water Secure World

The Global Water Partnership is an intergovernmental organisation of 13 Regional Water Partnerships, 80 Country Water Partnerships and more than 2,500 Partner organisations in 161 countries. The GWP network is committed to building a water secure world.

Rain is good

In areas where agriculture relies on rainfall there is still a lot of potential to produce more food. Much can be done to boost crop productivity in rain-fed regions by growing drought resistant crops or irrigating crops at critical stages. Introducing mulching, cover cropping and contour ploughing can help because these practices harvest and retain rainwater.

There are vast tracts of arable land, some 16 million hectares in Africa, which could produce far more food than they do now if more rainwater was captured and used for irrigation. If more is captured, then more land can be made productive. In sub-Saharan Africa only 4 million hectares were put under irrigation in the last 40 years (compared to 25 million hectares in China and 32 million hectares in India).

But climate change increases risk and uncertainty because it changes rainfall patterns. Today farmers lack, and urgently need, data about these changes to help them in decision making.



Government policies have a role to play in steering crops that have a high demand for water to wetter areas. Some governments in South Asia have banned the irrigation of alfalfa, rice and sugarcane in arid areas. Better water management is necessary too. For instance, the drier western half of India produces a bigger share of food than the wetter eastern half because the west has better developed, better managed and better maintained water infrastructure. Better management goes hand in hand with a better application of economic instruments such as marketing and procurement policies, careful subsidising of principle cereals, and appropriate pricing of electricity.

Demographics

The world's population has doubled in the last 50 years. That's twice as many mouths to feed, twice as many thirsts to quench, and a growing number of ballooning cities and expanding industries to supply with food and water. But there is no more water today than 50 years ago. In South Asia, the amount of water available for each person is one-fifth of what it was 60 years ago because of population growth. And with more people comes more pollution, thus reducing the amount of potable water.

It isn't just that there are more people to feed, it is where and how they live. The world's urban population is expected to increase to over 6 billion by 2050. So food security will depend on people having jobs and being able to pay for food rather than growing the food they eat. This means economies need to grow, and the extent to which they do often depends on how countries manage their natural resources, including water.

Water for energy, energy for water

Another factor affecting food and water security is the boom in biofuels. In some places, crops previously grown for food are now grown as raw materials for generating energy, for example, palm oil, sugar cane, soya beans, and maize. Some, such as maize, are thirsty crops. Others, such as jatropha grown for biodiesel in the semi-arid Sahel, are increasingly replacing food crops.

While biofuel crops compete for water that is used to grow food, producing, processing and transporting food requires energy. Power stations use large amounts of water for cooling, and in the case of fossil fuel plants, for generating hydroelectricity. The water-energy-food nexus makes managing water challenging so an integrated approach is essential.

Trading food

Growing crops in places where there is enough water is an obvious solution. Countries with water scarcity can import food from 'surplus' areas and make the best possible use of the limited water they have for urgent needs (e.g., household provision). Morocco imports grains and oilseeds that require a lot of water and exports home-grown crops that need less. Trading food is, in effect, trading the water that goes into producing it (known as 'virtual water'). Countries can address food and water security by growing and trading crops best suited to the land and water resources they have.

We can't make water

If world food demand doubles by 2050, then we are going to have to dramatically increase water (and agricultural) productivity and *at the same time* significantly reduce water demand to avoid catastrophic water scarcity. There needs to be an exponential expansion of water conservation, storage, reuse, and recycling, and a capacity to deal with risk and uncertainty because, so far, we can't make water.

There is enough land, water and human ingenuity to produce food for a growing population provided we act now to improve how water is used and managed. While solutions need to be found at the local level, commitment at the highest political level is also necessary for taking tough decisions about the competing uses of water, and to follow through with financing. That means bringing together government, civil society, businesses, farmers, and consumers to improve water governance and to strengthen the institutions that manage water so that the resource is used equitably, efficiently, and in an environmentally sustainable way.