

Water for Our Daily Bread

Starvation and gluttony on one planet

Food has become a fad. Our supermarkets are overflowing with produce from all over the world. The mass media teach us how to prepare delicacies through cooking programmes and recipes from the likes of Jamie Oliver. The shortage of food in other parts of the world is a distant problem. Yet, interestingly enough, the over-consumption of the developed world leads to the same problem as the under- and malnourishment in the developing world: they reduce the chances of “productive and healthy lives”.

More than problems of health

Deservedly, the attention to the causes and consequences of obesity and hunger has been growing together with the will of the international community to tackle the problem. But behind the question of sufficient and healthy food lies another reality: the way we produce, distribute and consume food undermines a cornerstone of sustainable development.

The ferocious demand for food and other resources from the North, together with the need to lift people from poverty in many parts of the developing world, lead to dramatic changes. The world is rapidly converting nature into agricultural land to meet growing demands, drains rivers of all water to produce food, and pollutes water with pesticides and fertilizer. One of the fundamental questions we face is how we can produce more and better food without further undermining our environment.

Empty lakes and rivers

The world produces more food than ever. But it has come at a cost. One of the most ominous consequences is the drastic reduction of water in a number of rivers and sinking groundwater levels around the world. There is no water flowing in the Yellow, Colorado and Indus rivers in large parts of the year. Previously large lakes, like the Aral Sea and the Chad Sea, are now mere shadows of their former selves; the Dead Sea is now but a stinky salt lake. All of the available water is used to irrigate crops. Around 1.4 billion people, nearly a quarter of the world's population, live near rivers where all of the available water is used.

The noble purposes of increasing food production and providing income for millions of people have also reduced groundwater levels. The gigantic groundwater reservoir of the Ogallala in the United States, roughly the surface area of Sweden or California, has for generations been overexploited. Even more worrisome is South Asia. There, half the population is dependent upon groundwater. The total number of wells has increased from less than a million in 1960 to more than twenty million today. With the aid of stronger pumps – and regularly subsidised energy – millions of farmers pump up more than twenty times more water. Competition over water increases as cities grow larger and need more water for their booming populations. In Northern China, around Beijing, the situation is precarious, and the solution is to move water from the Yangtze, 1200-1500 kilometres southwards. Even though the plan is spectacular, it is also a sign that our use of water has passed the boundaries of sustainable development.

Agriculture is water-driven

Food production, like other biological production, is completely different from industrial production. Food production is associated with the earth, and the land with its “owners”. In principle – if not in practice – food can be grown without soil, but not without water. We easily forget that in large parts of the world, water is the most limited and most uncertain resource, both in food production and for different ecosystems.

The production of our daily bread occurs in the open landscape, where the incorruptible biological laws form the base for production. A fundamental consequence is that large quantities of water evaporate back to the atmosphere from vegetation and soil when crops grow. And, in the end, it means that where there is water, there is food. Where there is no water, there is no food.

Food security – the enormous challenge

In 2025, the world will have 8 billion inhabitants, and 9 billion in 2050. The demand for food will increase with 50% every generation. How big the increase ultimately will be depends in large part on the purchasing power of consumers. According to prognoses of the Food and Agricultural Organisation of the United Nations, average demand will be 3,000 kcal per person per day. Once we assume that energy need, we can calculate that our natural resources, and above all water, will come under greater pressure. If such a high calorie intake is becoming the social norm (preference?) for the entire humanity the *increased* pressure on our natural resources would be dramatic. An additional volume of water equal in size to all of the water we use today, for domestic, industrial and agricultural use, by 2025 would be required..

Harvest the rain!

The growing needs of cities and industries make such an increased use by agriculture unlikely, especially if we consider that our appetite for water leaves nature – and all the plants and animals it holds – already thirsty, and in some places outright dead from thirst. This problem is less severe in places with plenty of water, and new technologies will certainly increase the productivity of large-scale irrigation. "More crop per drop" is a realistic and necessary goal.

But the most promising solution comes from rain-fed agriculture. Using rain more efficiently, "rainwater harvesting," is a time-tested practice in some parts of the world that needs strong support to come into wider use. A more effective use of precipitation in combination with land care has already led to a doubling of production in large parts of Africa.

Consumers beware!

Yet, even though farmers, governments and technicians can puzzle on technical solutions forever, it is the consumer who faces the fundamental choice. They have to make the choice for good and healthy foods, and for food that is produced in a sustainable manner. But many people know little of what foods are healthy, let alone how the food is produced and what serious consequences that production may have had. The television programmes and food magazines which now preach "good food habits" help educate people on the first. But they must be complemented with factual information on the way food is produced and what societal and environmental costs it brings. Consumers must learn that the price tag on a pack of soup or a kilogramme of bananas sometimes is much less than the costs it brings to local communities in a distant village in Africa. Our choices in the supermarket each day are not only choices for a healthy or unhealthy lifestyle, they also have profound impacts on the lives of poor communities and on their environment far away

Anders Berntell
Stockholm International Water Institute, SIWI

Frank Rijsberman
International Water Management Institute, IWMI

Mark Rosegrant
International Food Policy Research Institute, IFPRI

Ger Bergkamp
The World Nature Conservation Union, IUCN