



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty



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Scientists Unite in Call for Action as Global Food Demands Threaten to Outstrip World Water Supply

While many of today's rivers, lakes and groundwater reservoirs continue to be overexploited, a new report launched today by leading scientists at the United Nations Commission on Sustainable Development warns that unless steps are taken to improve the way water is managed, twice the world's current water consumption may be needed by 2050 to feed a global population of some 9 billion.

The scientists from the Stockholm International Water Institute (SIWI), International Food Policy Research Institute (IFPRI), World Conservation Union (IUCN) and International Water Management Institute (IWMI) said that the ambitious international commitment to halve the number of people facing hunger have missed a fundamental question: where is the water needed to grow the food to feed future generations properly? The report, "Let It Reign: The New Water Paradigm for Global Food Security" points out that feeding the world is in many ways a daunting water challenge.

Food security – the enormous challenge

"The world needs more food and consumption is moving towards more water-intensive items and less healthy diets. Irrigation can only partly satisfy the thirst for expanded future food production, and agricultural land is shrinking," says Prof. Jan Lundqvist of Linköping University (Sweden), one of the report's authors. "Global food security in the future requires a new water management approach today." The report provides policy recommendations intended to facilitate such a new approach.

Today, 840 million people remain undernourished across the world. 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. Even considering wastage, the new report says that if a high calorie intake becomes the social norm for all of humanity, the *increased* pressure on natural resources – above all, water, will be dramatic. An additional volume of water equal in size to all of the water used in households, industry and agriculture today (5600 km³) would be required by 2025.

Agriculture is water-driven

This is because production of food is a highly water-consuming activity. In developing countries, the report says, agriculture accounts for 70-90% of available freshwater supplies. It takes 550 litres of water to produce enough flour for one loaf of bread – a fraction of the roughly 1500 litres used to produce 100 grams of grain-fed beef. Already in large parts of the world, water is the most limited and most uncertain resource, both in food production and for different ecosystems. A fundamental consequence for crops grown in the open landscape is that large quantities of water evaporate back to the atmosphere from vegetation and soil, particularly in hot climate regions.

Although the world produces more food than ever, it has come at a cost: 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. Around 1.4 billion people, nearly a quarter of the world's population, live near rivers where all of the available water is committed. Other uncertainties exist: some predict that the 40 poorest countries, with a total population of some 1–3 billion, will lose on average up to a fifth of their cereal production potential in the 2080s because of climate change.

These factors, combined with the growing needs of cities and industries for water, will minimize the food gains resulting from increased or more effective use of irrigated water in agriculture. The most promising solutions identified in the report come from rain-fed agriculture. Using rain more efficiently, "rainwater harvesting," is a time-tested practice in some parts of the world that the report says 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. Also, better use of the rainwater in the soil – so-called "green water" can help fuel the agricultural revolution needed to end hunger.

Starvation and gluttony on one planet

The report also examines the double-sided nature of the problem. In some parts of the world, supermarkets are overflowing with produce from all over the world. Literally, the shortage of food is a distant problem in this context. The problem is rather the opposite: overweight and obesity. 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".

Deservedly, the report says, 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 it is produced, distributed and consumed 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, draining rivers of all water to produce food, and polluting water with pesticides and fertilizer.

Consumer behaviour

The old and fundamental question about how to produce more and better food without further undermining our environment still lingers. But a new crucial question begs for an answer; how can food demand and intake be equitable, sound and within the earth's biological production potential.

Here, the report says, though farmers, governments and technicians can puzzle on technical solutions forever, it is the consumer who faces fundamental choices: for good and healthy foods, and for food that is produced in a sustainable manner. Factual information on the way food is produced and what societal and environmental costs it brings can help raise consumer awareness. Choices in the supermarket each day are not only choices for a healthy or unhealthy lifestyle, but also have profound impacts on the lives of poor communities and on their environment far away, according to the report.

"Let It Reign: The New Water Paradigm for Global Food Security" is available on the websites of SIWI (www.siwi.org), IFPRI (www.ifpri.org), IWMI (www.iwmi.org) and IUCN (www.iucn.org). The report was commissioned by the Swedish International Development Cooperation Agency (Sida) as input into the CSD process and its 2004–2005 focus on water and related issues.

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