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STOCKHOLM WATER PERSPECTIVES

Losses and waste in the global crisis

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1 Half the food is lost and wasted

The society and natural resources equation is challenging. We have all seen the curve illustrating an exponential increase in world population over time. Only during the last half a century, from 1950 to the turn of the current century, the number more than doubled, from two and a half to six billion. Another three billion are likely to be added to the ranks by the mid of this century, mainly in urban centers but also in areas where resource endowment is constrained and the environment vulnerable. Yet, in sheer numbers, population increase has been considerably lower than the expansion of other population related characteristics of society. For the same period, grain production tripled, energy use quadrupled and economic activity quintupled. The curve for international trade growth is even steeper.

Virtually all of these developments require water and/or have an impact on water. But the water resource is not growing. If anything, rainfall is becoming less predictable and competition for water stiffer. Water will return faster back to atmosphere as a result of global warming. Management of water and other resources has to improve. But this is not enough. We need to look at the demand and use of the goods and services that are produced with the help of water.

In this article, the focus is on food and water relations. About half of the food that is produced is lost and wasted "from field to fork". Irrespective if food is beneficially used, lost or wasted, all the food that is produced has consumed water.

2 Water bubbles are the real thing

In a report from the World Economic Forum, January 2009, the challenge is described in strong words "…we have enjoyed a series of water 'bubbles' to support economic growth over the past 50 years or so… We are now on the verge of water bankruptcy in many places with no way of paying the debt back". We are not used to hear these kinds of messages from the corporate sector. The water crisis is, however, not so much related to industrial expansion but to agriculture. This sector, alone, uses about three quarters of the water provisions, globally. By comparison, the water use in industry is modest and household requirements are a few percent of overall demand.

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But is agriculture to blame? Well known figures about the heavy water dependence of agriculture explain the character of biological production in the open landscape and the non-negotiable logics of the hydrological cycle. But they are not valid in interpretations of the dynamics of the water 'bubbles'. There are no substitutes for food and water. But it is conceivable and rational to increase the beneficial use of the food that is produced.

3 Reasons for losses and waste

The magnitude and reasons behind losses and waste of food, and thus also water, differ. In poor communities and in hot and humid climate regions, losses and spoilage are often significant in farmers' fields due to harvest and post harvest technologies but also during transport and storage. With low yields, small holdings and limited total production, the possibilities for most farmers to break out of a vicious circle are limited. External support to enhance yields in these contexts and to make sure that the production is not lost or spoiled is a pre-condition for development. In rich societies, yields are high and monitoring of what is happening in the supply chain is possible. For many commodities, losses are nevertheless surprisingly high. Recalls of millions of kilos of fresh and frozen beef products, at single events, are documented. More significant though, is a continuous throwing away of food among households. Most of the tossed food, which accounts for a quarter to a third of the food bought, is perfectly fit for eating. A combination of commercial interests to 'sell three for the price of two when we need one' and a choosy and fastidious attitude among consumers may explain a large part of the extravagance in food supply, purchase and waste and, the associated resource pressure and environmental cost.

4 Trends in waste

Trends in demography and in food demand suggest that water pressure will grow significantly. Losses and waste may very well increase in years ahead. An increase in disposable income will increase demand for food but also change its orientation. Globally, the demand for water intensive products, like animal food items, is increasing the most. Instead of direct consumption of grain products, a large part of it, about 40%, is used for feed. The conversion from vegetarian to animal based food items implies poor energy efficiency as emphasized by UNEP recently. Conversion is not the same as loss or waste, but since animal based food items are susceptible to rapid degradation, the risk for waste will increase as a result of changes in the composition of the diet. Generally, the food items for which demand is increasing are water intensive and are supposed to be consumed with days, if not prepared for a prolonged storage. Grain products are typically less sensitive in these regards.

Being further and further away from the sites where food is produced and processed, these aspects are hard to grasp for ordinary people. Few people know that it takes some 15 tons of water to produce a kilo of red meat. Similarly, the understanding of significant green house gas emissions from the agricultural sector is poor.

5 Reason to analyze the gap between supply and intake

Having access to variety in the food supply, including animal food and other items of high nutritional value and which are associated with cultural and social preferences is important for many reasons. Since food, and water, are vital for human wellbeing, substantial subsidies and regulations characterize the situation. Water services are typically under-priced and public support to food production is heavy. Agricultural subsidies to European farmers and fisheries make up more than 40% of the EU budget. Under the Farm Bill in the United States, over $55 billion per year are expended on agricultural subsidies.

Scrutiny of the widening gap between food supply and what is sufficient 'to lead a healthy and productive life' is timely. According to medical and nutritional literature, the energy intake requirement is in the order of 2,000–2,200 kcal, person^{-1}, day^{-1}. Minimum Energy Dietary Requirements are below 2,000 kcal, person^{-1}, day^{-1}. The most commonly used international norm for food supply at national level is higher, 2,700–2,800 kcal, person^{-1}, day^{-1}. Projections pointing at an average global food supply

at the level of 3,000 kcal person^{-1}, day^{-1} or higher are common.

Naturally, production must be higher than supply, which in turn must be higher than food intake requirements. Given the challenges to solve the society and natural resources equation, a fresh look at the magnitude of the gaps between the steps in the supply chain is reasonable. If current trends were to be seen not only as what *may* come but as projections of what *should* come, the implications are:

- an acceptance of a high proportion of losses and waste. Aggregate loss and waste are in the order of 50% of production, about half of which occurs at the end of the food supply and value chain;
- an acceptance of a supersizing of the world's population. According to WHO, over-nutrition or obesity is more of a problem than under-nutrition in nearly 75% of the countries.

An alternative attitude is a dismissal of the existence of water 'bubbles' or, perhaps, a belief that they are more easy and rational to deal with as compared to a reduction of losses, waste and overeating.

Further Reading

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