Sustainable nutrition, or: Who eats strawberries in winter?

We all eat several times a day. How, where and what we eat has a major influence on our well-being and our health. At the same time the way our food is produced, where we buy it, the ingredients it contains and the quantity in which it is consumed has a variety of impacts on society and the environment.

The principles of sustainable nutrition are extremely relevant for the climate, as studies show that, along with the categories of “housing” and “mobility”, the food sector is the source of the most environmental impacts arising from personal consumption. The focus of nutrition ecology is on the entire production chain: from farming, through the supermarkets right to the kitchen.

Growing, processing, transporting and storing food, together with the preparation of meals and the disposal of waste, accounts for around 15 per cent of the greenhouse gas emissions arising from personal consumption. If other environmental impacts are also included, such as the contamination of soil and water by nitrate discharge or the decline in biodiversity caused by the use of pesticides and by monoculture, then the contribution of nutrition to the total environmental impact of personal consumption rises to over 25 per cent.

Advice and services: Eat sustainably and protect the climate

On the basis of its socio-ecological research, the Oeko-Institut advises government bodies, businesses, local authorities and associations on how to achieve sustainable consumption in the food sector. Consumers can also get advice on how to plan healthier, more sustainable meals.

In addition, the Oeko-Institut produces life cycle analyses of food products and product portfolios and evaluates and monitors new technologies, such as aquaculture. As well as the impacts on humans and animals, the climate and the environment, the social dimension also plays a part.

Is good food really expensive?

In the context of the donation-funded project “Is good food really expensive?” the Oeko-Institut looked at the internal and external costs generated by different types of diets and the effect on the greenhouse gas balance. The results show that switching from the average German diet to healthy organic food with less meat and more fruit and vegetables only costs around 80 euros a year more than shopping in an ordinary supermarket.

The lifestyle considered sensible by the German Nutrition Society (DGE) also has significant impacts on the climate. The study reveals that, compared with the average meat-heavy diet, the diet recommended by the DGE generates 12 per cent less greenhouse gases, a vegetarian diet 26 per cent less and a vegan diet as much as 37 per cent less greenhouse gas emissions.

As part of the project the Oeko-Institut has also produced the cookbook "*Nachhaltig kochen!*" (Sustainable cooking), to help with the first steps towards sustainable nutrition. It summarises the results of the studies in the project and uses recipes from well-known chefs and cooks to show that meals with less or no meat, and with seasonal and local ingredients, are healthy, satisfying and delicious. Unfortunately the cookbook is currently out of print.

Is good food really expensive? Oeko-Institut working paper on the donation-funded project "Is good food really expensive? The hidden costs of what we eat in Germany"

Preview of the Oeko-Institut cookbook "*Nachhaltig Kochen!*"

More organic food in public institutions

The catering market in canteens and refectories offers huge potential for sales of organic food, yet organic meals are still almost impossible to find in public institutions or in schools and day nurseries. The Oeko-Institut's practical handbook "*Mehr Bio in Kommunen*" (More organic food in local authorities) offers local authorities guidance on how to promote organic food in day nurseries, schools, hospitals and other local authority institutions.

Researchers at the Oeko-Institut, together with the consultancy firm a'verdis, were commissioned to produce the handbook by the Bio-Städte-Netzwerk (organic cities network). It contains advice on how local authorities can formulate their tenders to attract bids for contracts from community caterers who include organic products in their range. It also shows how, owing to the current legal situation at EU and national level, organic quality can be made a specific requirement in the procurement of food for public institutions.

Handbook: "*Mehr Bio in Kommunen*" (More organic food in local authorities), Oeko-Institut and a'verdis, commissioned by the Bio-Städte-Netzwerk

Aquaculture – sustainable fish farming

Fish is healthy and delicious, but overfishing of the seas and coasts is a global problem. It also often involves long transport routes. Fish farming can provide a sustainable alternative, especially if it is practised with the greatest respect for the environment. Researchers at the Oeko-Institut are conducting a variety of projects to find out what form sustainable aquaculture should take. They are analysing the conditions needed and making recommendations for action with regard to policy.

The key message is that on one hand, traditional aquaculture should be nurtured, and on the other, sustainable closed recirculating systems should be expanded. In doing this, it is essential to consider water and energy consumption as well as environmentally sustainable feed. In general fish consumption per head in Germany should be reduced from around fourteen kilogrammes per year at present to around ten kilogrammes. Even then, however, demand will not be met from domestic production.

To better assess the environmental sustainability of German aquaculture, the Oeko-Institut has also developed the simulation model "AMOUNT" (Aquakultur Monitoring Umwelt und Nachhaltigkeit – Aquaculture Monitoring Environment and Sustainability). This uses statistical data to calculate the

current resource consumption of German aquaculture production and can estimate future developments in the sector, fish production in various sub-sectors and the associated levels of future resource consumption.

Oeko-Institut study: "*Politik für eine Nachhaltige Aquakultur 2050*" (Policy for Sustainable Aquaculture 2050) and AMOUNT model (Aquakultur Monitoring Umwelt und Nachhaltigkeit – Aquaculture Monitoring Environment and Sustainability)

Summing up: Where is action needed now?

The Oeko-Institut's findings leave no doubt that, in view of the intense pressures on the environment and the social impacts associated with food consumption, there is an urgent need for society to move towards sustainable food consumption. This move involves changes at various levels.

To produce food sustainably, agricultural production processes must be made kinder to the environment, fair trade relations with foreign producers need to be established and the amount of fuel and energy used in the processing, storage and transportation of food must be reduced, together with the amount of waste along the entire food chain.

Last but by no means least, however, it is our responsibility as consumers to change the very way we eat. We need to cut our consumption of meat and dairy products, eat more fruit, vegetables and nuts, and plan our meals on the basis of seasonal availability. That will not only help the environment but also – as the German Nutrition Society DGE stresses – improve our health.

Further information

Oeko-Institut e-paper eco@work: "What to eat? Healthy food, small footprint" (March 2014)

Oeko-Institut handbook: *Vermeidung von Lebensmittelabfällen beim Catering* (Avoiding food waste in catering), commissioned by the German Environment Agency (UBA)

Oeko-Institut study on the climate footprint of frozen food (in German)

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Oeko-Institut is a leading independent European research and consultancy institute working for a sustainable future. Founded in 1977, the institute develops principles and strategies for realising the vision of sustainable development globally, nationally and locally. Oeko-Institut is represented at three locations in Germany – Freiburg, Darmstadt and Berlin.