Indicators for Monitoring Environmental Relevant Trends of Food Consumption

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Abstract

Environmental indicators are used to compare the state of sustainable development and the relevance of consumption patterns between different countries. Results from the review of different case studies are used to propose a set of indicators that covers many environmental impacts related to food consumption patterns in different countries.

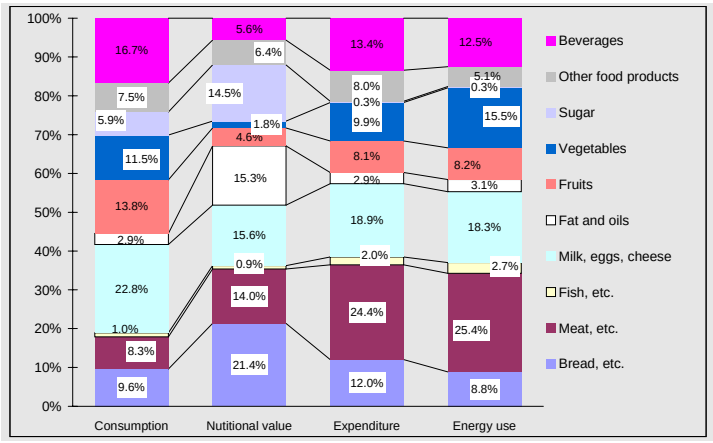
Introduction

The research work has been initiated by the OECD. It has started with a review of indicators already proposed by the OECD [1]. Environmental impacts of food consumption can be analysed with different environmental assessment methodologies. Thus a review of important methodologies has been made and the data availability has been assessed.

Example of a proposed Indicator

Per capita food availability (kg or MJ nutrition value per head) and share of different product categories (meat, vegetables, grains, fats, beverages, etc.) in food consumption [2].

The availability (production + imports - exports) of food differs from country to country. If the availability is higher than the actual demand this might lead to food wastes, to over-consumption or to long term storage. Over-consumption leads to negative health effects while wastage and storage cause unnecessary environmental impacts. This indicator serves to compare the level of food availability and consumption in different countries (Fig. Swiss example). As environmental impacts vary among different product groups this indicator can also analyze environmental impacts due to changing consumption patterns, e.g. a rising share of meat products in people's diet. Statistical data might be available from foreign trade, agricultural and consumption statistics. The average environmental impacts for different product groups can be investigated with different methods.



Results

The following points are of major interest while determining the environmental impacts of food consumption patterns:

- Food consumption is an important field for the environmental impacts caused by total household consumption and accounts for approximately 10% to 20% of the environmental impacts in developed countries.
- Different types of environmental impacts must be considered (depletion of energy resources, land use, ecotoxicity of pesticides, eutrophication) over the full life cycle.
- Intensive agricultural production techniques like e.g. greenhouse production lead to higher environmental impacts than less intensive production methods, like e.g. organic agriculture. But, discussion about the best practice is still going on.
- The change towards more meat consumption, to more conserved and pre-prepared products leads to increased environmental impacts.
- Globalisation and diversification of consumption patterns lead to a rise in emissions from food transports.
- Consumer behaviour (type of diet, wastes produced, use of cars and energy consuming household appliances, etc.) influences significantly the environmental impacts due to food consumption.

Conclusions

The following indicators are preferred with regard to the data available and the importance of the measured impact:

- Share and per capita availability of products from e.g. organic, integrated, conventional and greenhouse production
- Per capita food availability (kg or MJ nutrition value per head) and share of different product categories (meat, vegetables, grains, fats, beverages, etc.) in food consumption
- Share and per capita consumption of food products with different degrees of processing (fresh, chilled, conserved, deep-frozen, pre-prepared, ready made, self-service and restaurant)
- Per capita average distance and mode of transportation for domestic and imported food transports
- Distribution and energy use of household appliances for food storage and preparation

The indicators are easy to calculate based on statistical data. They cover important environmental aspects like agricultural production methods applied, transportation patterns, consumption levels of product categories, household behaviour and other non-quantifiable key issues [3].

References

1. Working Group on the State of the Environment, *Towards more sustainable household consumption patterns: Indicators to measure progress*. 1999, Environment Directorate, Environment Policy Committee, Organisation for Economic Co-operation and Development (OECD): Paris.
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3. OECD, *Towards Sustainable Household Consumption: Trends and Policies in OECD Countries*. 2002, Organisation for Economic Co-operation and Development (OECD): Paris.