Press release

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European project FUSIONS measures the environmental and socio-economic impacts of food waste

European-funded food waste prevention project FUSIONS has developed the criteria and a baseline assessment of environmental and socio-economic impacts of food waste. Although this research has shown that there are still some major data gaps for a more comprehensive assessment, these findings can serve as documentation for the existing knowledge base and provide new information on how to proceed towards socio-economic and environmental assessment of the impacts of food waste.

Food waste related emissions in EU-28 is approximatively the equivalent of Netherlands' total GHG emissions

The Life Cycle Assessment (LCA) methodology was used to carry out environmental assessment of food waste, which accounts for emissions from cradle to grave covering most of the steps of the food supply chain. Two approaches were tested: bottom-up approach, starting from specific indicator products and ending with an extrapolation of results to the total food consumed, and top-down approach, starting from greenhouse gas emissions at an aggregated level over certain steps of the food supply chain and ending at results for emissions related to the total consumed and wasted food. Results for the total global warming potential (GWP) associated with food consumed in the EU in 2011 arrive at a very similar figure for both approaches (around 1,380 Million tonnes CO_2 eq.). Food waste related emissions estimated at 16% to 22% of the total emissions of consumed food, which is 227 Mt CO_2 eq. in the bottom-up approach and 304 Mt CO_2 eq. in the top-down approach respectively. The top-down approach appears to offer a rapid way of approximating the Global Warming Potential whereas the bottom-up approach provides results on an indicator product level and from the perspective of the polluter pays principle, which can serve as a good basis to set targeted waste prevention activities. The latter has also been extended to calculate the acidification and eutrophication impacts of food waste.

Estimated amount of vitamin C lost in a year as a result of food waste, corresponds to a daily intake of 90 million people

The impact on health and nutritional factors was analysed using nutrients, micronutrients and partly anti-nutritional factors. Based on NL and SE composition data base, results of the baseline assessment show that the estimated amount of vitamin C that is lost in the EU in a year (2011) as a result of food waste is equivalent to the amount of vitamin C that is needed by 90 and 97 million people a day respectively. Losses of retinol equivalents equal the amount needed for 407 and 150 million people a day in NL and SE respectively. Losses of total dietary fibre are estimated equal the amount needed for 139 and 173 million people a day in NL and SE respectively and losses of total iron to 157 and 169 million people a day in NL and SE respectively. Losses of zinc amount to 181 and 210 million people a day regarding their recommended intake on nutrients. For a more accurate assessment of the composition of food waste, disaggregated nutrient concentrations of inedible parts and food waste data on the product and product category level are needed as well as data on nutrient concentrations with food waste data on a corresponding level of detail (product level versus product group level).

Comparative analysis: micro- and macro-economic theory, behavioural insights, and scenario analyses reveal new insights

Socio-economic causes of food loss and waste (FLW) were detected in a theoretical framework that encompasses micro-economic theory, behavioural economics, and macro-economics. The analysis shows that causes at the farm and firm (business) level include limited market access and weak competitiveness while at consumer level low purchasing power and low planning capacity are listed. At the macro-economic level relevant factors such as inadequate infrastructure in developing countries and food price inflation were revealed. FLW

prevention and reduction is taking place in the EU concurrently to actions in other Regions and the potential impacts on food prices and welfare need to be researched and projected for intra- and inter-regional impacts (FAO/LEI, 2015). This research also shows that high level considerations on the socio-economic impacts of food loss and waste need to be balanced with a value chain analysis. For instance, if food becomes cheaper, households may waste more or trade-up and spend the saved income from the reduction of food waste for other services or higher quality food.

Food redistribution plays a key role in improving food security and integrating marginalised social groups within the society

The assessment of the impacts of food banks and other initiatives aimed at the food supply to marginalised social groups was carried out using the methodology of social capital (World Bank). The methodology was tested through a distribution of a questionnaire to 211 food redistribution organisations in Europe with a response rate of 15%. The results showed that food redistribution not only can have a positive effect on food security and safety but also on the basic components of social capital, in particular trust, networks, and cooperation. In a thorough literature review, social, economic and psychological impacts of food redistribution activities as well as impacts on nutrition and health were furthermore detected for different stakeholders: impacts on people in need (e.g. overcoming individual isolation, increasing purchasing power, improving nutritional situation and self-determination), impacts on people involved in redistribution activities (e.g. compliance with social and ethical norms, education and training), impacts on donors (corporate social responsibility e.g. impact on staff morale, but also e.g. reputational risk or tax benefits) and impacts on communities and society in general (e.g. public education impact, dignity and social justice, crime rate).

All reports can be downloaded at www.eu-fusions.org/publications

Notes:
Food is used to cover both food & drink.
According to the FUSIONS definition the term food waste is referring to a fraction of food and inedible parts removed from the food supply chain going to recovery or disposal (incl. composting).

FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies) is working towards achieving a more resource efficient Europe by significantly reducing food waste. The project which runs for 4 years, from August 2012 to July 2016, is funded by the European Commission framework programme 7 and brings together 21 partners from across Europe under the coordination of Wageningen UR Food & Biobased Research. Its overall objective is to contribute to the harmonisation of food waste monitoring and the development of food waste related policy for EU28. The External Expert Advisory Board includes representatives from EC DG Environment, DG SANCO, DG AGRI, FoodDrinkEurope, UNEP, OECD, and WWF.

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