Concurrent economic, social and environmental impacts Of food loss and waste

Call for global action

As populations and incomes grow, the demand for food– as well as for water, energy and other natural resources - increases. More food will have to be produced to meet the demands of future populations. However, the pertinent question is not only how much more needs to be produced, but how can we better utilise the food that is already produced? At global level, the Zero Hunger Challenge[1] addresses this question in its objective of promoting sustainable food systems with the aim of zero food loss and waste.

The policy roundtable on *Food losses and waste in the context of sustainable food systems*[2] of the Forty-first Session of the Committee on World Food Security (CFS) was based on a report by its High Level Panel of Experts (HLPE, 2014) and recommended states, sub-national and local authorities, as well as intergovernmental mechanisms to: measure improvement over time; set targets as appropriate; and introduce an enabling environment for reduction based on a "food use-not-waste" hierarchy (i.e. prevention; recovery and redistribution of safe and nutritious food to people; reallocation of resources for feed; recycling and recovery; and ultimately, if no other solution is available, disposal).

FAO roughly estimates that each year, approximately one-third of all food produced for human consumption in the world is lost or wasted. This food loss and waste (FLW) represents not only a missed opportunity to improve global food and nutrition security, but also an unnecessary use of environmental resources. Globally, the blue water footprint (i.e. the consumption of surface and groundwater resources) of food loss and waste is about 250 km^3, which is equivalent to three times the volume of Lake Geneva. Produced but uneaten food vainly occupies almost 1.4 billion hectares of land or close to 30 percent of the world's agricultural land area. Intensive farming practices, without allowing fields to lie fallow and replenish, contribute to soil degradation and excessive pressure on soil resources.

Prevention of food loss and waste is generally associated with increased availability of food for human consumption, an enhanced efficiency and eventually more effective recycling of resources leading to savings in natural capital as well as lower resource use and GHG emissions.

The economic, social, and environmental impacts of food loss and waste need to be addressed concurrently in support of sustainable food systems and food and nutrition security. The **social, economic, and environmental costs** of FLW need to be comprehensively addressed. It is relevant to understand these impacts of FLW in order to be able to prioritize interventions. Not all FLW reduction measures are equally[3] beneficial.

Enabling countries and stakeholders to guide investment choices in terms of FLW reduction measures can go a long way to reduce social, economic, an environmental pressures and ensure

[1] http://www.un.org/en/zerohunger
[2] http://www.fao.org/fileadmin/templates/cfs/Docs1314/CFS41/CFS41_Final_Report_EN.pdf
[3] For example, interventions may generate GHG emissions and may a have water, land and biodiversity footprint. FLW reduction impacts (and related costs and benefits) propagate along the chain, with potentially positive or negative effects.

food and nutrition security in the long term. The solution-oriented actions that **prevent, reduce, reuse, and recycle** should be coordinated along the food supply chains and from local to national and regional to global level.

First priority should be given to **prevention of food loss and waste** while addressing **reduction of losses** from primary production to end consumer level (by improving e.g., storage, contractual agreements, practices, investment environment, technical and social capacity and awareness) in parallel with an improved balance between production and demand that would translate in optimized natural resources use.

Where food losses and waste cannot be prevented, the focus should be on **food recovery and redistribution for human consumption** with the aim of ensuring food security. The environmental footprint of FLW can be reduced by conserving resources in the supply chains through **re-use**, for example, for animal feed, and **recycling and recovery** through by-product recycling, anaerobic digestion, compositing, and incineration with energy recovery allow energy and nutrients to be recovered, representing a significant advantage over dumping the embedded resources in landfills.

Action No.1 – Assessing the social, economic, and environmental costs concurrently

What? Develop local/national/regional case studies, concurrently assessing the social, economic, and environmental impacts of FLW while identifying appropriate FLW reduction measures adapted to the local situation. Different measurement approaches reveal different costs and therefore, startlingly different understanding of the nature of FLW. The main approaches consider loss in terms of weight (tonnes), caloric level (kcal) and economic cost ($). It is important that indicators to measure FLW are selected wisely and reflect the specific context of the case studies.
Why? The case studies should reflect on the economic and socio-environmental costs and benefits while providing evidence for the most appropriate investment options. There should be a clear selection procedure and discussion on the indicators chosen for the assessment.
Objective? To develop a consistent framework that considers the costs and benefits of FLW reductions concurrently and that can be monitored at disaggregate and aggregate level.

Action No. 2 – Finding synergies along the waste-soil-energy nexus

What? Explore synergetic solutions for recycling and recovery of food loss and waste together with private companies, social enterprises, utilities and the wider research community to realise scaled technical solutions and business models.
Why? There is potential for synergetic (re-)use and recycling of FLW along the waste-soil-energy nexus of organic particles that can then be re-used as animal feed, soil amendment, bioenergy and industrial raw materials (such as fibre or bio-based plastic).
Objective? Countries, research and development organizations conduct research for a systemic analysis framework to assess the impact of alternative uses of FLW such as for feed, energy and industrial uses in terms of a) their environmental footprint and b) their impact on food security (CFS, 2014).

Action No. 3 – Supporting legislative and policy development

What? Strengthen the vertical and horizontal coherence and coordination of policies across sectors and objectives (e.g. sustainable food consumption, dietary guidelines, food safety, energy, and waste).
Why? All concerned stakeholders, according to their priorities and means, should undertake cost-effective, practicable and environmentally sensitive actions, in an inclusive, integrated and participatory manner (CFS, 2014)
Objective? Integrate FLW concerns and solutions, and a "food systems" approach, as appropriate, into agricultural, food and other relevant policies and development programmes (CFS, 2014). This approach should not only look at food products, but also non-food products, such as animal feed and biofuels, that are relevant to the agri-food system.

The call was developed by a group of partners and co-organizers of Dresden Nexus Conference (DNC) 2015 on "Global Change, Sustainable Development Goals and the Nexus Approach" (25 -27 March 2015 in Dresden, Germany) that included FAO – Global Initiative on Food Loss and Waste Reduction (also called SAVE FOOD) and Land and Water Division (NRL); UNEP – Think.Eat.Save Campaign and Programmes (part of SAVE FOOD); EU FP7 FUSIONS (Food Use for Social Innovation by Optimising Waste Prevention Strategies); Center for Development Research (ZEF) OF University of Bonn, Germany.

States, sub-national and local authorities, as well as intergovernmental organizations and individuals can express their support to save-food@fao.org