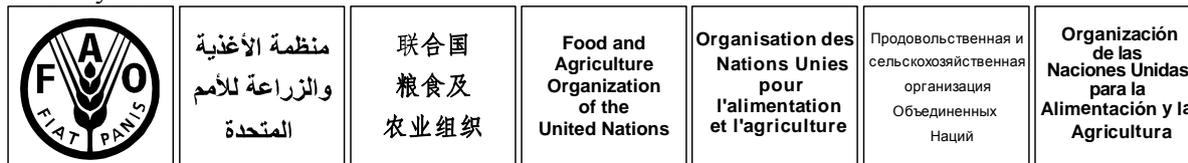


February 2014



Regional Conference for Europe

TWENTY-NINTH SESSION

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Agenda Item 7

Food Losses and Waste in Europe and Central Asia

Executive Summary

The paper discusses the issues and policy options for reduction of food losses and waste in Europe and Central Asia, focusing primarily on middle and low income countries of the region.

Food losses and waste (FLW) depend on specific conditions and the local situation in a given country. In broad terms, food losses and waste are influenced by production and processing choices, patterns and technologies, internal infrastructure and capacity, marketing chains and channels for distribution, consumer purchasing and food use practices. To a large extent, FLW are rational from a private perspective as they are the result of the optimizing behaviour of agents. However, in certain countries there are serious limitations due to ineffective food chains, and a lack of capacity to preserve or process foods, or limited markets. From a societal perspective, FLW are claimed to generate socio-economic and environmental problems.

Development context has high importance on the level, structure and causes of FLW. In developed countries of the region consumer preferences and practices are the main reason for FLW. As a consequence, all steps of the supply chain have to adjust their production, processing, or distribution to these preferences. In middle and low income countries the most frequently mentioned causes of food losses are inadequate infrastructure and technology, inefficient market and demand for supply as well as the lack of education and skills, in particular at the farm level.

Targeted investments to reduce FLW at any significant scale could be primarily done by the private sector. Equally importantly, by promoting effective policy and enabling environment in support of sustainable agricultural production, and value chain approaches the public sector can contribute to a minimisation of FLW. The scope of the public policies should be to create an enabling environment for private sector to introduce practices having potential to reduce FLW whereby contributing to increase the overall efficiency of food supply chains.

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Other documents can be consulted at www.fao.org*



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Guidance Sought

Reducing food losses and waste along the supply chains, particularly in the lesser developed countries is one of the priorities of the Organization. In this context the 29th Regional Conference for Europe is invited to:

- a) comment on the identified causes and mitigation measures, as well as the need for improved information on country specific root causes for FLW as indicated in para: 33 - 44
- b) Endorse that FAO should continue its work in the region
 - 1) to address the gaps in data availability and the issue of limited capacity for value chain analysis in general, and FLW analysis in particular, especially in the lesser developed countries of the region.
 - 2) to support member countries related to inclusion of small farmers and improved efficiency and competitiveness of food supply and value chains
- c) Urge Member countries to initiate further research and assessment and develop pilot initiatives for reduction of FLW and improved efficiency of food supply chains, particularly in the lesser developed countries of the region as outlined in paragraphs 48 to 51.

I. Introduction

1. The issue of food losses and waste (FLW) along food supply chains has recently come into focus in relation to food security and environmental sustainability. Worldwide, every year, roughly one third of the food produced for human consumption – approximately 1.3 billion tonnes – gets lost or wasted. Industrialized and less industrialized countries dissipate roughly the same quantities of food; that is, 670 and 630 million tonnes respectively (Gustavsson, 2011)¹. Food is lost or wasted throughout the supply chain, from initial agricultural production down to final household consumption. In low-income countries food is lost mostly during the early and middle stages of the food supply chain; much less food is wasted at the consumer level.

2. Reduction of FLW is frequently considered to be a promising path towards the eradication of hunger and increased sustainability of food systems. Given that many smallholder farmers in developing countries live on the verge of food insecurity, a reduction in food losses in those countries could have an immediate and significant impact on their livelihoods. If FLW could be halved, the required increase of available food to feed the world population by 2050 would only need to be 25 percent and not 60% as the current projections. Considering its nature and causes, halving FLW can be assumed to be a feasible target: technically, economically, environmentally and socially.

3. The approach for reducing postharvest losses by technology-focused interventions that has been taken up to now is no longer effective. The problem of FLW starts with production planning, and manifests itself throughout the food supply chain, up to the household consumption level. New strategies and intervention approaches are needed due to the growing influence of private sector led enterprise, global market integration, urbanization, growing south-south food trade, and the associated lengthening of food chains.

II. Context and importance of addressing food loss and waste issues

4. Food losses refer to the decrease in edible food mass available for human consumption throughout the various segments of the supply chain. In addition to quantitative losses, the quality of food

¹Gustavsson J. et al 2011, Global Food Losses and Food Waste. Extent causes and prevention. FAO UN Rome

products can also deteriorate, leading to a loss of economic and nutritional value. Food losses can result when food is deemed unsafe and no longer fit for human consumption, in addition to from decisions to discard food that still has value to others are also called referred to as "food waste". (Gustavsson et al., 2011)² Food waste is most often associated with the behaviour of retailers, the food service sector and high income consumers, but food waste and losses take place all along food supply chains.

5. Food losses and waste depend on specific conditions and the local situation in the country in question. In broad terms, food losses and waste are influenced by production and processing choices, patterns and technologies, internal infrastructure and capacity, marketing chains and channels for distribution, consumer purchasing and food use practices.

6. To a large extent, FLW are rational from a private perspective as they are the result of the optimizing behaviour of agents. Nevertheless, from a societal perspective, they are thought to generate socio-economic and environmental problems, such as: lowering incomes for producers; increasing food prices for consumers; squandering resources and jeopardizing long term food availability.

7. Food is not seen as an ordinary product that can be produced in the same way as any other product and whose value is expressed solely by the price. Many people or their ancestors have suffered from starvation at some point in their lives, and to this day a number of countries are still famine-stricken. At a societal and global level, there is a strong belief that hunger is morally unacceptable, and all people have the right to adequate food. Therefore, it is not a surprise that policy makers in many countries and representatives of international organizations have been discussing the topic of FLW intensively for the last few years. Quite a number of studies have been completed to highlight the magnitude of the problem and to institute policies to meet the targets. It has turned out that the phenomenon of FLW has multiple dimensions, several of which are briefly presented below.

8. Impact on food security. The reduction of food losses is relevant to both the poor smallholder food producer and the poor food insecure consumer. Given that many smallholder producers live on the margins of food insecurity, a reduction in food losses could have an immediate and significant impact on their livelihoods. This is particularly relevant for smallholder women farmers who experience limited access to relevant agricultural inputs and technologies, extension services and information, infrastructure, storage facilities and markets. In terms of the impact on poor consumers (food insecure or at risk households), the priority is clearly to have access to food products that are nutritious, safe and affordable.

9. Dimensions of nutrition, food quality and safety. Food losses and waste can be caused by a loss in quality and safety in certain circumstances. Where foods are deemed to be unsafe or of reduced quality and no longer meeting regulatory requirements and consumer needs, they can result in a justified loss and/or waste (e.g. grains contaminated with aflatoxins). In food chains, where this occurs or where there is a continual FLW, there is a higher risk of foods which are less safe, are of poorer quality being available. In addition, qualitative losses which occur over time, may result in foods being available which have reduced nutritional value. In addition to resulting in FLW, there are cost and reputation implications for the private sector or manufacturer involved. Another direct cause of food waste is foods being discarded which are no longer within the recommended time indicated by the "date mark" - most waste occurs at the stages of retailers and final consumers.

10. Impact on the environment. Food production and consumption, and thus FLW, imply negative environmental impacts. These are very often external to producers and consumers; i.e. producers and consumers generate negative "externalities". These include the overuse of natural resources in production, processing and distribution processes, such as, land salinization and erosion, overuse of ground and river water; externalities from the use of pesticides and chemical fertilizers, such as water and air pollution, health problems for workers and consumers. These impacts can be expressed as the

² Gustavsson J. et al., 2011, Global food losses and waste, Food and Agriculture Organization of United Nations, Rome, Italy

"FLW Footprint" on the environment. Globally each year, food that is produced but not eaten amounts to the use of a volume of water equivalent to the annual flow of Russia's Volga River and is responsible for adding 3.3 billion tonnes of greenhouse gases to the planet's atmosphere. Reducing food losses and waste has also been identified as an important way of reducing GHG emissions from the food and agriculture sector without compromising food security (HLPE 2012).

11. Economic and income-distributional aspects. At the production and distribution levels, losses occur as a consequence of technological choices and market-driven expectation of producers, based on the expected profitability of various options. Technically feasible options to reduce food losses are not used because they are not expected to be profitable, given the opportunity cost of labour, capital and other inputs. Other options are out of reach of single agents in terms of investment requirements, know-how, organizational capacities etc.

12. The distribution of economic benefits from reductions in FLW depends critically on market circumstances and where in the supply chain losses are reduced. Losses during and following harvest reduce marketable quantities. Reducing losses will be of greater benefit to farmers if it is coupled with improving the efficiency of supply chains. This benefits both producers and consumers by narrowing the mark-up between producers and final consumers. Lower food prices increase the real incomes of poor net food purchasers in both urban and rural areas. On the other hand, reductions in waste result in lower aggregate demand and potentially lead to lower commodity prices for producers. Households that are net sellers of food may suffer negative consequences in terms of income, which may lead to increased poverty. These negative potential impacts, however, may be reversed with time as soon as resources freed by the increased efficiency in food production find alternative more remunerative uses.

13. Societal perspective. Addressing food losses is expected to improve social conditions of both poor producers and poor consumers. Food availability would increase for both producers (own-consumption) and the society. In addition, access to food would increase for producers through increased income, and for poor consumers through reduced food prices. However, for cultural reasons, regulatory norms, habits, lack of information or knowledge, the consumer may over-purchase and over-prepare foods and/or discard good quality edible food and this underpins the need for consumer education to make effective choices and decisions on food use, handling and consumption.

14. Food systems perspective. The approach to be taken in reducing FLW should be embedded in the broader concept of promoting sustainable food systems, which also encompasses sustainable food production on the one hand, and sustainable diets and consumption (such as through the reduction of food waste), on the other. New strategies for interventions should take into consideration the socio-economic dynamics of different actors and their respective capacities and potential to prevent food losses and waste.

III. Initiatives to reduce food losses and waste

15. To raise awareness, initiatives to reduce FLW have been implemented by several international, supra-national and national organizations. The public interest in the topic has also been reflected in the public media over the last two years. There are articles in the daily press, weekly journals and magazines, on TV in reports and talk shows.

16. In May 2011, FAO and Messe Düsseldorf GmbH³ organized the international conference "Save Food" at Interpack-2011 in Düsseldorf. After this successful event, FAO and Messe Düsseldorf launched the Global Initiative on Food Loss and Waste Reduction. This global initiative rests on four main pillars: 1) Awareness rising on the impact of, and solutions for food loss and waste; 2) Collaboration and coordination of world-wide initiatives on food loss and waste reduction; 3) Policy, strategy and programme development for food loss and waste reduction. 4) Support to investment programmes and projects, implemented by private and public sectors. The Global Initiative is directly

³ Messe Düsseldorf GmbH is a Germany-based international trade fair organizer. Interpack is the world's biggest trade fair for the packaging industry.

involved in the EU project "Food Use for Social Innovation by Optimising waste prevention Strategies" (FUSIONS), and in addition will collaborate with a number of public and private partners in Europe to address the problem of food waste in all segments of the food supply chains.

17. Food losses and waste are increasingly considered by the Committee on World Food Security (CFS), informed by the reports of its High Level Panel of Experts on food security and nutrition (HLPE). The need to reduce food losses and waste was again emphasized by the HLPE in 2012 in its report on climate change and food security as a way to reduce GHG emissions from the food and agriculture sector. The CFS endorsed this advice and recommended the reduction of post-harvest losses and food waste in a sustainable manner. At the same session, CFS requested that the HLPE prepare a report on "food losses and waste in the context of sustainable food systems" for its 41st session in 2014.

18. In 2011, FAO and UNEP launched a joint Sustainable Food Systems Programme (SFSP) to improve resource use efficiency and reduce the pollution intensity of food systems from production to consumption, while at the same time addressing issues of food and nutrition security. The programme brings together a broad coalition of concerned stakeholders, including governments, food and fish producers, agro-industry actors, retailers and consumers. UNEP and FAO are founding partners of the Think Eat Save - Reduce Your Foodprint campaign, whose aim is to assist in coordinating worldwide efforts for reducing waste.

19. In June 2012 the lead UN agriculture and food agencies jointly pledged to minimize food losses and food waste by supporting the fifth element of the "Zero Hunger Challenge" (zero loss or waste of food) from a social, economic and environmental perspective. Additionally, for Rio+20 (United Nations Conference on Sustainable Development) FAO issued the policy paper Towards the future we want - End hunger and make the transition to sustainable agricultural and food systems.

20. The European Parliament is at the forefront of fighting against FLW. The Parliament's agriculture committee approved a resolution on 23 November 2011 that calls for the European Commission and member states to take "radical measures" to reduce waste – "from farm to fork" – by 50 percent before 2025 (EU Parliament, 2011). The members of the European Parliament (MEP) want to cut food waste in the EU through measures such as encouraging small- and medium-scale farming and crop production that is geared towards local market demand. Furthermore, several institutions initiated programmes and/or declared their intent and targets to reduce FLW; for example, the UK Government Office of Science; the European Commission, which set a milestone of halving the disposal of edible food waste by 2020; the World Economic Forum; and the OECD, which has started to build a preliminary data set on food waste, which includes 34 OECD member countries and China.

21. FAO has traditionally been at the forefront of initiatives and technical support programmes dealing with the reduction of post-harvest food losses. With the market integration and development of global value chains it become necessary to address the issue of food supply chain efficiency all the way from production to consumption, thus developing a holistic approach, which would address food waste as an integral part of food losses and waste along food supply chains.

22. In the 2014-15 biennium the Global Initiative on Food Loss and Waste Reduction will be implemented under Strategic Objective 4: "Enable more inclusive and efficient food and agricultural systems at local, national and international levels". SO4 includes private sector capacity and engagement, as well as creating the required enabling environment, for more productive and efficient food supply systems, following a holistic and integrated value chain approach, based on viable business cases and taking into account social and environmental appropriateness. This approach is essential for and conducive to reducing FLW.

23. In Europe and Central Asia the Global Initiative on Food Loss and Waste Reduction will address the issues of dietary transition through a strong programme of awareness raising on food waste, including consumer behaviour and dietary habits in economically developed areas. This campaign aims at reducing food waste by promoting a more considerate and healthier consumption pattern among households, in line with the guidance of the 'sustainable consumption and production' programme of FAO and UNEP.

24. In response to the request of the FAO Regional Conference for Europe (ERC) 2012⁴, within the framework of the FAO flagship programme Agrarian Structures Initiative in ECA, REU has initiated work on regional assessment of FLW and the identification of policy options for the reduction of FLW in ECA. The project intends to improve the understanding of the underlying causes of FLW along selected food supply chains in developing countries in the region, and contribute to global assessment and initiatives to address the issues of FLW. The project approach was to update and upgrade the assessment of FLW in the ECA region using a methodology applied in the global FLW study, and to identify and analyse critical points of FLW along selected food supply chains in developing countries in the region.

IV. The state of public debate on food losses and waste

25. It is not a surprise that policy makers in many countries and representatives of international organizations have been discussing the topic intensively for the last few years. Quite a number of studies have been completed to highlight the magnitude of the problem, to initiate specific targets concerning reduction of FLW, and to institute policies to meet targets.

26. A growing number of publications are devoted to FLW. Most studies are commissioned by international or national organizations and are conducted by researchers from universities or collaborations of several project partners. Interestingly, the studies are commissioned by organizations that work in regions that are not suffering from food insecurity such as the EU.

27. There are major differences in terms of the aims of the studies for analysing and documenting FLW. Several studies, especially those originating from developed countries, are motivated by social or ethical factors. Other studies aim at improving food security. The latter is of particular importance for low and middle-income countries as their food production is less secure and stable compared to fully industrialized countries. Another aim is to increase resource efficiency. The resources that are used to produce foods that are ultimately wasted could be better used for something else. Finally, several studies are motivated by environmental factors, such as reducing emissions of CO₂ gas or eutrophication by producing less food that ultimately goes to waste.

28. FAO and the Food Use for Social Innovation by Optimising Waste Prevention Strategies project (FUSIONS)⁵ have reached a general consensus on the definition of quantitative FLW, as any food that is finally not eaten, where food is defined according to the Codex Alimentarius definition⁶. FAO will publish the definition of quantitative and qualitative FLW at the session of Committee on Agriculture in May 2014.

29. As data collection methods are generally not standardized, a large number of different approaches has evolved. In general, data collection methods are rarely validated. Even though in most studies, it is mentioned that the data would be representative for a bigger region, this is neither proved nor tested further. Thus, the quality of the data varies significantly and rating the quality of the data provided in the publications is impossible. The methods of data collection applied depend largely on the targeted part of the supply chain and the specifics of the country or region in question. To facilitate the comparison across studies, the FAO Save Food Initiative has issued a guideline which includes a methodology for assessment of losses in small-scale agriculture and fisheries subsectors.

⁴ Report of Twenty-eighth FAO Regional Conference for Europe, (Paragraph, 27. b.) Baku, Azerbaijan, 19 and 20 April 2012

⁵ FUSIONS - Food Use for Social Innovation by Optimising Waste Prevention Strategies - is a project about working towards achieving a more resource efficient Europe by significantly reducing food waste. The project runs for 4 years, from August 2012 to July 2016. It is funded by the European Commission.

⁶ Food means any substance, whether processed, semi-processed or raw, which is intended for human consumption, and includes drink, chewing gum and any substance which has been used in the manufacture, preparation or treatment of "food" but does not include cosmetics or tobacco or substances used only as drugs.

30. There is a pressing need to have more reliable and valid data available to assess the extent of FLW and compare diverse practices and systems. This requires both harmonized monitoring methodologies, preferably from a global perspective, but also the commitment of stakeholder groups to be transparent on reporting losses and waste in all stages of the food supply chain. Developing global protocols for the measurement of FLW is highly complex, having to account for a large number of variables, often different from country to country. Most of the data on post-harvest losses in the Food Supply Chain in developing countries is not available or recorded. Therefore, it is felt that there is an urgent need for harmonized methodologies and protocols to describe and measure FLW. (HLPE 2012)

31. In addition to the question of defining FLW, the method of aggregation is another point of discussion in the literature. So far, no standard protocol for measuring food losses and waste has been developed. Dependent upon the specific scope a study seeks to address, different methods of aggregation have emerged: FLW is most often aggregated on the basis of weight or value and only exceptionally on the basis of caloric equivalents. Other studies convert FLW into greenhouse gas emissions or water use. Each of the methods of aggregation has certain advantages and disadvantages.

32. Most studies identify potential actions that can be undertaken to reduce FLW. However, the costs and benefits of particular actions are seldom evaluated. According to the OECD, the amount of FLW is the result of rational behaviour of all economic agents (households and producers). However, other studies implicitly argue that there is a market failure, whereby the market fails to provide the financial resources that value chain stakeholders need in order to make profitable investments in reducing FLW.

V. Assessment and main causes of food losses and waste in Europe and Central Asia⁷

33. As the findings of the Global FLW study indicate, patterns of FLW differ based on the overall level of economic development. The update of FLW assessments in the ECA region took into consideration differences in the level of development, which has a substantial impact on the level and patterns of FLW. REU has a unique regional coverage, which includes a group of developed countries, and a larger target group of heterogeneous developing countries. To reflect this, the assessment was done for three sub-regions: (i) Developed countries: EU 27, the European Free Trade Association (EFTA)⁸; (ii) Low income countries: Armenia, Azerbaijan, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan and Uzbekistan; (iii) Middle income countries: Belarus, Kazakhstan, Ukraine, South-East European countries and Turkey.

The Russian Federation and Croatia although high income countries, were included in the group of middle income countries⁹.

34. The decision to focus on low and middle income countries was taken on the grounds that high income countries, comprised primarily of EU states, have already conducted extensive research and developed advanced programs for monitoring and reducing losses and waste both at the national and EU levels as well as through bodies such as OECD. Furthermore, the FUSIONS project is leading and coordinating research and policy initiatives in the sphere of food losses and waste.

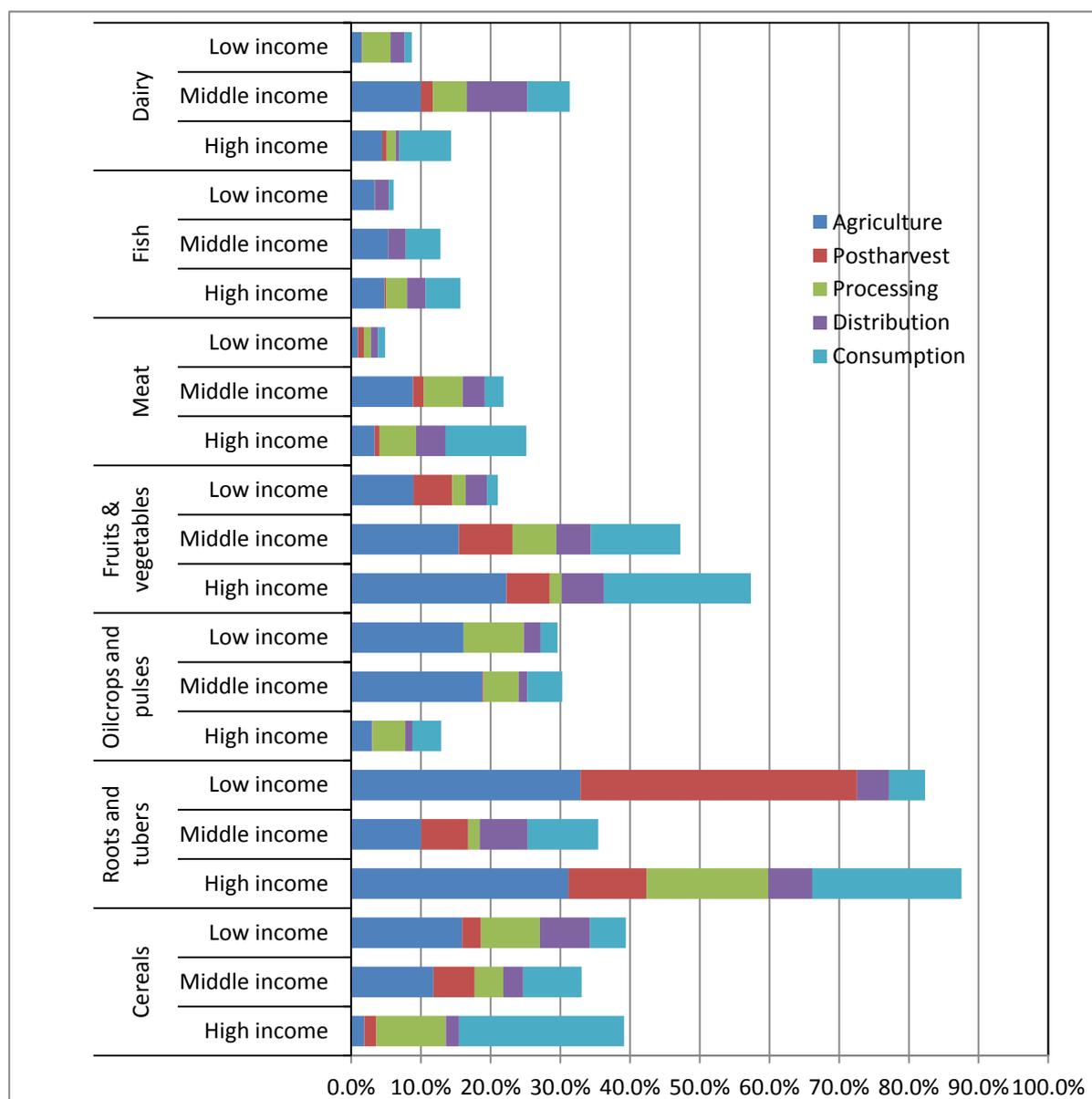
⁷ More detailed analysis is available in the study "Reduction of Food Losses and Waste in Europe and Central Asia for Improved Food Security and Agri-food Chain Efficiency", available at <http://www.fao.org/europe/agrarian-structures-initiative/3p/en/>

⁸ The European Free Trade Association (EFTA) is a free trade organization established in 1960 that operates in parallel with – and is linked to – the European Union (EU). Today's EFTA members are Iceland, Liechtenstein, Norway, and Switzerland, of which the latter two were founding members.

⁹ The latest homogeneous set of FAO food balance sheets available for the assessment was for 2009. Due to that, for the purpose of this assessment, neither Croatia nor Russian Federation, were included in the group of high income countries.

35. Given the limitations of the FLW assessment and methodology developed so far, as well as the availability and accuracy of data, preliminary estimates of FLW for ECA region are in line with the overall findings of the Global Study on FLW. There are notable differences in the patterns of FLW (Figure 1.) among the three sub-regions. Most of the losses in the developed countries occur at the consumption stage, while in the middle and low income countries the largest losses occur at the production and post-harvest stages of the value chain. For example, oversupply, purchasing capacity and consumer preferences for fresh bread as well as higher discard rates of other cereals products result in nearly 25 percent wastage of cereals products by high income consumers. Levels of waste fall to 8.5 percent in middle income countries and as low as five percent in low income countries.

Figure 1. Parts of the initial production lost or wasted in different stages of the food supply chain¹⁰



¹⁰ FAO-REU, 2014, Reduction of Food Losses and Waste in Europe and Central Asia for Improved Food Security and Agri-food Chain Efficiency, available at <http://www.fao.org/europe/agrarian-structures-initiative/3p/en/>

36. The largest proportion of production intended for human consumption, lost or wasted was in the roots and tubers commodity group. For high income countries of the EU and EFTA waste at the production phase is highest, with just over 30 percent of crops lost or wasted during the harvesting process. Thereafter processing and packaging sees waste levels of over 17 percent as a result of high quality standards, offcuts and cancelled orders from retail chains. However, middle and low income countries see almost no processing and packaging loss or waste, primarily because potatoes are subject to little processing or packaging.

37. In the fruit and vegetable supply chain high income ECA countries witness high levels of waste at the agricultural production and consumption ends of the supply chain, both over 20 percent of the volumes of production entering each phase, as a result of high quality standards, overproduction and excessive purchase by consumers. Middle income countries also see high production and consumption phase losses (both over 10 percent) as well as an increasing level of post-harvest handling and storage losses (approximately seven percent) as a result of cold chain logistics issues and poor storage capacity. There are major issues in low income countries during the production and post-harvest and storage phases (both over five percent losses), although overall losses and waste appear to decrease with decreasing country income levels.

38. Development context also has an impact on the causes of FLW. In developed countries in the region consumer preferences are the main reason for FLW, while in middle and low income countries the most frequently mentioned causes of food losses are inadequate infrastructure and technology as well as the lack of education and skills, in particular at farm level.

39. Losses at the stage of agricultural production also largely caused by farmers' conservative and traditional production methods and practices. In addition to physical losses during the agricultural production phase, losses in quality or the initiation of deterioration, result in the crop later being relegated to animal feed. The shortage of qualified extension service providers compounds these shortcomings in input selection and good agricultural practices. To address these issues, close coordination of government, educational establishments and job centres, the private sector, their representative associations and international educational and technical exchange programs is required.

40. The unavailability of modern post-harvest equipment and storage capacity is particularly pronounced in the fruit and vegetable (including potato) grouping and the absence of modern milking equipment and milk cooling capacity is likely to be the largest single cause of losses in the dairy sector. Losses in these sectors are particularly pronounced as fruit, vegetable and milk producers are overwhelmingly small producers, who lack access to modern practises, technology and sanitation to address critical loss points. Despite the relatively modern and integrated cereals and oilseed value chains in the region, considerable coordination is required, particularly between government and private sector producers and between governments of the region in order to establish best practises and the type of early warning and response system required to combat threats from disease and pests.

41. At the distribution phase it is again fresh and unpackaged produce requiring cold storage (fruit, vegetables and meat) that is most prone to losses, although losses of meat and dairy produce is often reduced by mal-practise by retailers and secondary markets for out-of-date produce. Losses of such products in this phase are also masked as product deterioration and short-shelf lives are frequently passed on to consumers, which translates into household level waste. Potential actions to counter such activities would be for the government and/or consumer organisations to engage retail chains and their suppliers to discuss new practises such as lowering prices as products near their sell-by or best-before dates. Provision of market information and schemes for classification of products may also be effective in reducing losses at this phase.

42. Given the high prevalence of modern domestic refrigerators among urban consumers in middle and low income ECA countries, as well as purchasing habits which are more regular and less excessive than those in high income countries, relatively low levels of waste are caused by technological and resource issues, particularly in urban households. Urban domestic waste is increased by reduced shelf life, particularly of fresh fruit, vegetables, meat and dairy products resulting from

inadequate post-harvest handling, packaging and cold chain storage during earlier agri-food chain phases.

43. Consumer preferences are the main reason for food losses and waste in high income ECA countries. As a consequence, all steps of the supply chain (production, processing, and distribution) have to adjust their operations to meet these preferences. Consumers demand high quality standards, meaning that all crops not meeting these standards are sorted out after the harvest. The cause of this household waste is that consumers prefer to buy the food products with a longer remaining shelf life. Oversupply and low prices also encourage consumers to buy excessive amounts of food which cannot then be consumed, particularly through promotional offers. Another source of food waste is aesthetic standards. Consumer awareness campaigns could be developed to explain expiry dates, high-risk expired produce and how to minimize waste in the home. The aforementioned actions could further be supported by joint initiatives by consumer organisations, government health and product safety authorities and industry associations.

44. Product quality plays a major role in losses and waste in all commodity groups. Cereals, oilseeds and vegetables, primarily those produced in low and middle income ECA countries, are downgraded to animal feed on both local and international markets given their poor quality. Processors bemoan the lack of quality of inputs, resulting in large part from the fragmented nature of production on numerous small farms which lack standardized approaches to production to allow the supply of commercial quantities of inputs at basic quality standards. Mitigation measures such as educating and providing technical assistance to farmers in the process of harvesting and improvement of rural infrastructure (roads, communication technology) can be addressed with direct involvement of governments. Additional measures to improve the efficiency of the value chain also include improvement of market information and the overall handling and storage management.

VI. Policy options and approaches for reduction of food losses and waste

45. Reducing food losses and waste is essential to improving the sustainability of food systems. As such it can contribute to broader systemic changes. Such changes towards better efficiency and sustainability can also involve actions to improve the valorisation of co-products and of food related waste. Currently, the issue of FLW is high on the political and development agenda world-wide and initiatives from both the public and private sectors are mushrooming in every region. These developments are positive in principle, but introduce the risk of duplication of efforts and – even worse – duplication of mistakes. The need for coordination is evident.

46. The problem of FLW is of such scale and complexity that requires the participation of all chain actors, stakeholders and supporting organizations is required to achieve meaningful results. The public sector can undertake research, develop methodologies, provide guidance, and support policy development for an enabling environment and investment climate, that will attract the private sector to make investments needed to reduce FLW. In lesser developed countries public sector can also support introduction of underlying programmes aiming at introduction of sustainable production practices.

47. To address the gaps in data availability and collection, as well as the gaps in identification of causes of FLW, deliberate interventions in reducing FLW need to be documented to allow, not only more accurate and in depth information, but also could be used as a tool to exchange experiences in a variety of approaches. To address the gap in limited capacity for value chain analysis in general, and FLW analysis in particular, especially in the lesser developed countries of the region better coordination and exchange of information between national experts would be instrumental in providing justifications for informed decision on actions to reduce FLW. Through its regular programme FAO will continue to assist member countries in developing capacities for improved statistics and data on FLW through preparation of studies and reports on the causes and the extent of FLW, as well as exchange of solutions and best practices for their reduction.

48. Given the evident lack of information and knowledge about the root causes for FLW in developing countries in the region, further research is necessary to identify whether critical loss points targeted by

deliberate policy intervention are the result of either market or policy failures, and only once this has been established, consider interventions targeting policy failures. Finally, a thorough assessment would be needed to identify if the targeted reduction in FLW is economically rational prior to deciding whether the government intervention is necessary. To that effect FAO support can include sharing of updated information, promotion of cost effective technologies and production practices, as well as the development of institutional capacities. The governments could also be encouraged to play a catalytic role by establishing a fora for FLW reduction. Through such fora, aimed at targeted agri-food chains, governments can facilitate value chain coordination and networking and encourage improved business practises, particularly in post-harvest agri-food chain phases and showcasing best industry practises.

49. Overall, the predominance of dislocated smallholder producers and the lack of investment in new technology throughout the supply chain were identified as key issues to be addressed in designing FLW reduction initiatives in low and middle income countries of ECA. To assure better access to market as a means to reduce FLW, governments may consider introducing policies and support programmes for development of producer organizations and other forms of cooperation. That would enable small producers to increase volumes of standardised products and engage directly with processors or retailers, or to develop joint pre-cooling and storage capacity. In turn that would not only reduce extremely high levels of losses and waste due both to spoilage immediately after the harvest, but also prolong shelf life of fresh produce, contributing to lower levels of consumer waste.

50. However, reduction of food losses downstream in the value chain until the consumer level should also be the responsibility of the private sector. In this context the scope of policies and government regulations related to reducing FLW should be on creating an enabling environment for the private sector to introduce practices that have the potential to reduce FLW and increase the overall efficiency of food supply chains. Moreover, any policies and strategies aimed at reducing FLW should not be FLW specific, but should rather be an integral part of the overall policy frameworks to improve food security, supply chain efficiency and competitiveness. Governments, working with other stakeholders, need to ensure stable business environments (transparent and consistent rules and regulations) to minimise risks and threats associated with investment in FLW reduction ventures. FAO will provide advices and support activities that assemble, disseminate and improve the uptake of knowledge, technologies and good practices in food waste and losses management system.

51. Because food waste is largely the result of behaviour and choice of mainly consumers and retailers, the general public needs to be made aware of this problem and especially its far-reaching impacts. This should change the attitude that throwing food away is cheaper and/or more convenient than using, re-using or preventing food waste. It will trigger innovative solutions to reduce food waste. Both food losses and waste need to be put on and remain high on the agenda of policy makers and actors in the food supply systems. The public and private sectors need to be well aware that they need each other to resolve the issue of FLW. Tailor-made communication strategies and channels should be identified to target all stakeholders involved, according to their age, sex and socioeconomic status. In assisting governments' efforts to reduce food waste, FAO as the coordinator of the global Save Food initiative, will continue to organise forums, meetings and other events to raise awareness, disseminate information on FLW, and to respond to the identified challenges and possible options.