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Subject:	COMMISSION STAFF WORKING DOCUMENT EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT Accompanying the document IMPACT ASSESSMENT on measures addressing food waste to complete SWD (2014) 207 regarding the review of EU waste management targets

Delegations will find attached document SWD(2014) 289 final - PART 4/4.

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COMMISSION STAFF WORKING DOCUMENT

EXECUTIVE SUMMARY OF THE IMPACT ASSESSMENT

Accompanying the document

IMPACT ASSESSMENT ON MEASURES ADDRESSING FOOD WASTE TO COMPLETE SWD (2014) 207 REGARDING THE REVIEW OF EU WASTE MANAGEMENT TARGETS

1. PROBLEM DEFINITION

The main problem to be addressed by this impact assessment is that there is excessive food waste[1] generated throughout the EU food chain. This food waste is a significant resource inefficiency in the food system, that has overall negative economic and environmental impacts.

Around 89 million tonnes or 179 kg per person of food waste was generated in the EU-27 in 2006, of which 42% was from households, 39% from manufacturing and the rest from other sources including retailers, wholesale and the food service sector. The total value of this food waste was estimated to be €180 billion in 2006, and represents up to 30% of all food produced, (although some estimates put it as high as 50%). Globally food waste may represent around 3-5% of total global warming impacts alone, more than 20% biodiversity pressure, and 30% of all of the world's agricultural land.

At European level, the overall CO_2 equivalents attributable to food waste is at least 170 Mt. emitted per year (close to the total greenhouse gas emissions of Romania or of the Netherlands in 2008, and approximately 3% of total EU27 emissions in 2008[2]).

Without additional prevention policies food waste could be expected to rise in Europe as high as 126 million tonnes by 2020, representing an additional 40% on top of the baseline 2006 figures (with a monetary value of €260 billion per year).

This issue has been identified as an area for the Commission to look into, supported by Roadmap to a Resource Efficient Europe, the 7th EAP and a 2011 European Parliament resolution. Currently, EU waste policies focus more on waste *treatment*, although they do also cover prevention. Some figures of food waste levels and impacts are shown below:

EU*		
2006	**2013**	**2020**
89 Mt food waste	100 Mt food waste	126 Mt food waste
Value €180 billion	Value €200 billion	Value €260 billion
170 Mt CO^2 equivalents**	190Mt CO^2 equivalents	240 Mt CO^2 equivalents
Global		
	2013	
	1.3 Gt food waste	
	3.3 Gt CO^2 equivalents	

[1] Food waste is composed of raw or cooked food materials and includes food loss before, during or after meal preparation in the household, as well as food discarded in the process of manufacturing, distribution, retail and food service activities. It comprises materials such as vegetable peelings, meat trimmings, and spoiled or excess ingredients or prepared food as well as bones, carcasses and organs (BIO Intelligence, 2010).

[2] EUROSTAT data

250 km³ water footprint Using 1.4 Billion hectares of land = 30% of all world agricultural land.

*EU figures do not include agricultural losses.
**This level is equivalent to roughly the total emissions of greenhouse gases of Romania.

2. ANALYSIS OF SUBSIDIARITY

The Waste Framework Directive already covers waste prevention, as Article 29 of the Waste Framework Directive requires EU Member States to establish waste prevention programmes. The current provisions on waste prevention refer to municipal waste in general and do not specifically mention food waste, in spite of the fact that it is one of the principle components of municipal waste. In addition, Article 11.4 stipulates that by end 2014 at the latest, the Commission should examine the existing targets[3] 'with a view to, if necessary, reinforcing the targets and considering the setting of targets for other waste streams'.

In relation to the EU's justification for action:

– Food Waste is produced in all the Member States of the EU and has significant trans-boundary environmental and pollution effects including the production of significant GHGs.

– The EU imports more than €60 billion of food, as raw materials for processing as well as for direct consumption. This food has a significant global environmental impact, both in terms of impact on land/biodiversity and in terms of GHG emissions within the EU.

– Coordinated action to reinforce national food waste prevention policies can significantly increase the environmental and economic efficiency of these policies through spreading good practices and synergies from similar approaches being developed in different Member States;

– A better understanding of the environmental impact of food waste generation and management in the EU can only be achieved by improving and developing the knowledge base available at EU level.

For this reason EU-wide targets, aimed at kick-starting action on food waste prevention, are considered to be a proportionate policy response. This would leave the specific actions to meet targets up to Member States, in line with subsidiarity.

The 7th Environmental Action Programme states that the Commission will *"set a framework for action to improve resource efficiency aspects beyond GHG emissions and energy, targets for reducing the overall environmental impact of consumption will be set, in particular in the food, housing and mobility sectors"*

[3] Article 11.2 of the Waste Framework Directive includes a legally binding target to be achieved by 2020: a 50% 'preparation for reuse and recycling' target for municipal was.

3. OBJECTIVES

General objectives

- To contribute, through action on food waste, to a food system that is more resource efficient, therefore contributing to a more competitive, low-carbon economy where impacts on the environment are minimised and a system that is more resilient and able to withstand challenges in times of increasing resource scarcity and economic instability.

Specific objectives

- To reduce food waste at all stages of the food chain in the EU.

Operational objective

To halt the rise in the generation of food waste in the EU and to reduce the levels generated, by means of the following:

a) To improve knowledge and awareness on levels and impacts of food waste.

b) To influence attitudes that lead to food waste, to encourage food waste prevention measures.

c) To encourage change in the food market toward less wasteful practices.

4. POLICY OPTIONS

The following options were considered in detail:

Option 1- Take no additional action

This action assumes the base level of low cost, easy actions within Member States and by the Commission on food waste will continue, and that the Commission will continue to take a responsible, coordinating role to support these.

Option 2 – Establish a standardised methodology for food waste data collection and compulsory reporting by Member States

This is an EU wide action that the Commission could take, on its own, or in parallel with the setting of a specific target. It would address the need for better, more consistent methodologies by drawing together standard approaches relevant to the measurement of food waste at each successive stage of the food supply chain.

Option 3 – Setting of targets (binding or non-binding) for food waste prevention

This option is about the creation of national food waste prevention targets for MS. These could be voluntary, or binding as part of the waste prevention targets that would be recommended in the revision of the Waste Framework Directive in 2014. This policy option depends, for a majority of Member States, upon improved food waste data reporting (as

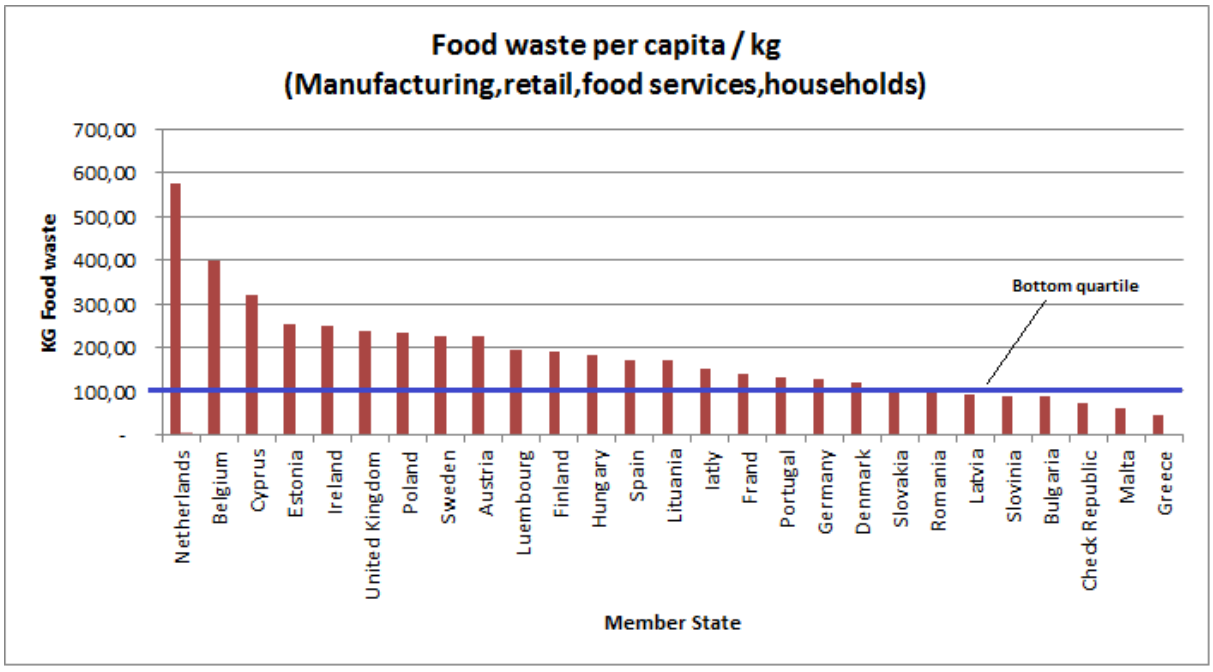
proposed in policy option 2), such that any target needs to be monitored against a standardised methodology for data collection, and with regular reporting by Member States.

Option 3 (a) Mandatory reporting (option 2) + A 15% reduction in food waste from 2016 – 2025, across the manufacturing, retail/distribution, food service/hospitality and household sectors, where food waste is defined as "Food (including inedible parts), lost from the food chain.", not including food diverted to animal feed, or sent for redistribution.

Option 3 (b) Mandatory reporting (option 2) + A 20% reduction in food waste from 2016 – 2025, across the manufacturing, retail/distribution, food service/hospitality and household sectors, where food waste is defined as "Food (including inedible parts), lost from the food chain.", not including food diverted to animal feed, or sent for redistribution.

Option 3 (c) Mandatory reporting (option 2) + A 30% reduction in food waste from 2016 – 2025, across the manufacturing, retail/distribution, food service/hospitality and household sectors, where food waste is defined as "Food (including inedible parts), lost from the food chain.", not including food diverted to animal feed, or sent for redistribution.

Given the wide variation in levels of food waste observed in different Member States, a threshold level of food waste generated per inhabitant was also set under which no further reduction would be required. Those Member States falling below this level would only be obliged to not exceed their 2016 level of food waste.



Option 3 (d) A national non-binding, aspirational objective of a 30% reduction in food waste from 2016 – 2025, across the manufacturing, retail/distribution, food service/hospitality and household sectors, where food waste is defined as "Food (including inedible parts), lost from the food chain", not including food diverted to animal feed, or sent for redistribution.

Note: Options 3(a), 3(b) and 3(c) need to be complemented by option 2, because the setting of any binding target needs to be monitorable and measurable over time against an agreed

baseline. Even if option 3(d) would benefit from the selection of option 2, it would not be essential.

5. ASSESSMENT OF IMPACTS

Option 1 – Take no additional action

Taking no additional action at the EU level will likely result in a continued increase in food waste.

Pros

- No additional burdens from additional legislative requirements.

Cons

- Total food waste will continue to rise, to as high as 126 million tonnes per year, by 2020, with a total (lost) value of €260 billion.
- Missed opportunity to use this waste stream as a resource, and to reduce environmental impacts. All the resources put into this food are wasted, including the land used produce it.

Option 2 – Establish EU food waste data reporting requirements

The estimated implementation costs for one larger Member States of this option were €200,000-300,000 per year. Costs would be significantly lower for smaller Member States, and this cost would come down in subsequent years once a measurement system was established. The cost could be lower, or negligible for those Member States who have already started measuring their food waste levels. (i.e for the 18 MS have already signed up for the EUROSTAT voluntary food waste add-on for 2014.)

This option would provide a clearer picture of food waste quantities, sources and treatment, thereby raising awareness of food waste issues and allowing for targeted analysis to identify and address problem areas for food waste generation and treatment.

It would also assist future monitoring and the setting of targets for food waste prevention, by providing more accurate baseline data. The availability of more detailed and comparable food waste data would, in the long term, lead to more effective food waste prevention and treatment.

The act of measuring and reporting on food waste itself is likely to also have the effect of stimulating preventative action at Member State level. Seeing, and properly valorising the food waste may catalyse action by those Member States as yet not active, however it is difficult to quantify to what extent this indirect effect would reduce food waste and over what timeframe.

However, it seems unlikely that this impact would be significant before 2020 or 2025, given that the first data would come in around 2016. It might be reasonable to expect that by 2025, the increase in food waste could have been halted, and reductions started.

Pros

- Important step for monitoring progress and for improving targets on food waste.
- Separate food waste reporting increases awareness of issue.
- Allows for clearer understanding of food waste-related issues (e.g. how much each sector is producing, possible causes, etc).
- Is likely to stimulate waste prevention activity indirectly.

Cons

- Administrative cost associated with sourcing and cataloguing new data.
- Implementation costs for some MS.
- Measurement costs for industry.
- Unlikely to reach food waste reduction objective in the short-term.

Option 3 – Setting of EU targets/objectives for food waste prevention

There are significant net financial benefits associated with options 3(a),(b),(c) and (d) as the implementation costs of preventing food waste are significantly lower than the costs of managing that waste, in terms of collection and treatment, i.e. landfill, digestion or incineration. The economic savings coming from the environmental costs associated with food waste are even larger as is the economic value of food waste saved.

In total, from 2016-2025 it has been shown that:

Every €1 spent on food waste prevention will have provided:

- 265kg food waste prevented, with a value of €535;
- €9 of municipal waste costs are saved and;
- €50 of economic savings linked to environmental costs associated with GHG emissions and air pollution.

Achieving a 15% reduction from 2016-2025 would result in:

- A direct implementation cost of **€33m per year**;
- A net cost of implementation (taking account of savings in waste management and treatment) reaching **-€315m per year by 2025 (i.e. a net benefit)**;
- A **total saving of 76.5Mt of food**, with the annual saving reaching **17 Mt per year in 2025** (with this saving continuing in future years at a reduced implementation cost);
- A value of food waste saved of **€155 billion in total**, peaking at **€35 billion in 2025** (with this saving continuing at that level in future years at a negligible implementation cost);

- **10,800km² of land** freed up for other uses;

- A reduction of GHG emission reaching **33 Mt CO^2 eq. per year by 2025**;

- Economic savings linked to environmental costs associated with GHG emissions and air pollution reaching **€1.8 billion per year in 2025**. (with this saving continuing in future years at a negligible implementation cost)

Achieving a 20% reduction from 2016-2025 would result in:

- A direct implementation cost of **€44m per year**;

- A net cost of implementation (taking account of savings in waste management and treatment) reaching **-€420m per year by 2025 (i.e. a net benefit)**;

- A **total saving of 104Mt of food**, with the annual saving reaching **23 Mt per year in 2025** (with this saving continuing in future years at a reduced implementation cost);

- A value of food waste saved of **€209 billion in total**, peaking at **€47 billion in 2025** (with this saving continuing at that level in future years at a negligible implementation cost);

- **14,400km² of land** freed up for other uses;

- A reduction of GHG emission reaching **44 Mt CO^2 eq. per year by 2025**;

- Economic savings linked to environmental costs associated with GHG emissions and air pollution reaching **€2.5 billion per year in 2025**. (with this saving continuing in future years at a negligible implementation cost)

Achieving a 30% reduction from 2016-2025 would result in:

- A direct implementation cost of **€66m per year**;

- A net cost of implementation (taking account of savings in waste management and treatment) reaching **-€630m per year by 2025 (i.e. a net benefit)**;

- A **total saving of 157Mt of food**, with the annual saving reaching **35Mt per year in 2025** (with this saving continuing in future years at a reduced implementation cost);

- A value of food waste saved of **€317 billion in total**, peaking at **€71 billion in 2025** (with this saving continuing in future years at a negligible implementation cost);

- **21,500km² of land** freed up for other uses;

- A reduction of GHG emission reaching **66Mt CO^2 eq. per year by 2025**;

- Economic savings linked to environmental costs associated with GHG emissions and air pollution reaching **€3.75 billion per year in 2025**. (with this saving continuing in future years at a negligible implementation cost)

Evidence suggests that for the nine year period 2016-2025, a 15% reduction in food waste would be achievable as would 30%, but this would be more ambitious and require a more focused policy effort. In all cases a concerted policy effort would be needed, which would entail significant initial costs, and require public/private coordination. These cost, however, are outweighed by the savings to the public purse from reduced costs needed to handle food waste as prevention is actually the cheapest way of dealing with food waste available.

The net benefits to households, retailers, manufacturers and the food service sector are also very high. Reduced food waste, will mean higher disposable income for EU consumers – money that can be spent in the food sector, or elsewhere in the economy. It will mean a more efficient and competitive food service and manufacturing sector.

At the same time a successful programme would mean lower demand, which could impact negatively on some parts of the food production sector. This could be compensated in some cases with a growing export market and a more competitive food sector, and evidence also suggests consumers who reduce food waste are 'trading up', i.e. purchasing higher value foods with some of their savings.

Pros

- Quantitatively addresses anticipated increase in food waste quantities;
- Allows for country-specific and culture-specific adaptability; methods for achieving targets would be decided at the MS level;
- A quantitative, time-bound target for reducing food waste would lead to action in all Member States within the time frame called for politically;
- Target will both raise awareness and mobilise resources for implementing reduction strategies;
- Will help with monitoring of progress of food waste prevention;
- Aligns with other legislation/targets. i.e. achievements in food waste prevention via concrete targets would contribute to the overall goals of the revised Waste Framework Directive and support the proper implementation of the waste hierarchy;
- Every € spent leads to considerably bigger savings for the EU economy.

Cons

- Direct initial costs for MS for carrying strategies for food waste prevention, through National Waste Prevention Programmes (although no additional cost for those who have already launched successful strategies);
- Implementation costs for industry, determined by the food waste prevention strategies utilised to meet targets;

- Potential loser for some producers if waste reduction leads to direct reduction in demand for food.

6. COMPARISON OF OPTIONS

In relation to the specific objective set for this exercise, "To reduce food waste at all stages of the food chain in the EU", the options can be ordered as follows, from the least likely to reach the objective, to the most likely:

- Option 1
- Option 2
- Option 2 + 3

Options 2+3(a), 2+3(b) and 2+3(c) and 2+3(d) offer very significant potential environmental benefits, and savings for the EU economy in terms of both not having to manage waste, and associated with considerable reduced environmental damage. These relatively rapid reductions in food waste, would, however, be initially expensive to set up, with coordinated waste prevention activities being required from Member States, and would lead to a reduction in demand for food at EU level.

Option 2 could stand alone, and given the significant potential environmental and economic benefits of food waste reduction, seems likely to yield results as the true value and levels of food waste are better defined. However, alone option 2 is unlikely to deliver in the time frame stipulated by the various political communications and resolutions mandating this work – i.e. seeking to get the rise in food waste under control by 2020-2025. Combined with option 3(d), (non-binding objective) however, option 2 is significantly more likely to deliver results in time, as Member States will have a clear objective set within waste legislation. (albeit non-binding.)

Options 1 alone is likely to help with reducing food waste in time, but even more than with option 2 and 2+3(d), given current trends, it is highly unlikely to bring food waste down before 2025. Under these options the potential 'quick wins' in terms of environmental and economic benefits from taking action of food waste would not be realised until a later time.

Any of options 3(a), 3(b) or 3(c) in combination with option 2, offer tremendous potential environmental and economic benefits. These options also make sense in terms of Article 11.4 of the Waste Framework Directive (that says the Commission should examine the existing targets ‘with a view to, if necessary, reinforcing the targets and considering the setting of targets for other waste streams’) given the that food waste is one of the principle components of municipal waste and that as present the waste framework directive is having little impact of total levels of food waste generation. However, the binding nature of these options, and the relative uncertainty in relation to meeting the targets within a fixed time-frame, means they should only be considered if all other avenues have been explored.

Option 3(d) however, is both in line with the level of political will and ambition shown by the Commission, Parliament and 7th EAP, and is in line with the proportionality principle. It sets an very clear benchmark for Member States, makes it clear that this is an important political issue, but is not overly heavy handed, giving flexibility to Member States to adapt their food waste prevention actions as needed. **Given the balance of these factors the preferred approach is for option 3(d) setting national non-binding, aspirational food waste objectives, accompanied by option 2.**

7. MONITORING AND EVALUATION

The progress indicators for food waste prevention will be the levels of food waste generated at each stage of the food chain, in all Member States.

Monitoring: The data will be collected by Member States via a series of sampling actions as is currently the case with a number of other data streams, but will be collected specifically for food waste. This data will allow for time series to be compiled on food waste levels at different stages of the food chain.

An ex-post evaluation of real effects of setting a target can be carried out in for 2025. The scope of this evaluation would be to undertake a cost benefit analysis of waste prevention activities undertaken in different Member States, to verify if the costs of actions is outweighed by the savings in food waste value, the costs of dealing with food waste, the health of the food production sector and changing in patterns of consumer spending. This evaluation could help refine future food waste prevention targets, if they were considered useful.