

Reducing food losses in the framework of the UN's 2030 Agenda for Sustainable Development

Reducción de las pérdidas de alimentos en el marco de la Agenda 2030 para el Desarrollo Sostenible de las Naciones Unidas

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ABSTRACT

Reducing food loss and waste therefore can generate a triple win: for the economy, for food security, and for the environment. But why is food loss and waste reduction not already being implemented at sufficient scale by countries, cities, and companies? Interviews with public and private sector decision-makers indicate that one reason is many leaders may not be aware - or may not believe- that there is a solid "business case" for reducing food loss and waste. For instance, the associated costs of food loss and waste may be buried in operational budgets, accepted as the "cost of doing business," or considered not worth the investment needed to achieve reductions.

KEYWORDS: Reducing food loss; Sustainable development.

RESUMEN

Reducir la pérdida de alimentos y el desperdicio puede generar una triple victoria: para la economía, para la seguridad alimentaria y para el medio ambiente. Pero, ¿por qué los países, las ciudades y las empresas no están ya aplicando la reducción de alimentos y la reducción de residuos a una escala suficiente? Las entrevistas con los responsables de la toma de decisiones del sector público y privado indican que una de las razones es que muchos líderes pueden no ser conscientes -o no creer- de que hay un sólido "caso de negocios" para reducir la pérdida y el desperdicio de alimentos. Por ejemplo, los costos asociados de pérdida de alimentos y residuos pueden ser enterrados en presupuestos operativos, aceptados como el "costo de hacer negocios", o considerar que no vale la pena la inversión necesaria para lograr reducciones.

PALABRAS CLAVE: Reducción de pérdidas de alimentos; desarrollo sustentable.

1. Introduction. Food loss and waste levels are high

In developing countries, we do not find accurate estimates of the magnitude of losses and waste of essential goods for life —such as water, electricity, natural gas, and food—. Nevertheless, there is no doubt that loss and waste of food remain unacceptably high worldwide and, moreover, and varies from country to country. Studies commissioned by the FAO estimate yearly global food loss and waste by quantity at roughly 30 percent for cereals, 40-50 percent for root crops, fruits and

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vegetables, 20 percent for oilseeds, meat and dairy products, and 35 percent for fish. Food loss and waste are heavily dependent on the specific conditions and local situation in a given country or culture.

In low-income countries food loss results from wide-ranging managerial and technical limitations in harvesting techniques, storage, transportation, processing, cooling facilities, infrastructure, packaging and marketing systems. The main sectors of concern are small and medium-scale fisheries, agricultural production and processing. Social and cultural conditions, such as the different productive and social roles that men and women play at different stages of the value chain, are also often underlying causes of food loss. In rural settings, while women are often the main actors in agriculture, post-harvest handling and marketing, social barriers may block their involvement in other stages of the chain. Gender is also at play: the difficulties that women face in obtaining access to and benefits from resources, services, jobs and income-generating activities affect their productivity and efficiency in food production and can lead to food loss.¹

The causes of food waste in medium- and high-income countries relate mainly to consumer behaviour and the policies and regulations put in place to address other sectorial priorities. For example, agricultural subsidies may contribute to the production of surplus quantities of farm crops, of which at least a proportion is lost or wasted. Food safety and quality standards can be applied in ways that remove food that is still safe for human consumption from the food supply chain. At the consumer level, inadequate planning of purchases and failure to use food before its expiry date also lead to avoidable food waste.

2. Definitions of food loss and waste

"Food loss and waste" refers to food intended to be eaten by people that leaves the food supply chain somewhere between being ready for harvest and being consumed. Some definitions also include the associated inedible parts of food.

"Food" refers to any substance, whether processed, semi-processed or raw—that is intended for human consumption or, more specifically, ingestion. "Inedible parts" refers to components associated with a food that, in a particular food supply chain are not intended for human consumption. Examples of associated inedible parts could include rinds and pits (fruit bones). What is considered inedible depends strongly on the cultural context. In this publication we note if associated inedible parts are included in the data.

The distinction between food loss and food waste is not always sharply defined but where it is employed, this is primarily based on the underlying reasons for material leaving the food supply chain. "Food loss" is typically considered unintended and caused by poor functioning of the food production and supply system or by poor

¹ Food Loss & Waste Protocol (2016).

institutional and legal frameworks. Examples include food that rots in storage, because of inadequate technology or refrigeration, or that cannot make it to market because of poor infrastructure and goes unconsumed. "Food waste" occurs due to intended behaviours—i.e., choice, poor stock management—or neglect. Examples include food that has spoiled, expired, or been left uneaten after preparation.

The term "food loss" is often used to cover what occurs between the farm and the retail store, while "food waste" is often used to include what occurs from the retail store through to the point of intended consumption. However, given that food can leave the food supply chain unintentionally and intentionally anywhere from farm to fork, both "food loss" and "food waste" can occur anywhere along the food supply chain.²

2.1. Food security

Food security is a highly relevant goal of governments and companies for political and humanitarian reasons. Reducing food loss and waste at various stages in the food supply chain can help increase the amount of food that remains available for human consumption. More people thus can be fed from a given level of agricultural output, improving food security. For instance, reducing food losses during storage can increase the amount of food that farmers and communities can later eat or sell on the market—earning income that in turn can be used to buy food and other necessities. Donating unsold (yet still safe) food to charity—instead of disposing of it in landfills—can help people in need who live within a charity's service area.

Increased food security can result in further household benefits, especially for women. In areas where women predominate the farming workforce, food loss reductions near the farm can increase the return on investment of time spent in fields and can reduce the total time needed to work in fields to achieve a given level of food security. Food waste reductions near the fork can reduce total household expenditures needed for food, freeing up resources for health, education, and other benefits.³

2.2. Waste regulations

In some political jurisdictions, government agencies and companies are obliged to abide by regulations regarding the disposal of waste material. Under these regulations, "waste" can include uneaten food and/or associated inedible parts. In the United States, for example, Massachusetts limits what companies can send to a solid waste disposal facility to just one ton of organic material per week.⁴ Japan's Food Recycling Law, enacted in 2001, includes incentives for companies to recycle food loss

² Food Loss & Waste Protocol (2016).

³ Lipinski (2013).

⁴ Massachusetts Department of Environmental Protection (2014).

and waste into animal feed, fertilizer, and energy, and sets legally binding targets for producers of over 100 tons of waste annually.⁵ Legislation introduced in 2016 in France makes it illegal for retailers above a certain size to destroy or landfill food and requires them to establish relationships to redistribute or treat surplus foods. These regulations often create a legal incentive and, when fines for noncompliance are involved, an additional financial business case for reducing food waste.

Reducing food loss and waste can improve local, regional, and global environmental sustainability. Food loss and waste reduction can reduce unnecessary levels of the following:

- Greenhouse gas emissions
- Water consumption by agriculture
- Land area needed for cultivation
- Fertilizer and pesticide applications
- Landfill demands.

These reductions can benefit public and private sector efforts to curtail climate change, conserve freshwater resources, protect biodiversity, minimize pollution, and reduce land-use pressure. Thus, food loss and waste reduction can help governments and companies meet mandatory and/or voluntary commitments they have to these environmental issues, such as zero-waste-to-landfill commitments, the Paris Agreement on Climate Change, and the Sustainable Development Goals (SDGs).

2.3. Stakeholder relationships

Companies note that food loss and waste reduction efforts can improve relationships with stakeholders up and down the supply chain. For example, some company managers highlighted that implementing efforts to help their upstream suppliers reduce food loss and waste increases the degree of collaboration between the two entities—collaboration that can spread beyond the effort itself. They also noted that food retailers that help customers reduce food waste at home can strengthen customer relationships, retention, and loyalty—to the degree that customers recognize that the retailer is trying to help them save money.

Media coverage also can help strengthen stakeholder relationships. Coverage of food loss and waste reduction efforts can build a company's brand as a responsible business - improving its social license to operate - and can reach a wide audience of existing and prospective customers. Likewise, donating unsold (but still safe) food to charities can strengthen a company's brand, public reputation, and employee pride in where they work. According to interviewees, all these forms of strengthened stakeholder relationships, in turn, can lead to improved business performance.

2.4. Ethical responsibility

⁵ Kobayashi (2015).

Interviews with both public and private sector leaders high-lighted yet another nonfinancial business case: reducing food loss and waste is simply "the right thing to do." Executives note this, as do staff. The CEO of UK-based, multinational grocery retailer Tesco⁶, Dave Lewis, made this point in a speech to The Consumer Goods Forum in mid-2016:

"Why wouldn't we want to have a look at this [food loss and waste reduction]? We can look at it through commercial sensibility, because waste ultimately has to be paid for, so if we eradicate it we can lower our costs. We might even be able to improve the margins if that's the thing that really drives us. But there's also a bigger goal which is how we might make a contribution to that massive inequality that exists already in terms of those who have food and those that don't. Both of them, I think, are enough for us as an industry to motivate ourselves, engage ourselves, and innovate against this need"⁷.

3. A Call to Action⁸

Our analyses demonstrate that there can be a strong business case for governments and companies to reduce food loss and waste. These findings should encourage public and private sector decision-makers to start seriously exploring what they can do within their own borders, operations, and supply chains to reduce food loss and waste. What then are next steps? We recommend that public and private sector decision-makers follow a three-step approach: (1) target, (2) measure, and (3) act.

3.1. Target

Targets set ambition, and ambition motivates action. With the adoption of the Sustainable Development Goals SDGs in 2015, all nations implicitly have agreed to SDG Target 12.3. But since the SDGs have a total of 169 targets, adoption of all the SDG targets means food loss and waste reduction may not yet be garnering sufficient decision-maker attention and focus. To create the needed focus, therefore, governments and companies should adopt explicit food loss and waste reduction targets aligned with SDG Target 12.3.

How much progress has been achieved to date? In terms of governments, the United States, the European Union, and the African Union⁹ have now adopted

⁶ <https://www.tesco.com>.

⁷ Lewis (2016).

⁸ This example was given by Paul Bulcke, Chairman, of Nestlé.

⁹ In 2014, the 54 Member States of the African Union issued the Malabo Declaration, a set of agriculture goals aimed at achieving shared prosperity and improved livelihoods. Part of the Malabo Declaration is a commitment "to halve the current levels of post-harvest losses by the year 2025." Although this target does not match SDG Target 12.3

specific food loss and waste reduction targets consistent with Target 12.3.

“Courtauld 2025”, a voluntary commitment among more than 100 businesses and government agencies in the United Kingdom, has a target for food loss and waste reduction that will put the country on a trajectory to deliver Target 12.3.¹⁰ In terms of companies, The Consumer Goods Forum and “2030 Champions,” a newly formed U.S. business partnership, have set reduction targets.¹¹

What is needed going forward? To date, targets consistent with SDG Target 12.3 have been adopted in a few regional blocks and among some of the largest multinational companies. Yet if focus and ambition are to be realized, every government—as well as all companies involved in food supply chains—should adopt SDG Target 12.3. Notable gaps in explicit adoption include the following:

- Targets by developing and middle-income countries outside of Africa
- Targets set as part of implementing a country's Nationally Determined Contribution (NDC) to the Paris Agreement on Climate Change (only Rwanda's NDC currently includes a quantified food loss and waste reduction target as part of its strategy)¹²
- Targets at the subnational level, including cities
- Targets among agribusiness companies.

4. Conclusions and recommendations

The world will need to feed more people with less water, lower levels of farmland in production and less rural labour. To satisfy the increasing expectations of water, energy and food, humanity must shift towards more sustainable consumption and production processes, with more efficient agriculture and food system. This implies food security. I think that in our region it is needed and important change and debate in the framework of food security. Each of these approaches—and others like them—can contribute to reducing food loss and waste, and efforts are underway to implement them.

The World Resources Institute (WRI)¹³ has offered several recommendations in

directly, since the numeric target applies to food losses and not to food waste, it is “in the spirit” of SDG Target 12.3 in that it calls for a 50 percent reduction—and even five years earlier than the SDGs. Moreover, focusing on food loss is arguably justified since, as Figure 1 indicates, food losses during production and storage are currently a larger issue in Africa than food waste at the market or consumption stage.

¹⁰ See: <http://www.wrap.org.uk/content/courtauld-commitment-2025>

¹¹ Lipinski and Hanson (2016). For information about 2030 Champions, see: http://www4.unfccc.int/ndcregistry/PublishedDocuments/Rwanda%20First/INDC_Rwanda_Nov.2015.pdf

¹² Republic of Rwanda (2015).

¹³ <https://www.wri.org/our-work/topics/food>

this context. These recommendations are the following. We transcribe one of the more significant paragraphs.

4.1. WRI Recommendation 1. Develop a food loss and waste measurement protocol what gets measured gets managed.

The current high rate of food loss and waste makes some sense since it is hard to act without information: frequently collected, systematically measured data on food loss and waste have been sparse.¹⁴ If one does not know how much or where food loss and waste is occurring, how can one be expected to do something about it? Experts interviewed for this chapter agreed that across the food value chain, better measurement and monitoring of food loss and waste is needed.

The Food and Agriculture Organization's (FAO) report Global Food Losses and Food Waste—Extent, Causes, and Prevention¹⁵ was the first systematic effort to quantify food loss and waste at a global and regional level, was an important step in addressing this challenge. A next step would be to develop a standardized method or “protocol” for countries and companies in the food value chain to use to consistently and periodically measure and monitor food loss and waste in their boundaries and/or supply chains. Such a protocol would become the “generally accepted accounting principles” for food loss and waste.

Precedents for establishing global standardized measurement approaches exist in other sustainable development contexts. For example, more than 15 years ago, companies did not have a standard, consistent, mutually agreed method for measuring and monitoring their greenhouse gas emissions. There was a risk that a plethora of approaches would emerge, creating confusion among and non-comparability between companies. To address this gap, WRI and the World Business Council for Sustainable Development developed the “Greenhouse Gas Protocol,” which has since become the standard for companies and other entities to measure greenhouse gas emissions from their own operations, their purchased electricity, and their supply chains.¹⁶

[▲] A “food loss and waste protocol” would provide guidance and requirements on what should be measured, how to measure it, what unit(s) of measurement to use, what data sources and quantification methods is appropriate, how to ensure comparability

¹⁴ For example, when the International Centre of Insect Physiology and Ecology and the International Development Research Centre reviewed the literature on postharvest losses in Africa, they identified massive gaps in the data on the type and magnitude of losses, potential interventions, costs and benefits. See ICIPE and IdRC (2012).

¹⁵ (FAO 2011)

¹⁶ Developed by WRI and the World Business Council for Sustainable development, the Greenhouse Gas Protocol is the globally accepted standard for companies and other entities to measure their greenhouse gas emissions. It defines what emissions are to be measured and how to do it for more information, visit www.ghgprotocol.org.

among users and over time, and how to report results, among other features. By conducting periodic food- loss and waste audits conforming to the protocol, countries and companies could quantify how much and where food loss and waste are occurring within their spheres of influence. Armed with this information, countries and companies would be better able to identify where opportunities for food loss and waste reduction exist, who needs to be engaged to achieve those reductions, what strategies may be appropriate, what targets to set, and how much progress is being made over time.

The protocol should be globally applicable to enable consistency, comparability, and transparency across users. It should cover both food loss and waste and be relevant for both countries and private-sector entities. To maximize buy in and technical input, it should be developed through a process involving government, inter-governmental, private sector, and research institution stakeholders. Furthermore, it should recognize and be amenable to the different initial conditions of data availability between countries and food supply chains yet encourage continuous improvement to more accurate and more frequent data collection and use.

Movement in the direction of standardized measurement is underway. FAO is in the process of developing a standard method to assess and monitor food losses at the national level, with a focus on developing countries.¹⁷ The European Union is developing a method for assessing and monitoring food waste.¹⁸ **WRAP**, in conjunction with **UNEP** and FAO, has developed methods for measuring food waste within corporate supply chains.¹⁹ Several European countries such as Denmark, Sweden, and Norway are exploring establishing food loss and waste reduction targets and metrics.²⁰ We recommend bringing these and related efforts together in collaboration with other stakeholders to establish a food loss and waste measurement protocol that will be robust, globally relevant, and universally adopted by countries and companies. In developing countries we do not find accurate estimates of the magnitude of losses and waste of essential goods for life — such as water, electricity, natural gas, and food -. Nevertheless, there is no doubt that loss and waste of food remain unacceptably high worldwide and, moreover, and varies from country to country. Studies commissioned by the FAO estimate yearly global food loss and waste by quantity at roughly 30 percent for cereals, 40-50 percent for root crops, fruits and vegetables, 20 percent for oilseeds, meat and dairy products, and 35 percent for fish. Food loss and waste are heavily dependent on the specific conditions and local situation in a given country or culture.

¹⁷ Personal communication. Robert van Otterdijk (team Leader, Save Food, FAO), April 2, 2013.

¹⁸ Personal communication. Robert van Otterdijk (team Leader, Save Food, FAO), April 2, 2013.

¹⁹ UNEP, FAO, and WRAP (2013).

²⁰ Personal communication. Jesper Sørensen (Special consultant, Danish Ministry of Food, Agriculture and Fisheries), May 3, 2013.

4.2. WRI Recommendation 2. Set food loss and waste reduction targets

Setting quantifiable, time-bound targets could raise awareness, stimulate focused attention, and mobilize resources toward reducing food loss and waste. Targets could be adopted across a range of geographic scales and types of entities. Four in particular come to mind:

Global target. The period of performance for the Millennium Development Goals ended in 2015. The international community has already started dialogues on the possible nature and content of the post-2015 development agenda. The issue of food security is on that agenda. We recommend including a food loss and waste reduction target that contributes to a post-2015 goal on food and nutritional security. The target could be “By 2030, reduce the rate of postharvest food loss and waste by 50 percent.” The target’s associated indicator would be the share of food produced or harvested that is lost or wasted between the farm and the fork, and its metric would be percent of food loss and waste. This target would imply that the rate of food loss and waste in 2030 declines from its current level of about 24 percent to 12 percent (on a caloric basis) or from around 32 percent to 16 percent (on a weight basis). Furthermore, such a target would satisfy core principles of the post-2015 development agenda of poverty alleviation, human well-being, sustainability, and inclusiveness—involving all countries and involving all actors.²¹

National targets. If a global target is established, national targets could then be set that support the global one while accounting for different country starting points and contexts. In the meantime, countries or regional government bodies could establish their own food loss and waste reduction targets. For instance, in 2012 the European Union established a target of reducing food loss and waste within its borders by 50 percent by the year 2020.²²

Sub-national targets. Similar targets could be set at the sub-national level, which includes provinces and cities. For instance, in 2013 New York City announced a Food Waste Challenge in which more than 100 participating restaurants agreed to reduce food waste by 50 percent by 2030.²³ Hong Kong has a target of reducing food waste by 10 percent between 2013 and 2016.²⁴

Corporate targets. Companies, too, could set food loss and waste targets for their own operations or, particularly for those in the food business, for their food supply chains. For instance, Arla Foods, Europe’s second largest dairy company, set a target in 2011 to reduce food loss and waste by 50 percent for the company and its supply chain by 2020 compared to 2010 levels.²⁵ Another example is the Courtauld

²¹ Hazlewood (2012)

²² European Parliament (2012)

²³ NYC.gov (2013)

²⁴ Irvine (2013)

²⁵ Personal communication, Jan d. Johannesen (director of Sustainability, Arla Foods),

Commitment, a voluntary agreement arranged by WRAP with more than 40 signatories including companies such as Nestlé, Tesco, Sainsbury's, and Unilever. Signatories agreed to do their part in reducing household food waste by 5 percent and supply chain waste by 3 percent between 2013 and 2015.²⁶ Sectors for which such targets may be most relevant include food distribution, processing, and retail.

Periodic measurement of food loss and waste, conforming to a food loss and waste protocol (recommendation 1), would facilitate setting baselines and tracking progress toward such targets over time.”

4.3. WRI Recommendation 3. Increase investment in reducing postharvest losses in developing countries

Approximately a fifth to a third of all food loss and waste in developing regions occurs at the handling and storage stage (Figure 2)—commonly called postharvest losses. However, various experts estimate that worldwide only 5 percent of agricultural research investment focuses on postharvest issues while 95 percent of funds focus on increasing crop production. Yet as the World Bank, FAO, and others have shown, investment in reducing postharvest losses can be as cost-effective as other agricultural investments and can yield good returns, especially when food commodity prices rise.²⁷ In general, postharvest loss and waste reduction science is less expensive than production research, in which multiple studies must be conducted over years or seasons.

Doubling the share of investment in addressing postharvest losses from 5 percent to 10 percent would be a significant improvement and a step toward increasing adoption rates of technologies and approaches to reduce postharvest losses. National governments, multilateral development banks, bilateral development agencies, philanthropic foundations, and international organizations dedicated to food security all have a role to play in increasing this investment. Food loss prevention training and education programs are ready to be implemented in many places around the world. In many cases, insufficient funds have prevented agricultural extension agents from implementing such programs.

Postharvest loss interventions should be appropriate to the socioeconomic, business, and political context of a country.²⁸ Strategies for considering these contexts suggested by Kitinoja et al. (2011) include:

Integrating postharvest loss science and education into the general agricultural curricula and government extension services;

Establishing “Postharvest Training and Services Centers” to test reduction

May 14, 2013.

²⁶ WRAP (2012)

²⁷ World Bank, Natural Resources Institute and FAO (2011); Goletti and Wolff (1999).

²⁸ World Bank, Natural Resources Institute and FAO (2011).

innovations under local conditions, identify the most promising and cost-effective techniques and practices, provide demonstrations of innovations determined to be technically and financially feasible, and provide hands-on training and capacity building to farmers; and

Establishing country-level Postharvest Working Groups that connect researchers, extension agents, farmers, and other food value chain actors concerned about reducing postharvest losses. Such groups could facilitate information exchange, training, shared learning, and national and regional collaboration on postharvest loss reduction.²⁹

4.4. WRI Recommendation 4. Create entities devoted to reducing foodwaste in developed countries

In North America and Europe, more than 60 percent of food loss and waste occurs during the market and consumption stages—in supermarkets, food and drink retailers, households, restaurants, and caterers— (Figure 2). An emerging success story in reducing food waste in these stages of the value chain is WRAP's work in the United Kingdom. Established as a not-for-profit company in 2000, WRAP's vision is a world without waste, where resources are used sustainably. It works in partnership to help businesses, individuals, and communities improve resource efficiency.

WRAP has constructively worked with, and on behalf of, governments and engaged food and drink retailers as well as manufacturers and trade bodies to establish voluntary food waste reduction targets, design waste reduction techniques, help the sector make changes to processes, products and packaging to prevent waste, and raise consumer awareness.³⁰ WRAP has implemented several of the approaches profiled earlier in this working paper, including revising food date labels and designing consumer engagement campaigns.

WRAP has a proven track record so far. By 2010, annual household food waste in the United Kingdom decreased by more than 1.1 million tonnes compared to 2007—a 13 percent reduction over just a three year period—.³¹ Plus, every British pound spent by WRAP has prevented more than 100 British pounds worth of food from being wasted.³² Such quantifiable progress can motivate further progress and help ensure long-term support for the organization and its mission.

Establishing and supporting entities like WRAP in other countries—starting with those where food waste instead of loss is the major issue— could help catalyze concentrated reduction efforts. Because the players in the food value chain and the drivers of food waste are often context-specific, an organization operating at a

²⁹ Kitinoja et al. (2011)

³⁰ WRAP (2012).

³¹ WRAP (2013).

³² WRAP (2013).

national level is quite appropriate. Such entities could be financed via private philanthropy, a fee-for-service model, or some combination. WRAP uses a unique funding model in which each of the four governments of the United Kingdom—England, Scotland, Wales, and Northern Ireland— provide funding for its operating costs in order to deliver waste policy goals. Yet the organization operates independently of the government, more like a non-governmental organization which can provide credible, independent evidence and technical expertise to focus action where it is needed, and act as a broker for delivering government policy and enabling competitive businesses come together to work to a common goal.³³”

4.5. WRI Recommendation 5. Accelerate and support collaborative initiatives to reduce food loss and waste

Reducing food loss and waste requires action by a wide range of actors—households, companies, farmers, policymakers, and more. It also requires changes in technology, practices, behavior, and policy. These factors suggest that no single individual or group can sufficiently tackle this problem alone; collaboration is needed.

Collaborative initiatives can provide a number of benefits. They can help to build capacity within the entities that need to take on-the-ground action to reduce food loss and waste. They can facilitate sharing and transferring of best practices and common pitfalls. They can motivate and inspire action among their members. And they provide a venue for joint problem solving that cannot be done by a single entity.

Many actors need to be involved. Companies can take steps to reduce food loss and waste within their own operations and their supply chains, particularly those in the food sector. They can finance solutions and also engage consumers in reducing waste, while also improving their own profit margin by reducing waste within their own operations. Governments can finance efforts to reduce food loss and waste, raise awareness of the issue, and set reduction targets. Civil society, researchers, and intergovernmental organizations can identify and share best practices, provide technical assistance, and convene stakeholders.

Quite a few collaborative initiatives already tackle the challenge of food loss and waste (Table 1). They vary in terms of strategy pursued, partners involved, and geography covered. But the scope of the challenge and scale of the opportunity are so big that there is a need to increase investment in these and similar collaborative efforts. This investment is a role for governments, private foundations, multilateral institutions, and bilateral development agencies.”

Although the solutions and recommendations contained in this paper can help reduce food loss and waste, waste at the consumption stage of the value chain remains a significant challenge. For example, in North America and Oceania, 61 percent of loss or waste occurs at the consumption stage and in Europe it is about 52 percent. The

³³ WRAP (2011d).

experience of WRAP in the UK has shown that household food waste can indeed be reduced, but the scale of consumption waste suggests that there may be larger systemic issues that would need to be addressed to truly achieve large reductions in food waste at the consumption stage in these regions.

The way that loss and waste occur in developing countries in the future also matters a great deal. South and Southeast Asia, for example, will need to avoid growing into the food waste patterns of North America if the 50 percent global reduction target we propose in this working paper is to be achieved. Going forward, improved strategies for tackling consumption waste will need to be a priority for research and innovation for the global community dedicated to reducing food loss and waste.

We propose to look these recommendations but in the framework our regional needs and situations. Argentina is an agricultural country it has the opportunity to reduce food losses and help other countries

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