

**From developing countries'
perspective: food waste,
interlinkages and initiatives**

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of Lithuanian Consumer Institute and do not necessarily reflect the views of the European Union.



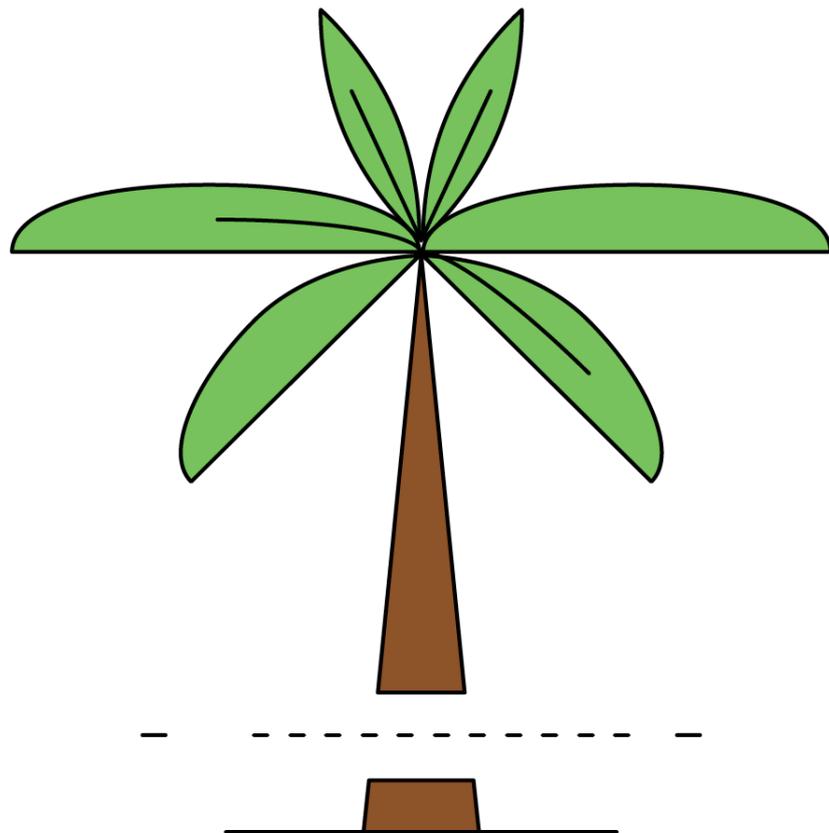
Co-funded by the
European Union



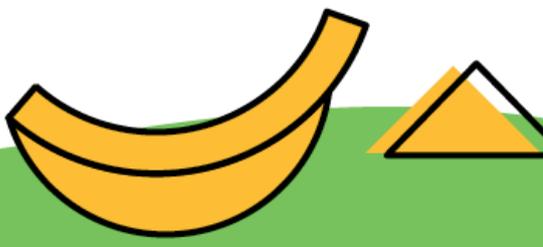
© — 2018 — Lithuanian Consumer Institute. All rights reserved. Licensed to the European Union under conditions.

Contents

Introduction	4
1. Case of Africa	6
2. Case of Asia.....	11
3. Case of Latin America and Caribbean.....	14
References	18



Introduction



Food waste problem is a problem not only of the wealthy countries. Developing world also experience food loss and, most importantly, related food insecurity, environmental and economic burden. In globalized world actions and behaviour of stakeholders in complex supply chains influence each other situation regarding food safety, climate change, resource use, biodiversity protection, social justice and economic sufficiency. Facing global problems and aiming at the implementation of global sustainable development goals, developing countries, which very often are the main producers of certain products as well as very often the main receivers of environmental and social negative consequences, are of importance for mainstreaming global approach regarding food waste reduction.

It is estimated that at the consumption stage food waste in Europe and North-America is 95-115 kg/year the per capita, in Sub-Saharan Africa and South/Southeast Asia food waste generation at consumption stage is much lower, reaching only 6-11 kg/year per capita (FAO, 2011). Postharvest food losses occurring at the production, harvest, postharvest and processing phases together with climatic conditions are the main source of food losses and waste in developing countries (Lundqvist, 2008; FAO, 2011; Lipinski et al., 2013). In developing countries more than 40% of the food losses occur at post-harvest and processing while in industrialized countries more than 40% of the food losses happen at retail and consumer levels (FAO, 2011). In total developing countries account for 44 % of the food loss and waste (Lipinski et al., 2013).

In developing countries, for example, discard rates of primary fish and seafood range between 6-8% of marine catches. In addition, a lot of fish is lost because of deterioration during distribution of fresh fish and seafood (FAO, 2011). Farmers sometimes harvest crops too early due to food deficiency or the need for money. Because of that nutritional and economic value of food is lost and food may get wasted. Fresh products like fruits, vegetables, meat and fish can be spoilt in hot climates because of the lack of proper infrastructure for transportation and storage (FAO, 2011). Other authors (Lipinski et al., 2013) also state that lack of storage capacity is a major source of food loss in developing countries. This is partly driven by issues of seasonality, as farmers might not be willing to invest in processing and storage facilities that will not be used year-round (FAO, 2011).

Also, this means that farmers have to sell all production at lower prices and cannot keep it longer until the crop becomes less available and prices raises (Lapinski et al. 2013). As consumers focus on freshness and food safety increases (Lundqvist et al., 2008), the pressure for proper processing and storage is obvious.

Inadequate market systems in developing countries cause high food losses too. To minimize losses, the commodities produced by farmers need to reach the consumers in an efficient way. However, there are still insufficient number of wholesale, supermarkets and retail facilities that provide proper storage and sales conditions (sanitary, cooling) for food products (FAO, 2011).

As many small farmers in developing countries encounter food insecurity, a reduction in food losses could have a significant impact on their livelihoods (FAO, 2011). Especially this is attributed to gender issues. As summarized by Consultative Group on International Agricultural Research¹ agriculture is the largest sector for women's employment in Oceania, South Asia and sub-Saharan Africa, however women have less access to the capital, key resources, decision making. Land ownership by women is also much lower compared to the mans. Also, still mostly women deal with the food and are responsible for it at home in most of the countries (Lipinski et al., 2013). Hence, approaching women may be especially effective food waste reduction. Climate change implications might also be of importance and should be taken into account as some 5 % and more decline in cereal production in many developing countries by 2020 is projected (Lundqvist, 2008).

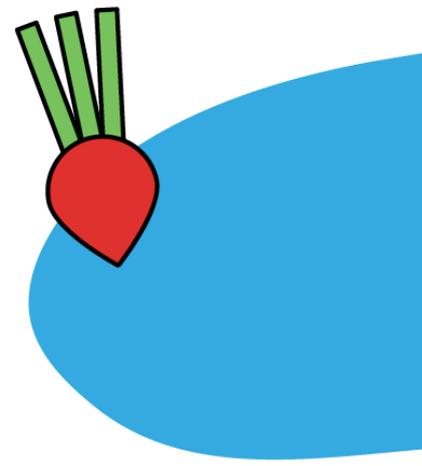
Examples of possible solutions and suggestions for developing countries food waste reduction (FAO, 2011):

- Organizing small farmers and diversifying their production and marketing.
- Investing in infrastructure, transportation, storage and cold chain facilities.
- Developing contract farming linkages between processors and farmer.
- Establishing marketing cooperatives and improve market facilities for gathering produce from small farmers and preparing it for transportation and distribution.

However, as highlighted by some authors (Lipinski et al., 2013) even if there will be a success in reduction of losses at the production and storage stages in developing countries, there might be increase of food waste generation at the consumption stage as the result of growing incomes in developing countries, hence overall trends of food waste reduction might not fell so fast as expected. Consumers therefore play an important role in all countries.

¹ https://ccaafs.cgiar.org/flagships/gender-and-social-inclusion/about#.WnmRV_yYOUk

1. Case of Africa



In sub-Saharan Africa (SSA) one third of food produced is lost before it reaches the marketplace (FAO, 2011). Main causes of post-harvest food losses are due to poor infrastructure, poor temperature management, low levels of technology and low investment in the food production systems, especially the cold chain (Postharvest Education Foundation, 2017).

A notable cause of post-harvest food waste turns out to be cosmetic or aesthetic specifications (specifications on size, shape and colour of food) by the supermarkets of the developed countries (such as EU). For example, on average, 80 % of mangos grown in Senegal are unacceptable for export to Europe. Minor skin blemishes that pose no risk to the quality of the fruit are reason enough for mangos to be removed from the value chain (Feedback, 2017). Similar cases are described in other countries, e.g. Kenya where up to 35 % of beans are discarded due to EU standards².

At the same time, problem of food insecurity has emerged. According to the 2015 report of the Food and Agriculture Organization (FAO) on the state of food insecurity in the world, more than 232 million people in Africa (a little less than 20 % of the population) are undernourished. The most undernourished regions in Africa are Sub-Saharan Africa, Eastern Africa and Middle Africa (FAO, 2015a).

Nevertheless, next to the oil and gas, as well as minerals exports, African countries are dominating in export of food products (coffee, grains, livestock)³.

Still climate change poses some threats in the regions, including an important causality between climate change food loss and food insecurity. Small holdings, poor infrastructure, susceptibility to drought and extreme weather events are the principal causes of the threat of climate change to food security and increased food losses in Africa (Besada et al., 2009). Researchers conclude that Africa is the most vulnerable continent in the world to climate change (Dinar et al., 2008). On the other hand, food waste and food loss contribute to climate change by excess CO₂ emissions. Uneaten food is estimated to

² <http://www.thinkeatsave.org/index.php/eu-supermarkets-blamed-for-kenya-food-waste>

³ World economic forum: <https://www.weforum.org/agenda/2016/05/which-are-africas-biggest-exports/>

emit 3.6 Gt of CO₂ eq. per year with an additional 0.8 Gt of CO₂ eq. resulting from associated land use, land-use change and forestry activities. This makes global food loss and waste a major contributor to climate change, accounting for around 8% of global anthropogenic GHGs emissions (FAO, 2015b).

Projects and initiatives

Food Africa project (2016) is a public-private partnership between the United Nations' Sustainable Development Goals Fund (SDG Fund), Sahara Group - a member of the SDG Fund Private Sector Advisory Group (PSAG), United Nation agencies, chefs - the Roca Brothers - and the Kaduna State Government in Nigeria. It is directed at "improving food security and nutrition and alleviating poverty through strengthening of the agro-food value chains, improving agricultural productivity and yields, creation of a food processing facility and promotion of access to markets in Nigeria". This initiative is trying to improve the lives of the people of Kaduna in northwest Nigeria. In Kaduna, the production of tomatoes and vegetables is vital to feed the population, as well as to generate employment and income. Unfortunately, the lack of adequate storage facilities and limited access to markets results in 70 % losses of the crops each year. Along with a number of UN agencies (FAO, ILO and ITC), the regional government, local entrepreneurs and farmers' cooperatives, project works to introduce sustainable practices for growing tomatoes, and to reduce crop losses and raise smallholder farmers' profits. It is expected that 5,000 women and men of Kaduna will be directly impacted with new job prospects, increased income and additional skills to compete in the thriving food industry. In addition, an estimated 500,000 residents will indirectly benefit from the Food Africa Project⁴.

The YieldWise Initiative - aims to tackle the problem of post-harvest loss in sub-Saharan Africa. Launched by Rockefeller Foundation in 2016⁵, YieldWise focuses on reduction of waste throughout the food value chain - targeting cassava and tomato production in Nigeria, mangoes in Kenya, and maize in Tanzania, where 70 % of people make their living from agriculture. By reducing waste, smallholder farms in the region could directly feed more people and extend economic benefits. Linking farmers to the buyers, linking value chain actors to finance, and training them in post-harvest loss reduction techniques and technologies are seen as a measure to achieve those significant results.

⁴ <http://www.sdgfund.org/new-pilot-initiative-nigeria-will-boost-inclusive-growth-african-food-industry>

⁵ <https://www.rockefellerfoundation.org/about-us/news-media/the-rockefeller-foundation-announces-130-million-initiative-to-reduce-global-food-loss-and-waste/>

As one of many organizations involved in YieldWise, Research Triangle Institute. Their role includes analysing and aggregating data, facilitating learning, and providing technical assistance in monitoring and evaluation (M&E) for the partners working directly with farmers, buyers, sellers, and others in the food value chain. The foundation also works with governments and companies like Dangote Farms to provide metal silos and hermetically-sealed bags to smallholder farms. In Kenya, the project promotes solar drying and provide cold storage units to preserve crops⁶.

West Africa Gender and Markets Initiative: Working towards Zero Hunger by Empowering West African Women was launched in September 2015 under the World Food Programme (WFP) by Regional Bureau for West Africa (RBD) Vulnerability Assessment and Mapping (VAM) team, with support from USAID. The aim of the Initiative is to strengthen the collection and analysis of gender-informed data on the different roles of women and men in markets in the region, their challenges, and their empowerment⁷. This includes strengthening accountability for gender-sensitive food security and nutrition, measuring women’s empowerment in and through markets; summarizing key findings, results, tools, best practices and documentation about women’s participation in West African markets⁸.

The Hunger Project (THP) is a global, non-profit organization committed to end world hunger. In Africa, South Asia and Latin America, THP seeks to end hunger and poverty by empowering people to lead lives of self-reliance, become the agents of their own development and make sustainable progress in overcoming hunger and poverty.

In eight countries in Africa, The Hunger Project’s Epicenter Strategy mobilizes clusters of rural villages into “epicenters,” which band together 5,000-15,000 people to carry out community-led integrated strategies to meet basic needs. Women and men in 121 epicenters create and run their own development programs, reaching 1.6 million people in their communities⁹

Disco soup is an international grassroots movement to raise awareness of food waste. The first ever African event took place in Nairobi in 2014. The volunteer-led event focused on food waste, what is rejected due to the cosmetic standards of European

⁶ <https://www.rti.org/impact/yieldwise-initiative>

⁷ <http://resources.vam.wfp.org/node/100>

⁸ <https://resources.vam.wfp.org/node/106>

⁹ <http://www.thp.org/>



supermarkets. The event was organised by Marah Koeberle, a resident with a background in the food industry and it was visited by a “couple of hundred” people¹⁰.

The United Nations Environment Programme (UNEP) held a three-course meal for ministers, diplomats and other high-level officials in Nairobi to highlight a campaign to cut global food waste. Hundreds of participants dined on food grown by Kenyan farmers but rejected by United Kingdom supermarkets due to cosmetic imperfections. It was done in support of the global Think.Eat.Save.Reduce Your Foodprint – an initiative launched in January by UNEP, the Food and Agriculture Organization (FAO) and partners¹¹.

Share the meal app is an initiative of the United Nations World Food Programme (WFP). The application provides a simple way of donation to the WFP activities each year. WFP reaches 80 million people with food assistance in around 80 countries¹².

Food For All Africa is a food bank programme and a social enterprise which originates in an organisation Food for All Ghana. The organisation has a group of stakeholders – businesses (manufacturers, importers, farmers and hotels) that take part in the activities and donate excess food to the organisation's food supply chain. Stakeholders include companies within Food and Beverage association of Ghana, Kwatsons West Africa LTD, MaxMart Family Shopping Centre and multiple food security and waste related NGOs (Food Banking Regional Network, SDG's platform, SDG 2 Farm store) and institutions such as Ministry of Food and Agriculture of Ghana. They provide food and sustainable means of nutrition to children's homes, psychiatric hospitals, aged and vulnerable communities. Food for All Africa recovers up to \$5,700 worth of food each month. They also support emerging farmers by purchasing their produce and offer a range of easy to prepare meals for large-scale school feeding/community feeding programs. They also started a mobile and web application that encourages grocery shoppers to find their favourite products from supermarkets, stakeholders and also enable food sharing by connecting vulnerable communities to surplus food. The organization aims to reach 1 million low-income people by 2020¹³.

Chowberry is an app developed by a Nigerian innovator enabling charities and householders to shop for products that are about to expire at a discounted price. The app

¹⁰ pictures from the event: <http://www.thinkeatsave.org/index.php/multimedia/photo-galleries/90-photo-galleries/376-disco-soup-nairobi-creating-a-platform-to-recover-food-waste-in-nairobi>

¹¹ http://www.thinkeatsave.org/index.php?option=com_content&view=article&id=139

¹² <https://sharethemeal.org/en/index.html>

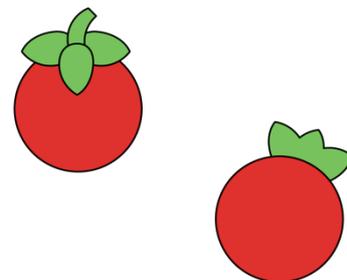
¹³ <http://foodforallfrica.org/>



allows access to products ranging from cereals, cooking oil, powdered milk to snacks and other groceries. Retailers such as Classic Supermarket, Health Trust Pharmacy and Store and Your Essential Stores supermarket in Nigeria participate with their products. According to their website, the app impacts 2000 households, has 3 partner charities and receives 6000 and growing daily website visits¹⁴.

SAVE FOOD - Global Initiative on Food Loss and Waste Reduction

(<http://www.fao.org/food-loss-reduction/en/>) encourages dialogue between industry, research, politics, and civil society on food losses. The initiative regularly brings together stakeholders involved in the food supply chain for conferences and projects and supports them in developing effective measures. Many activities are implemented in the continent of Africa. **Mainstreaming food loss reduction initiatives for smallholders in food deficit areas** is a joint project under the initiative SAVE FOOD by UN Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD) and World Food Programme (WFP). It is funded by the Government of Switzerland and it aims to improve food security and income generation of smallholder farmers in food deficit areas through reduction of post-harvest food losses. The project compiled and disseminated Good practice options for reducing post-harvest losses; Global Community of Practice (CoP) platform was established for knowledge sharing, partnering and mainstreaming. Also, an e-learning course of food loss analysis was developed. In three pilot countries (Burkina Faso, Uganda and the Democratic Republic of Congo) handling and storage options within the grains and pulses value chains were created. Policy and regulatory framework (policy, standards, norms) on reducing food losses in food supply chains were developed at national level¹⁵. Other SAVE GOOD projects include **Support to African Union in the development of policies and strategies for country-specific plans to reduce postharvest food losses, Food loss reduction strategy development in favour of smallholder producers in Africa** among others¹⁶.



¹⁴ <http://chowberry.com/hb>

¹⁵ <http://www.fao.org/save-food/projects/mainstreaming-flr/en/>

¹⁶ <http://www.fao.org/save-food/en/>

2. Case of Asia



Developing countries in Asia means low-income countries in West and Central Asia, South and Southeast Asia, i.e., Asia and Pacific Region (APR), excluding industrialized Asia (FAO, 2011)

In 2012, the total population of the APR was 4.1 billion, representing almost 60 % of the world's population. The region is home to two of the world's most populous countries, China and India (FAO, 2014). The region recovered quickly from the economic crisis of 2008-2009 and has since then generally grown more rapidly than the rest of the world. The growth originated in agriculture as this region holds 40% of the world's agricultural land and 25% of its agricultural population. It is the biggest producer of cereals, vegetables, fruit, meat and fish, with strong growth in all areas. It is also the world's leading net exporter of fish and fish products, with 20 % of the global market share (FAO, 2014a). In 2016, the top partner countries to which East Asia & Pacific exported food products included Japan, United States, China, Hong Kong, China and Vietnam (WITS, 2016a). The top partner countries to which South Asia Exports Food Products in 2016 included United States, Myanmar, United Arab Emirates, Belgium and Afghanistan (WITS, 2016b).

With its huge livestock sector, the APR accounts for almost half of the global GHGs caused by human activities. After livestock, the second-highest source of emissions in the region is rice cultivation, with China alone accounting for almost a quarter of GHGs from that sector, followed by India (FAO, 2014a).

There are several conditions that generate food insecurity in Asia such as poverty, food availability, access, affordability and utilization as well as vulnerability and instability (FAO, 2014a). Despite that APR has registered faster economic growth in past decades than any other region and the world's best record in hunger reduction after Latin America and the Caribbean, the APR remains the region with the highest number of undernourished; nearly 530 million or 62% of the world's total (FAO, 2014a). The main reason for hunger is poverty. Among the poorest countries are Asian countries like Bangladesh, Lao PDR, India and Pakistan. Despite the overall progress in poverty reduction, relative poverty or inequality has been increasing in several Asian countries

since the early 1990s, reflecting a growing gap between urban and rural populations and between skilled and unskilled workers (FAO, 2014a).

Population in APR is set to grow considerably over the coming years, though at a slower rate than in the past, and with considerable differences across sub-regions. Over the next four decades, Asia's population is forecast to increase by 1 billion people to exceed 5 billion by 2050 (FAO, 2014a). Food security remains a major concern and food production must increase significantly to meet the future demands of an increasing and more affluent world population (FAO, 2011). However, the burden of undernourishment is expected to decline in Asia as in most regions. At the same time, changes in consumption patterns and shifts towards more sedentary lifestyles are likely to promote other nutritional problems like in developed countries (FAO, 2014a).

In the South & Southeast Asian region about 90% of the food loss originates from post-harvest and processing levels. Each year only in China, 35 million tons of grain (about 13% of the total) are lost during storage, processing and distribution; 2.5% is wasted in households. In India more than 40% of food, valued at over \$8 billion, is lost due to inefficient post-harvest management and lack of infrastructure for proper storage and processing (Diofasi, 2013). To compare to China which has a grain storage capacity of 150 million tons, the storage capacity is only 60 million tons in India (The Times of India, 2013).

The total per capita production of food for human consumption in South/Southeast Asia is 460 kg/year. The food loss per capita in South/Southeast Asia is 120-170 kg/year. However, consumers generated food waste in South/Southeast Asia is only 6-11 kg/year (while this figure in Europe and North-America is 95-115 kg/year). Food wasted at consumer level is minimal. Poverty and limited household income prevents waste food, food is bought in smaller amounts, often only for the meals on that day (FAO, 2011).

Hence, in developing countries food losses occur at post-harvest and processing levels mainly (FAO, 2011). Because of lack of facilities for example in Tajikistan for rice threshing, drying and winnowing, sun drying exposes rice to rodents and parasites, which may eat or damage the harvested crops. Another example could be from Bangladesh when transporting milk in the warm and humid climate without a proper cooling may cause milk losses as the rickshaw transportation prolongs the time milk is kept in warm temperatures (FAO, 2011).



Projects and initiatives

Zero Hunger Challenge in Asia and the Pacific is a regional initiative started by FAO which has been implemented in Bangladesh, Lao People's Democratic Republic, Myanmar, Nepal and Timor-Leste. It has been further extended to Cambodia, Viet Nam, Fiji, Pakistan and Thailand. The main thematic components: food security and nutrition strategy, policy and coordination mechanism including sectoral policy; promotion of nutrition-sensitive agriculture and data analysis and monitoring of SDGs for decision-making¹⁷. In addition, there is „Save Food“ initiative by FAO and UN for correcting the policy framework, optimizing agricultural practices, shaping food production, promoting packaging and process technology, motivating retailers, achieving a change in attitude¹⁸.

Contract farming program in Bangladesh. Bangladesh imports around 90% of the starch used in its food, textile, and pharmaceutical industries. As demand grows, cassava offers an attractive crop option. For convincing sceptical farmers to make the shift contract farming agreements were introduced. These arrangements provide producers with capital, know-how, and a guaranteed market for their produce. Now there is over 2,500 contracted farmers, cultivating cassava on 3,700 acres of land. Installed plant has the capacity to produce 2,250 tons of cassava starch and 2,400 tons of liquid glucose (derived from starch) every month. Households that joined the contract farming program report significant increases in production and income. In addition, farmers also hired about 18,000 day-laborers through the harvesting season (ADB, 2017).

Vegetable storage facilities project in Afghanistan. In Bamyan, mountainous province of central Afghanistan, the rich soil and climate are good for growing vegetables, but farmers in the area have a challenge to find effective ways to store their harvest. Traditional storage methods do not provide adequate ventilation, moisture, and temperature control. Therefore, farmers lose up to 40% of their stored vegetables. The Rural Business Support Project, launched in 2006, built about 1,100 vegetable storage facilities for poor farmers in Bamyan province. Now, the farmers were able to store their vegetables for several months with 2% of losses only (ADB, 2016).

¹⁷ FAO Regional Office for Asia and the Pacific - <http://www.fao.org/asiapacific/en/>

¹⁸ <https://www.save-food.org/>

3. Case of Latin America and Caribbean

Between 1990 and 2014, Latin America and the Caribbean (LAC) reduced its proportion of undernourished population by 60%, making it the only region in the world to achieve the goal of "halving the percentage of people suffering from hunger" set for 2015 by the Millennium Development Goals (MDGs) (FAO Regional Office for Latin America and the Caribbean, 2016). Still in Latin America and the Caribbean hunger affects 37 million people (6.1% of the population), which is a significant advance from the 68.5 million (15.3%) that suffered hunger in the period of 1990-1992 (FAO Regional Office for Latin America and the Caribbean, 2016). Therefore, food waste is included in Action Plan for Food and Nutrition Security and the Eradication of Hunger 2025. It means redoubling efforts and keeping commitment to Food and Nutritional Safety on the agenda of the Sustainable Development Goals to halve per capita food losses and waste by 2030¹⁹.

According to the FAO (2014a), Latin America and the Caribbean are responsible for 6% of global food losses and each year the LAC region loses or wastes at least 15% of its available food. In Latin America 25% cereals, 40% root crops & tubers, 20 % oilseeds & legumes, 55% fruit & vegetables, 20% meat, 20% dairy products, 33% fish & shellfish are lost or wasted (FAO, 2013). Consumers waste 28% of their food, and food producers lose the same 28%. Another 22% of food is wasted and lost during handling and storage, 17% during marketing and distribution, and the remaining 6% during processing. Retail food waste alone in Latin America and the Caribbean is enough to satisfy the nutritional needs of over 30 million people (64% of the people who go hungry in the region) (FAO, 2014b). In total, over 127 million tons of food are lost or wasted each year (348 000 tons of food daily). This in turn is equivalent to 223 kg per capita per year in the region (FAO, 2016). In Colombia alone, 9.6 million tons of food are wasted per year, with a loss of 6.1 million t of fruits and vegetables and 29 000 t of discarded dairy products (DNP, 2016). In total, FAO (2016) estimates that food losses in Latin America would be enough to feed some 300 million people.

¹⁹ <http://www.fao.org/save-food/en/>



In addition, Latin America and the Caribbean is one of the world's leading food producing and exporting regions. The problem is not a lack of food, but rather the problem that the poorest members have limited access to that food (FAO Regional Office for Latin America and the Caribbean, 2016). The worst situations of poverty and food insecurity in the region are found in the rural areas²⁰. Some food is redistributed via various organizations. For example, in 15 countries of Latin America, about 190,000 tons of food were recovered and distributed through 12,700 organizations (60% of them in Mexico) in 2013 (FAO, 2015c).

The region produces 11% of the value of world food production and represent 24% of the worlds arable land. It is projected that agricultural production in the region will grow by 80% until 2050 to meet demand of increasing population²¹.

The livestock sector in Latin America grows at an annual rate 3.7%. Latin America and the Caribbean produce over 23% of beef and buffalo meat and 21.4% of poultry at global level. In addition, the region provides more than 10% of eggs and 11.2% of milk by weight²².

Approximately 67% of the world's coffee is produced in Latin America (FAO, 2015d). However, In Latin America, area of coffee production will need to shift as projected– for example in Nicaragua, with current climate change trajectories, 80% of the current growing area will no longer be suitable in 2025 (International Center for Tropical Agriculture, 2013; the Guardian, 2014).

In 2016, the top partner regions to which **Latin America & Caribbean** exported food products included Sub Sahara Africa (29.6 %), Middle East and North Africa (27.92%), Europe and Central Asia (15.46%) ²³.

Projects and initiatives

There is a Latin American and Caribbean **Experts' Network** for Food Loss and Waste Reduction within the framework of the Regional Experts' Consultation on Food Losses and Waste. Also, there is **The Global Food Banking Network in Latin America** - a member of Global Foodbank Network (GFN) which supports existing and potential food banks in 30 countries of which 53% are in Latin America.

²⁰ <http://www.fao.org/americas/prioridades/seguridad-alimentaria/en/>

²¹ <https://idblegacy.iadb.org/en/topics/agriculture/latin-american-agriculture-statistics,2342.html>

²² <http://www.fao.org/americas/prioridades/produccion-pecuaria/en/>

²³ https://wits.worldbank.org/CountryProfile/en/Country/LCN/Year/2016/TradeFlow/Export/Partner/by-region/Product/16-24_FoodProd

Disco Soup - an international movement that stimulates the avoidance of food waste. It has proven to have considerable potential in the region. For example, the first Disco Soup in Chile has rescued and utilized 200 kg of fruit and vegetables.

As SAVE FOOD is a Global Initiative on Food Loss and Waste Reduction by FAO²⁴, some of the events are specifically dedicated for Latin America. For ex. Second Regional Dialogue on Prevention and Reduction of food losses and waste in Latin America and the Caribbean aimed to promote the prevention of food losses and waste as a strategy to support hunger eradication, poverty and malnutrition in the region.

Save Food Brazil initiative with FAO support is aiming to form a national network of experts, active and interested in the theme "reduction of losses and waste of food", stimulate and facilitate inter-sectoral dialogue, share the best practices and innovations, raise awareness of society on the food waste²⁵.

National Initiative Save Food Brazil (www.savefoodbrasil.org) is an alliance of NGOs to promote the issue of food waste and campaign within the society to influence behaviour of citizens. The campaigning tools used include short news, newsletter, videos, info graphics, quiz and events' resources²⁶.

Salsa - a collaborative project funded by the European Commission (<http://www.salsaproject.eu/index.php>). It is aimed to tackle Latin America countries deforestation, CO₂ emission, reduced biodiversity, water, air and soil pollution, food security related to farm production and food chains relationships between Latin America and EU. Salsa also aimed at increasing access to local and EU sustainable food export markets, efficient trading relations, raising awareness of politicians and EU and Latin American consumers on sustainable food production and consumption.

Student challenge²⁷ under global initiative **Think eat save** called students in high schools and universities worldwide to submit videos that uncover how much food is wasted in their school also take place in the region. Mexican representatives got a second place in the challenge.

In Chile Foundation Fundación Casa de la Paz (www.casadelapaz.cl) runs programmes of **Education for Sustainable Development** to the foster sustainability in projects by highlighting the links between the environment and the socio-economic context. This

²⁴ <http://www.fao.org/save-food/en/>

²⁵ <https://www.savefoodbrasil.com/savefoodbrasil-2>

²⁶ for example, quiz model used by the campaign - <https://www.nationalgeographic.com/environment/urban-expeditions/austin/take-this-food-waste-quiz-show-off-your-knowledge/>

²⁷ <http://www.thinkeatsave.org/studentchallenge/>

non-profit organization aims to educate the community and to create a link between themselves, companies and the government to promote a socially fair and economically viable sustainable coexistence with the environment. Main educational tools and actions include projects designed for schools and neighbourhoods, participatory monitoring of water quality, creation of an environmental certification system, funding mechanism for financing projects of local development.

Campaign **SAVE THE FOOD!** (¡SALVEMOS LA COMIDA!) in Argentina is aiming to reduce the waste of food in Argentina to less than 10% over a period of 5 years, as more than 16 million tons of food suitable for consumption is wasted. The campaign is focused on changing the behaviours that lead to the waste of food²⁸.

In Costa Rica a **Network for Food Loss and Waste Reduction** operates. It implements an Action Plan for Food Loss and Waste Reduction focused on three areas: innovation and knowledge, governance and partnerships, communication and public awareness.

The Association of **Food Banks of Colombia** (ABACO) has been organizing the 19 food banks in 18 cities of the country. Its objective is to reduce food losses in Colombia and improve the nutritional and food security of vulnerable populations

(<https://www.bancosdealimentosdecolombia.com/>).

²⁸ <https://www.unilever.com.ar/sustainable-living/salvemos-la-comida/>



References

- Asian Development Bank (ADB). 2016. Afghanistan: A Simple Solution for Farmers. URL: <https://www.adb.org/results/afghanistan-simple-solution-farmers> (accessed at 23, January 2018)
- Asian Development Bank (ADB). 2017. Cassava Recipe for Farming Success in Bangladesh. URL: <https://www.adb.org/results/cassava-recipe-farming-success-banqladesh> (accessed 23, January 2018)
- Besada, H., Sewankambo, N., Lisk, F., Sage, I., Kabasa, J. D., Willms, D. G., ... & Dybenko, E. 2009. Climate change in Africa: Adaptation, mitigation and governance challenges. URL: https://www.unicef.org/esaro/Climate_Change_in_Africa.pdf (accessed 20, December 2017)
- CSA, HLPE. 2014. Food losses and waste in the context of sustainable food systems.
- Dinar, Ariel, Rashid Hassan, Robert Mendelsohn, James Benhin et al. (2008). Climate Change and Agriculture in Africa: Impact Assessment and Adaptation Strategies. London: Earthscan.London. FAO
- Diofasi, A. 2013. Save the Waste: Food Loss in Asia and Pacific Region. Humanitas Global. URL: <http://www.hunger-undernutrition.org/blog/2013/08/save-the-waste-food-loss-in-asia-and-pacific-region.html> (accessed at 5.01.18)
- DNP (Departamento Nacional de Planeación). 2016. Colombianos botan 9,76 millones de toneladas de comida al año URL: <https://www.dnp.gov.co/Paginas/Colombianos-botan-9,76-millones-de-toneladas-de-comida-al-a%C3%B1o.aspx> (accessed, 6 January 2018)
- FAO .2007. Políticas Para La Agricultura Familiar En América Latina Y El Caribe. URL: <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35555762> (accessed, 26 January 2018)
- FAO Regional Office for Latin America and the Caribbean. 2016. URL: <http://www.fao.org/americas/en/> (accessed 6, February 2018)
- FAO. 2013. Food wastage footprint: Impacts on natural resources. Summary report. FAO.
- FAO. 2014a. FAO Statistical Yearbook 2014 – Asia and the Pacific Food and Agriculture. Bangkok.
- FAO. 2014b. Food losses and waste and their impacts on food security in Latin America and the Caribbean. Report, July 2014.
- FAO. 2015a. The State of The Food Insecurity in the World. URL: <http://www.fao.org/3/a-i4646e.pdf> (accessed 20, December 2017).
- FAO. 2015b. Food Wastage Footprint & Climate Change. Rome, FAO. URL: <http://www.fao.org/documents/card/en/c/7338e109-45e8-42da-92f3-ceb8d92002b0/> (accessed 27, December, 2017).
- FAO. 2015c. Food wastage footprint & Climate Change. FAO, URL: <http://www.fao.org/documents/card/en/c/7338e109-45e8-42da-92f3-ceb8d92002b0/> (accessed 27, January, 2018)
- FAO. 2015d. Food Losses and Waste in Latin America and the Caribbean. Second Newsletter – April 2015. URL: www.fao.org/3/a-i4655e.pdf (accessed 6, February 2018)
- FAO. 2016. Food losses and waste in Latin America and Caribbean. Newsletter 3, February 2016. URL: <http://www.fao.org/3/a-i5504e.pdf> (accessed 6 February 2018)
- FeedBack. 2017. Causes of Food Waste in International Supply chains. Rockerfeller foundation. URL:https://feedbackglobal.org/wp-content/uploads/2017/05/Causes-of-food-waste-in-international-supply-chains_Feedback.pdf (accessed 20, December, 2017)
- FAO. 2011. Global food losses and food waste: extent, causes and prevention. Food and Agriculture Organisation of United Nations, Rome. URL:

[http://www.fao.org/fileadmin/user_upload/sustainability/pdf/Global Food Losses and Food Waste.pdf](http://www.fao.org/fileadmin/user_upload/sustainability/pdf/Global_Food_Losses_and_Food_Waste.pdf) (accessed 27, December 2017)

International Center for Tropical Agriculture. 2013. Big facts. Latin America. URL: <https://ccafs.cgiar.org/bigfacts/#region=Latin-America> (accessed, 6 January 2018)

Lipinski, B. et al. 2013. "Reducing Food Loss and Waste." Working Paper, Installment 2 of *Creating a Sustainable Food Future*. Washington, DC: World Resources Institute. Available online at <http://www.worldresourcesreport.org>.

Lundqvist, J., C. de Fraiture and D. Molden. 2008. Saving Water: From Field to Fork – Curbing Losses and Wastage in the Food Chain. SIWI Policy Brief. SIWI.

The Guardian, 2014. Latin America: how climate change will wipe out coffee crops – and farmers. URL: <https://www.theguardian.com/environment/2014/mar/30/latin-america-climate-change-coffee-crops-rust-fungus-threat-hemileiaia-vastatrix> (accessed 5, January, 2018).

The Postharvest Education Foundation. 2017. Postharvest food loss or food waste? URL: http://www.postharvest.org/postharvest_food_loss_or_food_waste.aspx (accessed 27, December, 2017)

The Times of India. 2013. Food worth Rs 58k crore goes waste in India every year. URL: <https://timesofindia.indiatimes.com/city/chennai/Food-worth-Rs-58k-crore-goes-waste-in-India-every-year/articleshow/20452251.cms?referral=PM> (accessed 5, January 2018).

World Integrated Trade Solution (WITS). 2016a. East Asia & Pacific Food Products Exports by Country 2016.

URL: https://wits.worldbank.org/CountryProfile/en/Country/EAS/Year/2016/TradeFlow/Export/Partner/by-country/Product/16-24_FoodProd (accessed at 23.01.18)

World Integrated Trade Solution (WITS). 2016b. South Asia Food Products Exports by Country.

URL: https://wits.worldbank.org/CountryProfile/en/Country/SAS/Year/2016/TradeFlow/Export/Partner/by-country/Product/16-24_FoodProd (accessed at 23, January 2018).

