F@RMLETTER

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Food Waste in an era of abundance?

Food waste is one of the great paradoxes of our time. We see the squandering of resources on one side in order to produce food that is often not consumed, and is then disposed of. This is unacceptable, yet it happens in enormous quantities all over the world. According to recent FAO estimates, 1.3 billion tons of food are wasted each year. It is important for us also to consider the precious natural resources that went into producing those 1.3 billion tons of food: up to 250 km3 of water and 1.4 billion hectares of land. Not to mention the wasteful use of fertilizers and pesticides as well as the fuel used for transportation.

IN AFRICA, BETWEEN 10% AND 20% OF THE GRAIN HARVEST RESULTS IN POST-HARVEST LOSSES- THIS HAS AN APPROXIMATE ANNUAL VALUE OF USD 4 BILLION AND IS ENOUGH TO FEED ROUGHLY 48 MILLION PEOPLE.

Wastage takes place at all stages of the value chain; about 54 percent of the world's food waste occurs during production, post-harvest handling and storage, while 46 percent occurs at the processing, distribution and consumption stages. Thus, food is lost or wasted throughout the entire supply chain, from initial agricultural production to consumption. In wealthier countries, significant waste occurs at the consumption stage and losses also take place early in food supply chains. For example, according to the US Department of Agriculture, about 133 billion pounds of food, from

FOOD WASTE NOT ONLY HAS FINANCIAL IMPACTS BUT ALSO ENVIRONMENTAL

stores, restaurants, and homes are wasted in the United States each year. In the UK, nearly 30% of vegetables do not get sold in supermarkets because they do not meet the esthetic standards of supermarkets. In the European Union 90 million tons of food end up as garbage. Australian consumers throw away up to 20% of all the food they buy. Still, in Latin America, the average amount of food waste per capita is 200 kilos per year.

In low-income countries on the other hand, food is largely lost during the early and intermediate stages of the value chain and much less food is wasted at the consumption phase. In Africa, between 10% and 20% of the grain harvest results in post-harvest losses- this has an approximate annual value of USD 4 billion and is enough to feed roughly 48 million people.

Food waste not only has financial impacts but also environmental. Farmers are aware of this, and work hard to prevent food waste and food loss. Innovation have a major role to play in aiding farmers by providing improved means to store their crops for example. Food waste has a significant food security dimension. Since many small farmers in developing countries are themselves facing food insecurity, a reduction in food losses could have direct and essential effects on improving their livelihoods.

As is the case for many global challenges, farmers are part of the solution. In all regions around the world farmers are developing and scaling up innovations in infrastructure, technology and farming techniques in order to reduce food waste on their farms.

In Sub-Saharan Africa, farmers are implementing various types of technology to reduce post-harvest food waste and keep food fresh and presentable. In Tanzania, some producers are using solar technologies to preserve produce through drying at a low cost. This allows farmers to sell time-sensitive products when market prices are more favorable.

Similar, simple adaptations are also reducing food waste from farm to market. In the Philippines, the use of plastic crates for transportation in lieu of bags or bamboo baskets, has proven to prevent food loss during transport caused by compression and impact.

In Latin America, there are numerous examples of consumers' food waste being composted as fertilizer for farms.

In Europe, there are initiatives that link farmers to food pantries-proposing produce that is esthetically unfit for supermarkets to people in need.

These are all examples of farmers' important role in contributing to the reduction of food waste and an overall, better functioning, more sustainable food system.

Read more about what farmers and the global development community are doing to reduce food waste and food losses around the world in this month's Farmletter.

On behalf of WFO, we wish everyone a great holiday season- with as little waste as possible!

PREVENTION AND REDUCTION OF FOOD LOSS AND FOOD WASTE

Robert van Otterdijk, *Agro-Industry Officer, Rural Infrastructure and Agro-Industries Division Food and Agriculture Organization of the United Nations (FAO);*
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Food losses and waste levels are high and depend on specific conditions

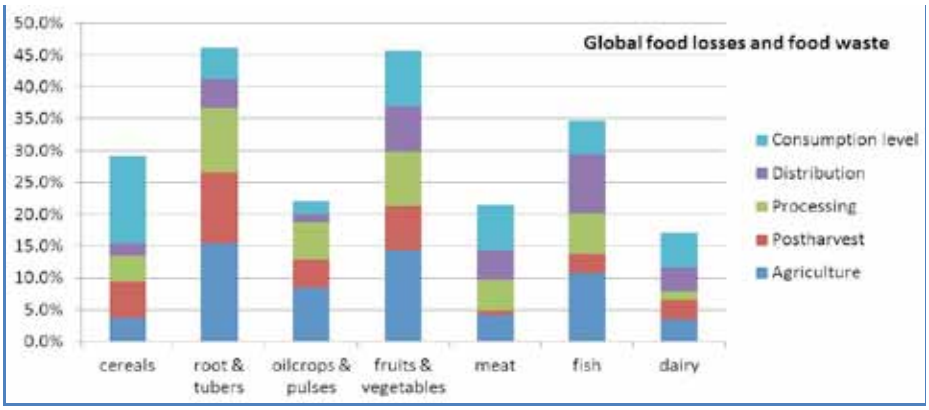
Food losses refer to the decrease in edible food mass available for human consumption throughout the different segments of the supply chain. In addition to quantitative losses, food products can also face a deterioration of quality, leading to a loss of economic and nutritional value. Food losses resulting from decisions to discard food that still has value to others are also called "food waste". Food waste is most often associated with the behavior of retailers, the food service sector and high income consumers but food waste and losses take place all along food supply chains.

Accurate estimations of the magnitude of losses and waste are still lacking, particularly in developing countries. Nevertheless, there is no doubt that the levels of food loss and waste remain unacceptably high. Recent studies commissioned by FAO estimated yearly global quantitative food losses and waste at roughly 30% for cereals, 40-50% for root crops, fruits & vegetables, 20% for oilseeds, meat and dairy, and 30% for fish.

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

The causes of food losses and waste in low-income countries are due to wide-ranging managerial and technical limitations in harvesting techniques, storage, transportation, processing, cooling facilities (in difficult climatic conditions), infrastructure, packaging and marketing systems. The main sectors of concern are small and medium scale fisheries, agricultural production and processing. The small and medium actors in these sectors also face the problem of market access for their products. If markets are not accessible or market prices are too low, farmers and fishers may let good product go to waste.

The causes of food losses and waste in medium and high-income countries mainly relate to consumer



Source: *FAO. 2011. Global food losses and food waste - extent, causes, and prevention*

behavior as well as to policies and regulations put in place to address other sectorial priorities. For example, agricultural subsidies may contribute to surplus quantities of farm crops being produced, with at least a proportion being 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, insufficient purchase planning and failure to use food before expiry dates also lead to avoidable food waste.

The impacts of food losses and waste are multi-faceted

Total food losses globally have been estimated at 1.3 billion tons per year, which is roughly one-third of the world food production for human consumption. Calculated from producer and retail prices, the economic value of these food losses and waste amounts to $680 billion in industrialized countries and $310 billion in developing countries, so at the global level they are worth almost one trillion dollars.

Impact on food security. The reduction of food losses is relevant to both the poor smallholder food producer and the poor food insecure consumer. Given that many smallholder producers live on the margins of food insecurity, a reduction in food losses could have an immediate and significant impact on their livelihoods. Especially female farmers in many developing countries face this impact, as they often have less access to relevant technologies, infrastructure, storage facilities and markets than other groups. Looking at poor consumers (food insecure or at risk households), the priority is clearly to have access to food products that are nutritious, safe and affordable.

Food insecurity is often more a question of access (purchasing power and prices of food) than a supply problem. Given the magnitude of food losses, making profitable investments in reducing losses could be one way of reducing the cost of food. If eventual cost reductions can be translated into price reductions, then the poor consumers stand to benefit in terms of nutrition, food security and livelihoods.

Another point to be stressed is that the food supply chain of today is more and more globalized. Certain food items are produced, processed and consumed in very different parts of the world. Food commodities traded at international markets and wasted in one part of the world could affect food availability and prices in other parts of the world. Therefore, when a large proportion of food is wasted in rich countries this may affect the cost of – and thus the access to – food in poor countries.

Impact on nutrition, food quality and safety. Food losses are also manifested by loss in quality. Qualitative losses may cause a reduced nutritional value; low quality products may also be unsafe with adverse effects on the health, wellbeing and productivity of the consumer. In

TOTAL FOOD LOSSES GLOBALLY HAVE BEEN ESTIMATED AT 1.3 BILLION TONS PER YEAR, WHICH IS ROUGHLY ONE-THIRD OF THE WORLD FOOD PRODUCTION FOR HUMAN CONSUMPTION

addition, where perfectly safe and nutritious foods are lost or wasted, it reduces the amount of available safe and nutritious food – and therefore this has an impact on the population health and nutrition status, especially in developing regions where a large part of the population is already suffering from malnutrition.

Economic and distributional impacts. The distribution of economic benefits from reductions in food loss and waste depends critically on market circumstances and where in the supply chain losses are reduced. Losses during and following harvest reduce marketable quantities. If no ready market or supply chain is available, the additional output from loss reduction may simply lead to lower prices with little change in revenue to the producer. Reducing loss will be of greater benefit to farmers if it is coupled with improvement in the efficiency of supply chains. This benefits both producers and consumers by narrowing the mark-up between producers and final consumers. Lower food prices increase the real incomes of poor net food purchasers in both urban and rural areas. On the other hand, reductions in waste result in lower aggregate demand and potentially lead to low commodity prices to producers. Households that are net sellers of food may suffer negative consequences in terms of income, which may lead to increased poverty. These negative potential impacts, however, may be reversed with time as soon as resources freed by the increased efficiency in food production find alternative more remunerative uses.

STUDIES HAVE ESTIMATED THAT THE AGRIFOOD SECTOR CURRENTLY ACCOUNTS FOR AROUND 30% OF THE WORLD'S TOTAL ENERGY CONSUMPTION

Impact on the environment. Food losses and waste have negative environmental impacts due to the water, soil, and other resources embedded in the food no one consumes, as well as contributions to biodiversity loss and greenhouse gases. Studies have estimated that the agrifood sector currently accounts for around 30% of the world's total energy consumption, and that the energy embedded in global annual food losses is thought to be around 38% of the total final energy consumed by the whole food chain, which means that food losses account for more than 10% of the world's total energy consumption.

There is more to be gained by food loss and waste reduction than a mere reduction in its 'footprint'. For instance, more efficient systems that reduce losses or waste would likely result in additional reductions GHG emissions, in part directly, since waste typically generates methane emissions during food disposal, as well as indirectly, given that reducing loss and waste may lead to critical redesign of supply chains and retail models, which may result in less energy use along the food chain, and thus associated GHG emissions. However, solutions to reduce losses will often lead to an increased use of energy, especially for preservation of food products.


Metal silos in Afghanistan

Obviously the environmental cost of reducing food loss reduction should not be higher than the benefits.

Strategies for reducing food losses and waste are being adjusted

FAO has long recognized the importance of concerted action on food loss reduction. FAO's systematic involvement in the reduction of food losses dates back to the late 1960s with the Freedom from Hunger Campaign. Following the first UN World Food Conference in Rome in 1974, FAO established the Action Program for the Prevention of Food Losses in 1978 which ran until the early 1990s. The purpose of the program was to assist developing countries implement programs for the reduction of food losses at the national level through direct action projects. More than 250 projects were implemented worldwide under this program.

While progress has been made through the efforts of FAO and other organizations, the world is facing an unprecedented challenge of increasing food supply in the coming decades while coping with a limited and threatened resource base. The food supply challenge has rekindled interest in strategies and interventions for reducing food losses and waste in order to make available significant amounts of additional food at lower environmental costs. In addition, with a billion people hungry there is the ethical element causing increased awareness and calls for action to ensure that food produced is in fact consumed and not lost or wasted.

It has become apparent that new strategies and intervention approaches are needed due to a number of factors such as the growing influence of private sector led enterprise, global market integration, urbanization, growing south-south food trade, and the associated 'lengthening' of food chains. Cornerstones of the emerging strategy include the following.

Partnership. FAO recognizes the need to undertake action in partnership with other regional and international organizations, and with the food chain actors ranging from herders, farmers and fishers to global companies. Partnerships are equally important to mobilize the required resources for action.

Food systems perspective. Food systems encompass activities related to the production, processing, distribution, preparation and consumption of food; and the outcomes of these activities contributing to food security, the environment and economic development. The approach to reduce food losses and waste is embedded within the broader concept of promoting sustainable food systems, which also encompasses sustainable food production, on the one hand, and sustainable diets and consumption (such as through the reduction of food waste), on the other. New strategies of interventions take into consideration the socio-economic dynamics among different actors and their respective capacities to prevent food losses and waste.

Supply chain approach. Efficient solutions for reducing total amounts of food lost and wasted exist along the whole food chain. Actions should not be directed towards isolated parts of the chain, since what is done (or not done) in one part has effects in others. FAO and its partners have re-aligned their intervention strategies to focus on systemic improvements of the efficiency and sustainability of food chains.

Addressing food waste. The practice and attitude by many retailers and consumers to throw away good food products is getting high on the political agenda in industrialized countries. In developing countries,

THE ENERGY EMBEDDED IN GLOBAL ANNUAL FOOD LOSSES IS THOUGHT TO BE AROUND 38% OF THE TOTAL FINAL ENERGY CONSUMED BY THE WHOLE FOOD CHAIN

with the growing urbanization and supermarket chains, combined with 'western' lifestyles of consumers in cities, the occurrence of food waste could be expected to rise as well. Therefore the strategy addresses food waste reduction, requiring its own typical approach and intervention.

Viable business case. Food loss and waste reduction measures will only be implemented by the supply chain actors if they are economically at least cost-effective, and preferably profitable. In addition to the economic cost, it is equally important that the cost for the environment, food security and nutrition are being recovered. This means that the positive impacts of food loss reduction interventions on profit, environment, food security and nutrition should be higher than the negative impacts of the food losses.

Interventions by food chain actors are required to reduce food losses and waste

Public organizations cannot themselves directly reduce food losses and wastes. The people and companies involved in food supply chains – including consumers – need to change management practices, technologies and behavior in order to reduce losses and waste.

CONSUMERS HAVE THE POWER TO INFLUENCE QUALITY STANDARDS

Better production planning, aligned with markets. Small farmers, herders and fishers need to get organized to diversify and scale-up their production and marketing. In this way, they can receive credit from agricultural financial institutions or advance payments from buyers of the produce, which will facilitate their ability to plan their production.

Promoting resource-efficient production and processing practices. To increase efficiency in supply chains, development of contract farming linkages between processors and farmer to address supply issues and the wide spread application of quality management systems are required. This needs to be supported by private sector investment in the food industry in terms of human skills, equipment and technology.

Improving preservation and packing technologies. Food preservation operations at the post-harvest stage, like drying, grading and storage, as well as food packaging up to retail stage need to be improved at a wide scale, across all food supply chains. Cold chain development needs to be fostered, infrastructure (storage structures, electricity) needs to be put in place, and local manufacturing of packaging materials and availability of packaging machinery and services needs to be promoted.

Improving transportation and logistics management. Well-functioning marketing cooperatives and improved market facilities should lead to increased efficiency of the marketing and sales of agricultural and fisheries products. Investments in facilities, equipment and transportation are required in this respect.

Public actions are required to support supply chain interventions

Creating a policy and institutional enabling environment. An important driver for improved practices along food supply chains is the enabling environment that supports and motivates the private sector to invest and make changes. Factors considered to be crucial for the success of food loss reduction interventions include: public infrastructure, social and cultural suitability, regulations and fiscal policies impacting on the feasibility and profitability of required investments, and provision of long-term support by institutions. Another essential component of the enabling environment is the adoption of food laws and standards based on sound and common approaches to interpretation of standards by different players (officials, food processors, consumers), including their implementation and enforcement. This would include addressing the issue of national requirements, official controls and industry approaches to date marking of food products.

Awareness raising and advocacy. A growing majority of consumers are increasingly concerned about many issues surrounding the food they eat, including the source of their food, nutritional quality and safety as well as making best use of the food available to them (minimizing food waste). This is a positive indication that increasing awareness among retailers and consumers can lead to reduction of food waste. Therefore both the public and policy makers need to be informed about the issue, and advised on behavioral change with regard to improved food use. Public awareness can be raised by education and political initiatives, which are possible starting points to change people's attitudes.
Consumers have the power to influence quality standards. Therefore, consumer surveys could be used to show to what extent consumers are willing to buy produce of heterogeneous appearance as long as the taste is not affected. Evidence-based information should eventually influence policy makers and institutional strategies.

Building partnerships and alliances. Alliances can be built within the food supply chains between producers, processors, distributors, retailers and consumers. This could lead for example to the development of markets for products that are from a traditional commercial point of view labeled as 'sub-standard' but are nevertheless safe and of good nutritional value. Partnerships should also be formed between food supply chain actors and development organizations, donors, NGOs etc. to combine forces for reducing food losses along supply chains.

Supporting product and process innovation. Product and process innovation are crucial factors in facilitating compliance with market requirements on quality and safety, supporting product diversification, and fostering development of underutilized resources or products. A key determinant of the ability of value chain actors to undertake innovation are the policies, institutions and services put in place by the public sector to create a supportive environment.
Capacity development. It is essential to develop knowledge and capacity of small and medium scale food chain operators (including farmers, herders and fishers) to organize themselves in associations, apply quality management systems, and improve business management and marketing. Public services to support agricultural and fisheries producers and SMEs organize, and build their capacity for making business and quality management plans should be established and strengthened.
In addition, it is important to develop capacities of regional institutions, national government officials and development agencies in the use of food loss assessment methodologies and tools, establishment and enforcement of food quality and safety standards, and design of policies and strategies targeting food loss reduction. In this respect it is essential to set benchmarks for food losses, systematically monitor the magnitude of the losses, and identify and measure clear indicators of the effectiveness of loss reduction strategies and interventions.

FAO has launched the Global Initiative on Food Loss and Waste Reduction

The Save Food Initiative was launched by FAO and Messe Düsseldorf at the Interpack2011 trade fair for the packaging and process industry. During the past two years, the Initiative has established collaboration with multilateral agencies, financial institutions, research institutions and private sector partners such as the agro-industry, food packaging / processing industry, food banks, etc. to develop and implement a global program on food loss and waste reduction. The Global Initiative rests on four main pillars.

Collaboration and coordination of world-wide initiatives on food loss and waste reduction. SAVE FOOD is establishing a global partnership of public and private sector organizations and companies, that are active in the fight against food loss and waste. In order to develop, plan and implement interventions and use resources most efficiently, it is essential that all these initiatives are being coordinated well, so that everybody knows what is happening world-wide, that information, problems and solutions can be shared, and that methodologies, strategies and approaches will be harmonized. This would be the most efficient way to use and share the resources required for an effective reduction of food loss and waste.

Awareness raising on the impact of, and solutions for food loss and waste. This will be achieved by a global communication and media campaign, the dissemination of Save Food program findings and results, and the organization of Regional SAVE FOOD Congresses. Important goals are increased knowledge and changed behavior of actors and consumers in the food chains, and promotion of the SAVE FOOD initiative to attract partners.

Policy, strategy and program development for food loss and waste reduction. This includes a series of field studies on a national-regional basis, combining a food chain approach to loss assessments with cost-benefit analyses to determine which food loss reduction interventions provide the best returns on investment. Further, the Initiative undertakes studies to the socio-economic impacts of food loss and waste, and the political and regulatory framework that affects food loss and waste.

Support to *investment programs and projects*, implemented by private and public sectors. This includes technical and managerial support for, as well as capacity building (training) of food supply chain actors and organizations involved in food loss and waste reduction, either at the food subsector level or policy level.

INNOVATIONS FIGHTING FOOD LOSS AND FOOD WASTE AROUND THE WORLD

Danielle Nierenberg,
Co-Founder and President Food Tank: The Food Think Tank

Food waste is truly a global problem.

According to recent U.S. Department of Agriculture estimates, roughly 133 billion pounds of food from stores, restaurants, and homes is wasted in the U.S. each year.

In the U.K., up to 30 percent of vegetables never leave the farm because they don't meet the aesthetic standards of supermarkets.

In Latin America, average food waste amounts to more than 200 kilograms per person per year.

Over 60 percent of the carbon footprint of food waste can be attributed to Asia and North Africa.

Australian consumers throw away up to 20 percent of all food that they buy.

With an annual value of approximately US$4 billion, 10-20 percent of Africa's grain harvest is lost after the harvest – and that amount is enough to feed 48 million people.

The good news, however, is that in each of these regions, farmers are developing, scaling up, and incorporating innovations in infrastructure, technology, and farming practices that are reducing food waste on their farms – or using it to nourish their crops.

In sub-Saharan Africa, farmers are implementing both sophisticated and simple technologies to reduce post-harvest food waste, and keep food fresh and presentable for market. In Tanzania, a SEED-awarded project undertaken by Rift Valley Foods is using solar drying technologies to preserve produce through dehydration at low cost, allowing farmers to sell once time-sensitive produce when the market presents a better price. In Nigeria, a local teacher developed a simple evaporative cooler to reduce spoilage by preserving harvested crops at lower temperatures. And in Kenya, small metal silos without added pesticides experience crop losses of only 1.4 percent, compared with polypropylene bags with added pesticides that experience crop losses of 24 percent after six months.

In Asia, new research on best practices is helping small-scale farmers limit food loss and repurpose on-farm waste. In the Philippines, the use of plastic crates for transportation – instead of bags, sacks, and bamboo baskets – has been shown to prevent food loss during transport due to compression, puncture, and impact. In Central Asia, anaerobic digesters are creating a valuable fertilizer from decomposed organic waste. According to a publication by IEA Bioenergy, some 8 million small-scale digesters are being used in China, and 50,000 digesters are being used in rural communities in Nepal.

In Latin America, consumers' food waste is being composted as fertilizer for local farms. Maria Rodriguez, an entrepreneur in Guatemala City, has helped women living near city dumps use earthworms to compost waste and sell it as fertilizer under her ByoEarth initiative. On her own farm, she uses pulp from coffee beans as feedstock for worms.

In Australia, the initiative SecondBite collects surplus food that is safe and edible from farmers to donate to community groups, which then distribute it to households. SecondBite has, to date, rescued nearly 8 million kilograms of food that would have been otherwise wasted.

In Europe, initiatives like Tristram Stuart's Feeding the 5000 are helping farmers connect with food pantries to repurpose safe and nutritious, but "wonky"-looking, produce to nourish people in need. Volunteers visit farms to glean crops that don't meet the aesthetic standards of produce buyers and supermarkets, so that they can be used for charity.

And in the United States, farmers are harnessing the power of social media to get unsold produce onto plates. In California, one farmer grew tired of discarding produce that came back from farmers markets and chose to advertise the leftovers on Facebook. The response was so enthusiastic, that the idea developed into a website called CropMobster, where farmers can connect with restaurants, hunger relief organizations, and other companies to make use of food that would otherwise be wasted.

Each of these initiatives and inventions are examples of innovative action that is helping farmers, eaters, and businesses contribute to a better food system.

FOOD WASTE: BEYOND PURELY AGRO-LOGISTIC SOLUTIONS

Corrado Finardi, *Senior Adviser- Confederazione Nazionale Coldiretti;*
Rolando Manfredini, *Food Safety Dept. Director Confederazione Nazionale Coldiretti*

Food waste is considered one of the most striking global scandals which can nullify continuous productivity gains in agriculture, hampering global food security goals. In Europe only, food waste accounts for 89 million tons: a relevant part -40%- of the 222 million tons from the industrialized countries. We are the 10,5% of world population yet we produce a 17% of global waste. And in the EU food waste arises mostly at home, with household waste accounting for an impressive 42% of the overall waste (DG Envi data) in quantity and 25% in value. Considering the detail (for clarification purposes, data referred to Italy alone)- at the household level, "where the mouths are", this food waste amounts to 40% of cereals-based products; 54% of F&V and also meat products; 33% of fish.
Whereas in many countries (mostly Western ones) food mismanagement led to unhealthy overconsumption and domestic food waste, in others simply food waste did not allow to gain access to the basic food requirements at the population-level. Following this path, the FAO pinpoints how wasted food in the western countries equals the Sub Saharan production (222 million tons vs 230 million tons), suggesting possible routes of compensation along equally unbalanced food production systems.

IN EUROPE ONLY, FOOD WASTE ACCOUNTS FOR 89 MILLION TONS: A RELEVANT PART -40%- OF THE 222 MILLION TONS FROM THE INDUSTRIALIZED COUNTRIES

In front of such striking numbers, the first attempt is to try to control and diminish this brutal factsheet, acting readily, at the very specific level(s) at which they occur (but somehow when games are already done and at the end of the wastage pipeline).However, in an era in which everything is produced, it could simply be unrealistic to consider that food waste is occurring by chance, and irrationally. On the contrary, food waste is the extreme output of our economic systems. Hence food waste seems to be the legitimate product of deeply flawed economic cycles, still accepted because not all the costs are presently being internalized or otherwise taken into account.

Waste as Residual (conceptually also)

"Waste" is everything by definition: and deals with the realm of the "undifferentiated". This is because "waste" happens to be the destination more than the thing in itself, overshadowing objects and subtracting the real value and utility that they have. Also this "ontological" gap (the garbage can guests so diverse things) is transmitted then into the analysis by the means of lack of conceptual clarity. Not by chance, there is currently not a fair and accepted global definitions about it. Hence it happens that "food waste" is not the same that "food losses", as "avoidable waste" is another thing than "not avoidable waste" (i.e, nutshells, not edible peelings, etc). As far as this lack of clarity arises from the very basic concepts, it made even more difficult eventually to set the foundations of a deeper analytical framework. Able to pass from the questions "where does it food is wasted" to "why and how is wasted?".

THE EUROPEAN COMMISSION IN OCCASION OF THE LAST WORLD FOOD DAY RECALLED THE GOAL TO HALVE FOOD WASTE BY 2020: A TREMENDOUSLY AMBITIOUS GOAL.

In fact, the popular yet narrow mainstream focus on specific food chain aspects of agro-logistic- while useful in accounting the true losses-, eventually risks to misinterpret the real phenomenon behind. And apart from the visible explications, we should try to explain the common feature of food waste or food losses, of oversupply and malnutrition. And food waste - beside the overtly treated problems from the "logistic focus" (where the food is wasted) seems to be related to structural economic problems which constitute the deep causal rationale and not only the apparent explanation.

"Waste Economics" in Europe: beyond the agro-logistic focus, considering the supply-side t

Here we come to the "why" and "how" this occurs. To introduce this, it seems useful to reconsider things from a sufficient distance. As we focus on long-term food consumption, it is widely accepted that the total money devoted to food purchase declined, representing now 1/10 of the household budgets in Western countries (it was about 1/3 in the '60es, the Engels' law). Productivity increase at the industrial level and specialization of work in modern societies lead to an increase of the income in last decades (GDP). However, food waste increased. And if we consider this closely, there is only apparent contradiction.

In fact, the first phenomenon, and the era of "food at low prices every day" (consequent from a supply-side shift in production), made food more affordable as well as the waste thereof. Which increased – roughly interpreting different data sources and as empirical rule- from 15% 20% in the sixties to 40% presently. Food waste, at the same time, transmits (wrong) economic

THE MANTRA FROM THE GREEN REVOLUTION (AND THE EMBRYONIC CAP) WAS TO PRODUCE MORE IN ORDER TO NOT EXPERIENCE POVERTY ANYMORE

signals to the supply-side, asking to produce even more for less. Food waste basically means exactly this: more food for less money, i.e., it deflates farm-gate prices. It becomes even more worrying when embedded in the food chain as a long-term structural aspect, and ends up driving rational expectations of the economic players (retailers expect stable low prices from farmers and consumers at supermarkets, in turn). Hence, this supports marketing policies such as continuous, promotional pricing of foodstuff, quite common at the EU-wide retail sector level. Those marketing policies and price squeeze on farmers happen to foster both overconsumption (with obesity- overweight) and food waste along. The burden of hidden Not-Communicable Diseases (NCDs) is another cost outside the official balance sheets.

This appears to be perfectly synchronized with the wider macro-economic framework stemming from the past 50 years of food chain productivity. The mantra from the Green Revolution (and the embryonic CAP) was to produce more in order to not experience poverty anymore. This model, while perfectly useful and rational in the past, appears in its present application flawed under many aspects: not fair and not economically sustainable for farmers; not respectful for the environment; not even sustainable in the long term, for consumers and taxpayers. While the original goal of the CAP was to stabilize prices, lowering them, and while this provided invaluable social and economic results, unintended consequences were also produced. This CAP can hence have resulted in an oversupply and apparently low food prices, leading to "food commoditization": while hampering more sustainable suppliers and producers.

THE "ROADMAP FOR A RESOURCE-EFFICIENT EUROPE STRESSED THE FOOD CHAIN AS A KEY SECTOR INSIDE WHICH RESOURCE EFFICIENCY SHOULD BE IMPROVED

Policy actions ahead

Raised as an autonomous issue in 2012 (January, 19, by the Member of the European Parliament Salvatore Caronna, "How to avoid food wastage: strategies for a more efficient food chain in the EU"), food waste is a multi-faceted issue relevant to different policy domains and may give rise to unexpected and innovative alliances between consumers and agricultural producers. In particular, the European Commission in occasion of the last World Food Day (16 October) recalled the goal to halve food waste by 2020: a tremendously ambitious goal. The "Roadmap for a resource-efficient Europe (Europe 2020 Strategy - A resource-efficient Europe) stressed the food chain as a key sector inside which resource efficiency should be improved. While the European Commission recognizes many of the issues (overproduction, marketing strategies of the retail, lack of consumers' awareness, labelling confusion and misunderstanding of best before/expiry date), it is apparent that now it is time to gear them into the present policy-framework. This is the difficult part, since such policies are strongly debated among different stakeholders, with different interests. Also, a better analytical separation between supply side and demand side factors could help. But considering that this is not a "blame game" ("who is responsible for this scandal? Farmers? Industry?

Retailers? Consumers? In which proportion/percentage?"). Again, this appraisal may not fully disclose the in-depth market forces which need to be addressed and which cut transversally the whole food chain. Here we are going to express just few, starting issues for reflection (with absolutely no pretension of exhaustively encompass all):

- **An EU regulatory framework (not only voluntary) against Unfair Trading Practices (UTPs)** at the retail level. EU farmers are trying to push the European Commission (EC) to prompt a new legislative course, able to tackle "Unfair Trading Practices" such as below-cost sales of foodstuff should be forbidden, as far as constant promotions (3x2, 2x1, etc), giving a wrong idea of the true value of food to the end-consumers and hampering to fairly transmit prices along the food chain. These practices in fact happen to amplify food waste, favor oversupply and eventually diminish returns to farmers. The economic risk is hence transferred onto farmers (they in fact pay- instead of retailers- for the cost of such promotions) and also... consumerswho, circumvented by aggressive retailers' marketing, unconsciously buy too much and waste food at the household level. Interestingly, the EC stresses that marketing strategies at the retail level "can lead to unnecessary purchases". Now it is our turn to connect the dots. Marketing strategies are often simply the other side of the coin of UTPs damaging European farmers.

- **An Improvement of "Food Information to Consumers"**, Reg. (EU) 1169/2011 and marketing rules. Normative improvements could greatly contribute to decrease household level food waste. For instance, the option of so –called " dual labelling", could make clear to citizens that the "best before" indication on the label is quite different from the expiry date. While the first one has by no means significance in terms of food safety aspects, it is a practice used by retailers to remove edible food from the shelves once past the "best before" data. To put both kind of info (expiry date and best before date) on the label could hence be helpful to mitigate food waste. The EC recognizes this as a key aspect of food waste to be addressed. Furthermore, better information to consumers on aspects such as origin labelling and traceability could avoid trust crises as the "Horsegate" or alleged Spanish cucumbers and E. Coli 0157 in 2011 (with related wastage, as occurred in the retailers' policies of food-recall). This should come hand in hand with new trading rules. As it happens in Italy with regard to direct selling from farmers to consumers, Common Market Organization (CMO) marketing rules, requiring specific quality standards (shape, dimension, appearance) could be relaxed in order to avoid waste along short food chains and Alternative Food Networks.

- **Short food chains** may also represent a valuable alternative and complementary tool to shorten the distance between farmers and consumers. Not only this seems to contribute to wider environmental goals, but may also have an impact on food chain inefficiencies leading to waste.

- **Last but not least:** actions should be promoted to evaluate the "Internalized costs" of food production, and unveiling the "true cost of food". Presently food is apparently cheap because of hidden costs. The economist Raj Patel gave relevance to the alleged true cost of a Big Mac, equalling 200$ while being paid only 2-4(depending on pricing at the country-level). If many hidden costs relate to environmental aspects (carbon footprint, water footprint, etc) and resources use (fertilizers, land...), there is also the key-issue of strict economic sustainability. When the farmgate prices are not remunerative enough to cover the real costs of production, impeding the farmers' survival, we are having detrimental effects on the food of tomorrow. Coldiretti asked FAO to start computing internalized costs of foodstuff, in order to give a better picture of the true value of food. This could contribute to a better alignment of demand-supply in the longer term.

Eventually, it is relevant to highlight that according to consensus among analysts, food prices at global level are expected to increase. While obviously this could contribute per-se to revert or limit food waste, in many EU countries, the prolonged economic stagnation as experienced in the aftermaths of the 2008 global financial crisis, gives an idea of how food waste could be reduced as a result of purely economic incentives (real income reduction= apparent food price increase). In 2012, 65% of Italians decreased food waste due to net income decreases (Coldiretti /SWG data). While the economic crisis is not desirable at all, the rationales behind it, explain that with fairer (just slightly higher) farm-gate prices passed onto farmers, inside more balanced food chains, consumers could start to carry out more conscious and informed purchases of food in the quantities they need. With benefits for all. We can adapt to change or anticipate it. But the evolution of the global scenario pushes us to make a step in the only, right direction.

FOOD SECURITY AND NUTRITION (FSN) VERSUS FOOD WASTAGE: THE NEED OF REASSESS THE CONCEPTS OF PRODUCTION AND CONSUMPTION

Islandia Bezerra,
Adjunct professor of the department of nutrition and graduate programs in food security and nutrition (Ppgsan) and sociology (Pgsocio) at UFPR-University of Parana

The conceptual essence of Food Security and Nutrition (FSN), is based on permanent availability and access of food in quantity and quality, without harming other essential needs. Moreover, the conception of FSN is guided by the principle of the Human Right to Adequate Food (HRAF), considering social, economic and environmental sustainability aspects to ensure equal or better conditions of production and consumption of food for the future generations.

Contrasting this principle, there is an increase of food waste, that, in fact, the current civil society has an important role in the promotion of measures that may change current practices of production and consumption of food that lead to losses. The current food system has shown productive capacities to respond with some

"efficiency" to the extremely high demand of consumption. However, it is essential to emphasize that the current model of production, whose main characteristic is the long circuit - production, distribution, marketing, access and consumption - has statistically demonstrated a high level of wasting, showing its impracticality, and above of all, its unsustainability.

This reaffirms the fact that the costs are not only financial, i.e., the losses in the supply chain, due to a lack of infrastructure or inefficient technical assistance and logistics, as well as the indiscriminate use of pesticides and high fuel costs to allow for transport. It should be noted that the environmental, cultural and social value losses, which are imbued in the current practice of producing and within the simple act of eating food.

According to data from the United Nations Food and Agriculture Organization (FAO), the losses are around 1.3 billion tons of food, i.e., one third of all the food produced in the world. In addition to this, there is the waste of water, fertilizer, fuel and even the efforts of thousands of workers engaged - in any part of this food system - such as production, distribution and commercialization. Apart from this, a statistical study published by the Institution of Mechanical Engineers in January 2013 and entitled "Global food waste not, want not", relates food waste, with losses of natural resources.

Unfortunately, the portion of Brazil in the waste equation: Production + food wastage = losses, is extremely high. According to the study, the country is among the top 10 food wasting nations in the world! This suggests, therefore, that it is imperative to reassess the practices of production and consumption of food in Brazil.

THE PORTION OF BRAZIL IN THE WASTE EQUATION: PRODUCTION + FOOD WASTAGE = LOSSES, IS EXTREMELY HIGH

Within this context, Food Security and Nutrition (FSN) is an important dimension of food wastage.. In the field of production, losses represent lower benefits for who produces food, and reflect high prices and thus increased difficulties in accessing, for who consumes the products. It is therefore, worthwhile rethinking the production pattern and the model of food consumption implies - invariably - joint efforts and initiatives, in addition to those characterized as being the responsibility of the State – such as programs and policies - also through those that in general are guided by civil society

In this regard, Brazil has various experiences and examples to share. Their implementation demonstrates tangible solutions to the problem of food waste. In order to achieve a sustainable food system, the Brazilian government has executed relevant programs in order to re-define the food chain: from production and food consumption. Experiences such as the National Program of School Meals (PNAE) and the Program of Food Acquisition (PAA) at the State level, reflect the viability and confirm that such changes are feasible.

Objectively, such actions (PAA and PNAE), have stimulated important changes in local and regional agri-food systems, strengthening peasant and family agriculture, thereby contributing to improving access to diverse high quality food for the food insecure categories of the population. Furthermore, such actions have a positive, multiplier effect such as: protection of biodiversity, involvement of women and youth in the construction of short production circuits,

THE CURRENT FOOD SYSTEM HAS SHOWN PRODUCTIVE CAPACITIES TO RESPOND WITH SOME "EFFICIENCY" TO THE EXTREMELY HIGH DEMAND OF CONSUMPTION

and the programs also boost local and regional economies by promoting local crops. As for civil society initiatives to reduce the high levels of food waste, some relevant examples of projects are: Bank Supply - generally linked to the Supplies Centers- Brazil Food Program created by the Social Service of Commerce (SSC), and Kitchen of Brazil – linked to National Council of Social Service of Industry (SESI), all performed in partnership with the Ministry of Social Development and Fight against Hunger (MDS).

I is known that, for the transition from a pattern of food production and consumption based on long production circuits, which generate waste, to a new model, that encourages a shorter value chain: directly from farmers to consumers, it is a complex and a challenging process. However, – in order to reduce food wastage - the importance of investments in the production system cannot be underestimatedas is a better and more efficient relationship between society and environment. An improved understanding of human beings and their relation with food, and consequently, the simple act of eating. What, when, where and why eat?

MORE VALUE FOR FOOD

Tiffanie Stéphanie,
Senior Policy Advisor for European and environmental affairs, German Farmers' Organisation (Deutscher Bauernverband e.V. - DBV)

According to a study undertaken by the German Federal Ministry of Food, Agriculture and Consumer Protection in 2012, every year some eleven million tons of food equivalent to a value of 21,6 billion EUR (235 EUR per inhabitant) are thrown in the bin. Almost two thirds of all losses can be registered from private households. Within the European Union, almost 90 million tons a year end up as food waste.
The reasons are complex; especially consumer behavior has been seen as a main factor leading to this situation. Therefore the German Farmers Organisation (DBV) welcomes the fact that decision-makers are taking the topic of "avoiding food wastage" more and more seriously. German farmers work around the clock to supply healthy food with the highest safety and quality standards. They are alarmed by the current statistics on food wastage.

Food needs to have a higher value

Food waste is closely related to the appreciation of products. It is crucial for the farmers that consumers pay adequate prices for their products. In Germany, people only spend about ten percent of their income on food. There are several factors explaining the mentality of not correctly estimating food quantities and it subsequently landing in the trash. Especially very low prices for food lead to the fact that consumers value products less. For years now, DBV organizes initiatives such as "Our food has a higher value" ("Unsere Lebensmittel sind mehr wert") in order to raise awareness for a more responsible dealing with food.

Efficiency avoids waste

In order to manage their costs, farms must keep the waste of raw materials as low as possible. Through efficient production, with a large variety of types and market-dependent cultivations, harvesting supported by sophisticated technology and advanced storage facilities, losses can be reduced. Residues are used for animal feed or for energy production. In contrast to this situation of abundance in the developed world, people are suffering in other parts of malnutrition and hunger.
Unlike the situation in the developed countries, food losses in developing countries are not caused principally by consumer behavior, but are rather a result of a lack of structure and efficiency in agricultural systems (post-harvest losses, lack of infrastructure). This is one of the important reasons why the development of the agricultural sector in developing countries is the key to global food security.

Society needs to react to this problem

A restriction of agricultural

commodity production cannot solve the problem of food wastage. On the individual farm level, all crop residues are fed back into the nutrient cycle, following the principle of a circular economy. Either they contribute to improving soil quality or they are used as animal feed. Also energy recovery is a good method for using crop residue.

In the end, a unilateral blame does not help in solving the problem. Rather, all actors along the food chain -from the farm to the plate- are needed. In particular, retailers and consumers are encouraged to deal carefully with food and value it.

Furthermore, trading standards and expiration dates of groceries are criticized. However, their high information value must not be forgotten. Since decades, they guarantee the highest quality to consumers and trade. According to a recent study prepared by the statistical agency of the European Union shows that a large proportion of European consumers believe that it is NOT safe to consume food products after the "best before" date stated on the label. More information addressed to consumers on labeling may help to better understand and use it.

For German Farmers it is not acceptable that in many parts of the world people suffer from hunger, while in Europe food is unnecessarily discarded. Food wastage is in first place an ethical issue with implications for the entire food chain.

A RESTRICTION OF AGRICULTURAL COMMODITY PRODUCTION CANNOT SOLVE THE PROBLEM OF FOOD WASTAGE

THE ASSOCIATION OF GERMAN WOMEN FARMERS (LANDFRAUEN – DEUTSCHER LANDFRAUENVERBAND E.V.) HAS ORGANIZED A BROAD PUBLIC AWARENESS CAMPAIGN IN GERMANY TO ACHIEVE HIGHER VALUE OF FOOD AND TO REDUCE FOOD WASTAGE

More appreciation of food is urgently needed. This includes raising awareness, and sufficient information sharing for consumers. A unilateral reduction of cultivation in agriculture would, however, would not be the right solution. The EU model of agriculture is already now highly efficient and environmentally sound.

The association of German Women Farmers (Landfrauen – Deutscher Landfrauenverband e.V.) has organized a broad public awareness campaign in Germany to achieve higher value of food and to reduce food wastage. The association encourages citizens in Germany to get active at the local level in order to raise awareness for example during public events. The Landfrauenverband produced and showed several videos on the topic. The activities were developed in cooperation with the member organizations of the Landfrauenverband (organized according to administrative bodies on regional and district levels). The Bavarian member organization for example sensitized during a campaign on improved storage methods for food. They organized a public quiz with questions on the issue and disseminated a flyer entitled: "Everybody wants to have fresh food but nobody stores it correctly". The leaflet points out that everybody could avoid wasting 50 kilos of food and save 180 Euros a year. It also gives advice on better storage of food and how to avoid food wastage.

LET'S BE UNITED AGAINST FOOD WASTE

Selina Juul,
Founder of Stop Wasting Food movement Denmark and Winner of Nordic Council Nature and Environment Prize 2013

It's easy to put the blame of global food waste on the food industry: agriculture, industry, foodservice and retailers. Too easy. In fact, most of the international reports and experts on food waste point at the above mentioned as the "bad guys" in the field of food waste.

It's so very easy to be us against them.

And yet, by only concentrating on them, it takes the focus away from ourselves – the consumers. It is of course, much easier to point fingers at someone else, than admitting that we are all a part of the problem – but we are also part of the solution. Ladies and Gentlemen, it's time to be united against food waste.

Food waste – a political issue

Food waste is not only an environmental, resource and moral issue –it's also becoming a political one. Food waste is the new member in the climate debate, and as most of the climate debate is today dominated by the left wing parties and other left wing supporters, the talk about food waste among them has become a new growing trend.

Focus on food waste is good, no matter the political color, but many of the left wing activists tend to view (and attack) agriculture, industry, foodservice and the retailers as the "Evil Capitalists", for whom food waste has always been a big business. Thus, this very one sided debate not only scares agriculture, industry and retailers away from actually working against food waste – but it also deprives consumers of the power to act.

As long as we the people, blame the food industry, we take the responsibility off our own shoulders. It's time to change this mindset – because we are all in this together.

A united stand against food waste

Ever since 2008, the Stop Wasting Food movement Denmark (Stop Spild Af Mad) - Denmark's largest non-profit consumer movement against food waste – had a great collaboration with the Danish Agriculture & Food Council, uniting both the industry and the consumers in the joint fight against food waste.

On October 4th 2013, Denmark was united against food waste. The "United Against Food Waste" multi-stakeholder event occupied the Copenhagen Town Hall Square – a joint collaboration under the EU-umbrella of FUSIONS alliance against food waste and the FAO/UNEP Think.Eat.Save campaign. The event was unique and the first of its kind, as the entire food value chain was united against food waste: agriculture, industry, foodservice, retailers, NGO's, consumers and politicians.

IT IS MUCH EASIER TO POINT FINGERS AT SOMEONE ELSE, THAN ADMITTING THAT WE ARE ALL A PART OF THE PROBLEM

6,000 consumers, top politicians such as the Danish Minister for Food, Agriculture and Fisheries Karen Hækkerup and the Secretary General of the Nordic Council of Ministers Dagfinn Høybråten, the CEO of Denmark's largest agricultural organization Danish Agriculture & Food Council Søren Gade, international food waste expert Dr. Silvia Gaiani, Denmark's biggest retail chains Coop and REMA 1000, Unilever Food Solutions, top celebrity chefs, NGO's and charities made a united stand against food waste during the "United Against Food Waste" event in Copenhagen.

The multi-stakeholder event is a new positive approach to the problem – and a new take on the fight against

food waste: best practice examples from the entire food value chain, free delicious surplus food for 6,000 people, tips and advices for the consumers, speeches by top politicians, top opinion makers and celebrities and great music and entertainment. The "United Against Food Waste" multi-stakeholder event inspires, teaches, includes, unites and encourages people to start a fight against food waste in their own homes.

This is only the beginning, as the event already received international attention and media exposure – and the plans for the future international "United Against Food Waste" multi-stakeholder events are already in motion, especially due to the massive international attention and not to forget the latest buzz created by the Nordic Council Nature and Environment Prize 2013, which I received on the 30th of October.

It's about time to show that we are all a part of the solution. Attacking the food industry, while at the same time ignoring the consumers doesn't work anymore.

Cutting the food waste – an opportunity that cannot go wasted

Within the last five years, with the major effort from Stop Wasting Food movement Denmark (Stop Spild Af Mad), the focus of food waste grew from nearly non-existent to almost weekly mentions in the media, radio, newspapers and TV.

Not only our latest TNS Gallup report from Danish Agriculture & Food Council and Stop Wasting Food movement Denmark shows that within the last year, every 2nd Dane has reduced his/her personal food waste – but the food industry as well started to show some very impressive results:

- The milk giant Arla Foods Denmark has incorporated the fight against food waste in their 2020 strategy
- Denmark's retail chain REMA 1000 dropped quantity discounts in every shop all throughout Denmark.
- Denmark's retail chain Irma has saved almost half a million Euro last year by cutting their food waste.
- Denmark's largest hospital, Rigshospitalet, has saved 134,073 Euro per year by cutting their food waste.
- The canteen of Jyske Bank banking company has saved 134,073 Euro within the last one and a half years.
- The giant Unilever Food Solutions has developed a food waste tool, which can save a canteen up to 80,444 Euro a year.
- The large tomato producer Katrine & Alfreds Tomater uses wonky tomatoes to make pesto and ketchup.
- Denmark's biggest retail chain Coop has started to sell wonky carrots in their stores and signed the Food Waste Manifesto with Stop Wasting Food movement - a pledge to reduce food waste by 10% in all Coop stores during the next two years.

Cutting food waste means saving millions of Euros – and opportunity that cannot go wasted, especially in light of the still present economic crisis.

FOOD WASTE IS THE NEW MEMBER IN THE CLIMATE DEBATE

Join the "United Against Food Waste" movement

Stop Wasting Food movement Denmark (Stop Spild Af Mad) and I personally invite all international stakeholders throughout the entire food value chain to join the "United Against Food Waste" movement and to initiate the "United Against Food Waste" multi-stakeholder events in your countries – no matter the country, the religion or political color. The multi-stakeholder events can be easily replicated worldwide.

Welcome to a new future in the fight against food waste: a future where we include instead of exclude – a future where we are all united against food waste!

See more at http://www.unitedagainstfoodwaste.com

FOOD RECOVERY AND REDISTRIBUTION – PREVENTION OF FOOD WASTE FROM AGRICULTURAL PRODUCTION, RETAIL AND CATERING

In 2011, the Food and Agricultural Organization of the United Nations (FAO) and Messe Düsseldorf GmbH launched SAVE FOOD: Global Initiative on Food Loss and Waste Reduction that builds and strengthens multi-stakeholder partnerships that enable and facilitate: (i) Awareness raising; (ii) Collaboration and coordination of world-wide initiatives; (iii) Evidence-based policy, strategy and program development; and (iv) Technical support to investment programs and projects.

The collaboration of SAVE FOOD with the Global Food Banking Network (GFN) and Portuguese NGO Dariacordar fosters a better understanding of food recovery and redistribution as a concrete way of prevention and reduction of safe and nutritious food to be wasted from agricultural production, processing, retail and catering while assisting food insecure people.

1. To date GFN has (i) distributed 920 million pounds of food to more than 19,000 institutions that feed people directly, (ii) supported a network of nearly 250 operational food banks (GFN, 2013).

Healthy, mature food bank systems contribute with solutions in the form of both their core function (connecting surplus and unsalable food to food insecure people) and their auxiliary function that supports community programming (job training programs, child feeding and educational supplement programs).

Food banking is motivated by both public awareness and corporate social responsibility and efficiency in supply chains/business systems. In effect, the food banking infrastructure establishes a viable extension of the food and grocery supply chain, branching away from the commercial side of the supply chain to create a charitable branch. This charitable branch captures and consumes food that has reached the end of its value on the commercial side. All relevant safeguards such as food safety management, traceability, inventory controls, etc. are retained and exercised by the food banking system at the same level as required in the commercial side of the chain.

The food bank system restricts distribution to vetted, qualified institutions that deliver relevant services to the low and/or no-income community and that

incorporate feeding as a component of those services (homeless or domestic abuse shelters, orphanages, soup kitchens, drug and alcohol rehabilitation facilities, medical clinics, etc.).

The biggest costs for food banks relate to personnel and volunteer management, hard assets (warehouse, rolling stock, equipment, etc.), and logistics management (collection and distribution of food and grocery products). Globally, consistent access to adequate funding is the biggest challenge. Secondarily, access to surplus food is an ongoing challenge. Despite the staggering scale of global food waste, it is challenging to overcome the logistics and attitudinal issues related to capturing the food resources before they get wasted. Farmers, manufacturers, distributors, retailers, and others in the supply chain who own the products that the food bank system targets as desirable for their programs are often reluctant to donate due to fear of liability exposure, or because of economic disincentive (e.g. unfavorable, or interpreted as such, tax laws). GFN exists also to address these concerns with the many global, regional and national stakeholders that can help to bring about changes.

Some examples of food banks and implementation of concrete actions:

Argentina – engages the domestic operating units of global companies to conduct projects aimed at enhancing the operational capacity of the food banks and strengthening their IT capabilities to elevate the operating sophistication of the member food banks and enhance capacity to serve the food insecure population.

Australia – captures hundreds of tons of agricultural raw materials from the supply chain that represent difficult to use products in their stand-alone form, but which, when processed and combined with other ingredients, represent critically needed staple food items to the beneficiary base. Their project includes voluntary engagement of support industries that provide cans, labels, cartons.

Egypt – the Egyptian Food Bank (EFB) has engaged stakeholders to facilitate the development and implementation of a project targeted toward the comprehensive economic development of whole villages across Egypt. EFB collects more than 15 million meals per month from more than 425 hotels and resorts and distributes through feeding programs across the country.

EGYPTIAN FOOD BANK

Together…Against Hunger

Israel – the food bank has established a gleaning and farming project through which it engages 40,000 volunteers per year in collection of fresh fruits and vegetables that would otherwise be plowed under at farm level. This valuable human nutrition resource supplements the packaged goods donated by the industry and significantly enhances the value added of the food bank to the beneficiaries it serves.

2. Dariacordar is a nonprofit Portuguese association that promotes the Zero Waste Movement and is collaborating with the SAVE FOOD Initiative and the FAO Food For the Cities Network.

Dariacordar is a facilitator that enables stakeholders and interested parties to collect all the surplus prepared and cooked food that would otherwise be wasted and give it to food insecure people in Portugal.

Data registered since the launch in January 2011:
Time of operation: ~15 months
Phase and Locations: Pilot phase in poorest parishes of 4 Municipalities (20% of municipal coverage)
Number of retrieved meals: ~560 000
Number of meals/day: ~1300
Recovery rate of food waste from catering in Portugal: ~2,5% (estimated total of recoverable meals/day ~50 000)
Value of retrieved meals: 840 000 € (~1,5€ / meal)
Tonnes of saved food from becoming waste: ~280 (~0.5kg / meal)
Tones of saved CO2: 1 176 (1 TON of food waste / ~4,2 TON CO2)
(Source: DariAcordar, 2013)

Explaining the interpretation of the EU law and food safety procedures is a critical success factor of the Zero Waste Movement. In this case, and as a groundbreaking point, it was the national food security agency itself (Autoridade de Segurança Alimentar e Económica-ASAE) that helped formulate procedures and project standards and was responsible for training interested donors. Contributing to its success is the development of the project brand to disseminate results and low cost process, as it is carried out by a team of part-time volunteers, taking advantage of all partners existing resources, enabling synergies and optimizing operations for effectiveness and efficiency.

The entities and food businesses that enroll in the program have to comply with good practices and regularly contribute with surplus food according to the food safety rules and in coordination with the Municipalities that oversee the process. Registration can be made by individuals or beneficiary organizations (NGOs, private social solidarity institutions, charities and other social solidarity associations). Once the registration is validated, the contact is made with city agencies in the appropriate area of action so that an assessment of the actual needs of the beneficiary organization and candidate donor are matched.

Support to Zero Waste Movement can be financial (monetary contribution to the development of the Zero Waste movement activities); material (e.g. donation of vans, boxes to preserve food); operational (e.g. resources sharing, food distribution, monitoring); dissemination to help create awareness among the population; knowledge (strategies, operation plans, sector studies, optimization models); and human resources (volunteers in any phase or the beneficiaries themselves who are involved in volunteer work, with positive effects for the project and their level of motivation and resilience).

There is no excessive paperwork or potential blockage in a growth phase of the project and of its network. Monitoring and evaluation (criteria in the table below) are guaranteed by the Zero Waste team from Dariacordar. All activities are organized according to the value chain and project process with direct and tangible results and performance indicators.

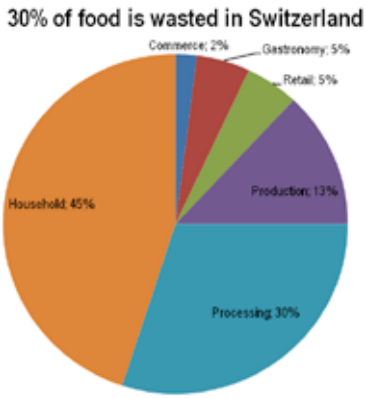
Main tools for monitoring and assessment are:

- Monthly activity report – completed by the Registered Entities
- Satisfaction Questionnaire for the Quality and Food Hygiene Training
- Satisfaction Questionnaire for Registered Businesses

FOOD WASTE IN SWITZERLAND: 'YOUNG' INCENTIVES TO FIGHT IT!

Evelyn Markoni
and **Hansjürg Jäger,**
Bern University of Applied Sciences, School for Agricultural, Forest and Food Sciences (HAFL)

Avoiding food waste is listed in the Millennium-Development Goals as one action to eradicate hunger. Despite the favorable situation, of being a country in the heart of Europe, Switzerland has its duties as well. Studies, written by João Almeida and Claudio Beretta (2011) have shown that in Switzerland, approximately one third of all food produced is wasted. As indicated in the Figure, 45% of the total food waste in Switzerland is coming from households.



45% of Food is wasted in households, 30% in processing-facilities and 13% on farms (Source: Almeida 2011, Beretta 2011)

According to both authors, the main causes are the artificial dates put on the packages for products of high quality standards, confusing "best-before ... "- and "to be sold before..."- dates on the packages and the over-supply in commerce.
Since the topic of food waste is featured more and more frequently in the media, grassroot-movements are arising and an increasing number of people are actively searching for solutions to reduce food waste and food losses. These movements range from the policy-level, over private initiatives up to entire trends, dealing with sustainable consumption and living.

Broad-based public initiatives
The political debate on the subject of food waste is still very young in Switzerland: the public sector, under the auspices of the Federal Office for Agriculture (FOAG), has taken up the topic for the first time at last year's World Food Day - under the motto "Wasting Food, that's stupid". To reach consumers, the FOAG has launched a small exhibition, installed in a shipping container, which is travelling around Switzerland, to raise public awareness. Consumers were, and still are, invited to join the small exhibition to get an understanding of the issue. However, not only the policy makers are coming up with new ideas and approaches on how to raise awareness on food waste, but also Swiss young adults!

Initiatives and platforms of young adults - full of enthusiasm!
Last year, many initiatives and platforms have been created in Switzerland on this topic. Those initiatives and platforms are mostly founded by young adults, which were either directly involved in or affected by food waste. Foodwaste.ch, a not-for-profit association, is one of these young platforms. It is intended as a source of information and exchange. Foodwaste.ch wants to raise awareness among people and help to reduce food waste in

Switzerland. A similar goal is set by the website myfoodsharing.ch. This platform makes it possible to share food, rather than throwing it away. Additionally, the users are encouraged to arrange meetings to cook their leftovers together. Besides those rather virtual approaches, smaller initiatives are also growing. One of these is the "Äss-Bar" (Swiss German wordplay for eatable and bar) in Zurich, which sells bread and pastries from the previous day at a reduced price. Or the "Buffet Dreieck", which was the first public caterer that used products, which were not accepted for selling.

Ideas of tomorrow: Waste less.

Besides those running businesses, competitions are another tool, used to increase the awareness and to promote solutions to fight food waste.

The competition named "Our Common Food", initiated by the Swiss National FAO Committee, foodwaste.ch and some industrial partners was launched earlier this year. The competition was addressed to students. The winners of finding a solution for fighting food waste in Switzerland are Loïc Leray and Fabian Schweizer. The duo developed and presented an idea for a mobile app, "CloudKitchen", which now, with the help of the prize-money, shall be created within the next months. Cloudkitchen helps the consumers to better manage their food-storage and to facilitate the buying of only the food needed.

Around all those initiatives, it is not only about the prevention of food waste, but also about sustainable consumption. Consequently in Switzerland, new trends are arising that promote sustainable lifestyles and trends. Such a trend is, for example, the trend of the LOHAS, the lifestyle of health and sustainability.

New young trends are arising...

LOHAS means, according to the German trend researcher Wenzel, a lifestyle that combines health and sustainability. LOHAS does not deny consumption, but wants to consume sustainably and consciously. As part of a dissertation from Evelyn Markoni at the University of Basel in collaboration with the School of Agricultural, Forest and Food Sciences HAFL in Zollikofen, a qualitative survey was conducted with twenty LOHAS in Switzerland. Food waste is an important topic for the sampled young LOHAS between ages 21 and 30. These LOHAS encounter various obstacles in trying to avoid food waste. So dealing with the expiry date and the expiration date is criticized, because it is not transparent to consumers. It is also remarked that many young people in Switzerland live in cities and that they therefore bear little relation to food. The interviewed LOHAS demand an appropriate urban development that struggles with this issue. Strategies to avoid food waste are mentioned: Food is consumed even then, if the date is expired or if the food does not look that good anymore, but is still edible. In addition, fresh products are preferred and secondary uses for excess food are considered. The interviewed LOHAS also wants to take care to the correct storage so that food stays longer fresh. Finally, they try to avoid an over-purchasing of food and want to consume less: "I think consuming less is more. Even now with this whole issue of food waste...you buy and buy more and at the end you have too much food and you just throw it away. This whole approach of re-using and buying less belongs also to a sustainable way of living."

Food waste gained an important significance...

The topic food waste gained an important significance in Switzerland! Political discourses, new and young initiatives and platforms, idea competitions as well as new trends, such as the LOHAS trend, promote this awareness. Young adults who have innovative ideas and ideals especially push this topic. They are trying to raise awareness on food waste and on a more conscious handling of food to reduce food waste. Thus, they make an important contribution to sustainable consumption. John Hellmann, a board member of Foodwaste.ch, says aptly on their website: "Food waste comprises some of the biggest local and global challenges of the 21st Century: A sustainable use of natural resources and food security for all human beings."

THE "DAILY TABLE", A SMALL REVOLUTION TO TACKLE A HUGE PROBLEM

Mr Doug Rauch, former President at Trader Joe's, took up a new challenge: selling food that has passed its sell-by date. Mr Rauch is determined to repurpose the perfectly edible produce slightly past its sell-by date that ends up in the trash. In late September, in fact, the Natural Resources Defense Council and Harvard University released a study in which they calculated that Americans throw away $165 million in food every year. To tackle the problem, Rauch is opening a new market early next year in Dorchester, Massachusetts, that will collect wholesome food that grocers have to throw away, cook it and sell it as low-cost, prepared meals.

The Project is called the Daily Table and it will open at the beginning of 2014 in Boston's Dorchester neighborhood. The idea behind this project is to offer affordable, yet nutritious, food as a valid alternative to junk food. The entire project rotates around the confusion in labelling food. Date labeling is not strictly regulated, thus it might create confusion to the consumers; on the shelf you can find a large variety of date labels, including "use by," "best before," "sell by," and "enjoy by". Through a clearer date labeling, says the study conducted by Harvard University and the Natural Resources Defense Council, consumer confusion would decrease reducing not only food waste, but also improving food safety.

"I've been in the grocery industry since the early '70s — most products didn't have a sell-by date back then." Says Mr Rauch "In the old days, you'd smell the milk; it smelled good or smelled bad. People worry about food-safety issues, and E. coli or salmonella. Virtually all of the known food-related deaths in America have been caused by food that was in code."

The food served at the Daily Table will be priced to compete with fast food restaurants that target low-income customers. The store will also feature healthy cooking classes. Altogether the store is meant to counter the American tendency toward low-cost, unhealthy meals that has led to an epidemic in obesity and diabetes.

"The number-one leading problem is affordable nutrition," Rauch told the Boston Globe "For the 50 million Americans who are food insecure, their solution is not a full stomach. It's a healthy meal."

What the Daily Table is doing is nothing different from what national retailers are doing; most retailers, in fact, recover meat, chicken, or fish that's been out on the display counter and, instead of throwing it out, they cook it up fresh and sell it the next day. The social impact of this project can be great as well. If the population was better informed and educated regarding the real meaning of the many different date labels, then the risk of throwing away food which is still good, would decrease.
Wasting, whether it is food or anything else, is always the worst choice to make. If this choice then affects other human beings, it makes wasting even worse.

WASTING NO MORE TIME IN ENDING FOOD WASTE.

Codrin Paveliuc-Olariu,
Postdoctoral Fellow - Gembloux Agro-Bio Tech, Belgium
Chair of the YPARD Steering Committee

The statistics collected in the limited studies available on food waste and food losses are simply jaw dropping. The 2011 FAO report "Global Food Losses and Food Waste" mentioned that the impact of food waste is not only financial. While most reports and conference still debate the financial impact of the 1.3 billions of tons of food waste each year, the FAO pointed out that food waste is also an important source of methane, one of the most damaging greenhouse gases (23 times more harmful than CO2), and food waste filled landfills have the capacity of producing a sufficient amount of methane to accelerate climate change.

The people

Looking again beyond the financial aspects of the food waste story and the whole climate change debate, we find the people. While the most promoted number in regards to food waste is 1.3 billion, people don`t know that every year, consumers in rich countries waste almost as much food (222 million tonnes) as the entire net food production of sub-Saharan Africa (230 million tonnes). In developing countries, food waste and losses occur mainly at early stages of the food value chain and can be traced back to financial, managerial and technical constraints in harvesting techniques as well as storage – and cooling facilities. Thus, a strengthening of the supply chain through the support of farmers and investments in infrastructure, transportation, as well as in an expansion of the food and packaging industry could help to reduce the amount of food loss and waste. But this cannot be achieved in the short term and without adequate support from the global (policy making) community.

Short term solutions

In the short term, there are solutions that can be implemented in order to cut food waste and impact local communities, not only from a financial standpoint, but also through a social, environmental and sustainability approach.
From Russia to the USA and all the

PEOPLE DON`T KNOW THAT EVERY YEAR, CONSUMERS IN RICH COUNTRIES WASTE ALMOST AS MUCH FOOD AS THE ENTIRE NET FOOD PRODUCTION OF SUB-SAHARAN AFRICA

way to India, young people are developing new and innovative ideas on how we can end food waste or, if we can`t do that, how we can use the food waste to our advantage.
At the Saint Petersburg State University in the Russian Federation, Ekaterina Geta is working on developing a clean way to cook and consume our food. She is currently developing a system through which the leftovers from each meal can be disposed safely in a small biodiesel plant right under your kitchen sink. This way you can use your own food waste to produce biodiesel in your home and consume it in order to reduce your electricity bill. She entered her idea in the AT Kearney Falling Walls Moscow Lab this year where she won 1st prize (presentation available at the following link https://youtube.googleapis.com/v/YlOgZoHtCwg).

Jade Proulx has created Team Tooskee, a group of dedicated students from the USA and Canada, that are set to end household level food waste through mobile applications. In this year`s Thought for Food Challenge, under Jade`s leadership, Team Tooskee has created a mobile application that tracks your food inventory, helps you optimize your kitchen habits and provides value to consumers by helping them save money through a personalized kitchen aid (project description at the following link http://tffchallenge.com/team/tooskee/).

Also in the 2013 Thought for Food, under the strong leadership of Keshav Mohta and Apoorva Mishra, was team Ingenerovictus from India. With an idea based on interlinking mobile technology with social entrepreneurship, they plan to use food waste to produce biodiesel that would be given for free to smallholder farmers in order to reduce the costs of their agricultural inputs. In order to incentivize people to give their food waste for this noble purpose, through their mobile application, Ingenerovictus has developed an e-credit systems through which people can get reductions in selected partner stores and restaurants equivalent to the amount of food waste they donate (project description available at the following link http://tffchallenge.com/team/tooskee/).

While most people are still debating whether or not food waste is a big societal challenge that we need to tackle right now, young men and women around the world have decided that food waste must no longer be a problem. It can be a solution to solve other stringent issues such as food security, energy security or even human health. Ekaterina Geta, Jade Proulx, Keshav Mohta and Apoorva Mishra are just a few of the young people ready today to get their hands dirty in order to find solutions to the burning problems of tomorrow.

FOOD WASTE IS ALSO AN IMPORTANT SOURCE OF METHANE, ONE OF THE MOST DAMAGING GREENHOUSE GASES

Sources:
Global Food Losses and Food Waste - FAO, 2011
The environmental crisis: The environment's role in averting future food crisis – UNEP, 2009

FOOD AND WATER WASTAGE MANAGEMENT BY THE YOUTH IN CONTEST

Marina Cherbonnier,
Web and Communications officer at YPARD

Last August and September, YPARD was one of the juries for the 2013 ITU Telecom World Young Innovators Competition, in the section Food and water wastage. The contest aims at recognizing young people who are using technological innovation to improve the social reality of their communities and giving them a boost in their activity.

The contest had several phases. First, it was about reviewing the short proposals for each project and giving constructive feedback for improvement of the projects' design. Then, the candidates were requested to work on their business plans (5000 words) and submit it for final selection.

The finalists of the contest were invited to a series of webinars prior to be invited to ITU Telecom World, a high level conference and exposition in Bangkok, where they would display their innovations and pitch to investors in. This is also where they were awarded their prize money.

15 proposals were enrolled in the contest on food and water wastage management, out of 600 submissions. 9 candidates submitted their final business plans. The projects were highly diversified, focusing on food re-distribution for several of them, through online systems of retailing and, for instance, by liaising with restaurants. It was also about crop waste management, intelligent refrigerator, no-waste-tips sharing online, organic briquette, water and energy saving for responsible farming... The proposals came from different parts of the world: Mexico, Philippines, Zimbabwe, Indonesia, China, Azerbaijan, USA, Ecuador, Botswana, Canada, India, The Netherlands.

We liked the focus on the lack of awareness of people about food wastage – which, we believe, is a main challenge for change. We also appreciated those projects based on community driven activities,

where individuals can take part and benefit, share tips, train others etc. We particularly enjoyed innovative projects that generated income and therefore could be more sustainable while giving its true value to food and water. Some projects were very inspiring and we could feel that these were driven by passion for development.
On a general view, we would have enjoyed more information on how some projects were making products cheaper to the consumers – some innovation didn't seem very affordable. In addition, we would have appreciated evidence on how these projects have the potential to serve the poorest and thus contribute to fight poverty and hunger – beyond environmental considerations.
Some projects showed a clear and realistic idea about what the project would concretely look like throughout its implementation. Some business plans could have shown more background information particularly though. While different stakeholders were solicited from government to private sector it would have been more powerful to see how their contribution was ensured. We would have expected more information on the budget/financial aspect of it, such as monitoring and evaluations elements to assess the impact of the projects. More information would have been useful on the way the end-users would be approached and how such projects would be up-scaled.

The winner or the food and water wastage section is….. SalvageHub represented by Oscar Ekponimo from Nigeria – a web and mobile platform to reduce food wastage at individual and retail levels.
The winner was one of our favorite. I liked the initiative and the motivation expressed, such as the benefit from the competition mentioned. During the first phases, we were expecting more evidence of strong research and analysis of the geographic context and market, before the implementation plan. i.e retailers mapping plan, areas covered, etc. We were also expecting more information on the way they would get indicators to measure the impact of the project - although the objectives they wanted to reach were made clear. All these were covered by the Business Plan on the second phase.
We were also suggesting that they try crowdfund for the kickstart instead of committing their own resources. I had expressed my concern about how to make sure that this project feeds further development. i.e. a street kid fed is a street kid empowered to fight against his state of poverty. I wondered if they could imagine a partnership that would enable them to put their project in a more holistic perspective. The partner would make the follow-up on accompanying the street kids (in this context) for capacity building (or else). It would then make their project even stronger.
All in all, it was a well thought project; we could feel a great energy and a manifest effort to take jury's comments in consideration. We wish Oscar and his team the very best with this youth-led innovative project for a true development goal.

5TH INTERNATIONAL FORUM ON FOOD AND NUTRITION

On 26-27 November 2013, Milan hosted the fifth edition of the International Forum on Food and Nutrition; since 2009 the International Forum on Food and Nutrition promotes the debate on global topics linked to food, encourage awareness and generate sound proposals for the future of people and our planet.
http://www.barillacfn.com/en/forum/forum-2013/?overview=y

LATEST FOOD WASTE FIGURES IN THE UK

According to the latest report by the UK government's waste advisory body, £12.5bn worth of avoidable food and drink waste took place in the UK. Britons are throwing out the equivalent of 24 meals a month, which adds up to 4.2 million tons of food and drink every year that are still in the condition to be consumed. Almost half of all wasted food and drink is going straight from fridges or cupboards into the garbage.
http://www.theguardian.com/news/datablog/2013/nov/07/food-waste-uk-latest-report-key-findings

FOOD DRINK EUROPE FOOD WASTE TOOLKIT

The European food and drink industry has created a food wastage toolkit aimed to help food manufacturers decrease food waste. They are committed to halving edible food waste by 2030.
http://www.fooddrinkeurope.eu/industry-in-focus/maximizing-food-resources/

FOODDRINK EUROPE

SAVE FOOD: PARTNERSHIP MEETING

The SAVE FOOD Initiative will be hosting a two-day partnership meeting in Rome on 10 and 11 December this year, to discuss collaboration among the different partners and the roles they can (or want to) play in reducing food loss and waste.
www.fao.org/save-food/44242/en/

FOOD WASTE IN JAPAN: HOW ECO-TOWNS AND RECYCLING LOOPS ARE ENCOURAGING SELF-SUFFICIENCY

Growing consumerism in Japan has resulted in a huge amount of waste generated daily, and exacerbated by the shortage of space available for landfills. Therefore, the issue of food waste entered the political agenda; it represented one of the many aspects of the national environmental policy aimed at solving the garbage problem. The success of the Food Waste Recycling Law allowed the Japanese food industry to reduce, reuse, and recycle an average of 82 percent of its food waste in 2010.
http://foodtank.org/news/2013/11/food-waste-in-japan-how-eco-towns-and-recycling-loops-are-encouraging-self


WORLD FARMERS' ORGANISATION