YOUNG CHEF AWARD - ENHANCING SUSTAINABILITY

By Fabrizia Toccoli

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One of IGCAT's most consolidated projects, the Young Chef Award has been running successfully for three years now. With 2019 edition approaching, IGCAT is determined to build on the experience acquired so far and strengthen the sustainability principles underpinning the Award.

By encouraging young chefs to cherish and be ambassadors of their food cultures and landscapes, the Young Chef Award contributes to the safeguarding of the world's extraordinary richness of diverse plant and animal varieties. Until now, the criteria for judging the award included: Presentation; Flavours; Technical skills; Creativity and innovation; Use of local foods.

The 27 finalists that have competed until now have, after the competition pledged to become IGCAT Regional Chef Ambassadors and committed to preserve the food and cultural diversity of their regions throughout their professional career, by promoting innovations on traditional cuisine; highlighting sustainable food cultures; and supporting local food products. Their commitment becomes ever more essential in a world that is increasingly experiencing the impacts of forceful globalising food trends. Trends that are endangering the planet's biodiversity and food security at a worrying pace, ultimately undermining the diversity of worldwide production systems.[1]

According to FAO's 2019 report on *The State of the World's Biodiversity for Food and Agriculture*, "in many parts of the world, biodiverse agricultural landscapes in which cultivated land is interspersed with uncultivated areas such as woodlands, pastures and wetlands have been, or are being, replaced by large areas of monoculture, farmed using large quantities of external inputs such as pesticides, mineral fertilizers and fossil fuels."[2]

Striking data[3] published by FAO substantiate this escalating shift towards monoculture: out of the approximately 382,000 existing species of vascular plants, in 2014 only 9 accounted for over 66% of global crop production by weight.

[1] FAO, "The State of the World's Biodiversity for Food and Agriculture", J. Bélanger and D. Pilling (eds.), FAO Commission on Genetic Resources for Food and Agriculture Assessments, Rome, 2019.
[2] *Ibid.*, p.3.
[3] *Ibid.*, p.114.

As the award has developed, IGCAT has noted additional global challenges that require prompt action, namely food waste and single-use plastics pollution. Therefore, in future editions, the young chefs' kitchen-waste management practices will also be assessed with the aim to challenge our future chefs to develop the tools to reduce negative impacts on the environment.

Food waste

The term *food waste* "refers to food appropriate for human consumption being discarded, whether or not after it is kept beyond its expiry date or left to spoil."[4] Concerns around the food waste issue aroused from alarming data published by FAO, estimating that "each year, approximately one-third of all food produced for human consumption in the world is lost or wasted.[5]"

The externalities of food wastage negatively affect the global food security, the global economy, and the environment.

FAO reported that in 2007, the total amount of food wastage occupied almost 30% of the world's agricultural land area,[6] and predicted that, if no serious action is taken, by 2050 a 60% increase in food availability[7] (and thus production) will be needed to satisfy the world food demand. At a time when around one in eight people worldwide is suffering from chronic hunger,[8] FAO called for a reduction of food and nutrient waste within agricultural and food systems to ensure better nutrition and a more sustainable and efficient use of world resources.[9]

Based on 2011 FAO data, the Waste and Resources Action Programme (WRAP) reported[10] that globally 415 million tons of food is wasted in agriculture; 600 million tons from the post-harvest to the distribution stage; and 280 million tons at the consumption phase.[11] While in low-income world areas most of the food wastage happens at the initial and medium stages of the food chain, in middle and high-income regions significant volumes of food are wasted at the consumption stage,[12] caused by wasteful practices in the food industry and by consumers, including households and catering services.[13]

But food wastage is also cause to major environmental impacts.[14] In 2007, FAO estimated that the global carbon footprint of food produced and not eaten corresponded to approximately 7% of global GHG emissions,[15]

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[4] FAO identifies *food waste* as part of the bigger *food wastage* category that "refers to any food lost by deterioration or waste" and encompasses both food waste and *food loss*, "a decrease in mass (dry matter) or nutritional value (quality) of food that was originally intended for human consumption […] mainly caused by inefficiencies in the food supply chains […], lack of access to markets" and "natural disasters." FAO, "Food Wastage Footprint: Impacts on Natural Resources: Summary Report", FAO, Rome, Italy, 2013.
[5] FAO, "Food Wastage Footprint: Impacts on Natural Resources: Summary Report", FAO, Rome, 2013.
[6] *Ibid.*
[7] *Ibid.*
[8] 842 million people in 2011-2013 period according to FAO, IFAD and WFP, "The State of Food Insecurity in the World 2013. The multiple dimensions of food security", FAO, Rome, 2013.
[9] FAO, "The State of Food and Agriculture 2013. Food Systems for Better Nutrition", FAO, Rome, 2013 cited in UNEP, "Prevention and Reduction of Food and Drink Waste in Businesses and Households - Guidance for Governments, Local Authorities, Businesses and Other Organisations, Version 1.0.", 2014.
[10] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015.
[11] Corresponding respectively to US$240 billion, US$340 billion, US$170 billion. WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015.
[12] FAO, "Food Wastage Footprint: Impacts on Natural Resources: Summary Report", FAO, Rome, 2013.
[13] FAO, "Toolkit: Reducing the Food Wastage Footprint", FAO, Rome, 2013.
[14] *Ibid.*
[15] FAO, "Food Wastage Footprint: Impacts on Natural Resources: Summary Report", FAO, Rome, 2013.

and strikingly assessed that "if integrated into a country ranking of top emitters, food wastage would appear third, after USA and China."[16] Though the production stage of the food value chain "has the largest impact on natural resources,[17]" according to FAO "the later a product is lost or wasted along the supply chain," as for example in the consumption phase, "the higher the environmental cost, as impacts arising for instance during processing, transport or cooking, will be added to the initial production impact."[18]

Given the alarming data reported above, it becomes clear that preventing and reducing food waste would generate several benefits in terms of ensuring access to safe and nutritious food[19] by a growing world population; increase efficiency and productivity of current resources devoted to food production, distribution and consumption; and reduce the emissions of greenhouse gases that contribute to climate change.[20]

As WRAP stresses, "food waste arises across all sectors of the food chain, for a multitude of reasons, influenced by the actions of many different actors."[21] As a result, individual and collective commitment of all the stakeholders involved in the food value chain is needed to reach the *sustainable consumption and production patterns* advocated for by SDG 12 of the UN's 2030 Agenda for Sustainable Development. In particular, SDG 12.3 aims to:

"By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses."[22]

And while adequate policies and frameworks for action are being developed by international, national and local institutions, several studies and reports[23] have shown that small businesses in the food service industry can take concrete action by mainstreaming food waste prevention and reduction processes into their daily operations.

Food waste generated within the hospitality and food service sector[24] includes: ingredients; produce; leftover food on or in customers' plates or glasses; unused partially-prepared food; unused fully-prepared food; peelings and preparation wastes; and waste in bins and waste to sewer (e.g. liquids).[25] Based on data collected in 2014, WRAP reported that in the UK almost a million tonnes of food is thrown away at HaFS outlets each

[16] *Ibid.*, p. 17.
[17] FAO, "Toolkit: Reducing the Food Wastage Footprint", FAO, Rome, 2013, p.17.
[18] FAO, "Food Wastage Footprint: Impacts on Natural Resources: Summary Report", FAO, Rome, 2013, p. 10.
[19] UNEP, "Prevention and Reduction of Food and Drink Waste in Businesses and Households - Guidance for Governments, Local Authorities, Businesses and Other Organisations, Version 1.0.", 2014.
[20] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015.
[21] *Ibid.*, p. 12.
[22] Sustainable Development Goals Knowledge Platform website, https://sustainabledevelopment.un.org/sdg12 (accessed 4 March 2019).
[23] SRA, "Too Good to Waste: Restaurant Food Waste Survey Report (2010)", 2010; WRAP, "Overview of Waste in the UK Hospitality and Food Service Sector", 2013; WRAP, "Where food waste arises within the UK hospitality and food service sector: spoilage, preparation and plate waste", 2013; UNEP, "Prevention and Reduction of Food and Drink Waste in Businesses and Households - Guidance for Governments, Local Authorities, Businesses and Other Organisations, Version 1.0.", 2014; WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015; Champions 12.3, "The Business Case for Reducing Food Loss and Waste: Restaurants", 2019; SRA, "The Tastiest Challenge on the Planet", 2019.
[24] "The hospitality and food service (HaFS) sector" includes: staff catering, healthcare, education, services, restaurants, quick service restaurants (QSRs), pubs, hotels and leisure." WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015, p.22.
[25] UNEP, "Prevention and Reduction of Food and Drink Waste in Businesses and Households - Guidance for Governments, Local Authorities, Businesses and Other Organisations, Version 1.0.", 2014.

year, 75% of which is avoidable. Notably, "in restaurants, pubs, services and leisure the proportion of food waste is over 20% of the weight of food purchased, equivalent to around one in five meals being wasted."[26]

In a research[27] aimed at identifying the phases at which food waste takes place in UK professional kitchens, WRAP highlighted that, on average:

- 21% of food waste arises from spoilage (gone off or contaminated food)[28];
- 45% of food waste arises from food preparation (all food waste generated as part of the menu preparation and cooking process)[29] – raising up to over 50% in casual and fine dining restaurants, due to greater levels of preparation on site;
- 34% of food waste is generated from customer plates (including untouched meals).[30]

In general, the amount of food waste "is influenced by a number of factors, such as: the amount of on-site food preparation, over-production of meals, menu choice and the extent to which consumers leave food uneaten."[31] According to WRAP,[32] the reasons why food waste occurs in professional kitchens are plenty and include: lack of awareness of the amounts of food waste generated, and its value; lack of adequate planning/ordering/forecasting; lack of skills or equipment to deal with an excess of food; poor storage; inefficient preparation/processing that results in low utilisation of 'raw' foods; lack of skills or know-how to use up leftovers.

Since "many of the most effective interventions depend on behaviour change rather than high investment technological or infrastructural changes,"[33] a critical first step is to raise awareness among kitchen professionals of the urgent need to tackle food waste and the financial and environmental benefits of doing so.[34]

Based on WRAP's *Food Waste Reduction Roadmap*, the Sustainable Restaurant Association[35] and Champions 12.3[36] recommend that restaurants follow a Target-Measure-Act approach. Pending much-needed binding measures from the public sector, businesses are encouraged to set voluntary food waste reduction targets, possibly in line with the aims of SDG 12.3. Restaurants should then monitor their operations, trying to understand what waste they generate, why and where this material goes,[37] since acquiring deeper knowledge of one's own food waste practices is a vital step for a more efficient and sustainable food waste management. Finally, concrete action towards reducing food waste is required, both individually and collectively.[38]

[26] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015, p.22.
[27] WRAP, "Where food waste arises within the UK hospitality and food service sector: spoilage, preparation and plate waste", 2013.
[28] SRA, "Too Good to Waste: Restaurant Food Waste Survey Report (2010)", 2010.
[29] *Ibid.*
[30] *Ibid.*
[31] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015, p.22.
[32] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015.
[33] *Ibid.*, p.42.
[34] *Ibid.*
[35] SRA, "The Tastiest Challenge on the Planet", 2019.
[36] Champions 12.3, "The Business Case for Reducing Food Loss and Waste: Restaurants", 2019.
[37] UNEP, "Prevention and Reduction of Food and Drink Waste in Businesses and Households - Guidance for Governments, Local Authorities, Businesses and Other Organisations, Version 1.0.", 2014.
[38] Champions 12.3, "The Business Case for Reducing Food Loss and Waste: Restaurants", 2019.

Among the main actions that restaurants can pursue to achieve successful food waste reduction, Champion 12.3[39] highlights *engaging staff* through education and training; *reduce overproduction* by careful menu planning and portioning; *rethink inventory and purchasing practices*, for example by buying "products which don't necessarily fit the supermarkets" aesthetical "standards but are still entirely and safely edible;"[40] and *repurpose excess food*, by employing *nose-to-tail* cooking methods[41] and creatively incorporating previously unused food (e.g. peels, seeds, skins, bones) into new dishes; preparing staff meals; promoting the use of doggy bags; and offering edible, unsalable food to charity organizations.

Most of the proposed food waste-reduction measures are relatively inexpensive but can contribute to significant financial savings for food businesses, lowering costs related to the purchase of food and to the management of waste.[42]

Food waste-reduction strategies are much more effective in cutting down GHG emissions than any form of food waste treatment.[43] However, when it comes to unavoidable food waste, WRAP[44] suggests to adopt more efficient and sustainable waste management practices, carefully separating food from other kinds of waste and sending it for composting or anaerobic digestion,[45] rather than to landfill.[46]

Despite all the impacts that originate in food waste and the numerous benefits that can be brought about by reducing it, "the response remains less than optimal"[47] especially for what concerns the high street/casual dining sector.

"Ensuring chefs confront food waste head-on, on a daily basis"[48] in all the phases involved in the delivery of a successful dish (including product purchase, preparation and waste management) is a fundamental step that can contribute towards global reduction of food waste. As Chef Nick Balfe notes, chefs "are uniquely placed to shape and influence food trends"[49] and can play a vital role in guiding producers and suppliers, as well as customers towards more sustainable production and consumption practices.

Single-use plastics pollution

In order to enhance sustainability of professional kitchens, chefs are also increasingly called to take on responsibility towards the reduction of plastic waste, with special focus on single-use plastics.

Plastics have been playing a crucial role in the daily operations of professional kitchens, contributing to ensure enhanced food safety, extended food shelf-life and reduction of food waste.[50] However, awareness is raising,

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[39] *Ibid.*
[40] FAO, "Toolkit: Reducing the Food Wastage Footprint", FAO, Rome, 2013, p.57.
[41] SRA, "Too Good to Waste: Restaurant Food Waste Survey Report (2010)", 2010.
[42] Champions 12.3, "The Business Case for Reducing Food Loss and Waste: Restaurants", 2019.
[43] WRAP, "Strategies to achieve economic and environmental gains by reducing food waste", Banbury, 2015.
[44] WRAP, "Overview of Waste in the UK Hospitality and Food Service Sector", 2013.
[45] SRA, "Too Good to Waste: Restaurant Food Waste Survey Report (2010)", 2010
[46] According to FAO's inverted *food waste pyramid*, "which represents the most to the least environmentally friendly categories" – reduce, reuse, recycle, landfill – "landfilling should be considered only as a last resort, as it has multiple environmental, social and economic negative impacts. However, it remains the primary waste disposal strategy internationally." FAO, "Toolkit: Reducing the Food Wastage Footprint", FAO, Rome, 2013, pp. 12 and 87.
[47] SRA, "The Tastiest Challenge on the Planet", 2019.
[48] *Ibid.*, p. 22.
[49] *Ibid.*, p. 30.
[50] SRA, "Unwrapping Plastics. Understanding Disposables in Hospitality. Abridged version", 2018.

both within the industry and among consumers, on the environmental, social, and economic impacts of the current pervasive use of plastics and the related unsustainable disposal practices.

According to a 2018 report[51] from IEEP, about 300 million tonnes of plastics are produced globally every year. An amount that is expected to double over the next 20 years. The report further states that approximately 42% of the plastics produced globally since 1950 have been used for packaging – which currently accounts for about half of the plastic waste in the world[52] – while a global shift has occurred from the production of durable plastics to single-use plastics.[53]

According to the waste management hierarchy proposed by UNEP,[54] once plastic products reach the end of their life-cycle, they can be recycled, incinerated, landfilled, dumped in uncontrolled sites, or littered in the environment, the last being the least desirable options. With respect to other materials, single-use plastics has the highest disposal rates and the lowest recyclability.[55] According to UNEP,[56] 79% of the plastic waste ever produced now sits in landfills, dumps or in the environment, while about 12% has been incinerated and only 9% has been recycled. If no change occurs in our current consumption and waste management practices, it is estimated that by 2050 there will be around 12 billion tonnes of plastic litter in landfills and the environment.[57]

Major challenges to our health, ecosystems and economy originate from poor management of plastic waste, and the harm caused by plastic pollution vastly outweighs the benefits of plastic to society.[58] Loss of biodiversity, ocean pollution, and land pollution[59] are the most significant threats to the planet's wildlife and environment, while microplastics ingested by fish or other marine life are increasingly entering the human food chain.[60] Finally, plastic pollution is significantly affecting the tourism, fishing and agriculture industries all around the world, causing negative impacts on the global economy.[61]

In order to counteract the negative externalities of plastic pollution, solutions are being developed both at industry and institutional level, with more than 60 countries introducing bans and levies to curb single-use plastic waste[62] and several businesses researching more sustainable alternative materials. However, a general strengthening of circular thinking and waste management systems is strongly needed to reduce plastics pollution in the near future.[63]

[51] J.-P. Schweitzer et al., "Unwrapped: How Throwaway Plastic Is Failing to Solve Europe's Food Waste Problem (and What We Need to Do Instead)", IEEP, Brussels, 2018.
[52] UNEP, "Single-use Plastics: A Roadmap for Sustainability", 2018.
[53] *Ibid.*
[54] *Ibid.*
[55] Zero Waste Europe, "Seizing the Opportunity: Using Plastic Only Where It Makes Sense", 2017.
[56] UNEP, "Single-use Plastics: A Roadmap for Sustainability", 2018.
[57] *Ibid.*
[58] Zero Waste Europe, "Seizing the Opportunity: Using Plastic Only Where It Makes Sense", 2017.
[59] UNEP, "Single-use Plastics: A Roadmap for Sustainability", 2018.
[60] *Ibid.*
[61] *Ibid.*
[62] *Ibid.*
[63] *Ibid.*

As in the case of food waste, more sustainable practices can be implemented by individual businesses in the food service industry to reduce their *plastics footprint*, ranging from improved waste monitoring and management to the actual reduction in the amount of plastics that makes its way to the kitchen.

Single-use plastics generally used in the food service industry include items such as grocery bags, food packaging, bottles, straws, containers, cups, cutlery,[64] cling film and vacuum packaging,[65] and for a long time now, the industry has relied on the undeniable functionality of these products. However, potential opportunities are provided today by recyclable packaging options,[66] while several sustainable alternatives are currently been developed, such as compostable packaging made from plant-based materials or from the milk protein casein,[67] and beeswax wrapping.[68]

But, while further research is needed to assess the viability, efficiency and actual sustainability of eco-friendlier options, the implementation of adequate waste management practices within individual businesses represents a prompter strategy to deal with current unavoidable plastic waste. Staff education and training on proper segregation and disposal of waste becomes thus paramount.[69]

Nonetheless, when possible, priority should be given to actions that foster the prevention of plastic waste,[70] such as purchasing in bulk (as long as no food waste is generated), avoiding to buy over-packaged products, returning packaging to suppliers for reuse, and upcycling packaging material, transforming waste into new products.[71] Furthermore, chefs and food service businesses have the power to influence their suppliers' packaging choices and can advocate for zero or reusable packaging as viable and sustainable solutions for many products.[72]

A significant reduction of plastic waste can be provided by advocating for short food supply chains.[73] By purchasing locally – for example, in traditional farmer markets – food businesses contribute to shorten the physical distance between the production and consumption of food, and to reduce the number of intermediaries involved in the value chain.[74] As a result, the amount decreases of packaging and cold storage usually needed to facilitate intermediate processing, and the risk of food spoilage (and consequent food waste) is reduced.[75] Furthermore, diminished distribution distances increase the feasibility of reusable packaging schemes, according to which food containers are sent back to the supplier for reuse.[76]

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[64] *Ibid.*
[65] SRA, "The Tastiest Challenge on the Planet", 2019.
[66] J.-P. Schweitzer et al., "Unwrapped: How Throwaway Plastic Is Failing to Solve Europe's Food Waste Problem (and What We Need to Do Instead)", IEEP, Brussels, 2018.
[67] F. Trower, "The plastic debate: How will it affect food waste in your kitchen?", https://blog.winnowsolutions.com/the-plastics-debate-how-will-it-affect-food-waste-in-your-kitchen, 20 July 2018.
[68] SRA, "The Tastiest Challenge on the Planet", 2019.
[69] D. Lung-Darlacher, K. Fritz and H. Antonschmidt (eds.), "Sustainable Food Manual", Futouris e.V., n.d.
[70] UNEP, "Single-use Plastics: A Roadmap for Sustainability", 2018.
[71] D. Lung-Darlacher, K. Fritz and H. Antonschmidt (eds.), "Sustainable Food Manual", Futouris e.V., n.d.
[72] J.-P. Schweitzer et al., "Unwrapped: How Throwaway Plastic Is Failing to Solve Europe's Food Waste Problem (and What We Need to Do Instead)", IEEP, Brussels, 2018.
[73] *Ibid.*
[74] D. Mottershead and J.-P. Schweitzer, "Short Food Supply Chains. Briefing for the Report: Unwrapped: How Throwaway Plastic Is Failing to Solve Europe's Food Waste Problem (and What We Need to Do Instead)", IEEP, Brussels, 2018.
[75] *Ibid.*
[76] J.-P. Schweitzer et al., "Unwrapped: How Throwaway Plastic Is Failing to Solve Europe's Food Waste Problem (and What We Need to Do Instead)", IEEP, Brussels, 2018.

Short food supply chains represent thus a viable and sustainable strategy to reduce both food and plastic waste, as well as to increase the use of local fresh and seasonal products that ultimately contribute to the preservation of local food diversity.

Cross-sectoral collaboration is strongly needed to tackle effectively the compelling challenges posed by food waste and plastic pollution. Hence, all stakeholders in the food value chain should be engaged in a shared journey towards more sustainable practices, including governments, producers, the packaging industry, the food service sector, consumers and the waste and recycling infrastructure (to name a few!). However, food service businesses and their staffs play a crucial role in paving the way towards sustainable consumption and production patterns, and can actively contribute to the accomplishment of the SDGs.

In the context depicted above, it is paramount for chefs to understand that their responsibility goes beyond just offering tasteful and aesthetically pleasing dishes based on the best possible ingredients. The Young Chef Award is thus hoped to raise the awareness of young professionals from all over the world on some of the most pressing food global challenges and support their vital role as ambassadors for social, cultural and environmental change.

The IGCAT Young Chef Award competition remains committed to storytelling and building connections to the regions' culture and creativity, and these new elements in the assessment process are aimed to support the Regions of Gastronomy reach their goals of being leading sustainable and creative food regions.

This paper was written in 2019.

IGCAT´s mission is to empower and facility local communities to realise the potential of their distinct food, culture, arts and sustainable tourism and local resources.

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