



Wasting Food

José Carlos Romero and Jaime Tatay
(coord.)



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On the cover: *Solidarity mural against food waste.*

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INTRODUCTION: THE MANY FACES OF FOOD WASTE

When we have eaten our fill and there is food left over, we might keep it till the next day, but we might just decide to throw it out. In several countries a lot of food gets thrown out and, once it is thrown in the bin, it undergoes a transformation. A short while before landing in the slop, it might have been appetizing and tasty, but now we look at it with distaste. Not only is it unsightly; it is disgusting—something to be avoided. Rotten meat, in particular, is revolting. Food waste evokes physical revulsion and, when this happens, the mind stops working.

This Was not Always the Case

That does not prevent amazing quantities of this stuff from accumulating all around us and, as we will explain later, we can no longer ignore this sinister development. In bygone times people took great care not to waste food, but we in our time in the so-called developed countries have lost the habit of thinking about food waste. To say that we have lost the habit means that we once had it. And we certainly did!

Mrs. Beeton's *Book of Household Management*, first published in

1862, was a fixture in the kitchens of the English-speaking world for over a century. In the 1925 edition, we are told that nothing in the kitchen should be “thrown away or suffered to be wasted.” There are other documentary sources, especially during two world wars, which confirm the prevalence of this attitude throughout Europe and North America. In neighborhoods where people did not buy books about housekeeping it is hard to imagine things being much different. When every piece of food on the table was paid for with hard won earnings,

there would have been no need for any Mrs. Beeton to warn against waste. Even from a comfortable Dublin childhood in the 1960s, those stern words: “Waste not! Want not!” have found their way onto these pages. So, what happened since?

A Short History of Food Waste

At the height of their imperial power both Britain and France depended on their colonies for much of their food, but this changed after the Second World War. There was a drive, on both sides of the Atlantic, to become self-sufficient and new “scientific” methods of farming made it possible to bring a new scale and productivity to farming. On both sides of the newly emerged Cold War this was the age when research, technology, and its application enjoyed an unrivalled standing among governments and the results were impressive. Food became plentiful and cheap. These were decades of abundance and, if butter mountains and wine lakes were seen as a problem, any concern about waste was primarily to do with taxpayers’ money rather than decaying biomass. “Waste not want not!” had been replaced by “the more, the better!”.

Food Waste and Food Loss

As a starter, it is essential to differentiate between food waste (FW) and food loss (FL): loss is not intended, it happens due to a lack of efficiency along the production and distribution lines and those affected experience this loss

as an economic burden; this loss can be reduced by offering smart solutions, new technology or better organizational structures. Waste, on the contrary, is caused by those who “don’t care” because they have more than they need. In those cases, it might help either to put a price tag on this behavior, or to provide new ways of discarding these surplus materials (by extending the distribution line) or to encourage a more ethical behavior by voluntarily reducing, recycling, or reusing “worthless materials”. Waste doesn’t “just happen”, it is the result sometimes of careless oversight, but more often of casual disregard.

The Recent Academic and Political Interest on FW

In the closing years of the twentieth century nobody was talking about waste, but slimy accumulations of slop, like smelly icebergs, were taking up more and more space. They were becoming impossible to ignore and finally in 1999 the EU Landfill Directive set a target of reducing “biodegradable waste,” which includes food, by 35% within a period of 21 years, i.e. by 2020, which has now passed. Nobody at that time had actually measured how much of this stuff was being produced which meant that no one would have been able to tell what a 35% reduction would look like. Measuring slop is difficult. Try measuring your own!

Attempts have been made to figure out the amounts involved, and widely differing conclusions have been reached. The European Commission reckons that 80 million tons of food

is wasted every year in the EU —or 179kg per person— which means every man, woman, and child wastes 3.5kg of food every week. To give a sense of the volume involved, with your average melon weighing in at 2kg, each one of us wastes on average one-and three-quarter melons every seven days—one quarter each day. This is not very much until you multiply it by longer and longer periods of time with the accompanying need for more and more space and we haven't even begun to talk about other people—families, neighborhoods, towns, cities, regions, countries and an entire continent of waste collection trucks carrying off 770,000 melons every seven days. That is only for this week, but they will be doing it again next week and the week after and so on.¹

The UN Food and Agriculture Organization (FAO) notes that one third of all food is wasted from the time it is slaughtered or harvested. It estimates that food waste per person per year in Europe and North America is between 95kg and 115kg. This estimate is a lot lower than that of the European Commission —only one melon a week— but the FAO study also estimates that the average annual food waste in sub-Saharan Africa and South-East Asia is between 6kg and 11 kg per year. That's less than half a melon a month!

Food waste results in part from industrial processes whereby food finally arrives in our shopping bags. The other part of food waste results from what

we cut away before, and throw away after, we eat. More than anything else, food waste results from the “choosy” attitudes of so many of us in the western world, to what we like to eat and what we don't. We pay no attention to the effects of our dislikes on the world in which we live. Just because we don't like something doesn't mean it is not food and, when we throw it away, it is wasted food.

For most of human history we have lived in an “empty world” where the population was small and the bounty of nature on this earth seemed endless. Something has changed in the past fifty years. We now find ourselves in a “full world” where the limits are making themselves felt in almost everything we do.² We are behaving as if we are still living in that empty world with distant horizons and far away places. The world has changed and the very idea of “far away” no longer applies.

The journey of food to our table and into the slop bucket (if we don't eat it), no longer happens in isolation. We need to understand how our relationship with food and food waste affects the lives of others on our “full” planet. Many who live —not so far away— on that same planet go hungry, while so many of us have lots of food and nowhere to put it! Of course, not everyone is hungry, but everyone is being poisoned by that slop being thrown into the dump —kilogram after kilogram, melon after melon, truck after truck.

WHAT SCIENCE TELLS US ABOUT FOOD WASTE

If you want to know what a “food system” is, look at your plate and every item on it. Single out each item and start by imagining where it once grew, either rooted in the soil of feeding off it (or in water if it’s a fish). Imagine this item of food being caught or butchered or harvested. All that takes a lot of work. Then imagine the work it takes to get it from that point to your plate —the transport, the processing and packaging, the delivery to the shop and finally you the consumer (or someone on your behalf) buying it and bringing it home. Many decisions are made along this journey, and they are all made with an eye to the tastes of the consumer, either responding to them like honest merchants or manipulating them like con artists.

How the Food System and the Agri-Food Chain Work — SDG 12

Taken together, these decisions about each separate item of food on your plate, are called “food systems”. Human life depends on them. You might think that famine is the result of a crop failure or a lack of food, but there is often plenty of food around in times of famine. When food systems do not respond to changing needs, the outcome is always tragic. Agri-food chains are the linked events in the production and

distribution of food. The growing attention paid to this process comes with the slogan “from field to fork”.

Imagine you lift one item of food up from your plate and you speak to it. You ask it about its food chain. The answer will vary, depending on whether the item has been processed or was purchased ready to be eaten or whether it has been supplied by a local farmer or was sent for packaging and transport, etc. The simplest way to explain the food supply chain is to divide it into four stages:

- *Production and storage:* Farmers grow, harvest, and develop food. Each producer must fulfill the local and international quality standards. This may include shape, color, and/or size. Once the product has been harvested it is washed and prepared. Some products are harvested even if they are not ripe because they mature in strictly controlled environments during the rest of their journey to your table.
- *Processing:* All processed food passes through a processing plant—including cakes, soups, meat products: dairy, soft drinks, bread, salad, cereals, butter, cheese, snacks: chocolate bars and chips. Food is packaged so that it looks well in the shop. Not all processing of foods is bad; some foods need to be processed to be edible and safe, for example, milk or oil
- *Distribution and sales:* The food travels, usually by boat. The distance that food is transported, from the producer to the consumer, is called a food mile. This unit is used for the environmental footprint of food production, called the “food footprint.”
- *Consumption:* This is the last stage of the food supply chain, in which there is further processing—and a lot more waste.

Since the second half of the 19th century, the food system has been strongly affected by the phenomenon of globalization. In more recent times large wholesalers and supermarket chains have increased competition. The relationship between farmers and consumers is increasingly complex

because the system involves several intermediaries and small farmers have been left behind.

Food losses and waste occur along the entire agricultural value chain and at all stages from the farm to the table. In developing countries, the greatest loss occurs in the primary production and storage part, while in developed countries the greatest loss occurs in the final consumption points. It should be borne in mind that much of the food consumed in developed countries has been produced in developing countries. That means there can be a lot of waste at both ends!

The loss in developing countries is mainly because technologies for harvesting and post-harvesting are often insufficient or obsolete; facilities are not suitable for the storage, transport, processing, and cooling of food. Matters are not helped by the fact that prices paid to farmers in these countries are so low that they have no funds to invest in technology.

Meanwhile, in developed countries, food awaits us on the supermarket shelf, and it always looks well. Those who sell it to us will say that it has been selected with the tastes of the consumer in mind. They do not point out that those tastes can be manipulated or that we consumers have responsibilities. An effective response to food waste will require changes in the way we value and consume food.

Many cultural and social factors are at work, which do not always follow the economic or ecological rationality. We consumers need to learn how to deal with these structural realities just as earlier generations had to learn how to deal with machines and factories.

We need to improve our skills in planning, buying, and consuming food, as well as changing our views on what we consider “good” food. (At present perfectly edible food is discarded because its size, color or shape is considered displeasing to the consumer). It’s worth remembering that 78% of food waste takes place before we set eyes on it in the supermarket. So, if we look at the waste which we produce in our homes almost four times that amount has already happened elsewhere!

FW and Energy/CO₂/Climate Action — SDG 7/13

The carbon footprint of all that food waste is big. If you want to know more, you need to have some idea of what Global Warming Potential (GWP) means. GWP is the effect of greenhouse gases on the atmosphere. The air in a greenhouse on a sunny day will be a lot warmer than the air outside. When scientists talk of greenhouse gases, they are talking of gasses which act like a greenhouse on a sunny day, making everything hotter. Some greenhouse gases have stronger effects than others. For instance, methane heats up the planet at 25 times (100-year GWP AR4) the rate of carbon dioxide. That sounds bad, but if you are going to do something about it you will have to be able to say exactly how bad! You need a unit of measurement and when scientists talk of “Carbon Dioxide Equivalent” (CO₂eq) they are referring to the greenhouse gas effect produced by one tone of carbon dioxide. Using this measurement, one tone of methane is 4CO₂eq. Got it? You will also see

the term GtCO₂eq which means one billion CO₂eq. Yes, one billion. Yes, mind boggling, but we have one environment which envelopes the entire planet and there is a lot of it.

Two figures are worth holding in your mind. First, 51 billion tons of greenhouse gasses (51GtCO₂eq) are emitted every year by human activity; we make a big impact! Secondly, according to the FAO (UN Food and Agriculture Organization), in studies dating from 2011, food waste accounts for 4.4 billion tones (4.4GtCO₂eq). 2011 may be ten years ago but it can take a lot of work to produce a statistic.

This means that less than 10% of carbon emissions is due to food waste produced, you might be tempted to say that the problem is not all that bad. On the other hand, if food waste were a country, it would be the third largest CO₂ emitter on the planet —after China and the US—. You could say that food is our fuel. Our intake can be measured, and we cannot ignore the raw data of food consumption by humans. We need to look at the data, but we also need to remember that we are not machines and food is more than fuel. It has a deeper meaning which is not to be forgotten but that does not absolve us from the need to care for the planet which produces all the food we eat.

Then there are different kinds of food waste giving out different greenhouse kinds of gases. The different percentage contributions produced by different foods in terms of both the total losses and their carbon footprint. Meat, for instance, accounts for only 4% of food waste by volume/weight but 21% of the carbon footprint.

It is also worth analyzing where the different emissions occur—e.g., in agricultural production, storage, processing, distribution or consumption—. The percentages of weight loss in relation to the total do not correlate directly with percentages of carbon footprint. There are stages, such as consumption, that are much more intensive with some food items than others.

This basic data shows the crucial relevance of food waste in the challenge of global warming. Unfortunately, if no action is taken, studies anticipate that in 2050, the carbon footprint of food waste could even double.

Food Waste and Water — SDG 6

Food and water are two precious resources. Everyday life depends on clean and safe water and without water we have no food. Number six of the seventeen Sustainable Development Goals (SDG 6), adopted by the UN General Assembly in 2015 tells of how clean water protects people from disease and how three in 10 people lack access to it. Millions die every year from diseases resulting from water scarcity, poor water quality, and inadequate sanitation. Not only do such conditions deny people their basic human dignity; they imperil their survival and that of their children. These conditions reduce people's lives to the level of chaotic survival and this in turn undermines the basic social order on which food security depends. SDG12 on Responsible Consumption speaks of the need to reduce waste and promote recycling. Our attitude to food and water is not just about caring for the planet;

it's about respect for our neighbors on that planet.

According to the FAO, the water footprint of food wastage is about 250 km³ of water per year. If food wastage was a country and lined up beside 10 countries with the highest water footprint, “food wastage” would have the highest water footprint of them all.

The water we use at home for drinking, cooking, and washing is described as domestic water consumption. The water which comes out of the tap is only a small part of the story. In addition to what we see coming out of the tap, there is the water used to produce the industrial products we consume—and that is not all. There is also the water used in the production of the food we eat. Nearly 90% of the water we use is “unseen”. The people who study these things speak of “invisible” or “virtual” water.

Water is precious—and not just for drinking! Water is food. Scientists have been figuring out just how much water is needed to produce the food we consume. It is easy to see that some products such as fruit and vegetables are more water-friendly than others. Water always has a story to tell. Every drop has been in so many places and in so many different times and each drop which passes through our hands needs to be cared for and made ready for the next chapter of the story. We really have nothing better to do!

Counting the Real Cost of FW (Negative, Unaccounted Externalities)?

We have talked about the food supply chain before. Every link in this

chain produces its bit of slop—from agricultural production to household consumption and the final dumping of what is left uneaten. This accumulation of slop can be found in every part of the world. It poisons the air and the water supply and impoverishes those who live nearby and are prevented from living anywhere else.

In the European Union, food waste accounts for 88 million tons annually with an estimated economic cost of 143 billion euros. A scenario has been worked out for the year 2050 and maybe those who put it together are just trying to scare us all or maybe they are trying hard to tell us how things really are. There are a lot of people involved in making these measurements and, according to the scenario which they have come up with for the year 2050, there will be an increase in the demand for food by 70% and the agri-food system will be using 70% of all water. It will be the largest source of greenhouse gases.

This is one possible future, and it explains food waste has been identified as one of the biggest challenges of the twenty-first century. The global average annual increase in total food production in the five past decades was 122 billion tons (FAOSTAT), A 20% reduction of the 1.3 billion tons of food waste would mean 260 million tons saved annually. It is hard to imagine what these figures look like in practice. It might look like a particular mountain range, but even that is mind boggling. What we can say is that these numbers are big and scary! We can ignore them if we want to or each of us can decide to do our tiny bit. Every bit of food is made up of unbeliev-

able numbers of cells, but every bit of food exists because each of those cells does the job it was intended to do. Next time you put something in your mouth, remember all those tiny contributions and, despite all that is being said here, you really are meant to enjoy it!

The object is to reduce food waste, not to pile on misery. What if, instead of talking about waste reduction, we decided to “enhance the efficiency of food usage?” Instead of trying to “avoid” doing this or that we would look for ways to improve the resilience of local and global food systems. None of us can do this on our own, so we would have to build networks of mutual help. We will need one another as we face this challenge, but that will never be enough. There is always more measuring to be done!

In Europe alone roots, and tubers, especially at the consumer level, account for a lot of food waste. In the name of “quality standards”, set by retailers and paid for by consumers, a big volume of fruits and vegetables are dumped during the post-harvest sorting. Cereals, on the other hand, are wasted mostly at consumption. For meat and fish, the volume of waste is lower, but the environmental impact is higher. An added factor with meat is the enormous land use required in feeding cattle and other animals. All this is shaped by our eating habits.

Nobody has yet figured out how the food supply chains work in practice. There are lots of them and they operate in an isolated and fragmented way. We will have to learn how they work. It’s complicated but so are airplanes and cars and computers. We will have to learn how to measure this strange

creature called the food supply system. It won't be impossible. After all, human beings oversee every single link and if they do not help out the slop will pile up.

Let's face it, food waste results from human behavior. We can do terrible things—and we have!—but we can also rise to a generous challenge. Take parenthood for example. Parents take it for granted that the kids must be got up in the morning, washed, clothed, fed, got out to school, brought home again, brought to the doctor or even the hospital on occasion, home again, fed again, entertained, and put to bed. There is so much detail involved but it all gets attended to. Parents might moan about parenthood from time to time yet that does not stop them from getting on with the job.

We who live in the West waste more food than any society in history and a few, but not too many, feel at least slightly guilty about it all. The day hopefully will come when the circular economy finally arrives and what we once put in the bin we channel in the direction of re-use. There will be a lot of attention to detail involved and we might moan about all from time to time, but we will keep at the good work. We will attend to the detail because we will have developed a parental attitude to our common home.

Mother earth, by contrast, is older than any of us and down through the ages she has never stopped giving. Every morsel of food that has ever gone into your mouth has come from her. In many different times in the past and in many different places our ancestors did take care of her, but in our generation, we are placing her under a strain which she has never had to carry before.

We can no longer take care of her in the little ways of the past. There are many of us. We live in a way which is interconnected, like one big organism stretching right across the planet. We need to change the life of that organism so that all of mother earth is cared for in the way that each of their ancestors cared for their tiny little piece of earth. We will all have to develop that parental attitude, which pays attention to the unrelenting detail and moans about it from time to time and then gets on with the job. The problem is that no one has yet figured out where that parental attitude comes from.

The Socio-Economic Consequences of Wasting Food: Social and Environmental Effects

It's all about attitude and research has indeed been done into people's attitude to food waste. One of the most significant discoveries is that many experience guilt about food waste. You might think that this influences their behavior but, while guilt makes people unhappy, it does not make them do what needs to be done. It is clear from the research that, with most people, this guilt has little to do with the environment. Perhaps it is bound up with the likes of Mrs. Beaton and so many others for whom food was not something to be treated lightly. For most of human history, until the rise of western consumerist culture, famine was a recurring reality and, quite possibly, this guilt is a hangover from those less fortunate times. For some those times are closer than others and one American survey noted that people belonging

to “other races” —i.e. not white, black or Hispanic— were much less inclined to waste foods. The people concerned were from countries such as Japan, Korea, and Singapore where there was limited room for waste disposal and from developing countries where famine is not always a distant memory.

Certain quite specific proposals have been made such as the removal of “best before” labels and leaving it up to consumers themselves to decide when something is off. Another is to educate people to the fact that wonky carrots and other irrelevant cosmetics standards have no effect on the meal which ends up on the table.

One Nordic study has a clear focus on the ethics of food waste. While based in the Nordic countries, its focus is on the wider ethical issues applicable in every part of the world. It speaks of “the taboo of wasting what is quite literally the foundation of human existence” and points out that even in the wealthiest of societies there are memories of times when the question was not what to eat but whether there was anything to eat at all. Throwing away food is disturbing in a way which cannot be compared with throwing away an old T-shirt.

The report quotes the poet Gary Snyder “Eating is a sacrament.” It is common enough for theologians to refer to the social sciences as a means

of developing their reflections, but social scientists or secular ethicists are not so inclined to look to theology in this manner. “Sacrament”, the authors point out, relates to what is sacred or holy. Our planet transcends “usefulness” and “cannot be reduced to a resource without leaving out fundamental aspects of it.”

Food waste can be seen therefore as “sacrilege” which means “stealing or gathering that which is holy.” The authors argue for an “existential” perspective on food waste which recognizes that in most, “if not all” societies, food has layers of meaning which go beyond nutrition. It concludes by arguing that the current reality of food waste is the by-product of a particular version of “the good human life” and that there can be no change unless people are embedded in “a more-than-human world.”

We can say that each human life is connected with the rest of humanity as never before. We can say that each item of food we eat is an outcome of that connectedness, that its journey from the earth to the moment it enters our mouth as food is one tiny part of the story of humanity as each cell is a tiny part of a human body. Is this what a more-than-human world is all about? Perhaps what underlies that parental attitude is that connectedness.

THE REASONS WHY WE WASTE FOOD: PHILOSOPHICAL AND ETHICAL IMPLICATIONS OF FW

In our days of growing population and dwindling natural resources, food waste implies a waste of land, water, and fertilizer. And as transport is cheap and information flows fast, food waste is not a local nuisance anymore, but a global scandal.

Waste Food is a symbol of injustice and inequality

One aspect of the modern food waste dilemma has been identified as well-known ethical problem for centuries: how do we deal with abundance while others are suffering from hunger. The biblical story of the rich man and Lazarus in Luke 16:19-31 captures the sense of scandal involved. The rich man is given no name. He dresses well and eats well. Lazarus sits at the rich man's gate longing for food from the rich man's table and the dogs come and lick his sores. When they die,

Lazarus is in heaven and the rich man is in torment. The common advice in response to this story was quite simple: be grateful for your riches, enjoy them, but don't forget to share the surplus with those who are in need.

To some extent, this can be described as "ancient trickle-down-economics." It is good if you have all you need and a blessing when you have much more. Others less fortunate than you could be the object of your generosity, but no attention was given to the wider social conditions which resulted in others being less fortunate than you.

Thus, traditional food ethics was about avoiding hunger rather than about avoiding waste. The critical issue in the story of Lazarus is that he was starving. This mirrored traditional economics concern with optimizing scarce resources rather than with avoiding abundance. For 99% of human history, only very few people could afford to waste food and as transport was slow and food was perishable, food waste was not a philosophical question but just a local and momentary nuisance.

This should not come as a surprise, as there was not such a thing as “waste” in nature and in traditional societies, as the organic matter which was released/discarded by all organisms would quickly serve as an important resource to sustain the life of other organisms. Only since the beginning of industrialization, has humanity left (or broken) this traditional “circle of life” which is in fact a “circle of organic matter.” We amass bigger fortunes than ever before while releasing even bigger amounts of inorganic (or even toxic) waste into the air which we then breathe. The year 2020 marked the first time in human history when the volume of man-made structures (mainly streets, buildings and machines) was bigger than the volume of all living things on this planet³. Since our ancestors first began to make their presence felt — a period known as “the Anthropocene”— combined weight (biomass) of wild mammals has decreased by more than 80%. Today Most of the mammals on planet Earth are either humans or farm animals, and most of the other creatures are a small and dwindling minority.⁴

From Food Ethics to Foodwaste Ethics

Only after the year 2000 were the first buds of a “philosophy of waste” or “trash ethics” identified. Since then, they have slowly grown into a small, but fertile branch of modern practical philosophy — but even there, the main focus was on “modern” inorganic (mostly plastic) waste. “Traditional” food waste was not really on the menu. In *An Ontology of Trash*,⁵ Greg Kennedy describes trash as a real ontological problem resulting from our unsettled relation to nature, in which objects are either “valuable” or “disposable” and therefore “drained of meaningful physical presence.” This leaves them “as beings that somehow essentially lack being and exist in our technological world only to disappear.”

And the *Oxford Handbook on Food Ethics* argues “that an overemphasis on responsibility for the reduction of individual food waste is misleading at best, and pernicious at worst, in combating the substantial problems that global food waste creates and exacerbates, including increased carbon emissions and hunger. While there would be benefits to widespread changes in individual habits surrounding food waste, they would be modest at best. Rather, civic engagement and political activism aimed at institutional reform that embeds concern with food waste in a broader fight for environmentally friendly policies should be prioritized in addressing these problems.”⁶

The issue of food waste is stuck half-way between food ethics and waste ethics, and is often treated from a

strictly anthropocentric viewpoint. The loss of biodiversity is most often just seen as a violation of the user rights of future human generations. It might

help to start a necessary new discussion with a few theses on food waste, which are rather “food for thought” than precise philosophical statements.

THE THEOLOGICAL MEANINGS OF FOODWASTE

Food waste is a complex problem. It can only be dealt with if people are convinced that they can take measurable and effective steps. Those who do the persuading will only succeed if they are seen to be conscientious in their study of the problem and in their formulation of the proposals derived from their study. They will have to show intellectual rigor as well as being ready to acknowledge the limits of their own competence. They should be ready to acknowledge the competences of others and to work with them in devising workable proposals and to present them in a manner which provides the trust of people of goodwill. This process will only work with the engagement of many different disciplines and the commitment of all stakeholders including world religions and spiritual traditions.

The Role of Religions

Across the world, there is ample evidence that religious beliefs and practices shape social behaviors. The amount of food we eat, how it is prepared, when it is eaten, and how much is wasted depends—to a certain extent—on dietary restrictions, liturgical calendars, and spiritual habits. The Christian Lent, the Muslim Ramadan, the Jewish Easter, and many other religious festivities demonstrate the link

between eating practices and religious practice. One distinguishing mark of western culture, which was traditionally Christian, is a growing indifference to religious practices. This indifference often goes hand in hand with an unapologetic consumerism which reinforces the prevailing heedless attitude to food waste. There is also a growing appreciation of spirituality within contemporary western culture and this development is very much in harmony with the ecological movement. It is

also open to dialogue with all religious traditions and those of us who came together to write this booklet are conscious that this attitude of dialogue is enriching for everyone. We belong to a very distinct Catholic and Jesuit tradition and in the reflections which follow we draw from that tradition, but as part of the search for common ground in which all dialogue is based. We propose looking at food (and its waste) through six different theological lenses which, we hope, will be accessible to everyone.

Food as a Gift from Heaven: Creation Transformed

“All faith communities recognize that food is miraculous.”⁷ Theologically speaking, food is not just a raw—or processed—natural resource. It amounts to something more than the calories we need to function as a living organism. It is the source of life and, as such, a sign of the Creator. In the Hebrew Bible, the manna metaphor—literally “bread from heaven”—expresses well the divine origin of our nourishment.

Believers across religious traditions say grace before a meal and constantly ask for food: “Give us this day our daily bread” (Matt 6:11). Jesus himself warned that we should not be worrying about what we will eat because God feeds the birds of the air and we are more valuable (Matt 6:26). As Francis has pointed out in *Laudato si’*, “Grace, which tends to manifest itself tangibly, found unsurpassable expression when God himself became man and gave himself as food for his creatures” (LS 236).

Saying grace before eating helps us acknowledge our physical, bodily, and spiritual dependence with the created world, the brethren and God. Food is an intrinsic element in the complex “networks of giving and receiving”⁸ in which we are but a node.

In the Eucharist, a symbolic food sharing experience, we receive the raw freely given goods of Creation, which are transformed into food by “the work of human hands.” The provision of food generation is a cooperative endeavor, and the wasting of food is a sign of arrogance in a culture that is unable to value and pray in thanksgiving for the food it has received.

Food as Symbol and Sacrament

Food is a sacramental vehicle that opens up access to the divine. While it is necessary for bodily nourishment, it is also an earthly “gift from heaven” and points us beyond this earth and this life. In many traditions, people go to their ancestors’ graves, sweep and clean the area, and make food offerings. Animals and first fruits were, and still are, ritually offered to God in many cultures. The term sacrifice, from the Latin *facere* (make) *sacro* (sacred), is intimately related to the rites in which edible food is offered to the divine as a form of communication and thanksgiving.

For Christians, the Eucharist is both a banquet and a memorial where Jesus offers himself as a sacrificial lamb, but in the form of food. In the gospel of John, Jesus turns water into wine (2:1-11), feeds the 5,000 (6:1-15), and serves the disciples breakfast (21:13).

These events are an expression of his love and his wisdom and, seen from this perspective, wasting food is an irreverent act, even a desecration.

Offering and sharing food has a deep cultic and sacramental meaning in most religions. At the end of Ramadan, Muslims celebrate the “Festival of Breaking the Fast” (*Eid ul-Fitr*). This day is the only day in the month of *Shawwal* during which Muslims are not permitted to fast.

Overabundance is seen as a clear sign of God’s blessing. In the Exodus narrative, the Israelites were instructed to eat only the manna they had gathered for each day, leaving the rest to rot away. On our day this issue is not quite so simple. The incredible amount of food wasted during Christmas, Easter, and many other religious celebrations, is striking. By conservative estimates, around 15-25% of all food purchased or prepared during Ramadan find its way to the garbage bin before even being used or consumed.⁹ The question of excess in religious festivities needs to be addressed by economists, sociologists and scientists, but it also deserves the attention of anthropologists and theologians.

The Injustice and Sinfulness of Wasting Food

For almost every religion, the fight against hunger stands front and center. The Christian faith warns that we will be judged if we fail to feed the hungry and the poor (Matt 25). Francis describes the contemporary “throwaway culture” (LS 16,20-22) as unjust and sinful. “Whenever food is thrown out

it is as if it were stolen from the table of the poor” (LS 50). Social injustice, environmental degradation and the irresponsible use of resources are all deeply interconnected. “These problems are closely linked to a throwaway culture which affects the excluded just as it quickly reduces things to rubbish.” (LS 22).

One of the main religious texts in the Hindu faith states that “all living beings” are “an expansion” of the Hindu deity Krishna, rendering the mistreatment of Earth and the elements within it a spiritually contemptible act. Similar passages exist in scriptures across multiple faiths. In Buddhist texts, the “enlightened” way of eating (known as *orioki*, or “just the right amount”) is to serve and eat food in a manner that minimizes waste.¹⁰

Around the world most food pantries banks are managed by religious communities or faith-based organizations. Many local congregations host some type of program to assist needy people in their communities, which means that religions have the potential to play a key role in both denouncing the food waste crisis and in devising solutions. Religions are uniquely positioned to help us make a spiritual connection between the sanctity of feeding the hungry and the transgression of misusing food.

Access to food is a basic human need. The SDG2 makes this clear: “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”. Food waste is a complex global problem and is deeply intertwined with inequality, poverty, and disrespect for all forms of life. Wasting food in a world where

millions go hungry, and many food-chains are stretched to their limits is an injustice and a sin.

Hoarding Food or Eating with Moderation

Eating disorders are too common to ignore in a world where, according to the World Health Organization, around 40% of adults aged 18 years and over are overweight, and 13% are obese. Religiously motivated ascetic practices are easily dismissed as harsh and oppressive, but they are often accompanied by a sense of community and connectedness with the earth. They involve many areas of our lives (clothing, housing, traveling, personal relations), but food is central to asceticism because it is a basic, daily need, and an area of our lives where we easily lose control.

It is no coincidence that religious founders, theologians, and spiritual leaders have paid such a close attention to the way we eat and drink and have stressed the importance of temperance and fasting. Saint Ignatius of Loyola developed in his *Spiritual Exercises* a set of guidelines related to food: “The Rules for Eating” (Ex 210-217).

Jesus, according to three of the four gospels, prepared himself for his public ministry by fasting for forty days. John the Baptist lived in the wilderness and ate simple foods. According to David Grumett and Rachel Muers, “meat abstention can be seen, at least historically, as a foundational element of Christian identity and discipline.”¹¹

Francis talks about “the disordered desire to consume more than what is

really necessary” (LS 123). For Muslims, one central theme of Ramadan is also the control of desire (*nafsu*). During the holy month, all Muslims are required to abstain from food and drink from dawn to dusk for 30 days. Many Eastern religions are deeply ascetical, insisting on the importance of self-restraint when it comes to food, and even prescribe a plant-based diet.

This type of religious asceticism could potentially become a “school” where believers educate themselves to reject food waste. In this way they can learn how to control their appetites and value the smallest portion of food.¹²

Eating Together as a Community-Building Activity

The symbolism of food and eating is embedded in the Judeo-Christian tradition. In Genesis, Adam and Eve were expelled from paradise because they disobeyed God’s command not to eat from the tree of the knowledge of good and evil. Benjamin E. Zeller affirms that, “although food and eating serve central roles in nearly all of the world’s religions, they hold particularly outsized places in Judaism”. Through food, community comes to understand itself: “Communal and individual approaches to Jewish life in the contemporary world often hinge on the acceptance, rejection, or adaption of food-related practices.”¹³

Christianity rejected many Jewish dietary prescriptions but, for the Book of Acts, food still plays a central place in the life of Christians: “Day by day [...] they broke bread at home and ate their food with glad

and generous hearts, praising God and having the goodwill of all people.” (Acts 2:44-47a). In the gospels, some of the best-known parables describe a banquet, where a host invites the poor, the crippled, the lame, and the blind (Luke 14:13; Matt 22:1-13). Jesus teaches us to feed those who will not be able to pay back (Luke 14:12-14). His community was infamous and criticized because of eating “with taxpayers and sinners” (Matt 9:11; Mark 2:16; Luke 5:29; 15:12) and Pharisees (Luke 7:36; 14:11). Jesus himself is accused of being a “glutton and a drunkard” (Mtt 11:19). The Christian community is not centered on dietary prescription and the family. It expands the table and extends to those who are unable to contribute to it.

For Muslims, eating shifts its meaning during Ramadan and becomes primarily a collective act. This brings into clearer focus the complex web of meaning in which eating is embedded: food offerings, exchange, and community building interact in a unique way. The sharing of food builds community and the hoarding of food, or eating without awareness, breaks it apart. Eating alone and wasting food divides the community and degrades—via its carbon and water footprints—the earth community, the very source of the food we share.

In sum, nothing expresses more eloquently our relationship with our

fellow human beings than in the way in which we eat our food. Food brings us together like nothing else. Eating is much more than a physical activity. We don’t just shove food into our mouths. We surround the act of eating with ceremony in a way which points to a reality which cannot be explained just by scientific measurement. Food is of the earth but there is something about the sharing of food which directs us to a mysterious other world. There is more to eating than meets the eye.

For most of human history the memory of scarcity and famine has preyed on people’s minds. Perhaps the good fortune of having escaped death is what has made people of every time and place see the feast as the happiest of all human events. Perhaps this is what made so many people down through the ages associate the wasting of food with a sense of guilt. This remains true today, though there is little evidence that this is related to the effects of food waste on the environment.

Guilt is a sense of dissatisfaction with oneself though it seldom changes anything. It can even leave us paralyzed—like the smoker who feels bad about smoking but who cannot give them up. There is one positive thing to be said about feeling guilty; at least we know we have a problem. It might make us miserable, but misery can open us up to asking questions and, when we ask questions, we just might find answers.

Every stage of the food supply chain produces waste. It is more obvious at the retail and consumer stage. FAO reports estimate that as much as 50% of the food produced is lost or wasted before and after reaching the consumer. Some techniques can be used to reduce the food waste such as:

New Economic Models: From the Linear to the Circular Economy

Food by-products are considered as a cheap source of valuable components since existing technologies allow for the recovery of the target compounds and its recycling into the food chain as functional additives in different products. The management of food waste can include different kinds of treatment —physical, chemical, thermal and biological.

Effective food waste management is critical to increasing the profitability levels of food chain members to ensuring that each stage in the food chain can be profitable and worthwhile for those involved. The way in which materials are used in the food chain

recovery process will determine the viability of the underlying economic model. Economic benefits could be achieved without the need to buy any new ingredients or develop completely new products.

What's Valorization

An accepted definition for food waste is the “end products of various food processing industries that have not been recycled or used for other purposes.” All kinds of slop can be collected and “recovered” for reuse as some other material. There is probably no substance on earth which cannot be dealt with in this manner, but there is a catch. Who will “collect and recover”

if the cost of doing so is less than the price that people are willing to pay for the “recovered” raw material, what happens then? The answer is: nothing. This expensively recovered slop remains just that: slop.

The circular economy is about reducing the cost of collection and recovery and depends to a considerable extent on people’s willingness to think in terms of material instead of waste. Items which we no longer need—food, clothing, furniture, machinery—can be treated as waste to be dumped or as material which will be profitable to others and perhaps even to ourselves. This emerging economy could turn out to be very profitable for all of us. However, that is far in the future. In the meantime, we need to find a way of paying conscientious attention to all the resources of the earth for which we are responsible at any given time.

This is a very different attitude to the one we are used to. It is going to have to be learned—item by item, step by step. If you want to develop this attitude you will have to look for others like yourself. They might be a few steps ahead of you on the road—or perhaps not—but they will have the same willingness. With their help you will find wider networks of knowledge which you can use or a practical cause to which you can dedicate your talent and your energy.

You might be surprised to learn that your desire to reduce the amount of slop going into your bin could lead to all this, but there really is no other way forward. Food waste cannot simply be made to disappear, but societies can and do change when people come together in the pursuit of something truly worthwhile.

What will you end up talking about? You might hear yourself talking, with some degree of confidence, about such things as:

- *Recovery and valorization*: food waste is like a mine containing all kinds of substances which can be used in all kinds of ways to create new opportunities and markets which have been underestimated until very recently.
- *Valorization*: turning bits of the slop into animal feed, as already happens, with different kinds of animals.
- *Landfilling*: the most common solid waste disposal method at present, which consists in finding a big hole somewhere and filling it with waste food and waste everything else. The bigger the hole the better.
- *Biofuel conversion methods*: converting food waste into organic components which can be converted into energy and then recovered in the form of heat or electricity.
- *Composting and vermicomposting*: converting food waste into fertilizer.

Sustainable Consumption (Campaigns and Legislation)

For the European Commission’s Waste Management Strategies and Directive waste prevention and minimization is the priority. It sets up a hierarchy in which the prevention of waste, or its reduction, are seen as the best option. At the bottom of this hierarchy—the worst environmental option of the lot—landfilling and incineration. One poisons the earth and the other stinks out the atmosphere.

The waste minimization strategy of the EU includes waste prevention, internal recycling of production waste, source-oriented improvement of waste quality, and reuse of products. The EU's waste strategy has also developed a set of principles designed to place the responsibility for waste in the hands of the producer.

The United States EPA has a different approach. Its Food Recovery hierarchy is based on 6 levels: It prioritizes actions which organizations can take to prevent and divert wasted food. The top levels of the hierarchy are the best ways to prevent and divert wasted food because they create the most benefits for the environment, society, and the economy. As presented, extraction of the entire benefits from waste products and minimizing waste generation are the main goals of this hierarchy¹⁴.

Concern about food waste is by no means confined to official circles. There is a growing number of grassroots campaigners drawing attention to the problem and calling for change. Protest movements include activities as "dumpster diving" which seek to highlight the arbitrary nature of "use-by" labels.¹⁵

Towards an Integral Approach

Food Waste is not just a special (i.e., organic) type of waste. Very often it is potential food — food which gradually loses its potential to feed. All food (and all food waste) is both formerly living matter and potential living matter, it cannot be "made" by humans. It has to be harvested and processed by humans and for humans. It is often

both a concrete problem (especially for public disposal systems) and, even more frequently, a symbol or reminder of much deeper structural problems. In the context of poverty and hunger, food waste is often seen as a major ethical offence and a symbol of injustice and inequality, although food waste itself may not be the reason for these problems. It is worth taking a holistic approach to understand and address all or at least several of these intertwined aspects at the one time.

This holistic view can be quite a challenge to our traditional Western approach of science with its segmented branches of academic knowledge while disregarding other insights. The problem of food waste may encourage us to learn from other non-European, especially indigenous, traditions which often exhibit a deeper understanding of the connectedness of life by showing an enhanced gratitude and respect for food which was once alive and has given its life to allow us to continue ours. Interestingly, some philosophical authors point out that traditional religious practices in all parts of the world include hygienic elements, (e.g. an act of "cleansing" or purification...) and that modern man who seems to have lost touch with these old traditions is now over-reacting in two ways. On the one hand, we are obsessed with hygiene, and on the other hand we are producing more rubbish than ever.

Such a holistic view will also protect us from romantic idealization of so-called "old traditions." It will help us to understand that in many ethnic and religious traditions, food waste was under some circumstances also seen as a positive symbol of abun-

dance. Offering a frugal meal to guests or celebrating a party without any surplus food left on the table could be seen as an offense or as an act of parsimony. This traditional behavior needs to be moved into a positive new direction, or as the poet Goethe put it: “What you have inherited from your parents, earn it over again, to make it truly yours.”

Conclusions

The food we eat starts out by being uprooted, picked or killed. This is often followed by being stripped, peeled or, in some other way, “prepared.” It might even be “processed,” i.e. tinned, vacuum packed, dry-frozen etc. On the journey to our table, it may grow stale or over-ripe or, in some other way, it might become “unfit to eat” and thrown away. What remains is transported to the shop where the consumer buys it and brings it “home.” Before finally being eaten then more might go stale or over-ripe or moldy or “off” and event that is not the end. There might be more stripping away or “preparation.” Eventually we will see food placed before us on the table and we will eat and, with the plates and pots not quite empty, we will clear it all away.

Each of these moments in the journey of food is connected by human behavior and structural dynamics. Each moment happens in a particular and measurable way. It is shaped by an accumulation of assumptions and attitudes none of which is above scrutiny and criticism. Any such scrutiny, however, will come up against resistance —fierce at times— because the act of eating binds us to life and to each

other like no other human activity. It is not just the fact of eating but the way in which we eat that makes us see ourselves and each other as human. A good meal is a happy occasion because we are included and recognized, and we can include and recognize others. We can also be nourished by the produce of the earth —and in other ways!

Yet, in this ‘full’ world in which we now live, what we eat and journey of food to our table (and beyond!) is excluding others from “our” table. In the past there were lots of different tables with separate sources of food. Now there is one interdependent source, and it is no exaggeration to say that we now all share the same table. Each item of food arrives on that table with its own distinct journey. The journey of a bunch of bananas is likely to be different from that of a Christmas turkey or a tin of peas. If we are to eat in a manner that respects our fellow human beings we will have to re-examine and re-shape these journeys, but none of us can do this on our own.

In short, we need a reformulation of the functioning of the food system based on more localized food systems, with a new food culture of consuming more local, organic and seasonal products, with shorter marketing circuits between production and consumption, and more resilient agroecology-based production systems, which, according to experts, could contribute to reducing food waste in cities and in the countryside.

Let’s face it, even thinking of the challenge posed by food waste is likely to leave us feeling helpless and defeated. Like the journey of food to our plate, we too have a journey to make if we are

to deal effectively with food waste and we cannot take even the first step on that journey unless we have hope both in ourselves and in humanity.

Being human is not just about being members of the same species. It's about solidarity. When we dream with others of a world where everyone has enough to eat and when we are ready to struggle with others to make that dream a reality, we will find ourselves strangely grateful and encouraged. We will be struggling against attitudes towards food and food waste which leave people excluded and the earth polluted. If we are honest those attitudes are in others. They have a hold on us, and the struggle is in part with ourselves. Each of us can ask how can I play my part

in this struggle? What can I learn from others as they play their part? How can we all support each other?

This booklet is the result of a group of people coming together to talk about the problem of food waste. We did have something in common. We all found personal support in our Christian faith and in the spiritual heritage of the Society of Jesus. We share these insights because they give us life and we know that others find their inspiration elsewhere. The challenge of food waste is a matter for everyone, and we want to speak to everyone. That is why we did not write a "report." We hope that when you finish reading this booklet you will want to talk to others about what you have read.

ANNEX: PRACTICAL, SIMPLE AND SENSIBLE MEASURES FOR EVERYONE

The Food and Agriculture Organization has put out a list of simple, yet sensible, steps we can all take to change our habits:

1. Buy only what you need. Make a list and stick to it.
2. Don't be prejudiced. Purchase 'ugly' or irregularly shaped fruit and vegetables that are just as good but look a little different.
3. Check your fridge. Store food between 1-5°C for maximum freshness and shelf-life.
4. First in, first out. When you stack up against your fridge and cupboards, move older products to the front and place newer ones in the back.
5. Understand dates. 'Use by' indicates a date by which the food is safe to be eaten, while 'best before' means the food's quality is best before that date, but it is still safe to eat afterwards.
6. Leave nothing behind. Keep leftovers for another meal or use them in a different dish.
7. Donate any surplus to others.

NOTES

1. Yet this is not only a problem in the West. More than one trillion dollars' worth of food is wasted in the Middle East each year (*The National*, UAE, April 9, 2016). In 2012, a massive 1.4 million metric tons of food was wasted in Qatar (EcoMENA, Qatar, March 2016). This figure, divided by the then population of 2.05 million, equates to an average of 636 kilograms (kg) of food per person for the year, or 1.74 kg per day. Food waste in the Middle East includes organic wastes generated in hotels, restaurants, canteens, cafeterias, shopping malls and food industries. Middle East nations are acknowledged as being the world's top food wasters.
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15. The [Feeding the 5000](https://www.feedingthe5000.org/) organization has hosted over 50 events around the world, where it served up a delicious communal feast for 5000 people made entirely out of food that would otherwise have been wasted.

Cristianisme i Justícia (Lluís Espinal Foundation) is a study center that was created in Barcelona in 1981. It brings together a team of volunteer scholars and activists who desire to promote social and theological reflection that will contribute to the transformation of social and ecclesial structures. It is part of the network of Faith-Culture-Justice Centers of Spain and also of the European Social Centers of the Society of Jesus.

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