



Anti-food Waste Laws: A Comparative Analysis

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Abstract. In recent years, the problem of food waste has been gaining global attention, both in the public and private sectors. Indiscriminate dumping of an excessive amount of waste from farms, retail stores and consumer households have turned the earth into a global “garbage dump”. Although waste disposal is typically considered as a private matter, it has public implications from the environmental, poverty, and ethical perspectives. In this paper, we examine American, Canadian, French, Italian, Chinese, Philippines and Malaysian laws on combating the problem of food waste. Finally, we make some recommendations for countries or authorities considering passing an anti-food waste law.

Keywords: Anti-food waste law · Environmental law · Sustainability

1 Introduction

Since the advent of the agricultural revolution of the past millennium, man has successfully harnessed the miracle of science and technology, and the gifts of nature such as sunlight, rainfall, and fertile soil, to produce an abundance of food beyond what society could possibly consume. Instead of a Malthusian (1798) [1] crisis due to exponential population growth, we live in an age of abundance and waste. Consequently, there is an increasing need to be concerned with the problem of food waste globally.

The Food and Agriculture Organization of the United Nations (FAO) (2019) [2] defines “food waste” as “the decrease in the quantity or quality of food resulting from decisions and actions by retailers, food service providers and consumers” The EU FUSIONS [3] in Europe defines “food waste” as “any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed”. Inversely, the phrase “food rescue” is also used to denote the act of recovering edible food which would otherwise have gone to waste [4].

Food waste may be understood through a classification of waste. The three main types of waste for garbage collection are the food and garden waste (green service), mixed dry recyclable waste (blue service), and non-recyclable waste (black service). Food waste stated as green service above includes both cooked and uncooked food waste (Royal Borough of Greenwich, 2017) [5].

It is estimated that 1.3 billion tonnes of food produced is wasted globally every year, which is equivalent to one-third of the food produced for human consumption

(Gustavsson et al., 2011) [6]. According to the Natural Resource Defense Council, 50% of our produce is never consumed and in a more recent report from ReFed, it is estimated that 126 billion pounds of wasted food annually amounted to a financial cost of \$218 billion (AmpleHarvest.org, 2016) [7].

According to the US Department of Agriculture, food is wasted because it was never harvested, lost in processing, thrown away in restaurants and homes or ended up rotting in landfills (AmpleHarvest.org, 2016) [7]. Food waste appears at different stages in the process from farm to consumers' tables. Generally, food waste appears in three types of sources: farms, retailers and producers, and consumers.

In light of the seriousness of the global food waste problem, some countries have started to implement laws to tackle the problem. This paper attempts to analyse these anti-food waste laws.

2 Concerns for the Food Waste Problem

The food waste problem is a source of three different types of concerns: environmental concerns, poverty concerns, and ethical concerns.

2.1 Environmental Concerns

Food waste has a large environmental impact. Frequently, food waste ends up in landfills or incineration plants. As arable and hospitable land is a scarce resource, dumping food waste in landfills uses up these scarce resources. This problem is exacerbated by the increase in global population. If food is wasted less, land and other resources can be put to other potentially beneficial uses, and the amount of land needed for landfill could be reduced.

A second related problem with the use of landfills for food waste is the emission of methane gas (Gardner et al., 1993) [8]. When organic waste is buried in landfill sites, it decomposes into toxic effluent and methane gas—a greenhouse gas twenty-one times more potent than carbon dioxide (Stuart, 2009) [9]. Excess amount of greenhouse gases such as methane, carbon dioxide, and chlorofluorocarbons absorb infrared radiation from the sun, heats up the earth's atmosphere and is recognised as the primary cause of global warming and climate change. Even if food waste is incinerated instead of going to landfills, carbon dioxide is released as a by-product of the incineration process.

Food waste is also an indication of the excessive production of food. Since food production inevitably relies on the landmass, the reduction of food production will reduce land use. This has several benefits: one, fewer resources are used; and secondly, the used land can be left for reforestation which acts as a carbon sink and a source of increased oxygen production.

Reduced food production is also correlated with less use of toxic pesticides on crops, and antibiotics and growth hormones on livestock. As these toxic residues stay on in the food we consume, there is potential health concern over long term exposure to these chemicals (Jeong et al., 2010; Phillips et al., 2004) [10, 11]. Furthermore, there is fear that over-reliance on the above may lead to leakage of the chemicals into our water sources.

A further environmental concern is on nutrient loss. As much arable land is used up for food production, the nutrients in the soil are depleted which makes those landmasses less fertile. Reduction in food waste can be seen as a way to conserve arable land for future generations.

As shown above, there are strong environmental justifications for tackling food waste at a global level. Citizens and governments should aspire to build a zero-waste nation, where the use of resources is reduced, waste is reused and recycled, and only those which have absolutely no other uses go to landfills (Benn, 2009) [12]. The same can be said of food waste.

2.2 Poverty Concerns

We must realise that hunger does not simply result from the non-availability of food. A list of factors relating to the social, political and economic reasons influences the incidence of hunger and poverty (Das, 2006) [13]. The Food and Agriculture Organization of the United Nations (FAO) estimated that in 2020, between 720 and 811 million people faced hunger (Food and Agriculture Organization of the United Nations et al., 2021) [14]. It is indeed an irony that while we face the problem of food waste, a segment of the world's population does not have enough food to eat. Thus anti-food waste measures can be seen as a solution to tackle the food poverty problem in the world.

An estimated half a million people are estimated to be relying on food aid in the form of food banks and food parcels (Cooper & Dumbleton, 2013) [15]. The Food Ethics Council has shown that at least four million people now suffer from food poverty in the UK (Food Ethics Council, 2013) [16]. Additionally, 800 million people in the world go to bed hungry (Norwegian Refugee Council, 2015) [17]. Food waste is a waste of resources that could have been used to alleviate the hunger problems facing about by almost a billion people, all of them could be fed with just a fraction of the food that rich countries currently throw away (Stuart, 2009) [9].

The initiatives to prevent edible food from being wasted can be supported on anti-poverty reasons. Rather than throwing away unwanted but consumable food items, unused food can be donated to food banks and soup kitchens to tackle the local food poverty problem. Although reducing food waste will not make our lifestyle more sustainable, it can nevertheless go hand in hand with international efforts to tackle poverty and hunger and uplift the poor from the plight of never-ending hunger.

2.3 Ethical Concerns

The third concern over the food waste problem stems from its ethical dimension. President Roosevelt (1910) [18] once famously declared that "I recognize the right and duty of this generation to develop and use the natural resources of our land; but I do not recognize the right to waste them, or to rob, by wasteful use, the generations that come after us."

The English proverb "waste not, want not" neatly captures this ethical dimension on food waste. As food is the result of the utilisation of Mother Earth's generous endowment to humanity, it is humanity's responsibility to share this resource with all the people in the world, and also to ensure that there are enough resources to be shared with the future

generations. Viewed through this lens, it is unethical to waste earth's resources and to waste the food produce therefrom. Thompson (2015) [19] when discussing on the ethics of waste identifies three essential and distinct dimensions which are relevant also to the problem of food waste: (i) socially unproductive activity, (ii) under-utilisation of human or natural resources, and (iii) misdirection or misuse of human or natural resources.

Unethical food wastage can almost be called a crime against humanity and a crime against the environment. Even though the consequences from the practice of wasting food will not be apparent immediately, it is actually using up another person's opportunity to consume that food, and also using up nature's resources that can help another farmer to yield more agricultural products for the benefit of the society as a whole. Ethical sufficiency means we that produce what is enough for human needs and also to ensure utilisation of that natural resources in non-wasteful ways.

3 Anti-food Waste Laws

Legislative efforts can be used to mitigate the food waste because anti-food waste laws can send the right policy signals (Gersen & Posner, 2008) [20], provide positive incentives and impose negative disincentives to all parties, as well as minimise uncertainty in the law such as that of the potential for liability from food donation. Unfortunately, despite numerous attempts by the Food and Agriculture Organization of the United Nations to encourage countries to reduce food waste, few countries to date have put in place relevant legislation to that effect. Valuable lessons, nevertheless, can be learned from some of these legislative outcomes. Here, we discuss and compare two pieces of legislation from the United States, and one each from the Canadian province of Alberta, France, Italy, People's Republic of China, The Philippines and Malaysia.

3.1 United States

Two federal laws in the United States are relevant: the Bill Emerson Good Samaritan Food Donation Act 1996 and the Federal Food Donation Act 2008.

3.1.1 Bill Emerson Good Samaritan Food Donation Act 1996

The Bill Emerson Good Samaritan Food Donation Act of 1996 is the first piece of national legislation in the United States to tackle the food waste problem. It was named as the Bill Emerson Good Samaritan Food Donation Act as an honour to commemorate House Representative Bill Emerson who was the co-sponsor of the Act who unfortunately died of cancer during the bill's hearing.

The background to the Act is that all fifty states in the United States of America had some form of state legislation limiting liability for donated food prior to the Act, but different standards led to much difficulties and confusion among large donors of food, to the extent that it discouraged instead of encouraging food donation (Haley, 2013) [21].

The focus of the Bill Emerson Good Samaritan Food Donation Act is on addressing the issue of liability. Section 1791(c)(1) of Chapter 13A, Title 42 of the US Code exempts the donor from liability: "[a] person or gleaner shall not be subject to civil or criminal

liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the person or gleaner donates in good faith to a nonprofit organization for ultimate distribution to needy individuals.” In the Act, a ‘gleaner’ is an intermediary donor who collects the donation for others.

Similarly section 1791(c)(2) exempts a donee who use such donated food from liability: “[a] nonprofit organization shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food or an apparently fit grocery product that the nonprofit organization received as a donation in good faith from a person or gleaner for ultimate distribution to needy individuals.” The Act limits a donee to a ‘nonprofit organization’. It is not clear whether an individual donee falls within the definition of a ‘nonprofit organization’ in this context, although it may be argued that an individual is an ‘unincorporated entity’.

‘Food’ is defined as “any raw, cooked, processed, or prepared edible substance, ice, beverage, or ingredient used or intended for use in whole or in part for human consumption”, and ‘apparently wholesome food’ accordingly means “food that meets all quality and labeling standards imposed by Federal, State, and local laws and regulations even though it may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other condition.”

‘Grocery product’ is defined as “a nonfood grocery product, including a disposable paper or plastic product, household cleaning product, laundry detergent, cleaning product, or miscellaneous household item”, and ‘apparently fit grocery product’ likewise is defined as “a grocery product that meets all quality and labeling standards imposed by Federal, State, and local laws and regulations even though the product may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions.” Thus the Act covers both food and non-food waste that could be recovered.

‘Donate’ is defined as “to give without requiring anything of monetary value from the recipient, except that the term shall include giving by a nonprofit organization to another nonprofit organization, notwithstanding that the donor organization has charged a nominal fee to the donee organization, if the ultimate recipient or user is not required to give anything of monetary value.” It is this definition of ‘donate’ which differentiates a sale from a charity.

‘Good faith’ unfortunately is not defined in the Act, although it is possible to understand the concept of ‘good faith’ by contrasting it to the concept of ‘gross negligence’ or ‘intentional misconduct’. These two concepts operate as exceptions to the exemption of liability under paragraphs (1) and (2). Paragraph (3) states that “[p]aragraphs (1) and (2) shall not apply to an injury to or death of an ultimate user or recipient of the food or grocery product that results from an act or omission of the person, gleaner, or nonprofit organization, as applicable, constituting gross negligence or intentional misconduct.” ‘Gross negligence’ is defined as “voluntary and conscious conduct (including a failure to act) by a person who, at the time of the conduct, knew that the conduct was likely to be harmful to the health or well-being of another person”; whereas ‘intentional misconduct’ means “conduct by a person with knowledge (at the time of the conduct) that the conduct is harmful to the health or well-being of another person.”

The third category of persons exempted from liability is property owners from which donations are collected or gleaned. Subsection (d) states that “[a] person who allows the

collection or gleaning of donations on property owned or occupied by the person by gleaners, or paid or unpaid representatives of a nonprofit organization, for ultimate distribution to needy individuals shall not be subject to civil or criminal liability that arises due to the injury or death of the gleaner or representative, except that this paragraph shall not apply to an injury or death that results from an act or omission of the person constituting gross negligence or intentional misconduct.” This, in essence, amounts to an exemption from torts such as occupier’s liability.

Furthermore, donations which “do not meet all quality and labeling standards imposed by Federal, State, and local laws and regulations” may also be exempted if three conditions are satisfied under subsection (e) by the receiving nonprofit organization: “(1) is informed by the donor of the distressed or defective condition of the donated food or grocery products; (2) agrees to recondition the donated food or grocery products to comply with all the quality and labeling standards prior to distribution; and (3) is knowledgeable of the standards to properly recondition the donated food or grocery product.” This special exemption for partially complying goods has the advantage of ensuring that these goods are not totally thrown away if they may be ‘reconditioned’ as usable items. Example of such reconditioning may include disposing of the part which is unusable and reclaiming the rest which is usable.

3.1.2 Federal Food Donation Act 2008

A separate Federal Food Donation Act was enacted in 2008 to further ensure that the federal government and its contractors do their necessary role in reducing food waste. This is pertinent considering that after a decade of being in place, the Good Samaritan Food Donation Act was found to be ineffective in reducing food insecurity in the United States (Cohen, 2006) [22]. Thus the US Federal Food Donation Act was enacted “to encourage executive agencies and contractors of executive agencies, to the maximum extent practicable and safe, to donate excess, apparently wholesome food to feed food-insecure people in the United States” (section 2). This is in view that the US government is a large purchaser of food products, e.g. for schools, and the US government could itself play a direct role in encouraging food donations.

Section 4(a) of the Federal Food Donation Act requires that “all [Federal] contracts above \$25,000 for the provision, service, or sale of food in the United States, or for the lease or rental of Federal property to a private entity for events at which food is provided in the United States, [to]... include a clause that... encourages the donation of excess, apparently wholesome food to non-profit organizations that provide assistance to food-insecure people in the United States.”

In addition, the Act provides for exemption of cost of donation on the executive agency, and exemption from liability for the executive agency and the contractor. Thus “the head of the executive agency shall not assume responsibility for the costs and logistics of collecting, transporting, maintaining the safety of, or distributing excess, apparently wholesome food to food-insecure people in the United States under this Act” (section 4(b)(1)). Likely, an executive agency (including an executive agency that enters into a contract with a contractor) and any contractor is also exempted from liability (section 4(b)(2)).

This Federal Food Donation Act also introduced two new terms, namely ‘excess’ and ‘food-insecure’. ‘Excess’ in the context of the Act means ‘food that is not required to meet the needs of executive agencies and would otherwise be discarded’, and ‘food-insecure’ means ‘inconsistent access to sufficient, safe, and nutritious food’.

3.2 Canada

In Canada, the province of Alberta passed a law on charitable donation of food in 2000. Similar to the US effort, section 2(1) of the Charitable Donation of Food Act exempts a person, who is defined to include “an unincorporated organization”, “who donates food or who distributes donated food to another person [from liability] for damages resulting from injury or death caused by the consumption of the food unless (a) the food was adulterated, rotten or otherwise unfit for human consumption, and (b) in donating or distributing the food, the person (i) intended to injure or to cause the death of the recipient of the food, or (ii) had acted with reckless disregard for the safety of others.”

Under subsection (2), the exemption likewise extends to “a director, officer, agent or employees of a corporation or organization or a volunteer who provide services or assistance to a corporation or organization that donates food or that distributes donated food... personally.”

An exception to the application of this Act “appl[ies] to a person who distributes donated food for profit” (section 3). It is not clear whether the phrase “distributes donated food for profit” means ‘sale’. If the intention of the Act is to exclude from its application parties who sell donated food, then it would be simpler to just say that the Act does not apply to a person who ‘sells donated food’. On the other hand, ‘distributes donated food for profit’ may inadvertently include nonprofit organizations which operate a food bank on a pay-as-you-like basis.

3.3 France

France became the first country to pass a piece of legislation on 3 February 2016 to address the problem of food waste in a more holistic manner by mandating retailers to do their part. The law follows a grassroots campaign in France by shoppers, anti-poverty campaigners and activists opposed to food waste, with the further aim to persuade the European Union to adopt similar legislation across member states (Chrisafis, 2016) [23]. The French law first appeared as a proposal in 2015 in the form of a report titled ‘Fighting Food Waste: Proposals for a Public Policy’ (Eubanks, 2019) [24].

Article 1 amends the French Environment Code by introducing a new subsection 1 bis titled “Fight Against Food Waste”, to Book V, Title IV, Chapter 1, section 3 of the Environment Code. According to the newly introduced Article L. 541-15-4, the fight against food waste involves empowering and mobilising producers, processors and distributors of food, consumers and associations. It recommends actions to be implemented according to an order of priority: preventing food waste, donating or processing unsold materials so that it is clean and suitable for human consumption, reusing for animal feed, and finally, composting the food waste for agriculture or energy recovery purposes, specifically by means of methanization.

The French law's strategies "include... raising awareness among and educating all stakeholders; action by local operators, and regular communication with consumers, especially in the context of local waste prevention programmes" (Vaqué, 2017) [25]. It encourages local level participants and promotes communication with consumers. This shows that the law emphasises on educating the nation to put a stop to food waste, in addition to expounding the philosophy of prevention being better than cure.

Article L. 541-15-5 covers five points. First, distributors in the food sector need to ensure the marketing of their foodstuffs or reusing of unsold food is in accordance with the order of priority established in Article L. 541-15-4. Distributors cannot deliberately make their unsold foodstuffs unsuitable for human consumption or any other form of recovery, the infringement of which is punishable by a fine of €3,750. These provisions are to prevent retailers from contaminating their unsold food products with chemicals to prevent scavengers from recovering those food products.

Secondly, the law prohibits contractual stipulation which precludes the donation of foodstuffs sold under private label within the meaning of Article L. 112-6 of the Consumer Code by a food business operator to a charitable organization. This is to outlaw contractual provisions between a distributor and retailers which prevent a retailer from donating foodstuff.

Thirdly, the law introduces a measure on food retailers whose sales area exceeds 400 square meters to enter into a contract with donee charitable organizations specifying the terms and conditions of donations. Failure to comply with this obligation laid down shall be punished by the fine provided for the infringements of the third class. The purpose of this provision is to ensure large food retailers are contractually bound to donate their foodstuff to charitable organizations.

Fourthly, products unsuitable for consumption are exempted from this Article. And finally, the law empowers the government to make a decree to lay down the detailed rules for the application of the Article.

One innovation introduced by French law is to use contracts as a means of extracting compliance. Instead of relying on law enforcers to monitor compliance by food retailers with the law, donee organizations are co-opted to ensure that donation of unsold food items takes place. Donee organizations, through the contractual arrangements and their periodic collection mechanisms, will have the effect of ensuring food retailers play their role in fighting against food waste.

Article 2 of the law amends the French Civil Code to treat a person who donates a product sold under a private label as the manufacturer or a company or a group of companies, as a producer to be subjected to product liability law. Thus, unlike the American law which exempts donors from liability, the French approach actually does the opposite of imposing donors' liability for defective products.

Article 3 amends Article L. 312-17-3 of the French Education Code, to require schools to include educational content on the fight against food waste as part of their curriculum. This is notable as the French recognise education as an important component in its fight against food waste.

Finally, Article 4 amends Article L. 225-102-1 of the French Commercial Code, to require companies trading in the stock exchange to report their effort on the fight

against food waste. This allows the public to have closer scrutiny over the corporate social responsibility of the publicly traded companies.

3.4 Italy

In 2016, the Italian Parliament passed a law against food waste. This made Italy the second country in Europe to introduce food waste law. Interestingly, the new law covers not just food donation but also pharmaceutical and other goods (Vaqué, 2017) [25]. The stated purpose of the Italian law is “to reduce waste for each of the stages of production, processing, distribution and administration of food, pharmaceuticals and other products, through the implementation of some priorities” (Varallo, 2016) [26]. Banco Alimentare (2016) [27] provides a good English translation of the briefing notes for Law No. 166/2016 as drafted by the Chamber of Deputies.

Article 1 declares the five objectives of the Italian anti-food waste law: “(1) prioritise human use while promoting the recovery and donation of food surpluses, for purposes of social solidarity; (2) favour the recovery and donation of pharmaceutical and other products for purposes of social solidarity; (3) reducing waste production and promoting reuse and recycling to extend product life cycle aimed at limiting the negative impacts on the environment and natural resources; (4) have a hand in achieving the general objectives established by the National Waste Prevention Program and by the National Plan for the Prevention of Food Waste accompanied by program of reducing the quantity of biodegradable waste sent to landfills; (5) contribute to research activity, information and awareness among consumers and institutions on the matters covered by this law, especially with reference to the young generations.” This concept of social solidarity was first advanced by Émile Durkheim (1893) [28] to mean the social cohesion upon which individuals in advanced societies depend on each other to achieve their objectives.

Article 3 is perhaps the most important article of all. It allows food business operators to transfer surplus food to beneficiaries without charge, as long as the food donated is “fit for human consumption”, and is made primarily in favour of the poor.

Food which is not fit for human consumption may be sold as animal feed or sent for composting by aerobic means. Donation of surplus agricultural products from the field or farm that are fit for human and animal consumption is also allowed, provided that the person who performs the harvesting or collection of agricultural products is responsible for complying with the law on food hygiene and safety.

According to Article 4, donation of food surplus even after the date of minimum durability is allowed so long as the integrity of the primary packaging, suitable storage conditions and further processing are guaranteed. Finished bakery products and derivatives of flour dough produced in bakeries that do not require thermal conditioning that is not sold within 24 h can be donated.

Article 5 requires food business operators who make donations to guarantee the health and hygienic safety of the food products in line with Regulation (EC) No 853/2004 of the European Parliament and the Council of 29 April 2004 on the Hygiene of Food Products. Prior to making the donation, they have to select the food products on the basis of quality and hygiene requirements (Article 5).

Article 6 allows the reuse of food products that have been confiscated and yet fit for human or animal consumption. For such purpose, a new provision was added to Article

15 of Presidential Decree No 571 of 1982 in the criminal justice system. If such products are seized, they will be donated to non-profit private entities set up to pursue civic and social objectives.

The law mandates that the Ministry of Agriculture and Forestry, Ministry of Higher Education and Research, as well as Ministry of Health, to take initiatives to contribute to the efforts to reduce food waste as required under Articles 8, 9 and 10 respectively. Ministries and government departments have to work together to promote initiatives, guidelines and instruments for the distribution of food to the needy, to have consulting, advisory and monitoring functions, as well as to formulate projects and studies aimed at limiting waste and the distribution of surpluses.

Public radio, television and multimedia services also have their roles to play. During the broadcasting hours, an adequate amount of time has to be allocated to promote suitable behaviour and measures to reduce food, energy or other kinds of waste. Restaurants are allowed and encouraged to facilitate customers in taking remaining food home. Finally, the Ministry of Higher Education and Research is entrusted to promote food education, environmentally sustainable food production and raise public awareness against the waste of food products at educational institutions. According to Article 10, the Ministry of Health has to issue guidelines to school, community and social cafeterias to prevent and reduce food waste.

Articles 11 and 12 allocate a budget to fund innovative projects aimed at limiting waste and the use of surpluses, as well as to promote the production of reusable or recyclable packaging.

Title III consists of Articles 13 to 18 which provide further measures to facilitate the gratuitous supply of food products and other products for social welfare purposes.

Article 13 expands the categories of items that can be donated under the “The Good Samaritan Law” to include pharmaceutical products. Article 15 provides for incentives for the donation of unused medicine which are properly stored and have not expired, provided that the quality, safety and original efficiency of the medicine are guaranteed. This excludes medicine needs to be refrigerated at controlled temperatures, those containing narcotics or psychotropic substances, as well as those that can only be dispensed in hospitals. Recipient organizations are allowed to distribute medicine directly to the needy on the condition that they have health care workers.

Tax and fiscal implications are also taken into account in Article 16. Under Article 17, municipalities are given powers to reduce the tariff on waste for non-domestic users who participate in food waste reduction.

3.5 People’s Republic of China

The People’s Republic of China’s government enacted its Anti-Food Waste Law in 2021. Unlike European legislation which provides detailed strategies, the Chinese law are more general in nature. Article 4 empowers all levels of the governments to take measures to reduce food waste. Article 5 focuses measures on the catering (and restaurant) industry, food producers and operators, and grains storage and circulation. Article 6 requires reduction of food waste by government bodies in their receptions. More specifically, specific guidelines are provided for certain situations: catering industry (Article 7), cafeterias (Article 8), schools (Article 9), takeaways (Article 10), tour operators (Article

11), and supermarkets, shopping malls and other food operators (Article 12). Moderation is urged for “dining during weddings, funerals, gatherings with friends and family, and business activities” (Article 13) and on an individual basis (Article 14).

The roles of government bodies are provided and empowered to act accordingly (Articles 15–18, 23, 25, 26 and 31). A Clean Plate Campaign is introduced (Article 20). Education authorities (Article 21) and the media’s (Article 22) are mentioned to play their respective roles. Catering service operators are required to remind customers not to waste food, failure of which may entail a fine between RMB1,000 and RMB10,000 (Article 28). Interestingly, competitive eating and binge-eating video programmes are outlawed (Article 30).

Huang and Rao (2021) [29] compared China’s anti-food waste law with European, America and other Asian countries’ and noted that the approach taken in China is different. More specifically, China’s law does not deal with donation and recycling of food items. Luo (2021) [30] argues that not only is the basis of China’s anti-food waste law based on a global green and sustainability movement, ancient Chinese philosophy sees frugality as a virtue.

3.6 The Philippines

The Republic of the Philippines, via its Food Donation Act of 2009, is an early adopter of a statute to encourage food donation. The main function of this legislation is to exempt “a person donates in good faith for charitable purposes” “civil or criminal liability arising from the nature, age, packaging, or condition of apparently wholesome food” (section 5). The phrase ‘apparently wholesome food’ is defined as “food that meets all quality and labeling standards imposed by pertinent laws and administrative regulations even though the food may not be readily marketable due to appearance, age, freshness, grade, size, surplus or other conditions” (section 3(a)). Nevertheless, this section does not mention whether edible but past due date food items may still be wholesome food, although it is possible to be considered so under the catch-all phrase of “other conditions”. Perhaps for safety concerns, certain milk products are excluded from the definition of “apparently wholesome food”.

Also under section 5, the liability exemption does not apply “to an injury or death of an ultimate beneficiary of the donated food that results from an act or omission of a person constituting gross negligence or intentional misconduct”. The definitions for “gross negligence” and “intentional misconduct” are duly provided in section 3.

Reyes (2017) [31] laments that the Food Donation Act of 2009 does not go far enough in providing incentives to donate as well as penalising potential donors for failing to donate.

3.7 Malaysia

The Malaysian Parliament enacted the Food Donors Protection Act 2020 (Act 826). As its namesake, the core purpose of this very short statute is to exempt food donors from “any civil liability in respect of any personal injury or disease suffered by any person, or the death of any person, resulting from the consumption of the food donated or distributed by the food donor” (section 3). Like many other jurisdictions having similar provisions,

this exemption does not apply if four conditions are applied: “(a) the personal injury, disease or death was caused by the negligence or the willful misconduct of the food donor; (b) the food donor has not complied with any requirement in relation to food safety and food hygiene under any written law before donating or distributing the food; (c) the food was not safe for consumption at the time it was donated or distributed to any person; and (d) the donation or distribution of food was not made in good faith” (section 3).

Interestingly, section 3 uses the conjunction ‘and’ for the four conditions, which suggests that all four conditions must be proven and satisfied by a claiming plaintiff in order to successfully rebut the exemption raised by a donor defendant. It may seem that some of these conditions are difficult for a plaintiff to prove, e.g. that “the donation or distribution of food was not made in good faith” since bad faith is a mental state which can only be inferred through the actions of the defendant.

Furthermore, the Food Donors Protection Act 2020 is silent on criminal liability, which means that a food donor who donates food which caused injury, disease or death may still be subject to criminal prosecution and punishment under the Food Act 1983.

4 Comparative Analysis

Since anti-food waste laws are a relatively new phenomenon and as can be observed, different countries have different approaches to solving the food waste problem, we summarise here some key points about these anti-food waste laws and recommend points to consider when enacting an anti-food waste law.

4.1 Definition of ‘Food’ and ‘Waste’

The first thing we need to settle on is the scope of the subject matters of regulation, namely ‘food’ and ‘waste’. Without them being clarified, disputes will exist as to whether a particular product is subject to regulation. Not all countries’ anti-food waste law has a definition of ‘food’.

The Concise Oxford English Dictionary 11th edition defines ‘food’ as ‘any nutritious substance that people or animals eat or drink or that plants absorb in order to maintain life and growth’. Outside the confines of its usual definition, we have to consider boundary cases of whether those substances can be considered as ‘food’:

- (1) Whether there must be a minimum nutritional requirement, e.g. chewing gums and candies may not be considered as wholesome food suitable for donation. Alcoholic beverages may also not be suitable for some people and may be considered as prohibited or harmful substances in some countries and cultures.
- (2) Whether cooking ingredients are food, e.g. baking flour, raw eggs and cooking oil. It is possible to include raw ingredients as food even though they cannot be readily consumed from their packaging.
- (3) Whether unprocessed raw agricultural produce is considered food, e.g. coffee cherries and cocoa pod, which cannot be consumed in their raw unprocessed form.

- (4) Whether pharmaceutical products are considered food, e.g. medicines and health supplements. For example, Italian law has special provisions to provide for the donation of unused medicine.

Next are the concepts of 'surplus', 'excess' and 'waste', which are defined differently in different countries. The Italian law provides for the definitions of 'food surplus' and 'food waste'. A 'surplus' is defined to include unsold goods due to lack of demand; withdrawn from sale because they do not comply with the company's sales requirements; inventories of promotional activities; goods close to its expiry date; inventories for new products testing; unsold goods due to damage caused by bad weather; unsold goods due to errors in production planning; and, goods not suitable for marketing due to alterations in the secondary packaging which do not affect proper storage conditions. In addition, 'waste' is defined to mean foodstuffs discarded from the agricultural-food chain due to commercial or aesthetic reasons, or due to the close proximity to their expiry date, but still edible and potentially destined for human or animal consumption, and which, in the absence of a possible alternative use, are destined to be disposed of. It appears that the difference between 'surplus' and 'waste', according to the Italian law, is that a surplus occurs at the retail level, whereas a waste occurs at the production level. Nevertheless, the definition of waste may be incomplete. For example, leftover food from catering and restaurants may be waste which is still suitable for donation to soup kitchens.

The concepts of 'use-by' and 'best-before' dates are also relevant when considering what constitutes 'waste'. Two dates commonly seen on the packaging of food, namely 'use-by' and 'best-before', play an important role in deciding whether a particular food is considered as a waste. The difference between the two is related to the difference between safety and quality. Unfortunately, various unregulated 'use-by', 'best-before' and 'sell-by' labelling are stamped onto perishable and non-perishable items. Typically they are not an indication of food safety but act merely as suggestions for peak quality (Gunders, 2017) [32].

The Food Standards Agency in Great Britain makes the distinction between 'use-by' date and 'best-before' dates. In the former, a 'use-by' date refers to food safety, whereas a 'best-before' date refers to product quality, i.e. the product is likely to be safe for consumption but the quality may have deteriorated. Incorrect or ill-defined meaning of 'use by' or 'sell by' dates have been suggested to impose a negative effect of causing good food to be thrown away (Kalashian, 2013) [33]. Thus even the use of 'use by' dates should be meaningful instead of merely comply with statutory requirements without taking into account the potential shelf-life of good products.

In addition to the two above, retailers also adopt a 'sell-by' date which in most cases are some time before the 'use-by' date or 'best-before' date. However since most food items are still in good condition to be consumed long after the sell-by date, and in order to reduce the amount of these food waste at the consumer's purchase stage, the UK Government had taken initiatives to abolish the 'sell-by' warning on the packaging (Barilla Center for Food & Nutrition, 2012) [34]. In Italy, the law was amended to allow the supply of food surplus even after the date of minimum durability as long as the integrity of the primary packaging, suitable storage conditions and further processing are guaranteed.

In some cases, manufacturers may be required by law to provide a best-before date of two years after the manufacturing date, even though the food products, such as salt and dried grains, concerned do not deteriorate in quality that rapidly. Ideally, anti-food waste laws should not be so stringent as to prevent the donation of such food products as long as they can be reasonably determined to be safe for consumption.

4.2 Requirement to Donate

To create the right incentive for the parties to play their part, a carrot and stick approach can be taken. Using stick approach, France has made it mandatory for the retail stores with sales area exceeding 400 square meters to offer to one or more charitable organizations or associations, free foodstuffs that are no longer suitable for sale. Failure to do so will entail a fine.

On the other hand, the Italian favours the carrot approach. Italian law does not impose any penalty for non-compliance but offers generous tax incentives to donors. This incentive scheme applies to every stage, from the production, processing, distribution, to the administration of food, pharmaceuticals and other products. Sometimes, tax incentives may be an effective way to encourage more food donations, as evident in the past in the United States (Van Zuiden, 2012) [35].

The choice between a hard approach of using a stick and a soft approach of carrot could probably boil down to political preferences. Societies which value more freedom and eschew paternalism would likely choose a soft approach whereas societies which are more paternalistic would employ the hard approach. In any case, anti-food waste laws should not be just merely persuasive in their attempt to achieve their objective but should provide for positive or negative consequences, or both, in order to align the stakeholders' incentives to the laws' objectives.

4.3 Liability and Responsibility of Donors

Most of the foodborne diseases are infections caused by a variety of bacteria, viruses, and parasites (Centers for Disease Control and Prevention, 2020) [36]. This suggests that food which has passed the used-by date may place one's health at risk. A perception of risk becomes the main barrier to food donation because of the fear of lawsuits from consumers of surplus food who later fall ill.

One approach to allay this fear of and the barrier to food donation is to exempt donors from liability. Examples of such an exemption can be found in the Bill Emerson Good Samaritan Food Donation Act 1996, the US Federal Food Donation Act 2008, Alberta's Charitable Donation of Food Act 2000, the Philippines's Food Donation Act of 2009 and Malaysia's Food Donors Protection Act 2020.

On the other hand, European countries do not exempt donors from liability. France adopts a different approach which is to impose donor liability for defective products sold under private label. Apart from implementing rules to ascertain the liability of donors, Italian law introduces preventive measures requiring food business operators who make food donations to provide proper operating practices. Proper conservation, transportation, storage and usage of food products need to be guaranteed to ensure the

health and hygiene of the food products. In addition, advisory and monitoring systems are being implemented to govern the distribution of surpluses.

The differences in the approaches taken in the Europe and other countries with regards to product liability are perhaps due to the relative risk of litigation. For example, the United States is frequently perceived as a more litigious country than those in Europe, and tort damages could be very high, especially in places where class action may be applicable (Ramsayer & Rasmusen, 2013) [37]. In such situations, liability exemption may be necessary to spur the practice of voluntary food donations.

On the other hand, European countries are now seen as more risk-averse and adopt a more precautionary approach to safety and risks (Vogel, 2003; Vogel, 2012) [38, 39]. This has resulted in anti-food waste laws not granting liability exemption to donors, but instead impose responsibility on them to ensure that donated food products are safe for consumption.

The role of guidelines cannot be underestimated. Even in countries without anti-food waste law, industrial bodies have started to establish practice guidelines on the safety of donated food. For example, the Finnish Grocery Trade Association has done some work to improve the practice and guidelines on food donation (Stenmarck et al., 2011) [40]. In 2000, the United States' Conference for Food Protection collaborated with industry food-safety experts and non-profit organizations to identify and address emerging problems of food safety and to formulate recommendations. Subsequently, the above conference established a set of food-safety guidelines designed for the recovery of perishable food items from retail outlets such as grocery stores, commercial kitchens and restaurants (Beecher, 2014) [41].

4.4 Role of Food Banks

The role of donee organizations such as food charities and food banks are sometimes also addressed in legislation. For example, French law requires food retailers to enter into a donation contract with donee charitable organizations.

Food banks act as a centre for the distribution of surplus food to the needy after receiving the food products from farmers or retailers. As reported by the USDA's food and recovery coordinator, 3,647,595 pounds of gleaned food were saved from landfills and donated to charities and food shelves in one year alone (Bloom, 2010) [42].

There are obstacles in operating and maintaining food redistribution. The leading obstacles are related to economic and legal factors. With the increase of donations from shops and suppliers, food banks will be tasked to find more extra volunteers, lorries, warehouses and fridges. Food banks might lack the financial resources to perform their functions as a centre for distributing surplus food. In some countries such as the United States, laws imposing food-sharing restrictions may deter donated food products from reaching the homeless and the hungry (Holloway, 2017) [43].

Besides that, farmers and retailers might not be physically close to food banks. The establishment of additional food bank locations could reduce the distance between picking up spots and food banks. If there is an initiative to run a scheduled retrieval service, either every day or periodically, with constant picking-up time, this can help to solve the problem of spoilt food. Furthermore, food banks and distribution centres may

need to link up in a network so as to exchange and forward surplus stocks to remote donees further away from donors.

Requiring donor contracting with a donee organization is a good monitoring mechanism to ensure sustained effort in donating surplus food. It encourages donors to take responsibility to put aside surplus food suitable for donation and also obliges donee organizations to make provisions and facilities to collect and process the donated food products. In addition, it assures a steady source of supply for food banks and soup kitchens. The donation contract may also serve as evidence that donor organizations are participating in useful corporate social responsibility activities.

Finally, food banks, being the direct contact points to the food recipients, also have an advocacy role to play in advocating a 'right to food' as part of human rights (Daly, 2015) [44]. They can play an important role in convincing citizens of the world to channel their excess produce to the food poor who are in need of help to prevent them from lapsing into nutritional poverty.

4.5 Education and Publicity

Using legislation to create an educational and publicity framework may also be a good move in the fight against food waste, especially the donation of surplus food products is not part of existing cultural practices. French, Italian and Chinese laws have provisions to educate and encourage the practice of reducing food waste.

Education and preventing food waste should become in schools. Members of the public could also be taught on how to prevent excessive consumption. Food producers and retailers can also be encouraged through the mass media to participate in food recovery and food donation schemes.

5 Recommendations

From the analysis above, several recommendations can be made for countries or authorities considering passing an anti-food waste law.

- (1) The objectives and strategies of anti-food waste law should be made clear. The battle against food waste is not confined to food donation. For example, French law advocates a five-stage strategy which consists of preventing waste, donating excess food, converting into animal feed, composting for agriculture and incineration for energy recovery.
- (2) The definition of 'food' has to be specified so as to indicate what is allowed or required to be donated. Different countries and cultures might have a different requirement as to what is allowable food donations, so a universal definition may not be possible.
- (3) The definition of 'waste' should also be defined so as to indicate the extent of material that can be donated. It could be a multi-functional definition covering both unsold retail goods as well as discards from the production process. Matters such as expired but usable products should also be addressed.

- (4) The legislature has to decide on whether food donation efforts are implemented on a mandatory basis or a voluntary basis. One possibility is to implement on a voluntary basis while the necessary components are being set in place before mandatory food donation comes in.
- (5) The various actors of food donation have to be identified. Are the requirement to donate only apply to retailers such as grocery stores and supermarkets, or are distributors, manufacturers and farms also have to play their part. Furthermore, donee organizations such as food charities and food banks should also be roped in.
- (6) Liability issue appears to be quite an important concern of some countries, such as the United States. This is perhaps due to the more litigious nature of their legal system. On the other hand, countries in Europe may be more regulatory in nature, and so favours regulation of food safety standards over the exemption of liability.
- (7) Contracts can be used as an enforcement and monitoring mechanism to compel proper food donation processes. For example, in France, retailers are required to enter into a food donation contract with food charities, which will enable food charities to have a steady stream of supply and enables the latter to approach the former for periodic collection. Government procurement contracts, as in the case in the United States, can force government food suppliers such as canteen operators and caterers to donate excess food purchased under government funding.
- (8) The legislature should also consider additional incentives to promote the practice of food donation. A common incentive is to have some form of tax relief.
- (9) It is also useful to provide a law which prevents retailers and food producers to destroy surplus food such that they are no longer edible.
- (10) Finally, education should be a key component in combat against food waste. Consumers should be educated about not wasting food from young, and retailers and producers should be instructed on how to effectively donate food. The mass media through a governmental agency can play an important role in coordinating this educational effort.

6 Conclusion

Anti-food waste law is a fairly new legal phenomenon around the world. Although most countries face problems with disposing of solid waste and landfills become the de facto solution to it, few countries have yet to address the problem from the perspective of food waste. It is hoped that more countries will start taking a more serious look at this problem and adopt one form of anti-food waste law to create a climate for optimal food production and consumption.

A more systematic set of legislation is potentially an effective way to start tackling the global food waste problem, as indicated above, some of the barriers are legal in nature. By addressing the food waste problem, some of the environmental and climate problems that the world is facing may be alleviated (Smith, 2017) [45].

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