Stop Trashing the Planet: Addressing Global Warming and Climate Change from the Perspective of Food Waste Reduction

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I. Introduction

Climate change has been named an "existential threat."[1] Two closely related concepts to climate change are global warming and

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1 Andrew Moseman, *Why Do Some People Call Climate Change an "Existential Threat"?*, MIT CLIMATE PORTAL (Jul. 12, 2021), https://climate.mit.edu/ask-mit/why-do-some-people-call-climate-change-existential-threat [https://perma.cc/U3N9-HYLT].

greenhouse gas emissions. Together, this trio poses one of the most pressing challenges of our time.[2] Natural disasters related to climate change, extreme weather, and water hazards occur five times more often today than they did in 1970, which translates into an average of one disaster every day over the past 50 years.[3] For example, in 2021, the air temperature in Saskylakh, a Russian city north of the Arctic Circle, reached a record-breaking, sweltering ninety degrees Fahrenheit for the first time since 1936.[4] A total of 427 billion tons of ice melts off Arctic and Antarctic glaciers every year, leading to rising sea levels.[5] In fact, the oceans are rising more than twice as fast as in the twentieth century.[6] At this rate, Venice is projected to be underwater by 2100.[7] These are just a few of the headlines in 2021 related to global warming and climate change.[8] The cascading

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2 *Climate Change*, UNITED NATIONS, https://www.un.org/en/global-issues/climate-change [https://perma.cc/56HL-22KU] (last accessed Mar. 28, 2023).

3 *Weather-Related Disasters Increase over Past 50 Years, Causing More Damage but Fewer Deaths*, WORLD METEOROLOGICAL ORG. (Aug. 31, 2021), https://public.wmo.int/en/media/press-release/weather-related-disasters-increase-over-past-50-years-causing-more-damage-fewer [https://perma.cc/R8D7-A8A5].

4 Max Golembo, *Heat Wave in Russia Brings Record Breaking Temperature North of Arctic Circle*, ABC NEWS (Jun. 23, 2021), https://abcnews.go.com/International/heat-wave-russia-brings-record-breaking-temperatures-north/story?id=78446355 [https://perma.cc/ZPW9-4X7N].

5 *See* Austin Lowe & Madison Ryke, *Arctic Now Loses Nearly 300 Billion Tonnes of Ice Every Year*, 9&10 NEWS (Jan. 28, 2021), https://www.9and10news.com/2021/01/28/arctic-now-loses-nearly-300-billion-tonnes-of-ice-every-year/ [https://perma.cc/6J38-GC2P].

6 Rebecca Lindsey, *Climate Change: Global Sea Level*, CLIMATE.GOV (Oct. 7, 2021), https://www.climate.gov/news-features/understanding-climate/climate-change-global-sea-level [https://perma.cc/4SKE-8VMP].

7 Joseph Phelan, *Italy's Plan to Save Venice from Sinking*, BBC (Sept. 27, 2022), https://www.bbc.com/future/article/20220927-italys-plan-to-save-venice-from-sinking [https://perma.cc/ZF9N-6JCU].

8 For another example, on July 20, 2021, more than a year's worth of rain—25.38 inches—poured into Zhengzhou, China, in just twenty-four hours. Jeff Masters, *Extreme Rainfall in China: Over 25 Inches Falls in 24 Hours, Leaving 33 Dead*, YALE CLIMATE CONNECTIONS (Jul. 22, 2021), https://yaleclimateconnections.org/2021/07/extreme-rainfall-in-china-over-25-inches-falls-in-24-hours-leaving-33-dead/ [https://perma.cc/UZU7-AJF2]. The average annual precipitation of the city is only 25.24 inches. *Id.* Similar extreme rainfall also occurred in Germany in July 2021. Nadine Schmidt et. al., *Germany's Worst Rainfall in a Century Leaves Dozen Dead and Hundreds Missing, Authorities Say*, CNN (Jul. 16, 2021, 6:00 AM CDT), https://www.cbs58.com/news/germanys-worst-rainfall-in-a-century-leaves-dozens-dead-and-hundreds-missing-authorities-say [https://perma.cc/2464-KHUP]. Regions in western Germany received more than a month's worth of rainfall in just a day. *Id.*

effect of this environmental change demands solutions, and demands them now.

The international community began to address climate change in 1979, and then, more explicitly, in 1992, when member states ratified the United Nations Framework Convention on Climate Change ("UNFCCC"), the first global treaty to acknowledge "Earth's climate and its adverse effects . . . [on] humankind."[9] The UNFCCC provides guidelines on how international discussions on climate change should be conducted but does not impose any "substantive obligations" on any member states.[10] The Kyoto Protocol of 1997 was the first implementation of the UNFCCC.[11] It mandated all developed economies to reduce their greenhouse gas emissions "by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012."[12] The Doha Amendment succeeded the Kyoto Protocol by extending the commitment period to 2020.[13] Then, in 2015, entered the Paris Agreement.[14] This legally binding international treaty calls every member state to develop its own plan to reduce greenhouse gas emissions, also known as a nationally determined contribution ("NDC").[15] Each NDC must reflect each respective member state's "highest possible ambition,"[16] so that the increase in the average global temperature can be limited to "well below 2°C above pre-industrial levels."[17]

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9 United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107 (noting that the UNFCCC has since been ratified by 197 countries); *see* Lindsay Maizland, *Global Climate Agreements: Successes and Failures*, COUNCIL ON FOREIGN RELS. (Nov. 4, 2022), https://www.cfr.org/backgrounder/paris-global-climate-change-agreements [https://perma.cc/PUP3-752D].

10 K.F. Kuh, *The Law of Climate Change Mitigation: An Overview*, *in* 2 ENCYCLOPEDIA OF THE ANTHROPOCENE 505, 506 (Dominick A. Dellasala & Michael I. Goldstein eds. 2018).

11 *See Climate Change Agreement: From Kyoto to Doha and Beyond*, EUR. PARLIAMENT (Aug. 6, 2015), https://www.europarl.europa.eu/news/en/headlines/society/20150605STO63228/climate-change-agreement-from-kyoto-to-doha-and-beyond [https://perma.cc/9F5Q-SXCH].

12 Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3, Dec. 11, 1997, 2303 U.N.T.S. 162.

13 *Climate Change Agreement*, *supra* note 11.

14 Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104 [hereinafter Paris Agreement].

15 *Id.*

16 *Id*. art. 4(3).

17 *Id.* art. 2(1)(a).

After a temporary withdrawal, the United States re-entered the Paris Agreement on February 19, 2021.[18] Its NDC pledges to at least halve the nation's net greenhouse gas emissions by 2030.[19] Greenhouse gas reductions in the energy sector, agricultural and land, as well as non-CO_2 pollutants such as methane and hydrofluorocarbons, have been identified as major pathways to achieve this goal.[20] Noticeably missing from the United States' NDC are food loss and food waste, two substantial sources of greenhouse gas emissions. As the leading food waster among high-income countries, the United States lacks any comprehensive national plan to combat the issue.[21] In contrast, countries such as France and the United Kingdom ("U.K."), have already developed a series of initiatives to mitigate food loss and waste.[22]

This Note analyzes the need for the United States to address the environmental and ethical impact of food waste within its borders, the different approaches to doing so, and the benefits of adding food waste reduction to its NDC. Part I explains the link between food waste and global warming. Part II assesses how the United States can benefit from including food waste reduction in its NDC. Part III explores international responses to food waste reduction, namely, methodologies used within the European Union ("EU"). Part IV examines the current food waste reduction policies, or the lack thereof, within the United States. Finally, Part V recommends that the United States adopt one of the EU's food waste reduction strategies in order to meet the emissions threshold set forth by the Paris Agreement.

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18 Antony J. Blinken, *The United States Officially Rejoins the Paris Agreement*, U.S. DEP'T OF STATE (Feb. 19, 2021) (noting that President Biden signed the reentry document on January 20, 2021, on his first day in office), https://www.state.gov/the-united-states-officially-rejoins-the-paris-agreement/ [https://perma.cc/HDK8-EW4F].

19 *The United States' Nationally Determined Contribution: Reducing Greenhouse Gases in the United States: A 2030 Emissions Target*, U.N. CLIMATE CHANGE 6 (Apr. 22, 2021) (noting that the United States is determined "[t]o achieve an economy-wide target of reducing its net greenhouse gas emissions by 50-52 percent below 2005 levels in 2030").

20 *Id*. at 4-5.

21 *See* KRISTEN JAGLO ET AL., U.S. ENV'T PROT. AGENCY, FROM FARM TO KITCHEN: THE ENVIRONMENTAL IMPACTS OF U.S. FOOD WASTE 63 (Nov. 2021) [hereinafter EPA FOOD WASTE REPORT].

22 *EU Actions Against Food Waste*, EUR. COMM'N, https://ec.europa.eu/food/safety/food-waste/eu-actions-against-food-waste_en [https://perma.cc/7ZM8-J79Q] (last accessed Mar. 28, 2023).

II. Global Warming: A Dire Problem with Catastrophic Consequences

Climate change and global warming are often used interchangeably, but the terms have two distinct meanings. Climate change refers to the long-term effects of global warming.[23] Global warming, on the other hand, describes the increase in Earth's temperature.[24] The Sixth Assessment Report from the Intergovernmental Panel on Climate Change ("IPCC")[25] found that the global temperature has risen 1.09 °C since the Industrial Revolution.[26] While global warming and cooling are part of Earth's natural cycle, global temperature increase since the late 1800s has been substantially augmented by humans.[27] In fact, 1.07 of the 1.09 °C warming was "anthropogenic," meaning that almost all of the temperature increase in the past 200 years was linked to human-produced greenhouse gases.[28]

A one-degree *global* temperature change is far more impactful and alarming than it sounds.[29] To put this number into perspective, the last time Earth experienced a 1 °C drop, North America entered the Little Ice Age.[30] A 5 °C drop thrusted North America into the Late Glacial Maximum, the time period when a large part of the continent was covered in ice.[31] Similarly, scientists agree that even a 0.5 °C increase—from 1.5 °C to 2 °C—in the global temperature

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23 Caitlyn Kennedy & Rebecca Lindsey, *What's the Difference Between Global Warming and Climate Change?*, CLIMATE.GOV (Jun. 17, 2015), https://www.climate.gov/news-features/climate-qa/whats-difference-between-global-warming-and-climate-change [https://perma.cc/K5CY-JG4T].

24 *Id*.

25 The IPCC is a working group of the United Nations. Its work focuses on the science related to climate change. Experts from all over the world participate in the development of the IPCC reports, which assess the "drivers of climate change, its impacts and future risks, and how adaption and mitigation can reduce those risks." The IPCC is currently on its sixth term. *About the IPCC*, IPCC, https://www.ipcc.ch/about/ [https://perma.cc/UAX9-3XHP] (last accessed Mar. 28, 2023).

26 *Summary for Policymakers*, *in* CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 5 (2021).

27 *See* Kennedy & Lindsey, *supra* note 23.

28 *Summary for Policymakers, supra* note 26, at 13.

29 *See World of Changes: Global Temperatures*, NASA EARTH OBSERVATORY, https://earthobservatory.nasa.gov/world-of-change/global-temperatures [https://perma.cc/UJ54-X8ZS] (last accessed Mar. 28, 2023).

30 *Id.*

31 *See id.*

is going to lead to dire consequences.[32] For example, a 2 °C rise in global temperature is going to destroy 99% of the world's coral reefs, as compared to 70-90% destruction from a 1.5 °C rise.[33] This seemingly incremental difference can also wipe out 13% more of the world's insects.[34]

The phenomenon known as the *greenhouse effect* is partially responsible for global warming.[35] Sunlight that reaches the Earth's surface is either absorbed by the land and oceans, which heats the globe, or is reflected back to space as infrared light.[36] Further warming of the Earth occurs when greenhouse gases, such as carbon dioxide, methane, and nitrous oxide, trap some of the reflected heat and redirect it back to Earth's surface.[37] The intensity of the greenhouse effect is influenced by the abundance, lifetime, and global warming potential ("GWP") of the greenhouse gases in the atmosphere.[38] For example, carbon dioxide is a potent greenhouse gas because once it is emitted into the atmosphere, it can persist for more than ten thousand years.[39] Although it has a far shorter lifetime than carbon dioxide, methane is equally adverse to global warming because it is twenty-five times more effective in absorbing heat.[40] Together, these factors and human production of greenhouse gases contribute to the increase in Earth's temperature.

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32 *See* Bruce Lieberman, *1.5 or 2 Degrees Celsius of Additional Global Warming: Does it Make a Difference?*, YALE CLIMATE CONNECTIONS (Aug. 4, 2021) https://yaleclimateconnections.org/2021/08/1-5-or-2-degrees-celsius-of-additional-global-warming-does-it-make-a-difference/ [https://perma.cc/PRH8-TRZU].

33 *Id.*

34 *Id.* (noting that 18% as compared to 6% of the world's insects would disappear as a result of a 2 °C instead of 1.5 °C warming).

35 Melissa Denchak, *Greenhouse Effect 101*, NAT. RES. DEF. COUNCIL (Jul. 16, 2019), https://www.nrdc.org/stories/greenhouse-effect-101 [https://perma.cc/S755-FBKB].

36 *Id.*

37 *Id.*

38 *Id.* A greenhouse gas's lifetime means the time it takes a greenhouse gas to dissipate completely once it is emitted into the atmosphere. GWP measures the greenhouse gas's effectiveness in trapping heat. *Id.*

39 *Id.*

40 *Id.*

A. Food Waste: An Overlooked Player in the Global Warming Crisis

Scientists have identified human activities in the agricultural, energy, and transportation sectors as major sources of greenhouse gas that accelerate global warming.[41] Agriculture is a subsector of the broader and "globalized" food system,[42] which can be broadly divided into five different stages: (1) production; (2) post-harvest; (3) processing; (4) distribution; and (5) consumption.[43] Each stage of the food supply chain incurs some loss or waste.[44]

Food loss and food waste both describe the "decrease in the quantity or quality of food," but at different points of the food supply chain.[45] Decreases that occur earlier in the food supply chain—during the production, storage, process, and distribution phases—are categorized as food *loss*.[46] Decreases that take place later in the food supply chain—during the retail and consumption phases—are referred to as food *waste*.[47] While the former is almost inevitable due to the malfunctioning and inefficiencies of the food production and supply system, the latter is almost exclusively done by neglect, poor management, or even choice.[48] Each year, "an estimated 1.3 billion tons of food," or "one third of all food produced for human consumption is lost or wasted."[49] Of that discarded food, more food is wasted (17%) than is lost from harvest

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41 The energy sector is responsible for the vast majority (75.6%) of anthropogenic greenhouse gas emissions, followed by agriculture (11.6%), industrial processes of chemicals (6.1%), waste management (3.3%), and land-use change and deforestation (3.3%). Mengpin Ge et al., *4 Charts Explain Greenhouse Gas Emission by Countries and Sectors*, WORLD RES. INST. (Feb. 6, 2020), https://www.wri.org/insights/4-charts-explain-greenhouse-gas-emissions-countries-and-sectors [https://perma.cc/G2MQ-RPTN].

42 HOPE JOHNSON, INTERNATIONAL AGRICULTURAL LAW AND POLICY: A RIGHTS-BASED APPROACH TO FOOD SECURITY 1 (2018).

43 Maryam Rezaei & Bin Liu, *Food Loss and Waste in the Food Supply Chain*, NUTFRUIT MAG., July 2017, at 26.

44 *Id.*

45 *Food Loss and Waste Database*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, https://www.fao.org/food-loss-and-food-waste/flw-data [https://perma.cc/ZT56-TPVJ] (last accessed Mar. 28, 2023).

46 *Id.*

47 *Id.*

48 Rezaei & Liu, *supra* note 43.

49 *5 Facts About Food Waste and Hunger*, WORLD FOOD PROGRAMME (Jun. 2, 2020), https://www.wfp.org/stories/5-facts-about-food-waste-and-hunger [https://perma.cc/TSQ7-H2XB].

to retail (14%).[50] Close to two-thirds of that waste occurs at home, followed by 26% by food services and 13% by retailers.[51]

Food loss and food waste contribute to global warming through their immense greenhouse gas footprint. Decomposed food waste in landfills releases methane, a greenhouse gas that is much more potent at trapping heat than carbon dioxide.[52] It has been widely noted that food waste emits 10% of the global greenhouse gas emissions, which is even more than the "8% that was previously thought."[53] Indeed, if the amount of food wasted were to be measured as a country, "it would be the world's third largest greenhouse gas emitter," placing only after China (21% of global emissions) and the United States (13% of global emissions).[54] In comparison, cars driven in the United States and Europe (only) account for approximately 5% of the global greenhouse gas emission.[55]

Another troubling aspect of food loss and waste is that producing food that never makes it to the table depletes a whole host of Earth's resources. In total, the global food system uses nearly three-quarters of all fresh water and almost half of all arable land, and decreases biodiversity due to land clearance and the use of fertilizers and pesticides.[56] Because a significant amount of energy, fuel, water, and labor are expended in the production, transportation, and storage of unconsumed food, the later food waste happens in the supply chain, the more resources are wasted.[57]

In addition to its environmental impact, the social and humanitarian effects of food loss and waste are equally unsettling.[58]

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50 *See* Candice Choi, *17% of Food Produced Globally Wasted Every Year, U.N. Report Estimates*, GLOB. NEWS (Mar. 3, 2021, 11:02 A.M.), https://globalnews.ca/news/7676470/global-food-waste-un-report/ [https://perma.cc/RX2Q-MRBX].

51 *Id*.

52 Denchak, *supra* note 35.

53 Lilian Gikandi, *10% of All Greenhouse Gas Emissions Come from Food We Throw in the Bin*, WORLD WIDE FUND FOR NATURE (Jul. 21, 2021), https://updates.panda.org/driven-to-waste-report [https://perma.cc/N9U5-AC4K].

54 EPA FOOD WASTE REPORT, *supra* note 21, at 70.

55 Gikandi, *supra* note 53.

56 EPA FOOD WASTE REPORT, *supra* note 21, at 70.

57 *See id*.

58 Press Release, UN Environment Programme, Food Loss and Waste Must Be Reduced for Greater Food Security and Environmental Sustainability (Sept. 29, 2020),

Globally, 957 million people across ninety-three countries still suffer from hunger.[59] Recovering the discarded food could feed two billion people, or the number of undernourished people across the globe twice over.[60] Not reversing the trend in food waste can exacerbate world hunger, given the global population is projected to exceed nine billion by 2050, and accordingly, demand a 50% increase in food production.[61] Demand for more resource-intensive food, such as animal products, is also expected to grow by 70% by 2050.[62]

B. The United States: The Leading Food Waster Amongst Developed Economies[63]

The double threat of food loss and waste on the global scale is reflected, and perhaps even magnified, within American borders. Each year, Americans throw away 119 billion pounds of food.[64] That is "nearly 40% of all food in America," an amount that could easily feed the thirty-four million individuals facing hunger in the nation.[65] On the whole, more food is wasted in the United States than in France, Great Britain, Germany, Italy, and Sweden combined.[66] The data do not get better when viewed on a per capita basis: the United States wastes more food per person per day than

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https://www.unep.org/news-and-stories/press-release/food-loss-and-waste-must-be-reduced-greater-food-security-and [https://perma.cc/82TX-M9CW] (quoting Antonio Guterres, United Nations Secretary-General, as saying that food loss and waste is "an ethical outrage").

59 Gernot Laganda, *2021 Is Going to Be a Bad Year for World Hunger*, UNITED NATIONS, https://www.un.org/en/food-systems-summit/news/2021-going-be-bad-year-world-hunger [https://perma.cc/GU7C-8GAM] (last accessed Mar. 28, 2023).

60 *5 Facts About Food Waste and Hunger*, *supra* note 49.

61 EPA FOOD WASTE REPORT, *supra* note 21, at 1.

62 *Id.* at 70.

63 *See id.* at 1.

64 *How We Fight Food Waste in the U.S.*, FEEDING AM., https://www.feedingamerica.org/our-work/our-approach/reduce-food-waste [https://perma.cc/H837-WSB5]; *see also* Mary K. Muth et al., *A Systems Approach to Assessing Environmental and Economic Effects of Food Loss and Waste Interventions in the United States*, 685 SCI. TOTAL ENV'T 1240, 1240 (2019) (estimating that food loss and waste in the United States can be up to 50% depending on how food loss and food waste are defined).

65 *How We Fight Food Waste in the U.S. supra* note 64.

66 *15 Countries that Waste the Most Food*, EARTH.ORG (Jan. 11, 2021) https://earth.org/countries-that-waste-the-most-food/ [https://perma.cc/J42K-QSJP].

any other country.[67] Americans use "an area equal to California and New York combined" to produce unconsumed food.[68] Food waste also results in the use of twenty-two trillion liters of water, which is more than the water usage of fifty million American family homes.[69] Further, wasted food in American landfills generates a larger carbon footprint than the American airline industry,[70] or "more than the emissions of 42 coal-fired power plants or 36 million passenger vehicles each year."[71]

III. Assessment of the United States' Nationally Determined Contribution

Despite the potential benefits of reducing food loss and food waste, such as addressing world hunger, alleviating agricultural pressure exerted on land and biodiversity, and lowering the environmental costs associated with producing uneaten food, reduction strategies in this area remain largely unacknowledged by member states.[72] Less than a dozen countries set their greenhouse gas emission targets related to the food system, and notably, not a single country has explicitly discussed reducing food waste as a means to achieve emission reduction in its NDC.[73]

Mirroring the lack of food system's presence in NDCs, the United States' national plan to lessen its greenhouse gas emission, and hence to limit global warming, also does not reference food waste.[74] Although the United States recognizes the agricultural and land sector as a major emitter of carbon dioxide, nitrous dioxide, and methane, its discussion of this sector is limited to preserving natural carbon sinks, adopting environmentally friendly agricultural

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67 Wilson Chapman, *U.S. Tops Rankings in Food Waste* (Jul. 29, 2019) https://www.usnews.com/news/best-countries/articles/2019-07-29/the-us-wastes-more-food-per-person-than-other-developed-countries-report-says

68 EPA FOOD WASTE REPORT, *supra* note 21, at 54.

69 *Id*. at 79.

70 Sarah Kaplan, *A Third of All Food in the U.S. Gets Wasted. Fixing That Could Help Fight Climate Change.*, WASH. POST (Feb. 25, 2021), https://www.washingtonpost.com/climate-solutions/2021/02/25/climate-curious-food-waste/ [https://perma.cc/D72S-A83H].

71 EPA FOOD WASTE REPORT, *supra* note 21, at 48.

72 INGRID SCHULTE ET AL., WORLD WILDLIFE FUND GER., ENHANCING NDCS FOR FOOD SYSTEMS: RECOMMENDATIONS FOR DECISION-MAKERS 9 (Aug. 2020).

73 *Id*.

74 *See United States' Nationally Determined Contribution*, *supra* note 19, at 13-14.

practices, and optimizing food productivity.[75] While the latter may help to minimize food loss, a solution to decrease the environmental footprint of the food system through waste reduction is simply not considered. Further, the United States' NDC is outlined in rather broad strokes; it does not elaborate on the specific and concrete steps to achieve its emission reduction target.

Amending its NDC to include food waste reduction, in addition to food loss prevention, may yield more greenhouse gas savings for the United States. This is because low-income countries suffer from more food loss due to inefficiencies during the production stages, and high-income countries, like the United States, experience more food waste as a result of consumer rejections of aesthetically unpleasing food.[76] This consumer behavior also drives restaurants and grocery stores at the retail level to throw away food prematurely.[77] In addition, food loss at the farm level is commonly caused by weather or changing consumer demands, which are difficult to control and hard to predict.[78] Therefore, aiming to reduce the conscious discard of food rather than addressing inefficiencies in the food supply chain is likely more suitable for the United States. Fortunately, American policymakers do not have to look far for effective food waste reduction strategies.

IV. The International Response to Food Waste and Its Governing Framework

Recognizing the profound implications and considerable benefits of curbing food loss and waste, the United Nations ("U.N.") has made reducing food loss and waste one of its top priorities.[79] On September 27, 2015, the U.N. General Assembly officially agreed on a set of seventeen sustainable development goals ("SDGs") as part of its 2030 Agenda for Sustainable Development.[80] Twelve of

75 *Id.* at 5.

76 *See* Rezaei & Liu, *supra* note 43.

77 *See id.*

78 EPA FOOD WASTE REPORT, *supra* note 21, at 3.

79 *See Sustainable Development Goals*, FOOD & AGRIC. ORG. OF THE UNITED NATIONS, https://www.fao.org/sustainable-development-goals/indicators/1231/en/ [https://perma.cc/9W4V-2ZNL] (last accessed Mar. 28, 2023).

80 *Heads of State and Government Adopt 2030 Agenda for Sustainable Development*, INT'L INST. FOR SUSTAINABLE DEV. (Sept. 28, 2015), https://sdg.iisd.org/news/heads-of-state-and-government-adopt-2030-agenda-for-sustainable-development/ [https://perma.cc/NM6J-UAEV].

them concern the food system.[81] For example, SDGs 2.1 and 2.2 aim to "end hunger" and "all forms of malnutrition" by 2030.[82] SDGs 6 and 15 discuss the successful and "sustainable management of water," land degradation, and biodiversity loss.[83] Most pertinent to the issue of food loss and waste is SDG 12.[84] It calls for "halv[ing] per capita global food waste at the retail and consumption level and reduc[ing] food losses along production and supply chains, including post-harvest losses" by 2030.[85] This target aims to address the relentless extraction of the Earth's resources and to combat the double threat of food loss and waste.[86]

The Waste Framework Directive is the primary governing law for waste management in the EU.[87] When the legislation was passed in 2008, it categorized food waste as "bio-waste,"[88] and only briefly described the treatment of this type of waste.[89] Similarly, earlier EU regulations discussed reduction of biodegradable waste, but also in general terms.[90] Following the call to action and in its commitment to meeting SDG 12, the Waste Frame Directive was revised to include two provisions aimed at preventing food waste:

> (31) . . . Member States should aim to achieve an indicative Union-wide food waste reduction target of 30% by 2025 and 50% by 2030 . . . [and] Member States should establish specific food waste prevention measures, including awareness campaigns to demonstrate how to prevent food waste, in their waste prevention programmes.[91]
>
> (32) In order to prevent food waste, Member States should provide incentives for the collection of unsold food products at all stages of the food supply chain and for their safe redistribution, including to charitable organisations. Consumer awareness of the meaning of "use-by" and "best-before" dates should also be

81 JOHNSON, *supra* note 42, at 3.

82 *Heads of State and Government Adopt 2030 Agenda*, *supra* note 80.

83 *Id.*

84 *Sustainable Development Goals*, *supra* note 79.

85 *Id.*

86 *Heads of State and Government Adopt 2030 Agenda*, *supra* note 80.

87 Council Directive 2008/98, art. 3(4), 2008 O.J. (L 312) (EC).

88 *Id.*; *see also EU Actions Against Food Waste*, *supra* note 22.

89 *See* Council Directive 2008/98, *supra* note 87, art. 22.

90 *See* Council Directive 1999/31, art. 5, 1999 O.J. (L 182) (EC).

91 Council Directive 2018/851, art. 31, 2018 O.J. (L 150) (EU).

improved in order to reduce food waste.[92]

As specific as the goals and the mechanisms to achieve the goals are, these amendments lack any legal force. The new provisions do not mandate but only encourage compliance. In fact, the European Commission has until the end of 2023 to propose legally binding reduction targets.[93] While the French chose the food donation route to halve food waste, the Brits decided to focus on their food labeling laws.[94] The following sections will present the two different approaches taken by the French and the U.K. governments and examine their applicability in the United States.

A. France's Food Waste Reduction Strategy: Mandatory Food Donation

In contrast to the non-legally binding initiatives from the EU Commission, France took a much firmer step against food waste by mandating a ban on supermarket waste.[95] The first of its kind in the world, this French law (1) prohibits French grocery stores and supermarkets of a certain size from "destroying surplus edible food"[96] and (2) requires "all unsold but edible food [to] be donated to charities for immediate distribution" and "[f]ood that is unsafe to eat [be] donated to farms for agricultural purposes."[97] If a covered business fails to contract with a local charity for donations, the business is subject to a penalty of $4,500 for each violation.[98] The

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92 *Id.*, art. 32.

93 *EU Actions Against Food Waste*, *supra* note 22.

94 *See infra* Part IV.A and IV.B.

95 Loi 2016-138 du 11 février 2016 relative à la lutte contre le gaspillage alimentaire [Law 2016-138 of February 11, 2016 on the Fight Against Food Waste], JOURNAL OFFICIEL DE LA RÉPUBLIQUE FRANÇAISE [J.O.] [OFFICIAL GAZETTE OF FRANCE], Feb. 12, 2016; Lindsay Bunting Eubanks, *From a Culture of Food Waste to a Culture of Food Security: A Comparison of Food Waste Law and Policy in France and in the United States*, 43 WM. & MARY ENV'T L. & POL'Y REV. 667, 677 (2019).

96 Kelsey Walsh, *Food Insecurity and the French Solution to an American Problem*, 6 IND. J. L. SOC. EQUAL. 161, 170 (2018) (referring to the French law, *supra* note 95).

97 Edward Delman, *Should It Be Illegal for Supermarkets to Waste Food?*, THE ATLANTIC (May 29, 2015), http://www.theatlantic.com/international/archive/2015/05/law-france-supermarkets-food-waste/394481/ [https://perma.cc/T6ZQ-MNC6] (referring to the French law, *supra* note 95).

98 Eleanor Beardsley, *French Food Waste Law Changing How Grocery Stores Approach Excess Food*, NPR (Feb. 24, 2018) https://www.npr.org/sections/thesalt/2018/02/24/586579455/french-food-waste-law-

first prong of the legislation addresses the unnecessary destruction of excess consumable food. For instance, the law has prevented the common practice of food bleaching by French grocery stores, where unsold products are doused with bleach to keep people from dumpster diving.[99] The second prong of the legislation requires food donation, making more groceries—both in quality and quantity—available to food bank visitors.

This bifurcated approach to combating food waste originated from *Fighting Food Waste: Proposals for a Public Policy*, a regulatory framework containing thirty-six different mechanisms aimed at halving food waste within France by 2025.[100] As early as 2013, French lawmakers had already begun to implement policies that would achieve this goal and to "place France on the cutting edge of the fight against food waste internationally."[101] The unanimous adoption of the law banning supermarket waste and mandating food donation to charitable organizations is a testament to the French government's commitment to food waste reduction and reflects wide public support.[102] More than 211,000 French citizens and 740,000 people in Europe supported this legislation.[103]

The legislation's effects have looked promising. In 2019, the French Federation of Food Banks reported that more than 2,700 large supermarkets rescued approximately 46,000 tons of unsold, near-expiration-date food every year by giving them away to local charities.[104] Food banks received 20% more donations than previous years, exceeding the 15% expectation.[105] Supermarkets have also noted the added benefit of not having to schedule additional trash bins to remove the food that otherwise would have been thrown

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changing-how-grocery-stores-approach-excess-food [https://perma.cc/JN6J-XM3W].

99 Walsh, *supra* note 96, at 170.

100 *See* MARIE MOURAD, NAT. RES. DEF. COUNCIL, FRANCE MOVES TOWARD A NATIONAL POLICY AGAINST FOOD WASTE 3 (Sept. 2015).

101 *See id.*

102 Walsh, *supra* note 96, at 169.

103 Kim Willsher, *French MPs Vote to Force Supermarkets to Give Away Unsold Food*, THE GUARDIAN (Dec. 10, 2015), https://www.theguardian.com/world/2015/dec/10/france-vote-force-supermarkets-give-away-unsold-food-waste [https://perma.cc/W99Z-3TJ3].

104 Melanie Saltzman et al*., Is France's Groundbreaking Food-Waste Law Working?* PBS NEWSHOUR (Aug. 31, 2019), https://www.pbs.org/newshour/show/is-frances-groundbreaking-food-waste-law-working [https://perma.cc/75H7-NYQU].

105 *Id.*; Willsher, *supra* note 103.

away in the absence of the legislation.[106] The bill also came with economic incentives where grocery stores can enjoy a tax deduction on "as much as 60% on the inventory value of the donated food."[107] However, some remain less optimistic about the effectiveness of the law, noting that some food had become inedible by the time it was delivered to the destination.[108] Yet, the grocery stores that made the donations presumably still receive the tax break.[109]

B. The United Kingdom's Food Waste Reduction Strategy: Better Guidance on EU's Date Marking Regulation

In comparison to the strict regulation adopted by its French neighbors, which solely regulated supermarkets and other food distribution retailers along the food supply chain, the U.K. aimed to reduce food waste by helping industries to better implement new policies and customers to better understand existing food labeling regulations.[110] Studies have shown that as much as 15% of the food discarded in the U.K. is due to confusion in date marking.[111] Food date labeling laws in the U.K. fall under the governance of the EU Food Information to Consumers ("FIC") Regulation No. 1169/2011, which has been retained.[112] It states that either the date of minimum durability (also known as the "best before" date) or the "use by" date must be displayed on the food package.[113] The best-before date is defined as "the date until which the food retains its

106 Saltzman et al., *supra* note 104.

107 *Id.*

108 *Id.*

109 *Id.*

110 *See* WASTE & RES. ACTION PROGRAMME, DEVELOPMENT OF BEST PRACTICE ON FOOD DATE LABELLING AND STORAGE ADVICE (Nov. 2019) [hereinafter U.K. FOOD DATE LABELLING GUIDANCE].

111 Sean Russell, *Use By, Sell By, Best Before: Why Confusing Labelling is Causing Food Waste and How to Stop It*, INDEPENDENT (May. 22, 2021), https://www.independent.co.uk/life-style/food-and-drink/food-use-by-date-mean-b1844947.html [https://perma.cc/R352-AJ8P].

112 *Packaging and Labelling*, FOOD STANDARDS AGENCY (Nov. 4, 2022), https://www.food.gov.uk/business-guidance/packaging-and-labelling [https://perma.cc/9RL2-QLDW] (noting that whereas EU food laws, including this particular legislation, continue to apply in Northern Ireland, Great Britain follows the retained version of Council Regulation 1169/2011, 2011 O.J. (L 304) (EU)); European Union (Withdrawal) Act 2018, c. 16, § 7 (UK), https://www.legislation.gov.uk/ukpga/2018/16/section/7 [https://perma.cc/ZD37-EVNA].

113 Council Regulation 1169/2011, *supra* note 112, art. 9(1)(f), annex X.

specific properties when properly stored."[114] The use-by date is the last date when "highly perishable" food items are safe to consume.[115] Thus, the best-by date describes food quality and the use-by date measures food safety.[116] Yet, the EU commission does not offer much guidance on when to apply which labeling.[117]

Recognizing the gap between the EU legislation and its application, the U.K. government published guidance on best practices in food labeling.[118] It advocates for a decision tree composed of four questions that inquire about the food's microbiological properties (if any), the likelihood that these microbiological properties will change and pose a danger to human health, whether the food requires additional cooking, and if so, whether additional cooking will reduce or eliminate the danger.[119] If the answer to all of the questions above is *no*, then the best-before date should be used.[120] Further, the guidance indicates that the phrase used to describe the use-by and best-before dates should be clear and consistent.[121] For example, the only acceptable way to describe the use-by date is to use the phrase "use-by."[122] In comparison, both "best-before" and "best-before end" can be used as food quality indicators.[123]

To date, the U.K. has reduced around 1.7 metric tons of food waste and thereby eliminated 5.7 metric tons of greenhouse gas emissions.[124] With a 27% per capita reduction, the U.K. became the first state in the world to achieve more than half of the reduction goal set by SDG 12.[125] It is on its way to reach the target of 50%

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114 *Id.* art. 2(2)(r).

115 *Id.* art. 24.

116 *See id*. art. 2(2)(r).

117 Hanne Møller et. al., *Date labelling in the Nordic countries: Practice of legislation*, NORDIC COUNCIL OF MINISTERS 1, 16 (2014).

118 U.K. FOOD DATE LABELLING GUIDANCE, *supra* note 110.

119 *Id.* at 45.

120 *Id*.

121 *See id*. at 50, annex C.

122 *Id.*

123 *Id.*

124 Arlene Karidis, *How UK is Closing in on Halving Food Waste by 2030*, WASTE360 (Apr. 23, 2021), https://www.waste360.com/food-waste/how-uk-closing-halving-food-waste-2030 [https://perma.cc/HV49-9FW7].

125 *Id.*

food waste reduction by 2030.[126] Although the date marking guidance is not the only initiative the U.K. has used to reduce food waste, it has greatly contributed to waste reduction at the household and the retail level, the two primary targets of the guidance.[127]

V. The Current State (or the Lack) of the United States' Response to Food Waste

The United States' current policies on food waste regulation remain few, stagnant, and ineffective.[128] One of the most prominent American food donation laws is the Bill Emerson Good Samaritan Food Donation Act ("Act").[129] In contrast to the French mandatory donation law, the Act does not require businesses to enter into contracts with charities, but only encourages food donations by affording covered entities protection against "legal liability for food poisoning or other illnesses that may occur from consuming the donated food."[130] The Act protects both "a person or gleaner"[131] who donates food to charities, as well as charities that accept such donations and in turn redistribute the items to third parties.[132] The Act emphasizes that the covered person or entity must have donated, received, and redistributed food in "good faith."[133] More importantly, the legislation's protection does not apply when a donor acted with "gross negligence or intentional misconduct."[134] This represents a departure from the traditional American law, which would hold the person strictly liable when a donated product

126 Brian Lipinski, *SDG Target 12.3 on Food Loss and Waste: 2020 Progress Report*, WORLD RES. INST. (Sept. 2020).

127 *See id.*

128 *See* EPA FOOD WASTE REPORT, *supra* note 21, at ii.

129 42 U.S.C. § 1791; *see also* Jenn F. Wachtel, *Eat Every Carrot and Pea on Your Plate: Climate Change and Fining Food Waste*, 22 OR. REV. INT'L L. 23, 28 (2021).

130 Watchel, *supra* note 129.

131 42 U.S.C. § 1791(1)(c)(1) (2012). Gleaning, or "[f]ield gleaning," denotes the "collection of crops from farmers' fields that have already been mechanically harvested or where it is not economically or logistically feasible to field harvest. It can also include the collection of already harvested food at packing sheds." LAURIE J. BEYRANEVAND ET AL., VT. L. SCH., THE NATIONAL GLEANING PROJECT: GLEANING RESOURCES HUB 7 (May 2015), http://forms.vermontlaw.edu/farmgleaning/GleaningReport.pdf [https://perma.cc/LSR4-5FXC].

132 42 U.S.C. § 1791(1)(c)(2) (2012).

133 *Id.*

134 *Id.* § 1791(1)(c)(3).

results in the recipient's injury or death.[135]

Despite the lowered liability standard, the Act failed to save surplus but edible food from being wasted.[136] Foremost, the Act does not directly address food waste, but regulates when too much food has already been produced or bought.[137] It encourages people to donate more freely without incurring liability but does not encourage the responsible purchase of food.[138] Thus, the Act misses the source of the problem. Second, the Act is not well known by restaurants or grocery stores, rendering its legal force an "underutilized" one.[139]

In addition, the Act's effectiveness is crippled by the lack of a federal food date label regulation.[140] The Act allows for the donation of "apparently *wholesome* food or an apparently *fit* grocery product."[141] Yet, the law does not define either term.[142] The U.S. Department of Agriculture has interpreted this standard to encompass food that "meet[s] all quality and labeling standards imposed by federal, state, and local laws and regulations."[143] However, other than infant formula, the federal government does not impose any specific date marking requirements on any food packages, despite its extensive regulation on other food labels, such as nutrient contents and allergen list.[144] Thus, without a federal standard for food date labels, it becomes difficult for businesses to decide what is acceptable for donation. Moreover, many labels refer

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135 Eubanks, *supra* note 95, at 669.

136 Wachtel, *supra* note 129, at 28.

137 *Id.* at 29.

138 *See* 42 U.S.C. §§ 1791(1)(c)(1)-(c)(3) (2012).

139 *See* James Haley, *The Legal Guide to the Bill Emerson Good Samaritan Food Donation Act*, 2013 ARK. L. NOTES 1448, ¶ 4 (2013).

140 NAT'L RES. DEF. COUNCIL, RECOMMENDATIONS TO STRENGTHEN THE BILL EMERSON GOOD SAMARITAN ACT 2 (Sept. 2016).

141 *See* 42 U.S.C. §§ 1791(1)(c)(1)-(c)(2) (2012) (emphasis added).

142 *See id.*

143 *Frequently Asked Questions About the Bill Emerson Good Samaritan Food Donation Act*, U.S. DEPT. OF AGRIC. (Aug. 22, 2022), https://www.usda.gov/media/blog/2020/08/13/good-samaritan-act-provides-liability-protection-food-donations [https://perma.cc/4YTD-SDE4].

144 *Food Product Dating*, FOOD SAFETY & INSPECTION SERV. (Oct. 2, 2019) https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/food-safety-basics/food-product-dating [https://perma.cc/SV2Q-FTUL].

to product freshness rather than safety.[145] Because the Act does not explicitly extend protection to donations of food past their peak freshness, donors are hesitant to donate such food or are deterred from donation altogether.[146]

VI. Recommendations to Strengthen the United States' Food Waste Reduction Strategy

Implementing the French approach in the United States would likely create significant challenges. Mandatory donation is not only paradoxical but also does not align well with the American psyche.[147] The American public has a history of resisting coercive government measures. For example, the passing of the Affordable Care Act ("ACA") in 2013, a federal law requiring all eligible individuals to purchase health insurance, was met with much controversy.[148] Twenty-six states joined together to bring a lawsuit against the then Secretary of Health and Human Services, Kathleen Sebelius, challenging the constitutionality of the legislation.[149] Although the Supreme Court eventually upheld what the critics deemed as an overreaching of federal power, the ACA met constitutional standards "just barely."[150] Since more than half of the food waste in America occurs in homes and restaurants,[151] an enactment of the French law in the United States would also fail to capture the bulk of the discarded food in the country.

Instead, the United States can benefit much more from the adoption of the EU's regulation on food date labeling and issue a best practice guidance similar to that of the U.K. government. In the absence of any federal oversight over date marking, American consumers rely on an agglomerate of disjointed state regulations—which vary from state to state and product to product—to determine when to keep or throw away food.[152] Currently, there are fifty unique

145 NAT'L RES. DEF. COUNCIL, *supra* note 140.

146 *Id.*

147 Eubanks, *supra* note 95, at 679.

148 Alicia R. Ouellette, *Health Reform and the Supreme Court: The ACA Survives the Battle of the Broccoli and Fortifies Itself Against Future Attack*, 76 ALB. L. REV. 87, 92 (2013).

149 *Id.* at 90.

150 *Id.* at 118.

151 EPA FOOD WASTE REPORT, *supra* note 21, at 14.

152 HARV. L. SCH. FOOD L. & POL'Y CLINIC, DATE LABELS: THE CASE FOR FEDERAL LEGISLATION 1 (June 2019) (citing confusing food date labels as a cause of food waste that

food date labeling laws in the United States.[153] The confusion arises from the variety of phrases used on labels.[154] The four most commonly used labels are: (1) best if used by/best before date; (2) freeze-by date; (3) use-by date; and (4) sell-by date.[155] The first two descriptors are related to food quality; the third phrase indicates food safety; and the last label has nothing to do with food consumption but how long products can be displayed inside stores.[156] This variety of date labels causes consumers to discard products because they are no longer at their peak freshness or optimal appearance rather than because they are no longer safe to eat,[157] which leads to unnecessary waste.

Adding more to the confusion, some states even require date marking related neither to food safety nor to food quality, but to specific "steps in food manufacturing or processing."[158] For example, eggs in Colorado must be labeled with their pack date,[159] and milk in Montana must be labeled with its pasteurized date.[160] Unlike the EU regulation that requires either a use-by or best before date to ensure consumer safety, these unrelated pieces of information have nothing to do with consumer safety and undermine the purpose of date marking, which is to communicate food information to consumers, not retailers.[161] Furthermore, some states' food date labeling regulations make food waste reduction impossible.[162] They prohibit the sale and donation of food past the labeling date even if that date is related to food quality instead of food safety.[163] Such laws not only result in unnecessary waste, but also perpetuate consumers' misunderstanding of food date labels,

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"results in an estimated $29 billion in wasted consumer spending each year").

153 *Id.* at 3 ("New York, for example, does not require date labels on any products, but all 6 of its neighboring states—New Jersey, Pennsylvania, Connecticut, Massachusetts, Vermont, and Rhode Island—impose date labeling requirements.").

154 *Id.* at 1-2.

155 *Food Product Dating*, *supra* note 144.

156 *Id.*

157 *See generally* HARV. L. SCH. FOOD L. & POL'Y CLINIC, *supra* note 152, at 3-4.

158 *Id*. at 6.

159 8 COLO. CODE REGS. § 1202-10-3.0 (2017).

160 MONT. ADMIN. R. 32.8.203 (2017).

161 *See* HARV. L. SCH. FOOD L. & POL'Y CLINIC, *supra* note 152, at 6.

162 *See id*.

163 *Id.* at 7.

leading to further waste.[164]

A federal law designed to standardize food date labels across all fifty states is already in the works. But the bill leaves much to be desired. The Food Date Labeling Act of 2021 was introduced on December 7, 2021, as Senate Bill 3324.[165] Foremost, unlike the EU food date regulation that limits the display date to either a single quality or a single safety indicator, the current proposed text of SB 3324 does not require any date labels to be displayed on food packages, nor does it restrict the number of date labels that can be displayed.[166] Instead, the legislation states that manufacturers, processors, and retailers decide when to display a best-by or a use-by date and on what type of food "at [their] discretion."[167]

The lack of mandates present two problems: (1) it fails to enforce the use of a single date marker, that is, a food labeler may (continue) to provide information unrelated to food quality or safety in addition to the desired best-by or use-by dates; and (2) it fails to clarify when to use a quality instead of a safety date label, meaning the current confusion regarding the patchwork of date labeling regulations remains unresolved. Therefore, SB 3324 misses the opportunity to standardize date marking across food types as well as across all states. In addition, the bill—without specifying which label to use, if any— once passed, would preempt state laws on food date labeling and thus counteract stricter state regulations on date marking. On the other hand, the bill does explicitly permit the sale and donation of food past its quality date,[168] which would close the gap left by the Bill Emerson Donation Act. In order to effectively standardize food date labeling in the nation, the text of the bill should be strengthened to help its enactment.[169]

VII. Conclusion

Food waste represents a substantial source of greenhouse gas emission. The United States contributes significantly to the global

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164 *Id.*

165 Food Date Labeling Act of 2021, S. 3324, 117th Cong. (2021)

166 *See id.* §§ 3(a)(3), 3(b)(3).

167 *Id.*

168 *Id.* § 3(e)(3)(B).

169 The provisions of the Food Date Labeling Act have since been incorporated almost verbatim into another proposed bill. The issue of not having a uniform standard for date labeling remains. *See* Agriculture Resilient Act of 2023, S. 1016, 118th Cong. §§ 701-702 (2023).

food waste problem. Therefore, the United States must play an equally prominent role in alleviating the problem it has helped to create. The country has pledged to at least halve the greenhouse gas emission within its borders by 2030. Given the immense impact of food waste on global warming, including food waste reduction policies in its NDC could help the United States in meeting its ambitious emission target as set forth in accordance with the Paris Agreement. Although the French mandatory food donation law is an affirmation of the country's serious commitment to the fight against food waste and climate change, such an authoritarian approach is unlikely to generate public support in the United States. However, following food date labeling regulations similar to that of the EU and developing a guidance like that of the U.K. can serve as a concrete step in strengthening American food waste reduction policies and further promote the public and industry's understanding of such a law. While the Food Date Labeling Act of 2021 aims to develop a federal standard for food date labels, it is largely voluntary in nature. The bill's lack of enforceability should be amended in order to meet the urgency of America's food waste problem, as well as the global challenge of climate change.