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War and Food

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Introduction

This entry covers the place of food in its relation with war under four headings:

(I) Logistics – It was not till the nineteenth century that the term logistics came to designate organized administrative military science. For a military or semi-military organization, just as more generally, part of what this science is about is the management of the production, storage, maintenance, and the flow of supplies between some point of origin and the intended consumers of the supplies. The administrative management of supplies is, among other things, the management of food and its social relations. In the case of war, the logistics of the food needed by military forces gets complicated by the strategic and tactical weaponization of food. The section on logistics attends to the military importance of solving logistical problems regarding food, some solutions, and some of the legal constraints placed on the solutions.

(II) Strategy and Tactics – The Ancient Greek *strategos* was the military commander who planned a war or a campaign, and ever since then the term strategy has been used to refer to a plan that given a war's or a military campaign's goals offers the guidelines for the achievement of these goals. Strategy is concerned with the linkages among the many engagements that have specific objectives and are guided by tactics. In the case of food and war, strategy and tactics together determine forms of the weaponization of food. The section on strategy and logistics reviews some of the ways in which food has been weaponized either strategically or tactically.

(III) Gender – Women and men have had and continue to have different roles in relation to both food and war. The gendering of women's and men's relations to food in war is entwined with logistics and necessarily gets complicated by the weaponization of food by strategy and tactics. Because during wartime nonmilitary women though not nonmilitary men get assigned specific tasks in relation to food, some restructuring their peacetime roles and others mobilizing these roles, it is important to discuss food in war and its relation to gender. The section on gender analyzes some aspects of the triadic relation of gender-food-war.

(IV) Normativity – The relation of war and food is normed culturally. It also continues to and should be framed by ethico-political normative constraints. Some of these constraints are customary, other legal, and many are still on the ethico-political

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normative horizon that is created by variously motivated wish lists that are developed and adjusted by, among others, academic ethicists and political theorists, religious leaders, and human rights activists who struggle against the weaponization of food. The section on normativity examines some of the primary ways in which the relation of food and war is and could be normed ethico-politically.

The entry as a whole is semi-casuistic in methodology, relying on cases, not all paradigmatic, to illustrate and develop its main points. Its bibliography is selective, not only because comprehensiveness seems impossible in the case of food in/and war but also because this is an underthematized topic.

Logistics

The Third Amendment to the US Constitution, which came into effect on December 15, 1791, states:

> No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

The third amendment has never been explicated by the US Supreme Court and has surfaced constitutionally only in the discussions of privacy in *Griswold v. Connecticut* (1965) and that of limitations of executive power in *Youngstown Sheet & Tube Co. v. Sawyer* (1952). And yet, James Madison found it necessary to include it as one of his set of just 12 amendments to the constitution, all designed to create and safeguard specific civil and political freedoms. He did so because of colonists' objections to the English practice of involuntary billeting, which required colonists to provide English soldiers both lodging and food, and he relied on the traditions of English law, which protected English citizens from involuntary billeting. Complaints against involuntary billeting were among those the colonists voiced in the *Declaration of Independence* and have previously brought to the attention of the King of England, appealing to him as his English subjects whose rights were violated. These rights were guaranteed legally by the 1679 Anti-Quartering Act of the English Parliament that applied to private homes and public structures in times of peace and war alike and the 1689 English Bill of Rights, which includes a right protecting its bearers against involuntary billeting (Fields and Hardy 1991).

Involuntary billeting solved an important logistical problem that was understood quite early in the history of organized war. Thus, one finds Thucydides noting in *The Peloponnesian War* (431 BCE) that the shortage of necessary food supplies forces armies to retreat and to enter into agreements with their enemies that they would have preferred to avoid. Caesar adds to these observations in *The Gallic Wars* (58–50 BCE), noting the Roman custom of expecting the hosting of Roman troops from allies and conquered peoples alike and pointing out that a smart strategist plans for shortages, as he did in 54 BCE, when realizing that he was unable to quarter all the Roman legions under his command together for the winter and so split them and the burdens of their hosting among multiple areas and Gallic tribes.

Armies have to be sheltered, clothed, and fed during war, and standing armies have to be sheltered, clothed, and fed during peacetime as well. In the *Wealth of Nations* (1776), Adam Smith suggests that, however unproductive their labor, the services of a standing army composed of disciplined specialists are needed by modernizing/modern countries such as England of his time. Smith expects the provisioning of a standing army to be financed through a state's treasury and argues for local requisitioning of shelter and food for troops that are stationed at a distance, as in the case of Britain's colonies, including the future United States. Billeting, whether voluntary or not, can be done through formal requisition but shelter and especially clothing and food can also be acquired via pillage. Witnesses in England's colonies and elsewhere have claimed that sometimes it is quite impossible to distinguish between requisitioning and pillage.

Pillage was a common and accepted practice of war. Even after being outlawed, it has remained a common enough practice during violent conflict. The first legal document that

prohibits versions of pillage and is still taken seriously legally as part of the documents that together elaborate current International Humanitarian Law (IHL) is the 1863 Leiber Code – General Order No. 100 – which was prepared by Francis Lieber and issued by President Abraham Lincoln during the American Civil War. By the time of the Civil War, the United States had enough experience with the organization and provision of specific food rations to its soldiers and both the Union and the Confederate armies ate similar foods, though over time the rations of Confederate soldiers grew smaller. In addition, due to extensive logistical problems and bad planning, the Confederate army did not have enough food supplies in depots or available for requisitioning and its soldiers turned to foraging (Ballard 2004).

Strategy and Tactics

In his 1812 campaign against Russia, Napoleon Bonaparte discovered that an army in need of foraging can be starved into defeat. As part of their defensive strategy against the *Grand Armée*, the Russians instituted a scorched-earth policy so ruthless that they left nothing of value for the advancing Napoleonic forces, which were used to living off the land. The Russians learned from the Portuguese who 2 years earlier, in 1810, successfully used slash-and-burn tactics against Napoleon's army. Napoleon did not learn from his failure in Portugal, a fact that surprised Carl von Clausewitz. Clausewitz believed that Napoleon was a strategic genius who, unfortunately, was disposed to taking some unnecessary reckless risks. Among his comments about the 1812 campaign is this one: "it is undeniable that the lack of care over supplies was responsible for the unprecedented wastage of Napoleon's army on the advance and for its wholly calamitous retreat" (1984/1832, p. 339).

Clausewitz centered military marches as a means to decisive battles and, therefore, thought of food and other necessary supplies under logistics, though he was aware that the need to feed soldiers has been used tactically and strategically in defensive wars, as in Portugal and Russia, and in offensive wars as well. One of the most successful offensive uses of an army's need (and the needs of the civilians on whose behalf it was fighting) for all kinds of supplies occurred almost 50 years after the failed Napoleonic campaign in Russia, when the Union relied on a tightening blockade to win its war against the Confederacy in the American Civil War. While prohibiting pillage and requiring humane treatment of civilians and enemy soldiers alike, the Lieber Code did not prohibit blockades. The Union's blockade strategy, known as the "Anaconda Plan," was developed by the General-in-Chief of the US Army Winfield Scott. The actual Union strategy put into action modified Scott's original plan to permit more military engagements than Scott wanted to pursue. Even in its modified version, the blockade, which basically starved the South, was key to the Union's success (Smith 2011).

In current warfare, blockades have become less important strategically since militaries have become better at logistics and soldiers in combat or at outposts that are removed from their bases are supplied with Meals Ready to Eat (MRE) that are well calibrated not only nutritionally but also in order to appeal to many tastes and meet diverse religious restrictions. But the blockade has remained a tool of war. Thus, for example, in 1982, the United Kingdom blockaded the Falkland Islands after Argentina occupied them during the Falkland War and Israel has blockaded Gaza since 2007. In addition, blockades have been used by the United Nation's Security Council, NATO, and similar coalitions.

Blockades are lawful under international law but only when governed by specific rules. Among the legal constraints on blockades is section 54 of *Protocol I of the Geneva Conventions*, which bans strategies and tactics that involve the destruction of food supplies or/and the means to grow food in an area of conflict. Section 54 states:

> Starvation of civilians as a method of warfare is prohibited. It is prohibited to attack, destroy, remove, or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies, and irrigation works, for the specific purpose of denying them for their

> sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.

Gender

International law's protection of civilians against starvation, whether in the case of blockades or the use of scorched-earth policies or slash-and-burn tactics, may have been agreed to because of sexism, which in times of war and in warlike violent conflicts is expressed in gendered treatments of soldiers and civilians. Indeed, even the distinction between "soldiers" and "civilians" tends to be gendered (Carpenter 2006). One can find a representation of the gendering of war already in the *Iliad* and *Odyssey* (800 BCE) with their reference to a war fought by men over access to one woman – Helen of Troy – while another woman, Penelope, waits patiently and faithfully for her husband, though she too is the subject of an intense competition for access.

Both Helen and Penelope were confined to and by Greek domesticity but they were not expected, unlike women in World War I and World War II England and the United States, for example, to reconceive the home as a "front" and the feeding of their families as a "contribution to the war effort." War had to become total war in its twentieth-century version and involve the mobilization of the whole population in order to reshape daily life and deploy women to accomplish much of the reshaping. The totalizing of war in England during World War I brought with it the organization of the Land Army, which started its activities in 1915. Its members worked as field laborers growing food mostly on land confiscated by the British Government under the Defence of the Realm Act (DORA) of 1914.

By 1917, about 260,000 women worked as field laborers in England and the United States instituted its own Women's Land Army, both of which were remobilized in World War II (Carpenter 2003; Kramer 2008). Wartime women field laborers, like their much better known counterparts, wartime women factory workers, filled positions otherwise held by men. At home, in the domestic private sphere, as well as in in-between spaces of public food production, such as victory gardens, or food preparation and service, such as in charity dinners, women continued to perform along the lines dictated by their gender roles, though in a manner reconfigured through state interventions.

In both world wars, among the serious supply problems was food, resulting in inflationary prices, which exasperated class divisions and increased social instability. Rationing, less successful in World War I than in World War II, was not enough, especially since it was accompanied by an informal market in rationed goods and rationing cards that undermined some of the intentions for rationing. States, therefore, turned to women in their domestic roles to solve the complex set of food shortages and related social problems they faced. They addressed women as wartime homemakers and told them that their "real and most important battlefield was the kitchen. There women could – and should – fight the war and prove their patriotism by cooking and serving the right kind of foods in the right kind of ways" (Bentley 1998, p. 31).

For mainstream United States, due to British influences that can be traced back to colonial times, the "right foods" and the "right way" defined dinner as consisting of a large portion of a high-status food, such as meat, served together with two complementary foods, such as bread and vegetables. During World War II, the US government successfully changed the mainstream understanding of the "right foods" and the "right way" by introducing the forerunner of the 2011 US Department of Agriculture "plate" and its predecessor, the 1992 "pyramid" – the "basic seven." An interesting and quite significant difference between the "basic seven" and the 1956 simplified version of "basic four" is that meat features in the fifth place among the "basic seven" and in the first place among the "basic four." Indeed, "meat" is the first word one reads on the "basic four" list, calling attention to both meat's recovery as a high-status food and the United States' ability to sustain its prosperity while the Cold War was going on.

The "basic seven" offered a list of the "right foods" but just eating the foods on the list did not

exhaust the meaning of eating the "right way." The "basic seven" had to be eaten in the "right quantities," as defined by gender, age, and even occupation differentiated caloric needs. In addition, their "right production" was expected to be quite economical. Home food production in the form of gardening and canning, though labor intensive and in many cases an additional burden for women, many of whom now also worked outside the home, defined the "right ways to produce food," with canning adding the benefit of saving foods for seasons during which gardening is impractical.

Normativity

"Right" is a normative term. In the United States, in the case of the relation of gender, food, and war during World War II, the set of criteria used to distinguish between the "right" and "wrong" foods, the "right" and "wrong" quantities for their consumption, and the "right" and "wrong" modes of their production were also used to distinguish between the "right" and "wrong" ways to perform gender, thereby norming gender. As wartime criteria they had another use – norming patriotism by distinguishing "patriots" from those who failed their patriotic obligations, a failure that was usually attributed to the moral character flaw of *akrasia* or weak-will (Veit 2007).

Most of the norms that appear to seamlessly connect gender, patriotism, and food are cultural. Some are legal. Exchanges on the informal market in rationed goods and rationing cards during World War II were prohibited and punishable by law, adding a clear negative incentive to the shaping of conduct by new cultural norms. In international society, law is among the most important instruments norming engagements in war. International law prohibits all but for defensive wars, thereby prohibiting wars whose goal is the acquisition of food by force, though it is among the more usual kind of resource wars that are increasingly caused by the growing needs that are coproduced by capitalist globalization and climate change. The alternative to war is a more equitable division of access to the means of food production and food itself, among the goals of global justice, a realizable though at present utopian normative ideal because thus far it has not mobilized enough institutional support.

The prohibition on food-as-resource wars is not only legal but also ethico-political and falls under the *jus ad bellum* branch of the just war theoretical framework, which is concerned with the normative justification of and thus normative constraints on engagements in war. Like current international law, current *jus ad bellum* principles permit only defensive wars. If one could construe the denial of food or access to food as a form of aggression, then such a denial could serve as a basis for a claim to have a just cause that justifies a serious consideration of an attempt to secure food by violent means. But, a just cause is only a necessary and not a sufficient condition for an engagement in war, and in the case of food, its force as a condition is mitigated by the existence of international aid. Recent warnings by the Food and Agriculture Organization of the United Nations, however, do point out that food insecurity is unacceptably high, especially in countries that experience protracted violent crisis that compromises the supply of food, food production, and access to food. Food insecurity, then, becomes a cause of and exacerbates further violence.

Food, even if primarily a resource that is required to address basic human needs, is rarely merely a simple means. Food is a significant part of any culture and at least some foods can count as a "cultural property." As such they ought to be protected by the 1954 *Convention for the Protection of Cultural Property in the Event of Armed Conflict*. But, the convention, which mentions, books, artworks, and archaeological sites, does not mention any foods. And yet, the French, for example, consider their wines to be a national cultural treasure. The Nazi German elite concurred with this judgment. As a result, starting in June 1940, the Nazis transferred French wines to Germany by direct looting (as in the stealing of 80,000 bottles from the cellars of Paris's La Tour d'Argent), Nazi takeovers of famous wine production houses (such as Moët and Chandon in the Champagne region, which began business in 1743 and was known for supplying Europe's

royalty, aristocracy, and its wealthy families), or the coercive reduction of the price of all the wines the Nazis purchased through the monopolization of demand, the offer of under market value, and the punishment of noncooperation with fines, prison, as well as deportation to labor and death camps (Kladstrup and Kladstrup 2001).

The protection of food-as-cultural-property falls both outside existing international law and outside current just war theory. Just war theory is basically minimalist in its construction of human needs. To the extent that food, its production, and access to it are protected within the theory, it is by the macro- and micro-versions of the principle of proportionality. Both versions of the proportionality principle set normative constraints on the harms and damages of war and require engaging in cost-benefit analyses that weigh harms and damages against specified goods. The principle of macro-proportionality is a *jus ad bellum* principle that requires a prediction about the overall harms and damages and overall good that are expected from a war. The principle of micro-proportionality is a *jus in bello* principle that requires predictions regarding the harms and damages and goods that are expected from specific acts of violence undertaken in a war. Because a consequentialist calculus is used in the application of both versions of the principles of proportionality, they can protect food only to a limited extent. The logic of such a calculus necessarily permits some harms and damages in general and will permit some harms and damages that are caused by the weaponization of food. This is why under certain conditions, attacking food supplies, fields, food factories, roads that are used to transport food, and the like, may all be ethico-politically permissible.

The *jus in bello* principle of discrimination, which requires that distinctions be drawn between combatants and noncombatants, can be used to protect food for noncombatants. The principle identifies who is and who is not liable to intentional attack. Its various interpretations assume that noncombatants are not liable to intentional attack. One could argue that an intentional attack on food is an intentional attack on the people who need the food that is attacked. If noncombatants are not liable to attack, then the food of noncombatants ought to be protected (Thomas 2005).

The *jus post bellum branch* of just war theory, which is concerned with postwar justice, can contribute to the protection of food, if and only if one allows considerations of the postwar goals of a just war to play a decisive role in the case of both *jus ad bellum* and *jus in bello*. This is Immanuel Kant's approach in *Perpetual Peace* (1795). According to Kant, peace is the only goal of a just war that has intrinsic value and so constrains even the engagement in defensive wars, let alone actions during a war, demanding that both not undermine the possibility of postwar peace. Kant's argument could be used to protect food at least insofar as its destruction might undermine peace. This argument is, however, weak and a different Kantian idea, that of human dignity and the normative demand to not undermine it, can be mobilized to create much stronger protections of food. Such an argument might actually be launched not only to protect food-as-resource but also food-as-cultural-property, though in order to argue that food must be protected as cultural property, one will have to mobilize communitarian assumptions about the importance of group membership to personal identity and therefore to one's sense of one's own dignity.

A Kantian sort of argument could be advanced when human rights are mobilized to protect food. But most human rights arguments for the protection of food are much weaker than a Kantian argument that centers human dignity because they treat food merely as satisfying a basic need. While human rights arguments might be weaker in an ideal sense, in practice they are the stronger ones because a basic right to food in the case of armed conflict is protected by international law (Pejic 2001). Under the 1998 *Rome Statute* that established the International Criminal Court, intentionally starving civilian populations is a crime of war. And according to a complex body of international law, the doctrine of double effect, which is used to excuse some unintended consequences, cannot be easily invoked in the case of food. The law requires

that if food or access to food is destroyed, relief agencies be allowed to distribute the food that people need. From the perspective of concern with human dignity, the problem of transforming an independent population into one dependent on relief agencies for the fulfillment of its basic needs is extensive. This has been recognized by the United Nations which has started to mix its normative terms in order to be able to act on Jean Ziegler's claim (n.d.):

> The right to food is a human right. It protects the right of all human beings to live in dignity, free from hunger, food insecurity and malnutrition. The right to food is not about charity, but about ensuring that all people have the capacity to feed themselves in dignity.

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Waste and Food

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Synonyms

Feasting; Food loss; Food waste; Garbage; Garden of Eden; John Locke

Introduction

The necessity of food for human survival grounds our prudential and our ethical interest in its not going to waste. Given our undeniable need for the nutrition food provides, it seems both irrational and irresponsible to fail to make good use of it before it perishes.

However, such certainty about our need for food hardly makes our relation to it, or to the wasting of it, clear and uncomplicated. As feasts, for example, remind us, the significance of food in our lives is not limited to the satisfaction of basic biological need. And when food is not being used simply or only to still hunger, questions about whether it is being wasted do not have obvious answers. Moreover, "waste" has several meanings. The seventeenth-century English philosopher John Locke, for example, assumed as a matter of course that both letting food spoil and failing to cultivate the earth in order to grow food constitute waste. The fact that the original inhabitants of the "waste" lands in the Americas to whom Locke was referring might well have disagreed with his latter claim reveals yet another

important feature of the concept of waste: its deployment in normative judgments.

The many uses of food, the several senses of "waste," and the battle over norms that the invocation of "waste" often reflects have to be acknowledged in any discussion of what constitutes food waste. As urgent are current concerns about food waste in the global context of famine, starvation, and food insecurity, these matters also should be seen in light of humanity's long history of reflection on the significance of food and the meanings of "waste." Before focusing, then, on contemporary sources of food waste, we shall describe some moments in that rich and complex history: John Milton's proposal, in his account of the Book of Genesis, that food spoilage emerged only when humanity fell from a state of innocence; the prevention of food waste as the foundation for property rights, in John Locke's *Second Treatise of Government*; and the importance of food waste in feasts.

Rotting Apples and the Fall from Innocence

> Forth reaching to the fruit, she plucked, she ate.
> (Milton 1991, Book IX, 781).

Many of the accounts humans have given of their relation to food suggest that it is hard for us to countenance the possibility that the world into which we are born would not be adequate for our sustenance as long as we think and behave in ways appropriate to our place in that world. One such influential account is John Milton's expansive treatment of the story of Adam and Eve in the Garden of Eden in *Paradise Lost* (Milton 1991).

On Milton's rendering of *Genesis*, the Paradise in which God placed Adam and Eve was a land of plenty. Food was abundant and delicious. Neither scarcity nor anxious fear of it threatened. While the Garden needed some tending, the trees some lopping and pruning, the labor involved was not particularly arduous, just taxing enough to whet the appetite.

But if such abundance ruled out scarcity, did it at the same time create waste? Wasn't there more than enough food for Adam and Eve? If so, was not such excess wasteful?

In *Paradise Lost*, the very idea of waste in the Garden does not arise until the serpent successfully tempts Eve to eat the fruit of the forbidden tree. The reason given for the lack of concern about waste is not, as one might reasonably hypothesize, that any food unneeded and uneaten by Adam and Eve was devoured by animals or turned into compost. The Garden was not waste-free on account of some fine economy of nature according to which one species' leavings readily became another species' takings. Rather, it is as if God's fruits have a kind of built-in preservative:

> For many are the trees of God that grow
> In Paradise, and various, yet unknown
> To us, in *such abundance lies our choice*,
> *As leaves a greater store of fruit untouched*,
> *Still hanging incorruptible,* till men
> Grow up to their provision, and more hands
> Help to disburden nature of her birth.
> (Milton 1991, Book IX, 618–624 [emphasis added]).

There is glorious excess, and yet nothing spoils. Or at least so it was until Eve allowed herself to be beguiled by the serpent. Addressing the tree of knowledge, she declares that it makes no sense to let "thy fair fruit. . .hang, as to no end created". Only after emboldened by the serpent, that "fittest imp of fraud", did it occur to her that surely the tree with its fruit was created to be used and surely its use is to be eaten. It would be wasteful not to treat it accordingly. Eve will "ease" its "fertile burden" (Milton 1991, Book IX, 798–799; Book IX, 89; Book IX, 801).

Eve, and then Adam, the story goes, disobeyed God's explicit instruction not to eat of the tree of knowledge. In *Paradise Lost*, there is no waste before these acts of disobedience (Gee 2010). Eve and Adam's failure brings about material conditions in which formerly "incorruptible" fruit now suffers decay and goes to waste unused. This change in nature is accompanied by the emergence of human claims to know waste when they see it: surely unused fruit has a purpose that goes unfulfilled unless it is eaten. But such judgment is beyond the ken and outside the jurisdiction of humanity. Humans are not in a position to know why things were created, what

purpose they might serve, and their thinking they know the proper use of that apple is instrumental to their disobedience.

Milton's gloss on *Genesis* posits that Eve and Adam's disobedience consisted not merely in choosing to eat from the forbidden tree but in assuming the authority to judge what is waste and what is not. At the same time, God does not disagree with the human assessment that Adam and Eve and their progeny were condemned to live in what in comparison with Paradise is a wasteland. The "verdure" is "spoiled", the cattle die "of rot and murrain [infectious disease]" (Milton 1991, Book XI, 832; Book XII, 179).

John Milton invites us to think of Paradise – the mythical home for the Old Testament's first man and woman – as a place in which food is not only not scarce but magnificently bounteous. And yet in all that excess there is no waste: fruit does not spoil however long it is on the tree. But once Adam and Eve thought that there was an unrealized potential that should not go to waste – what might be gained from eating of the tree of knowledge – the world became a wasteland, and the threat of scarcity entered into human life.

Food Waste and Property Rights

In Milton's rendition of *Genesis*, food waste has a striking role in the history of the relation between humanity and God. In John Locke's *Second Treatise of Government* (Locke 1980), food waste is crucial to the foundation of property rights.

The natural world in which Locke locates humanity is God-given but also marked by signs of our expulsion from Paradise. God gave us this world with all its rich floral and faunal resources and blessed us with the capacity to reason, which allows us "to make use of [the world] to the best advantage of life, and convenience" (Locke 1980, p. 18). But this world is, after all, postlapsarian: we have to labor much harder and longer than did the still-innocent Adam and Eve, and earth's apples are no longer "incorruptible." Since this world was given to us "in common" (Locke 1980, p. 18), we all have a right to its resources. But there are both conditions for and limits on the exercise of this right. Your labor entitles you to a portion of what is in given in common. Go forth and pluck, gather, hunt, and fish. But not to your heart's content. For there are limits to what a person can make his or hers: God gave us all this plenty for us to "enjoy," that is, to "make use of to any advantage of life before it spoils" (Locke 1980, p. 20). "Nothing was made by God for man to spoil or destroy" (Locke 1980, p. 21).

It is not just the edible items humans come across in nature that can be of use to them in obtaining sustenance. There is also the land. And indeed by the time Locke was writing the *Second Treatise*, toward the end of the seventeenth century, the "*chief matter of property*" of English denizens was "now not the fruits of the earth, and the beasts that subsist on it, but *the earth itself* " (Locke 1980, p. 21). Man and woman are no less entitled, indeed no less bound, to make use of the land than they are to gather what nature offers independently of their digging into the soil. "*As much land* as a man tills, plants, improves, cultivates, and can use the product of, so much is his property" (Locke 1980, p. 21, emphasis in the original). But there are limits here, too, on appropriating common land: as long as one leaves "as much" and "as good" land as existed before the appropriation (Locke 1980, p. 21), it's as if one has taken "nothing at all" (Locke 1980, p. 21).

Cultivating land properly improves its value. Appropriators actually "increase the common stock of mankind" (Locke 1980, p. 23): a single acre of cultivated land could easily produce many times the "provisions" of "an acre of land of an equal richness lying waste in common" (Locke 1980, p. 23). If there is waste in allowing food to rot, meat to putrefy, so too there is waste when land that might be cultivated goes unfurrowed and unplanted. Indeed "we shall find the benefit of it amount to little more than nothing" (Locke 1980, p. 26). Think about bread: it is only because of the tremendous labor that has gone into the cultivation of land, the invention of tools, and the distribution of the final product that it is available to us as bread. ". . .nature and the earth furnished only the almost worthless materials" (Locke 1980, p. 27). They may be "materials of plenty"

(Locke 1980, p. 25), but their potential is not realized apart from human labor. Our capacity to toil is thus implicitly a greater gift to us from God than what God provides independently of our labor.

In Locke's post-Edenic world, God has provided bounteously for humanity, but the waste of food is an ever-present possibility that humans must attend to sedulously. The occurrence of waste in nature – food waste in particular – is clear evidence that a person has mismanaged and misused God's plenty. You are welcome to pluck apples from a tree and to kill a deer you come across in the woods in order to sustain your life. But if you allow the apples to spoil or let the animal flesh putrefy, you have abused your right to the riches God has provided. You also are not only welcome but commanded by God "to subdue the earth, i.e., improve it for the benefit of life" (Locke 1980, p. 21), not leave it in a state of waste, i.e., uncultivated.

There are then according to Locke at least two senses in which food waste is to be understood: (1) as the loss, the draining away, of the use value of existing foodstuffs (e.g., rotten apples, stinking carcasses) and (2) as the untapped, unrealized potential of land to be cultivated in order to create foodstuffs, something Locke espied across the Atlantic:

> for I ask, whether in the wild woods and uncultivated waste of *America*, left to nature, without any improvement, tillage or husbandry, a thousand acres yield the needy and wretched inhabitants as many conveniences of life, as ten acres of equally fertile land do in *Devonshire*, where they are well cultivated? (Locke 1980, p. 24; emphasis in the original).

Locke here adopts the very view about waste that was Eve's undoing: Eve wondered why God would create an apple that would go unused; Locke takes it as a given that surely God wants us to see land that might be cultivated as lying in waste should it not be tilled. Of what value can such land be if it is not used to create food? ". . .land that is left wholly to nature, that hath no improvement of pasturage, tillage, or planting, is called, as indeed it is, *waste*" (Locke 1980, p. 26).

This understanding of food waste is central to a Lockean-inspired view according to which settlers from elsewhere had the right, in fact the duty, to take possession of uncultivated lands in America. According to Locke, the only or in any event the far superior use of land is to cultivate it. He implicitly rules out the possibility that any other use of the land, any other value it could have, is irrelevant – for example, the Miltonic idea that God's glory might be revealed in bounteous excess, or the notion that hunting and gathering are adequate and respectful ways of sustaining life.

So in the case of both Milton and Locke, we can see that because (a) food has many uses beyond its role in sustaining human life and (b) "waste" is a normative term, there are bound to be differences over whether a particular use of food is wasteful, along with struggles over whose view ought to prevail. In Milton, the idea is broached that humans fail to honor the splendor, power, and authority of God when they insist that they know what is useful for humans and what is not; in Locke, there is the claim that it's precisely when humans fail to mine the world for what is useful to humanity that they go against God's will and that others have the right, in fact the obligation, to go forth and cultivate. In *Paradise Lost*, we are said to not be not good judges of what constitutes waste; in *The Second Treatise*, we are instructed that the capacity for reason that God gave humans enables us, indeed requires us, to judge what is wasteful and what is not.

Feasts

Food waste, then, has been of concern not only for humanitarians, environmentalists, or public health experts. Influential figures in western intellectual life have made the topic of food waste central to attempts to understand the relation between humans and the gods they believe in, as well as to lay out the grounds on which property rights are to be established. In the meantime, humanity, in all its motley glory and across time and culture, has given the wasting of food a central role in celebrating life, in glaring back

defiantly into the face of scarcity, and in establishing or maintaining social relations.

Feasts have a prominent place in human history. Coming in great variety, they can be religious, irreligious, or nonreligious in intent; they may be designed by and for royalty or peasantry; sometimes they function to confirm existing social hierarchies, other times to temporarily dislodge them (or do the former by doing the latter); they might sanctify order or celebrate disorder. But among the basic elements of feasts, whatever their mood and aim, are food and drink. And, if at all possible, the victuals are to be as plentiful and delicious as possible, even at what may be extraordinary expense to individual or community creating them (Dietler 2001, pp. 82, 96). The specialness of the food marks the specialness of the occasion: feasts typically are offered to show honor, respect, or gratitude for some person or deity or to underscore the importance of an event such as a birth, a death, a wedding, and a victory. The provision and intake of more than enough food and drink is called for.

Feasts thus are likely to involve waste in a number of ways: the very idea of a feast tends to suggest that there will be not only enough but a prodigious amount for all the participants. While the excess might be given to animals or humans not among the feasters (e.g., a fourteenth-century English court might include an "almoner" among whose tasks was to direct leftovers from the feast to the poor (Strong 2003, p. 91)), it might also be left to rot. (The post-Thanksgiving behavior of many North Americans has centuries-old antecedents). Having enough to waste is part of the point of the feast. That is among the reasons why a Luo family in west Kenya, for example, might exhaust its supply of food, knowing that some of it will quickly become garbage, rather than keep themselves from going through a period of near starvation (Dietler 2001, p. 96), or why an about-to-be-married couple in the USA put themselves in hock for a splendid and heavily garbage-producing feast for family and friends.

Though the food in such feasts is going to waste in the sense of spoiling instead of being consumed, it is not going to waste at all in another sense, for the provision of the food and the attendant waste are crucial to whatever social or political work the feast performs. Thorstein Veblen (Veblen 2009) reminded us vividly of what feast-makers and students of the *potlatch* have always known: conspicuously and wastefully consuming goods – including food – can be a fine means of creating or maintaining your status.

At the same time, perhaps we should be careful about assuming that what appears to be wasteful behavior – such as the excessive and lavish provision of food at a potlatch feast – must be serving *some* kind of useful function. Recently, Samuel Martínez, invoking George Bataille, has raised doubts about the appropriateness of "explaining all behavior in terms of marginal utility or social functions": after all, isn't "the potlatch's main source of fascination, the symbolic banishment of necessity and creation of a momentary illusion of inexhaustible wealth" (Martínez 2010, p. 612)? Is what seems to be wasteful excess of food something to be rued or an invitation to explore the significance and reach of what Martínez suggests is nonrational but not irrational behavior?

One can take Martínez's suggestion under advisement without having to treat all instances of food waste as exuberant celebrations of nonutilitarian expenditure. But perhaps sometimes our attempts to interpret and redeem behavior that appears wasteful, by proposing an end or use in terms of which the behavior is not wasteful, stand in the way of understanding such behavior. Maybe sometimes wasting food is just wasting food, perhaps an expression of defiance in a world far distant from the Paradise of Adam and Eve.

Food Waste: Current Assessments

The United Nations Food and Agricultural Organization estimates that one third of the amount of food intended for human consumption ends up being wasted or lost (FAO Media Centre 2011). Not surprisingly, the effects of such waste are not experienced uniformly. A portrait of food distribution across the globe today strongly suggests something like feasts for some and famine or food insecurity for others. Food waste and food loss

are important factors in the creation and maintenance of such asymmetry. Tristram Stuart among others has argued that the food waste produced by rich countries such as the USA and Britain could feed almost all those in the world not receiving adequate nourishment (Stuart 2009, p. xvi; FAO Media Centre 2011) and that a reduction in food surplus in wealthy countries, in conjunction with a reduction of postharvest losses in relatively poor countries, would substantially save the supply of food around the globe (Stuart 2009, p. 193). Moreover, given the multiple resources needed to produce food, its waste and loss also threaten the sustainability of land and water and have implications for climate change.

Consumers are by no means the only or the greatest wasters of food. No doubt in places such as the USA and England, palpable evidence of great quantities of food gone to waste surely is visible in household refrigerators and the municipal landfills to which the trash is hauled, as well as on the plates of restaurant patrons. But tracking down records of how much food is wasted by farmers, food corporations, restaurants, caterers, and supermarkets is not easy (Stuart 2009, pp. xxi, 11). Unlike the growing number of conscientious citizens keeping blogs about how much food waste and other trash they create and dispose of, these major creators of food waste are reluctant to compile data about their waste, and on the whole their governments have not been eager to require them to do so.

Food is a heavily marketed commodity, and supermarkets in particular are continuously trying to create and also reflect market standards for the desirability and acceptability of food. Just because farmers or fishers produce something edible and nutritious doesn't mean it will be attractive to those who supply food markets. If markets insist that people won't buy forked carrots, slightly bruised apples, or knobby cucumbers, then tough luck for farmers, who by some estimates can lose up to a third of a year's harvest (Stuart 2009, p. 102). Farmers also may overproduce in order to insure that they match what they have contracted to supply. All such excess food might be plowed back into the land, but to deny it is going to waste on such grounds is to ignore the enormous cost of land, water, labor, and capital involved in producing it to begin with.

Once the food that survives the standards gets on market shelves, there is no guarantee that it won't end up in the dumpsters behind the store. Among the many factors conspiring to produce such waste are the mostly meaningless "sell by," "use by," "best until" tags; a presumed customer desire to see shelves full of the freshest and prettiest stuff; fear that selling slightly "old" stuff, or even making sure it goes to survival centers, would inspire customers to wait for the bargains or go to the centers.

Attitudes toward food waste can differ rather starkly across cultures. Unlike the majority Han Chinese, for whom hospitality includes making sure to offer more food than can possibly be eaten by guests or patrons, Muslim Uighurs in China take pride in preventing waste in the preparation and distribution of food (Stuart 2009, pp. 199–201). A culture's attitudes can vary over time: countries such as the USA and Britain certainly have shown in wartime that they can produce anti-food-waste campaigns and practices (Stuart 2009, pp. 234 ff.). But developed countries seem to have evolved a food supply system that in effect requires waste, and they tolerate, indeed seem to encourage, its acceptance, or at least are quite ready and willing to obscure its scope.

There is, however, growing recognition of the extent of food waste and promises of earnest effort to diminish it at all points along the production and consumption lines. For example, the European Commission has published a multi-language 10-step program for household waste reduction (European Commission 2012). The European Parliament, building on statistics provided by the FAO, has issued a report that among other things

> Considers that, in order to reduce food waste as much as possible, it is necessary to involve all participants in the food supply chain and to target the various causes of waste sector by sector; calls on the Commission, therefore, to make an analysis of the whole food chain in order to identify in which food sectors food waste is occurring most, and which solutions can be used to prevent food waste. (European Parliament 2011).

Summary

This necessarily brief survey of reflections on the moral significance of food waste is but a small, preliminary, and provincial taste of the topic, an amuse-bouche. According to John Milton, the very inconceivability of food waste was part of the plenteousness in the Garden of Eden. We would not know of such waste had it not been for Adam and Eve's fateful disobedience. John Locke's notion of the wrongness of food waste was central to attempts to justify European settlers' appropriation of land in the Americas. Feasts, in all their cultural and historical variety, are particularly vivid reminders of the function of food waste in sustaining social relations.

Questions about the bounteousness of the earth, the capacity or willingness of humans to make wise and fair use of it, and the meaning of feasts in the face of famine have not disappeared. Among the starkest and most immediate of the ethical concerns raised by food waste in the context of the early twenty-first-century global economy is the relation between the massive waste of food and widespread but preventable famine, food insecurity, and starvation.

Cross-References

- ▶ African Food Security Urban Network (AFSUN)
- ▶ Corporate Farms
- ▶ Food Security
- ▶ Hospitality and Food

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Water, Food, and Agriculture

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Introduction

Access to clean freshwater is becoming increasingly difficult for many people around the globe. The problem of water scarcity will require both local and global remedies and the implementation of permanent, long-term solutions. Ethical issues arise at the levels of both the crisis and its solutions. They also do not result only from the problem of water scarcity. All water use has impacts on humans and the environment that require ethical consideration. The first section of this entry summarizes the water crisis and reviews generally the ethical issues it entails. The second section briefly discusses several proposed solutions and their ethical implications. The third section examines the idea that there is a human right to water. The fourth and final section considers different water management paradigms and their approach to the ethical issues of water use.

The Water Crisis

Water is a truly renewable resource. The water humans consume today is the same water that was consumed by their biological ancestors over billions of years. Where the water has been located, and in what forms, has changed over these years, and it will continue to change, possibly in ways that are detrimental to human and other forms of life. Presently, freshwater makes up only 2.5 % of the world's water. Almost 70 % of that water is frozen in glaciers; 30 % of it is located underground in aquifers (groundwater); this leaves a little more than 1 % in permafrost, lakes, rivers, biological organisms, and the atmosphere.

Despite these percentages, the total amount of water available for direct consumption or use in agriculture and industry is abundant, but it is not equally distributed around the globe. Around two-thirds of the world's population live in places that receive just one-fourth of the annual precipitation, around four billion people (Pennington and Cech 2010, p. 2). Pressure on water sources is increasing due to population and economic growth, climate change, and poor management of water resources and services.

What is an impending water crisis for most is a present reality for many others. Approximately 1.1 billion people do not have access to clean drinking water. The water they can access requires great expenditures of time and energy in order to retrieve. This task usually falls upon women and children, and it can occupy up to 4 hours of their day. The result is that adult women are prevented from engaging in more productive labor and children lose those hours that could have been spent in school (or simply enjoying childhood). Both factors are forestalling economic development in water-poor regions. It is estimated that in sub-Saharan Africa, 5 % of GDP, or $28.4 billion, is lost annually because of inadequate water and sanitation services. People living in poverty in water-poor regions – most of whom only survive on less than $2 a day – bear most of these costs (United Nations Development Programme 2006, p. 6).

Water scarcity is a function of both quantity and quality. Water pollutants – naturally occurring and anthropogenic – include microbial pathogens, sediment, chemical toxic substances, heavy metals, and excess nutrients like nitrogen and phosphorous. Some of these pollutants can directly affect sources of drinking water, for example, by entering groundwater. Others can have deleterious effects on the environment, some of which can also result in decreased water quality, for example, by damaging wetlands that act as natural filtration systems for water. In water-poor regions, water scarcity is typically exacerbated by inadequate sanitation, which can introduce microbial and other pollutants into water sources. 2.6 billion people worldwide do not have access to basic sanitation (UNESCO 2012, p. 65). Approximately 80 % of the world's wastewater flows untreated into rivers, lakes, and other sources of drinking water (with higher percentages in developing countries). The world's rapidly growing cities are major point-source polluters. For example, Jakarta, a city of nine million, treats less than 3 % of its wastewater (UNESCO 2012, p. 66). An estimated three million people – mostly children – die annually in developing countries from waterborne illnesses (United Nations Environment Programme 2007, p. 13). Half of all the people in these countries at any time are suffering from illnesses caused by deficiencies in sanitation and water quality (United Nations Development Programme 2006, p. 6).

Water for domestic use, such as for drinking, makes up only a small portion of water use. Worldwide, 70 % of water use is for agriculture (it is closer to 80 % in developing countries, with industry and agriculture consuming more equal amounts of water in developed nations, and domestic use still the smaller percentage) (United Nations Development Programme 2006, p. 138). Increased agricultural and industrial uses of water are making the highest demands on water resources. Economic growth, and not only a growing world population, is responsible for the increasing demand on water resources. Whereas over the last hundred years the population has increased fourfold, the demand for water has increased sevenfold (United Nations Development Programme 2006, p. 137). An improving

worldwide economy is resulting in a greater demand for water-intensive food products, such as meat and dairy (e.g., it takes 3,500 L of water to produce 1 kg of rice, but it takes 15,000 L of water to produce 1 kg of beef). Industrial demands for water also increase with an improving economy, including energy production, which relies heavily on water. Agriculture and industry are also major contributors to water-source pollution, which can impact water quality.

Some of these increasing water demands caused by economic growth are met by transfers in "virtual water," which are products that consume water at the place from which they are exported. For example, developed and BRIC (Brazil, Russia, India, and China) nations are buying farmland in regions like Africa to produce agricultural products for import. While this practice is relieving water demands in the importer nation, it is increasing pressure in the water-poor regions which tend to have less efficient management and weaker laws regarding water use (UNESCO 2012, p. 50).

Climate change is also having an effect on water resources. Decreased precipitation in certain regions and increased evaporation due to global warming are contributing to the depletion of surface and groundwater. While the melting of glaciers will increase river flows in the short term, glaciers act as water reservoirs, and their disappearance will mean the loss of major water resources (which might occur in some places, such as South America). The acidification of ocean and rainwater, another effect of climate change, is having deleterious effects on biological productivity, including agriculture.

Misuse and waste of water resources is another contributing factor to water scarcity. Water-poor regions tend to be economically poor, which inhibits the development of efficient water infrastructures for domestic use. Developed nations are confronting problems with deteriorating water infrastructures. Agricultural use also widely suffers from inefficiencies, such as evaporation and leaks. Poor sanitation, as it has been noted already, can decrease water quality (and thus the quantity of clean water) by polluting freshwater. In developing nations, only 10 % of wastewater is treated before being discharged back into the environment, and only 10 % of treatment plants function efficiently (United Nations Environment Programme 2007, p. 132). Excessive groundwater pumping is resulting in not only depletions of water resources but land subsidence, intrusion of saltwater into aquifers, and increased costs from the need for deeper drilling.

All of these pressures on water resources are predicted to increase as the world population grows and the effects of climate change become more severe. Water use is expected to increase 50 % by 2025 in developing nations and by 18 % in developed nations (United Nations Environment Programme 2007, p. 121). In many parts of the world, water use already exceeds the replenishment of resources, e.g., in the High Plains of North America and the Indo-Gangetic Plain in South Asia. Climate change will further slow replenishment in these and other parts of the world. It is expected that by 2050, 1.8 billion people will be suffering from "absolute water scarcity," and two-thirds "will be under conditions of water stress" (United Nations Environment Programme 2007, p. 129). Many people in the world are aware of the water crisis, including those currently living with it; others, especially those in water-rich nations, are only slowly learning of it.

The ethical issues of water use arise at both the levels of the crisis and its solutions. The crisis generates urgent moral imperatives for action, including increasing awareness of it and the need to devote attention to its solutions. Another related ethical issue concerns who are responsible for alleviating the crisis. For example, do developed nations (which tend to be water rich) bear responsibility, and how much, for alleviating the crisis in developing nations? The solutions to the crisis reflect various ethical presumptions ranging from the ownership of water and whether it should be treated as an economic or social good to the environmental and cultural impact of water solutions. Solutions to the crisis occur at both the individual and collective level. Individuals in water-stressed regions have obligations to be conservative in their water use. This obligation

can also arise in water-rich regions depending on the use and source of water. For example, an abundance of groundwater does not relieve its users of an obligation to conserve water, especially if this water is being consumed at a rate greater than its replenishment; users need to be conscious of the availability of water for future generations. Their use of water also makes demands on water infrastructure and creates pollution, impacts which are independent of water quantity. In desperately water-poor regions, individuals do not have enough water to be conservative about. In water-poor urban areas served by water utilities, there can be a tendency to hoard and otherwise manipulate the water infrastructure in order to meet daily needs. At the collective level, efficient and ethical management of water uses (to be discussed later) are an essential part (and source) of solutions to the water crisis. Water management is essential for avoiding the classic and notorious "tragedy of the commons" problem; without the management of a public good like water, users will tend to deplete or otherwise destroy that good. But the distinction between individual and collective responsibility is not a sharp one. Individuals make decisions that affect collective action; as voters and/or consumers, they influence both public and private uses of water. Management solutions can assume either a restrictive or inclusive scope. The former would focus solely on satisfying water needs, whether short term or long term, and the latter a broader consideration of the social and environmental impacts of water use. But the distinction between restrictive and inclusive scope is also becoming increasingly more difficult to draw. For example, different water-use solutions, such as the construction of dams, have environmental impacts that can affect the quantity and quality of water.

Solutions

The solutions to the water crisis include applications of specific technologies to increase the supply of freshwater, as well as more general strategies for alleviating the demand on water resources. The ethical implications of these solutions concern their ability to address both the water crisis in equitable ways and externalities, like the effects of these solutions on the environment.

Desalination involves taking saltwater and converting it into freshwater. It can provide a major source of water for coastal regions. However, the process is energy intensive and uses expensive technology, putting it out of reach for many countries. Also, a by-product of many desalination methods, such as reverse osmosis, is a high-saline brine. When this is discharged back into the ocean, the salinity of the surrounding water is increased, and this can damage the marine ecosystem. Water intake from the oceans can also damage marine life. Technologies are being developed to mitigate these environmental impacts.

Effluent reuse is similar to desalination in that it takes a source of nonpotable water and converts it for drinking and other uses. Many municipalities direct wastewater that has undergone some treatment for agricultural and industrial use, as well as municipal uses like the watering of parks. The technology exists to make wastewater clean enough for drinking, but there has been resistance by potential users. The objections are mostly aesthetic. The idea of drinking what was recently flushed down a toilet or a drain is unappealing to many. These anxieties can be countered by pointing out, as it was at the top of this entry, that any water that humans drink has passed through numerous biological organisms, including themselves, and that the treated wastewater can be cleaner than water from other sources. Wastewater treatment also produces a by-product that has been directed to agricultural use, but some worry about pollutants in this waste entering the food chain, such as the residue of pharmaceuticals consumed by humans.

These solutions involve finding new sources of water. Other, less feasible, solutions have been proposed. Some have suggested towing polar icebergs to water-starved regions. Also, there are many places around the globe that enjoy a surplus of freshwater. Some have proposed

shipping this water long distance in ocean tankers, but the current cost to do so makes this unfeasible.

Another set of solutions to the water crisis involves improving the management of existing resources to ensure their reliability and longevity. Different water management theories will be discussed in a later section. Important proposals related to the management of water resources are the *privatization* of water resources and services and the creation of *water markets*. Their advocacy is motivated by both free-market ideology and conservation concerns (Glennon 2005; Anderson and Leal 2010; Gleick et al. 2002). Many believe that setting a price on water will reduce demand and increase efficiency of water services; if water consumers have to pay for water, they will use it more wisely and less of it. In the United States, for example, most consumers pay only for the delivery of water, not the water itself. If they were to pay for the water, as well as allowed to transfer their rights to it, then a water market would develop that would set a "true" price for water and run efficiently without the need for much, if any, government regulation. Chile, which has had a market-based water policy since 1974, is often cited as a model of such an approach, but whether it has been successful is contentious (Anderson and Leal 2010, pp. 95–96; Bauer 2004). Some have argued that markets cannot capture all the costs of water. For example, they do not by themselves consider third-party effects of water transfers, such as those on the members of community where the water transfer originates (Sax 2010). Also, markets do not consider the effects of transfers on future users.

An ethical and political problem that confronts management solutions to the water crisis is the fact that many watersheds cross national boundaries. Rivers that cross through several countries are the clearest example of this. The Rio Grande passes through the United States and Mexico; the Nile passes through ten countries. Disputes over the use of such watersheds are a perennial problem of water use and can only be alleviated through better cross-nation cooperation. The Nile Basin Initiative is one example, although it has not solved all of the disagreements of the participating countries. In addition to cooperation, cross-boundary watersheds also highlight obligations that states owe one another. For example, a country that dams a river must consider the consequences to downstream users of the river, even those in another country.

Water as a Human Right

In order to encourage the implementation of solutions to the water crisis, and to influence the types of solutions that are pursued, many have called for the recognition of a human right to water. In 2002, the UN Committee on Economic, Social and Cultural Rights recognized an implicit right to water in Articles 11 and 12 of the International Covenant on Economic Social and Cultural Rights (General Comment 15). This was followed in 2010 with a resolution by the UN General Assembly that recognized a human right to water and sanitation (UNGA Res. 64/292). A small number of states identify an explicit right to water in their constitutions, such as the Republic of South Africa.

A human right to water would ensure that the basic water needs of individuals are met. One widely endorsed estimate has this to be 20 L of water daily for each adult individual. This is well below the average daily use of those in the United States (400 L) and Europe (200 L). Even so, it is above the estimated daily use of 5 L by individuals in water-poor regions. Even the states in these regions that are actively trying to improve their water situation lack both the funds to improve the water infrastructure and the water sources needed to fulfill this basic needs minimum. On the subject of costs, the advocates of a human right to water are quick to point out that it does not entail that water should be free. It should be affordable. It should also be easily accessible and of a sufficient quality, but those who can should pay for the water and its delivery.

Besides the practical problem of fulfilling a human right to water, the human right to water suffers from some conceptual problems. For

example, it is not clear who is the addressee of such a right, that is, who bears the corresponding duties and responsibilities of a right to water. The UN resolutions and comments, as well as the state constitutions that recognize a right to water, make governments the addressee. This presupposes that the government has a monopoly over water sources and services, an imperative to assume such a monopoly, or the power in some other form to ensure that the basic water needs of citizens are met. Again, there are both practical and conceptual problems with this presupposition. One possible way to resolve both sorts of problems is to deny that all rights entail correlative duties held by individuals or governments (Sampford 2009). But this would broaden the category of human rights to include what resemble aspirations or goals of a community. Rights, however, are more than this. They are enforceable, and their recognition can be demanded. Both acts imply some target or addressee of the right.

One way to meet at least the conceptual demands of a human right to water is to recognize water as a common good not subject to anyone's appropriation, like air. Water and air are in many respects alike. They both move or flow, and they are renewable. However, air is ubiquitous above the surface of the earth, and water is not. Also, there are no consumptive uses of air. That is, the air humans use for breathing as well as such things as firing coal plants is immediately returned to the atmosphere (although, in the case of the latter and many industrial uses, with pollutants added). Some important water uses are consumptive. The legal regimes that have arisen around water use reflect this and are not all compatible with the idea of water as a common good.

The *riparian doctrine*, which dates back to the Justinian Code of 533 CE, holds that landowners have a right to the water in a stream or river that adjoins their land. The right to this water is not transferable, that is, it cannot be transferred apart from transfer of the land. The water removed needs to be put to reasonable use and returned in as close to the same condition to its source. The riparian doctrine only works well in humid regions; in arid regions, water must be diverted across the land to be of use. The *doctrine of prior appropriation* was developed to accommodate these uses. It was applied in the western United States during the gold-mining boom (mining makes extensive use of water) and was likely derived from English common law and the *aequia* system of Hispanic law. It grants a right to water to whomever diverts the water for beneficial use. They do not need to own land adjacent to the source, and priority is given to those who first make use of the water over those who come later. The *public trust doctrine*, which is another one to have origins in the Justinian Code, contends that air, running water, and the sea are held in common by all humans. The state retains title to them and is obligated to regulate them for the benefit of all its citizens. The public trust could be relied upon by states to fulfill a human right to water, but it conflicts with doctrines like prior appropriation, and it does not cover all water sources. The use of groundwater has been subject to less legal regulation. Some doctrines have mandated certain limits on pumping, such as the *reasonable use rule*; others have endorsed mostly unlimited pumping, such as the *rule of capture* (Pennington and Cech 2010, p. 378ff). Only the public trust doctrine is consistent with a human right to water, but not sufficient. Making such a right consistent with existing legal doctrine – or overriding those doctrines – poses both legal and ethical challenges.

Water Management

Whether water is a common good or property, wise management is necessary to ensure the sustainability and accessibility of water resources. A laissez-faire approach to water use is no longer a possible approach to water use in a time of increasing scarcity. Over the last few decades, several different management paradigms have been proposed and adopted. These paradigms consist of tenets of water management that are intended to promote the wise and efficient use of water.

In the 1980s, *integrated water resources management* (IWRM) emerged and eventually became the dominant paradigm for water management. It arose in response to the recognition that the management of water must be coordinated with that of other resources, their various uses, and the entirety of stakeholders. It advocates an interdisciplinary and multi-institutional approach to the management of water resources and services. IWRM has been endorsed by numerous world organizations, including the United Nations Environment Programme, the United Nations Development Programme, the World Bank, and the Global Water Partnership (GWP). The GWP has provided the most widely cited definition of IWRM as:

> a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. (Global Water Partnership 2000, p. 22)

This definition has been criticized for its vagueness (Biswas 2008). Nevertheless, several states have attempted implementing IWRM, with varying degrees of success (Petit and Baron 2009).

The ideas behind IWRM have a long history (stretching at least as far back as the early twentieth century), as do some of its competitors, such as *adaptive management*. This approach to management has roots in the writings of Aldo Leopold, in particular the "Land Ethic" section of *A Sand County Almanac* (1949). It also reflects the insight that water and other resources are unstable and undergo unpredictable variations. Large-scale water management projects such as for irrigation or flood control assume stability and make humans more susceptible to harm from unanticipated ecological change (Brown and Schmidt 2010, p. 9). Adaptive management is a strategy for ensuring the *resilience* of ecological systems. It involves a pragmatic approach to water management that emphasizes experimentalism and social learning (Norton 2010). *Ecohydrosolidarity* can be considered a species of adaptive management, although distinguished from both it and IWRM by a greater emphasis on human rights and social justice. First articulated by Malin Falkenmark and advocated by organizations like the Stockholm International Water Institute, with which she is affiliated, ecohydrosolidarity combines insights from both ecology and hydrology to, for example, draw attention to the functions of both *blue water* (liquid water flow) and *green water* (e.g., soil moisture). Traditional water management has focused on the former, even though it is only one-third of water resources, and green water is involved in plant production, which supplies food and other critical needs for humans. An understanding of, and attention to, the interaction between blue and green water is essential for effective water management (Falkenmark and Folke 2010).

All management paradigms make ethical presuppositions, and their implementations have ethical implications. Some explicitly acknowledge the ethics, such as ecohydrosolidarity, while others, in particular some advocates and practitioners of IWRM, try to disguise them behind a value-neutral, objective approach to the problem of water scarcity. However, merely the identification of a problem reflects an ethical judgment. Also, as it was discussed above, all solutions to the water crisis have ethical implications, and the choice of solutions reflect ethical judgments.

Summary

The water crisis is affecting a large and increasing percentage of the world's population. Population and economic growth, climate change, and the misuse and poor management of water resources are placing pressures on existing water resources. Solutions to the water crisis include finding new sources of water, such as through desalinization and effluent reuse, and improving the management of water resources and services, including privatization and the creation of water markets. All of these solutions have ethical implications. The recognition of a human right to water is another type of

response to the water crisis that seeks to influence governments and international organizations to act to alleviate the crisis. The notion of a human right to water suffers from some practical and conceptual problems, and it is incompatible with much of existing water law. Several management paradigms have been advocated as another way to respond to water scarcity and other problems associated with water use. They vary insofar as they incorporate the ethical dimensions of water use and scarcity, among other ways.

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WTO Dispute Settlement and Food and Agricultural Trade

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Synonyms

Dispute resolution; Dispute settlement Body; Dispute settlement panels

Introduction

International trade agreements are formal accords under international law involving two or more countries. Multilateral trade agreements are negotiated by the members of the World Trade Organization (WTO) and set out rules and regulations for the conduct of international trade among the majority (159) of sovereign nation states (about 193). All WTO members must agree to the negotiated trade provisions and are required to define specific commitments in national legislation to insure consistency with the rules. Similar procedures are followed for regional and bilateral – also known as "preferential" – trade agreements. If a party to an international trade agreement violates any of the commitments it has made, other parties may seek redress through the organization governing the agreement. To handle these situations, trade agreements include procedures for dispute settlement that usually involve the establishment of

expert panels to hold hearings on the case and to render a judgment based on the provisions of the trade agreement in question. The following discussion is focused on WTO dispute settlement operations because they are the best-known procedures for resolving international trade disputes. They are also widely criticized for their insensitivity to national and international laws on environmental protection, human rights, and other global concerns. In addition, some worry that adjudicating complaints through the WTO dispute settlement mechanisms can be costly and may require legal expertise not easily found in many developing countries.

WTO Dispute Settlement (DS) Procedures

Toward the end of World War II, world leaders created international legal institutions and organizations to administer them. In addition to the United Nations, the International Monetary Fund, and the World Bank, they hoped to create an international trade organization (ITO). A proposal for such an organization was developed at a conference in Havana, Cuba, in 1948, but this agreement was blocked by the United States. A somewhat earlier and less ambitious agreement, the General Agreement on Tariffs and Trade (GATT) took on some of the functions envisaged for the ITO. The WTO, created in 1995, absorbed the GATT as well as other multilateral trade agreements such as the Agriculture Agreement and the General Agreement on Trade in Services (GATS). The primary objective of the GATT and WTO is to promote trade liberalization and to offer governments an avenue for avoiding the protectionist trade policies that had seriously impaired the functioning of the global economic system during the 1930s. Under both the GATT and the WTO, periodic trade negotiations, often referred to as "rounds," have been organized to develop new rules to promote freer trade. The Uruguay Round, which created the WTO, was the eighth round of trade negotiations. A ninth round known as the Doha Development Round (DDR) or Doha Development Agenda (DDA) was launched in 2001 and is on-going although a partial agreement was reached in December 2013.

In addition to organizing multilateral trade negotiations, the WTO is also in charge of resolving trade disputes between member states. Dispute settlement (DS) procedures under the GATT were often ineffective because the decisions of the DS panels could be blocked by the losing party and, without clear time constraints for completion of the hearings and reports, cases often dragged on for many years without satisfactory resolution (WTO 2012a). The Uruguay Round agreements included strengthened dispute resolution mechanisms with fixed time lines for completion of the various steps in the process. Countries that believe that their economic interests have been harmed because another WTO member has violated the commitments it has made may elect to request "consultations" with the offending party. The consultations are aimed at finding a mutually agreeable resolution of the dispute and can last up to 60 days. If the consultations fail to settle the conflict, the Dispute Settlement Body (DSB), which is made up of the entire membership of the WTO, may agree to establish a DS panel of experts from countries not party to the dispute to hear the case (WTO 2012a). The panels are supposed to complete their report within 6 months. The panel's report is submitted to the DSB which can either accept or reject all or parts of the report and recommendations from the panel (WTO 2012a).

Decisions of the DSB can be appealed, and once a final decision has been adopted, parties that have been judged to have violated their commitments are expected to alter the offending trade policy or offer satisfactory compensation to the complainants. If the parties to the dispute cannot reach an agreement that the policies at fault have been sufficiently altered to remove the harm or that adequate compensation has been negotiated, the complainants can request permission from the DSB to suspend their normal WTO obligations in order to retaliate by placing trade restrictions on exports from the losing party. A recent case on upland cotton illustrates the operation of the DS procedures. In September 2002, Brazil requested consultations with the United States concerning

US policies for upland cotton (WTO 2012b). The United States provides subsidies for cotton so that producers are sheltered from lower world market prices. These subsidies create incentives for increased production which further depresses world prices harming producers in other exporting countries (Peterson 2009). Brazil was joined by 16 other countries seeking to change the US policies charging that they violated US commitments made to comply with the WTO Agriculture Agreement. A dispute settlement panel was eventually convened delivering its report in September 2004 largely upholding Brazil's position. The United States appealed the decision to a WTO agency known as the Appellate Body which again upheld most of Brazil's complaint. In November 2009, Brazil was granted authorization to retaliate as the US policies had not been changed and adequate compensation had not been agreed upon (WTO 2012b). The following year, the Brazilian government listed the US goods that would be subject to retaliatory tariffs but decided to hold off on their implementation while pursuing further negotiations with the US government and in return for compensatory payments to the Brazilian cotton industry (Chan 2010). The Brazilian government expressed the hope that a more permanent solution to the problem might be achieved in the context of new farm policy legislation adopted in 2014 to replace the expired 2008 farm bill (WTO 2012b).

Criticisms of the DS Procedures

The DS procedures of the WTO provide a way for countries to resolve trade conflicts. In the absence of such procedures, it is likely that trade disputes would rapidly escalate into full-blown trade wars. Trade wars are not precluded by the DS procedures: offending parties can always refuse to change their policies and complainants can then retaliate with trade barriers of their own. But the procedures offer the possibility that the parties will be able to find a solution short of a trade war and they also have the added benefit of helping to clarify WTO and international trade law. Of course, there is no guarantee that these cases will be resolved amicably or speedily. The entry by (Hobbs 2014) on the Canada, US, and EU beef hormone dispute in this encyclopedia describes a case that started under the GATT in the late 1980s and that was finally resolved only in March 2012. On the other hand, according to the WTO, 452 cases have been submitted to the WTO since 1995, and, of these, 150 are in consultations, 92 are being addressed by DS panels, and 202 have been withdrawn, terminated, or settled with recommended changes either implemented or in the process of being implemented. In only eight of these cases has an authorization to retaliate been requested or granted (WTO 2012c).

The apparent success of the DS procedures is overshadowed by the fact that some of the cases have been extremely controversial. Before examining two of these contentious cases more closely, it is useful to consider some broader criticisms of the WTO, many of which carry ethical dimensions associated with the DS procedures. Singer (2004, p. 55) identifies four main criticisms of the WTO. The first is that it gives priority to commercial and economic interests over other considerations, such as environmental protection, that are of equal or greater value. The WTO is also criticized for undermining national sovereignty and for being undemocratic. Finally, some believe the WTO contributes to global inequality favoring the rich and large corporations in high-income countries over the poor. The first criticism is probably the most important and the one most closely connected to food and agricultural ethics. In examining this charge, Singer draws heavily on two controversial cases that were handled by GATT and WTO dispute resolution panels. He notes that the language in the WTO agreements allows countries to restrict trade to protect the environment, human rights, or other issues with social, political, and ethical dimensions (e.g., child labor). Based on his analysis of the Mexico-United States dispute over dolphin mortality associated with tuna fishing and the India-United States dispute over sea turtle endangerment connected to shrimp fishing, however, he concludes that commercial interests do

indeed seem to trump environmental concerns in the DS process. Calle (n. d.) examines these and other controversial disputes and reaches similar conclusions. The tuna-dolphin and shrimp-sea turtle disputes will be examined in greater detail in the next section.

Singer appears to have mixed feelings about the charge that the WTO undermines national sovereignty. There is little doubt that the WTO and other institutions that increase interdependence among the nations of the world serve to constrain state sovereignty (see the entry in this encyclopedia by Peterson on "► Food and Agricultural Trade and National Sovereignty"). Singer points to social contract traditions, noting that as in the case of citizens giving up some of their rights in return for the benefits provided by a state, so nations may choose to give up some of their room for maneuver in return for the benefits of access to the global trading system. On the other hand, as the WTO has extended its reach into areas such as the protection of intellectual property rights, the potential for conflict between legitimate government policy initiatives and WTO rules may lead to unfortunate outcomes. Singer suggests that protection of patents on antiretroviral drugs used in the fight against HIV/AIDS could have caused immense harm because these drugs are so expensive. Allowing generic substitutes would save millions of lives but might run afoul of the WTO agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). WTO agreements and the dispute settlement procedures that support them do erode national sovereignty, but whether this is a good or a bad thing depends on the particular circumstances.

The charge that the WTO is undemocratic is true in at least one sense: large nations such as China (population: 1.3 billion) have only one vote, the same as tiny countries such as Saint Kitts and Nevis (population: 39,000). Singer also criticizes an argument put forward by the WTO claiming that because decision making is done by consensus, the WTO is actually more democratic than organizations in which decisions are made by simple majorities. With almost no supporting argument, Singer asserts that this claim is false (p. 75). He correctly notes that requiring consensus means that every member has a veto and such a voting system will inevitably favor maintaining the status quo because it is almost certain that some country would oppose any change that is proposed. But these implications of a unanimity voting rule do not inherently make such a rule undemocratic. Pareto optimality, defined as a situation in which no one can be made better off without making someone else worse off, is an important concept in welfare economics. If policy makers seek to achieve Pareto optimality, the only way to guarantee that outcome is through consensus voting. Many (including this author) reject the idea that achieving Pareto optimality is a reasonable policy objective because of the overly conservative nature of such a voting rule, but for matters of grave import, having the right to veto objectionable changes may be thought by some to be critical (but see Sen 1970).

The final charge against the WTO is that it contributes to greater global inequality by favoring the interests of large private corporations which exploit the poor in low-income countries. Given that those making this claim often defend contradictory positions (e.g., cheap US maize drives poor peasants in Mexico off their farms while at the same time US policies on maize ethanol drive up the prices paid for tortillas by poor urban Mexicans), Singer elects to focus on the empirical question of whether or not global inequality has increased. He reviews a number of studies and concludes that statistical data and other information about income inequality are too unreliable to make a firm determination on this question. The WTO was created to foster a liberal trading system on the grounds that free trade can be expected to increase general economic well-being. Most economic analyses recognize that trade liberalization can lead to lower incomes in uncompetitive industries but note that the gains to other sectors of the economy almost always are greater than these losses. For food and agriculture, there is good evidence that trade liberalization and other policy reforms would lead to substantial net benefits with higher commodity prices that benefit producers in low-income

countries but that harm poor consumers in these same countries (see Peterson 2009).

Questions about the impact of the WTO on developing countries are related to another concern that has been raised about DS. Arguing a case before the DSB and the experts on the panel is complicated and requires expertise that may not be readily available in low-income countries. Mosoti (2006) and Bown and Hoekman (2005) explain the low participation in DS cases by developing countries by noting the legal complexities and costs associated with the WTO procedures. If low-income countries are unable to defend their interests before the DSB, the entire system might be judged to be biased and unfair. Bown and Hoekman (2005) suggest providing legal services to low-income countries through international organizations, foreign aid, and nongovernmental organizations. The DS procedures allow for interested third parties to join other countries in filing complaints, and this may be an avenue for increasing their participation in these processes. Poor countries such as Benin, Chad, Pakistan, and Bolivia joined with Brazil in the upland cotton dispute with the United States although only Brazil was granted authorization to retaliate when it was determined that the United States had not complied with the DSB ruling (WTO 2012b). If current DS procedures do prevent full participation by the governments of low-income countries, reforms along the lines suggested by Mosoti (2006) and Bown and Hoekman (2005) would seem to be needed.

Tuna, Dolphins, and Turtle Excluder Devices (TEDs)

Singer (2004), Calle (n. d.), and others point to particular decisions by the DSB in support of their conclusion that the WTO favors commercial interests over other values, notably environmental values concerning endangered species and the protection of marine mammals. The decision in the dispute between Mexico and some other countries and the United States over tuna fishing methods in the Eastern Tropical Pacific that led to the deaths of large numbers of dolphins incensed the environmental community and still resonates as a case in which legitimate environmental concerns seem to have been overridden by the WTO's commitment to free trade. In the Eastern Tropical Pacific, tuna frequently swim below dolphins. The dolphins are easier to locate as they swim near the surface and it has been common for tuna fishers to use dolphin sightings to set their nets. The US Marine Mammal Protection Act (MMPA) adopted in 1972 restricts imports of tuna captured with methods that lead to substantial dolphin killings (WTO 2012d). Mexico requested consultations on these provisions in 1991 arguing that GATT exceptions allowing the use of trade barriers for environmental purposes only apply to final products not the methods used to produce them. In addition, Mexico objected to the extension of US laws beyond US territory noting that the MMPA is not an international law. The GATT panel ruled in favor of Mexico agreeing with the argument that the GATT exceptions apply only to final products and concluding that countries are not free to impose their national standards on other countries (WTO 2012d; Perrin et al. 2002).

The Mexican government decided to drop the case so the panel report was never adopted. Instead, Mexico, the United States, and other countries undertook direct negotiations aimed at reducing the incidental killing of dolphins. The result was the 1999 Agreement on the International Dolphin Conservation Program (AIDCP) which provided for limits on dolphin bycatch and observers to monitor compliance. Dolphin mortality was falling during the 1990s, and under the AIDCP, dolphin mortality associated with fishing operations has declined further (Perrin et al. 2002). Some have argued that the resolution of this dispute shows that it is preferable to conduct direct negotiations on global environmental issues with a view toward establishing an international agreement rather than trying to resolve them through the WTO. The WTO is a trade agreement not an environmental or animal welfare agreement and as noted by Marceau (2002), can only adjudicate disputes in terms of provisions that are specifically included in the WTO agreements. In considering the relation between

WTO and human rights law, Marceau argues that if the WTO were to attempt to enforce rules that are not included in its agreements, it would be altering the WTO provisions, and such modifications require the prior agreement of all member states. This does not, of course, exempt nations from their obligations under other international laws (on human rights or the environment). It simply means that the WTO is not the appropriate place to adjudicate conflicts related to these obligations. In the case of the tuna-dolphin dispute, the problem that led to the imposition of trade restrictions was largely resolved by agreements made outside the WTO.

The AIDCP also includes provisions for the labeling of canned tuna as "dolphin-safe" (Trujillo 2012). The United States did not adopt the AIDCP standards, relying instead on standards defined in the US Dolphin Protection Consumer Information Act (DPCIA). The DPCIA standards are more demanding than those in the AIDCP, and this led to a new DS panel convened to adjudicate rules on labeling traded tuna as dolphin-safe. The panel found that while the US labeling system was not discriminatory, it did restrict trade more than is necessary to accomplish the objectives (Trujillo 2012). The panel also noted that the US scheme may actually cause greater harm because it focuses on fishing methods rather than on dolphin protection per se. Under the DPCIA, the dolphin-safe label is reserved for tuna caught with methods that do not involve using dolphins to locate schools of tuna (Trujillo 2012). These alternative methods may lead to greater bycatch of other species including sea turtles, sharks, and other types of fish (Guernsey 2010). Mexico and the United States both appealed the panel report and the Appellate Body subsequently reversed some of the findings. The final report adopted by the DSB in June 2012 determined that US dolphin-safe labeling provisions discriminated against Mexico and the United States has agreed to modify its laws to comply with the ruling (WTO 2012e).

One of the issues raised in this case is the question of whether WTO rules apply to "process and production methods" (PPM) or only to final products. Basic WTO principles require that countries apply the same trade policies to all members (the principle of most-favored nation status) and that "like" products should be treated the same (Matteotti and Nartova 2011). Tuna caught with methods that harm dolphins are indistinguishable from tuna caught with dolphin-safe methods. This suggests that the two types of tuna are like products, and this would mean that they cannot be subject to different trade restrictions. For environmentalists, this misses the point entirely as environmental problems are often associated with production methods. Domestic regulations that prevent or constrain the use of particular production methods (limits on agricultural chemical applications, restrictions on the use of growth-promoting hormones, cage-size requirements for laying hens, etc.) raise the costs of domestic producers who may not be able to compete with cheaper products imported from foreign suppliers not subject to these regulations. One way around this problem is to implement labeling systems although, as in the case of dolphin-safe labels, such systems may still be open to challenge if they are structured in ways that favor domestic over foreign producers. It should be noted that governments in developing countries often oppose the incorporation of environmental mandates in trade law because they understand that it may be difficult or impossible for them to comply with environmental and social standards developed in high-income countries that are incompatible with the economic and environmental conditions they face.

Discrimination was at the heart of another controversial DSB ruling. To protect several species of sea turtles listed under the US Endangered Species Act, the United States requires that shrimp trawlers deploy nets with "turtle excluder devices" (TEDs) that allow sea turtles to escape. Foreign suppliers of shrimp have to receive certification that they are complying with this requirement as well. In 1997, India, Malaysia, Pakistan, and Thailand filed a complaint arguing that the US certification system was discriminatory. In its final report, the Appellate Body went out of its way to emphasize that measures to protect sea turtles

such as those of the United States are entirely legitimate under GATT Article XX which lists exceptions to WTO rules restricting the use of trade barriers (WTO 2012f). It did find, however, that the United States was discriminating against the four complainants because it offered countries in the Caribbean technical support in complying with the US requirements, support that was not available to the complainants. The United States has revised its certification guidelines to comply with the ruling (WTO 2012f).

Summary

Decisions of the DSB are tied very closely to the wording in the texts of the international trade agreements adopted by the members of the WTO. Some of these decisions have come under fire because they seem to overrule legitimate national policies and standards on social and environmental issues. WTO supporters note that exceptions to restrictions on the use of trade barriers are allowed in the WTO texts. Such exceptions have to be structured in ways that do not favor domestic producers over foreign suppliers. Critics of WTO dispute resolution argue that, in fact, economic and commercial interests are usually given priority over environmental and social concerns despite the language on exceptions in the WTO texts. Arguing cases before the DSB is costly and requires experience and expertise, and this may limit the ability of low-income countries to participate in the DS process raising issues of fairness and discrimination.

Cross-References

- ▶ Agricultural and Food Products in Preferential Trade Agreements
- ▶ Environmental Ethics
- ▶ Multilateral Trade Organizations, Food, and Agriculture

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