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Introduction

David Langlet

Welcome to the thirty-fourth regular issue of the Nordic Environmental Law Journal (NELJ). This issue comprises two articles. Both are longer than the average NELJ article and both are concerned with issues that are more or less new to the journal.

In "Waste of Food and the case of the Swedish Environmental Code – An analysis of the possibilities to reduce food waste with the support of environmental legislation" Jonas Christensen, Mattias Eriksson, and Ingrid Strid, look at the role of law in preventing food waste. More specifically, they analyse how the Swedish Environmental Code can best be used to reduce the amount of waste in the food supply chain. The issue of food waste is viewed as one of waste prevention and resource management rather than of regulating waste.

The Environmental Code is found to be useful, e.g. by requiring everyone to prevent the waste of resources and by obliging professional activities to use best available techniques for this purpose. At the same time, the Code is not designed to take into account all relevant aspects of the food chain, including food safety requirements. The authors therefore recognise the need for specific rules, adapted to the circumstances of the food chain, to complement the Code.

This is followed by Harsh Vardhan Bhati's article "Energy Sustainability in UNESCO World Heritage Cities: On the Local and National Implementation of International Law in Visby (Sweden), Jaipur (India), and Bath (United Kingdom)". As the title implies, it engages with legal and governance challenges at the intersection of heritage conservation and energy sustainability in World Heritage cities. More specifically, it examines how Sweden, India, and the United Kingdom implement the 1972 World Heritage Convention in light of legal commitments to reduce greenhouse gas emissions by studying how heritage protection is balanced

with climate mitigation and adaptation in three World Heritage cities. The study identifies a high degree of legal and policy dynamics in how global obligations are localized in specific urban heritage contexts. While all three cities are found to align with international frameworks, they differ significantly in how this is accomplished.

Waste of Food and the case of the Swedish Environmental Code

An analysis of the possibilities to reduce food waste with the support of environmental legislation*

*Jonas Christensen, Mattias Eriksson, and Ingrid Strid***

Abstract

The EU Commission proposes that by 2030, Member States (MS) must reduce generation of food waste by 10% in processing and manufacturing, and by 30% (per capita) in restaurants, retail, and households compared with 2020. According to the EU Waste Directive (WFD) MS shall take measures to prevent waste generation, such as reducing food waste. This article describes how the Swedish Environmental Code (SEC, or the Code) can be applied to reduce the amount of waste in the food supply chain. We shift the discussion on food waste from being one about waste management to becoming a question of waste prevention or a resource management issue. Therefore, waste regulation will not primarily be in focus.

A conclusion is that ch. 2. sec. 5 of the SEC implies an obligation for everyone to prevent resource waste, and that one must apply the best possible technology in professional activities to this end. However, the SEC lacks the scope to consider aspects that are unique to the food chain, but which can be important for effective regulation. Therefore, specific rules must also be designed, adapted to the conditions in the food supply chain, as a complement to the current regulation. It is primarily the requirement for food safety that must be met.

In Sweden environmental supervision and food inspection is often carried out by the same agency, but by different personnel. We show how environmental inspectors can apply the SEC in matters related to reducing food waste, in a way that has not been done previously.

Keywords: Resource management, waste of food, food waste, Swedish Environmental Code.

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** *Jonas Christensen*. Juris dr. in environmental law (Uppsala University, Faculty of Law 1998). Ekologen Miljöjuridik AB, Östra Ågatan 53, 753 22 Uppsala, Sweden.

Mattias Eriksson. Associate Professor. Department of Energy and Technology, Swedish University of Agricultural Science, Box 7032, 75007 Uppsala, Sweden.

Ingrid Strid. PhD. Department of Energy and Technology, Swedish University of Agricultural Science, Box 7032, 75007 Uppsala, Sweden.

1. Introduction

1.1 Background

According to statistics from the Swedish Environmental Protection Agency (SEPA)[1], approximately 1.4 million tons of food waste were generated in Sweden in 2022, corresponding to 122 kg per person.[2] In the past, it was considered that the greatest food waste occurs in households, an opinion that has now changed.[3] Just under half of this comes from households and the rest from professional activities.[4] As SEPA puts it, therefore, more of the responsibility for reducing the amount of food waste falls on those who handle food professionally than has previously been assumed.[5] The UN's Food and Agriculture Organization (FAO) estimates that around 14% of the world's food is lost after harvest and up to and including the wholesale level.[6]

A large part of food waste is so-called "food waste that could have been avoided",[7] i.e., wasted food and not only leftovers from preparing food. Food loss and waste occur at all stages of the food supply chain,[8] where commercial decisions often impact their magnitude.

Food production and consumption affect both the climate and biological diversity, and contribute to acidification and eutrophication.[9] In Sweden, food production causes around half of total eutrophication and 20–25% of total climate impact.[10] Food production is also one of the most water-intensive sectors.[11] It is forbidden to deposit organic waste in Sweden,[12] so only minor emissions occur due to food waste management, whereas in many other countries food waste in landfills causes large-scale global warming.[13] Therefore, in Sweden the production phase accounts for the majority of the environmental impact of food. Avoiding production is therefore the best way to reduce this impact.

The United Nations (UN),[14] the European Union (EU),[15] and Sweden have all adopted the goal to reduce 50% of food waste at retail and consumer levels and to reduce food losses along production and supply chains by 2030. In addition, Sweden has set environmental milestone targets on reducing food loss and waste.[16] However, there are no legally binding targets yet.

The Sustainable Development Goals (SDG) were adopted by the UN General Assembly as a part of the UN's 2030 Agenda for Sustainable Development, through which the countries of the world pledged to eradicate poverty,[17] find sustainable and inclusive development solutions,

[1] Naturvårdsverket.
[2] Naturvårdsverket 2024, *Livsmedelsavfall i Sverige* 2022, p. 4.
[3] Ibid.
[4] Ibid.
[5] Ibid.
[6] FAO. *The state of Food and Agriculture. Moving forward on food loss and waste reduction*.
[7] *Government bill 2016/17:104*, p. 39.
[8] Juan J. Rojas-Reyes et al., Supply chains represent the activities and agents that bring products from producers to final consumers, including waste disposal. *Heliyn 2024*.
[9] Beatrice Garske et al. Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*.
[10] Stockholm Environment Institute. *The nexus of Swedish food consumption emissions in climate, health and fairness*. https://www.sei.org/perspectives/swedish-food-climate-health-fairness/ (2024).
[11] Naturvårdsverket, *MiljöEmmissionsData* 2020, p. 4.
[12] Government ordinance on disposal of waste (SFS 2001:512), sec. 8.7.
[13] Carrie Julia Bradshaw, Law and the Value of Food. *Journal of Environmental Law 2018*. pp. 311–331.
[14] United Nations, *Report of the Open Working Group of the General Assembly on Sustainable Development Goals*. SDG 12.3 requires halving per capita global food waste at the retail and consumer levels by 2030 and reducing food losses along production and supply chains, including post-harvest losses.
[15] EU Directive amending the Directive 2008/98/EC on Waste [2018] (OJ L 150/09) 2018/851.
[16] *https://www.sverigesmiljomal.se*.
[17] United Nations, *Transforming our world: the 2030 Agenda for Sustainable Development*. Resolution adopted by the General Assembly on 25 September 2015. A/RES/70/1.

ensure the human rights of all and generally ensure that no one is left behind after 2030. EU has stated that the SDG's shall be implemented in its policies.[18] SDG 12 aims to ensure sustainable consumption and production patterns, and target 12.3 aims at, by 2030, halve per capita global food waste at the retail and consumer levels, and reduce food losses along production and supply chains including post-harvest losses.

In 2020, two milestone targets for reduced food waste came into effect: By 2025, food losses must be decreased and more must become food; and waste of food, measured as the amount of food waste, must be decreased by 20% by weight per capita from 2020 to 2025.[19]

It has been shown that food waste (in Sweden) has not decreased since 2020, instead remained steady around 122 kg per capita for the years 2020–2023.[20] Considering that the target states a food waste reduction by 20% per capita from 2020 to 2025, inferring a 5% yearly reduction rate, it is obvious that the taken measures do not fulfill the target.

The EU has been criticized for focusing too strongly on reduced amounts of (food) waste,[21] which can mask more fundamental issues such as the need to reduce resource utilization in the food chain (e.g., by not producing as much food). This is because only a part of wasted food resources is classified as food waste in legal terms (and because food waste refers to a physical matter, but waste of food can also refer to personal overconsumption leading to obesity, i.e., metabolic food waste)[22]. An example of this "narrow" legislation is the EU hierarchy of waste prevention;[23] use of unsold food for donation; processing; recovery of unsold food for animal feeding; and recovery into compost for agriculture or energy.[24]

1.2 Purpose

There are strong political incentives to stop waste of food on a global,[25] European,[26] and national Swedish level.[27] In order to accelerate the EU's progress towards SDG Target 12.3, the Commission is proposing to set legally binding food waste reduction targets to be achieved by MS by 2030.[28] By the end of 2030, MS will be required to take the necessary measures to reduce food waste by 10% and food waste in processing and manufacturing by 30% (per capita), jointly at retail and consumption level (restaurants, food services, and households). According to WFD, MS shall take measures to prevent waste generation.[29]

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[18] *https://international-partnerships.ec.europa.eu/policies/sustainable-development-goals_en* (2025).

[19] Naturvårdsverket, *MiljöEmmissionsData* 2020, p. 14.

[20] Naturvårdsverket. *Livsmedelsavfall i Sverige* 2022, 2024.

[21] Laura Gómez-Urquijo, The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. p. 7, with sources cited there. *European Energy and Environmental Law Review*.

[22] Niina Sundin et al., The Climate Impact of Excess Food Intake – An Avoidable Environmental Burden. *Recourses, Conservation and Recycling*.

[23] FUSION 2016, The food waste hierarchy is an adapted version of the EU's waste hierarchy. *Recommendations and guidelines for a common European food waste policy framework*, p. 66.

[24] In France, this hierarchy has been introduced into legislation. Art. 1 of law N. 2016-1388, volume V (title IV) of the code de l'environnement. For comments on this see Luis González Vaqué, French and Italian Food Waste Legislation. An Example for other EU Member States to Follow? p. 2. *European Food and Feed Law Review*.

[25] FAO Sustainable pathways, *Food Wastage footprint. https://www.fao.org/nr/sustainability/food-loss-and-waste/en/* (2025-02-25).

[26] *EU Code of Conduct on Responsible Food Business and Marketing Places*.

[27] Maria Gardfjell, *Private member's motion to the Swedish Parliament*.

[28] EU Directive amending the Directive 2008/98/EC on Waste [2018] (OJ L 150/09) 2018/851.

[29] Those measures shall, amongst others, promote and support sustainable production and consumption models (Article 9(1)(a)), reduce food waste (Article 9(1)(g))

There are many reasons for this, including shortage of natural resources and the contribution of food waste to climate change. There is also an ethical dimension which may be expressed as "It is not right to waste food, when so many are starving". In addition, there are economic reasons on private, business, and national level.

The focus of this article is not waste management but waste prevention. To prevent food waste, appropriate and effective means of control are required, with legislation as an important component (but not the only one). However, saving raw materials and other resources is not a goal of food legislation, and food legislation lacks instruments to set such demands on the food supply chain. Although one of the aims of WFD is to reduce the amount of waste.[30] The aim of this article is to show how the rules on reduced resource utilization in the SEC can be used to reduce food waste.

It is the MS that are responsible for introducing national regulations that meet the requirements in the WFD. We believe that the SEC is an example of legislation where there is both a clear objective to reduce resource consumption and a clear material regulation of the issue. The aim of the SEC is to achieve sustainable development, in which prevention of resource waste is central.

Generally speaking, the SEC still lives in a paradigm where the focus is on an end-of-pipe regulation. The life cycle perspective, where emissions in upstream processes are also accounted for, has so far not been a main approach for the SEC.

The SEC is not applicable to food itself,[31] but rather to food businesses, where food is manufactured, processed, sold, used, etc. Therefore, while legislation that is applicable to reduce (food) waste and waste of food exists in Sweden, this legislation is not always specifically written and adapted to the conditions (characteristics) prevailing in the various activities that are part of the food supply chain.

1.3 Materials and methods

The method we use to describe and analyze the legal system is based on the idea that it is possible to distinguish three substantially different overarching functions of legislation, or of a legal system, namely:[32]

A. The objective (aim) of the legislation.
B. The substantive norms (requirement rules) used in the legislation.
C. How the system for enforcement of the substantive norms is built up.

The object may be expressed in the legislation itself, or in the preparatory works. In EU law, it may also be expressed in the recitals, or in the overriding TEU[33]. How and where the objective is expressed can be of crucial importance when it comes to the question of how binding it is. In the SEC, there is a clear example of a legally binding goal; "*the Environmental Code must be applied so that…*"[34].

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and encourage food donation and other redistribution for human consumption and thus prioritise human use over animal feed and the reprocessing into non-food products (Article 9(1)(h)). Beatrize Garske et. al, Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments, p. 9. *Land*. *Volume 9, Issue 7 (July 2020).*

[30] WFD art. 1.

[31] With the exception of drinking water from certain small-scale facilities.

[32] Staffan Westerlund, *Miljörättsliga grundfrågor 2.0*. See also Jonas Christensen, *Rätt och Kretslopp. Studier om förutsättningar för rättslig kontroll av naturresursflöden, tillämpade på fosfor* and Lena Gipperth, *Miljökvalitetsnormer. En rättsvetenskaplig studie i regelteknik för operationalisering av miljömål.*

[33] *Consolidated Version of the Treaty on European Union* [2016] (OJ C 202/3).

[34] SEC ch. 1, sec. 1. Emphasis added. See also *Government Bill 1997/98:45-part 2*, p. 646.

Substantive norms provide information on the type of human behavior that the legislation aims to prevent or promote.[35] Even if there is an ambitious aim for the legislation and properly adapted substantive norms, the aim may still not be achieved if the system lacks an effective enforcement system. Enforcement can, for example, be fulfilled via control or supervision by agencies, via penal law, via injunctions and fines, but also via softer tools, such as information and education. Self-control is another kind of enforcement. The term 'implementation deficit' refers to the difference between the set target and the actual result.[36]

This concept is a way of describing a legal system but can also be a starting point for analyzing errors and shortcomings in such a system. In this article, we use the concept as a method for a structural analysis of the Swedish legislation that apply to wasting of food. In addition to examination of the SEC, we examine the food law in EU and in Sweden and one purpose is to identify goal conflicts.

Christensen (2000) proposed a method which he calls 'flow-oriented regulation' for developing a regulatory system aimed at controlling human actions that affect the flow of various natural resources.[37] Since the method was developed so that the legislative process is based on certain relevant scientific facts, it can largely be regarded as an interdisciplinary method.

Depending on whether the regulation intends to reduce extraction of natural resources, reduce emissions, or control the use of a resource in society or in the ecosystem, the regulation may take place in different parts of the flow of resources. The different kinds of regulations (objectives, substantive norms, and enforcement norms) may also be designed and combined in different ways. To control the utilization of different types of resources, the legislator must also have good knowledge of the specific conditions (characteristics) that apply to the specific resource.

In this article we apply the method to the food supply chain, to investigate how the resource-saving parts of the SEC could be applied to the food supply chain; to identify certain circumstances in the food supply chain that resource management legislation must consider in order to be effective; and to propose such a regulation.

2. Definitions of some key words and concepts

2.1 Same term, different meanings

Terms may have one meaning in ordinary speech or in the natural sciences, but another in a legal context. One reason why terms are used with different meanings in different contexts may be that a certain terminology has been developed for a statistical context, for example, but without considering that the same terms are used in a legal context.

Words can also have different meanings within different legal disciplines, which is why it can be particularly important to clarify the meaning of certain key words and concepts used in this article. "Waste", "food", "food waste", and "waste of food" are such terms, but also the expressions "the food supply chain" and "the food chain". This article is written at the border between food law and environmental law, and there can also be misunderstandings about the meaning of words, depending on the legal discipline in which you operate.

[35] Environmental quality standards, norms of behavior, quotas, and trading systems are types of substantive norms.

[36] Staffan Westerlund, *Miljörättsliga grundfrågor 2.0*, p. 54.

[37] Jonas Christensen, *Rätt och Kretslopp – Studier om förutsättningar för rättslig kontroll av naturresursflöden, tillämpade på fosfor*.

2.2 Food waste

"Food waste" in English can have two different meanings, namely waste of food (a verb) [in *Swedish slöseri med livsmedel*] and food that has become waste (a noun) [*livsmedelsavfall*], which can cause problems. Moreover, these wordings are not infrequently also translated incorrectly or used without thinking about the context. To make matters more complex, even the term kitchen waste [*köksavfall*], which is not the same as food waste, is used in some contexts.[38]

If the aim of a legislation is to reduce food waste by 50%, then the legislator must define what is meant by "food waste". If legislation is introduced with one definition of such a central concept, but the follow-up statistics are based on another definition, then there will be problems in determining whether the legislation was a success or a failure.

The different definitions of food waste have been thoroughly discussed,[39] but the problem still exists.[40] This is illustrated below through some examples of slightly different definitions of food waste or food losses.[41]

Defining body	Term	Definition
FAO[42]	Food waste	*The discard of edible foods at the retail and consumer levels, mostly in developed countries.*
FAO	Food loss[43]	*The decrease in edible food mass at the production, post-harvest and processing stages of the food chain, mostly in developing countries.*
UNEP[44]	Food waste in The Food Waste Index	*Food and the associated inedible parts removed from the human food supply chain in the following sectors: Retail, Food service, Households, where "removed from the human food supply chain" means one of the following end destinations: landfill; controlled combustion; sewer; litter/discards/refuse; co/anaerobic digestion; compost/aerobic digestion; or land application.*

[38] Naturvårdsverket, *Uppdrag att föreslå genomförande av artikel 22 om bioavfall Europaparlamentets och rådets direktiv 2008/98/EG i den svenska lagstiftningen*, p. 57.

[39] See, e.g., Julian Parfitt et al., Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical Transactions of The Royal Society B*. Carrie Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*. Beatrice Garske et al., Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land, Volume 9, Issue 7 (July 2020)*. Naturvårdsverket. *Uppdrag att föreslå genomförande av artikel 22 om bioavfall Europaparlamentets och rådets direktiv 2008/98/EG i den svenska lagstiftningen*. Jordbruksverket. *Slutrapport om livsmedelsförluster. Resultat och åtgärder för att mer ska bli mat. Rapport 2024:1*.

[40] "Varying definitions and the need for boundaries make it more difficult for both business practitioners and regulatory agencies to comply with the legislation and can lead to conceptual confusion." See Naturvårdsverket. *Uppdrag att föreslå genomförande av artikel 22 om bioavfall Europaparlamentets och rådets direktiv 2008/98/EG i den svenska lagstiftningen*, p. 58.

[41] More examples in: Naturvårdsverket, *Minskat matavfall – miljönytta och kostnadsbesparingar*, p. 8. *Svenska MiljöEmissionsData* p. 15. Ingela Lindbom et al., *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*, p. 4. Naturvårdsverket 2020.

[42] FAO, *Sustainable Pathways, Food Wastage footprint*.

[43] Some studies distinguish between food wastage produced in the early steps of the food supply chain, called "food losses", and "food wastage" that is produced at the end of the food supply chain, called food waste. Beatrice Garske et al., Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*, p. 5, with sources cited there.

[44] UNEP, *Food Waste Index Report*, p. 9.

Defining body	Term	Definition
FUSIONS[45]	Food waste	*Any food, and inedible parts of food, removed from the food supply chain to be recovered or disposed of (including composted, crops ploughed in/not harvested, anaerobic digestion, bio-energy production, co-generation, incineration, disposal to sewer, landfill or discarded to sea).*
WRI[46]	*Food loss and waste"*	*Food and/or associated inedible parts removed from the food supply chain.*
SEPA, SFA[47]	*Waste of food [matsvinn]*	*Waste of food is food that is thrown away but could have been sold or eaten if handled differently.*
EU law[48]	*Food waste*	*All food as defined in art. 2 of GFL[49] that has become waste.*
EU law[50]	*Catering waste*[51]	*All waste food, including used cooking oil originating from restaurants, catering facilities, and kitchens, including central kitchens and household kitchens.* (Remark: Catering waste in this regulation is translated as *matavfall* in the Swedish version). Food waste [*livsmedelsavfall*] and catering waste [*matavfall*] are therefore not synonyms[52]).

Both "food" and "waste" are legally defined expressions. Food (or foodstuff) is legally defined as *any substance or product, whether processed, partially processed, or unprocessed, intended to be, or reasonably expected to be, ingested by humans* (etc.).[53] Waste is defined as *any substance or object which the holder discards or intends or is required to discard*.[54] Food waste is also included in the definition of bio-waste.[55]

From a strict EU-legal point of view,[56] food waste (the noun) is then *food which the holder discards or intends or is required to discard*.[57] This defi-

[45] FUSIONS, *Definitional Framework for Food Waste* 2014. (FUSION, an EU research project. Food Use for Social Innovation by Optimising Waste Prevention Strategies (2012–2016).

[46] World Resources Institute (WRI), *Food Loss + Waste Protocol. Food Loss and Waste Accounting and Reporting Standard*, p. 141.

[47] Livsmedelsverket, Naturvårdsverket, Jordbruksverket, *Fler gör mer. Handlingsplan för halverat matsvinn* 2030, p. 8.

[48] WFD art. 3. 4a.

[49] Regulation (EC) No 178/2002 of the European parliament and of the council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety [2002] (OJL 31, 1.2.2002, p. 1).

[50] EU Commission Regulation (OJ L 54/1) No 142/2001. of 25 February 2011 implementing Regulation (EC) No 1069/2009.

[51] Ibid., annex 1.22.

[52] See discussion on this in Naturvårdsverket *Uppdrag att föreslå genomförande av artikel 22 om bioavfall Europaparlamentets och rådets direktiv 2008/98/EG i den svenska lagstiftningen*.

[53] Food as defined in GFL art. 2 GFL. [*Livsmedel* in Swedish].

[54] WFD art. 3.1.

[55] WFD art. 3. 4a.

[56] WFD art. 3.1.

[57] Luis González Vaqué, explains the Italian law, which has its own definition of food waste which, in our opinion, does not match the EU's legal definition at all; "food waste': all food in the food supply chain which is thrown away for business or aesthetic reasons or because the expiration date is imminent, which remains edible and could potentially be used to feed people or animals, and

nition decides how these terms are used in this article and is also the definition used by Eurostat.[58] Note that this definition must be separated from the verb "to waste food" or "wasted food".

Eurostat summarizes the concept of food waste as any food that has become waste under these conditions:

1. It has entered the food supply chain.
2. It then has been removed or discarded from the food supply chain or at the final consumption stage.
3. It is finally destined to be processed as waste.

2.3 Problems and some critical points of view

There are problems with the existing definition of food waste. As SEPA summarizes the situation,[59] food waste is a legal concept, defined in EU legislation. It includes food waste which could have been eaten, inedible parts such as peel and coffee grounds, other residual products that the industry handles as a by-product and sells as animal feed or discarded, and simply food sent to waste disposal. On the other hand, vegetables that are handled on the farm or used as fodder are not food waste but are instead food losses.

In the same way, crop residues could be a food if edible and intended for human consumption according to the definition in EU law. If they are not food, then they cannot become food waste either. Materials that were never food, or never intended to act as food, cannot become food waste in the EU legal sense.

Not all wasted or lost food is waste, and all food waste (the noun) does not have to be wasted food, since, for example, spent coffee grounds are considered food waste. Wasted food thus consists of edible products that have entered the food supply chain, are not eaten (by humans) and have been lost. This lost food can either constitute a waste or a residual product (by-product) that can be used for purposes other than food, such as animal feed. Therefore, food waste can comprise items which include parts of food intended to be ingested (edible food) and parts of food not intended to be ingested (inedible food).

In EU legislation, water is a food as soon as it comes out of a tap intended for drinking water,[60] which means that waste of water in the pipeline network is not included in the concept of food waste, nor is the water flushed in water closets (WC) included. In contrast, in Sweden water is equated with food as soon as it has been taken into a water treatment plant.[61] As the water used in WCs is not intended for drinking, it is not defined as food, but drinking water that leaks from the pipeline network in Sweden should still be classified as food waste. But since the water pipes lead both to the kitchen and to the bathroom, it is therefore not possible to separate these different waters.

The boundaries are not entirely clear. A food is, legally speaking, something that can reasonably be expected to be consumed. But what is edible is in many cases a cultural issue, which then means that what is a food in one cultural context constitutes a waste or at least something inedible in another. One can also discuss whether it is a waste of food to use, for example, grain in fuel production. Drinking water leaking from water pipes and fish not landed, although they have been caught, are two other examples.

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which, in the absence of any possible alternative use, is marked for destruction". French and Italian Food Waste Legislation. An Example for other EU Member States to Follow? *European Food and Feed Law Review*.

[58] European Commission, *Guidance on reporting of data on food waste and food waste prevention according to Commission Implementing Decision* (EU) 2019/2000, p. 7.

[59] Naturvårdsverket, *Livsmedelsavfall i Sverige 2024*, p. 5.

[60] GFL art. 3 sec. 2 and Directive (EU) 2020/2184 of the European Parliament and of the Council of 16 December 2020 on the quality of water intended for human consumption [2020] (OJ L435/1), art. 6.

[61] SFL sec. 3.

However, there is criticism of how the EU handles the issue of food waste within the general waste legislation. Bradshaw argues that the legal definition of waste does not take into account the special value food has, relative to much else that can become waste.[62] She also argues that EU waste hierarchy becomes the waste *management* hierarchy and not waste *prevention* hierarchy, at least when it comes to food waste.[63] Bradshaw therefore claims that the current legal definition of waste in reality leads to increased food waste because waste may not be released onto the market as it is by definition not considered safe, regardless of whether this happened for formal reasons (for example, that the last date of consumption has passed) or because it is objectively unsafe in terms of microbiological criteria. Food may be edible but still considered waste. Bradshaw therefore argues that waste law is actually a part of the food waste problem, because there is an over-inclusive definition of (food)waste.[64] We agree with this criticism.

Garske et al. are also critical, and consider, among other things, that regarding the importance of being able to reduce food waste, it is regrettable that there is no legal connection between food waste and the waste hierarchy.[65] They also state that a legal anchoring of the waste hierarchy taking into account the special character of food products and thus including in particular food donations would be welcome.

[62] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, p. 6.
[63] Ibid., p. 13.
[64] Ibid., p. 11.
[65] Beatrice Garske et al., Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land*, *Volume 9, Issue 7 (July 2020)*, p. 9.

2.4 Food supply chain

Other problematic concepts are "food chain", "food supply chain" (already mentioned) and the applicability of food legislation. According to the Swedish Food Agency (SFA),[66] the food supply chain extends from farm to table, from growing fruit and vegetables, raising animals, hunting, and fishing, to slaughterhouses, production of drinking water, and industrial production of food and feed, as well as cooking, serving, and selling food. Storage and transport of food are also covered.[67]

However, the food legislation is only applicable to a part of this chain, namely from harvest/slaughter until food reaches the final consumer, and thus is not applicable to primary production prior to harvest/slaughter or to preparation, handling, or storage of food for private domestic consumption after the point of sale (retail cashier or home-delivered).[68]

By "the food chain" we mean in this article the relatively limited area within which the food legislation is applicable. Regarding how food and food waste are defined in EU legislation, even food that is disposed of in private homes is included in the noun food waste, despite the food legislation not being applicable there. This is because the legal concept of food is not linked

[66] Livsmedelsverket.
[67] Livsmedelsverket, https://www.livsmedelsverket.se/foretagande-regler-kontroll/sa-kontrolleras-ditt-foretag/nkp-webben/saharutfarskontrollen/livsmedelskedjan. Our translation here.
[68] GFL art. 1.3. The control agencies are tasked with controlling primary production even before slaughter and harvest, but since large parts of the food legislation covers both food and feed, it can sometimes be difficult to distinguish between food control and feed control. Where the line should be drawn is possibly debatable, but our understanding is that before harvest and slaughter, the main purpose of the inspection is to check what the animals and crops can ingest. Of course, with the primary purpose of ensuring that the food that later on will be sold is not contaminated due to feed content, pesticides or contaminated irrigation.

to the food supply chain, but to products that are intended to be, or can reasonably be expected to be, consumed by humans as food (after harvesting and bleeding), i.e., the food chain. Since the purpose of food legislation is to protect operators at the consumer stage, the focus of the food law is on the handling stages before consumers receive the food.

2.5 The Environmental Code and the food supply chain

The applicability of the SEC is not limited by the concept of food, by the food supply chain, or by food legislation, as it targets responsible use of raw materials and energy, irrespective of sector of society. It is therefore not a problem that the food legislation does not include handling of food in private households or crop losses in the field, since measures to prevent food loss and waste can be based on the environmental legislation, which applies to all operators along any supply chain, i.e., from farmers to consumers in the case of food.

To avoid borderline problems regarding the definition of the terms food and waste, we have instead chosen to discuss resource management along the food supply chain. Another expression is waste prevention (instead of waste management).

Having this delimitation of the analysis also made it easier to have further discussions about how resource management can be carried out. Although in most cases it (probably) means adopting the most resource saving option, using as much as possible as food. In certain situations it can be better to use a certain resource as animal feed or as fertilizer if the alternative, to use it as food, requires extensive inputs in terms of, for example, packaging, refrigeration, and transport.

The more a raw material has been refined, the greater the losses will be if it is not ultimately used as food. Expressed in thermodynamic terms, entropy decreases the more processing a product has undergone, which at the same time increases exergy losses if the product is thrown away or used for any purpose other than food.

3. EU food legislation and waste of food

Food law is defined as "*the laws, regulations and administrative provisions governing food in general, and food safety whether at Community or national level; it covers any stage of production, processing, and distribution of food, and also of feed produced for, or feed to, food producing animals.*"[69] This is called the food supply chain.

EU Regulation 178/2002 is often referred to as the General Food Law (GFL). The EU food legislation has three overriding aims; namely safe food, free movement of food products within the EU, and enabling consumers to make well-informed choices.[70] Reducing food waste is not an aim of EU food legislation and there are no specific statutes about this within the area of food legislation.[71] The opposite applies to EU environmental legislation, where explicit binding aims to reduce food waste are being introduced.[72]

In 2021, the EU launched the voluntary "*EU Code of conduct on responsible food business and marketing practices. A common aspirational path towards sustainable food systems*". One of the Code of Conduct's objectives is to prevent and reduce food loss and waste (at consumer level, within

[69] Bernd van der Meulen et al., *EU Food Law*, p. 114.
[70] GFL art. 5.
[71] The EU legislation on ecological food can be considered an exception to some extent, but that regulation does not cover all food handling as it is a voluntary commitment to produce or handle such food.
[72] Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste COM/2023/420 annex to the Directive of the European Parliament and of the Council amending Directive.

internal operations, and across value chains).[73] The target is 50% reduction in per capita food waste at retail and consumer levels by 2030 and reduced food losses along the food production and supply chains in the EU. This does not constitute a legally binding requirement but a voluntary agreement and there is therefore also no binding way to enforce it.

The EU Commission is now proposing,[74] through an amendment to the WFD, that MS must take the necessary and appropriate measures to achieve, by 31 December 2030, the following food waste reduction targets at national level:[75]

- reduce the generation of food waste in processing and manufacturing by 10% in comparison with the amount generated in 2020.
- reduce the generation of food waste per capita, jointly in retail and other distribution of food, in restaurants and food services, and in households, by 30% in comparison with the amount generated in 2020.

As mentioned above, one link between food and environmental law is the legislation on waste, which is a part of the environmental legislation. Waste is also an issue for food legislation, not because of interest in saving resources, but for food safety reasons.[76] Inadequate handling of waste can spread infections, etc.[77]

There are some rules in food legislation that have the purpose of guaranteeing food safety, but which at the same time may promote wasting of food.[78] Such rules may be counterproductive from a food waste perspective,[79] but necessary for food security reasons. See, for example, the rules on food date marking: "*best before*" and "*use by*"[80]. After the 'use by' date, a food is deemed to be unsafe,[81] even if in the specific case there is nothing wrong with the food. The basic provision in GFL art. 14, that food must be considered unsafe if it is unfit for human consumption, may also be problematic in this regard. For example, it is unclear whether a fruit should be considered unfit for human consumption when it is only slightly damaged or rotten, or whether a net of ten oranges should be considered unsafe if one orange is moldy.

In some cases, there is therefore a conflict of objectives between the food legislation and the environmental (waste) legislation. In the individual case, however, both legal requirements must be met for the operation to be legal.[82]

Even if the food is still healthy, for example date markings partly mean that the food can-

[73] Aspirational objective 2, p. 14.
[74] Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste. COM(2023) 420 final.
[75] See for example Laura Gómez-Urquijo. The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. *European Energy and Environmental Law Review*.
[76] Bernd van der Meulen et al., *EU Food Law*, p. 183.
[77] See regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs, (2004) [OJ L139/1]. Annex ll, Ch. Vl on waste. Also included in GFL art. 14.
[78] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, p. 5.
[79] Helena Martinsson, *Matsvinn I butik – Hur påverkar livsmedelslagstiftningen?*
[80] Regulation (EU) No 1169/2011 of the European parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004 EU regulation 1169/2011, (2011) [OJ L304/18], art. 24. Also, Carrie Julia Bradshaw Waste Law and the Value of Food. *Journal of Environmental Law 2018*, p. 6.
[81] GFL art. 14(2) to (5).
[82] SEC ch. 1, sec. 3 that states that the Code applies in parallel with other laws (with the exception of the Work Environment Act).

not be sold despite its quality, and there are also many consumers who "just to be safe" do not eat food if the date has passed without having checked the quality themselves. Food waste is thus increasing both among food business operators and end consumers.

Food legislation is based on the principle of the reverse burden of proof to the extent that it is always the food business operator who must demonstrate that all legal requirements are met,[83] and in practice there must be a documented self-control program for each facility.

4. The Environmental Code

4.1 Aims

In this section, we describe the basic rules in the SEC, and we also point out the similarities that are often found with the provisions of the food legislation. The aim of the SEC is to achieve sustainable development,[84] in which management of raw materials, natural resources, and energy is a key component, alongside environmental and health protection and conservation of biological diversity. Food safety does not fit within the concept: *detriment to human health*, used in the SEC.[85] With the exception of that the quality of drinking water from small drinking water installations for private use is covered by the health protection regulations of the SEC.[86]

Within life cycle assessment methodology, three "areas of protection" constitute the endpoints against which indicators are evaluated when performing a full life cycle impact assessment. These are: "Human health", "Natural environment", and "Natural resources".[87]

All provisions of the SEC must be applied in such a way that the goals and purpose are best met.[88] When there is doubt about what should be decided or done, the alternative that is most likely to benefit sustainable development should be chosen. This, together with the fact that the legislator chose to enumerate, for example, health protection, protection against pollution of various kinds, preservation of biological diversity, and management of natural resources as separate sub-objectives, must, according to our understanding, mean that these are also independent of each other. Thus it should not be required for a resource withdrawal to also cause pollution for it to be covered by the legislation. In our opinion, the need to save resources is reason enough in itself. We believe this has not been emphasized before in the Swedish environmental law discussion. The legislator has stated (ch. 1, sec. 1 and ch. 2, sec. 5 of the SEC) that resource management is important and that one way to achieve it is to create circular material flows, which should not be seen as an end, but as a means.

In the same way as in life cycle assessment methodology, all these sub-goals in the SEC have their own intrinsic value and stand on their own, without being dependent on any other objective to be enforced.[89]

The SEC objectives (SEO) provide guidance in application of the SEC regarding assessment of what sustainable development entails.[90] There

[83] GFL art. 17.
[84] SEC ch. 1, sec. 1.
[85] SEC ch. 9, sec. 3: 'Detriment to human health' shall mean any disturbance that is liable to have adverse effects on health in medical or hygienic terms which are not minor or temporary.
[86] SEC ch. 9, sec. 10. Also, Helfrid Schulte-Herbrűggen et al., *Dricksvatten från små dricksvattenanläggningar för provat bruk. En faktaskrift med information kring ansvar, lagstiftning, vattentäkter, kvalitet och åtgärder*.
[87] ILCD, *International Reference Life Cycle Data System (ILCD) Handbook: Framework and Requirements for Life Cycle Impact Assessment Models and Indicators*.
[88] *Government bill 1997:98/45 part 2*, p. 646. Our translation.
[89] ILCD, *International Reference Life Cycle Data System (ILCD) Handbook: Framework and Requirements for Life Cycle Impact Assessment Models and Indicators*.
[90] *Government bill 1997:98/45 part 2*, p. 646.

is no specific goal on food waste (or on resource management in general), but since 2021 there is a milestone target for food waste within the SEO sphere, and responsible resource management is a prerequisite for some of the existing goals, such as limited climate impact,[91] and for the overarching Generational Goal mentioned above.

Although the SEOs are intended to facilitate interpretation of the SEC, they have no legal relevance in terms of how the *food* legislation is to be interpreted. To enforce the SEOs and the Generational Goal, it is therefore necessary for the requirements to be set through the environmental legislation.

In the SEC there are no references to food legislation, and the SEC therefore also has no limitations in relation to the food supply chain. We can therefore state that the SEC is applicable to the whole food supply chain, but not limited to it. Whether an alleged waste of resources occurs within or outside the food supply chain, or outside the scope of application of the food legislation, is therefore irrelevant to the applicability of the SEC. The SEC regulates the utilization of natural resources (and energy), regardless of which natural resource it is.

4.2 Primarily not a product legislation

From the food law perspective, shops, restaurants, manufacturers, and others who handle food along the food supply chain are named "*food business operators*"[92]. From the environmental law perspective, operators in the food supply chain, like everyone else, are instead named "*operators*" [*verksamhetsutövare*], which includes "anyone taking an action or measure".[93] The terms 'activity' [*verksamhet*] and 'measure'[*åtgärd*] are not defined by law but have been interpreted through case law and in preparatory works.

An *activity* may, for example, be a factory, a treatment plant, or any other human activity that is not solely instantaneous, and which may cause harm or risk for human health or to the environment as such, including the interest of saving natural resources. The SEC is applicable to all human *activities* and *measures* that may affect the possibilities to achieve its objective.[94] The SEC is therefore not applicable to food itself, but to the activities where food is prepared, processed, transported, and sold, i.e., what is usually called the *food supply chain*.[95]

The SEC is therefore not primarily a product legislation in the same way as the food legislation[96], but rather a legislation that regulates various human activities within which food can be handled in different ways.

The person responsible is the (physical or legal) person who runs the activities or conducts the measure. In many cases, both food and environmental legislation are applicable to the same activities, which means that the person responsible is simultaneously a *food business operator* and an (*environmental law) operator*. Like the food legislation, the SEC is also applicable to professional activities and the public sector. However, contrary to the food legislation, it also applies to what private persons do for private use in their homes. In the SEC, this is expressed as" *The person who pursue an activity shall…*".[97]

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[91] Livsmedelsverket, Naturvårdsverket och Jordbruksverket. *Fler gör mer. Handlingsplan för halverat matsvinn 2030*, p. 10.

[92] Defined in GFL art. 3(6).

[93] See for example SEC ch. 2, sec. 3.

[94] SEC ch. 2, sec. 1 and 2, for example. *Government bill 1997/98:45-part 1*, p. 1.

[95] With the exception of drinking water from small individual water sources, mentioned above.

[96] SEC's rules on chemicals and on waste may constitute exceptions to this.

[97] SEC ch. 2, sec. 1 and 2 for example. Compared with GFL art. 1.3: "It shall not apply to primary production for private domestic use or to the domestic preparation, handling or storage of food for private domestic consumption."

However, there is an exception stating that ch. 2 of the SEC is not applicable to measures *that are of negligible significance in individual cases*.[98] This exception refers only to *measures*, taking into account the possibilities of achieving the objectives of the SEC, which in the individual case have no or only marginal importance for human health, or to protection of the environment. It primarily refers to measures taken by individuals where a correct environmental impact analysis probably cannot be done.[99] This exception provision is thus primarily not intended to be applied to anything other than what may happen to private individuals. This does not mean that the Code cannot generally be applied to what private persons do, only that those measures with very little environmental impact are exempted from the call for applications.

Within the food supply chain, there are many different types of activities to which the Code is applicable. In some cases, it is obvious that these activities are both a food business operator and at the same time an activity, which means that both legislations are applicable to them, but with different perspectives.[100] Examples of these "double" activities roles are slaughterhouses, food processing industries, and smokehouses. These establishments are driven by food business operators but are also activities under the SEC, historically mostly because emissions from such activities may harm the surrounding local environment.

In other cases, such as retailers,[101] it is not so obvious that the SEC is applicable. However, in view of the aims of the SEC to protect human health, to minimize harm to the environment, *and to save raw materials and energy*, the situation becomes clearer. An activity does not have to be both risky for the environment, for human health, and for mismanaging resources. For the SEC to be applicable, it is enough if any one of these aspects is affected.

It has long been accepted that management of waste within food businesses can be a matter for the food safety legislation and at the same time a matter for the SEC. When it comes to the application of the SEC on (food) waste, it is both a sanitary issue and an issue on waste. From the food law perspective, management of waste is primarily about avoiding hygiene risks.

4.3 Substantive norms in the Environmental Code

4.3.1 Introduction

The purpose of substantive norms is to express the requirements placed on the addressee of the rule, i.e., to state what he/she may or may not do. The requirements in the SEC can be roughly divided into two categories, namely *the general rules of consideration* (ch. 2), which apply to all kinds of activities and measures, and more *specific rules* concerning specific kinds of activities or subjects formulated in separate chapters within the SEC, in ordinances or in by-laws. The rules on by-products and end-of-waste in ch. 15 are examples of the latter. The general rules of consideration are written in such general terms that they neither specify nor exclude any types of activities.

Every person (physical or legal) who pursues an activity or takes a measure is responsible for complying with the requirements of the SEC, regardless of whether there are requirements from a supervisory agency or not. The responsibility for carrying out self-control rests with the operator,[102] who has the power and ability to control the activity or measure.[103]

[98] SEC ch, 2 sec. 1, paragraph 2.
[99] *Government bill 1997/98:45-part 2*, p. 13.
[100] Ibid., 1, p. 190.
[101] Defined in GFL art. 3.7.
[102] SEC ch. 26, sec. 19.
[103] Gabriel Michanek et al., *Den svenska miljörätten*, p. 296.

In some cases, a permit is required to start an activity, while in other cases a notification is required.[104] In most cases concerning food business operators, neither is required. If the SEC is applicable, operators must on their own meet all relevant requirements. There are never requirements for a permit or notification (under the SEC) for food retailers,[105] but this is often the case for food industries of various kinds.

In this article, we focus on the general rules of consideration in ch. 2 and elaborate on how to apply these to different kinds of food business operators. The focus is on how these rules can be used to reduce food waste.

4.3.2 General rules of consideration

General

The general rules of consideration (ch. 2) are applicable to all activities to which the SEC is applicable. The most relevant provisions of this chapter are briefly commented on below. Within the food supply chain, this part of the SEC is applicable to retailers such as restaurants, pubs, food industries, and even, for example, mobile market stalls and food transport. The general rules of consideration are also applicable to establishments outside the food chain, such as farmers, food waste management, and in private homes (with the exception above). This means that the entire food *supply* chain is covered by the SEC. However, handling of food in private households for private individual use is clearly excluded from the scope of the food legislation.[106]

The requirements set based on sec. 2–5 and sec. 6, should not be unreasonable to comply with: *All measures shall be applicable where compliance cannot be deemed unreasonable* (expensive for the operator). An economic reasonableness assessment must therefore be made in each individual case.[107]

Reverse burden of proof and knowledge

The SEC is based on two basic principles, namely the reverse burden of proof and the knowledge requirement. It is the operator who conducts or intends to start an activity,[108] etc. who must show that this can be done without risk of inconvenience to human health or the environment, or about the management of natural resources, and be able to show that they comply with the SEC in general. This reverse burden of proof applies continuously and as long as the business continues. All activities must be able to demonstrate to the supervisory agency that they fulfill requirements on, for example, managing resources and how this is done. This also applies within food legislation, even if the term reverse burden of proof is not used.[109]

The operator must have knowledge of what the activity entails, or will entail, for human health,[110] for the environment, and for the possibilities of managing natural resources. Basically, this is about having the necessary knowledge about the activity, which is also a basic requirement in food regulation.[111] A food business operator must have knowledge of, for example, the environmental impacts caused by it, which we claim can also include knowledge of how much food is wasted and how this may be reduced.

[104] How this division looks can be seen from the Environmental Assessment Regulation (SFS 2013:251). (Miljöbedömningsförordningen.)
[105] The term *retail* is defined in GFL art. 3.7 and covers transports, shops, restaurants as well as school canteens and hospital kitchens etc.
[106] GFL art. 1.3.
[107] SEC ch. 2, sec. 7.
[108] SEC ch. 2, sec. 1.
[109] EU regulation 852/2004 art. 3.
[110] SEC ch. 2, sec. 2.
[111] See EU regulation 852/2004 art. 5 on hazard analysis and critical control points.

Precautionary measures and best possible technology

All operators must implement protective measures, comply with restrictions, and take any other precautions that are necessary to prevent, hinder, or combat damage or detriment to human health or the environment because of the activity or measure.[112] Various types of precautions and restrictions will be formulated as conditions in permits or orders but must also be followed voluntarily in situations where there is no permit review.

References in the SEC to the formulation "*damage or detriment to human health or the environment*" thus mean that the aim of the SEC[113] must be considered in the parts that are relevant in the context,[114] which includes resource management.

The SEC is technology-neutral, which means that it is the result which matters, not how it is achieved, a principle also found in the food legislation.[115] Thus the kinds of measures that can be taken to fulfill the aims are only limited by the imagination and, when it comes to a new area like waste of food, it is not clear which measures may be most appropriate. The choice of measure depends on many factors, such as where in the food supply chain the measures need to be put in place, the type of foodstuff, if there is a use for the lost food or not, etc.

In the case of professional activities, the best possible technology (BPT) must be applied.[116] "Technology" shall be interpreted broadly: "*By 'technology' is meant not only production devices but also methods of production such as training and management. The integrated approach to technology and organization that is beginning to be applied within the EU should also be expressed in the Environmental Code. The shift in environmental work from purification technology to recycling thinking means that a company's whole organization is affected by environmental requirements.*"[117]

This means that when deciding what is best possible technology, the assessment should include the result for the environment in general. Raw material use and energy consumption should also be considered, so technology that leads to less raw material consumption or to the use of recycled products or that is more energy-efficient may be better for the environment than technology that makes it possible to reduce emissions slightly.[118]

Best possible technology, anywhere on earth, should be the starting point, but the technology must be possible to use in the specific kind of operation.[119] Due to preparatory works, in Sweden best possible technology means that the technology must be economically and technically possible for that kind of operation in Sweden.[120] It is also not the individual company's finances that should be decisive, but the average financial situation in the type of operation (in Sweden) in question.[121] See further below.

To summarize, it must be practically possible to use that kind of technology and it must have been used in practice, i.e., not only as a pilot project.[122] The technology must be economically

[112] SEC ch. 2, sec. 3.
[113] Ibid., ch. 1, sec. 2.
[114] *Government bill 1997:98/45 part 2, p. 645*. Our translation.
[115] In principle, food may be placed on the market if it is not unsafe. What measures needs to be taken to ensure that a food is safe is usually not prescribed.
[116] SEC ch. 2, sec. 3. Eriksson et al. shows how this can be applied to the food chain. Making food waste illegal in Sweden – potential gains from enforcing best practice in the public caterer sector. *Sustainable Production and Consumption 35 (2023)*, pp. 229–237.
[117] *Government bill 1997/98:45-part 1 p. 216*. Our translation.
[118] Ibid.
[119] Gabriel Michanek et al., *Den svenska miljörätten*, p. 123.
[120] *Government bill 1997/98:45-part 1*, p. 215.
[121] *Government bill 1997/98:45-part 2*, p. 23 2 and Gabriel Michanek et al., *Den svenska miljörätten*, p. 123.
[122] Ibid.

feasible to use "typically in the industry".[123] This is a competition-neutral approach which for a company with a relatively weak economy can be a decisive obstacle to realization of the plans (in practice due to the costs), while a successful company does not suffer from extra high demands, even if it has economic scope.[124]

An important limitation in the SEC is that it is not possible to question the purpose of an activity or measure.[125] It is therefore not possible to demand that a slaughterhouse should convert to handling vegetables instead, even though that would be better for the climate.[126] However, if the purpose can be achieved by using less resource-intensive processes, raw materials, or ways of working, that may be demanded.

Measures for managing resources and waste minimizing

In 1983, a government official report described the need to reduce resource utilization.[127] However, no legislation in this area was implemented until the SEC in 1999, and then as a response to the conclusions in the Brundtland report.[128]

Chapter. 2, sec. 5 of the SEC is a clarification of what is expressed through the last paragraph in the portal section of the Code, and it expresses the principles of resource management ("to save raw materials") and of eco-cycles.[129]

> *"Any who pursue an activity or take a measure shall conserve raw materials and energy and take advantage of the opportunities to*
> 1. *reduce the amount of waste;*
> 2. *reduce the amount of harmful substances in materials and products;*
> 3. *reduce the negative effects of waste; and*
> 4. *recycle waste.*
>
> *Preference shall be given to renewable energy sources."*[130]

The focus of the provision is not only to reduce the amount of waste, but also to reduce resource utilization in general. An important tool for this is creating ecocycles. This is now part of the Swedish implementation of art. 9.1(a) in the WFD, which requires MS to take measures to prevent waste generation.[131] The further regulation concerning waste management is then found in ch. 15 of the SEC and in Government ordinances.[132]

While the provision in the SEC is not related to a certain level of reduction (concerning resource utilization or waste generation), it has the potential to be an important tool in achieving the EU's proposed goal of reduced food waste by 2030. The Government underlines that the interest in saving all kinds of resources (and energy) is so important that the resource-saving aspect must be part of the general rules of consideration.[133] The term 'raw materials' as used in the SEC includes not only raw materials as

[123] Ibid.
[124] Gabriel Michanek et al., *Den svenska miljörätten*, p. 123 and *Government bill 1997/98:45-part 2*, p. 15.
[125] Gabriel Michanek et al., *Den svenska miljörätten*, p. 120.
[126] Ibid. Compare also wordings in SEC ch. 2, sec. 4 and 6, that the purpose of the activities must be achievable. *Government bill 1997/98:45 part 1*, p. 210 and 223 and *part 2*, p. 22.
[127] *SOU 1983:56 Naturresursers nyttjande och hävd*. See also *Government bill 1992/93*.
[128] The World Commission on Environment and Development, *Our Common Future*.
[129] SEC shall be applied in such a way as to ensure that:/…/ 5. reuse and recycling, as well as other management of materials, raw materials and energy are encouraged with a view to establishing and maintaining natural cycles.
[130] Our translation here.
[131] WFD. See also preamble 29 in the directive 2018/851 (amending the WFD). "Waste prevention is the most efficient way to improve resource efficiency and to reduce the environmental impact of waste. It is important therefore that MS take appropriate measures to prevent waste generation and monitor and assess progress in the implementation of such measures."
[132] Waste ordinance (SFS 2020:614).
[133] *Government bill 1997/98:45-part 1*, p. 220.

it is usually understood, but also products and other forms of resources.[134] There is therefore no reason to assume that leftover food, ingredients, or raw materials for food are not covered, in the same way that crop residues left behind in the field can also be covered, as well as food handling in private homes.

Applying the resource management principle means, for example, that a resource- and energy-efficient process is used in the manufacturing of goods. The intention is for application of these principles to steer development towards a more resource-efficient society regarding raw materials and materials and environmentally friendly product production.[135]

The Government emphasizes that "*An ecologically sustainable society requires increased resource efficiency. Efficiency and recycling thinking thus go hand in hand*."[136]

The resource management principle states *"that all activities must be conducted, and all measures must be taken in such a way that raw materials and energy are used as efficiently as possible, and consumption is minimized*.[137]

The eco-cycle principle means that what is extracted from nature must be sustainable, recyclable, and disposable with the least possible consumption of resources and without compromising nature injured. It can also be expressed as a principle that aims at closed material flows.[138]

As the Government points out, the need to consume finite natural resources will decrease if the resource management principle and the cycle principle are applied. Such an Ecocycle can be achieved partly by requirements – individual or general – for the conduct of business, and partly by everyone participating in waste management by, for example, source sorting, which enables reuse, recycling, and energy use.[139] Preference should be given to such use as entails good resource managing from a public point of view.[140] This requirement applies in full, in addition to requirements otherwise set in ch. 2, and has the same strength.[141]

It is worth noting that this provision is aimed at everyone, private individuals, companies, and public institutions, who pursue an activity or take a measure, with the exception mentioned above that the chapter is not applicable to measures (but is to activities) that are of negligible significance in individual cases. This means that in many cases it is difficult to apply it to food handling in private households for private use, where the use of resources, or waste of food, is mostly relatively limited. However, the possibility that such situations exist is not excluded.

Although the requirement for best possible technology can be considered to also include the resource-saving requirements. The basis for this is that even with the support of ch. 2 sec. 3, it is possible to impose requirements on resource management.

The legislator probably did not have the food supply chain in mind when the statute was written, but our analysis shows that this legislation may be applied to food business operators (and private persons) in the food supply chain. When the SEC was introduced, the large impact of the food system was not clear. Today, we know that energy transition and food systems transition are the two main transformations that must take place for countries to have any possibility of complying with the Paris Agreement.[142]

[134] Ibid., p. 217 and *part 2*, p. 659.
[135] Ibid., p. 658.
[136] Ibid., p. 217.
[137] Ibid., p. 658.
[138] Ibid., p. 658 (digital version). *Government bill 1992/93:180*, p. 14.
[139] *Government bill 1997/98:45 part 1*, p. 168.
[140] Ibid., p. 168.
[141] That is care for biological diversity, pollution prevention, sanitary aspects, etc.
[142] Johan Rockström, *Stockholm Resilience Centre*.

As mentioned above, all food companies within the food supply chain are activities within the meaning of the SEC. Temporary food handling is also covered by the legislation. The SEC is applicable regardless of who the operator is. We also established above that the concept of raw materials includes everything from unprocessed newly extracted materials to finished products, and there is no exception for foodstuffs. We therefore consider that all the necessary prerequisites ch. 2, sec. 5 of the SEC to apply to food businesses in the food supply chain are fulfilled.

Assessment of reasonableness

The general rules of consideration are applicable where compliance cannot be deemed unreasonable. Importance must be attached in this regard to the benefits of protective measures and other precautions in relation to their cost.[143] Businesses may need to take such measures, etc. to reduce the environmental impact in the broadest sense, to protect health, or to reduce resource utilization.

When it comes to economic reasonableness, it is the average economy of facilities of similar size and age in Sweden that should be the object of comparison. This means that it does not matter if a specific facility is particularly successful or if it has poor finances.[144] The assessment must comprise the following steps:[145]

First, the cost of the requirements included in the concept of best possible technology must be assessed. This has been commented on above. Second, whether this requirement is unreasonable in view of the circumstances of the individual case must be assessed. The requirement must be environmentally justified and economically reasonable. Only in this last step, this is a question of a balance of interests in the true sense.[146] The most important question is whether the cost corresponds to the benefits, where one must consider the degree and nature of the impact in question, not only the nature of the disturbances, but also the sensitivity of the people and the environment affected. The requirement set after the final assessment is sometimes called "best available technology", which corresponds to BAT in the EU Industrial Emissions Directive.[147]

4.4 Enforcement norms in the Environmental Code

4.4.1 Self and official supervision/control

Effective supervision is probably the most feasible way to enforce the SEC. The starting point for supervision according to the SEC,[148] and for control according to food law,[149] is that each business operator must carry out self-control and oversee their business so that the requirements of the legislation are always followed. Nor does this make any difference to the requirements in the food legislation.[150]

The business operator must continuously plan and manage the business to prevent unauthorized actions or consequences, keep informed about the impact of the business or measures and, upon request, submit proposals for control programs or improvement measures to the supervisory agency.[151] One kind of improvement could be to develop measures to reduce resource wastage, both of production materials and of finished products.

[143] SEC ch. 2, sec. 7, paragraph 1.
[144] E.g. MÖD M 9888-12, p. 25, the Land and Environmental Court of Appeal and comments on that by Gabriel Michanek et al., *Den svenska miljörätten*, p. 140.
[145] Gabriel Michanek et al., *Den svenska miljörätten*, p. 139.
[146] Ibid.
[147] Directive 2010/75/EU. Further Gabriel Michanek et al., *Den svenska miljörätten*, p. 140, footnote 141.
[148] SEC ch. 26, sec. 19.
[149] GFL art. 17.1.
[150] Se for example EU regulation 852/2002 art. 5 on hazard analysis and critical control points.
[151] SEC ch. 26, sec. 19.

In addition to self-control, there are also systems for agency supervision/control. Within both environmental and health protection and food handling, there are national, regional, and local agencies with this responsibility. Both at local and regional level in Sweden, it is the same agency that conducts food control and supervision on the accordance with the SEC.

4.4.2 Injunctions and permit conditions

When an agency wants to influence an individual's behavior, this must be done through formal decisions as injunctions.[152] We believe this is likely to be the most important legal instrument for enforcing compliance with the SEC's resource management provision. In the SEC, there are essentially three different forms of injunction:

a) Injunction on action,[153] either formulated in terms of what is to be done/not done or what to be achieved.
b) Injunction on carrying out own investigations, such as measurements and calculations.[154]
c) Injunction to release certain materials, such as analysis reports, self-control programs, and existing investigations.[155]

Whoever conducts such activities must submit proposals for control programs or improvement measures to the supervisory agency, if the supervisory agency requests it.[156] Injunctions may be combined with penalty of a fine.[157] In accordance with the principle of proportionality, an agency may not resort to a legal remedy that is more intrusive than necessary.[158] Injunctions may in some cases be enforced with the help of the Enforcement Agency,[159] an option that is very rarely used. For businesses that require a permit for start-up, such as slaughterhouses and other large-scale producers of food,[160] conditions regarding resource management can be written into the permit: "*the conditions needed with regard to the management of land, water and other natural resources*".[161]

Although it is illegal to violate the general rules of consideration, it is not criminalized. It is not a criminal offense to breach an injunction either, regardless of whether it is based on food or environmental legislation. For something to be punishable according to the SEC, there must be special a penal provision for this, which is not the case for mismanagement of natural resources.[162] An exception is if, for an activity that requires an environmental permit for operation, there is an expressed condition regarding management of natural resources. In that case, not complying with the condition is a criminal offence.[163]

5. Applying the Environmental Code to the food supply chain

5.1 Food business operators and the Environmental Code

Food business operators are not excluded from the scope of the SEC simply because food legislation is applicable. Double regulations of this kind are common, and it is the rule rather than the exception for an activity to fall within several different areas of legislations at the same time. All food business operators must hence meet the requirements of both regulatory systems.

[152] Supreme Administrative Court, RÅ 2004 ref. 8.
[153] SEC ch. 26, sec. 9, para. 1.
[154] SEC ch. 26, sec. 22.
[155] SEC ch. 26, sec. 21.
[156] SEC ch. 26, sec. 19.
[157] SEC ch. 26, sec. 14.
[158] SEC ch. 26, sec. 9, para. 3.
[159] SEC ch. 26, sec. 17, which includes injunctions with the support of ch. 26, sec. 21 or 22.
[160] Activities that require a permit or a notification can be found in the Environmental Assessment Ordinance (SFS 2013:251), ch. 5.
[161] SEC ch. 22, sec. 25, para. 10.
[162] SEC ch. 29.
[163] SEC ch. 29, sec. 4.

The expression term "*For the protection of human health and the environment*", which is often used in the SEC,[164] includes everything that the SEC intends to protect, such as biodiversity, disturbances due to pollution, human health, and use of natural resources. However, as in food legislation,[165] according to the SEC each operator is only responsible for the environmental and health effects generated by their operations, not what happens upstream or downstream in the food supply chain. Operations in the food supply chain can generate such effects, so it is very difficult for a regulatory agency to find legally relevant reasons to require a grocery store to reduce the impact on biodiversity, or to reduce emissions to lakes and waterways upstream in the food chain. Another problem that must be dealt with when trying to steer towards reduced food waste is that an action at one point in the food supply chain does not always generate an effect at the same place, which is often referred to as chain effects or cascade effects in the food chain.[166]

Chain effects means that the cause of food waste is found in a completely different step along the product flow than where the loss becomes visible and can be measured.[167] This means that it can often be more difficult to see through the chain of events/causes that lead to food waste.[168] *Cascade effects* are characterized by the fact that the cause is found in a step of the product flow but gives rise to cascades, thus generating food waste in several steps along the product flow.[169] For a food-producing industry, water discharge can be a key issue. Official demands to reduce food waste in stores will at best cause chain reactions in the form of smaller quantities of food being produced (upstream) and less climate-affecting gases being generated (downstream).

5.2 Conflict of goals

Garske et. al argue that despite repeated political statements and initiatives, there is currently no coherent and ambitious approach to tackle food waste along the entire food supply chain in the EU.[170] The food legislation has different objectives than the SEC. Among the three objectives of food legislation (see ch. 3 above), it is probably the objective of "safe food" that can entail special conditions regarding the possibilities of governing with the SEC. The aim of the SEC is sustainable development, which includes a high degree of resource management, and this could come into conflict with the food legislation's objective of safe food. Food safety is not included in the SEC's concept of health protection, except for certain small-scale water plants.

Safe food means that products which do not meet sufficient food safety requirements may not be placed on the market,[171] but must be thrown away or used for something else. In some cases, they can be used as raw material for a dish, but the more a product has been refined, the greater the loss of resources if it must be thrown away. Such a procedure could be considered unsustainable according to the SEC but is necessary according to food legislation. There could thus be a conflict between the SEC's aspiration to reduce the amount of waste (ch. 2, sec. 5) and

[164] I.e., SEC ch. 2, sec. 3.
[165] GFL art. 17.1.
[166] Ingela Lindbom et al., *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*. Naturvårdsverkets rapport 6959, december 2013.
[167] Ibid., p. 23.
[168] Ibid., p. 23.
[169] Ibid., p. 24.
[170] Beatrice Garske et al., Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*, p. 14.
[171] GFL art. 14.

the food legislation's requirements for safe food (GFL art. 14).

The requirement that food must be safe can constitute an obstacle (e.g., to its reuse, storage for longer periods, or handling in different places with different climate conditions). In this way, food legislation can be counterproductive in relation to the need to reduce food waste. Food that does not meet relevant hygiene requirements may not be donated to charitable purposes at all.[172] It is not a good idea to demand resource-saving measures with the support of the SEC, while at the same time endangering food safety.

In other words, while the SEC strives for as many resources as possible to be used for as long as possible, food legislation strives to prevent, for example, reuse of food, for safety reasons. It can be expressed as that "food law in some cases pushing" for more waste while the environmental law pushes for less waste. As Bradshaw puts it:[173] "*Whilst food law is largely unconcerned with managing food as a resource, it does shape the line between edible and inedible food in ways that are conceptually appropriate (albeit imperfectly drawn) in view of food's importance and difference as a resource.*"

Garske et al. list a number of food safety rules in the EU's food legislation which in one way or another can seem counterproductive in relation to the fact that food waste must be reduced at the same time according to the WFD, and mentions e.g;[174]

- Recalls and withdrawals for food safety reasons.
- Rules on food packaging.
- Different kinds of date labelling frequently contribute to confusion about the safety of food products. Consequently, safe and edible food is thrown away.
- Specific marketing standards for fruit and vegetables which are required for aesthetic rather than food safety purposes.
- (The fact that dumpster diving is illegal in some MS.)[175]

This is a tricky balancing act, both on an individual level and for agencies and legislators, that in many cases leads to increased waste of food. In some cases, it may be because the individual end consumer chooses to throw away a food product rather than risk it being unhealthy to consume (even though the product is still safe), not infrequently guided by a best before date on the packaging. It may be an agency that, with reasoning supported by the precautionary principle,[176] considers that a food business operator has not demonstrated that a food is safe, even though it may be.

Bradshaw argues that the legal definition of waste leads to increased food waste, and that it should be changed at least in terms of food waste.[177] She uses the formulation that there is an over-inclusive definition of waste.[178] However, the outcome of a conflict between the objectives in different laws cannot be that one law

[172] Luis González Vaqué, French and Italian Food Waste Legislation. An Example for other EU Member States to Follow? *European Food and Feed Law Review, 2/2007 p. 3*. About the French legislation. Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, pp. 311–331.

[173] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, p. 4.

[174] Beatrice Garske et al, Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*, pp. 11–13. They also analyze how the Common Agricultural Policy and the Common Fisheries Policy may lead to increased waste of food and what implications tax law can have for food waste.

[175] Dumpstering refers to people taking wasted food out of waste containers to eat it themselves, or give it away.

[176] GFL art. 7.1.

[177] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*.

[178] Ibid., 2018, p. 3.

must give way, but rather that the business may not be conducted unless the requirements of all applicable statutes can be met. This view is not unusual or remarkable in general. These circumstances are of course something that must be considered when the supervising agency, or the legislator, is writing an injunction or proposing a new legislation.

In order not to put the food business operator in such an impossible situation, the agency may not, with the support of one law (e.g., the SEC), order the food business operator to take actions that are prohibited under another law (e.g., food law). The solution may therefore be to ban the activity because it does not meet the requirements of the first law without prescribing what must be done. It is left to the food business operator to find a way that matches both legal packages.

According to the waste hierarchy,[179] preventing food waste is preferable over measures that seek to reuse food via donations for human consumption. In cases where operators resort to the second most prioritized measure, a need to also comply with food safety regulations will be necessary. In the individual case, food safety will probably turn out to be the decisive regulation under which food can be donated, thereby overruling the regulation of resource saving. However, if the operator routinely fails to comply with both regulations, the supervisory agency could require the operator to prevent waste instead of recycling it.

5.3 No court cases on management of resources

We have shown above that there is a clear provision in the Code that requires everyone to take measures to reduce the amount of waste. But what does the legal reality look like? Do the agencies really make demands based on this provision?

To our knowledge, there is in principle no case law where the provision on management of raw materials and other resources (ch. 2, sec. 5) is interpreted, even though it has existed since 1999.[180] However, there are relatively many cases concerning energy saving. To our knowledge, there are also no cases where these rules have been applied by the supervising agencies to the food supply chain.[181] In a highly unscientific search on social media and online forums where relevant supervisory staff could be expected to be active, we found no indications that any agency has even tried to apply these statutes in the food supply chain.[182]

There are many cases concerning treatment of waste, such as transporting, composting, and other kinds of waste handling. (However, the issue is never minimizing the use of raw materials or other resources or reducing the amount of food waste but minimizing odors and other disturbances from waste management.) This is even though there is a specific rule about reducing the amount of waste and minimizing resource consumption (ch. 2, sec. 5). This picture could confirm Bradshaw's view that the EU's waste regulation is primarily about disposing of waste, not reducing its quantities.[183]

There have been court cases where supervising agencies have tried to set requirements for urine-diverting toilets,[184] but the main issue

[179] WFD art. 4 and SEC ch. 2, sec. 5, ch. 15, sec. 10.

[180] Due to relevant case law databases.

[181] We studied court cases in relevant databases such as *JP-miljönet* and *Norstedts JUNO*.

[182] This simple survey does not claim to be scientifically carried out but gives some idea of how the regulations are applied, or rather not applied. This has also been confirmed verbally by senior environmental law expert at Waste Sweden, *Andrea Hjärne*, 11 November 2023.

[183] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*.

[184] With support of SEC ch. 2, sec. 5.

for the courts has not been the possibility to save resources (nutrients), but because urine-diverting toilets are considered a good technology for purifying wastewater of nutrients.[185]

In one case, the court states that: "*The municipality has not been able to give detailed information on the question of the possibilities for disposing of the residual product*", which may indicate that there must be credible provision for the residual product before a requirement for separation can be made.[186] This is not the issue at stake when it comes to reducing waste of food, where the main aim is not to fractionate anything that can possibly be used further, but to directly reduce the use of resources and to minimize the amount of (food) waste according to ch. 2, sec. 5.

However, none of these judgments has been handed down by the Land and Environmental Court of Appeal,[187] which is the court of precedent, so their value may be debated. For this reason, this kind of injunction, or other kinds of decisions/judgements, seems not to have been made in the manufacturing industry, where it is clearer that the SEC is applicable, or among restaurants or grocery stores, where it may be only the resource-minimizing aspect that can be actualized.

In our opinion, this is not a sign that the legislation is not applicable in these situations. Rather, it may be because restaurants are managed by control staff under food legislation, and not by the environmental and health protection staff under the SEC, even though these officers often are colleagues in the same agencies. Of course, the absence of case law does not have to convey the whole truth. The extent to which food business operators on their own initiative, or following requirements through environmental certification systems, introduce measures to save resources has not been analyzed, but can probably be expected to be significant.

An exception is the possibility to apply the SEC to the use of drinking water from running wells. There is in fact a specific statute in the SEC which gives municipalities the mandate to introduce, in specific areas, a permit requirement for individual groundwater sources due to the risks of water shortages.[188] There are quite a few cases in which the local agencies have rejected applications for installation of water-based flush toilets due to shortage of groundwater, or to the risk of shortages.

5.4 Regulating a flow

5.4.1 Introduction

Human extraction of resources from the ecosystem, processing, use of products, and subsequent return of the remains to the ecosystem can be described as a flow. Using the element phosphorus as a model resource, Christensen developed a basis for a flow-oriented regulation.[189] In the same way that a single element can be said to flow through society, human use of raw materials from the animal and plant kingdom and prepared food products can also be considered a flow. What is referred to in food legislation as the food supply chain is a kind of flow.

From an environmental law perspective, the purpose of resource regulation can be to decrease extraction from the ecosystem or to increase return of resources to the ecosystem. Sometimes the remains are called waste, in other cases (air, water, soil) pollution, or in the best case resources that could still be of value. As shown above, what is classified as food waste is often still edible. Along this flow, there are several human

[185] Land and Environmental Court at Vänersborgs District Court, case M 245-11 and M 3580-11.
[186] Land and Environmental Court at Umeå District Court, case M 57-00.
[187] Svea hovrätt, Mark- och miljööverdomstolen.
[188] SEC ch. 9, sec. 10.
[189] Jonas Christensen, *Rätt och kretslopp 2000*.

activities where regulation can be deployed. Where the regulation should be implemented depends on where it can be thought to provide the most benefit and at the same time cause as few unwanted side-effects as possible.

Where along the flow the regulation should be introduced, and the type of regulation that can be assumed to give the best effect, or least unwanted side effects, also depends on the resource. All kinds of resources have fingerprints, or characteristics, which may partly depend on natural scientific conditions (environmental characteristics) and partly on how one uses the resource in society (economic characteristics).[190]

Considering such resource analysis, Christensen proposed that a (resource) flow regulation should comprise two stages. In a first stage, a base regulation would be drawn up, applicable to the use of all, or at least many different, natural resources. However, because such a general regulation would not always have the conditions to consider the characteristics of many different resources, a further and more detailed regulation is needed. In the second step, special rules for utilization of different natural resources would be drawn up, with the possibility to tailor the regulation according to both the environment's characteristics and economic characteristics associated with the specific resource in question.

Regarding the possibilities for influencing a flow of natural resources with different control instruments, it is important to first map certain basic circumstances connected to the kind of resource in question, namely:

a) the importance of knowing which resource utilization is to be regulated; and
b) the purpose of the regulation.

In the latter case, the purpose may be to reduce extraction, to influence the management of resources in society, or to reduce polluting emissions. Based on these facts, the legislator (or the deciding agency) must then assess:

c) where along the resource flow it is expected to be most expedient to introduce the regulation;[191] and then finally decide
d) which legal technique is most appropriate given the specific conditions.

The point of clarifying which resource is to be regulated is related to the fact that different natural resources are distinguished by different specific properties, or characteristics, which can be decisive for the choice of regulation. In the same way, the choice of control means can depend on where in the resource flow the regulation is introduced, just as the purpose of the regulation can also affect how the regulation is designed.

As Gómez-Urquijo points out,[192] in developing countries most food waste takes place in the production and distribution phases. In contrast, in developed countries most food waste occurs in households, requiring legislative measures that affect consumer behaviour. Gómez-Urquijo especially emphasizes consideration of diverse types of legislative measures depending on the type of agent involved.[193]

[190] Ibid., ch. B5. Based on Ester van der Voet et al., 1995. Economic characteristics of chemicals as a basis for pollutant policy. *Ecological Economics vol. 13. 1995*, p. 11–26.

[191] Jonas Christensen, *Rätt och kretslopp* 2000, A8.2. Also, Ingela Lindblom et al., *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*. Naturvårdsverkets rapport 6959, december 2013, p. 69.

[192] *Laura* Gómez-Urquijo The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. *European Energy and Environmental Law Review. August 2022, p. 3*, with sources cited there.

[193] Ibid., p. 5.

5.4.2 Regulating the food supply chain with the Environmental Code

While the *food chain* only describes the flow of food, the food *supply* chain also includes raw materials, growing seed, living animals and food waste. In contrast to this, the entire resource field is covered by the SEC, but the SEC is mainly not focused on the resources themselves (as the food law), but on the activities where resources are handled in some way.

The aim is to reduce wasting of food, which will lead to reduced use of resources but also to reduced emissions, such as climate gases. The fact that the SEC and food legislation are similar in many ways can be expected to facilitate the application of the SEC to the food sector. The following can be stated about both areas of legislation:

- They are based on common administrative law implementation.
- The reverse burden of proof applies as a rule.
- They are technology-neutral.
- They require self-control.
- The supervision/control for the most part (in Sweden) is performed by the same agencies and in some cases, at municipal level, possibly also by the same staff. At regional level, supervision/control is performed by the same agency, but mostly by different departments.

What distinguishes the Swedish environmental legislation is that the general rules of consideration applies to all kinds of individual cases along the entire resource flow (i.e., the food supply chain), regardless of type of resource, the addressee (i.e., the food business operator), or whether the aim is to minimize extraction of resources or minimize emissions etc. Through the regulation on self-control in the SEC, the primary responsibility for maintaining the rules rests with all operators along the entire resource flow. However, it also creates conditions for supervisory agencies along the flow to write and adapt decisions according to the situation in the specific case.

The substantive norms in the SEC, such as the resource management rule, are only applicable in individual cases, i.e., it is not possible for the agencies to direct an injunction to several different addressees along the food supply chain in the same decision. Since the SEC is technology-neutral, it also does not bind the agency as regards how the individual decisions should be designed, or the addressee as regards what the solution should comprise. Usually, it is the result that counts, not how it is achieved, at least when they concern more large-scale operations.[194]

It is our opinion that the resource management rule can be applied along the entire food supply chain, with the aim of reducing waste (or reducing resource use), regardless of whether it is food waste or other types of waste that must be minimized. To our knowledge, this has not been done to date and has not been discussed previously in the legal literature. Christensen calls this kind of generally written legislation "a base regulation", because it can be applied to all kinds of resources at all places along a flow, etc.[195]

5.4.3 Special conditions along the food supply chain

The risks of relying only on such generally applicable base regulation are that it is not possible to consider more specific conditions. Considering how the general rules of consideration are written, it can also be difficult for the addressee to "translate" them to their own situation. Another circumstance is that a decision is required

[194] Land and Environmental Court of appeal, MÖD M 5350-23.
[195] Jonas Christensen, *Rätt och kretslopp 2000*, ch. A7, A9.

in each individual case if an agency wants to enforce compliance.

Therefore, Christensen suggests that this base regulation may need to be supplemented with a more adapted "point-by-point regulation",[196] where the legislator formulates rules for specific resources (kinds of food stuff), at specific points along the flow (the food supply chain) and may also depend on who is addressed (type of food business operator) or the purpose of the regulation. Such spot regulation can be more effective because it is specially designed for a particular situation, resource, or product. When it comes to legislation with the aim of reducing food waste, there may for example be a need to reduce the risks of unwanted cascade- or chain effects as previously described. Bradshaw has also described the general legal concept of waste as having counterproductive effects when it comes to preventing the occurrence of food waste.[197] The general concept of waste tends to often include food that is still edible, which means that large amounts of food are thrown away unnecessarily.

The disadvantage is that such a specific regulation is required for every conceivable situation, which is probably not practically possible. However, it can be a supplement to a base regulation, for certain selected situations.[198] Such rules already exist today in the SEC (e.g., for wastewater treatment[199] and chemical pesticides).[200] An example of such a regulation is the Swedish waste ordinance,[201] which requires municipalities to provide a system to collect food waste that households have separated from other waste and transport the food waste separately from other waste.[202] The French ban on supermarkets throwing away unsold food is another example. Some retailers are there obliged to enter into donation agreements to redistribute food.[203]

Considering Christensen's previous research, it is essential that both legislation and agency/court decisions in individual cases are designed with respect to the characteristics described above, that they are applied in the right situation along the food supply chain (to the appropriate food business operator), and that they contain the types of measures considered most effective. Lindbom et al. (2013) highlights certain specific conditions within the food supply chain that may be important to consider.[204] One is that it may be difficult to target a place along the food supply chain without causing effects (desired or not) at other places in the chain.

> *"From a wasting perspective, it is not possible to cut out neither the industry, the trade centrally nor the stores in isolation from each other from the chain – everything is connected. There are both chain effects and cascade effects between different operators in the chain, which means that food waste occurs at one point in the chain, but the measures must be taken by another of the operators."*[205]

They underline that today, in practice, it is very difficult to work across operators with concrete issues that span two or more operators in the chain, such as returned bread (bakeries – shops) or raw material issues in the meat and sausage chains (agriculture – slaughter – cutting – sau-

[196] Ibid., ch. A8, A9.
[197] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, pp. 311–331.
[198] Jonas Christensen, *Rätt och kretslopp 2000*, ch. A9, 5.4.
[199] SEC ch. 9, sec. 7.
[200] SEC ch. 14, sec. 5–6.
[201] The Waste Ordinance (SFS 2020:614).
[202] Ch. 3 sec. 1 in the Waste Ordinance (SFS 2020:614).
[203] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, pp. 311–331, p. 10 with sources cited there.
[204] Ingela Lindbom et al., *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*. Naturvårdsverkets rapport 6959, december 2013, p. 68.
[205] Ibid., p. 69, our translation.

sage industry).[206] They also note that there are many relevant facts and discussions on the possibilities to control the handling of food, including the "bullwhip-effect", "responsiveness", food waste that the industry itself can affect and chain-related food waste, operator-internal causes and measures versus operator-common causes and measures, and the importance of knowledge about chain effects and cascade effects.

According to Lindbom et al., it is not possible to formulate a few general measures that reduce food waste in the food supply chain, for any operator.[207] Thus individual measures for each of the operators involved must be designed according to the specific conditions that prevail on the spot. Depending on where food waste occurs, different conditions apply. For example, SFA differentiates between kitchen waste, serving waste, and plate waste when it comes to food waste within meal services.[208]

- **Kitchen waste:** food waste that arises in kitchens.
  Specific conditions: purchase, storage, and cooking.
- **Serving waste:** food that is presented in the serving room, but not eaten.
  Specific conditions: handling of leftovers, serving, portion calculation, and menu planning.
- **Plate waste:** food on the plate that is not eaten.
  Specific conditions: pleasant environment, enough time, and information.

To deal with these types of food waste, different measures must be put in place for each. Liljestrand describes another condition, namely that it is often not possible to access food waste in one particular part of the food supply chain because actions at one food business operator may give rise to desired or unwanted effects in other parts of the chain.[209] She describes several distinct characteristics affecting the possibility of creating a sustainable logistics system for food,[210] such as different locations along the food supply chain (e.g., in primary production) during transport, in processing, or at retail. Other critical characteristics are the type of food, lead time, and whether it is important to maintain the correct temperature in the food. Liljestrand calls these "*food supply chain characteristics*", which she divides into product characteristics and flow characteristics. She also describes how food supply chain characteristics and logistics performance variables influence causes of food waste.[211]

5.4.4 How the Environmental Code may be used today

With the support of the SEC, supervisory agencies can issue various types of decisions, aimed at business operators along the entire food supply chain with the aim of saving resources and reducing the amount of waste. However, the measures required must not be considered unreasonably expensive in relation to their environmental benefits.[212] Moreover, an assessment must always be made in the individual case so that, for example, undesirable effects do not occur at a different point in the food supply chain.

[206] Ibid., p. 73.
[207] Ibid., p. 74.
[208] *Handbok för minskat matsvinn*, p. 6. Livsmedelsverket 2020.
[209] Kristina Liljestrand 6.3.2, *Reducing the environmental impact of food products logistics systems*. Department of Technology Management and Economics, Chalmers University of Technology, Gothenburg 2016. Ingela Lindbom et al., *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*. Naturvårdsverkets rapport 6959, december 2013, p. 68.
[210] Kristina Liljestrand, *Reducing the environmental impact of food products logistics systems*. Department of Technology Management and Economics, Chalmers University of Technology, Gothenburg 2016, p. 5 and chapter RQ1.
[211] Ibid. ch. 6.3.2.
[212] SEC ch. 2, sec. 7.

The action required must also be proportionate to its effects; *More invasive measures than are necessary in the individual case must not be resorted to.*[213] Some examples are provided below.

Injunction on information or investigations

Before an injunction on action is written, the agency may need more information and a basis for the decision.[214] The following decisions may be made (as examples):

- That the business operator[215] must report to the supervising agency the amounts of food waste thrown away during a certain period, if needed specified in different fractions.
- That the business operator must report measures taken so far to reduce the amount of food waste.

Injunction to present documents

If the agency needs information about what has been purchased, delivered, or thrown away and this can be deduced from written material at the food business, the following decision can be made.[216] This type of written material must be maintained by all food business operators, considering the rules in the food legislation on traceability.[217]

- That the business operator must hand over purchase lists, packing slips, invoice copies, and other specified material to the agency by a certain date.

Injunctions to take actions

Injunctions on actions must, when it comes to larger facilities, primarily be formulated based on what is to be achieved.[218] In special cases, or when they are addressed to private persons or smaller businesses, they can also be formulated more precisely based on what to do.[219]

- If it is clear to the supervisory agency that a certain measure could lead to a reduction in food waste, and this measure appears to be the only possible one, then an order to carry out this measure can be produced. It may be possible to order the following in single cases (although in each individual case, an assessment must be made of whether the measure is reasonable in the relationship between costs and effect):
  - To sell multi-pack products as single items, if one item is spoiled.
  - To reduce the assortment to increase turnover per product.
  - To reduce the fresh assortment in favor of more frozen products.
  - To end take-back agreements and sell out instead.
  - To not reject products without a relevant documented reason.
  - To have active agreements with organizations for picking up leftover foods.
  - To have active agreements with organizations announcing price-reduced items.
  - To not expose more fruits and vegetables to customers than can be sold in one day.
  - To reduce the risk of fruit and vegetables falling onto the floor and being damaged.
  - To more clearly expose foods whose use-by date is soon to expire.
  - To inform customers that it is not harmful to consume a certain food, even though it may be perceived as old.

[213] SEC ch. 26, sec. 9, para. 2.
[214] SEC ch. 26, sec. 21.
[215] Although "food business operator" is not an expression used in SEC, for the sake of simplicity we have chosen to use it here.
[216] SEC ch. 26, sec. 22.
[217] GFL art. 18.
[218] SEC ch. 26, sec. 9.
[219] Land and Environmental Court of appeal, MÖD M 5350-23.

- If it is clear to the supervisory agency that there is certain potential to reduce food waste, and it is possible to achieve this, then an injunction can be issued with a requirement to reduce food waste by a certain percentage by a certain date.

It is not certain that all measures can be enforced with an injunction under the SEC. Some measures could instead be subject to general regulation or enforced through information and education. To our knowledge, this type of injunction has never been tried in court.

Bans and prohibitions

Although bans can be very intrusive to the individual, there may be situations where they should be imposed:[220]

- That the food business operator is prohibited from throwing away food that has not passed the use-by date.

If instead it is a question of an activity subject to a permit, then the same discussion should be held about how permit conditions regarding resource management in general, and food waste, should be designed to have the best effect.

To apply the requirement of best possible technology

It is also possible to apply the requirement for best possible technology to activities in the food supply chain.[221] By technology is meant not only technical installations, but also how an operation is planned, which control and steering documents are used, etc. Such requirements can be set through permit conditions, via injunctions and other decisions, but above all they must be applied by the operator without pressure from the agencies.

Eriksson et al. describe what can be considered the "normal" (voluntary) choice of (best available) technology to reduce wasting of food in the Swedish public catering sector (care homes, schools, and pre-schools).[222] The best-performing food business operators in the public catering sector (among those who participated in that study) considered best (voluntary) available technology to be re-using buffet leftovers, adjusting recipes based on previous consumption, advising guests to start with small tasting portions, setting internal goals for waste reduction, and serving smaller volumes in buffet containers and refilling often.[223] The results showed that with best voluntary practice for each type of catering unit, overall food waste would be reduced by up to 76%.

Eriksson, Bartek et al. shows that through the enforcement of binding regulations, such as best available technology, or market-based mechanisms, surplus bread could be reduced by between 6% and 50%, while also reducing the climate impact with up to 18% compared to the current system.[224] These are "protective measures" that are very specific to the food sector, and in particular to the part of the food supply chain comprising Swedish public caterers. At other stages in the food supply chain, the best protective measures to reduce wasting of food may be completely different.

[220] SEC ch. 26, sec. 9, para. 2.

[221] As commented above, it is often best available technology that will be the actual requirement, not best possible technology.

[222] Mattias Eriksson et al., Making food waste illegal in Sweden – potential gains from enforcing best practice in the public caterer sector. *Sustainable Production and Consumption 35 (2023) 229–237. Elsevier 2022*.

[223] Ibid., p. 237.

[224] Ibid. Louise Bartek et al., *From Surplus to Sustainability: The role of legislation in reducing climate impact from Swedish bread waste*. 2024. (Pre-print: https://papers.ssrn.com/sol3/Delivery.cfm/b118b6c5-afec-467a-9591-9700ec0f699c-MECA.pdf?abstractid=5087054&mirid=1)

Another example is the French prohibition on disposal of safe food intended for human consumption or any of the other purposes of the waste hierarchy (reuse, recycling, recovery).[225] Spain also has a new progressive legislation for reduced food waste that places demands on different operators along the food chain.[226] In the Czech Republic, supermarkets can no longer destroy or throw away foodstuffs they have not managed to sell, but have to offer them to food banks for further distribution to those in need.[227]

5.5 Linking local action to global effects

When it comes to legal requirements to reduce different types of emissions, it may often be easy to link a certain emission to a certain locally polluted recipient (or acknowledge, for example, that a pile of waste can attract rats). When it comes to resource management, this may also be the case (e.g., regarding local resources such as drinking water and a sinking well or access to natural gravel). In other cases (e.g., when it comes to managing a nutrient such as phosphorus) it can be difficult to see the immediate connection between action and effect (such as reduced assets), even though it has long been known that the global recoverable assets of phosphorus may soon run out. One reason may be timely, i.e., there is no immediate shortage today (but in the future). Another can be geographical, i.e., no phosphate-containing ore is extracted in Sweden, (but, for example, in North African countries).

Stopping climate change, which is one reason for reducing food losses, is a similar case, with (often) small local emissions, but with global effects due to production elsewhere and in very large quantities in total. However, when it comes to the question of saving resources (or energy), it may not always be lack of resources in the immediate area, individual municipality, or country or within the EU that should matter, but the discussion must be related to the relevant context, which may be Scandinavian, European, or global.

When it comes to reducing waste of food, the impact on the climate is often cited as an important reason for taking measures, even though it is not always possible for a consumer to link food waste to increased average temperature. The climate impact is expected to be greater in other continents, and in the future. Despite this, action must be taken here and now, and not only because of the local risk of rats around the waste bin in the backyard of a restaurant. In some cases, the wording in ch. 2, sec. 1, para. 2 of the SEC can hinder its application to measures that can lead to climate change since "*a measure refers to a measure that is not of negligible importance in the individual case*".

Given the global objective of sustainable development, in our opinion, the global resource perspective must be considered, as now done in climate discussions. While emissions by one individual may not lead to climate change in Sweden, the country is still prepared to take measures to counteract harmful emissions. The SEC also applies in principle to greenhouse gas emissions, but these are covered by the EU's emis-

[225] Loi n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte. Loi n° 2016-138 du 11 février 2016 relative à la lutte contre le gaspillage alimentaire, Loi n° 2020-105 du 10 février 2020 relative à la lutte contre le gaspillage et à l'économie circulaire. More comments on this legislation in Laura Gómez-Urquijo, The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. *European Energy and Environmental Law Review. August 2022*, p. 13.

[226] Ley de prevención de las pérdidas y desperdicio alimentario provided in December 2021. This legislation in commented on by Laura Gómez-Urquijo The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. *European Energy and Environmental Law Review. August 2022*, p. 13.

[227] Nicole Grmelová et al., Measures to Combat Food Waste in the Czech Republic. *European Food and Feed Law Review. 1/2018*, p. 1. The rule was introduced through an amendment to the tobacco legislation.

sions trading system, and it is not possible to set, for example, permit conditions with support of the SEC for activities covered by the EU trading system, as the trading system trumps the SEC.[228]

The distance between the actions of the individual or company and effects in the surrounding environment can also lead to problems with legitimizing various supervisory measures. It is certainly perceived as easier to demand (and understand) legal measures to correct the situation in the local environment than in the diffuse global environment. Clear-cutting rainforest to make room for soy feed production on the other side of the planet or an overheated climate in an unknown future can make it difficult to gain an understanding among the local population for regulatory measures to reduce food waste at local level. While nowadays, in everyday life, you are often met with discussions about how much food is thrown away.

In this context, it is important to remember that reduced emissions and conservation of natural resources are both demands that, with the support of the SEC, must be made for their own sake, as well as to reduce the amount of waste. In our view, it does not have to be shown in the concrete case that there is an acute shortage of a certain resource for savings to be demanded. It is enough that there is a risk and that the resource has great value for humans (or for processes in nature or for the biological diversity). A sparing use of natural resources is also an independent goal (besides environment protection and health care) written in the portal section of the SEC.

In our opinion, one does not initially need to demonstrate a lack of a certain resource for it to be possible to demand its management, since it is a specific goal to save rare resources, in the same way that biological diversity must be protected. The need for the measure can, however, play an important role when it must be shown that the measure is not unreasonable (costly) in relation to the benefits from an environmental or resource management perspective.[229] In the same way, the law states outright that everyone must reduce the amount of waste, without exception,[230] but without this being unreasonably expensive.

Even though the SEC may be applied to activities within the food supply chain, and for the purpose of lowering the waste of food, there may be difficulties in applying the rule of reasonableness to a case where the effect is far away, both in time and space, and when it not only affects a certain specific individual or group of individuals, but also contributes to more or less global problems, such as climate change or global shortage of natural resources, which affect a large but unidentified group of people.

At the core of the problem are three tasks: to be able to assess and measure the damages or losses; to translate these into monetary terms (SEK); and to weigh the damage costs against the costs of the measures imposed on the individual food business operator. While these difficulties exist in practice, lack of robust data is not a valid argument for not applying the SEC for saving resources if it is obvious that the measure is reasonable. This is also the meaning of the precautionary principle, included in the SEC.

The Generational Goal, which was established by the Swedish parliament in 1999,[177] is the overarching goal of all Swedish environmental policy. The goal is: "*to hand over to the next generation a society where the major environmental problems are solved, without causing increased environmental and health problems outside Sweden's borders*". A contemporary interpretation of the Generational Goal is to stay within the Planetary

[228] SEC ch. 26, sec. 9, para. 5.

[229] SEC ch. 2, sec. 7.

[230] SEC ch. 2, sec. 5.

Boundaries,[231] which for the food system can be achieved by combining three major strategies: a global shift towards healthy and more plant-based diets, halving food loss and waste, and improving farming practices and technologies.

The reason for finding a strategy for reducing food loss and waste, among the three major strategies for keeping the food system within safe borders, is a combination of the life cycle impact of food and the magnitude of food loss and waste. Food mainly causes its environmental impact during the production and distribution stages, and only to some extent during the waste management stage, as some countries still landfill food waste, causing methane emissions.[232] Avoiding food waste, and thereby some food production, is thus much more efficient than choosing the best waste treatment option, especially for Sweden and other countries where landfilling is already banned.[233] There is a great need to shift the focus, from waste management to waste prevention,[234] which is a stated goal of the WFD.

Reducing food loss and waste at the many places where it occurs daily is one of the most powerful interventions that can be undertaken for a sustainable food system. Rejecting such a strategy because of an inability to see the connection between a single wasted food and the whole is unnecessary in Sweden, which has legislation that covers the entire food supply chain even if it can be blunt at times.

However, while responsible resource management is one of the cornerstones of the SEC, compliance with this has not been enforced to any meaningful extent to date. Interpretation of the SEC and decisions on activities that should be supervised based on the SEC still seem to focus on end-of-pipe emissions. It was the paradigm two decades ago, before life cycle thinking took over the understanding of environmental impact.

Since food waste does not pose a direct environmental problem at the point of its occurrence, but is rather related to the production of food, the Swedish supervising agencies do not seem to realize that the SEC can be applied to the food supply chain to reduce food waste. This lack of life cycle thinking, or of a flow perspective, will result in failure to achieve the Generational Goal unless the resource management provision of the SEC is applied to its full potential.

6. Discussion and conclusions

According to WFD, EU Member States shall take measures to prevent waste generation, including by reducing food waste. Garske et al. means that despite repeated political statements and initiatives, there is currently no coherent and ambitious approach to tackle food waste along the entire food supply chain in the EU.[235] We believe, however, that the general rules of consideration in the SEC in general, and the resource management rule in particular, have the conditions to at least partially fill that gap for Swedish concerns.

Saving natural resources and energy must be seen as an independent goal in the SEC. The SEC also includes a very clear rule that everyone who runs an activity or takes an action

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[231] *Stockholm Resilient Centre at Stockholm university. https://www.stockholmresilience.org/research/planetary-boundaries.html.*

[232] See Carrie Julia Bradshaw on this issue. *Waste Law and the Value of Food. Journal of Environmental Law*, pp. 311–331. *ISSN 1464-374X. 2018.*

[233] Mattias Eriksson et al., Carbon footprint of food waste management options in the waste hierarchy – a Swedish case study. *Journal of Cleaner Production, vol. 93, 15 April 2015*, p. 122.

[234] Carrie Julia Bradshaw, Waste Law and the Value of Food. *Journal of Environmental Law 2018*, p. 11.

[235] Beatrice Garske et al, Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*, p. 14.

must manage raw materials and other kinds of resources in a responsible way and use the opportunities to reduce the amount of waste and to recycle waste as an instrument for this. Although it is not a criminal offense to breach this provision, it is still a form of offence. The more resources (food) wasted, the greater and more serious the violation. This applies to everyone, including private individuals, companies, public businesses, and non-profit organizations. There is no exception for the food supply chain. It is a major shortcoming that ch. 2, sec. 5 of the SEC is never applied in cases of resource management.

Alongside mandatory self-control, public supervision plays an important role in the enforcement of the SEC. With the support of the SEC, requirements can be set on operators, for example, to investigate how much of the resources they use are sold and how much are wasted. Based on such data, the agency can then set a requirement for a specific waste reduction over a certain period. In professional activities, best available technology must be used. This refers to technical installations, but also, for example, to how different processes within the company are structured, and how the business is planned and carried out.

While ch. 2 of the SEC constitutes a general basic regulation that applies to everyone (in the food supply chain), the supervisory agency must adapt its orders to the specific situation and the type of business. The same applies in cases where a permit agency or court formulates conditions in the permit.

Activities do not always result in polluting emissions at site, but raw materials and resources could be consumed, waste generated, and emissions emitted elsewhere. Pollution can have both local and global impacts. Historically (in the era when the SEC was written), it was "only" possible to link a certain activity to a contaminated recipient. However, for at least the last two decades (in the era when the SEC has been in force), it has been possible to connect products to all their emissions and resource use along their life cycle, regardless of where these occur. The connection between wasteful behavior and overexploitation of natural resources is clear from this life cycle perspective, but requires insights into often complex production systems, and could thereby be difficult for the legal system to deal with. The SEC is essentially not designed to regulate utilization of products that are manufactured and used, but only to regulate the conditions under which they are manufactured.[236] This goes back to the fact that the SEC is not essentially product legislation, but mostly focuses on the human activities where products are manufactured, refined, or used. This is also reflected in how supervision in practice is conducted.

While the leftovers on one plate after a meal make a very small contribution, it is easier to link food waste to climate impact if, for example, a school kitchen's total food waste is highlighted and made clear. Admittedly school kitchens and other stationary and regular food business operators are not covered by the exception in the SEC whereby: "*a measure refers to a measure that is not of negligible importance in the individual case*", because in legal terms they are activities and not measures. Regardless of this, emissions of greenhouse gases from food waste are probably so small in each individual case that it might still be difficult to convince a court of the environmental benefits of minimizing food waste for that reason. According to ch. 2, sec. 7 of the SEC, the requirements set with the support of ch. 2 sec. 5 must not be unreasonable in relation to the benefit.

[236] The waste legislation can be considered an exception to this.

However, our interpretation is that considering the SEC's objective rule, i.e., to protect human health, reduce emissions and other pollution, preserve biological diversity, and ensure wise use of natural resources, resource management is, *by itself*, one of the SEC's protective interests and it need not to be linked to deterioration of human health, a polluted environment, or deterioration of biological diversity. This is of course reinforced by the wording that the goal-setting rule must be applied so that these sub-goals are met, with the aim of achieving sustainable development. This view is further strengthened by the fact that in ch. 2 the legislator has chosen to regulate resource management issues in a special provision (sec. 5). However, in accordance with ch. 2, sec. 7, demands may not be made that are considered unreasonable (expensive) in relation to the benefit, an assessment that is affected by how large a contribution the individual business makes.

The SEC has a clear objective regarding the need to reduce resource exploitation. The resource management rule is also a clear substantive norm saying that everyone should reduce the amount of waste, that it should be applied by everyone, and that it should form the basis of both supervisory orders and permit conditions. Likewise, there are well-developed agencies that carries out environmental supervision in Sweden. There is therefore an opportunity for more active supervision regarding the resource management requirement.

Despite this regulatory system and the overall global goal of halving food waste by 2030, as well as the Swedish interim goal of reducing food waste by 20% by 2025, Sweden still has a lot to do. Food waste (in Sweden) has not decreased since 2020, which means that the implementation deficit has not decreased in recent years.

Our view is that if the SEC's resource management provision and the requirement for the best available technology were enforced effectively on relevant parts of the food supply chain, food waste could be significantly reduced. Eriksson et al. have already shown that voluntary application of best available technology in the Swedish public catering sector (care homes, schools, pre-schools) could reduce food waste by 76%.[237] The question is how much food waste would be reduced if the supervisory agencies directed binding orders on such measures against all operators in this sector.

It must be acknowledged that the very generally held resource management provision is not effective at all stages in the food chain. For example, there may be reason to take extra account of the special requirements for food safety in certain situations. Therefore, we believe that there may also be reasons to introduce more specific rules directly tailored to the characteristics that may exist in the food supply chain.

At the same time as our assessment is that food safety must of course come before resource management goals, we and others have been able to observe that both food legislation and waste legislation are in some cases designed so that the regulation forces wasting of food even though food is still objectively safe. It is a task for the legislator to remove such counterproductiveness in the regulatory system.

It is then up to the legislator to find the handling links along the food supply chain where food waste is greatest, i.e., where regulation would be most effective, and design appropriate legislation in accordance with the idea of flow-oriented legislation but without risking food safety.

Sweden and the EU are now tightening the targets on reducing food waste, but the rest of

[237] Mattias Eriksson et al., Making food waste illegal in Sweden – potential gains from enforcing best practice in the public caterer sector. *Sustainable Production and Consumption 35 (2023)* pp. 229–237. *Elsevier 2022.*

the regulatory system must also be altered. It is not enough for the EU to set binding targets – these must be translated into national substantive rules and more effective enforcement rules. There needs to be effective substantive norms that specify and make concrete the measures that must be taken by each individual operator along the food supply chain. There must also be an effective enforcement organization.

It is the MS that are responsible for introducing national regulations that meet the waste directive's requirements for reduced food waste. We believe that Sweden has a good legal basis to stand on, through the resource management rule in the SEC. The problem, as we see it, is that so far it has not been applied to the food chain to reduce food waste.

To achieve this in Sweden, Swedish environmental protection inspectors could learn more about the conditions in the food supply chain, to formulate effective injunctions, or their colleagues, food inspectors, could learn more about using the tools in the SEC. Supervisory agencies need to be trained in how to guide local agencies correctly.

In this article, we only considered administrative law instruments, but of course it is also important to develop other types of control instruments, such as taxes and subsidies.[238] Information and education must also be regarded as important instruments, not least to explain why it is so important to reduce resource consumption and food waste. Further research should be conducted, for example, on where regulation can be expected to have the best effect and which control instruments might be most appropriate. There may also be reason to investigate why the supervisory agencies have not previously addressed this issue and how it can be changed.

[238] Beatrice Garske et al elaborate around economic instruments as an alternative to existing waste legislation. France and Spain have developed tax incentives that enable food business operators donating excess foodstuffs to reduce their tax obligations by a ratio of the net accounting value of the donated food. Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7 (July 2020)*. Nicole Grmelová et al., Measures to Combat Food Waste in the Czech Republic. *European Food and Feed Law Review. 1/2018*, p. 2, with sources cited there.

References

Att göra mer med mindre. Nationell avfallsplan och avfallsförebyggande program 2018–2023, reviderad 2020. Naturvårdsverket rapport 6946. December 2020.

Bradshaw, Carrie Julia. Waste Law and the Value of Food. *Journal of Environmental Law, pp. 311–331. ISSN 1464-374X. 2018*.

Christensen, Jonas. *Rätt och Kretslopp. Studier om förutsättningar för rättslig kontroll av naturresursflöden, tillämpade på fosfor*. [Law and ecocycles. Studies on prerequisites for legal control of natural resource flows, applied to phosphorus] Academic thesis. Iustus förlag, Uppsala. 2000.

EIT Food. *Tackling food waste and food loss: a supply chain reaction*. https://www.eitfood.eu/blog/tackling-food-waste-and-food-loss-a-supply-chain-reaction. December 12, 2024.

Eriksson, M. Bartek, L. Sturén, L. Christensen, J. Cicatiello, C. Giordano, C. Malefors, C. Pasanen, S. Sjölund, A. Strid, I. Sundin, N and Brancoli, P. *From Surplus to Sustainability: The role of legislation in reducing climate impact from Swedish bread waste*. (Pre-print: https://papers.ssrn.com/sol3/Delivery.cfm/b118b6c5-afec-467a-9591-9700ec0f699c-MECA.pdf?abstractid=5087054&mirid=1.)

Eriksson, Mattias. Christensen, Jonas. Malefors, Christopher. Making food waste illegal in Sweden – potential gains from enforcing best practice in the public caterer sector. *Sustainable Production and Consumption 35 (2023) pp. 229–237. Elsevier 2022*.

Eriksson, Mattias. Strid, Ingrid and Per-Anders Hansson. Carbon footprint of food waste management options in the waste hierarchy – a

Swedish case study. *Journal of Cleaner Production, vol. 93, 15 April 2015, pp. 115–125*.

EU Code of Conduct on Responsible Food Business and Marketing Practices. A common aspirational path towards sustainable food systems. EU Farm to Fork Strategy. Brussels July 5, 2021.

EU Special Report 34. Combating Food Waste: an opportunity for the EU to improve the resource-efficiency of the food supply chain. European Court of Auditors, 2016.

European Commission Communication from the Commission to the European Parliament, the council, the European Economic and Social Committee and the Committee of the Regions 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality. Brussels, 14.7.2021 COM(2021) 550 final.

European Commission Notice Guidelines for the feed use of food no longer intended for human consumption (2018/C 133/02). OJ C 133/2 16.4. 2018.

European Commission proposal for amendment in the EU directive 2008/98/EC on Waste. COM(2023) 420 final, 2023/2024/0234 (COD).

European Commission, Eurostat. *Guidance on reporting of data on food waste and food waste prevention according to Commission Implementing Decision (EU) 2019/2000*. Version of June 2022.

European Commission. *Proposal for a Directive of the European Parliament and of the Council amending Directive 2008/98/EC on waste*. COM(2023) 420 final.

European Court of Audits. *Special Report Combating Food Waste: An opportunity for the EU to improve the resource-efficiency of the food supply chain*. 2016 no 34.

FAO Sustainable pathways, Food Wastage Footprint. https://www.fao.org/nr/sustainability/food-loss-and-waste/en/ (2025-02-25).

FAO. *Technical Platform on the Measurement and Reduction of Food Loss and Waste*. https://www.fao.org/platform-food-loss-waste/food-waste/introduction/en/ (2022-11-02 16:43).

FAO. *The State of Food and Agriculture. Moving forward on food loss and waste reduction*. FAO 2019.

FUSION. *Recommendations and guidelines for a common European food waste policy framework. WP3- T3.4*. Final version 30.07-16.

FUSIONS *Definitional Framework for Food Waste*. Full report. 3 July 2014. Reducing food waste through social innovation. FUSIONS EU project supported by the European Community's Seventh Framework Programme under Grant Agreement no. 31, 1972.

Gardfjell, Maria. *Private member's motion to the Swedish Riksdag 2019/20:1109 "Strengthen work to reduce food waste"*.

Garske, Beatrice. Heyl, Kathrine. Ekardt, Felix. Weber, Lea Moana Weber. Gradzka, Wiktoria. Challenges of Food Waste Governance: An Assessment of European Legislation on Food Waste and Recommendations for Improvement by Economic Instruments. *Land. Volume 9, Issue 7* (July 2020).

Gipperth, Lena. *Miljökvalitetsnormer. En rättsvetenskaplig studie i regelteknik för operationalisering av miljömål*. [Environmental quality standards. A jurisprudential study in regulatory technology for the operationalization of environmental goals] Academic thesis, Uppsala University 1999.

Gómez-Urquijo, Laura. The implementation of EU Legal Framework to Reduce Food Waste: The Case of Spain. *European Energy and Environmental Law Review*. August 2022.

González Vaqué, Luis. French and Italian Food Waste Legislation. An Example for other EU Member States to Follow? *European Food and Feed Law Review, 2/2007 pp. 224–233*.

Government bill 1997/98:45, Environmental Code. [Regeringens proposition 1997/98:45 Miljöbalk].

Government bill 2017/18:104. [Regeringens proposition 2017/18:104. En livsmedelsstrategi för Sverige – fler jobb och hållbar tillväxt i hela landet.]

Government bill on guidelines for an eco cycle-adapted societal development, 1992/93:180. [Regeringens proposition 1992/93:180 Om riktlinjer för en kretsloppsanpassad samhällsutveckling.]

Government bill on guidelines for an eco-cycle-adapted societal development. 1992/93:180. [Regeringens proposition om riktlinjer för en kretsloppsanpassad samhällsutveckling.]

Grmelová, Nicole. Vavrečka, Jan. Measures to Combat Food Waste in the Czech Republic. *European Food and Feed Law Review. 1/2018*.

Handbok för minskat matsvinn – för verksamheter inom vård, skola och omsorg. Livsmedelsverket, 2020.

International Reference Life Cycle Data System (ILCD) *Handbook: Framework and Requirements for Life Cycle Impact Assessment Models and Indicators*. EUR 24586 EN. Luxembourg (Luxembourg): Publications Office of the European Union; 2010. JRC48211.

Jordbruksverket. *Livsmedelsförluster i Sverige. Metoder för ökad kunskap om livsmedelsproduktionens förluster och resurser*. Rapport 2021:2.

Jordbruksverket. *Slutrapport om livsmedelsförluster. Resultat och åtgärder för att mer ska bli mat*. Rapport 2024:1.

Liljestrand, Kristina. *Reducing the environmental impact of food products logistics system*. Department of Technology Management and Economics Chalmers University of Technology, Gothenburg 2016.

Lindbom, Ingela. Esbjörnsson, Christel. Forsman, Joakim. Gustavsson, Jenny. Sundström, Barbro. *Åtgärder för att minska svinn i livsmedelsindustrin. Ett industri- och kedjeperspektiv*. Naturvårdsverkets rapport 6959, december 2013.

Livsmedelsverket, Naturvårdsverket och Jordbruksverket. *Fler gör mer. Handlingsplan för halverat matsvinn 2030*, juni 2018.

Martinsson, Helena. *Matsvinn i butik – Hur påverkar livsmedelslagstiftningen?* Sveriges lantbruksuniversitet, institutionen för livsmedelsvetenskap. Kandidatarbete 2014.

Matavfall i Sverige. Uppkomst och behandling 2018, rev. 2020. Svenska MiljöEmissionsData (SMED) på beställning av Naturvårdsverket. 2020.

Michanek, Gabriel. Zetterberg, Charlotta. *Den svenska miljörätten*. Iustus förlag, 5th edition, 2021.

Naturvårdsverket. *Minskat matavfall – miljönytta och kostnadsbesparingar*. Naturvårdsverkets rapport 6697, November 2015.

Naturvårdsverket. *Livsmedelsavfall i Sverige 2022*. INFO-serien 8908, March 2024.

Naturvårdsverket. *Uppdrag att föreslå genomförande av artikel 22 om bioavfall. Europaparlamentets och rådets direktiv 2008/98/EG i den svenska lagstiftningen*. Redovisning av ett regeringsuppdrag. Skrivelse 2021-09-02, ärende NV-09062-20.

Our Common Future. The World Commission on Environment and Development. Oxford University Press, 1987.

Parfitt, Julian. Barthel, Mark and Machnaughton, Sara. Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical Transactions of The Royal Society B (2010) 365, 3065–3081*.

Rockström, Johan. Stockholm Resilience Centre. *"We need to transition back within all Planetary Boundaries"* https://www.stockholmresilience.org/news--events/general-news/2023-11-30-we-need-to-transition-back-within--all-planetary-boundaries.html

Rojas-Reyes, Juan J, Rivera-Cadavid, Leonardo, Peña-Orozco, Diego L., Disruptions in the food supply chain: A literature review. *Heliyn Volume 10, Issue 14, 30 July 2024, e34730*.

Schulte-Herbrüggen, Helfrid. Christensen, Jonas. Olofsson, Bo. Morey Strömberg, Amalia. 2022. *Dricksvatten från små dricksvattenanläggningar för privat bruk. En faktaskrift med information kring ansvar, lagstiftning, vattentäkter, kvalitet och åtgärder*. Livsmedelsverkets externa rapportserie, Livsmedelsverket, Uppsala E 2022 nr 01.

SOU 1983:56 *Naturresursers nyttjande och hävd. Betänkande av Naturresurs- och Miljökommittén*.

Stockholm Environment Institute. *The nexus of Swedish food consumption emissions in climate,*

health and fairness. https://www.sei.org/perspectives/swedish-food-climate-health-fairness/ (2024).

Sundin, Niina. Rosell, Magdalena. Eriksson, Mattias. Jensen, Carl., Bianchi, Marta., 2021, The Climate Impact of Excess Food Intake – An Avoidable Environmental Burden, *Recourses, Conservation and Recycling Volume 174 November 2021, 105777*.

United Nations General Assembly. *Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. A/RES/70/1*.

United Nations Environment Programme (2021) (UNEP) *Food Waste Index Report 2021*, Nairobi.

United Nations (UN). *A/68/970, Report of the Open Working Group of the General Assembly on Sustainable Development Goals; 12 August 2014; United Nations: New York, NY, USA, 2014*.

United Nations General Assembly Resolution on the 25 September 2015, 70/1. *Transforming our world: The 2030 Agenda for Sustainable Development Sustainable Development*. United Nations A/RES/70/1.

van der Meulen, Bernd. Weernart, Bart. EU Food Law. *European Institute for Food Law series, 2020*.

van der Voet, Ester. Kleijn, René. Huppes, Gjalt. Economic characteristics of chemicals as a basis for pollutant policy. *Ecological Economics vol. 13. 1995, p. 11–26, 1995*.

Westerlund, Staffan. *Miljörättsliga grundfrågor 2.0*. IMIR, Institutet för miljörätt, Åmyra förlag 2003.

Westerlund, Staffan. *Miljörättsliga grundfrågor. Nordisk Ministerråd*, Tapir förlag, 1987.

World Resource Institute. *Food Loss + Waste Protocol. Food Loss and Waste Accounting and Reporting Standard. Version 1. WRI et al*.

Energy Sustainability in UNESCO World Heritage Cities: On the Local and National Implementation of International Law in Visby (Sweden), Jaipur (India), and Bath (United Kingdom)

*Harsh Vardhan Bhati**

Abstract

The intersection of heritage conservation and energy sustainability in UNESCO World Heritage cities presents complex legal and governance challenges. This article examines how Sweden, India, and the United Kingdom implement the 1972 World Heritage Convention in light of legal commitments to reduce greenhouse gas emissions in the World Heritage cities of Visby, Jaipur, and Bath. While these treaties require State Parties to balance heritage protection with climate mitigation and adaptation, their domestic implementation varies due to differences in national legal frameworks, governance structures, and regulatory approaches. This article examines how these cities integrate energy sustainability while preserving their cultural heritage. It finds that Visby applies strict national and local laws that prioritize heritage preservation over visible energy interventions, permitting only limited sustainability measures within conservation frameworks. Jaipur allows regulated energy modifications, including solar installations, provided they adhere to architectural guidelines, and incentivizes heritage conservation through tax rebates and flexible land-use policies. Bath, while maintaining strict conservation controls, adopts an intermediate approach and integrates heritage conservation, energy efficiency and renewable energy policies in its local planning and management frameworks. This study highlights the legal and policy dynamics of localizing global obligations in urban heritage contexts by demonstrating that while all three cities align with international frameworks, they differ in the extent and manner of their implementation and interaction with energy sustainability.

Keywords: Multilateral environmental agreements, Heritage conservation, energy sustainability, UNESCO World Heritage Cities, Climate governance, Laws and policies, Sustainable development.

* Doctoral candidate in environmental law, Department of Law, Uppsala University, Campus Gotland, Sweden and Uppsala University Graduate School in Sustainability Studies (GRASS), Campus Gotland, Sweden.

1. Introduction

The implementation of international treaties, such as the 1972 Convention concerning the Protection of World Cultural and Natural Heritage (World Heritage Convention)[1] and the 2015 Paris Agreement,[2] demonstrates how State Parties translate international obligations for heritage protection and climate action into domestic legal systems. Both treaties, grounded in the principles of state sovereignty and international cooperation,[3] address global environmental and heritage conservation challenges. By ratifying the World Heritage Convention, State Parties commit to the identification, preservation, and protection of cultural and natural heritage sites of "outstanding universal value" for the benefit of future generations.[4] Similarly, the Paris Agreement obligates State Parties to strengthen the global response to climate change by reducing greenhouse gas emissions and enhancing climate adaptation efforts.[5] While establishing global targets, the Paris Agreement allows State Parties the flexibility to develop and implement their own climate action through nationally determined contributions (NDCs).[6] Together, these multilateral environmental agreements represent the dual global objectives of heritage conservation and addressing global environmental challenges while advancing sustainable development goals.

While these treaties outline ambitious global objectives, their domestic implementation depends on the legal systems, governance structures, and political contexts of individual states. Variations in implementation at the national level raise questions about the practical application of these treaties in UNESCO World Heritage cities, where heritage conservation must be balanced with energy sustainability. Examining the dynamics of local and national implementation in historic urban settings offers insights into how these commitments translate into practice within different legal systems.

This article examines how Sweden, India, and the United Kingdom implement the World Heritage Convention and the Paris Agreement in law and in specific heritage sites. Focusing on the UNESCO World Heritage cities of Visby, Jaipur, and Bath, it explores how local governance mechanisms and regulations translate the international obligations of heritage conservation and energy sustainability. Additionally, the study considers how these cities integrate heritage conservation with energy sustainability through local plans and laws, building regulations, economic incentives, and guidelines. These UNESCO cities serve as living laboratories that provide insight into the intersection of global obligations and localized governance.[7]

The implementation of international law varies across jurisdictions. While monist countries incorporate international law directly into their domestic frameworks, dualist systems, like those in this study, require explicit legislative

[1] Convention Concerning the Protection of the World Cultural and Natural Heritage (adopted 16 November 1972, entered into force 17 December 1975) 1037 UNTS 151.

[2] Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) 3156 UNTS 79.

[3] Both treaties reflect the principles of state sovereignty and international cooperation in addressing global challenges. The World Heritage Convention recognizes that heritage protection primarily rests with states while requiring international collaboration, as heritage constitutes "a world heritage" (Articles 6(1) and 7). Similarly, the Paris Agreement emphasizes "common but differentiated responsibilities and respective capabilities" while respecting "different national circumstances" and maintaining "nationally determined contribution" (Articles 2(2), 4(2), and 6(1)).

[4] World Heritage Convention (n 1).

[5] Paris Agreement (n 2).

[6] Paris Agreement (n 2).

[7] UNESCO, Policy Document on Climate Action for World Heritage (2023) paragraph 71.

action to implement international agreements.[8] Domestic courts increasingly reference international environmental law, however, drawing on its principles to fill legislative gaps and guide decisions where domestic laws align with international obligations.[9] Treaties that are not self-executing or directly applicable can still influence domestic legal interpretation, although the extent of their influence depends on how the judiciary interprets the treaty and the specific domestic legal context.[10] For example, courts have relied on international environmental law and principles of customary international law to interpret domestic legislation to strengthen national environmental protections.[11] However, the extent to which international law influences judicial decisions depends on national legal traditions, constitutional frameworks, and judicial discretion.

State sovereignty, coupled with differences in legal traditions, resource capacities, political will, and local context, creates a complex landscape of implementation practices. This article examines the legal and policy dynamics of implementing the World Heritage Convention in light of commitments to mitigate climate change under the Paris Agreement in Sweden, India, and the United Kingdom. By focusing on the UNESCO World Heritage cities of Visby, Jaipur, and Bath, it also examines how the international obligations of heritage conservation and energy sustainability are translated into local regulations and heritage governance strategies.

Cities are increasingly recognized as key arenas for the implementation of international environmental and sustainability obligations.[12] As urbanization accelerates globally, cities not only concentrate populations, emissions, and infrastructure but also emerge as important sites of innovation, governance, and policy experimentation.[13] Their ability to link global objectives with local action, through municipal regulation, collaborative networks, and transnational partnerships, allows them to influence and operationalize international obligations concerning mitigation of climate change in ways that complement and, at times, challenge traditional state-centered governance structures.[14] As the scope of international obligations for heritage conservation and energy transition and sustainability expand, understanding how cities implement these obligations at the local level becomes increasingly important. By focusing on World Heritage cities, this study aims to shed light on the evolving role of local governance in balancing global obligations with practical implementation while exploring opportunities to integrate energy sustainability into historic cities.

[8] Carl Bruch, 'Is International Environmental Law Really Law? An Analysis of Application in Domestic Courts' (2006) 23 Pace Environmental Law Review 423, 428.
[9] Ibid 423–464.
[10] Shelton D, 'Introduction' in D Shelton (ed), *International Law and Domestic Legal Systems: Incorporation, Transformation, and Persuasion* (OUP 2011) 11.
[11] Carl Bruch (n 8) 439.

[12] Helmut Philipp Aust, 'Shining Cities on the Hill? The Global City, Climate Change, and International Law' (2015) 26 European Journal of International Law 255; Anél du Plessis, 'Climate Change Law and Sustainable Development' in Helmut Philipp Aust and Janne E. Nijman (eds), *Research Handbook on International Law and Cities* (Edward Elgar Publishing 2021) 187; Jolene Lin, 'The role of Transnational City Networks in Environmental Governance' in Helmut Philipp Aust and Janne E Nijman (ed), *Research Handbook on International Law and Cities* (Edward Elgar Publishing 2021) 201; Sheila R. Foster and Chrystie Swiney, 'City Networks and the Glocalization of Urban Governance' in Helmut Philipp Aust and Janne E Nijman (ed), *Research Handbook on International Law and Cities* (Edward Elgar Publishing 2021) 368; Helmut Philipp Aust and Janne E. Nijman (eds), *Research Handbook on International Law and Cities*. (Edward Elgar Publishing 2021).
[13] Ibid.
[14] Ibid.

2. International Frameworks: The World Heritage Convention and Paris Agreement

As of October 2024, the World Heritage Convention has been ratified by 196 states, including Sweden, India, and the United Kingdom, which highlights its widespread adoption and significance in heritage conservation.[15] Similarly, by January 2025, 195 states, including Sweden, India, and the United Kingdom, have ratified the Paris Agreement, indicating a broad consensus on the need for global climate action.[16] Under international law, all State Parties are required to fulfill the provisions and obligations of these treaties in good faith to achieve their stated objectives.

2.1 World Heritage Convention

Since its establishment in 1945, UNESCO has played a central role in developing numerous international legal instruments aimed at the protection and promotion of heritage worldwide.[17] These instruments, encompassing both binding treaties (hard law) and non-binding guidelines (soft law), have been widely adopted by states. Among these instruments, the World Heritage Convention[18] stands out as a pivotal framework. The Convention defines World Heritage as cultural and natural sites of outstanding universal value (OUV),[19] inscribed on either the World Heritage List (WHL) or, if threatened by serious and specific dangers – such as accelerated deterioration, large-scale development projects, land-use changes, abandonment, armed conflict, natural disasters, or other catastrophic events – the List of World Heritage in Danger.[20] These sites include a diverse range of natural, cultural and mixed heritage sites.[21]

To guide the implementation of the World Heritage Convention, the World Heritage Committee has developed the Operational Guidelines for the implementation of the World Heritage Convention (Operational Guidelines), which are periodically revised to address emerging challenges.[22] Although soft law, the Operational Guidelines hold significant influence and shape

[15] See UNESCO, States Parties Ratification Status (UNESCO World Heritage Centre 2024) <http://whc.unesco.org/en/statesparties/> accessed 15 March 2025.

[16] See UNFCCC, Status of Ratification of the Paris Agreement (UNFCCC 2025) <https://unfccc.int/process/the-paris-agreement/status-of-ratification> accessed 15 March 2025.

[17] Lucas Lixinski and Vassilis P Tzevelekos, 'The World Heritage Convention and the Law of State Responsibility: Promises and Pitfalls' in Anne-Marie Carstens and Elizabeth Varner (eds), Intersections in International Cultural Heritage Law (Oxford University Press 2020) 247; Sophie Starrenburg, 'Translating International Heritage Standards into Domestic Law' in Lucas Lixinski and Lucie K. Morisset (eds), *Routledge Handbooks on Museums, Galleries and Heritage* (Routledge 2024) 98; Valentina Vadi, 'Cultural Heritage in International Law' in Valentina Vadi (ed), *Cultural Heritage in International Economic Law* (Brill | Nijhoff 2023) 35–36.

[18] World Heritage Convention (n 1).

[19] World Heritage Convention (n 1) Articles 1 and 2.

[20] World Heritage Convention (n 1) Article 11.

[21] World Heritage Convention (n 1) Articles 1, 2 and 11. Some World Heritage sites are designated by UNESCO for their natural significance, others for their cultural importance, and some for both as Mixed sites. A site must have outstanding universal value and meet at least one of ten criteria to be added to the World Heritage List. See more about the Criteria for Selection <https://whc.unesco.org/en/criteria/>; As of December 2024, a total of 1,223 World Heritage Sites (952 cultural, 231 natural, and 40 mixed properties) are listed across 168 State Parties. The List is available at <https://whc.unesco.org/en/list/> accessed 15 March 2025. A total of 56 sites (41 cultural and 15 natural properties) are listed on the list of World Heritage in Danger and available at <https://whc.unesco.org/en/danger-list/> accessed 15 March 2025.

[22] UNESCO, the Operational Guidelines for the implementation of the World Heritage Convention (2024), paras. 1–2. The Operational Guidelines provide a detailed framework for the inscription of properties on the World Heritage List and the List of World Heritage in Danger, the allocation of international assistance under the World Heritage Fund, and the protection and conservation of heritage properties. Besides the World Heritage Convention, the Operational Guidelines provide further interpretive clarity on the application and implementation of the World Heritage Convention for State Parties <https://whc.unesco.org/en/guidelines/>.

the interpretation and evolution of the World Heritage Convention. They serve as a practical tool for a wide range of stakeholders, including member states, the World Heritage Centre, Advisory Bodies, site managers, communities, stakeholders and other partners involved in heritage conservation and management.[23]

The main obligations under the World Heritage Convention are detailed in Articles 4 to 7, which collectively define the responsibilities of State Parties and the international community regarding the conservation of cultural and natural heritage. The primary responsibility for the "identification, protection, conservation, presentation, and transmission to future generations of" World Heritage sites rests with the State in which the site is located.[24] Each State Party is obligated to commit its resources "to do all it can" to fulfill these duties, while also allowing for international assistance when necessary.[25] This provision grants states a "wide margin of discretion" in determining how to meet their responsibilities, as the obligation is framed in "qualified" terms rather than as a "rigid legal requirement" equivalent to a "domestic statutory obligation."[26] State parties are required to "adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community," integrate heritage protection into broader planning frameworks, establish specialized conservation services, foster research and training, and adopt "appropriate legal, scientific, technical, administrative and financial measures."[27] However, these obligations are qualified by the requirement that State Parties act "insofar as possible" and "as appropriate for each country."[28] This phrasing introduces significant flexibility, again a wide margin of discretion that allows states to tailor their efforts based on their specific capacities, circumstances, and priorities.[29]

State Parties recognize the collective responsibility of the international community to protect the cultural and natural heritage that constitutes a "world heritage" while respecting the sovereignty of states where such heritage is located.[30] Additionally, it requires State Parties to "not to take any deliberate measures which might damage directly or indirectly" the heritage within the territory of another State Party.[31] The concept of "international protection" includes systems of cooperation and assistance to support states in heritage conservation.[32] While this establishes an essential safety net, the reliance on voluntary contributions and goodwill can limit the scope and scale of assistance provided, particularly in emergencies. For example, responses to catastrophic events such as earthquakes or armed conflicts often reveal gaps in the international system's ability to act swiftly and comprehensively.[33]

According to Lixinski and Tzevelekos, a close reading of the World Heritage Convention's language further supports the discretionary nature of its primary obligations, as these

[23] Ibid para. 3.
[24] World Heritage Convention (n 1) Article 4.
[25] Ibid.
[26] Lixinski and Tzevelekos (n 17) 251.
[27] World Heritage Convention (n 1) Article 5.
[28] Ibid.
[29] Lixinski and Tzevelekos (n 17) 251–252.
[30] World Heritage Convention (n 1) Article 6.
[31] World Heritage Convention (n 1) Article 6(3).
[32] World Heritage Convention (n 1) Article 7.
[33] See for example, as of May 2025, UNESCO has verified damage to 485 cultural sites in Ukraine (since 24 February 2022) and 107 sites in the State of Palestine (since 7 October 2023), including in the Gaza Strip. See UNESCO, 'Damaged Cultural Sites in Ukraine Verified by UNESCO' (UNESCO 2024) <https://www.unesco.org/en/articles/damaged-cultural-sites-ukraine-verified-unesco> accessed 13 May 2025; UNESCO, 'Assessment of Cultural Heritage Damage in the State of Palestine' (UNESCO 2025) <https://www.unesco.org/en/gaza/assessment> accessed 13 May 2025.

obligations are understood as "obligations of means," with subjective standards of conduct that depend on each state's capacity and allow for considerable discretion of State Parties in fulfilling these duties.[34]

In addition to the primary obligations detailed in Articles 4 to 7, the World Heritage Convention is supported by several complementary mechanisms that enhance its implementation and long-term environmental and cultural sustainability. These mechanisms address aspects such as monitoring, international cooperation, climate action, and guidance to ensure that the principles of the World Heritage Convention are effectively translated into action domestically.

One such duty is the obligation of periodic reporting,[35] wherein State Parties are required to provide updates to the World Heritage Committee regarding the condition of sites inscribed on the World Heritage List and the measures taken for their preservation, such as legislative, administrative, and other measures taken to implement the World Heritage Convention.[36] Another responsibility is the management of World Heritage sites through management plans and uses that are ecologically and culturally sustainable. State Parties are expected to establish and implement such plans to balance heritage conservation with contemporary social, economic, and environmental needs.[37]

With respect to international commitments to mitigate climate change, the Operational Guidelines connect the United Nations Framework Convention on Climate Change (UNFCCC) with the conservation and management of World Heritage sites.[38] The UNFCCC, a multilateral environmental agreement with 198 parties,[39] calls for global cooperation based on "common but differentiated responsibilities and respective capabilities".[40] The UNFCCC's main objective is "to achieve… stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system," while enabling ecosystems to adapt naturally and allowing sustainable economic development.[41]

World Heritage properties, both natural and cultural, are threatened by climate change and natural disasters, including glacier melt, extreme weather events, rising temperatures, heat island effects, ocean acidification, flooding, tsunamis, and sea-level rise.[42] Furthermore, the impact of human activities, including excessive tourism, greenhouse gas emissions, unchecked urbanization, and inadequate site management, intensifies the threats to conservation in sites such as Visby and Jaipur.[43]

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[34] Lixinski and Tzevelekos (n 17) 252.

[35] The periodic reporting process, conducted every six years, serves as a self-assessment tool to evaluate the implementation of the World Heritage Convention and strengthen the credibility of its application.

[36] World Heritage Convention (n 1) Article 29; The Operational Guidelines (n 22) paras. 199–202. These reports are important for monitoring the implementation of the World Heritage Convention and to identify challenges that may require international assistance, assess long-term conservation outcomes, and foster accountability among State Parties.

[37] The Operational Guidelines (n 22) paras. 108–119. While this requirement is not explicitly codified in the World Heritage Convention itself, the Operational Guidelines emphasize its importance.

[38] UNESCO (n 22) Operational Guidelines, para. 44.

[39] United Nations Framework Convention on Climate Change (agreed on May 9, 1992, entered into force March 21, 1994) 1771 UNTS 107; UNFCCC, Status of Ratification of the Convention <https://unfccc.int/process-and-meetings/the-convention/status-of-ratification-of-the-convention>.

[40] UNFCCC (n 39) art. 3.

[41] UNFCCC (n 39) art. 2.

[42] Bhati, H.V., Powering Preservation: Balancing Heritage Conservation and Energy Transition in World Heritage Cities (2025) Doctoral Thesis, Uppsala University, 55–75.

[43] Ibid.

UNESCO has emphasized that both climate change mitigation and emission reduction are important to safeguarding World Heritage sites in the long term. The 2007 report *Case Studies on Climate Change and World Heritage* underscores the growing vulnerability of cultural and natural sites to climate-related risks such as glacial retreat, sea-level rise, extreme weather, and ecosystem disruption.[44] A companion report, *Climate Change and World Heritage: Report on Predicting and Managing the Impacts of Climate Change on World Heritage and Strategy to Assist States Parties to Implement Appropriate Management Responses*, presents a comprehensive framework for integrating climate change considerations into site management, including adaptation, mitigation planning, and monitoring.[45] By encouraging adaptive governance and international coordination, the report links World Heritage protection to broader environmental commitments under the UNFCCC and other multilateral frameworks.[46]

The UNESCO World Heritage Centre, as secretariat of the World Heritage Committee, has worked with international partners to develop a suite of strategies, policy documents, and management tools to help State Parties integrate climate adaptation, mitigation, and sustainable development into World Heritage processes. One such instrument is the Policy Document on the Impacts of Climate Change on World Heritage Properties, adopted by the General Assembly of State Parties to the World Heritage Convention in 2007.[47] It provides guidance for integrating climate change considerations into the nomination, management, and monitoring of World Heritage sites and encourages State Parties to undertake site-level adaptation, mitigation, and research activities.[48] Another document is the Recommendation on the Historic Urban Landscape, adopted by the UNESCO General Conference in 2011, which urges State Parties to adopt a landscape-based approach that integrates the conservation of urban heritage with sustainable development and calls for planning strategies that connect cultural and natural value, improve knowledge and financial tools, and involve local communities across entire urban areas.[49]

At its 20th session in 2015, the General Assembly of State Parties to the World Heritage Convention adopted the Policy Document for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention.[50] This Policy Document calls on State Parties to align World Heritage conservation with the 2030 Agenda for Sustainable Development and emphasizes environmental sustainability, inclusive social and economic development, and the participation of local communities and Indigenous Peoples in World Heritage processes.[51]

In 2019, the International Council on Monuments and Sites (ICOMOS) published *The Future of Our Pasts: Engaging Cultural Heritage in*

[44] UNESCO World Heritage Centre, Case Studies on Climate Change and World Heritage, (2007) UNESCO <https://whc.unesco.org/en/activities/473/>.
[45] UNESCO World Heritage Centre, Climate Change and World Heritage: Report on Predicting and Managing the Impacts of Climate Change on World Heritage and Strategy to Assist States Parties to Implement Appropriate Management Responses, (2007) UNESCO <https://whc.unesco.org/en/activities/474/>.
[46] Ibid.
[47] UNESCO World Heritage Centre, Policy Document on the impacts of Climate Change on World Heritage Properties (2007) UNESCO <https://whc.unesco.org/en/CC-policy-document/>.
[48] Ibid.
[49] UNESCO, Recommendation on the Historic Urban Landscape (2011) UNESCO <https://whc.unesco.org/en/hul/>.
[50] UNESCO, Policy for the Integration of a Sustainable Development Perspective into the Processes of the World Heritage Convention (2015) UNESCO <https://whc.unesco.org/en/sustainabledevelopment/>.
[51] Ibid.

Climate Action, which articulates how cultural heritage and historic buildings can serve as both a driver and enabler of climate action.[52] The report highlights the potential of cultural heritage to support climate adaptation through place-based knowledge, and to contribute to mitigation by promoting low-carbon traditional building practices as well as energy-efficient and renewable energy measures, where compatible with heritage values.[53] Most recently, the Policy Document on Climate Action for World Heritage, adopted by the General Assembly of States Parties to the World Heritage Convention in 2023, provides guidance for integrating climate adaptation, mitigation, risk assessment, and resilience into the management of World Heritage properties.[54] It establishes four Climate Action Goals – climate risk assessment, climate adaptation, climate mitigation, and knowledge sharing – to be achieved by 2030, and promotes transformative change in line with the 2015 Paris Agreement and the 2016 New Urban Agenda.[55]

While these strategies and policy documents strengthen the integration of climate action into heritage management, the World Heritage Convention does not explicitly impose binding obligations on State Parties to mitigate climate change. Instead, most obligations related to climate action remain soft law. However, its provisions have been interpreted to support stronger state commitments to addressing climate threats to World Heritage sites.[56] Articles 4, 5, and 6, in particular, have been interpreted by legal and other scholars as creating indirect mitigation responsibilities by obligating State Parties to protect and preserve sites of OUV and to adopt necessary legal, scientific, financial, and technical measures to address threats, including climate change.[57] While these obligations reinforce the role of heritage conservation in global climate governance, they remain subject to state sovereignty, limiting their enforceability.

2.2 Paris Agreement

The Paris Agreement, adopted under the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015, is a "legally binding international treaty on climate change."[58] It establishes a comprehensive framework for addressing climate change through collective and individual obligations by its 195 Parties, comprising almost all countries globally.[59]

The central aim of the Paris Agreement is to enhance the global response to climate change while ensuring sustainable development. The Paris Agreement's collective objective, codified in Article 2, aims to limit global temperature rise to well below 2°C above pre-industrial levels while striving for 1.5°C.[60] However, recent data indicate that the global average temperature temporarily exceeded 1.5°C in 2024, which raises concerns about the pace of climate change and the effectiveness of current mitigation and adaptation efforts.[61] Beyond mitigation, the

[52] ICOMOS Climate Change and Cultural Heritage Working Group, 'The Future of Our Pasts: Engaging Cultural Heritage in Climate Action' (2019) ICOMOS <https://openarchive.icomos.org/id/eprint/2459/>.
[53] Ibid.
[54] UNESCO, Policy Document on Climate Action for World Heritage (2023) UNESCO <https://whc.unesco.org/en/documents/204421>.
[55] Ibid.
[56] Anna Huggins, 'Protecting World Heritage Sites from the Adverse Impacts of Climate Change: Obligations for States Parties to the World Heritage Convention' (2007) 14 Australian International Law Journal 121; Kathryn Lafrenz Samuels and Ellen J Platts, 'Global Climate Change and UNESCO World Heritage' (2022) 29 International Journal of Cultural Property 409.
[57] Ibid.
[58] See UNFCCC, 'The Paris Agreement: What is the Paris Agreement' (UNFCCC) <https://unfccc.int/process-and-meetings/the-paris-agreement>.
[59] See UNFCCC (n 16).
[60] Paris Agreement (n 2) Article 2.
[61] Jeff Tollefson, 'Earth Breaches 1.5 °C Climate Limit for the First Time: What Does It Mean?' (2025) 637 Na-

Paris Agreement aims to enhance the adaptive capacity, foster climate resilience, and ensure that financial flows align with low greenhouse gas emissions and climate-resilient development pathways.[62] Its implementation is guided by equity and the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC), recognizing the diverse national circumstances of each Party.[63]

The Paris Rulebook, adopted in 2018, operationalizes the Paris Agreement by providing detailed modalities, procedures, and guidelines for its implementation.[64] It establishes rules for NDCs, the enhanced transparency framework, the global stocktake, and the implementation and compliance mechanism. These elements aim to balance international prescriptiveness with national discretion in order to ensure accountability, discipline, and ambition in climate action while allowing states flexibility in their commitments.[65]

Rajamani described the Paris Agreement as "a carefully calibrated mix of hard, soft, and non-obligations," with blurred distinctions between them.[66] However, as noted by Zahar, the language of collective obligation in the Paris Agreement is aspirational rather than legally binding.[67] For example, Article 2.1 lacks traditional indicators of legal obligation, such as the use of "shall," and instead sets out an objective rather than an enforceable commitment.[68]

A number of provisions do impose hard obligations, particularly concerning mitigation, transparency, and financial support. These obligations, framed in a mandatory language such as "shall," apply to individual Parties, all Parties collectively, and developed country Parties.[69]

For mitigation, each Party "shall prepare, communicate, and maintain successive" NDCs and "shall pursue domestic mitigation measures" to achieve them.[70] Each Party also "shall" communicate updated NDCs every five years.[71] On transparency, each Party "shall" regularly report on emissions and progress in implementing its NDC.[72] These reports undergo a technical expert review, and each Party "shall" participate

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ture 769. Scientists emphasize that while a single-year exceedance does not mean the long-term goal is unattainable, it serves as a stark reminder of the urgency of accelerating climate action.

[62] Paris Agreement (n 2) Article 2.

[63] Ibid.

[64] At COP24 in 2018 in Katowice, Poland, Parties adopted the Paris Rulebook (also referred to as the Katowice Climate Package), see <https://unfccc.int/process-and-meetings/the-paris-agreement/the-katowice-climate-package/katowice-climate-package> accessed 15 March 2025.

[65] Lavanya Rajamani and Daniel Bodansky, 'The Paris Rulebook: Balancing International Prescriptiveness with National Discretion' (2019) 68 International and Comparative Law Quarterly 1023.

[66] Lavanya Rajamani, 'The 2015 Paris Agreement: Interplay Between Hard, Soft and Non-Obligations' (2016) 28 Journal of Environmental Law 337. At one end of the spectrum are "hard obligations," particularly in mitigation and finance, framed in mandatory terms using language such as "shall." These provisions contain clear, precise normative content without qualifying or discretionary elements, forming the legal backbone of the Paris Agreement. In the middle are "soft obligations," found in provisions on mitigation, adaptation, and implementation. While they identify responsible Parties and set standards, they also include qualifiers or discretionary language such as "should" or "encourage." These provisions establish good faith expectations but allow flexibility in implementation. At the opposite end are "non-obligations," which lack "normative content" altogether. These provisions often serve to provide context, narrative, or shared understanding between Parties, even when included in the operational sections of the Paris Agreement (pp. 352 and 358).

[67] Alexander Zahar, 'Collective Obligation and Individual Ambition in the Paris Agreement' (2020) 9 Transnational Environmental Law 165, 179 ("We may therefore conclude that the Paris Agreement, while it does create a collective obligation in form, does not make it a legal obligation with legally binding force in substance. It therefore subsists at the level of an aspiration, albeit a very important one.")

[68] Ibid 170.

[69] Lavanya Rajamani (n 66).

[70] Paris Agreement (n 2) Article 4(2).

[71] Paris Agreement (n 2) Article 4(9).

[72] Paris Agreement (n 2) Article 13(7).

in a multilateral consideration of progress regarding finance and NDC implementation.[73]

Some collective obligations apply to all parties. All Parties "are to undertake and communicate ambitious efforts as defined in Articles 4, 7, 9, 10, 11 and 13," in line with the overall aim of the Paris Agreement set out in Article 2.[74] In communicating NDCs, all Parties "shall" provide information necessary for clarity, transparency, and understanding[75] and "shall" account for their anthropogenic emissions and removals in a manner that promotes "environmental integrity, transparency, accuracy, completeness, comparability and consistency" and avoids double counting.[76] Parties acting jointly, "including regional economic integration organizations and their member States," "shall notify the secretariat of the terms" of their agreement, including emission levels "allocated to each Party".[77] When implementing the Paris Agreement, Parties "shall" also consider the concerns of economies most affected by response measures, particularly developing countries.[78] In market-based approaches, Parties engaging in cooperative mechanisms "shall" ensure environmental integrity, transparency, governance and robust accounting.[79] A key collective obligation is the global stocktake, where the Conference of the Parties must periodically assess progress towards the Agreement's long-term goals.[80] This review, conducted every five years starting in 2023, must consider mitigation, adaptation, and support mechanisms in light of equity and best available science.[81] The outcome of the global stocktake "shall" inform the Parties' future climate actions and cooperation.[82]

For capacity-building, all Parties "shall" regularly communicate on actions taken to enhance the capacity of developing countries.[83] However, the duty to enhance capacity-building is not explicitly assigned to any individual party.[84] Developed country Parties "shall" provide financial resources to assist developing countries in mitigation and adaptation efforts,[85] report biennially on financial support,[86] and disclose financial, technology transfer, and capacity-building contributions.[87] While adaptation planning and climate change education and public participation contain mandatory obligations,[88] qualifiers such as "as appropriate" weaken their enforceability.[89] Similarly, cooperative action to strengthen technology development and transfer is required but lacks concrete enforcement mechanisms.[90]

At the same time, the Paris Agreement contains a number of non-binding provisions. These are framed using softer or recommendatory language, such as "should" or "strive," which creates expectations rather than enforceable commitments.[91] In the context of mitigation, examples of such language include the expectation that successive NDCs "will represent a progression" and reflect each Party's "highest possible ambition";[92] that developed countries "should continue taking the lead";[93] that mitiga-

[73] Paris Agreement (n 2) Article 13(11).
[74] Paris Agreement (n 2) Article 3.
[75] Paris Agreement (n 2) Article 4(8).
[76] Paris Agreement (n 2) Article 4(13).
[77] Paris Agreement (n 2) Article 4(16).
[78] Paris Agreement (n 2) Article 4(15).
[79] Paris Agreement (n 2) Article 6(2).
[80] Paris Agreement (n 2) Article 14.
[81] Paris Agreement (n 2) Articles 14(1) and (2).
[82] Paris Agreement (n 2) Article 14(3).
[83] Paris Agreement (n 2) Article 11(4).
[84] Lavanya Rajamani (n 66) 353; Paris Agreement (n 2) Article 11(5).
[85] Paris Agreement (n 2) Articles 9(1).
[86] Paris Agreement (n 2) Articles 9(5) and (7).
[87] Paris Agreement (n 2) Article 13(9).
[88] Paris Agreement (n 2) Articles 7(9) and (12).
[89] Lavanya Rajamani (n 66) 352–353.
[90] Ibid 353; Paris Agreement (n 2) Article 10(2).
[91] Lavanya Rajamani (n 66) 343 and 355.
[92] See e.g., Paris Agreement (n 2) Article 4(3).
[93] See e.g., Paris Agreement (n 2) Article 4(4).

tion actions "should take into account" existing methods;[94] and that Parties "should strive" to formulate long-term low-emission strategies.[95]

In addition to mitigation, the Paris Agreement also includes soft obligations concerning adaptation,[96] sinks,[97] loss and damage,[98] transparency,[99] finance,[100] technology,[101] and capacity building[102].[103] These provisions similarly use recommendatory language. The Agreement further contains "non-obligations" provisions, which apply broadly to all Parties but do not impose any specific requirements, whether mandatory or even advisory.[104] Despite lacking legal force, these provisions are essential in shaping the narrative, ambition, and inclusivity of the Paris Agreement, making them an integral part of the "Paris package."[105]

2.3 Concluding Remarks on the Treaties

Both the Paris Agreement and the World Heritage Convention impose obligations of conduct rather than obligations of result, granting member states broad discretion in how they fulfill their obligations.[106] Both treaties rely on the due diligence principle and good faith efforts, where compliance is assessed based on actions taken rather than outcomes, allowing states to tailor their approaches to national circumstances.[107] Enforcement and compliance mechanisms in both regimes are soft, relying on monitoring frameworks – such as the World Heritage periodic reporting and delisting procedure or the Paris Agreement's reporting and review mechanisms – rather than strict binding sanctions.[108]

The translation of international heritage obligations into domestic law is not uniform across states. While public international law requires that states "fulfil the obligations of the treaty that they have entered into," states retain discretion in how they implement these obligations domestically, constrained by their constitutional arrangements and legal traditions.[109] The World Heritage Convention, like many other UNESCO cultural heritage treaties, is not self-executing, meaning that its relevant treaty obligations often "remain beyond the reach of domestic legal actors" due to a lack of direct applicability or explicit incorporation into domestic law.[110] The status of international law within a country's legal system depends on its constitutional framework, which dictates whether internation-

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[94] See e.g., Paris Agreement (n 2) Article 4(14).
[95] See e.g., Paris Agreement (n 2) Article 4(19).
[96] See e.g., Paris Agreement (n 2) Articles 7(7), 7(10).
[97] See e.g., Paris Agreement (n 2) Articles 5(1), 5(2).
[98] See e.g. Paris Agreement (n 2) Article 8(3).
[99] See e.g., Paris Agreement (n 2) Articles 13(8), 13(9).
[100] See e.g., Paris Agreement (n 2) Articles 9(2), 9(3), 9(5), 9(7).
[101] See e.g., Paris Agreement (n 2) Article 10(1).
[102] See e.g., Paris Agreement (n 2) Articles 11(3), 11(4), 13(10).
[103] Lavanya Rajamani (n 66) 356.
[104] See e.g., Paris Agreement (n 2) Articles 4(1), 6(1), 6(8), 7(2), 7(4), 7(5), 7(6), 8(1), 10(1).
[105] Lavanya Rajamani (n 66) 356. Rajamani explicitly supports this idea by explaining how non-obligations provide context, construct a narrative, generate mutual reassurances, capture shared understandings, and signal solidarity – all of which were essential to the Paris Agreement.
[106] Benoit Mayer, 'Obligations of Conduct in the International Law on Climate Change: A Defence' (2018) 27 Review of European, Comparative, and International Environmental Law 130; Medes Malaihollo, 'Due Diligence in International Environmental Law and International Human Rights Law: A Comparative Legal Study of the Nationally Determined Contributions under the Paris Agreement and Positive Obligations under the European Convention on Human Rights' (2021) 68 Netherlands International Law Review 121; Lixinski and Tzevelekos (n 17).
[107] Ibid.
[108] Ibid.
[109] Sophie Starrenburg (n 17) 99.
[110] Sophie Starrenburg (n 17) 98–100. ("If a treaty does not possess direct effect, then actors such as individuals or non-governmental organisations cannot invoke the relevant treaty rule before a domestic court [….] This is of particular importance for cultural heritage treaties, which are generally not considered to have direct effect [….]" p. 100).

al agreements take precedence over domestic laws.[111]

Likewise, the Paris Agreement is a non-self-executing treaty, meaning its legal effect depends on a country's legal system – whether monist or dualist – and how its legislature incorporates the treaty into domestic law.[112] In monist systems, such as the Netherlands, international treaties automatically become part of domestic law upon ratification, allowing national courts to apply them directly.[113] In contrast, in dualist systems, international treaties do not have legal force domestically until implemented through national legislation, and courts primarily apply domestic law.[114] While the Paris Agreement itself may not create justiciable obligations unless incorporated into domestic law, national courts have increasingly referenced its norms and principles in climate-related cases, influencing interpretations of domestic climate policies and legal frameworks.[115] Similarly, even within dualist systems, courts, policymakers, and public authorities may reference international treaties to interpret domestic laws, including areas relating to environmental and heritage governance.[116]

While the World Heritage Convention and the Paris Agreement obligate State Parties to commit to heritage conservation and climate mitigation and adaptation, neither treaty imposes "clear, precise, or unconditional" obligations that mandate "specific actions" regarding "energy measures in historic buildings."[117] However, national laws should be interpreted in light of international legal obligations, as demonstrated in the cases of Sweden, India, and the United Kingdom in the following section.

3. National and Local Implementation in Sweden (Visby), India (Jaipur), and the United Kingdom (Bath)

The extent to which the World Heritage Convention and the Paris Agreement influence domestic law depends on a country's legal framework and approach to international law. For example, while the Paris Agreement lacks binding enforcement mechanisms at the international level and does not always establish directly justiciable duties, it still influences domestic litigation and policymaking through national laws and regulatory frameworks.[118] Similarly, the World Heritage Convention, although not directly incorporated, shapes national heritage governance through domestic legal frameworks that align with its principles.[119] This section explains how each country translates its international obligations into domestic legal frameworks, with an overview of key national legislation and policies implementing the two treaties, as well as the application of international law by the judiciary. It

[111] Sophie Starrenburg (n 17) 100. This issue became evident in the controversial case of the Waldschlössenbrücke in the Dresden Elbe Valley World Heritage Site. The German Federal Constitutional Court (Bundesverfassungsgericht) ruled that because the World Heritage Convention had not been incorporated into German law, it held no legal authority over the legally binding outcome of a local referendum, in which Dresden's residents had voted to approve the bridge's construction.
[112] Brian J Preston, 'The Influence of the Paris Agreement on Climate Litigation: Legal Obligations and Norms (Part I)' (2021) 33 Journal of Environmental Law 1; Navraj Singh Ghaleigh, 'Climate Constitutionalism of the UK Supreme Court' (2021) 33 Journal of Environmental Law 441.
[113] James Crawford, *Brownlie's Principles of Public International Law* (8 edn, OUP 2012) 100–102.
[114] Ibid 63–64.
[115] Brian J Preston (n 112).
[116] Sophie Starrenburg (n 17); Brian J Preston (n 112).
[117] Harsh Vardhan Bhati, Mia Geijer and Yaffa Epstein, 'Implementing the Green Energy Transition in a UNESCO World Heritage City: A Case Study of Visby, Sweden' Journal for European Environmental and Planning Law (Forthcoming 2025).
[118] Brian J Preston (n 112).
[119] Sophie Starrenburg (n 17).

then examines how these international and national obligations are reflected at the city level.

3.1 Sweden

Sweden ratified the World Heritage Convention in 1985[120] and the Paris Agreement in 2016.[121] As a dualist country, international treaties do not "automatically become part of Swedish law" upon ratification.[122] Instead, Sweden primarily relies on transformation, a method that translates treaty obligations into domestic legislation without necessarily granting them direct legal effect.[123] This method ensures that Sweden's legal framework remains internally consistent while still aligning with international obligations.[124] In contrast, incorporation would mean adopting a treaty as binding domestic law via a legislative act, so that courts and decision-makers can apply its provisions directly.[125]

The legal situation varies somewhat when it comes to the implementation of these treaties in Sweden, as a member of the European Union (EU)[126]. Both the EU and its member states are parties to the 1992 United Nations Framework Convention on Climate Change[127] and have ratified the Paris Agreement.[128] In contrast, the EU itself is not a party to UNESCO[129] and has not ratified the World Heritage Convention,[130] although its member states have done so individually. Consequently, there is a dual-layered obligation to address climate change, involving both collective action by the EU and actions by its member states, including Sweden. However, such a structure does not exist for heritage conservation, where the commitment rests entirely at the national level. For instance, there is "no EU directive specifically addressing the conservation of cultural heritage values" in historic built environments.[131]

3.1.1 Implementation of the World Heritage Convention

Sweden fulfills its obligations under the World Heritage Convention through existing national legal frameworks. The implementation and management of World Heritage sites are regulated by legislation concerning the physical environment, including the Historic Environment Act,[132] the Environmental Code,[133] and the Plan-

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[120] UNESCO (n 15).
[121] UNFCCC (n 16).
[122] Rebecca Thorburn Stern, 'Much Ado about Nothing? The Road to the Incorporation of the UN Convention on the Rights of the Child in Sweden' (2019) 27 International Journal of Children's Rights 266, 269.
[123] Ibid.
[124] Ibid.
[125] Ibid 270 (Only the European Convention on Human Rights has been fully incorporated into Swedish law, in 1995.)
[126] The European Union (EU) possesses legal personality under Article 47 of the Treaty on European Union, granting it the ability to conclude international agreements, become a member of international organizations, and join international conventions. This legal status enables the EU to independently negotiate and ratify treaties in areas where competence has been conferred to it by its member states. For example, international agreements concluded by the EU can have direct binding effect and primacy over national laws, as outlined in Articles 3(2) and 216(1) of the Treaty on the Functioning of the European Union. See further <https://eur-lex.europa.eu/EN/legal-content/glossary/legal-personality-of-the-eu.html> accessed 15 March 2025.
[127] See UNFCCC, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) <https://unfccc.int/process/parties-non-party-stakeholders/parties-convention-and-observer-states> accessed 15 March 2025.
[128] See UNFCCC (n 16).
[129] See UNESCO, Member States of UNESCO <https://www.unesco.org/en/countries> accessed 15 March 2025.
[130] See UNESCO (n 15).
[131] Anna Christiernsson, Mia Geijer and Melina Malafry, 'Legal Aspects on Cultural Values and Energy Efficiency in the Built Environment—A Sustainable Balance of Public Interests?' (2021) 4 Heritage 3507.
[132] The Historic Environment Act 1988 (Kulturmiljölagen 1988:950).
[133] The Environmental Code 1998 (Miljölagen 1998:808).

ning and Building Act[134].[135] A decision of the Land and Environment Court of Appeal demonstrates this approach by applying national legal principles – particularly those protecting cultural and natural environments – to assess the potential impact of the Skaftåsen wind power project on a World Heritage site.[136] The court reaffirmed that Sweden implements the World Heritage Convention through its existing legal frameworks for nature and cultural heritage protection, rather than through direct incorporation.[137] These laws collectively provide comprehensive protection for cultural and natural environments to reinforce compliance with the World Heritage Convention.

Sweden has a decentralized governance model for the protection and management of World Heritage sites. While the Government (*regeringen*) holds overall responsibilities for fulfilling obligations under the World Heritage Convention, responsibilities are distributed among national, county, and local authorities.[138] The Swedish National Heritage Board (*Riksantikvarieämbetet*) is the primary national authority for World Heritage matters.[139] While the National Heritage Board[140] leads work related to cultural World Heritage sites, the Swedish Environmental Protection Agency (*Naturvårdsverket*)[141] is responsible for natural World Heritage sites.[142] Their tasks include preparing nominations, monitoring development, and providing guidance to County Administrative Boards and other authorities when needed.[143] The Swedish UNESCO Council (*Svenska Unescorådet*), which functions as Sweden's National Commission for UNESCO, advises the government on UNESCO-related matters and promotes awareness and disseminates knowledge about UNESCO's mission within the country, but it is not involved in the management or nomination of World Heritage sites.[144] County Administrative Boards oversee implementation at the site level and issue permits for changes to some types of nationally protected buildings, while municipalities regulate

[134] The Planning and Building Act 2010 (Plan- och bygglagen 2010:900).

[135] Swedish National Heritage Board, 'Frågor och svar om Världsarv' (21 August 2017 and updated in 2025) <https://www.raa.se/evenemang-och-upplevelser/upplev-kulturarvet/varldsarv-i-sverige/varldsarv/> accessed 15 March 2025; See also Riksantikvarieämbetet, 'Nationell strategi för världsarvsarbetet – Avrapportering av regeringsuppdraget att utarbeta en nationell världsarvsstrategi' (2019) Riksantikvarieämbetet, 56–62.

[136] MÖD 2017:20 (Swedish Svea Court of Appeal, Land and Environmental Court of Appeal, Case No. M 5329-16, Judgment of 8 May 2017). The court ruled that the project would cause "påtaglig skada" (significant harm) to cultural heritage, reaffirming that Sweden's interpretation of the World Heritage Convention is integrated into national law protecting cultural and natural environments and heritage, rather than directly incorporated as a standalone legal obligation. This decision aligned with the Environmental Code Chapter 3 § 6, which mandates that areas of national interest for cultural heritage must be protected against substantial damage.

[137] Ibid 9.

[138] Swedish National Heritage Board, 'Ansvar och roller i världsarvsarbetet' (4 November 2019, updated 12 February 2025) <https://www.raa.se/aktuellt/aktuella-fragor/regeringsuppdrag/uppdrag-till-riksantikvarieambetet-att-utarbeta-en-nationell-varldsarvsstrategi/ansvar-och-roller-i-varldsarvsarbetet/>.

[139] Ibid.

[140] Swedish National Heritage Board, Världsarv i Sverige. See more <https://www.raa.se/evenemang-och-upplevelser/upplev-kulturarvet/varldsarv-i-sverige/> accessed 15 March 2025.

[141] Swedish Environmental Protection Agency, Världsarv (2024) <https://www.naturvardsverket.se/amnesomraden/skyddad-natur/olika-former-av-naturskydd/varldsarv/> accessed 15 March 2025.

[142] Swedish National Heritage Board (n 138).

[143] Swedish National Heritage Board, 'World Heritage Sites in Sweden' (2014) Swedish National Heritage Board 9 <https://unesco.hemsida.eu/wp-content/uploads/2017/05/World-Heritage-Sites-in-Sweden.pdf> (For example, The support to County Administrative Boards for preparing nominations and periodic reporting in World Heritage matters.)

[144] See Swedish UNESCO Council <https://unesco.se/om-oss/svenska-unescoradet/>.

land use and some of the permits that may affect particular World Heritage properties.[145]

Beyond formally designated authorities, other agencies and authorities contribute to World Heritage management. For instance, the Swedish National Board of Housing, Building, and Planning (*Boverket*) plays a role in integrating the management of cultural values into urban planning,[146] while the Swedish National Property Board (*Statens fastighetsverk*) is one of the national authorities responsible for managing state-owned listed buildings and properties.[147] Every World Heritage site should have a World Heritage Council or equivalent body and a World Heritage Coordinator to oversee and coordinate the efforts of various stakeholders involved in its management.[148] Additionally, property owners, consultants, and non-profit organizations contribute to the conservation and management of historic or listed buildings within World Heritage sites.[149] In Sweden, national authorities provide support and guidance for World Heritage management, while county administrative boards and municipal authorities are responsible for implementing conservation measures at individual UNESCO sites.[150]

As of 2024, Sweden has 15 World Heritage sites – 13 cultural, 1 natural, and 1 mixed – inscribed on the UNESCO World Heritage List.[151] Sweden protects World Heritage sites through multiple legal frameworks. The Historic Environment Act protects ancient monuments and remains, listed buildings, and church heritage.[152] In sites such as Visby, which contain historically significant structures, listed buildings, and religious sites,[153] the Historic Environment Act thus plays an important role. Property owners must obtain permits from the relevant County Administrative Board before making changes that could impact the cultural values of listed buildings, and a permit may be issued if 'special reasons' exist and the proposed changes respect the building's cultural value.[154] Similarly, any changes to ancient monuments require a permit from the County Administrative Board.[155] Unauthorized changes, demolition, or damage to protected cultural heritage may result in different penalties depending on the type of protection: for listed buildings, enforcement usually involves correction orders or fines; for listed ancient monuments, violations may lead to fines or, in rare cases, imprisonment under the Historic Environment Act.[156] State-owned buildings, including those within World Heritage sites, may be designated as listed buildings under the Ordinance on State-Owned Listed Buildings, which regulates their designation, protection,

[145] Swedish National Heritage Board (n 138).

[146] The Swedish National Board of Housing, Building and Planning (*Boverket*), Kulturvärden (2023) <https://www.boverket.se/sv/PBL-kunskapsbanken/teman/kulturvarden/> accessed 15 March 2025.

[147] Swedish National Property Board (*Statens fastighetsverk*), Världsarv <https://www.sfv.se/om-oss/uppdrag/bevara-och-utveckla/varldsarv/>. Out of fifteen World Heritage sites in Sweden, the National Property Board manages properties in eight of these, including Visby inner city. For example, the county governor's residence in Visby <https://www.sfv.se/vara-fastigheter/sverige/gotlands-lan/residenset-i-visby/> and Visby church ruins <https://www.sfv.se/vara-fastigheter/sverige/gotlands-lan/visbys-kyrkoruiner/>.

[148] Swedish National Heritage Board (n 138).

[149] Swedish National Heritage Board (n 138); see also Riksantikvarieämbetet (n 135).

[150] Boverket, 'Världsarvskonventionen' (2024) <https://www.boverket.se/sv/PBL-kunskapsbanken/teman/kulturvarden/andra-Styrmedel-for-kulturvarden/varldsarvskonventionen/> accessed 15 March 2025.

[151] UNESCO, Sweden – State Party (World Heritage Centre) <https://whc.unesco.org/en/statesparties/se/> accessed 15 March 2025.

[152] Historic Environment Act (n 132) Chapters 2, 3, and 4.

[153] UNESCO, Hanseatic Town of Visby (UNESCO World Heritage Centre) <https://whc.unesco.org/en/list/731/>.

[154] Historic Environment Act (n 132) Chapter 3 § 14.

[155] Historic Environment Act (n 132) Chapter 2 §§ 6 and 12.

[156] Historic Environment Act (n 132) Chapter 2 §§ 21, 21a, 21b and Chapter 3 § 18.

and management.[157] While the government is responsible for formally declaring a building as a state-owned listed building, the National Heritage Board oversees permissions for changes to such properties.[158] National authorities managing these buildings are therefore required to apply for a permit from the National Heritage Board before making changes that could impact their cultural values.

The Environmental Code[159] protects valuable natural and cultural environments, including areas of national interest such as Visby.[160] While this Code does not provide explicit, standalone protection for national interest areas, it mandates that activities within these areas must not result in significant harm to the values underlying their designation.[161] Swedish authorities must take these values into account when making decisions. The Swedish Land and Environmental Court of Appeal has reaffirmed that national interest areas must be protected from developments that compromise these values.[162] The government has also expressed expectations that heritage sites of national interest should be harmonized with Sweden's obligations under the World Heritage Convention, a position that is reaffirmed in the National Strategy for World Heritage Work.[163]

The Planning and Building Act regulates the protection of culturally and historically valuable environments and buildings,[164] working in tandem with the Environmental Code in cases where municipal decisions affect national interest areas.[165] At the local level, municipalities apply the Planning and Building Act through

[157] SFS 2013:558, Swedish Ordinance on State-Owned Listed Buildings (*Förordning om statliga byggnadsminnen*).
[158] Ibid §§ 3 and 7.
[159] This protection is established through general principles of environmental governance under Chapter 1 § 1 of the Environmental Code and specific provisions on land and water use that protect areas of national interest under Chapters 3 and 4 of the Environmental Code (n 133).
[160] Region Gotland, Detailed Development Plan for Visby Inner City (2010) 1, 7 <https://gotland.se/byggabo-och-miljo/samhallsplanering/oversiktsplan-och-detaljplaner/detaljplan-for-visby-innerstad> accessed 15 March 2025 (in Swedish). Visby inner city has been designated as an area of national interest for its cultural values according to the Environmental Code Chapter 3 § 6; Swedish National Heritage Board, Riksintressen för kulturmiljövården Gotlands län (The National Interest for Cultural Environments Gotland County) (2024) <https://www.raa.se/app/uploads/2024/05/Gotland-I_riksintressen.pdf> accessed 15 March 2025.
[161] Environmental Code (n 133) Chapter 3 § 6 and Chapter 4; Region Gotland (n 160) 7.
[162] MÖD 2017:20 (n 136) 8–9. The court also emphasized that even activities outside the designated national interest area could still cause significant harm and must be assessed accordingly.
[163] Boverket. *Översyn kriterier riksintressen: Regeringsuppdrag till Boverket att samordna fem myndigheters översyn av kriterierna för riksintresseanspråk (Rapport 2020:26)* (2020) Boverket 1, 108–109 (The report states that most World Heritage sites in Sweden fall partially or entirely within areas designated as national interest for cultural heritage, nature conservation, or outdoor recreation. However, these designations were not originally based on World Heritage status, so the full range of values associated with World Heritage sites, including their buffer zones, is not always reflected in the justifications for national interest. As part of its National Strategy for World Heritage Work, the Swedish National Heritage Board identified the need to improve the legal application of existing laws for World Heritage protection. The board concluded that current legislation is sufficient to meet Sweden's legal obligations under the World Heritage Convention but suggested that national interest areas under Chapter 3 § 6 of the Environmental Code could be used more effectively to protect both the cultural and natural values of World Heritage sites. Furthermore, the National Heritage Board recommended that all World Heritage sites should be designated as national interest areas unless an alternative legal protection framework is deemed more suitable and the strategy suggests updating national interest descriptions to explicitly reference the values of World Heritage sites.); See also Riksantikvarieämbetet (n 135).
[164] This protection is outlined in the Planning and Building Act's general objectives under Chapter 1 § 1 and specific provisions that regulate planning and development with regard to cultural and historical values under Chapter 2 §§ 2, 3, and 6 of the Planning and Building Act (n 134).
[165] Planning and Building Act (n 134) Chapter 2 § 2.

Detailed Development Plans,[166] and through these plans, they ensure that urban development aligns with heritage conservation standards and planning regulations at the local level. These plans function as a regulatory tool that allows municipalities to specify the degree of protection granted to cultural values within the planned areas.[167] These plans can specify requirements such as permitted construction materials, preservation of original architectural details, and even specific color schemes and prohibitions against demolition.[168] Any substantial change to a building's appearance requires a municipal permit,[169] and municipalities have the authority to further define the circumstances under which permits are necessary in their Detailed Development Plans. In addition, the Planning and Building Act integrates protective measures that must always be considered to protect the cultural values of built heritage.[170]

In Visby, Region Gotland is responsible for issuing permit decisions for maintenance, modification, or construction of buildings under the Planning and Building Act, with appeals first directed to the Gotland County Administrative Board.[171] From there, the process depends on the law in question: cases and decisions under the Planning and Building Act and Environmental Code are handled by Sweden's specialized Land and Environment Courts, while those under the Historic Environment Act go through the administrative court system.[172]

In exceptional cases where development pressures may compromise the OUV of a World Heritage site, the County Administrative Board or the government may designate a "special supervision area" under the Planning and Building Act.[173] This designation grants County Administrative Boards greater oversight, including the power to review all municipal decisions on building, land-use, and demolition permits within the designated area.[174] A notable example of this is the Hanseatic Town of Visby, where the Gotland County Administrative Board has designated the national interest area as a special supervision area to strengthen heritage conservation within the World Heritage-designated zone.[175]

Although Sweden does not formally incorporate the World Heritage Convention into domestic law through new legislation, it instead implements the World Heritage Convention through its national legal frameworks. The significance of World Heritage status is considered in legal decision-making, as demonstrated by the Land and Environmental Court of Appeal's ruling against wind power development in a protected area. While the World Heritage des-

[166] Planning and Building Act (n 134) Chapters 4 and 5. (Chapter 4 § 1 of the Planning and Building Act: A detailed development plan is mandatory in all densely populated areas).

[167] Planning and Building Act (n 134) Chapter 4; See also Boverket, Detaljplan och kulturvärden (2023) <https://www.boverket.se/sv/PBL-kunskapsbanken/teman/kulturvarden/kulturvarden-i-plan---och-bygglagen/detaljplan-och-kulturvarden/> accessed 15 March 2025.

[168] Planning and Building Act (n 134) Chapter 4 § 16.

[169] Planning and Building Act (n 134) Chapter 9 § 2.

[170] Planning and Building Act (n 134) Chapter 8 § 13 explicitly prohibits changes that would distort buildings that are particularly valuable from a historical, cultural-historical, environmental, or artistic perspective. §§ 14 and 17 further require that such buildings be maintained in good condition and that any modifications or relocations be carried out with care to preserve their historical, cultural, environmental, and artistic values.

[171] Bhati, Geijer and Epstein (n 117). Due to a quirk of Swedish law, although Swedish regions and municipalities are typically separate entities with separate functions, Region Gotland is both a municipality and a region.

[172] Ibid.

[173] Planning and Building Act (n 134) Chapter 11 § 12; See also Riksantikvarieämbetet (n 135) 61.

[174] Riksantikvarieämbetet (n 135) 61.

[175] Ibid.

ignation does not automatically create new legal restrictions, Swedish authorities must consider its protection when making decisions on land use, environmental permits, and infrastructure projects.[176] The court references the need to harmonize national interest descriptions under the Environmental Code with World Heritage conservation objectives when relevant.[177]

3.1.2 Implementation of the Paris Agreement

The Swedish Constitution requires public institutions to promote sustainable development to ensure a healthy environment for both present and future generations, though it does not set out concrete obligations in relation to the environment.[178] Additionally, as part of Sweden's obligations under the United Nations Framework Convention on Climate Change, public authorities must implement measures to prevent dangerous changes to the climate system and protect the climate system for the benefit of present and future generations.[179] Sweden's environmental objectives, established by the Swedish government, serve as a guiding framework for the entire society's environmental efforts, including authorities, the business community, and other actors, in the transition toward sustainability.[180] Sweden's Environmental Code functions as the primary legal framework for environmental and climate protection, while the Planning and Building Act incorporates climate considerations into urban planning to ensure that new developments align with Sweden's emissions reduction goals. The national implementation of climate and environmental work is coordinated by key agencies, including the Swedish Environmental Protection Agency,[181] the Swedish Energy Agency (*Energimyndigheten*),[182] and the Swedish Climate Policy Council (*Svenska Klimatpolitiska rådet*).[183] These institutions provide technical guidance, monitor emissions trends, submit reports, and propose policy measures to ensure Sweden meets its legally binding climate targets in accordance with the Paris Agreement and EU laws.

As an EU member state, Sweden adheres to both international climate obligations under the Paris Agreement and EU-wide regulations on emissions reduction, energy performance, energy transition, and environmental sustainability. In 2017, the Swedish Parliament (*Riksdagen*)

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[176] MÖD 2017:20 (n 136) 9. The court ruled that authorities responsible for decision-making under various legal provisions must ensure that World Heritage protection requirements are followed and complemented where necessary.

[177] Ibid.

[178] Constitution of Sweden (SFS 1974:152), Chapter 1 Article 2.

[179] Åsa Romson and Kristina Forsbacka, 'The Swedish Climate Policy Framework Including the Climate Act' in Thomas L. Muinzer (ed), *National Climate Change Acts: The Emergence, Form and Nature of National Framework Climate Legislation*. (Hart Publishing 2020) 158.

[180] Sweden's climate policy incorporates the temperature targets outlined in the Paris Agreement within its environmental quality objectives. The "Reduced Climate Impact" objective reflects these global commitments and serves as the cornerstone of Sweden's climate action strategy <https://www.naturvardsverket.se/en/om-miljoarbetet/swedish-environmental-objectives/> accessed 15 March 2025; See also UNFCCC, Sweden's first Biennial Transparency Report under the Paris Agreement (2024) 11 and 76 <https://unfccc.int/documents/645007> accessed 15 March 2025.

[181] See Swedish Environmental Protection Agency, Sweden's Climate Act and Climate Policy Framework <https://www.naturvardsverket.se/en/topics/climate-transition/sveriges-klimatarbete/swedens-climate-act-and-climate-policy-framework/> accessed 15 March 2025.

[182] See Swedish Energy Agency, Sweden's programme for International Climate Initiatives <https://www.energimyndigheten.se/en/cooperation/swedens-program-for-international-climate-initiatives/> accessed 15 March 2025.

[183] Sweden's Climate Policy Council is an independent expert body that evaluates whether the government's overall policy aligns with national climate goals, assesses the societal impact of existing and proposed measures, and identifies areas where further action is needed to meet climate targets. See for more <https://www.klimatpolitiskaradet.se/uppdrag/>.

adopted a Climate Policy Framework, which includes a Climate Act, specific climate targets, and a Climate Policy Council to support Sweden's obligation to reduce greenhouse gas emissions in line with the Paris Agreement and EU regulations.[184] The Climate Policy Framework sets a long-term climate goal of achieving net-zero greenhouse gas emissions by 2045, with interim targets aligned with the EU's binding commitment to reduce greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels.[185] The Climate Act establishes a legal duty on the government to pursue climate policies that meet national climate targets and requires structured planning, accountability, and continuous policy evaluation. However, since the Act is general in scope and does not contain enforceable provisions on climate emissions or specific policy measures, it is not included in Sweden's primary environmental protection legislation.[186]

The Climate Policy Framework and the Climate Act legally require the government to implement climate policies in line with the EU Effort Sharing Regulation and the EU Emissions Trading System.[187] Sweden's energy policy, aligned with the EU's three pillars – security of supply, competitiveness, and sustainability – aims for efficient, low-impact energy use.[188] Key energy policy targets include a 50% increase in energy efficiency by 2030 (compared to 2005) and 100% fossil-free electricity production by 2040.[189] Additionally, the EU legislation establishes energy standards for buildings and promotes energy efficiency improvements in historic structures but does not impose mandatory requirements, which allow member states discretion in their implementation.[190] Currently, the Swedish National Board of Housing, Building and Planning is assessing the revised Energy Performance of Building Directives and its possible impact on Sweden.[191]

The enforceability of the Paris Agreement in Sweden remains limited due to procedural and constitutional constraints.[192] As Hellner notes, Swedish courts have traditionally exercised restraint in judicial review, including climate-related cases, due to the absence of a strong tradition of constitutional judicial oversight.[193] This contrasts with the legal interpretations in other jurisdictions, such as the Netherlands,[194] and at the international level, such as the Euro-

[184] Government Offices of Sweden, Sweden's Climate Policy Framework (2021) <https://www.government.se/articles/2021/03/swedens-climate-policy-framework/> accessed 15 March 2025; The Climate Act (2017:720); Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').

[185] Ibid.

[186] Romson and Forsbacka (n 179) 154. (Also concluding at 173 "The Climate Act is general in nature and…. does not provide for a legal review of the government's actions or inactions.").

[187] Romson and Forsbacka (n 179) 153–174.

[188] See UNFCCC (n 180) 81.

[189] Ibid. (In 2024, the electricity production goal was revised from "renewable" to "fossil-free," now including nuclear power.)

[190] Bhati, Geijer and Epstein (n 117).

[191] Boverket, Direktiv för byggnaders energiprestanda, EPBD (2025) <https://www.boverket.se/sv/byggande/uppdrag/direktiv-for-byggnaders-energiprestanda/>.

[192] Agnes Hellner, 'Climate Change Mitigation through Civil Procedure? Justiciability in Two Nordic Climate Cases' (2024) 14 International Journal of Procedural Law 25.

[193] Ibid.

[194] The Netherlands v Urgenda Foundation (Urgenda II) (The Hague Court of Appeal, 200.178.245/01, 9 October 2018) and The Netherlands v Urgenda Foundation (Urgenda III), The Supreme Court of the Netherlands, (19/00135, 20 December 2019). In both cases, the Dutch courts acknowledged the Paris Agreement as setting binding climate targets and ruled that the Dutch government had a duty to reduce emissions in line with its international commitments, particularly under Articles 2 and 8 of the European Convention on Human Rights (ECHR).

pean Court of Human Rights (ECtHR),[195] where courts have ruled on the binding nature of climate obligations and the legal duty of states to act against climate change.[196]

However, the recent Swedish Supreme Court ruling in the *Aurora* case marks a significant development in climate litigation.[197] This case, brought as a group action against the state, challenged Sweden's failure to implement adequate climate measures constituted a violation of fundamental rights under the European Convention on Human Rights and EU law.[198] Though the Supreme Court dismissed the case on procedural grounds, it acknowledged that human rights-based climate claims could, in principle, be justiciable under Swedish and European law.[199]

While Swedish courts remain cautious in climate litigation, public authorities are still expected to uphold Sweden's international obligations under the Paris Agreement, the European Convention on Human Rights, and the EU law.[200] The *Aurora* case reaffirms strict standing requirements and affirms that climate policy falls under the political, not judicial, domain. However, it leaves room for future claims by associations meeting specific criteria and aligns with the ECtHR's decision in *Verein KlimaSeniorinnen*, which recognizes associations' right to challenge state inaction on climate change as a human rights violation.[201] While judicial reluctance persists, the decision suggests a potential opening for future climate litigation.

[195] Verein KlimaSeniorinnen Schweiz and Others v. Switzerland, Application No. 53600/20, Judgment of 9 April 2024, European Court of Human Rights, Grand Chamber. The ECtHR held that states have a positive obligation under Article 8 of the ECHR to take sufficient measures to combat climate change and protect individuals from its serious adverse effects. The court further emphasized that while states have a wide margin of appreciation in selecting the means of implementation, they have a narrow margin in setting effective climate targets. The ECtHR found that Switzerland failed to quantify national greenhouse gas emission limitations and did not act in good time, appropriately, or consistently in implementing its climate policy, thereby exceeding its margin of appreciation.

[196] Brian J Preston (n 112); Agnes Hellner (n 192).

[197] Swedish Supreme Court (Högsta domstolen) Ö 7177-23, decision of 19 February 2025 (Aurora Case). Swedish Supreme Court.

[198] Ibid. The claimants argued that Sweden's inaction on emissions reductions and carbon sequestration obligations endangered their rights under Articles 2 (right to life) and 8 (right to private and family life) of the ECHR.

[199] Ibid. This ruling highlighted the existing legal barriers to bringing climate litigation in Sweden, particularly the strict interpretation of standing requirements and the role of the judiciary in reviewing government climate policies. Notably, the Paris Agreement was mentioned only in the dissenting opinion, which reinforces that it does not impose directly enforceable obligations in Swedish law.

[200] Jonas Ebbesson, 'Statens klimatansvar kan prövas i domstol' Svenska Dagbladet (31 October 2022) <https://www.svd.se/a/vegk9j/jonas-ebbesson-statens-klimatansvar-kan-provas-idomstol> accessed 15 March 2025; Jonas Ebbesson, 'I rättsstaten kan statens klimatansvar prövas i domstol' Advokaten, nr. 9 (2023) <https://www.advokaten.se/tidigare-nummer/2023/nr-9-2023-argang-89/i-rattsstaten-kan-statens-klimatansvar-provas-i-domstol/> accessed 15 March 2025. As Swedish legal scholars highlight, Sweden's commitments under these frameworks are not merely political but create binding legal duties that may be enforced through judicial review. Courts in various jurisdictions, including the Netherlands, Germany, and France, have ruled that states must align their national policies with international climate and human rights obligations. In Sweden, too, the legal framework – including the Climate Act, EU regulations, and constitutional provisions on sustainability – must be understood in the context of international legal norms. Thus, Swedish authorities have a legal responsibility to integrate and interpret domestic laws in a manner that ensures compliance with these international commitments.

[201] Swedish Supreme Court. "The action regarding climate change brought against the state is inadmissible in court" (Ö 7177-23). Supreme Court of Sweden, (February 19, 2025) <https://www.domstol.se/en/supreme-court/news-archive/the-action-regarding-climate-change-brought-against-the-state-is-inadmissible-in-court/> accessed 15 March 2025.

3.1.3 World Heritage Site of Hanseatic Town of Visby, Sweden

Visby was designated a UNESCO World Heritage site in 1995,[202] making its protection and management a matter of global relevance.[203] UNESCO describes Visby as "a unique example of a northern European medieval walled trading town, with a preserved and notably complete townscape and an assemblage of high-quality historic structures."[204] Visby is part of the World Heritage Cities Programme and shares its experience in managing heritage alongside urban sustainability, and the 2024 Periodic Reporting document notes that climate change is already affecting the site, with reported risks including sea-level rise, storm surges that could damage areas near the medieval town wall, and increased drought and erosion, all of which may impact the site's outstanding universal value.[205]

Sweden fulfils its obligation under the World Heritage Convention through national laws, primarily the Planning and Building Act, the Historic Environment Act, and the Environmental Code. At the local level, these laws are implemented by Region Gotland, in its capacity as the municipality of Gotland, which oversees planning and heritage conservation within Visby inner city, and the Gotland County Administrative Board, which ensures compliance with national heritage and environmental protection laws and oversees listed buildings, ruins, ancient monuments, and the national interest area.[206] The 1,045 properties within the Plan area are predominantly under private ownership, with additional holdings by the state, Region Gotland, religious institutions, and real estate entities, including properties managed by the Swedish National Property Board.[207]

To regulate land use and conservation within the World Heritage site, Region Gotland adopted the Detailed Development Plan for Visby inner city in 2010,[208] supplemented by the Building Regulation,[209] which provides property owners with guidance on maintenance, restoration, and adaptation.[210] These local regulations reflect Sweden's international obligations and national conservation framework by ensuring that all interventions respect the cultural values of Visby's historic urban landscape.[211] As Visby is also designated as an area of national interest for cultural value, any changes to buildings and the urban fabric must not distort their historic character.[212] Property owners require permits for any changes.

According to the Visby inner city Detailed Plan, all development, maintenance, and management efforts must prioritize cultural values.[213] The Plan preserves existing land use but allows changes only if compatible with the site's

[202] UNESCO (n 153).

[203] Region Gotland, Byggnadsordning för Visby innerstad [Building Regulation for Visby Inner City], 2010 pp. 1–83, 6 <https://dokument.gotland.se/IntegrationService.svc/doc/content/16383> accessed 15 March 2024 (in Swedish).

[204] UNESCO (n 153).

[205] See UNESCO World Heritage Cities Programme https://whc.unesco.org/en/cities/; UNESCO, Periodic Reporting Cycle III – Section II: Hanseatic Town of Visby (2024) World Heritage Centre <https://whc.unesco.org/en/list/731/documents/>.

[206] Detailed Plan (n 160) 5.

[207] Detailed Plan (n 160) 9.

[208] Detailed Plan (n 160).

[209] Building Regulation (n 203). This Regulation is linked to Visby's detailed development plan and the Swedish Planning and Building Act and emphasizes the preservation of cultural values in urban planning and construction. See also, Detailed Plan (n 160) 3–4 (It serves as both a reference for interpreting the zoning plan and an educational tool for property owners, which clarifies historical building features and appropriate conservation methods. It assists property owners in making well-informed decisions regarding maintenance and management.)

[210] Detailed Plan (n 160) 3–4.

[211] Detailed Development (n 160); Building Regulation (n 203).

[212] Detailed Plan (n 160) 5–6 and 10.

[213] Building Regulation (n 203) 35.

cultural values.[214] Visby's continued development as both a living environment and tourist destination depends on maintaining and conserving its historic character.[215] The Plan does not prevent development that allows for adaptation to modern housing standards while respecting the cultural values of Visby inner city.[216]

The Building Regulation guides property owners on how technological advancement, including energy conservation and heating systems, can be adapted while preserving the special character of Visby inner city.[217] It also promotes that additions, repairs, maintenance, and technological adaptations must be carried out using traditional materials and methods, such as lime-based mortar and traditional wooden windows.[218] Contemporary interventions must be subtle and subordinate to the historic architecture rather than detract from the built heritage.[219] In some cases, modern sustainability requirements must be adjusted to prioritize cultural values over energy measures.[220]

The Building Regulation, while only guiding, gives specific instructions on how the Detailed Plan should be implemented. It explicitly states that roofs in Visby inner city should remain free from visible technical equipment, including satellite dishes, solar panels, and heating units.[221] Solar panels, in particular, face stringent restrictions, as their external impact is likened to that of skylights, which are subject to severe limitations.[222] The Regulation acknowledges the trade-offs between energy efficiency and heritage protection and offers alternative solutions, such as internal insulation, energy-efficient inner windows and efficient heating systems, rather than extensive exterior modifications.[223]

While the Detailed Development Plan and Building Regulation for Visby inner city emphasize energy efficiency and conservation, they were developed before the Paris Agreement (2015) and Agenda 2030 for sustainable development. However, the Visby World Heritage Strategy 2020–2030, although not legally binding, explicitly links Visby's conservation efforts with global sustainability goals and international climate goals, including Sweden's obligation to a fossil-free society by 2045.[224] Additionally, it underscores that climate adaptation and mitigation measures in Visby should align with Sweden's national environmental and climate policies.[225] The Strategy's climate and energy sections highlight the importance of integrating energy efficiency and renewable energy measures while preserving Visby's cultural heritage in order to ensure that modern sustainability efforts complement rather than compromise heritage conservation and climate resilience.[226]

The Detailed Plan for Visby inner city states that its primary objective is to enable sustainable development while preserving the built cultural heritage.[227] It emphasizes that land use should largely remain unchanged, as nearly all land within the area is already occupied by

[214] Detailed Plan (n 160) 10.
[215] Detailed Plan (n 160) 2.
[216] Detailed Plan (n 160) 2–3.
[217] Detailed Plan (n 160) 3; Building Regulation (n 203) 78–79.
[218] Detailed Plan (n 160) 11; Building Regulation (n 203) 10.
[219] Detailed Plan (n 160) 11.
[220] Building Regulation (n 203) 35.
[221] Building Regulation (n 203) 39.
[222] Ibid.
[223] Ibid 78–79.
[224] Region Gotland, 'Strategi och handlingsplan för världsarvet Hansestaden Visby 2020–2030' (2020) Region Gotland, 1–105, at 15 and 57. This document acts as a management plan required by UNESCO for all World Heritage Sites and ensures that Visby's heritage remains protected while supporting modern urban life and sustainability efforts.
[225] Ibid 55–59.
[226] Ibid.
[227] Detailed Plan (n 160) 14 and 15.

valuable buildings.[228] Traffic levels are not expected to increase under the plan.[229] Additionally, as the Plan acknowledges, the entire inner city, including the city wall and church ruins, is designated as a permanent ancient monument under the Historic Environment Act, meaning any ground disturbances, such as excavation or covering, require authorization from the County Administrative Board.[230] The Plan further specifies that new activities require permits under the Environmental Code and the Planning and Building Act.[231] Regarding air quality, the plan references the 2003 *Handlingsplan* for Visby inner city, which indicates that measurements of sulfur dioxide and nitrogen oxides show low levels.[232] The municipality has also expressed an ambition to transition progressively to renewable energy sources to maintain these air quality standards.[233] In terms of infrastructure, Gotlands Energi AB (GEAB – a local energy company), provides district heating,[234] though its coverage remains limited. Electricity and telecommunication services, including broadband, are available through GEAB and Telia.[235] Based on these considerations, the Detailed Plan concludes that the plan is not expected to result in significant environmental impact.[236]

To support property owners, the Building Regulation provides guidance on financial[237] and technical[238] assistance available for conservation, maintenance, and restoration efforts within the World Heritage site. For instance, the municipality's energy advisors, such as Energicentrum Gotland, can advise on the financial and technical trade-offs for integrating energy measures with heritage preservation.[239]

3.2 India

India ratified the World Heritage Convention in 1977[240] and the Paris Agreement in 2016[241] and implemented its international legal obligations into its domestic legal system through existing legal and policy frameworks rather than direct incorporation. As a dualist state, India does not automatically incorporate international treaties into its legal framework.[242] Instead, under Article 253 of the Indian Constitution, Parliament must enact legislation to give effect to treaty obligations before they become directly enforceable at the national level.[243] However, India's engagement with international law has been described as "formal dualism, functional monism," meaning that while treaties do not have automatic domestic applicability, courts and policymakers frequently internalize international legal norms

[228] Ibid 15.
[229] Ibid.
[230] Ibid 16; Building Regulation (n 203) 10.
[231] Detailed Plan (n 160) 15.
[232] Ibid.
[233] Ibid.
[234] Ibid.
[235] Detailed Plan (n 160) 15.
[236] Ibid.
[237] Ibid 10. The Building Regulation (n 203) also specifies that property owners may apply for financial support to cover the additional costs associated with using traditional materials and methods. The Gotland County Administrative Board is responsible for administering grants for these conservation-related expenses.
[238] Building Regulation (n 203) 10. The Regulation also states that before undertaking any changes or renovation, an antiquarian pre-study must be conducted to assess cultural value and impact. Additionally, property owners are encouraged to consult with specialized craftsmen and heritage conservation experts who are knowledgeable in historical building techniques and materials.
[239] Building Regulation (n 203) 78–79.
[240] UNESCO (n 15).
[241] UNFCCC (n 16).
[242] Vivek Sehrawat, 'Implementation of International Law in Indian Legal System' (2021) 31 Florida Journal of International Law 97.
[243] V. G. Hegde, 'Indian Courts and International Law' (2010) 23 Leiden Journal of International Law 53; Vivek Sehrawat (n 186); Prabhash Ranjan, 'The Supreme Court of India and International Law: A Topsy-Turvy Journey from Dualism to Monism' (2022) 43 Liverpool Law Review 571.

without explicit legislative action.[244] Formally, the power to enter into international agreements rests with the Executive, while their domestic implementation requires Parliamentary approval.[245] In practice, international obligations are often integrated through policy measures, executive actions, and judicial interpretation without necessarily undergoing legislative scrutiny.[246] The Supreme Court of India has gradually shifted away from its formal dualist tradition toward a more monist approach in its jurisprudence, incorporating international legal norms – including treaties and customary international law – into domestic law, provided they are not inconsistent with national legislation.[247] The Supreme Court of India has increasingly invoked international law to interpret constitutional provisions and statutory laws, particularly in human rights and environmental protection cases, where it has read international obligations into domestic law even without legislative enactment.[248]

3.2.1 Implementation of the World Heritage Convention

India fulfills its obligations under the World Heritage Convention through its existing national legal framework. As of 2024, India has 43 World Heritage sites – 35 cultural, 7 natural, and 1 mixed – inscribed on the UNESCO World Heritage List.[249] The Directive Principles of State Policy in the Constitution of India mandate each state to "protect every monument or place or object of artistic or historic interest" that has been declared of national importance.[250] Additionally, the Constitution also emphasizes the fundamental duty of every citizen to value and preserve India's rich heritage.[251]

The Central Government, through the Ministry of Culture, is responsible for the overall implementation of obligations under the World Heritage Convention and its attached office, the Archaeological Survey of India (ASI), is the nodal agency responsible for World Heritage matters.[252] The ASI is the premier institution for archaeological research, heritage conservation, and site management in India.[253] It is primarily responsible for the maintenance, preservation, and protection of ancient monuments, archaeological sites, and remains of national importance and regulates all archaeological activities across the country.

The Ancient Monuments and Archaeological Sites and Remains Act 1958 serves as the primary legislative instrument for the protection, conservation, and regulation of monuments, archaeological sites, and remains of national importance. This Act defines the parameters of reconstruction, repair, and renovation[254] and establishes regulated and prohibited areas around protected sites to control development and ensure conservation.[255] It also requires competent

[244] Aparna Chandra, 'India and international law: formal dualism, functional monism' (2017) 57 Indian Journal of International Law 25.
[245] Vivek Sehrawat (n 242); Prabhash Ranjan (n 243).
[246] Aparna Chandra (n 244); Prabhash Ranjan (n 243).
[247] Vivek Sehrawat (n 242); V. G. Hegde (n 243); Prabhash Ranjan (n 243).
[248] V. G. Hegde (n 243); Prabhash Ranjan (n 243); Eeshan Chaturvedi, 'Climate Change Litigation: Indian Perspective' (2021) 22 German Law Journal 1459.
[249] UNESCO, India- State Party (World Heritage Centre) <https://whc.unesco.org/en/statesparties/in/> accessed 15 March 2025.
[250] Constitution of India, 1950, Article 49.
[251] Constitution of India, 1950, Article 51A (f).
[252] Niti Aayog, Improving Heritage Management in India, Working Group Report (2020) Government of India <https://www.niti.gov.in/sites/default/files/2023-03/ImprovingHeritageManagement-in-India.pdf>.
[253] Archaeological Survey of India (ASI). See for more information <https://asi.nic.in/>. Headquartered in New Delhi, the ASI oversees conservation efforts through its states offices, each responsible for the protection of designated historical sites and monuments.
[254] Ancient Monuments and Archaeological Sites and Remains Act, 1958, §§ 2(k), 2(m), and 20C.
[255] Ibid §§ 20A and 20B.

authorities to draft heritage bye-laws for nationally protected sites, which provide site-specific guidelines on construction, infrastructure, and preservation to balance urban growth with heritage conservation.[256] Unauthorized destruction, removal, damage, defacement, or misuse of protected monuments, as well as illegal construction in prohibited or regulated areas, can result in penalties, including fines and imprisonment.[257] Additionally, the National Monument Authority, also under the Ministry of Culture, advises the Central Government on the grading and classification of monuments, regulates development in prohibited and regulated areas, and scrutinizes and approves heritage bye-laws for protected sites under this Act.[258]

Beyond national legislation, state governments and urban local bodies have enacted their own heritage protection laws, along with Town and Country Planning Acts and building bye-laws, which establish additional regulatory frameworks for heritage conservation at the state and municipal levels. These state-specific mechanisms will be further discussed in the 3.2.3 section, with a particular focus on the World Heritage city of Jaipur. Additionally, property owners, consultants, and non-profit organizations, including the INTACH (Indian Trust for Architectural and Cultural Heritage), DRONAH (Development and Research Organisation for Nature, Arts and Heritage), and JVF (Jaipur Virasat Foundation), play an important role in the heritage conservation in World Heritage sites.[259] They contribute by maintaining and conserving both public and private heritage properties, developing architectural and façade guidelines, conducting heritage impact assessments, and promoting sustainable development initiatives that align with national and global conservation goals.

3.2.2 Implementation of the Paris Agreement

As a Paris Agreement signatory, India has pledged ambitious NDCs to global climate governance. In 2022, it updated its NDCs for 2030, committing to a 45% reduction in emission intensity from 2005 levels, ensuring 50% of installed electric capacity comes from non-fossil fuel sources, and pursuing net-zero emissions by 2070.[260] India implements its international commitment to mitigate climate change through a combination of domestic laws, policies, national and state action plans, and judicial interventions. The Ministry of Environment, Forest and Climate Change (MoEF&CC) serves as the central authority responsible for the representation of India in climate change negotiations under the UNFCCC framework and oversees the National Action Plan on Climate Change and plays an important role in linking national policies to State Action Plans on Climate Change.[261]

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[256] Ibid § 20E.

[257] Ibid §§ 30, 30A, 30B and 30C.

[258] National Monuments Authority. See for more information <https://www.nma.gov.in/>.

[259] Shikha Jain and Rohit Jigyasu, 'Urban Heritage Conservation and Management in Jaipur' in Ana P. Roders and Francesco Bandarin (eds), *Reshaping Urban Conservation: Creativity, Heritage and the City* (2nd edn, Springer Nature 2024) 277–296; Shikha Jain, 'Heritage Management and Conservation Planning for Historic Cities in India: The Case of Jaipur and Ajmer' in M. Chalana and A. Krishna (eds), *Heritage Conservation in Postcolonial India: Approaches and Challenges* (Routledge 2020) 52–69; The nomination text and management plans for Jaipur City's World Heritage status acknowledge the contributions of non-governmental organizations in the conservation and management of built heritage. See World Heritage Jaipur site, UNESCO World Heritage Centre <https://whc.unesco.org/en/list/1605/documents/> accessed 24 February 2025.

[260] GOI, India's Updated First Nationally Determined Contribution Under Paris Agreement (2021–2030), Government of India, Submission to UNFCCC (2022) <https://unfccc.int/documents/611410> accessed 15 March 2025.

[261] MoEF&CC, Climate Change, Ministry of Environment, Forest and Climate Change <https://moef.gov.in/climate-change>.

The National Action Plan on Climate Change (NAPCC), launched in 2008, outlines eight national missions to guide national climate mitigation and adaptation efforts.[262] The State Action Plans on Climate Change operationalize these strategies at the state level.[263] Additionally, urban initiatives such as the Smart Cities Mission, India Cooling Action Plan, and Heritage City Development and Augmentation Yojana (HRIDAY) integrate sustainability into urban planning, heritage conservation, and infrastructure development.[264]

While India lacks specific climate change legislation, several statutes address various aspects of climate governance, including mitigation, adaptation, and environmental protection.[265] The Indian Constitution mandates environmental responsibility, which requires the state to protect and improve the environment,[266] while it places a fundamental duty on citizens to protect the natural environment.[267] Key environmental laws underpinning India's climate obligations include the Wild Life (Protection) Act, 1972, the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environmental (Protection) Act, 1986, the Energy Conservation Act, 2001, with its 2022 amendment, and the Electricity Act, 2003. These laws collectively aim to prevent environmental degradation, protect wildlife, enhance energy efficiency, and facilitate the transition to renewable energy sources.

Institutional mechanisms and national standards further support the enforcement of climate policies. The Bureau of Energy Efficiency (BEE), under the Energy Conservation Act, sets energy efficiency benchmarks, including the Energy Conservation Building Code (ECBC), 2017, applicable to commercial buildings, and the Residential Energy Conservation Building Code (Eco Niwas Samhita), Parts I and II (2018, 2021), applicable to residential structures.[268] National construction standards, including the National Building Code (NBC), 2016, and the Model Building Bye-Laws (MBBL), 2016, provide guidelines for sustainable urban development, energy-efficient building design, and heritage conservation.[269]

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[262] MoEF&CC, National Action Plan on Climate Change, Ministry of Environment, Forest and Climate Change, Government of India <https://moef.gov.in/national-action-plan-on-climate-change> accessed 15 March 2025. The NAPCC includes eight national missions focused on energy efficiency, renewable energy expansion, sustainable habitat, water conservation, and ecosystem resilience.

[263] MoEF&CC, State Action Plan on Climate Change, Ministry of Environment, Forest and Climate Change, Government of India <https://moef.gov.in/state-action-plan-on-climate-change> accessed 15 March 2025.

[264] MoHUA, Schemes/ Programmes, Ministry of Housing and Urban Affairs, Government of India <https://mohua.gov.in/cms/schemes-or-programmes.php> accessed 15 March 2025; MoEF&CC, India Cooling Action Plan, Ozone Cell, Ministry of Environment, Forest and Climate Change, Government of India (2019) <https://ozonecell.nic.in/home-page/india-cooling-action-plan/> accessed 15 March 2025.

[265] Eeshan Chaturvedi (n 248).

[266] Constitution of India, Article 48A.

[267] Constitution of India, Article 51A (g).

[268] BEE, Eco-Niwas Samhita 2018 (Energy Conservation Building Code for Residential Buildings) Part I: Building Envelope, Bureau of Energy Efficiency, Ministry of Power, Government of India (2018) <https://beeindia.gov.in/en/eco-niwas-samhita-ens> accessed 15 March 2025; BEE, Eco Niwas Samhita 2021: Code Compliance and Part II –Electro-Mechanical and Renewable Energy Systems (Energy Conservation Building Code for Residential Buildings), Bureau of Energy Efficiency, Ministry of Power, Government of India (2021) <https://beeindia.gov.in/en/eco-niwas-samhita-ens> accessed 15 March 2025; BEE, Energy Conservation Building Code 2017 (Energy Conservation Building Code for Commercial Buildings- With Amendments up to 2020), Bureau of Energy Efficiency, Ministry of Power, Government of India (2021) <https://beeindia.gov.in/en/energy-conservation-building-code-ecbc> accessed 15 March 2025.

[269] BIS, National Building Code of India 2016, Bureau of Indian Standards, Government of India (2016) <https://www.bis.gov.in/standards/technical-department/national-building-code/> accessed 15 March 2025; MoHUA, Model Building Bye-Laws 2016, Ministry of Housing and Urban Affairs, Government of India, (2016)

However, Singh and Kolluri argue that India's reliance on sector-specific laws and policy frameworks creates inconsistencies and gaps in climate governance.[270] Although Indian states, including Rajasthan, play a crucial role in climate action, the federal structure often reinforces central dominance.[271] They recommend strengthening coordination mechanisms and providing states with financial and technical support to update and implement their State Action Plans on Climate Change.[272] Decentralization should be supported by formal legal mandates that empower local governments to develop and implement region-specific adaptation plans, as subnational authorities are better positioned to address distinct regional risks and enhance targeted responses.[273] In contrast, mitigation efforts require coordinated national regulation to ensure consistency, prevent free-riding, and align with broader emissions reduction targets.[274]

Nonetheless, Indian courts, including the Supreme Court, High Courts, and the National Green Tribunal, have actively interpreted constitutional and statutory rights in light of international legal obligations.[275] By embracing public interest litigation and broadly interpreting substantive and procedural rights, the courts have "prodded an otherwise apathetic executive machinery into action" and shaped environmental jurisprudence.[276] As a result, "climate concerns are finding their way to Indian courts even in the absence of a climate law."[277]

In *Ridhima Pandey v. Union of India*,[278] a youth-led litigation urged the National Green Tribunal to direct the government and environmental regulatory authorities to formulate new policies or amend existing frameworks to incorporate climate-related considerations into decision-making processes. However, the Green Tribunal declined, holding that that India's environmental policies already align with the Paris Agreement and other international instruments, and that climate-related considerations are integrated into the environmental clearance process.

Similarly, in *M.K. Ranjitsinh v. Union of India and ors*. (2024),[279] the Supreme Court of India recognized the absence of an umbrella climate legislation despite existing policies addressing environmental concerns. The Court created a new fundamental right to be free from the adverse effects of climate change, holding that the right to equality under Article 14 and the right to life under Article 21 must be interpreted in light of India's domestic and international obligations, as well as the scientific consensus on climate change. This landmark ruling suggests that India's commitments under the Paris Agreement, particularly regarding protection from climate-related harm, may, in the future, be adjudicated under constitutional law.

<https://mohua.gov.in/upload/uploadfiles/files/MBBL.pdf> accessed 15 March 2025; MoHUA, Addendum to Model Building Bye-Laws 2016 – Cooling Action Plan, Ministry of Housing and Urban Affairs, Government of India (2016) <https://mohua.gov.in/cms/model-acts.php> accessed 15 March 2025.

[270] Anoop Singh and Swetha Kolluri, Climate Change Governance in India: Building the Institutional Framework (CSEP Discussion Paper 21) (2025) Centre for Social and Economic Progress, New Delhi, 11 <https://csep.org/discussion-note/climate-change-governance-in-india-building-the-institutional-framework/>.

[271] Ibid 11.

[272] Ibid 21–31.

[273] Ibid 7–8 and 21–31.

[274] Ibid.

[275] Shibani Ghosh, 'Litigating Climate Claims in India' (2020) 114 AJIL Unbound 45; Eeshan Chaturvedi (n 248).

[276] Shibani Ghosh (n 275) 46.

[277] Ibid.

[278] Ridhima Pandey vs. Union of India & Ors., Application No. 187/2017, National Green Tribunal India (15 January 2019).

[279] M. K. Ranjitsinh & Ors. versus Union of India & Ors. 2024 INSC 280.

3.2.3 World Heritage Site of Jaipur City, Rajasthan, India

Jaipur city was inscribed on the World Heritage List in 2019, which recognizes its outstanding universal value as "an exceptional example of indigenous city planning and construction in South Asia."[280] Jaipur city is part of the World Heritage Cities Programme, although the 2023 Periodic Reporting document does not identify climate change impacts as currently relevant to the site, it confirms that the Policy Document on the Impacts of Climate Change on World Heritage Properties is being used in the drafting of the Special Area Heritage Plan, which indicate recognition of future climate-related risks and the importance of integrating mitigation and adaptation into site management.[281] India fulfils its obligation under the World Heritage Convention through national, state and local legal frameworks.

At the state level, the Rajasthan Monuments, Archaeological Sites and Antiquities Act of 1961 (amended in 2006 and 2007), along with the Rajasthan Monuments, Archaeological Sites and Antiquities Rules of 1968, regulate conservation and maintenance efforts. Rajasthan's climate change governance framework integrates the objectives of India's NAPCC at the sub-national level through its State Action Plan on Climate Change (SAPCC). The first Rajasthan SAPCC was published in 2014[282] and later updated in 2022[283] in collaboration with the Indian Institute of Technology Bombay. The updated plan aligns with the missions of the NAPCC while adapting them to Rajasthan's specific climatic vulnerabilities and development priorities.[284] Among others, it focuses on enhancing energy efficiency, promoting the use of renewable energy, and advancing sustainable urban development.[285] These goals are pursued through a combination of national policies, schemes, and guidelines, as well as state-level policies, strategies, and institutional mechanisms, particularly in the sectors of energy and urban governance.[286]

At the Rajasthan state level, the key state departments, including the Department of Archaeology and Museums, the Devasthan Department, the Tourism Department, and the Department of Town Planning, play crucial roles in the preservation and protection of cultural heritage. Jaipur Royal Family Estate Management manages royal properties, including the City Palace, Jaigarh Fort, Maharaja Sawai Man Singh II Museum, restaurants, schools, and other enterprises.

At the local level, multiple legal and institutional frameworks oversee heritage conservation and urban planning in Jaipur walled city. The Jaipur (Building) Bye-laws 1970 and the Rajasthan Municipalities Act 2009 (with amendments) provide the foundational framework for architectural control and urban development. Additionally, property owners, consultants, and non-profit organizations, including INTACH, DRO-

[280] UNESCO World Heritage Centre, Jaipur City (2019) <https://whc.unesco.org/en/list/1605/>.

[281] UNESCO World Heritage Cities Programme (n 205); UNESCO, Periodic Reporting Cycle III – Section II: Jaipur City, Rajasthan (2023) UNESCO World Heritage Centre <https://whc.unesco.org/en/list/1605/documents/>.

[282] Government of Rajasthan, Rajasthan State Action Plan on Climate Change (2014) Department of Environment, Government of Rajasthan, in collaboration with The Energy and Resources Institute (TERI) <https://moef.gov.in/state-action-plan-on-climate-change>.

[283] Government of Rajasthan, Rajasthan State Action Plan on Climate Change (2022) Department of Environment and Climate Change, Government of Rajasthan, in collaboration with Indian Institute of Technology Bombay <https://www.nitiforstates.gov.in/policy-viewer?id=GSSNAD000285>.

[284] Ibid.

[285] Ibid.

[286] Ibid.

NAH and Jaipur Virasat Foundation, contribute to conservation efforts and capacity-building.

The Jaipur Nagar Nigam Heritage (Jaipur Municipal Corporation Heritage) is the municipality responsible for the planning, management, and conservation efforts within Jaipur walled city. Conservation and urban development efforts are further guided by Jaipur's Master Development Plan 2025 and Jaipur Smart City initiatives, which integrate heritage conservation with sustainability.

Following Jaipur city's World Heritage designation, the Jaipur Municipal Corporation Heritage enacted Jaipur Nagar Nigam Heritage (Walled City) Heritage Conservation and Protection Byelaws – 2020 (Bye-laws 2020) and Nagar Nigam Jaipur Heritage Regulation – 2022 (Regulation 2022) to enhance regulatory oversight, control development, and ensure conservation in the historic urban environment.[287] These instruments govern property use, preservation, restoration, and urban sustainability within the Jaipur walled city and buffer zone.

The Bye-laws 2020 establish a comprehensive conservation and governance framework and regulate heritage identification, documentation, and architectural controls of heritage assets. The Bye-laws 2020 establish detailed heritage grading, conservation guidelines, and governance structures. Jaipur city's heritage management follows a three-tier institutional structure, which includes the State Heritage Committee, the Technical Heritage Committee, and the Heritage Cell, together responsible for overseeing conservation efforts, issuing permissions, and coordinating between various stakeholders.[288]

Jaipur's urban heritage conservation is further guided by the Regulation 2022, which builds upon the Bye-laws 2020 by introducing more detailed architectural control measures, heritage impact assessment requirements, and specific urban design guidelines for development within the UNESCO World Heritage boundary and buffer zone. These regulations dictate permissible modifications, height restrictions, color schemes, and façade control measures. Additionally, the regulations include a map of the UNESCO site boundary and buffer zone to indicate that projects within this zone must also comply with international and national heritage conservation and management norms.

Any demolition, new construction, redevelopment, repair, replacement, or renovation in Jaipur walled city conservation area requires prior approval from the competent authority before starting any work.[289] Unauthorized modifications can lead to penalties.[290] Heritage Cell, along with competent authorities, reviews the applications and decides whether to grant or deny them.[291] Additionally, granted permits can be revoked if the work is later found to negatively impact heritage value or safety.[292] The Regulations 2022 further reinforce these provisions, stipulating that any intervention impacting building façades, corridors, or structures facing the main bazaars requires prior approval from the Jaipur Municipal Corporation Heritage.[293]

Both the Bye-laws 2020 and the Regulation 2022 acknowledge and promote the importance of sustainable urban development while en-

[287] JMCH, Jaipur Nagar Nigam Heritage (Walled City) Heritage Conservation and Protection Byelaws – 2020 (herein after Bye-laws 2020) Jaipur Municipal Corporation Heritage, Government of Rajasthan (2020) <http://pinkcity.jaipurmcheritage.org/> accessed 15 March 2025; JMCH, Nagar Nigam Jaipur Heritage Regulation – 2022 (herein after Regulation 2022) Jaipur Municipal Corporation Heritage, Government of Rajasthan (2022) <http://pinkcity.jaipurmcheritage.org/> accessed 15 March 2025.

[288] The Bye-laws 2020 (n 287) § 4.
[289] The Bye-laws 2020 (n 287) § 15.
[290] The Bye-laws 2020 (n 287) § 13.
[291] The Bye-laws 2020 (n 287) § 16.
[292] The Bye-laws 2020 (n 287) § 16(6).
[293] The Regulation 2022 (n 287) Section 1.

suring that interventions do not compromise cultural heritage. The Bye-laws 2020 encourage adaptive reuse of heritage buildings while maintaining their original character, but major changes, such as demolition and reconstruction, that impact the visual and structural integrity of heritage assets are prohibited.[294] The integration of modern energy solutions is acknowledged but regulated. Installations such as solar water heating systems, solar power plants, fire safety equipment, air conditioning systems, and electrical/plumbing systems are permitted, but only with prior approval from the competent authority to ensure that modifications do not compromise the architectural integrity and historical significance of heritage assets.[295] Traditional materials and building techniques must be used for repairs and restorations, with Jaipur city's signature pink color scheme enforced.[296] Unauthorized modern materials such as aluminum composite panels, reflective glass, and metal cladding are strictly prohibited.[297]

The Regulations 2022 allow for certain energy installations, but these must comply with strict aesthetic and structural guidelines to minimize visual impact. Solar panels and water heaters may be installed, but their height must not exceed the existing parapet wall or 1 meter from the terrace floor level.[298] Air conditioning units, metal ducts, and electrical elements must be placed at the rear of buildings, on terraces, or within corridors to avoid visibility from main streets.[299] Drainage pipes and wiring conduits should be painted the same shade of Jaipur Pink color to blend with existing façades.[300] Drilling through stone slabs of heritage terraces for installations is strictly prohibited, and alternative solutions must be sought through the Heritage Cell.[301]

The Bye-laws 2020 incorporate a number of financial and land-use incentives to encourage heritage conservation and sustainable urban management. Owners of listed heritage buildings who commit to conservation and upkeep are eligible for tax rebates on Urban Development Tax for both residential and commercial properties.[302] Additionally, properties that contribute to heritage-based tourism can benefit from special incentives under the state's tourism policy, including tax holidays in electricity duty, luxury tax, entertainment tax, and sales tax, as well as exemptions on stamp duty and land charges for rent or sale.[303]

To further support conservation and facilitate economic sustainability, the Bye-laws 2020 introduce Flexible Land Use, which allows owners of non-commercial heritage buildings to convert them into commercial spaces such as heritage hotels, guesthouses, art galleries, and cultural centers, provided they maintain the heritage character of the structure.[304] However, if a property loses its heritage value due to neglect or unauthorized changes, the land-use conversion rights may be revoked.[305]

To fund ongoing conservation efforts, the Bye-laws 2020 establishes a Heritage Fund, which is financed through government grants, donations, CSR contributions, and heritage-related fees.[306] This fund is managed by the State Heritage Committee and is intended to support restoration projects, adaptive reuse initiatives,

[294] The Bye-laws 2020 (n 287) § 12.
[295] The Bye-laws 2020 (n 287) § 12.2.
[296] The Regulation 2022 (n 287) Section 1.
[297] Ibid.
[298] Ibid.
[299] Ibid.
[300] Ibid.
[301] Ibid.
[302] The Bye-laws 2020 (n 287) § 26(3).
[303] Ibid.
[304] The Bye-laws 2020 (n 287) § 26(1).
[305] Ibid.
[306] The Bye-laws 2020 (n 287) § 26(4).

and capacity-building programs for conservation professionals.[307]

3.3 United Kingdom

The United Kingdom of Great Britain and Northern Ireland (UK) ratified the World Heritage Convention in 1984[308] and the Paris Agreement in 2016.[309] As a dualist legal system, similar to Sweden and India, international treaties do not automatically become part of UK law upon ratification.[310] Instead, they must be incorporated through domestic legislation. Previously, as a member of the European Union, the UK was bound by EU law, which took precedence over domestic law under the European Communities Act 1972 (ECA).[311] However, with the repeal of the ECA through the European Union (Withdrawal) Act 2018, the UK is no longer obligated to follow EU law, removing the automatic flow of EU obligations into domestic legislation.[312] While some retained EU laws continue to apply, they are now subject to modification or repeal by the UK Parliament.[313]

Heritage and energy regulation in the UK operates at different levels of governance. While heritage protection is primarily a devolved matter, meaning England, Scotland, Wales, and Northern Ireland each have their own legal frameworks and agencies responsible for heritage conservation,[314] energy policy remains largely a reserved matter under the authority of the UK government.[315]

3.3.1 Implementation of the World Heritage Convention

As a dualist legal system, similar to Sweden and India, international treaties do not automatically become part of UK law upon ratification. Instead, the UK relies on national legislation and policy frameworks to fulfill its obligations under the World Heritage Convention. The UK integrates World Heritage protection within broader planning, heritage, and environmental laws and manages World Heritage sites within the national framework for historic environment protection.

As of 2024, the UK has 35 World Heritage sites, including 29 cultural, 5 natural, and 1 mixed site.[316] The UK government implements the World Heritage Convention and ensures compliance with UNESCO requirements. In the UK, World Heritage sites are protected through individual designations, such as listed buildings, conservation areas, or scheduled monuments, and the spatial planning system.

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[307] Ibid.
[308] UNESCO (n 15).
[309] UNFCCC (n 16).
[310] Steve Peers, 'Jurisdiction Upon and After the UK's Withdrawal: The Perspective from the UK Constitutional Order' (2018) Policy Department for Citizens' Rights and Constitutional Affairs, European Parliament <https://www.europarl.europa.eu/thinktank/mt/document/IPOL_BRI(2018)596831> accessed 15 March 2025.
[311] Ibid.
[312] European Union (Withdrawal) Act 2018, See <https://www.legislation.gov.uk/ukpga/2018/16/notes/division/5/index.htm> accessed 15 March 2025.
[313] Government of UK, Schedule of retained EU law – Guidance (2023) <https://www.gov.uk/government/publications/schedule-of-retained-eu-law> accessed 15 March 2025.
[314] Government of UK, Historic Environment – Guidance, Ministry of Housing, Communities and Local Government, Ministry of Housing, Communities & Local Government (2018 to 2021) and Department for Levelling Up, Housing and Communities (Published 2014 and updated in 2019) <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment> accessed 15 March 2025.
[315] Government of UK, Overarching National Policy Statement for Energy (EN-1), Department for Energy Security and Net Zero (2014) <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1/overarching-national-policy-statement-for-energy-en-1> accessed 15 March 2025.
[316] UNESCO, United Kingdom of Great Britain and Northern Ireland – State Party <https://whc.unesco.org/en/statesparties/gb/> accessed 15 March 2025.

Given the study's focus on the City of Bath, the national legal analysis will be limited to England. The Department for Culture, Media and Sport (DCMS) is the lead government body responsible for World Heritage matters.[317] Historic England, formally known as the Historic Buildings and Monuments Commission for England, is an executive non-departmental public body primarily funded by the DCMS.[318] Historic England is responsible for the protection of England's historic environment and provides research, conservation guidance, expert advice, grants, and technical support for heritage management and conservation.[319] Historic England also supports the protection and management of World Heritage sites by advising the government, local authorities, property owners, and other stakeholders.[320]

The implementation of the World Heritage Convention in England is guided by statutory heritage protection, national planning policies, and site-specific local management plans. The legal framework for World Heritage sites in England is primarily derived from the Planning (Listed Buildings and Conservation Areas) Act 1990, the Ancient Monuments and Archaeological Areas Act 1979, the Town and Country Planning Act 1990, and the National Planning Policy Framework 2024 (NPPF). These laws and policies establish the statutory basis for protecting and managing heritage assets, including World Heritage sites. Notably, the Levelling-up and Regeneration Act 2023 has introduced a responsibility in the Town and Country Planning Act 1990, for the first time concerning legal protections for World Heritage sites in the UK, which strengthens World Heritage sites by explicitly recognizing them as designated heritage assets and requires local planning authorities and the Secretary of State to have 'special regard' to the desirability of preserving or enhancing these sites and their settings in planning decisions at the national level.[321]

Designation, or 'listing,' identifies significant historic sites and buildings for inclusion in the National Heritage List for England,[322] the of-

[317] Government of UK, DCMS's International Cultural Heritage Protection Programme – Guidance, Department for Culture, Media and Sport (Published 2021, updated in 2024) <https://www.gov.uk/guidance/dcmss-international-cultural-heritage-protection-programme> accessed 15 March 2025.

[318] Established in 1984, Historic England was formerly known as English Heritage until 2015, when its responsibilities were divided. The newly formed English Heritage Trust manages over 400 state-owned historic sites and monuments. See more <https://historicengland.org.uk/about/what-we-do/historic-england-and-english-heritage/>.

[319] Historic England provides a wide array of expert guidance and advice to support the conservation and management of historic sites <https://historicengland.org.uk/advice/>. Some examples include: Listing Selection Guides <https://historicengland.org.uk/listing/selection-criteria/listing-selection/>, Scheduling Selection <https://historicengland.org.uk/listing/selection-criteria/scheduling-selection/>, Heritage Consents <https://historicengland.org.uk/advice/planning/consents/>, Planning System <https://historicengland.org.uk/advice/planning/planning-system/>, World Heritage <https://historicengland.org.uk/advice/planning/world-heritage/>, Energy Efficiency and Retrofit in Historic Buildings <https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/>.

[320] Historic England, World Heritage (2024) <https://historicengland.org.uk/advice/planning/world-heritage/>; A Historic England Advisory Note (HEAN) on managing changes in World Heritage Sites is set for public consultation in early 2025, alongside ongoing efforts to develop guidance for World Heritage Site management plans. See for more <https://historicengland.org.uk/advice/planning/world-heritage/protection-management/>.

[321] The Levelling-up and Regeneration Act 2023, § 102.

[322] The National Heritage List for England is available to the public and can be accessed online at <https://historicengland.org.uk/listing/the-list/> (The List includes Listed Buildings, Registered Parks and Gardens, Battlefields, Scheduled Monuments, Protected Wreck Sites, and World Heritage sites); For designated Conservation Areas, visit <https://www.planning.data.gov.uk/dataset/conservation-area>.

ficial record of nationally protected heritage.[323] Many buildings and areas within World Heritage sites, such as Bath, are already listed or designated as conservation areas, which provide legal protection against inappropriate changes or developments.[324]

The Planning (Listed Buildings and Conservation Areas) Act 1990 provides statutory protection for listed buildings and conservation areas. The Secretary of State compiles and maintains lists of buildings of special architectural or historic interest.[325] Any alteration, extension, or demolition that would affect a listed building's special architectural or historic interest requires prior Listed Building Consent to ensure that changes do not compromise its historic significance.[326]

Local Planning Authorities play a central role in the implementation of this Act. Any proposed work that may alter the character of a listed building necessitates Listed Building Consent, which is granted or refused at the discretion of Local Planning Authorities or the Secretary of State.[327] Unauthorized alterations or demolition trigger enforcement actions, including potential criminal prosecution[328] and an order to restore the building to its original state.[329] Where an unlisted building of special architectural or historic interest is under immediate threat, Local Planning Authorities may serve a Building Preservation Notice to temporarily afford it the same protection as a listed building.[330] Local Planning Authorities also have the authority to issue Repairs Notices requiring necessary maintenance,[331] and where an owner fails to comply, the property may be subject to a Compulsory Purchase Order.[332]

The Planning (Listed Buildings and Conservation Areas) Act 1990 does not prohibit modifications but mandates that such changes must be carefully managed. When granting or refusing Listed Building Consent, Local Planning Authorities or, as the case may be, the Secretary of State must give "special regard" to the desirability of preserving the building, its features of special architectural or historic interest, and its setting.[333] When determining planning permissions for changes which affect a listed building or its setting, Local Planning Authorities or the Secretary of State must likewise give "special re-

[323] Hannah Fluck and Meredith Wiggins, 'Climate change, heritage policy and practice in England: Risks and opportunities' (2017) 32 Archaeological Review from Cambridge 159.

[324] Bath Preservation Trust, Bath's Heritage and Landscape <https://www.bath-preservation-trust.org.uk/advocacy-campaigns/heritage-and-landscape/>.

[325] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 1. A building may be designated as listed following an application to the DCMS, typically submitted by Historic England or by the public through Historic England. The DCMS, through the Secretary of State, then assesses whether the building meets the threshold for special architectural or historic interest before deciding on its listing status. The listing applies not only to the principal structure but also to objects and structures attached to it, as well as those within its curtilage if they have been part of the land since before 1 July 1948. The law mandates that the DCMS take into account various general principles, including age, aesthetic merits, national interest, selectivity, and state of repair, when deciding whether a building should be designated as listed. See Principles of Selection for Listed Buildings (2018) Department for Digital, Culture, Media, and Sport <https://www.gov.uk/government/publications/principles-of-selection-for-listing-buildings>.

[326] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 7.

[327] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 8.

[328] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 9.

[329] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 38.

[330] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 3.

[331] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 48.

[332] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 47.

[333] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 16.

gard" to the preservation of the listed building or its setting.[334] Additionally, in consideration of planning applications within conservation areas, Local Planning Authorities must pay "special attention" to the desirability of preserving or enhancing the character or appearance of the area.[335]

The Ancient Monuments and Archaeological Areas Act 1979 provides statutory protection for scheduled monuments and designated archaeological areas, many of which are located within or near World Heritage sites, across the UK. The Act is a key legal framework for the protection of sites of historical, architectural, or archaeological significance. Under this Act, the Secretary of State compiles and maintains a Schedule of Monuments and lists sites deemed of national importance.[336] Scheduled Monument Consent must be obtained from the Secretary of State before any works, including demolition, repairs, alterations, or any excavation work that could affect a scheduled monument, can proceed.[337] The Secretary of State may impose conditions deemed necessary when granting Scheduled Monument Consent.[338] The Secretary of State can modify or revoke the consent if necessary, in consultation with Historic England.[339] The Secretary of State (acting through Historic England and/or persons duly authorized in writing) has the authority to inspect scheduled monuments to ensure compliance with the Act.[340] Unauthorized works on a scheduled monument are an offence, leading to enforcement actions, including prosecution, with penalties that may include fines or imprisonment.[341]

The Town and Country Planning Act 1990 establishes the principal legal framework governing land use planning and development control in England and Wales.[342] In addition to the above-discussed permissions, such as listed building consent, planning permission may also be necessary for changes that constitute development under this Act.[343] A fundamental aspect of the Act is its control over development, primarily through the requirement for planning permission, which states that planning permission is required for carrying out any development of land, except where permitted development rights apply.[344] The decision-making authority is vested in Local Planning Authorities, empowered to grant or refuse planning permission, subject to conditions deemed necessary to regulate land use.[345]

[334] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 66.
[335] The Planning (Listed Buildings and Conservation Areas) Act 1990, § 72.
[336] The Ancient Monuments and Archaeological Areas Act 1979, § 1. Like the listing process for listed buildings, monuments must go through a formal scheduling process led by the DCMS to gain statutory protection. As part of this process, Historic England evaluates sites of potential national importance and submits recommendations to the DCMS. The Secretary of State makes the final decision on whether a monument is granted scheduled status. When DCMS schedules a monument, it is required to notify the owner and the Local Planning Authority of its location, and the legal protections given to the site.
[337] The Ancient Monuments and Archaeological Areas Act 1979, § 2(2) and (3).
[338] The Ancient Monuments and Archaeological Areas Act 1979, § 3(2).
[339] The Ancient Monuments and Archaeological Areas Act 1979, § 4(3).
[340] The Ancient Monuments and Archaeological Areas Act 1979, § 6.
[341] The Ancient Monuments and Archaeological Areas Act 1979, §§ 2(1), 9, and 28.
[342] The Town and Country Planning Act 1990, as a consolidating statute, regulates the administration of planning permission, development control, and enforcement while defining the powers and responsibilities of local planning authorities. Planning decisions, including those impacting World Heritage sites, fall under the jurisdiction of local authorities, the Planning Inspectorate, and the Department for Levelling Up, Housing and Communities in England.
[343] The Town and Country Planning Act 1990, § 55.
[344] The Town and Country Planning Act 1990, § 57.
[345] The Town and Country Planning Act 1990, § 70.

In most cases, planning is carried out at the local level by local planning authorities and guided by the National Planning Policy Framework (NPPF).[346] While World Heritage designation alone "does not afford legal protection" in itself, it "still carr[ies] some weight within the planning and decision-making process,"[347] and local planning authorities must consider the significance of World Heritage sites in decision-making. The NPPF, introduced in 2012 and most recently revised in 2024,[348] establishes sustainability as a core planning principle and objective of this policy and affirms a presumption in favor of sustainable development, except where policies protecting designated heritage assets apply.[349] The NPPF outlines the government's approach to protecting historic and natural environments, including World Heritage sites,[350] and emphasizes that development proposals that affect World Heritage sites should sustain their Outstanding Universal Value and that local planning authorities must take heritage significance into account when making decisions.[351] Local planning authorities must give great weight to the conservation of heritage significance and consider the potential impact of development on designated heritage assets when making decisions.[352]

Chapter 16 of the NPPF governs the conservation and enhancement of the historic environment and sets a high threshold for harm to designated heritage assets.[353] The NPPF distinguishes between "substantial harm" and "less than substantial harm" and requires that the total loss of a Grade II-listed building, park, or garden should be exceptional, while for World Heritage sites, Grade I and II*-listed buildings, and scheduled monuments, such harm must be wholly exceptional.[354]

The NPPF supports planning's role in the transition to net zero by 2050 and requires local planning authorities to proactively mitigate and adapt to climate change.[355] Local authorities must give significant weight to energy efficiency and low-carbon heating improvements in existing buildings, including solar panels and heat pumps, unless already covered by permitted development rights.[356] This new policy helps local authorities balance the need to improve energy efficiency with the protection of listed buildings and conservation areas when assessing planning applications and listed building consent for energy improvements.[357] Proposals affecting con-

[346] Fluck and Wiggins (n 323) 162.
[347] Ibid.
[348] Ministry of Housing, Communities and Local Government, National Planning Policy Framework 2024 (December 2024) <https://www.gov.uk/government/publications/national-planning-policy-framework--2>.
[349] The National Planning Policy Framework 2024, Paragraphs 7–11 and 16.
[350] The National Planning Policy Framework 2024, Chapters 15 and 16. World Heritage Site designation does not independently impose legal restrictions at the national level. However, through various heritage designations, these sites become heritage assets and are considered material considerations in planning decisions at the local level.
[351] The National Planning Policy Framework 2024 (n 348) Paragraphs 202, 219 and 220.
[352] The National Planning Policy Framework 2024 (n 348) Paragraph 212.
[353] The National Planning Policy Framework 2024 (n 348) Paragraphs 202–221. This section requires that proposals affecting heritage assets: assess and describe the asset's significance, provide evidence proportionate to its importance, and justify any potential harm with clear and convincing reasoning.
[354] The National Planning Policy Framework 2024 (n 348) Paragraph 213.
[355] The National Planning Policy Framework 2024 (n 348) Paragraphs 161–164.
[356] The National Planning Policy Framework 2024 (n 348) Paragraph 167.
[357] Government of UK, 'Adapting historic homes for energy efficiency: a review of the barriers – Research and Analysis (2024) Department for Levelling Up, Housing and Communities, Department for Culture, Media and Sport and Department for Energy Security and Net Zero

servation areas, listed buildings, or designated heritage assets must also comply with the policies in Chapter 16 of the NPPF.[358]

The NPPF framework ensures that planning authorities must factor in the protection of World Heritage properties and climate action into local plans and decision-making. Local planning policies and site-specific management plans further guide the conservation and sustainable development of each World Heritage site in accordance with national and international obligations.[359] These plans and policies are often managed by local authorities, non-profit heritage organizations, or site-specific steering groups.

3.3.2 Implementation of the Paris Agreement

The UK has put in place institutions at the national, sub-national, and local levels to reduce greenhouse gas emissions and support climate action.[360] It also implements a number of policies and measures to support these efforts. The Department for Energy Security and Net Zero (DESNZ) leads on emission reduction and energy policy, both domestically and internationally.[361] The Department for Environment, Food and Rural Affairs (Defra) is responsible for domestic climate adaptation policy through the National Adaptation Programme.[362]

The Climate Change Act 2008 remains the cornerstone of the UK's climate policy, which mandates legally binding carbon budgets and a net-zero emissions target by 2050.[363] This Act requires the UK government to assess climate change risks and report on its adaptation plans every five years. Additionally, this Act also established the Climate Change Committee, an independent statutory body that advises the UK and devolved governments on climate change mitigation and adaptation. In January 2025, the UK updated its Nationally Determined Contribution and committed to an 81% reduction in greenhouse gas emissions by 2035 (relative to 1990 levels), excluding international aviation and shipping.[364] The UK's Climate Change Committee is an independent statutory body created under this Act and advises the UK and devolved governments on emissions targets and reports to Parliament on progress in cutting emissions and adapting to climate change.

<https://www.gov.uk/government/publications/adapting-historic-homes-for-energy-efficiency-a-review-of-the-barriers/adapting-historic-homes-for-energy-efficiency-a-review-of-the-barriers> accessed 15 March 2025.

[358] The National Planning Policy Framework 2024 (n 348) Paragraph 167.

[359] For example, the Bath World Heritage Site Management Plan 2016–2022 guides the management, conservation, and sustainable development of the City of Bath. It outlines priorities, policies, and actions necessary to preserve the outstanding universal value of the site while addressing contemporary challenges such as urban development and environmental resilience. The City of Bath World Heritage Site Steering Group oversees the implementation of the management plan of the site and includes representatives from Bath & North East Somerset Council, Historic England, local universities, heritage organizations, and community groups. The Bath World Heritage Site Management Plan 2016–2022 can be accessed here <https://www.bathworldheritage.org.uk/bath-world-heritage>.

[360] The United Kingdom's NDC has set a national greenhouse gas emissions reduction target that applies across England, Scotland, Wales, and Northern Ireland, as well as certain Crown Dependencies and Overseas Territories that are included in its ratification under the Paris Agreement.

[361] The UK's Climate Change Committee, Climate Action <https://www.theccc.org.uk/climate-action/>.

[362] Ibid.

[363] Climate Change Act 2008. See <https://www.legislation.gov.uk/ukpga/2008/27/section/1>.

[364] UK Government, United Kingdom of Great Britain and Northern Ireland's 2035 Nationally Determined Contribution (NDC), Presented to Parliament by the Secretary of State for Energy Security and Net Zero. January 2025 <https://www.gov.uk/government/publications/uks-2035-nationally-determined-contribution-ndc-emissions-reduction-target-under-the-paris-agreement/united-kingdom-of-great-britain-and-northern-irelands-2035-nationally-determined-contribution>.

To operationalize these commitments, the UK has implemented a series of sector-specific policies designed to balance economic competitiveness with decarbonization. The Clean Power 2030 Action Plan, published in December 2024, sets a clear trajectory towards 100% clean electricity by 2030, underpinned by state investment in Great British Energy, a state-owned renewables company.[365] Additionally, the UK has endorsed the Coalition for High Ambition Multilevel Partnerships (CHAMP) for Climate Action pledge[366] and joined the Urban Transition Mission to strengthen local climate action and support net-zero transitions in cities.[367] Local governments, including Strategic Authorities, play a key role in meeting net zero targets. The UK government collaborates with and supports them through initiatives such as Great British Energy's Local Power Plan, which funds renewable energy projects,[368] and the Warm Homes Plan, which improves home energy efficiency.[369]

A significant aspect of the UK's Net Zero strategy involves the adaptation of historic homes, which account for a substantial portion of the country's building stock.[370] The recent government review, Adapting Historic Homes for Energy Efficiency: A Review of the Barriers (2024), underscores the critical need to balance heritage conservation with energy efficiency and sustainable energy upgrades.[371] It identifies challenges, including planning restrictions, financial constraints, the lack of accessible homeowner-friendly retrofitting guidance, a shortage of skilled professionals trained in heritage-sensitive retrofits, and gaps in local authority expertise.[372] In response, the report outlines future measures for responsible departments and arm's length bodies to enhance energy efficiency while protecting heritage assets.[373] To support consistent decision-making, Historic England has developed a new Advice Note to guide local authorities and property owners in integrating carbon reduction and energy efficiency measures while ensuring that historic buildings remain both viable and resilient to climate change.[374]

While the Paris Agreement itself is an unincorporated treaty and does not automatically create domestic legal obligations, courts have increasingly reviewed government decisions in relation to climate objectives. The UK courts have reaffirmed that the Paris Agreement, as an unin-

[365] UK Government, Clean Power 2030 Action Plan- Policy Paper, Department for Energy Security and Net Zero (December 2024) <https://www.gov.uk/government/publications/clean-power-2030-action-plan>.
[366] Cities and Region in the UNFCCC Process, CHAMP <https://www.cities-and-regions.org/champ/>.
[367] UK Government (n 364) 10.
[368] UK Government, Great British Energy founding statement – Policy Paper, Department for Energy Security and Net Zero (July 2024) <https://www.gov.uk/government/publications/introducing-great-british-energy/great-british-energy-founding-statement>.
[369] UK Government, Help to save households money and deliver cleaner heat to homes – Press Release, Department for Energy Security and Net Zero, (November 2024) <https://www.gov.uk/government/news/help-to-save-households-money-and-deliver-cleaner-heat-to-homes>; See also, Warm Homes: Local Grant, Department for Energy Security and Net Zero (2024) <https://www.gov.uk/government/publications/warm-homes-local-grant>.

[370] Government of UK (n 357).
[371] Ibid. This review report examines the challenges and barriers to enhancing the energy efficiency of historic homes in England. It has been developed through a partnership between the Department for Levelling Up, Housing & Communities, the Department for Energy Security & Net Zero, and the Department for Culture, Media & Sport, with support from Historic England.
[372] Ibid.
[373] Ibid.
[374] Historic England, Adapting Historic Buildings for Energy and Carbon Efficiency: Historic England Advice Note 18 (2024) <https://historicengland.org.uk/images-books/publications/adapting-historic-buildings-energy-carbon-efficiency-advice-note-18>; Historic England, Energy Efficiency and Retrofit in Historic Buildings (2024) <https://historicengland.org.uk/advice/technical-advice/retrofit-and-energy-efficiency-in-historic-buildings/>.

corporated treaty, does not impose legally binding obligations enforceable in domestic courts.[375] However, where domestic laws explicitly reference climate targets, such as the Climate Change Act 2008, courts have demonstrated a willingness to enforce compliance.[376]

While the Paris Agreement is an unincorporated treaty in the UK, public authorities play a key role in advancing the country's international climate obligations. Through a combination of legally binding domestic targets and adaptive regulatory frameworks, the UK remains aligned with the overarching objective of the Paris Agreement – to limit global warming while transitioning toward a sustainable, low-carbon economy.

3.3.3 World Heritage Site of City of Bath, United Kingdom

In 1987, Bath was inscribed as a UNESCO World Heritage site due to its outstanding universal value, particularly its Roman archaeology, Georgian architecture and town planning, historic spa culture and architecture, and green setting.[377] Bath is involved in the World Heritage Cities Programme, which contributes to and benefits from collaborative initiatives that promote the sustainable management of historic urban areas, and the 2024 Periodic Reporting document notes that climate change poses increasing risks to the site, particularly from flooding and prolonged drought, which may affect both the historic built environment and the city's thermal water system.[378] The United Kingdom fulfills its obligations under the World Heritage Convention through national heritage laws, the statutory planning system, and the designation and management of heritage assets. However, each devolved government determines how best to implement protection and management measures.

As a unitary authority, the Bath & North East Somerset (B&NES) Council possesses both county and district-level planning powers and is responsible for heritage protection and implementing national planning policies at the local level. The Local Plan for B&NES includes Volume 1: The Districtwide Composite Plan,[379]

[375] R (on the application of Friends of the Earth Ltd) v Heathrow Airport Ltd [2020] UKSC 52 and R (Friends of the Earth Ltd) v Secretary of State for International Trade [2023] EWCA Civ 14. In R (on the application of Friends of the Earth Ltd) v Heathrow Airport Ltd, the Supreme Court ruled that the government had discretion in determining how to consider international climate obligations and was not legally bound by them unless incorporated into domestic law. This approach was further reinforced in R (Friends of the Earth Ltd) v Secretary of State for International Trade, where the Court of Appeal held that the Paris Agreement did not create enforceable domestic legal obligations and applied the "tenable view" standard by ruling that the government's interpretation of the Paris Agreement was subject to a margin of appreciation and could only be challenged if it was irrational.

[376] Edward Brown KC & Katherine Ratcliffe, 'Climate Change Focused Judicial Review: What Must Be Taken into Account?' Essex Court Chambers (28 February 2023) <https://essexcourt.com/publication/climate-change-in-law-current-perspectives-week-3-series-2/>. This was evidenced in R (1) Friends of the Earth (2) Client Earth (3) Good Law Project and Joanna Wheatley v Secretary of State for Business, Energy and Industrial Strategy [2022] EWHC 1841, where the High Court found the government's Net Zero Strategy inadequate for failing to quantify its contribution to statutory carbon budgets.

[377] UNESCO World Heritage Centre, City of Bath (1987) <https://whc.unesco.org/en/list/428/>.

[378] UNESCO World Heritage Cities Programme (n 205); UNESCO, Periodic Reporting Cycle III – Section II: City of Bath (2024) UNESCO World Heritage Centre <https://whc.unesco.org/en/list/428/documents/>.

[379] Bath & North East Somerset Council, The Districtwide Composite Plan 2023 document consolidates the Core Strategy (2014), the Placemaking Plan (2017), and the Local Plan Partial Update (2023) into a single composite volume. It covers the entire Bath and North East Somerset district and includes policies on: sustainability and climate change response, housing and urban development, heritage conservation, and infrastructure and transport planning. See more <https://www.bathnes.gov.uk/core-strategy-placemaking-plan-and-local-plan-partial-update> and <https://www.bathnes.gov.uk/policy-and-documents-library/development-plan-core-strategy-placemaking-plan-and-local-plan-partial>.

which incorporates the Core Strategy (2014), Placemaking Plan (2017), and Local Plan Partial Update (2023), and Volume 2: The Bath Composite Plan (2023),[380] which consolidates policies specific to Bath and its historic environment. Together, these volumes provide the strategic and site-specific policies guiding development, conservation, and sustainability across the district.

The Bath World Heritage Site Management Plan 2016–2022 provides a strategic framework for the city's conservation efforts and prioritizes the sustainable management of the site, protection of its OUV, and promotion of Bath as a living and working city.[381] Additionally, it emphasizes improvements in public interpretation, awareness, and education while strengthening environmental resilience. The Bath World Heritage site Steering Group oversees the plan's production and implementation, while the World Heritage Manager, a full-time B&NES Council employee, coordinates the Steering Group and liaises with stakeholders to ensure management and conservation.[382] The Bath World Heritage Site Management Plan for 2016–2022 concluded its term in 2022. Subsequently, a draft Management Plan for 2024–2030 was developed to encompass both of Bath's UNESCO World Heritage inscriptions: the City of Bath and the Great Spa Towns of Europe in 2021, which introduces expanded priorities, including climate action and sustainable development.[383] This draft plan underwent public consultation and, as of March 2025, is pending formal adoption.[384]

Bath's heritage management and protection is underpinned by Policy HE1 of the Districtwide Composite Plan, which governs the protection of designated and non-designated heritage assets,[385] including the Bath World Heritage site, listed buildings, conservation areas, historic parks and gardens, archaeology, and historic landscapes.[386]

The Bath Composite Plan explicitly recognizes the World Heritage site as a "designated heritage asset of the highest significance" and affirms that it is a "key material consideration" in planning decisions.[387] Development proposals within the site and its setting are expected to enhance or better reveal the significance of these assets and contribute positively to their conservation.[388] "Great weight" is given to preserving the district's historic character, and any harm must be fully justified and weighed against public benefits.[389]

Furthermore, developments affecting the Bath World Heritage site and its setting must comply with Policy B4 of the Core Strategy and relevant supplementary planning guidance, including the World Heritage Site Management

[380] Bath & North East Somerset Council, Volume 2: The Bath Composite Plan (2023) <https://www.bathnes.gov.uk/policy-and-documents-library/development-plan-core-strategy-placemaking-plan-and-local-plan-partial>.
[381] The Bath World Heritage Site Management Plan 2016–2022. <https://www.bathworldheritage.org.uk/bath-world-heritage>.
[382] Ibid 26.
[383] Bath & North East Somerset Council, Draft Management Plan for City of Bath & Great Spa Towns of Europe World Heritage Sites (2024–2030) <https://www.bathnes.gov.uk/document-and-policy-library/bath-world-heritage-site-management-plan-draft-consultation-november>.
[384] Ibid. See for more information <https://democracy.bathnes.gov.uk/mgIssueHistoryHome.aspx?IId=39636&Opt=0>.
[385] The Districtwide Composite Plan 2023 (n 379) Paragraph 222, page 103. The city has a high concentration of heritage assets, including the Bath World Heritage site, over 6,000 listed buildings, 36 conservation areas, 74 Scheduled Ancient Monuments, 16 Registered Historic Parks and Gardens, and 71 Parks and Gardens designated locally, all of which are subject to specific planning and conservation regulations.
[386] The Districtwide Composite Plan 2023 (n 379) Policy HE1: Historic Environment, pp. 106–107.
[387] The Bath Composite Plan 2023 (n 380) Paragraph 29.
[388] The Districtwide Composite Plan 2023 (n 379) Policy HE1, pp. 106–107.
[389] Ibid.

Plan, to protect its OUV.[390] Additionally, Policy NE2 of the Districtwide Composite Plan ensures that development conserves and enhances local landscape character, important views, and green spaces.[391] Policy CP6 ensures that new development balances sustainability with Bath's cultural and environmental values and supports high-quality design and climate resilience.[392]

Recognizing the urgency of climate change, the B&NES Council declared a Climate Emergency in 2019, setting a district-wide target for carbon neutrality by 2030.[393] This was followed by an Ecological Emergency declaration in 2020, acknowledging the escalating threats to biodiversity and ecosystem.[394] These obligations align with the UK's legally binding target of net zero by 2050 and are reflected in the Local Plan Partial Update (2023), which strengthens existing policies on sustainability while ensuring compatibility with Bath's historic built environment. These include CP1 (retrofitting),[395] CP3 (renewable energy),[396] and CP4 (district heating),[397] as well as new policies for energy efficiency and renewable energy such as SCR2 (roof-mounted solar PV)[398] and SCR4 (community renewable energy schemes),[399] all of which introduce provisions for energy efficiency and renewable energy integration within Bath's historic setting.

To support property owners in integrating sustainability measures while maintaining Bath's heritage character, the B&NES Council publishes Supplementary Planning Documents (SPDs) that provide guidance on conservation, retrofitting, energy efficiency, and renewable energy in heritage buildings.[400] The 2022 Energy Efficiency, Retrofitting and Sustainable Construction SPD aligns with conservation best practices, local plans, national laws, and government policy relating to the historic environment.[401] It provides detailed guidance on planning permissions, consents, and building regulations for implementing energy measures in heritage assets. It follows the Energy Hierarchy approach, which prioritizes reducing energy demand first, then improving efficiency, and finally using renewable energy.[402] This SPD advocates a "sensitive and thoughtful approach" to integrating energy efficiency and renewable energy measures

[390] The Bath Composite Plan 2023 (n 380) Page 14; The Districtwide Composite Plan 2023 (n 379) Paragraphs 231, 233, 234, 255, 342, and Policy HE1.
[391] The Districtwide Composite Plan 2023 (n 379) Policy NE2: Conserving and Enhancing the Landscape and Landscape Character.
[392] The Districtwide Composite Plan 2023 (n 379) Policy CP6: Environmental Quality.
[393] The Districtwide Composite Plan 2023 (n 379) Paras. 5b, 23a, 23c, and 90.
[394] Ibid.
[395] The Districtwide Composite Plan 2023 (n 379). Policy CP1: Retrofitting Existing Buildings promotes energy efficiency improvements in historic and non-historic buildings through measures such as insulation, glazing, and micro-renewables while preserving architectural significance.
[396] The Districtwide Composite Plan 2023 (n 379). Policy CP3: Renewable Energy sets minimum renewable energy generation targets for electricity and heat across the district, and encourages standalone renewable projects, including wind, solar, and biomass energy.
[397] The Districtwide Composite Plan 2023 (n 379). Policy CP4: District Heating encourages the development and expansion of low-carbon district heating networks, particularly in priority areas such as Bath Central and Bath Western Riverside, using gas and biomass sources.
[398] The Districtwide Composite Plan 2023 (n 379). Policy SCR2: Roof-Mounted/Building-Integrated Solar PV permits solar panels on historic buildings and in conservation areas, provided they are designed to minimize visual impact and align with conservation principles.
[399] The Districtwide Composite Plan 2023 (n 379). Policy SCR4: Community Renewable Energy Schemes supports the development of community-led renewable energy projects and emphasizes local ownership and governance.
[400] Bath & North East Somerset Council, Supplementary Guidance Documents (SPDs) <https://www.bathnes.gov.uk/index-supplementary-planning-documents-spds> and More on Planning <https://www.bathnes.gov.uk/heritage-environment-and-design>.
[401] B&NES Council, 2022 Energy Efficiency, Retrofitting and Sustainable Construction SPD, pp. 8–10.
[402] Ibid 16.

in heritage assets to ensure compliance with legislation and favorable consideration by the Local Planning Authorities.[403] Citing the NPPF, it underscores that heritage harm cannot be assessed through a simple trade-off, as "considerable importance and weight" must be given to the conservation of heritage assets.[404] The SPD also promotes affordable warmth, financial support options, and best practices through local case studies.[405]

Beyond regulatory and governance guidance, the B&NES Council provides practical support for property owners through initiatives such as Energy at Home[406] and Retrofit West,[407] which provide residents with information on funding and support to reduce energy bills and improve home energy efficiency. The Bath Preservation Trust contributes to and promotes the conservation and sustainable enhancement of the historic city of Bath as a World Heritage.[408]

4. Discussion

This section synthesizes the key findings from the comparative analysis of how Sweden, India, and the United Kingdom implement their international legal obligations under the World Heritage Convention in light of commitments to mitigate climate change under the Paris Agreement in the World Heritage cities of Visby, Jaipur, and Bath. It begins by discussing how national legal systems and governance structures implement and apply these international obligations and highlights areas of similarities and differences. It then compares the legal and policy approaches adopted in each city to balance cultural heritage conservation with energy sustainability. Finally, the section draws on the role of legal frameworks in shaping local implementation and offers reflections on the evolving responsibilities of cities in advancing international heritage and climate objectives.

4.1 National Implementation and local application of International Legal Frameworks in World Heritage cities of Visby, Jaipur, and Bath

While Sweden, India, and the United Kingdom have ratified both the World Heritage Convention and the Paris Agreement, their domestic implementation, particularly at the local level in Visby, Jaipur, and Bath, reflects both similarities and differences shaped by legal traditions, institutional structures, and site-specific regulatory mechanisms. As Aust and Nijman note, cities increasingly engage with global legal norms, but their ability to implement international obligations depends significantly on national legal frameworks and local institutional arrangements.[409]

The following comparative analysis identifies five areas of national and local implementation: the incorporation of international obligations into domestic legal systems, the designation of coordinating authorities, the structure and functioning of multi-level governance, the integration of climate change commitments into heritage planning at the local level, and the presence or absence of World Heritage management plans. These areas highlight both similarities

[403] Ibid 3 and 9.
[404] Ibid 7.
[405] B&NES Council (n 401).
[406] See Energy at Homes <https://www.energyathome.org.uk/>.
[407] See Retrofit West <https://www.retrofitwest.co.uk/about/>.
[408] See Bath Preservation Trust <https://www.bath-preservation-trust.org.uk/about-us-2/>.
[409] Helmut Philipp Aust and Janne E Nijman, 'The Emerging Roles of Cities in International Law: Introductory Remarks on Practice, Scholarship and the Handbook' in Helmut Philipp Aust and Janne E Nijman (eds), *Research Handbook on International Law and Cities* (Edward Elgar Publishing 2021) 1–15.

and differences across the three World Heritage cities.

The first area of comparison is that all three countries are dualist systems and give domestic effect to the World Heritage Convention through national legislation rather than direct incorporation. The World Heritage Convention is implemented via domestic legal and policy frameworks, rather than standalone laws granting them direct legal force. This shared reliance on domestic legal and policy frameworks creates a common baseline for the implementation of the World Heritage Convention, though the extent and manner in which international obligations concerning heritage conservation are given effect at the local level vary across jurisdictions.

The second area of comparison concerns the existence of a designated national authority responsible for coordinating World Heritage matters in each country. In Sweden, the National Heritage Board guides national and subnational authorities; in India, the Archaeological Survey of India oversees national, state, and local efforts; and in the UK, Historic England provides technical advice and support to local authorities, stakeholders, and government. These central agencies link international obligations concerning heritage protection to each site at the local level.

The third area of comparison involves the operation of multi-level governance systems in all three cities, though the degree and structure of decentralization differ. Visby functions within a comprehensive national legal framework that provides strong protection for cultural heritage, primarily through the Historic Environment Act, the Environmental Code, and the Planning and Building Act. These laws are locally applied by the Gotland County Administrative Board, which oversees compliance with national laws, and by Region Gotland, which integrates these legal obligations into municipal land-use and development planning, particularly through the Detailed Development Plan 2010 and the Building Regulation 2010.

Jaipur combines a comprehensive national and state legal framework for the protection of cultural heritage, primarily through the Ancient Monuments and Archaeological Sites and Remains Act 1958 for nationally protected monuments and the Rajasthan Monuments, Archaeological Sites and Antiquities Act 1961 for state-protected sites. At the Rajasthan state level, heritage protection is managed by a number of departments, including the Department of Archaeology and Museums and the Department of Town Planning. At the local level, the Bye-laws 2020 and the Regulation 2022, administered by the Jaipur Municipal Corporation Heritage, regulate development and conservation in the historic core.

Bath is governed by a well-established national legal framework for heritage protection, primarily through the Planning (Listed Buildings and Conservation Areas) Act 1990, the Ancient Monuments and Archaeological Areas Act 1979, and the Town and Country Planning Act 1990. Additionally, the Levelling-up and Regeneration Act 2023 and the National Planning Policy Framework provide clear legal backing with explicit recognition of consideration of World Heritage sites as designated heritage assets within the planning decisions. These legal and policy frameworks are applied by Bath & North East Somerset (B&NES) Council, a unitary authority responsible for planning, conservation, and sustainable development within the World Heritage site of Bath. The B&NES Council implements these obligations through its Local Plan, including the Districtwide and Bath Composite Plans and supplementary planning guidance.

While all three cities operate under multi-level governance systems, the degree and struc-

ture of decentralization differ in practice: Visby reflects a decentralized but coordinated system where national laws are implemented by both County Administrative Board and municipal authorities; Jaipur exhibits a more layered and fragmented model, with overlapping responsibilities across central, state, and municipal levels that may complicate implementation; whereas Bath follows a consolidated structure, where a single unitary authority holds both planning and heritage powers, enabling more streamlined local decision-making within a nationally guided framework.

The fourth area of comparison addresses the extent to which national and local legal frameworks translate international obligations to mitigate climate change into binding domestic measures and integrate these with heritage conservation.

In Sweden, the Swedish Climate Policy Framework 2017 and the Strategy and Action Plan for the World Heritage Site Hanseatic Town of Visby 2020–2030 (2020) reference Sweden's climate goals and promote sustainability, but they are not legally binding. At the national level, the implementation is coordinated by the Swedish Environmental Protection Agency, the Swedish Energy Agency, and the Swedish Climate Policy Council, which guide and monitor Sweden's progress toward its net-zero target by 2045. The Detailed Development Plan and the Building Regulation for Visby inner city were developed prior to the Paris Agreement and focus primarily on cultural heritage protection. However, the Building Regulations provide limited but relevant guidance on integrating energy conservation and heating technologies in a way that respects cultural and heritage values. These measures, while discretionary and limited in scope, may contribute indirectly to Sweden's climate change mitigation goals.

In India, the Ministry of Environment, Forest and Climate Change coordinates implementation through the NAPCC, while the Rajasthan SAPCC, updated in 2022, adapts climate change mitigation and adaptation goals to regional needs and aligns with India's progress toward its net-zero target by 2070. Yet, neither plan is legally binding. India's sectoral environmental laws and energy-related statutes provide indirect legal support for climate mitigation and energy conservation, but do not explicitly link to greenhouse gas emissions reduction. Similarly, instruments such as the Energy Conservation Building Code and urban development guidelines serve a guiding function. Jaipur's local instruments, particularly the Bye-laws 2020 and Regulation 2022, allow for regulated integration of heritage-compatible climate mitigation and adaptation measures, such as renewable energy measures and adaptive reuse, but their contribution to India's climate change mitigation commitments remains indirect and discretionary.

In contrast, Bath presents the most explicit and proactive integration of national and international climate change mitigation commitments. Bath operates within the UK's legally binding national climate framework, established under the Climate Change Act 2008, which mandates carbon budgets and a net-zero emissions target by 2050. At the national level, the Department for Energy Security and Net Zero and the Department for Environment, Food and Rural Affairs lead climate mitigation and adaptation policy, supported by the independent Climate Change Committee. Locally, the B&NES Council has declared Climate and Ecological Emergencies and set a 2030 district-wide carbon neutrality target. These commitments are embedded in the Districtwide Composite Plan 2023, which integrates energy efficiency, renewable energy, and climate resilience into planning policy alongside heritage conservation, and is

supported by detailed Supplementary Planning Documents guiding heritage-compatible energy retrofits in historic buildings.

The fifth area of comparison relates to the presence or absence of formal UNESCO-required World Heritage management plans across the three cities. Bath is managed by the Bath World Heritage Site Management Plan 2024–2030, a draft plan awaiting final approval, which integrates heritage conservation with climate action and sustainable development. Visby is guided by the Strategy and Action Plan for the World Heritage Site Hanseatic Town of Visby 2020–2030 (2020), which balances heritage protection with modern urban needs. Jaipur city, by contrast, lacks a formal World Heritage management plan, despite its designation in 2019.

In sum, while Visby, Jaipur, and Bath all operate within legal and institutional frameworks shaped by their national obligations under the World Heritage Convention and the Paris Agreement, their implementation and local application reflect both similarities and differences. All three cities rely on existing national legal frameworks for the implementation of the World Heritage Convention rather than incorporating international treaties directly, and all employ multi-level governance involving national and subnational authorities and local planning instruments. However, important differences emerge in the degree of decentralization, the strength and enforcement of legal mandates, the extent of statutory recognition of World Heritage status, the integration of climate targets into local planning, and the presence or absence of World Heritage management plans. These variations highlight how legal traditions and regulatory and institutional frameworks affect how international obligations are implemented and applied at the local level in World Heritage cities.

4.2 Balancing Heritage Conservation and Energy Sustainability: A Comparative Analysis of Regulatory Approaches in Visby, Jaipur, and Bath

All three World Heritage cities – Visby, Jaipur, and Bath – recognize the need to balance heritage conservation with energy sustainability. In each city, energy measures are permitted only if they do not compromise the city's outstanding universal value. While preservation remains a legal priority, each city's regulatory and institutional framework grants varying degrees of discretion to national and local decision-makers in allowing energy-related interventions. These variations reflect differing legal traditions, policy priorities, and governance structures.

Visby adopts a regulatory approach that prioritizes heritage preservation and aesthetic integrity. The Detailed Development Plan and Building Regulation strictly limit visible modern installations, such as rooftop solar panels or external modifications. Energy retrofits are typically allowed only where they can be discreetly integrated, such as through internal insulation, efficient heating systems, or traditional restoration methods. Any ground disturbance, including for expanding district heating, requires a permit from the Gotland County Administrative Board. Region Gotland exercises planning authority over non-listed buildings via the Detailed Development Plan, while the Gotland County Administrative Board regulates listed buildings. The national interest area of Visby inner city is designated a "special supervision area," which grants the County Administrative Board the power to review all municipal building and land-use decisions. The National Heritage Board regulates changes to state-owned listed buildings. The County Administrative Board reviews grant ap-

plications for managing listed buildings.[410] Energy retrofit advice is available from Region Gotland through Energicentrum Gotland,[411] which helps property owners balance conservation and sustainability objectives. However, the combined regulatory structure gives subnational authorities significant discretion to restrict or permit energy measures, particularly for protected heritage assets.

Jaipur reflects a more flexible but still controlled approach to energy interventions. While stringent in regulating changes to façades, materials choices, and visible installations, its regulatory framework, particularly the Bye-laws 2020 and Regulation 2022, allows specific energy interventions, such as solar panels and air conditioning units, provided they are visually unobtrusive and do not affect the heritage character. Permissions for Grade-I (of national or state importance, often protected under central or state archaeological laws) and Grade-II (state-owned and of regional or local significance) heritage assets are granted by the State government on advice from the Technical Heritage Committee. For Grade-III assets, typically under private ownership and of local importance, permissions are handled by the Technical Heritage Committee, with input from its Heritage Cell at the Jaipur Municipal Corporation Heritage. Discretion over energy measures thus lies with a combination of municipal and state-level institutions, based on the classification of the property. Financial incentives, such as urban development tax rebates and flexible land-use policies, support adaptive reuse of listed heritage buildings, while a Heritage Fund supports conservation in public areas. However, these incentives are limited to designated heritage assets and exclude non-listed traditional buildings.

Bath combines strict heritage protection with comparatively progressive energy planning. While governed by national heritage protection laws and conservation policies, Bath integrates energy sustainability into local planning through the Local Plan and Supplementary Planning Documents (SPDs). B&NES Council's planning framework promotes the "energy hierarchy" approach, prioritizing energy demand reduction, followed by efficiency, and finally renewables, while recognizing that substantial weight must always be given to heritage conservation. Permissions for changes to listed buildings require consent from B&NES Council or, in some cases, the Secretary of State. Scheduled monuments and archaeological sites require Scheduled Monument Consent from the Secretary of State for Culture, Media and Sport. Additionally, some changes to these designated heritage assets also require planning permission from the B&NES Council. B&NES Council supplements this with financial and technical support programs, such as Energy at Home, Affordable Warmth, and Retrofit West, that assist property owners in implementing energy upgrades.[412] While grant availability remains limited for non-listed properties, the local authority's active support infrastructure demonstrates a higher institutional willingness to accommodate sustainable energy measures in protected buildings than in Visby or Jaipur.

Institutionally, these differences in regulatory approach correspond to how authority is distributed and exercised. In Visby, discretion is primarily exercised by subnational bodies oper-

[410] Gotland County Administrative Board, Contributions to cultural and historical environments <https://www.lansstyrelsen.se/gotland/samhalle/kulturmiljo/bidrag-till-kulturhistoriska-miljoer.html>.

[411] See Energicentrum Gotland <https://energicentrum.gotland.se/>.

[412] Bath Preservation Trust, Grants and Funding <https://www.bath-preservation-trust.org.uk/advocacy-campaigns/guidance-and-publications/grants-funding/>.

ating within a strong national framework, while the National Heritage Board retains authority over state-owned listed buildings. In Jaipur, authority is shared across municipal and state levels depending on heritage grading, allowing for some flexibility. In Bath, the local authority acts as both regulator and facilitator, enforcing national heritage laws and proactively guiding sustainable adaptation, while the Secretary of State retains decision-making authority in certain areas.

In sum, Visby, Jaipur, and Bath reflect diverse models of integrating energy sustainability within historic environments. Each city engages national and subnational decision-makers, but the scope of discretion granted to these actors varies. Visby permits energy measures narrowly and cautiously; Jaipur allows for greater flexibility in approving energy interventions through a tiered regulatory system; and Bath offers the most integrated approach, combining strong heritage protection with institutional support for energy transition and sustainability.

4.3 Glocalization and the Evolving Role of World Heritage Cities in Heritage and Climate Governance

Cities have traditionally functioned as administrative arms of national governments, putting into practice the international treaty obligations that their states have ratified. However, as Blank observes, cities are now increasingly engaged in the practical application of international legal norms due to three key developments.[413] First, the proliferation of international agreements and customary international law has created what he calls a "thicker international legal environment," where municipal responsibilities, such as planning, environmental protection, and infrastructure, are shaped by international treaties and obligations, even when implemented through national law.[414] This thicker regulatory environment is reflected in the municipal planning documents and practices of Visby, Jaipur and Bath. Second, the trend toward decentralization has granted cities greater authority in areas once controlled by national governments,[415] including urban sustainability, heritage protection, and climate policy. This shift is evident in Region Gotland's planning authority for heritage conservation in Visby inner city, the regulatory role of Jaipur Municipal Corporation Heritage for planning and conservation in Jaipur walled city, and the powers exercised by B&NES Council in Bath as a unitary authority overseeing both planning and conservation. Third, in response to national inaction, some cities have voluntarily adopted international legal norms into their local plans and policies, especially in climate governance, aligning with instruments such as the Paris Agreement.[416] Jaipur and Visby both permit energy-related measures despite the absence of binding national mandates for the mitigation of climate change. In contrast, Bath's local commitments build upon a strong national framework to advance climate change mitigation.

The evolving relationship between global and local governance has important implications for how World Heritage cities balance heritage conservation with energy sustainability. While the World Heritage Convention and the Paris Agreement establish global objectives, their practical application depends on how national legal systems empower local decision-makers and other relevant stakeholders. This reflects what Foster and Swiney call "glocalization," a

[413] Yishai Blank, 'International Legal Personality/Subjectivity of Cities' in Helmut Philipp Aust and Janne E. Nijman (eds), *Research Handbook on International Law and Cities* (Edward Elgar Publishing 2021) 103.

[414] Ibid 109.

[415] Ibid.

[416] Ibid 109–110.

multidirectional process connecting global and local actors that allows cities and international actors to interact and influence governance approaches.[417]

Aust and Nijman argue that while cities engage with international law, their ability to do so is constrained by national legal structures and institutional capacities.[418] While some cities successfully leverage international norms to advance local goals, sometimes even diverging from national policy, their capacity to do so varies significantly depending on their state structures and legal systems.[419] The growing prominence of city networks in fields such as climate governance and human rights illustrates this shift. For example, certain U.S. cities, including New York and San Francisco, have aligned their policies with international agreements, such as the Kyoto Protocol or human rights treaties such as the Convention on the Elimination of All Forms of Discrimination Against Women, despite the federal non-ratification.[420] Quito (Ecuador) hosted the Habitat III conference (2016), where its mayor emphasized the importance of how cities can be at the forefront of implementing the SDGs, particularly SDG 11 on Sustainable Cities and Communities.[421] In 2018, New York announced it would report directly to the UN on its SDGs implementation.[422] After the U.S. withdrawal from the Paris Agreement in 2025, a coalition of city mayors reaffirmed their commitment to global climate action through networks such as C40.[423] Another significant example, the Global Covenant of Mayors for Climate & Energy now represents over 12,500 cities and local governments across 144 countries and more than one billion people and highlights the rising influence of cities in global climate governance.[424]

The findings of this study resonate with broader literature on the evolving role of cities in international law.[425] While World Heritage cities are often seen as implementers of state obligations under the World Heritage Convention, they increasingly act as co-creators of transnational frameworks. Lin argues that cities are not merely applying national policies but are actively shaping environmental law through transnational city networks, collaborative governance, and policy diffusion.[426]

The World Heritage Cities Programme[427] exemplifies this, bringing together insights and practical experiences from more than 300 historic cities worldwide. By fostering collaboration and knowledge-sharing among site managers, local authorities, heritage professionals, and local community, the programme creates a platform for addressing shared challenges in urban heritage conservation. It promotes innovative approaches that integrate cultural preservation with the demands of contemporary urban life, such as climate change mitigation and adaptation, sustainable development, and infrastructure needs. Through this global network, UNESCO supports not only cities inscribed on the World Heritage List but also other historic urban areas in developing context-sensitive approaches to conservation and sustainability. In this regard, the cases of Visby, Jaipur, and Bath

[417] Foster and Swiney (n 12) 370.
[418] Aust and Nijman (n 409).
[419] Ibid.
[420] Ibid 5–6 and 10.
[421] Ibid 5 and 11.
[422] Ibid 6.
[423] C40 Cities, Global network of mayors react to President Trump withdrawing the US from the Paris Climate Agreement (2025) <https://www.c40.org/news/global-network-of-mayors-react-to-president-trump-paris-agreement/> accessed 15 March 2025.
[424] See Global Covenant of Mayors for Climate & Energy <https://www.globalcovenantofmayors.org>.
[425] Helmut Philipp Aust and Janne E. Nijman (n 12).
[426] Jolene Lin (n 12).
[427] UNESCO World Heritage Cities Programme (n 205).

illustrate how local authorities use their position within such transnational networks to secure regulatory flexibility, attract financial and technical resources, and influence policy innovation that integrates heritage conservation with energy sustainability. These cities also contribute traditional architectural and urban knowledge, developed over centuries in response to local climatic and geographical conditions, to global dialogues on climate action and sustainable urban development. As du Plessis and UNESCO describe, these cities function as "living laboratories,"[428] where climate and heritage conservation policies are tested, refined, and reimagined in responses to contemporary challenges.

As Aust notes, the growing role of cities in global governance should not be interpreted as the decline of the nation-state but rather a reconfiguration of governance, wherein cities and states coexist within complex transnational legal frameworks.[429] Recognizing "glocalization" as a governance mechanism[430] underscores that World Heritage cities are not passive recipients of international law, but active co-creators translating and adapting them into locally viable rules. Their effectiveness in doing so depends on the discretion granted by national law, the strength of municipal regulatory frameworks, and the evolving architecture of the international legal order.

Although cities cannot ratify treaties, they increasingly influence international law and governance. Foster and Swiney argue that city networks have moved beyond knowledge-sharing platforms to perform diplomatic roles that shape global norms and policy agendas. By leveraging transnational networks, cities engage in "city diplomacy," often bypassing traditional state-centric decision-making to influence international frameworks such as the Paris Agreement. This is relevant for historic and World Heritage cities, where the intersection of heritage conservation and climate action requires balancing international obligations with local realities. However, these cities remain embedded in national legal systems and do not possess independent legal personality under international law. Understanding how they navigate within these frameworks is important to assessing their role in implementing heritage conservation and climate change commitments.

As du Plessis highlights, climate governance and inter-city collaborations are driving innovation in urban management.[431] Historic cities must now reconsider how they protect and manage built heritage while integrating energy sustainability. In Visby, Jaipur, and Bath, these pressures manifest differently, yet all three function as experimental arenas where new legal and planning approaches are developed. Their responses provide instructive examples for other historic cities navigating similar challenges.

Given that over 300 cities hold World Heritage status,[432] further research is needed to examine how different legal systems and governance models influence the balance between heritage conservation and energy sustainability. Comparative studies across a wider range of jurisdictions could deepen understanding of how international norms are localized through municipal planning and regulation.

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[428] Anél du Plessis (n 12) 188; UNESCO (n 54).
[429] Helmut Philipp Aust (n 12).
[430] Foster and Swiney (n 12).
[431] Anél du Plessis (n 12) 199.
[432] UNESCO World Heritage Cities Programme (n 205).

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