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The Contribution of *Urgenda* to the Mitigation of Climate Change

Benoit Mayer* 

ABSTRACT

Dutch courts in *Urgenda* ordered the government of the Netherlands to reduce national greenhouse gas emissions by 25% by 2020, compared with 1990. The case has been presented as a remarkable judicial victory of climate action advocates. With hindsight, this article questions the case's contribution to the mitigation of climate change. If the *Urgenda* target has been met, this had little to do with the few measures that the government took too late and too hurriedly to achieve genuine mitigation outcomes. Rather, these measures likely caused a slight increase in global long-term emissions. And while the case has raised awareness, there is no reason to assume that it has translated into momentum for climate action more than it has hindered new policy developments. This case study sheds light on practical limitations of court-imposed climate targets that may justify the greater restraint that other courts have exercised in comparable cases.

KEYWORDS: *Urgenda*, climate change litigation, climate change mitigation, mitigation outcomes

1. INTRODUCTION

In November 2012, *Urgenda*, an NGO, wrote to the Prime Minister of the Netherlands to request that the government reduce national greenhouse gas (GHG) emissions by 40% by 2020, compared with 1990.¹ The request was rejected, and *Urgenda* brought the case to the national court. In June 2015, the District Court of the Hague decided the case mainly in favour of the plaintiff by construing the state's duty of care as requiring it to reduce national GHG emissions by at least 25% by 2020, compared with 1990 ('*Urgenda* target').² On the state's appeals, the Court of Appeal of the Hague (October 2018) and the Supreme Court (December 2019) upheld the *Urgenda* target, although they substituted tort law with human rights law as the legal basis for the state's obligation to achieve this target.³

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1 Letter from M.E. Minnemans, Executive Director of *Urgenda*, to M. Rutte, Prime Minister of the Netherlands (Nov. 12, 2012) (English translation), available at <https://www.urgenda.nl/wp-content/uploads/Letter_to_the_government.pdf> accessed on 31 August 2022.

2 *Urgenda v Netherlands*, ECLI:NL:RBDHA:2015:7145 (District Court of the Hague, 24 June 2015), ILDC 2456 (2015) (*Urgenda I*).

3 *Urgenda v Netherlands*, ECLI:NL:GHDHA:2018:2591 (Court of Appeal of the Hague, 9 October 2018), English translation in (2020) 67 NILR 342 (*Urgenda II*); *Urgenda v Netherlands*, ECLI:NL:HR:2019:2007 (Supreme Court, 20 December 2019), English translation in (2020) 59 ILM 811 (*Urgenda III*).

Urgenda has been described as ‘the very first court decision ... that orders a state to limit GHG emissions for reasons other than statutory mandates’⁴ Scholars have suggested that the case would open ‘a new era of climate change litigation’⁵ and lead to ‘stricter climate policies’.⁶ Yet, they have also raised questions about the validity of the legal reasoning and interpretation of the scientific reports underpinning the determination of the *Urgenda* target,⁷ and about the consistency of court decisions setting a mitigation target with the doctrine of the separation of powers.⁸ Indeed, courts in other countries have dismissed comparable cases, in particular, on the ground that imposing a mitigation target fell ‘beyond [their] constitutional power.’⁹ Other cases on climate change mitigation decided in favour of the plaintiffs were primarily concerned with the consistency of a state’s conduct with its own laws, policies or strategies,¹⁰ rather than with the judicial determination of the mitigation target applicable to the defendants.¹¹

This article contributes to the debate on the propriety of court-imposed climate targets from a more practical perspective by questioning the capacity of such targets to foster enhanced action on climate change mitigation. It does so by assessing, often with the benefit of hindsight, how *Urgenda* has contributed to the mitigation of climate change, including both its direct impact on national and global emissions and its broader legal and political consequences. To assess the emission reductions achieved because of the case, this article identifies and, whenever possible, quantifies the effects of *Urgenda* on greenhouse gas emissions, by comparison with a counterfactual baseline scenario without *Urgenda*. It relies on a combination of existing studies and original quantitative analysis, following the methodological principles for action and project accounting outlined by the Greenhouse Gas Protocol.¹² Such analysis is imperfect in many ways—it is plagued by deep uncertainties¹³ and contingent on the quality of available data—but it is essential to an assessment of the real outcomes of the case. The calculations are detailed in additional materials available online.¹⁴

This analysis shows that, although the *Urgenda* target has been met, this has more to do with extraneous circumstances than with the measures taken by the government to implement the decisions. These implementation measures reduced national emissions by only about 1.3 MtCO₂eq in 2020, representing 0.6% of the state’s 1990 emissions. Overall, they did so mainly

4 KJ de Graaf and JH Jans, ‘The Urgenda Decision: Netherlands Liable for Role in Causing Dangerous Global Climate Change’ (2015) 27 JEL 517, 527. See also Jaap Spier, ‘The “Strongest” Climate Ruling Yet’: The Dutch Supreme Court’s *Urgenda* Judgment’ (2020) 67 NILR 319, 319.

5 Lucas Bergkamp, ‘The Urgenda Judgment: A “Victory” for the Climate That Is Likely to Backfire’, *Lawyers Insights* (9 September 2015).

6 Marjan Peeters, ‘Urgenda Foundation and 886 Individuals v. The State of the Netherlands: The Dilemma of More Ambitious Greenhouse Gas Reduction Action by EU Member States’ (2016) 25 RECIEL 123, 128–129. See also Mehrdad Payandeh, ‘The Role of Courts in Climate Protection and the Separation of Powers’, in Wolfgang Kahl and Marc-Philippe Weller (eds), *Climate Change Litigation: A Handbook* (Bloomsbury 2021) 62, para. 30.

7 Benoit Mayer, ‘Climate Change Mitigation as an Obligation Under Human Rights Treaties?’ (2021) 115 AJIL 409; Benoit Mayer, ‘The State of the Netherlands v. Urgenda Foundation: Ruling of the Court of Appeal of The Hague (9 October 2018)’ (2019) 8 TEL 167.

8 eg Peeters (n 6); de Graaf & Jans (n 4) 523–25.

9 *Juliana v US*, 947 F.3d 1159 (9th Cir., 17 Jan. 2020), at 1165. See also references below, note 138.

10 eg *Massachusetts v EPA*, 549 US 497 (SC, 2 April 2007); *Friends of the Irish Environment v Ireland* [2020] IESC 49, [2020] 2 ILRM 233; *Grande-Synthe v France* (Conseil d’Etat, 19 November 2020), ECLI:FR:CECHR:2020:427301.20201119; *Oxfam v France*, Application 1904967, Decision 44-008.60-01-02-02.R (Administrative Tribunal, Paris, 2 February 2021); *Neubauer v Germany*, 1 BvR 2656/18 (Federal Constitutional Court, 24 March 2021) <<https://perma.cc/UJM6-QCCY>> accessed on 31 August 2022.

11 But see *Milieudefensie v Royal Dutch Shell*, ECLI:NL:RBDHA:2021:5337 (District Court of the Hague, 26 May 2021), English translation <<https://perma.cc/VKG6-TZ4A>> accessed on 31 August 2022.

12 Greenhouse Gas Protocol, ‘Policy and Action Standard’ (WRI, 2014); Greenhouse Gas Protocol, ‘Project Protocol’ (WBCSD and WRI, 2005).

13 For instance, on the land-use impact of biofuel, see Flannery Dolan and others, ‘Modeling the Economic and Environmental Impacts of Land Scarcity Under Deep Uncertainty’ (2022) 10 Earth’s Future e2021EF002466; and generally references note 130.

14 See <<https://benoitmayer.com/wp-content/uploads/2022/09/Urgenda-spreadsheet.pdf>> accessed on 4 September 2022 and archived at <<https://perma.cc/T2Y9-N83A>>.

by displacing sources of emissions to other countries. One measure—a tax on the disposal of foreign waste—has led to a net increase in global emissions, as it caused some waste to be landfilled in the UK rather than being incinerated in the Netherlands. All in all, the case has not resulted in any significant reduction in global emissions, but rather in a slight increase (0.3 MtCO₂eq, cumulatively, between 2020 and 2029). From a broader perspective, the case may have contributed to climate change mitigation by raising awareness, but it may just as well have impeded mitigation action by interfering with international negotiations and, through the implementation of ineffective measures, eroding political support for further action. In sum, *Urgenda* has not led to enhanced climate action; if anything, it has impeded such action.

This case study reflects structural issues that are likely to arise in other target-setting cases. Judges have neither the time, nor the expertise to design comprehensive policies on climate change mitigation,¹⁵ and emission-reduction targets are poor substitutes. National emission-reduction targets are likely to incentivise ineffective or counterproductive measures on climate change mitigation when imposed on a relatively short time span and in abstraction from existing policies and measures. Overall, judges are ill-equipped to monitor and force compliance with emission-reduction targets. Thus, this article suggests a practical justification for a cautious approach to the scope of judicial functions in climate litigation. While courts certainly have a role to play in holding states accountable for their climate (in)action, target-setting and other policy-making exercises are, it seems, better left to the political branches of the government.

Sections 2 and 3 assess the mitigation outcomes of the measures that the Dutch government has taken to comply with the judgments. More specifically, section 2 focuses on national emissions in 2020 (that is, the scope of the judgments), whereas section 3 turns to global and long-term perspectives. Section 4 appraises the case's indirect legal and political effects. Section 5 considers the possibility of drawing general lessons from this case study.

2. THE FORTUITOUS REALISATION OF THE URGENDA TARGET

This section identifies the prevailing interpretation of the *Urgenda* target, as concerning emissions reported by the Netherlands in 2020. It shows that this target has likely been reached, but that measures taken to implement the judgments have only contributed marginally to this outcome.

2.1. Making Sense of the Urgenda Target

There are multiple ways to account for GHG emissions and attribute them to states. As such, mitigation goals should be accompanied with technical specifications regarding, among other things, the 'geographic area, sectors, and greenhouse gases covered'.¹⁶ They should also specify the possibility of relying on international transfer of mitigation outcomes.¹⁷ None of the three judgments in *Urgenda* defines these modalities. The District Court, for instance, merely refers to 'Dutch annual greenhouse gas emissions'.¹⁸

The Dutch government has apparently assumed that the *Urgenda* target refers to the emissions that the Netherlands must report in its annual National Inventory Reports (NIRs) under

¹⁵ For an overview of what it takes to define a national policy on climate change mitigation, see Kelly Levin and others, 'Designing and Preparing Intended Nationally Determined Contributions (INDCs)' (WRI and UNDP 2015).

¹⁶ Greenhouse Gas Protocol, *Mitigation Goal Standard* (World Resources Institute 2014) 12.

¹⁷ *ibid* 14. See also Decisions 2/CP.17, 'Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention' (11 December 2011), FCCC/CP/2011/9/Add.1, 4, at Annex I para 5; and 4/CMA.1, 'Work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement' (13 November 2021), FCCC/PA/CMA/2021/10/Add.41, para 12 and Annex I.

¹⁸ *Urgenda I* (n 2) para. 5.1.

the UN Framework Convention on Climate Change (UNFCCC),¹⁹ hence without accounting for any international transfer of mitigation outcomes. This assumption has practical benefits: it facilitates the assessment of the achievement of the target. The Conference of the Parties to the UNFCCC (COP) has defined the methodology applicable to national reporting by reference to comprehensive guidelines developed by the Intergovernmental Panel on Climate Change (IPCC).²⁰ In general, these guidelines are based on the principle that each state should report the emissions occurring within its territory.²¹ The conformity of NIRs with these guidelines is assessed through technical reviews conducted by members of the UNFCCC roster of experts.²² On the other hand, methodological refinements regularly approved by the COP can have some unpredictable consequences for the stringency of the *Urgenda* target and, ultimately, its realisation.²³

Further, the Dutch government has assumed that the *Urgenda* target refers to total national emissions excluding land use, land-use change, and forestry (LULUCF).²⁴ NIRs account for LULUCF emissions separately. Due to their higher level of uncertainty, these emissions are sometimes excluded from the scope of national commitments, in particular in European countries.²⁵

It is noteworthy that, while emissions are usually monitored on an annual basis, the District Court ordered the achievement of the target 'at the end of 2020'.²⁶ As some sources of emissions vary seasonally (eg, heating and agricultural emissions), emissions occurring 'at the end of 2020' cannot directly be compared with those of the entire year of 1990. As such, the government has justly assumed that the *Urgenda* target refers in fact to the emissions that the Netherlands must report in its NIR for the entire year of 2020.²⁷

The government has also assumed that the target had to be met not only in 2020, but also in any subsequent years.²⁸ This is presumably based on the idea that Courts would hold the state to a standard of non-regression with regard to the level of national emissions, although the legal basis of this standard is unclear.²⁹ This assumption is of particular significance because, as the following shows, the emission reductions observed in 2020 resulted largely from extraneous factors unlikely to persist in the following years.

2.2. The Likely Realisation of the *Urgenda* Target

Based on the assumptions outlined above, the *Urgenda* target has likely been achieved. This conclusion, however, was not immediately obvious, and it remains uncertain. In March 2021, Statistics Netherlands (CBS)'s preliminary estimate was that national emissions had shrunk

19 Compare 'Urgenda Target' (CBS, nd) <<https://www.cbs.nl/en-gb/news/2022/06/urgenda-reduction-target-for-ghg-emissions-achieved-in-2020/urgenda-target>>, accessed on 9 June 2022 and archived at <<https://perma.cc/T3PT-PMKV>>; with Netherlands, NIR 2022 (14 April 2022) at 18. See also Netherlands, Fourth Biennial Report under the UNFCCC (20 December 2019) 43.

20 eg Decision 24/CP.19, 'Revision of the UNFCCC Reporting Guidelines on Annual Inventories for Parties Included in Annex I to the Convention' (22 November 2013), FCCC/CP/2013/10/Add.3, 2; 2006 IPCC Guidelines for National Greenhouse Gas Inventories (IPCC 2006) <<https://www.ipcc-nggip.iges.or.jp/public/2006gl/>> accessed on 31 August 2022.

21 *ibid* vol 1, ch 1, at 4, and ch 8, at 4–4.

22 Decision 2/CP.17 (n 17) para. 27.

23 eg Decision 24/CP.10 (n 20). See also notes 41–42.

24 See references note 19.

25 See eg Submission on behalf of the European Union and its Member States (20 March 2012) FCCC/AWGLCA/2012/MISC.1, 3, at 7–8.

26 *Urgenda I* (n 2) para. 5.1.

27 eg Netherlands, BR4 (n 19) 10.

28 eg Letter of the Minister of Economic Affairs and Climate Policy of 9 December 2020, in documents of the House of Representatives 2020–21, file 32,813 nr 644 <<https://zoek.officielebekendmakingen.nl/kst-32813-644.html>> accessed on 31 August 2022.

29 cf Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) (2016) 55 ILM 740, art 4(3), applicable only in relation to NDCs.

by only 24.5% from 1990 to 2020.³⁰ In September 2021, a refined preliminary estimate suggested that a reduction of 25.4% had actually been achieved.³¹ Eventually, the state's first NIR to report on the state's 2020 emissions, communicated to the UNFCCC Secretariat in April 2022, concludes a reduction in national emissions by 25.5% (from 220.5 to 164.3 MtCO₂eq).³² Given the range of uncertainty indicated by the NIR, this suggests a 69% probability that the Netherlands has achieved at least 25% emission reduction by 2020, compared with 1990.³³ A report on the technical review of the NIR is expected to be published in early 2023.³⁴ Moreover, as CBS observes, 'it cannot be ruled out that future calculations will show less than 25% emission reduction' from 1990 to 2020, as data and methodologies keep being refined, leading to recalculation of historical time series in subsequent reports.³⁵

The achievement of the *Urgenda* target was unpredicted. In June 2015, the District Court could be under the impression that the 25% emission-reduction target required a significant increase of ambition, as the state projected that it would only achieve 17% emission reduction, even when taking into account a set of measures that it was yet to adopt.³⁶ However, such projections inevitably come with a high margin of uncertainty, especially in a relatively small country with a highly interconnected economy.³⁷ While the EU's Emissions Trading Scheme (ETS) regulates about half of the EU's total emissions,³⁸ it does not determine in which member state these emissions are to take place, leaving this determination to the secondary market in emission allowances.

Indeed, the government rapidly revised its projections: by December 2015, it projected that it would achieve 18% emission reduction;³⁹ in 2017 and 2019, it projected 23% emission reduction.⁴⁰ These revisions did not reflect the adoption of additional measures as much as refined assumptions about extraneous factors such as the prices of fossil fuels and of emission allowances under the ETS.⁴¹ Both the 1990 baseline estimates and the 2020 projections were also impacted by methodological refinements (some of which agreed upon under the UNFCCC) and by the updated global warming potentials used to compare emissions of different gases.⁴²

30 'Greenhouse Gas Emissions 8 Percent Down in 2020' (CBS, 15 March 2021), <<https://www.cbs.nl/en-gb/news/2021/10/greenhouse-gas-emissions-8-percent-down-in-2020>> accessed on 9 June 2022 and archived at <<https://perma.cc/AA88-FSMX>>.

31 Rijksinstituut voor Volksgezondheid en Milieu (RIVM), 'Daling uitstoot CO₂ en luchtverontreiniging zet door in 2020, uitstoot ammoniak stijgt licht' (3 September 2021).

32 Netherlands, NIR 2022 (n 19) 19. The data were published two months earlier. See 'Urgenda Reduction Target for GHG Emissions Achieved in 2020' (CBS, 9 February 2022) <<https://www.cbs.nl/en-gb/news/2022/06/urgenda-reduction-target-for-ghg-emissions-achieved-in-2020>>, accessed on 9 June 2022 and archived at <<https://perma.cc/6QDV-SA2Z>>.

33 Netherlands, NIR 2022 (n 19) 48–49 (±2% of the 1990 baseline for a 95% confidence range). This probability assumes a normal distribution.

34 See reference note 22.

35 'Urgenda Target' (n 19). A recalculation on emission data from the NIR 2022 using the IPCC's latest global warming potentials suggests that national emissions have reduced by 25.6%, from 222.7 and 165.8 MtCO₂eq. See Chris Smith and others, 'The Earth's Energy Budget, Climate Feedbacks, and Climate Sensitivity: Supplementary Material', in IPCC, *Climate Change 2021: The Physical Science Basis* (CUP, forthcoming) section 7.SM.6.

36 *Urgenda I* (n 2) para. 4.26. See Netherlands, NIR 2014 (15 April 2014) 14 (estimating 1990 emissions, excluding LULUCF, at 211.8 MtCO₂eq); Michiel Hekkenberg and Martijn Verdonk, *Nationale Energieverkenning* (Energieonderzoek Centrum Nederland 2014), 53 (2020 projection: 176 MtCO₂eq, taking into account the anticipated effect of some measures that the government was about to adopt).

37 See eg Netherlands, Third Biennial Report under the UNFCCC (29 December 2017), at 85 (assessing the uncertainty associated with the 2020 projections at ±5% of the 2020 level of emissions).

38 EU, Fourth Biennial Report (resubmission, 9 June 2020) at 57.

39 Netherlands, Second Biennial Report under the UNFCCC (29 December 2015) 69.

40 Netherlands, BR3 (n 37) 67; Netherlands, BR4 (n 19) 79–80.

41 See Netherlands, BR3 (n 37) 66; Netherlands, BR4 (n 19) 82. The anticipated effect of measures taken to implement the *Urgenda* decisions was not taken into account, except for the closure of the Hemweg coal plant, which was included in the Fourth Biennial Report. See BR3 (n 37) 37; Netherlands, BR4 (n 19) at 43; and the clarifications in Isaac Nyaneyon and others, Report on the Technical Review of the Fourth Biennial Report of the Netherlands, FCCC/TRR.4/NLD (29 May 2020) 14–15 (table 5, finding 1) 20 (para 78); UNFCCC Secretariat, Multilateral Assessment: Compilation of Questions to and Answers by Netherlands (5 November 2020) at 18 (response to a question by China). The Fourth Biennial Report expected national emission to shrink by 6 MtCO₂eq by 2020 'due to higher fuel and CO₂ prices and the closure of the Hemweg power plant'; but it did not provide a disaggregated estimate of the outcome of the latter measure. Netherlands, BR4 (n 19) 82.

42 Netherlands, BR2 (n 39) 53; Netherlands, BR3 (n 37) 66; Netherlands, BR4 (n 19) 82.

Ultimately, the state's emissions decreased faster than expected, with a remarkable 9% year-to-year drop between 2019 and 2020,⁴³ due mainly to two developments. First, measures taken against the Covid-19 pandemic reduced travel,⁴⁴ causing a 15% emission reduction in the transport sector.⁴⁵ Second, the historically low prices of natural gas accelerated the substitution of coal with gas,⁴⁶ contributing significantly to a 16% drop in emissions from energy industries.⁴⁷ These factors, however, were temporary. In 2021, the price of natural gas increased while the Netherlands went through an accelerated economic growth and a cold winter.⁴⁸ As a result, CBS estimates that the 2021 national emissions may have raised to 167.8 MtCO₂eq (ie, only 23.9% below their 1990 levels) due to an increase in emissions from energy industries.⁴⁹ Emissions from transport, which remained abnormally low in 2021, will increase when travel restrictions are lifted. As such, it may take several years for the Netherlands to return to compliance with the *Urgenda* target.⁵⁰

2.3. The Limited Contribution of Implementation Measures

The 2015 and 2018 judgments were provisionally enforceable.⁵¹ The Dutch government pledged to start implementing them immediately,⁵² but it did not actually take any measures until 2019.⁵³ Some of the measures that it adopted at that point could not be implemented in time to produce any mitigation outcomes in 2020. For instance, a statutory cap on carbon dioxide emissions from coal-fired power plants has only taken effect in 2022,⁵⁴ and a measure on the blending of biofuel in the fuel used for inland navigation will only be implemented from 2023.⁵⁵ Some other measures adopted by 2020 are not causally related to the judgment. In particular, a reduction of the speed limit on highways in daytime aimed at bringing the Netherlands back to compliance with European standards on nitrogen pollution in response to another court decision.⁵⁶ Incidentally, this measure does not appear to have contributed significantly to the reduction in transport emissions in 2020.⁵⁷

43 Netherlands, NIR 2022 (n 19) 3. See also UNFCCC Secretariat, Netherlands' Multilateral Assessment (n 41) 12.

44 StatLine, 'Mobility; per person, modes of travel, purposes of travel and regions', <<https://opendata.cbs.nl/statline/#/CBS/en/dataset/84710ENG/table?dl=697A3>> accessed on 9 June 2022.

45 Netherlands, NIR 2022 (n 19) 60.

46 Planbureau voor de Leefomgeving (PBL) and others, *Klimaat- en Energieverkenning 2021* (2021) 124.

47 Calculation based on data from Netherlands, NIR 2022 (n 19) common reporting format (CRF) 2020 table 1s1 row 9.

48 PBL, *Klimaat- en Energieverkenning 2021* (n 46) 12.

49 StatLine, 'Emissions of greenhouse gases according to IPCC Guide-lines, quarter', <<https://opendata.cbs.nl/statline/#/CBS/en/dataset/84979ENG/table?dl=68C4D>>, accessed on 9 June 2022 (using global warming potentials of the IPCC's Fourth Assessment Report).

50 PBL, *Klimaat- en Energieverkenning 2021* (n 46) 12.

51 *Ugenda I* (n 2) section 5.3; *Ugenda II* (n 3) para. 76.

52 Anthony Deutsch, 'Dutch Government to Appeal against Emissions Ruling' *Reuters* (1 September 2015) <<https://www.reuters.com/article/us-netherlands-carbon-court-idUSKCN0R12P120150901>>, accessed on 9 June 2022; Netherlands, BR2 (n 39) at 30; Netherlands, BR3 (n 37) 37.

53 See Letter of the Minister of Economic Affairs and Climate Policy of 8 March 2019, in documents of the House of Representatives 2018–19, file 32813 nr 303 <<https://zoek.officielebekendmakingen.nl/kst-32813-303.html>> accessed on 31 August 2022; Letter of the Minister of Economic Affairs and Climate Policy of 28 June 2019, in documents of the House of Representatives 2018–19, file 32813 nr 341 <<https://zoek.officielebekendmakingen.nl/kst-32813-341.html>> accessed on 31 August 2022. See also Netherlands, BR3 (n 37) 37; Netherlands, BR4 (n 19) 38–39; Hester van Santen and Erik van der Walle, 'Urgendabelofte Kabinet was loos', *NRC* (18 December 2018).

54 Act of 7 July 2021, Stb. 2021/382 <<https://zoek.officielebekendmakingen.nl/stb-2021-382.html>> accessed on 31 August 2022, art I(B)(2), amending Act of 11 December 2019 (Wet verbod op kolen bij elektriciteitsproductie), Stb. 2019/493 <<https://zoek.officielebekendmakingen.nl/stb-2019-493.html>> accessed on 31 August 2022, art 3(2), (7).

55 See note 102. See also Letter of the Minister of Economic Affairs and Climate Policy of 9 December 2020 (n 28) (recognising that additional measures would not be adopted in time to be implemented in 2020).

56 *Stichting Werkgroep Behoud de Peel v Noord-Brabant*, ECLI:NL:RVS:2019:1603 (Council of State, 29 May 2019). See Erik Stokstad, 'Nitrogen Crisis from Jam-Packed Livestock Operations Has 'Paralyzed' Ditch Economy', *Science* (4 December 2019); Daniel Boffey, 'Dutch Government Cuts Speed Limit to 100km/h to Reduce Air Pollution' *The Guardian* (13 November 2019). But see André Nollkaemper and Laura Burgers, 'Introductory Notes to the State of the Netherlands v. *Urgenda*' (2020) 59 ILM 811, 813.

57 See n 48. While the number of kilometres travelled by car declined by 33% in 2020, emissions shrank by only 22%, showing an increase in the emission intensity of car transportation. See StatLine, 'Mobility' (n 44); Netherlands, NIR 2022 (n 19) CRF 2019–20 table 1.A(a)s3, row 19. National statistics reveal no significant intermodal shift.

As such, the government's compliance strategy relied mainly on three measures that it implemented in late 2019 or in 2020: the accelerated closure of a coal plant, a budget increment to a feed-in tariff programme, and a tax on the disposal of foreign waste. While some other measures have been announced, they were expected to achieve far less significant mitigation outcomes.⁵⁸ The following assesses how each of the three main measures of implementation has contributed to the achievement of the *Urgenda* target.

First, the government accelerated the closure of the Hemweg coal-fired power plant. Instead of the end of 2024, as originally planned,⁵⁹ the coal plant was ordered to close by the end of 2019;⁶⁰ it stopped operations on 23 December 2019.⁶¹ According to data from the EU ETS transaction log, the Hemweg industrial complex emitted 3.2 Mt of carbon dioxide in 2019.⁶² Beside the coal plant, however, the complex includes a gas-fired unit, which remained in operation.⁶³ As no better data is publicly available,⁶⁴ the coal plant's 2019 annual emissions are estimated at 2.4 MtCO₂eq by comparing the aggregate emissions of the Hemweg industrial complex in 2019 and 2020, assuming that emissions from the gas-fired unit followed the national trend in emission from gas plants,⁶⁵ and using national emission factors to estimate the plant's non-CO₂ emissions.⁶⁶

In hindsight, if the Hemweg coal plant had not been ordered to close, its activities would likely have reduced significantly in 2020. Amercentrale, the only other Dutch coal plant of a similar age and efficiency that continued to operate in 2020,⁶⁷ reduced its emissions by 49% year-to-year from 2019 to 2020.⁶⁸ This trend reflects a national and EU-wide decline in coal-fired energy⁶⁹ caused by an increase in the price of emission allowances,⁷⁰ a reduction of the price of natural gas,⁷¹ and, to a lesser extent, a contraction of electricity consumption under the influence of measures taken against the Covid-19 pandemic.⁷² Hemweg could have reduced its emissions by relying increasingly on biomass as a substitute to coal,⁷³ as Amercentrale did,⁷⁴ to

58 See Letter of the Minister of Economic Affairs and Climate Policy of 24 April 2020 <<https://www.rijksoverheid.nl/documenten/kamerstukken/2020/04/24/kamerbrief-over-uitvoering-urgenda-vonniss>> accessed on 10 June 2022 and archived at <<https://perma.cc/7J37-6ZPY>>.

59 See eg Letter of the Minister of Economic Affairs and Climate Policy of 8 March 2019 (n 53); Report of the Council of State on the Rules for Producing Electricity Using Coal, House of Representatives 2018–19, file 35167 nr 4 <<https://zoek.officielebekendmakingen.nl/kst-35167-4.html>> accessed on 31 August 2022, section 1.

60 Letter of the Minister of Economic Affairs and Climate Policy of 8 March 2019 (n 53).

61 'Vattenfall's Last Coal Power Plant in the Netherlands Is Closing', *Vattenfall* (20 December 2019) <<https://group.vattenfall.com/press-and-media/pressreleases/2019/decision-of-the-dutch-government-closure-of-hemweg-8-power-plant-by-the-end-of-2019>> accessed on 31 August 2022.

62 EU ETS transaction log, retrieved from European Commission, 'Verified Emissions for 2021' (1 April 2022) <<https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1>> accessed on 31 August 2022.

63 'Hemweg 9: A New Gas Fired Plant', *Vattenfall* <<https://powerplants.vattenfall.com/hemweg-9/>> accessed 9 June 2022.

64 See EU, NIR 2022 (27 May 2022) at 36.

65 But see Commission Decision C(2020) final 2998 (12 May 2020) on State aid SA.54537 (2020/NN) – Netherlands: Prohibition of coal for the production of electricity in the Netherlands, para 22 (suggesting that Hemweg plant emitted 3.61 MtCO₂ in 2018, based, apparently, on the emission reported for the entire Hemweg facilities, including the gas plant, under the EU ETS).

66 See Netherlands, NIR 2022 (n 19), CRF 2019 table 1.A(a)s1, row 26.

67 See International Energy Agency, *The Netherlands 2020: Energy Policy Review* (September 2020) 232.

68 Calculations based on data from EU ETS transaction log (n 62). While the closing of the Hemweg coal plant may have resulted in an increase of activity by Amercentrale, this effect is likely to be limited, given the size of the Hemweg coal plant and the fungibility of electricity generation in the EU market.

69 See Netherlands, NIR 2022 (n 19), CFR 2019–20 table 1.A(a)s1, row 26 (40.5% reduction from 2019 to 2020); EU, NIR 2022 (n 65), CRF 2019–20 table 1.A(a)s1, row 26 (20.7% reduction).

70 See Andrei Marcu and others, *2021 State of the EU ETS Report* (ERCST 2022) 17.

71 See International Energy Agency, *Gas 2020* (June 2020), 3. Gas-fired electricity production in the Netherlands increased by 3% between 2019 and 2020, while coal-fired electricity production decreased by 50%, according to data from StatLine, 'Electricity balance sheet; supply and consumption' <<https://opendata.cbs.nl/#/CBS/en/dataset/84575ENG/table?dl=699EC>>, accessed on 9 June 2022.

72 See StatLine, 'Energy balance sheet' (n 71) (showing that net electricity consumption reduced by 0.8%).

73 CE Delft, 'Alternatieven voor biomassa-meestook in kolencentrales' (July 2016) 9. But see EU Commission Decision (n 65) para. 21.

74 'RWE's Amercentrale Plant Will Soon Move to 80% Biomass', *Bioenergy Insight* (30 October 2020); 'Te koop: Kolencentrale, zo goed als nieuw' *Uit Het Magazine* (14 June 2022).

reduce its emissions without reducing its activities. Compared with a counterfactual scenario where Hemweg would have followed the same trend of Amercentrale, its closure is estimated to have achieved 1.2 MtCO₂eq reduction in the national emissions of the Netherlands in 2020. The electricity from the Hemweg coal plant is assumed to be replaced by imported electricity,⁷⁵ which does not impact the national emissions of the Netherlands.

Second, the government committed an extra €1.2 billion to ‘Stimuleringsregeling Duurzame Energieproductie’ (SDE+), a feed-in tariff programme for approved renewable-energy projects.⁷⁶ Before this top-up, SDE+ was set to disburse €47 billion,⁷⁷ and it was expected to achieve 14.9 MtCO₂eq emission reduction in 2020.⁷⁸ Assuming that the top-up achieves proportional mitigation outcomes, the measure could be expected to reduce national GHG emissions by nearly 0.4 MtCO₂eq per year. However, as projects under the top-up budget were not approved until September 2020,⁷⁹ and assuming that projects are implemented progressively within a year of their approval, the top-up is estimated to have reduced national emissions in 2020 by only 0.01 MtCO₂eq.

Third, the government extended a tax on waste disposal to waste imported from 2020.⁸⁰ About a quarter of the waste disposed of in the Netherlands was imported, mainly from the UK, but also from Belgium and Germany;⁸¹ it was incinerated with energy recovery.⁸² While the tax could reduce emissions from waste incineration in the Netherlands, this would also lead to an increase in emissions from other energy sources, including fossil fuels.⁸³ This substitution effect is particularly significant given that half of the foreign waste incinerated in the Netherlands is of biogenic origin (eg, food or paper),⁸⁴ hence considered a source of renewable energy.⁸⁵

Economic projections suggest that, over time, most importation of foreign waste will stop, as the tax imposes an unacceptable economic constraint on relevant actors.⁸⁶ Several consultancy reports ordered by the government and by NGOs estimate that, with time, this will

75 See eg Frontier Economics, *Research on the Effects of the Minimum CO₂ Price: A Report for the Ministry of Economic Affairs and Climate Policy* (9 July 2018) 18. See also below, text to note 112.

76 Letter of the Minister of Economic Affairs and Climate Policy of 4 March 2020, in documents of the House of Representatives 2019–20, file 31239 nr 313 <<https://zoek.officielebekendmakingen.nl/kst-31239-313.html>> accessed on 31 August 2022 (announcing a budget of €2 billion in round 2020-I); ‘SDE(+)(+) Projecten in beheer April 2022’, retrieved from ‘Feiten en cijfers SDE(+)(+), Rijksdienst voor Ondernemend Nederland (6 April 2022) <<https://www.rvo.nl/subsidies-financiering/sde/feiten-en-cijfers-verplichtingenbudget>> accessed on 31 August 2022 (showing that only 61% of the budget was allocated during that round). For a description of the programme, see Nyaneyon and others (n 41) para. 41.

77 ‘SDE(+)(+) Projecten in beheer’ (n 76).

78 Netherlands, BR3 (n 37) 60; Netherlands, BR4 (n 19) 68.

79 ‘Results SDE+ 2020 Spring Round’, CMS: *Law, Tax, Future* (22 September 2020) <<https://cms.law/en/nld/publication/results-sde-2020-spring-round>>, accessed on 31 August 2022.

80 Act of 18 December 2019, Stb. 2019/511 <<https://zoek.officielebekendmakingen.nl/stb-2019-511.html>> accessed on 31 August 2022, art XXI(A), amending Environmental Taxes Act (Wet belastingen op milieugrondslag), BWBR0007168 <<https://wetten.overheid.nl/BWBR0007168/2022-04-05>>, accessed on 31 August 2022, art 23. See also Letter of the Minister of Economic Affairs and Climate Policy of 28 June 2019 (n 53).

81 *Attero v Netherlands*, ECLI:NL:RBDHA:2019:13622 (District Court of the Hague, 18 December 2019), para 2.2; ‘Importing and Exporting Waste Materials (EVOA)’ *Business.gov.nl* (nd) <<https://business.gov.nl/regulation/importing-and-exporting-waste-materials-evoa/>> accessed on 10 June 2022.

82 Netherlands, NIR 2022 (n 19) 258.

83 See Netherlands, ‘Onderbouwing CO₂-effecten heffing verbranding buitenlands afval’ (December 2019) <<https://open.overheid.nl/repository/ronl-67ba0f43-2834-4c15-b571-7e3faac8f3de/1/pdf/toegelichte-berekening-rws-dec-2019.pdf>> accessed on 10 June and archived at <<https://perma.cc/5QKT-RRQ9>> 3; CE Delft, *Klimaat effecten importhoeffing afval* (April 2020) <<https://ce.nl/publicaties/klimaat effecten-importhoeffing-afval/>> accessed on 31 August 2022, both assuming that that the substitute energy generation would take place exclusively within the territory of the Netherlands. This assumption differs from the assumption informing the substitution of energy from the Hemweg coal plant, presumably because the energy from waste incineration is mainly municipal heat, rather than electricity.

84 CE Delft, *Klimaat effecten importhoeffing afval* (n 83) 2; PWC, ‘Importhoeffing Buitenlands Afval en Uitstoot van Broeikasgassen’ (4 September 2019) <<https://www.tweedekamer.nl/kamerstukken/detail?id=2019D37785&-did=2019D37785>> accessed on 31 August 2022, 10. See also Netherlands, NIR 2022 (n 19) 259.

85 2006 IPCC Guidelines (n 20) vol 5, ch 5, at 5. Carbon dioxide emissions are attributed to the state that produces the paper if this is done in a way that reduces the carbon stock of its forests. Methane and nitrogen oxide emissions are ‘a minor source’, according to Netherlands, NIR 2022 (n 19) 258.

86 PWC (n 84) 16.

reduce national emissions by about 0.1 MtCO₂ per year.⁸⁷ On the other hand, the measure is expected to take effect progressively over several years because waste importation relies on multi-year contracts.⁸⁸ As such, the measure is estimated to have reduced national emissions by 0.03 MtCO₂ in 2020.⁸⁹

As a whole, these three measures reduced the Netherlands' 2020 emissions by 1.3 MtCO₂eq (see Table 1), representing 0.6% of the 1990 baseline. While not insignificant, this is a far more modest outcome than one might have expected when reading the *Urgenda* decision in 2015—and only a fraction of what is typically at stake in other judicial cases relating to states' action on climate change mitigation.⁹⁰ Almost all these emission reductions were achieved by a single measure: the closure of the Hemweg coal plant.

3. COUNTERACTING EFFECTS ON GLOBAL, LONG-TERM GHG EMISSIONS

This section assesses the judgment's mitigation outcomes, beyond the scope of the *Urgenda* target, from a global and long-term perspective. It estimates that, in the long-term, the implementation measures will cause a decrease in the Netherlands' national emissions (excluding LULUCF), but a slight net increase in global emissions.

3.1. Long-term Outcomes

To assess the mitigation outcomes of implementation measures over time, one needs to compare the emissions resulting from the policy scenario with *Urgenda*, with those that would have occurred in a baseline scenario without the decision.⁹² Thus, the closure of the Hemweg coal

Table 1. Effect of implementation measures on GHG emissions, per implementation measure (MtCO₂eq)⁹¹

	2020 outcomes		Long-term outcomes	
	National	Global	National	Global
Closure of the Hemweg coal plant	-1.23	-0.25	-3.53	-0.76
Top-up of the SED+ programme	-0.01	-0.01	-1.62	-1.20
Tax on foreign waste	-0.03	+0.14	-0.81	+2.72
Biofuel mandate for inland navigation	N/A	N/A	-0.68	-0.46
Total	-1.27	-0.12	-6.65	+0.31

87 CE Delft, *Klimaat effecten importhoeffing afval* (n 83) 2; PWC (n 84) 5; Tom Ligthart, 'De bijdrage van verbranden van geïmporteerd afval aan de Nederlandse en Europese CO₂-emissies' (TNO 2020), at 3. See also House of Representatives (2018–19), Questions and Answers by the Government, 2019D37977 (27 September 2019) <<https://www.tweedekamer.nl/kamerstukken/kamervragen/detail?id=2019D37977>> accessed on 31 August 2022, at 2 (answer 4); Letter of the Minister of Environment and Housing (4 November 2019), in documents of the House of Representatives 2019–20, file 32813 nr 401 <<https://zoek.officielebekendmakingen.nl/kst-32813-401.html>> accessed on 31 August 2022, at 2.

88 CE Delft, *Klimaat effecten importhoeffing afval* (n 83) at 2; Netherlands, 'Raming uitbreiding afvalstoffenbelasting tot buitenland afval dat in Nederland wordt verbrand (i.h.k.v. Urgenda)' (2019) <<https://www.rijksoverheid.nl/documenten/rapporten/2021/05/20/05-54a-afvalstoffenbelasting-raming-reducering-buitenlands-afval>>, accessed on 31 August 2022, at 2; Mike Brown, Bethany Ledingham and Emma Stewart, 'Impacts of the Netherlands' Waste Import Tax' (Eunomia, 24 March 2020) 17.

89 See also Netherlands, NIR 2022 (n 19) 260 (suggesting a slight reduction in fossil CO₂ emissions).

90 See *Gloucester Resources Limited v Minister for Planning* [2019] NSWLEC 7, (2019) 234 LGERA 257, at para. 486 (estimating that the Rocky Hill Coal Project would cause 37.8 MtCO₂eq GHG emissions, including scopes 1 to 3 emissions); *Oxfam* (n 10), art 2 (ordering the state to make up for an excess emission estimated at 15 MtCO₂eq); *Massachusetts* (n 10) at 524 (finding that the EPA has a statutory mandate to regulate emissions from new motor vehicles while estimating that the US transport sector caused 1.7 GtCO₂ emissions in 1999).

91 Totals may not add up due to rounding errors.

92 eg Greenhouse Gas Protocol, 'Policy and Action Standard' (n 12) 22–23.

plant produces additional mitigation outcomes from the time at which it was implemented (end of 2019) until the time at which it was initially planned (end of 2024).⁹³ During those five years, the amount of GHG that the plant would have emitted in a baseline scenario depends on economic factors, in particular the prices of fossil fuels and emission allowances. It is assumed that the plant's emissions would have followed the trend reported by Amercentrale for 2021 (ie, a further 42% decrease),⁹⁴ and the projections for the Dutch coal sector by Fitch Solutions, a financial intelligence service provider, between 2022 and 2024.⁹⁵ Compared with this baseline scenario, the closing of the Hemweg coal plant is expected to reduce national emissions between 2020 and 2024, cumulatively, by 3.5 MtCO₂eq.

In addition to the closing of the Hemweg coal plant, a 2021 statute requires coal plants to limit their carbon dioxide emissions to 35% of their full installed capacity between 2022 and 2024.⁹⁶ This measure is expected to achieve limited mitigation outcome because Dutch coal-fired electricity generation will reduce anyway under market pressure. The sectorial trends forecast by Fitch Solutions suggest that the cap will impose only a negligible constrain on coal plants in 2022, and no constraint at all in the following years.⁹⁷ Consistently, national statistics show no reduction in emissions from coal-fired power plants in the first quarter of 2022, compared with the first quarter of 2021.⁹⁸

The Netherlands would likely have taken measures of an effect similar to the SDE+ top-up and to the tax on foreign waste, if only a few years later, even if it were not for *Urgenda*. This is because EU law requires the Netherlands to reduce emissions in sectors not covered by the EU ETS (eg, waste incineration)⁹⁹ by following a linear trajectory towards a 36% reduction in such emissions by 2030 compared with 2005,¹⁰⁰ and to take measures to contribute to the 'binding overall Union target for 2030' of 32% renewable energy, including by taking measures similar to the SDE+.¹⁰¹ Compared with a baseline scenario where measures of an equivalent effect would have been implemented progressively during the 2020s, the SED+ top-up and the tax on foreign waste will achieve cumulative reductions in national emissions of, respectively, 1.6 and 0.8 MtCO₂eq.

The *Urgenda* decisions have also led the government of the Netherlands to adopt a biofuel blending mandate for inland navigation, which will become operational in 2023.¹⁰² It is assumed that emissions from inland traffic will decrease in the 2020s due to efficiency gains, despite a slight increase in traffic, as they did in the 2010s.¹⁰³ To account for various non-LULUCF emissions

93 See note 59.

94 See note 68.

95 Fitch Solutions, *Netherlands Power Report Q2 2022* (2022), at 12-13. Reliance on a sectorial outlook may underestimate the way the anticipated increase in the price of emission allowances would have affected Hemweg more than newer and more efficient coal plants.

96 See note 54.

97 See Fitch Solutions (n 95) 8. Fitch Solutions does not seem to have taken the emission cap into account in their sectorial outlook.

98 StatLine, 'Electricity balance sheet' (n 71).

99 Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community, [2003] OJ L275/32, Annex I para 2.

100 See Regulation (EU) 2018/842 of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement, [2018] OJ L156/26, art 4 and Annex I. This target is currently under review and will likely be enhanced. See Proposal for a Regulation amending Regulation 2018/842, COM/2021/555 final, annex (proposing a 48% reduction target for the Netherlands).

101 Directive 2018/2001 of 11 December 2018 on the promotion of the use of energy from renewable sources, [2018] OJ L328/82, art 3(1)–(2).

102 Act of 30 June 2021 (Wet tot wijziging van de Wet milieubeheer), Stb. 2021/334 <<https://zoek.officielebekendmakingen.nl/stb-2021-334.html>> accessed on 31 August 2022, art 1(AE); Decision of 20 December 2021 (Besluit tot vaststelling van het tijdstip van inwerkingtreding van de Wet van 30 juni 2021), Stb. 2021/620, <<https://zoek.officielebekendmakingen.nl/stb-2021-620.html>> accessed on 31 August 2022, para 2. On the proportion of biofuel to be blended, see Decision of 20 December 2021 (Besluit tot wijziging van het Besluit energie vervoer), Stb. 2021, 619, <<https://zoek.officielebekendmakingen.nl/stb-2021-619.html>>, accessed on 31 August 2022, art 1(D), amending Decree of 3 May 2018 (Besluit energie vervoer), <<https://wetten.overheid.nl/BWBR0040922/2022-01-01>> accessed on 31 August 2022, art 3(1) (18.9 to 28%).

103 See Netherlands, NIR 2022 (n 19), CRF 2010–20 table 1.A(a)s3 rows 68–69 (showing a decrease of about 2.5% per year, on average); Eurostat, 'Inland waterways transport measurement': 'Transport by type of good', IWW_GO_ATYGO,

involved in the production (eg, refining) of biofuels, it is assumed that the substitution of fossil fuels with biofuel reduces anthropogenic emissions by three-quarters.¹⁰⁴ As for other measures, the emission reductions achieved by this measure are discounted to reflect the fact that, in a baseline scenario, the state would have been required to take measures of a similar effect in the 2020s in order to comply with its EU obligation on renewable energy and the reduction of non-ETS emissions.¹⁰⁵ As the biofuel blending mandate will increase the price of inland navigation fuel in the Netherlands,¹⁰⁶ some ships will refuel elsewhere, which will artificially reduce the emissions reported by the Netherlands.¹⁰⁷ On the whole, the biofuel blending mandate is expected to reduce national emissions in the 2020s by 0.7 MtCO₂eq, half of this due to ships refuelling abroad.

Altogether, the four main implementation measures will achieve 6.7 MtCO₂eq cumulative emission reduction within the Netherlands, mainly in the beginning of the 2020s (see Table 2).

3.2. Global Outcomes

The implementation measures selected by the Dutch government will result in a significant carbon leakage. For instance, the closure of the Hemweg coal plant causes the Netherlands to import more electricity than in a baseline scenario,¹⁰⁹ resulting in increased emissions in neighbouring countries. At times, electricity may originate from more emission-intensive plants: Germany, which supplies two-thirds of the electricity imported by the Netherlands,¹¹⁰ operates coal plants that are considerably less climate-efficient than Hemweg.¹¹¹ Overall, three independent projections of the impact of closing Dutch coal plants in the 2020s suggest that between half and three-quarters of the emission reduction achieved within the territory of the Netherlands would be cancelled out by additional emissions in neighbouring countries.¹¹² On the other hand, the rate of carbon leakage is expected to decrease over time as neighbouring countries are moving toward cleaner modes of power generation.¹¹³ This analysis assumes a rate of carbon leakage declining on a linear basis from 70% in 2020 to 55% in 2030.

In addition, the emission reductions achieved by the closure of the Hemweg plant or by the SED+ top-up take place mainly under the EU ETS.¹¹⁴ As such, they may result in a waterbed effect to the extent that they free emission allowances for use by other GHG emitters.¹¹⁵ The

<<https://ec.europa.eu/eurostat/databrowser/bookmark/fd64c2d6-4048-462e-984e-6d664c806321?lang=en>> accessed on 31 August 2022 (showing an increase in million tonne-kilometre displaced by about 1.5% per year for national transport). On the sector's outlook, see Central Commission for the Navigation of the Rhine, *Annual Report 2021: Inland Navigation in Europe* (September 2021) at 119–20.

104 See Directive 2009/30/EC of 23 April 2009 amending Directive 98/70/EC and Directive 1999/32/EC, [2009] OJ L140/88, Annex IV.A; E4tech, 'Master Plan for CO₂ Reduction in the Dutch Shipping Sector: Biofuels for Shipping' (May 2018) <http://artfuelsforum.eu/wp-content/uploads/2018/06/180601_E4tech_PDB-Masterplan_FinalReport_v5.0_FV.pdf> accessed on 31 August 2022, at 60.

105 See notes 100 and 101.

106 Paulina Jaramillo and others, 'Transport', in IPCC, *Climate Change 2022: Mitigation of Climate Change* (CUP, forthcoming) section 3.1.

107 2006 IPCC Guidelines (n 20) vol 2, ch 3, at 47–48.

108 Totals may not add up due to rounding errors.

109 The Netherlands imported less electricity in 2020 than in 2019. See StatLine, 'Energy balance sheet' (n 71). In a baseline scenario without the project, however, it would have imported even less electricity.

110 *ibid*; Fitch Solutions (n 95) 8.

111 Frontier Economics (n 75) 7; Letter of the Minister of Economic Affairs and Climate Policy of 19 January 2017, in documents of the House of Representatives 2016–17, file 30196 nr 505 <<https://zoek.officielebekendmakingen.nl/kst-30196-505.html>> accessed on 31 August 2022, appendix (noting that, while Dutch coal plants have an efficiency factor between 42 and 47%, other coal plants in Europe have an efficiency factor as low as 34%).

112 Letter of the Minister of Economic Affairs and Climate Policy of 19 January 2017 (n 111), Appendix (73% in 2020, 54% in 2030); Frontier Economics (n 75) at 8 (implying 55% carbon leakage in 2025 and 2030); CE Delft, *Effecten van sluiting drie extra kolencentrales* (May 2019), at 16 (implying around 50% throughout the 2020s).

113 Letter of the Minister of Economic Affairs and Climate Policy of 19 January 2017 (n 111), Appendix. See also Nicolae Scarlat, Matteo Prussi and Monica Padella, 'Quantification of the Carbon Intensity of Electricity Produced and Used in Europe' (2022) 305 *Applied Energy* 117901.

114 See Netherlands, BR4 (n 19) 68 (suggesting that 78% of these emission reductions from the SED+ programme are within the scope of the EU ETS).

115 Peeters (n 6) 125.

Table 2. Effect of implementation measures on GHG emissions, per year (MtCO₂eq)¹⁰⁸

Year	National	Global
2020	-1.27	-0.12
2021	-1.00	-0.06
2022	-1.02	+0.00
2023	-1.05	-0.06
2024	-0.90	-0.04
2025	-0.40	+0.08
2026	-0.34	+0.09
2027	-0.28	+0.11
2028	-0.22	+0.14
2029	-0.15	+0.17
Total	-6.65	+0.31

ETS market stability reserve that began operating in 2019 seeks to mitigate the waterbed effect by regulating any surplus of unused emission allowances, but it does not prevent the waterbed effect entirely.¹¹⁶ This analysis assumes that the waterbed effect will cancel out a third of the emission reductions (net of carbon leakage) achieved within the scope of the ETS.¹¹⁷ On these bases, the closure of the Hemweg coal plant and the SED+ top-up are expected to achieve, respectively, 0.8 and 1.2 MtCO₂eq reduction in global, long-term emissions.

The tax on foreign waste was bound to cause an important carbon leakage because the waste that is no longer incinerated in the Netherlands needs to be disposed somewhere else.¹¹⁸ In the best-case scenario, the waste no longer exported to the Netherlands would be incinerated elsewhere in the same conditions (eg, with energy recovery), with no significant impact on global emissions.¹¹⁹ In the worst-case scenario, the waste would be landfilled, instead of being incinerated, resulting in greater climate harm due to methane emissions (even in state-of-the-art landfills).¹²⁰ For lack of available incineration capacity in other Western European countries, the worst-case scenario is likely to unfold, at least in the first few years after the introduction of the tax.¹²¹ In particular, the UK (the main exporter of waste to the Netherlands)¹²² disposes of most of its waste through landfilling;¹²³ some waste streams previously directed to incineration in the Netherlands have already been redirected towards landfills.¹²⁴ Even when assuming a

116 Grischa Perino, 'New EU ETS Phase 4 Rules Temporarily Puncture Waterbed' (2018) 8 *Nature Climate Change* 262.
 117 The literature is strongly divided on the strength of the waterbed effect. See Grischa Perino, Robert A. Ritz and Arthur van Benthem, 'Understanding Overlapping Policies: Internal Carbon Leakage and the Punctured Waterbed' (NBER Working Paper 25643, 2019) 11.
 118 cf *Attero* (n 81) paras 4.4–4.6.
 119 The reduction in transport emissions is negligible. Matthijs Otten and Geert Bergsma, *Hoeveel transport van afval is nodig voor een hoger energierendement?* (CE Delft, 2010); RDF Industry Group, 'Impacts of the Proposed Dutch Waste Import Tax' (August 2019) <<https://www.rdfindustrygroup.org.uk/resources/impacts-of-the-proposed-dutch-waste-import-tax/>>, accessed on 31 August 2022, at 9. The measure is unlikely to lead to further recycling or composting in the short- to medium-term.
 120 Manfred Fischedick and others, 'Industry', in Ottmar Edenhofer and others (eds), *Climate Change 2014: Mitigation of Climate Change* (CUP 2007) 739, at 786; Directive 2008/98/EC of 19 November 2008 on waste, [2008] OJ L312/3, art 4(1).
 121 CIWM President Report 2018, RDF Trading in a Modern World (2018), at 42; PWC (n 84), at 25.
 122 See note 81.
 123 UK, NIR 2022 (14 April 2022) 440.
 124 Piers Meyler, 'Nearly 200,000 tonnes of Essex's waste will be buried outside Colchester' *Essex Live* (28 November 2019); Brown and others (n 88) 17–18.

rapid increase in incineration capacity in the region,¹²⁵ the measure is expected to result in a net increase of cumulative global GHG emissions by 2.7 MtCO₂eq.¹²⁶

The biofuel mandate will affect global emissions in three ways. First, as noted above, the price effect of the mandate will incentivise ship operators to refuel abroad, leading to their emissions being accounted by neighbouring countries.¹²⁷ Second, nearly three-quarters of the inland navigation in the Netherlands is engaged in cross-border traffic,¹²⁸ whose emissions are not attributed to any state,¹²⁹ but could nevertheless be reduced to the extent that these ships fuel in the Netherlands. This analysis assumes that about one-sixth of domestic traffic and half of cross-border traffic occurring within the territory of the Netherlands will use fuel purchased abroad in 2023, but that this rate will decrease in the following years as neighbouring countries adopt comparable measures. Third, the production of biofuel results in indirect land-use-change emissions, which are assumed to represent a third of avoided emissions from fossil fuels.¹³⁰ As a whole, the biofuel mandate is expected to achieve a net reduction in global cumulative emissions of 0.5 MtCO₂eq reduction.¹³¹

Altogether, most of the emission reduction achieved within the territory of the Netherlands are simply displaced to the territory of other states; in one case—the tax on foreign waste—the measure even results in a significant net increase in emissions. When taking various types of carbon leakage (including waterbed effect) into account, the implementation measures are expected to result in a net increase in cumulative global emissions by 0.3 MtCO₂eq (see Table 1, above).

4. THE AMBIVALENCE OF INDIRECT LEGAL, SOCIAL AND POLITICAL EFFECTS

This section turns to the legal, social and political consequences of *Urgenda*. It shows that the case has largely failed to set an influential precedent and, while it has raised awareness, this does not seem to have translated into political momentum.

4.1. A Legal Precedent?

Urgenda was expected to be the first of a series of similar target-setting cases.¹³² In hindsight, however, it has not had this snowball effect. The only subsequent case where a court imposed a target on the defendant, *Milieudefensie v Shell* (against a multinational oil-and-gas corporation),

125 ie, a 5% decrease per year in the proportion of waste landfilled. Compare UK, NIR 2022 (n 123), Annex, at 958 (reflecting 2.5% reduction in waste landfilled from 2010 to 2019).

126 See also Ligthart (n 86), at 35 (predicting a net increase of 950 KtCO₂eq per year in Europe); CE Delft, *Klimaat effecten importtheffing afval* (n 83) at 8; PWC (n 84) 26.

127 See note 107.

128 Eurostat, 'Transport by type of good' (n 103).

129 2006 IPCC Guidelines (n 20) vol 2, ch 3, at 48.

130 See Hugo Valin and others, 'The Land-Use Change Impact of Biofuels Consumed in the EU: Quantification of Area and Greenhouse-Gas Impacts' (ECOFYS and others, 2015) <https://ec.europa.eu/energy/sites/ener/files/documents/Final%20Report_GLOBIOM_publication.pdf> accessed on 31 August 2022, at x–xi; Vassilis Daioglou and others, 'Progress and Barriers in Understanding and Preventing Indirect Land-Use Change' (2020) 14 Biofuels, Bioproducts and Biorefining 924; Koen P. Overmars and others, 'Indirect Land Use Change Emissions Related to EU Biofuel Consumption: An Analysis Based on Historical Data' (2011) 14 Environmental Science & Policy 248, at 254; EU Commission, 'Quality of Petrol and Diesel Fuel for Road Transport in the European Union', Com(2021) 961 final (26 October 2021) 3.

131 The Netherlands does not report cross-border inland navigation emissions separately from international maritime shipping emissions. Emissions of international inland navigation are estimated based on activity data in Eurostat, 'Transport by type of good' (n 103) (on cross-border navigation taking place within the territory of the Netherlands), and on emission factors, extrapolated from domestic navigation, from Netherlands, NIR 2022 (n 19).

132 See Roger Cox, 'Case Comment. The Decision of the Hague District Court in the Climate Case Urgenda Foundation v The State of the Netherlands' (2016) 10 Journal of Planning & Environmental Law 323, at 339; de Graaf and JH Jans (n 4) 527; Jolene Lin, 'The First Successful Climate Negligence Case: A Comment on Urgenda Foundation v The State of the Netherlands (Ministry of Infrastructure and the Environment)' (2015) 5 Climate Law 65, 81; Marc Loth, 'Climate Change Liability after All: A Dutch Landmark Case' (2016) 21 Tilburg Law Review 5, 7.

was decided by the same court as *Urgenda*.¹³³ The closest there is of a facsimile decision outside the Netherlands is *Klimaatzaak v Belgium*, where the Court of First Instance of Brussels found that Belgian authorities were not making enough efforts on climate change mitigation, but declined to set a target for the state,¹³⁴ allowing the Belgian government to assert that the decision was ‘without financial or legal consequences.’¹³⁵ Both *Milieudefensie* and *Klimaatzaak* are, at the time of writing, under appeal.

In multiple other cases, courts have declined to impose emission-reduction targets on the defendants. Some of these adverse decisions were justified on procedural grounds such as a lack of standing¹³⁶ or, before a human rights treaty body, the failure to exhaust national remedies.¹³⁷ Many others, however, were based on the doctrine of the separation of powers.¹³⁸ Thus, *Urgenda* has not set an influential precedent that other courts followed outside the Netherlands.

4.2. Political Support for Mitigation Action

Scholars and advocates have suggested that, notwithstanding their direct outcome, cases on climate change contribute to raising awareness and, thus, to prompt political support for action.¹³⁹ For instance, Roger Cox claimed that *Urgenda* would create momentum for political change, citing the ban on smoking in public places and the prohibition of asbestos as illustrations of the capacity of judicial decisions to bring about policy change.¹⁴⁰ Notwithstanding the role that courts might have played in the regulation of tobacco and asbestos, it is not obvious that the same political process would unfold in the far more complex case of climate change.

Urgenda has had a broad social impact. It has revived academic and political debates, in particular in the Netherlands.¹⁴¹ It has also increased public awareness. According to biennial surveys conducted by the European Commission in the six years before and after the first judgment, the share of the population describing climate change as a ‘very serious problem’ increased faster in the Netherlands (+19 percentage points) than in the EU as a whole (+8 percentage points).¹⁴² Likewise, the notion that climate change is a governmental and individual

¹³³ Milieudefensie (n 11).

¹³⁴ Case 2015/4585/A (French-Speaking Tribunal of First Instance of Brussels, 17 June 2021), translation at <<https://perma.cc/68ZJ-2F96>> accessed on 31 August 2022.

¹³⁵ Jennifer Rankin, ‘Belgium’s Climate Failures Violate Human Rights, Court Rules’ *The Guardian* (18 June 2021). See also Charlotte Renglet and Stefaan Smis, ‘The Belgian Climate Case: A Step Forward in Invoking Human Rights Standards in Climate Litigation?’, 25:21 ASIL Insights (4 October 2021).

¹³⁶ C-565/19 P, *Carvalho v Parliament*, ECLI:EU:C:2021:252 (CJEU, 25 March 2021).

¹³⁷ UN Committee on the Rights of the Child, *Sacchi/Argentina*, Communication No 104/2019, CRC/C/88/D/104/2019 (22 September 2021).

¹³⁸ *Juliana v US*, 947 F.3d 1159 (9th Circuit, 17 January 2020); *Reynolds v State*, No 2018-CA-819, 2020 WL 3410846 (Florida Circuit Court, 10 June 2020); *Aji P v State*, 16 Wash.App.2d 177, 480 P.3d 438, 458 (8 February 2021); *Sagooni v State*, 503 P.3d 777, 782 (Supreme Court of Alaska, 28 January 2022); *La Rose v Canada*, 2020 FC 1008 (27 October 2020); *Misdzi Yikh v Canada*, 2020 FC 1059 (16 November 2020); *Environnement Jeunesse v Procureur Général du Québec*, 2021 QCCA 1871 (13 December 2021); *Minister for the Environment v Sharma*, [2022] FCAFC 35 (15 March 2022); *Smith v Fonterra*, [2021] NZCA 552, CA128/2020 (21 October 2021); *Pandey v India*, Order (National Green Tribunal of India, 15 January 2019); *R (Plan B Earth) v Prime Minister* [2021] EWHC 3469 (Admin), [2021] All ER(D) 92. Plaintiffs’ claims for a judicial target-setting were also rejected in cases that were successful on other grounds: *Grande-Synthe* (n 10); *Oxfam* (n 10); *Neubauer* (n 10); *Friends of the Irish Environment* (n 10).

¹³⁹ eg Payandeh (n 6) para. 35.

¹⁴⁰ Roger Cox, ‘A Climate Change Litigation Precedent: *Urgenda* Foundation v The State of the Netherlands’ (2016) 34 JERL 143, 161.

¹⁴¹ Anke Wonneberger and Rens Vliegthart, ‘Agenda-Setting Effects of Climate Change Litigation: Interrelations Across Issue Levels, Media, and Politics in the Case of *Urgenda* Against the Dutch Government’ (2021) 15 Environmental Communication 699, 710; Otto Spijkers, ‘The *Urgenda* Case: A Successful Example of Public Interest Litigation for the Protection of the Environment?’, in Christina Voigt and Zen Makuch (eds), *Courts and the Environment* (Edward Elgar 2018) 305, at 340; Joana Setzer and Catherine Higham, ‘Global Trends in Climate Change Litigation: 2021 Snapshot’ (Policy Report, LSE, July 2021) 18.

¹⁴² Data compiled from Eurobarometer, ‘Climate Change’ (series of surveys conducted every two years between 2009 and 2021) <<https://europa.eu/eurobarometer/surveys/browse/all/series/2981>> accessed on 31 August 2022, question QB2R: comparison of the average scores for the three surveys conducted before the first judgment (2011–15) and after the first judgment (2017–21).

responsibility has spread faster in the Netherlands (+25 and 23 percentage points, respectively) than in the EU (+10 and 11 percentage points).¹⁴³

However, this increased awareness has not translated into a marked political support for enhanced action. In the same European Commission survey, the proportion of respondents declaring that they had taken any action to fight climate change in the past six months did not increase significantly faster in the Netherlands than elsewhere,¹⁴⁴ and there was even a decrease in the proportion (albeit very high) of the Dutch population supporting national targets on renewable energy.¹⁴⁵ By 2021, 28% of the Dutch respondents found that their government was doing 'enough' or 'too much' to tackle climate change, compared with 22% of the European respondents.¹⁴⁶ And, according to the 2019 Lloyd's Register Foundation World Risk Poll, fewer Dutchmen (41%) than other Europeans (61%) think that climate change is a threat to their country in the next 20 years.¹⁴⁷ While *Urgenda* shed light on the importance of climate action, it may also have led some of the Dutch to think that an adequate policy had been imposed onto their government and, hence, that no additional efforts was needed.¹⁴⁸

Thus, *Urgenda* does not appear to have had any structural impact on climate policies. As Otto Spijkers remarked, the Netherlands did not 'suddenly become a global or European forerunner in combatting climate change'.¹⁴⁹ The adoption of new mitigation policies, for instance in the new coalition agreement adopted in 2021, is consistent with transnational trends towards enhanced mitigation action and a European trend towards compliance with EU targets. The state has adopted a statutory framework on climate change in 2019,¹⁵⁰ but there is no obvious causal relation with *Urgenda*;¹⁵¹ many other developed countries adopted similar laws in the years following the adoption of the Paris Agreement.¹⁵² Nor has the case had any discernible impact on the climate policies of other countries. No European state, for instance, reviewed its 2020 mitigation target because of the judgments' suggestion that every developed country should achieve at least 25% emission reduction by that year.

The case could have created an incentive for national governments to adopt more ambitious climate action in order to reduce their exposure to litigation. However, it rapidly became clear that cases were being filed, in particular against high-income European states, notwithstanding the efforts that these states were making.¹⁵³ As plaintiffs invoked many different ways of assessing a state's requisite level of mitigation action,¹⁵⁴ a national government would have no reason to believe that the adoption of any particular targets or policies would effectively shield it against the risk of judicial procedures.

143 *ibid*, question QB3.

144 *ibid*, question QB5, surveys conducted between 2011 and 2021.

145 *ibid*, question QC7/QB8_1, surveys conducted between 2013 and 2021.

146 *ibid*, question QB7. This question was newly introduced in the 2021 survey.

147 Lloyd's Register Foundation World Risk Poll 2019, 'Do you think that climate change is a very serious threat, a somewhat serious threat, or not a threat at all to the people in this country in the next 20 years?' (survey conducted by Gallup) <<https://analyticscampus.gallup.com/Tables?linkid=22410>> accessed on 31 August 2022.

148 On the 'single-action bias', see Elke U Weber, 'What Shapes Perceptions of Climate Change?' (2010) 1 WIREs Climate Change 332, 339.

149 Spijkers (n 141) 344.

150 Act of 2 July 2019 (Klimaatwet), Stb. 2019/253 <<https://zoek.officielebekendmakingen.nl/stb-2019-253.html>> accessed on 31 August 2022.

151 Jonathan Verschuuren, 'The State of the Netherlands v Urgenda Foundation: The Hague Court of Appeal Upholds Judgment Requiring the Netherlands to Further Reduce Its Greenhouse Gas Emissions' (2019) 28 RECIEL 94, 98.

152 eg Bundes-Klimaschutzgesetz, 12 December 2019, BGBl I 2513 (Germany); Law No 2019-1147 of 8 November 2019 on Energy and Climate, JORF 261 (France); Lov om klima, No 865, 26 June 2020 (Denmark); Loi relative au climat, 15 December 2020, A994 (Luxembourg).

153 eg *Duarte Agostinho v Portugal and 32 other states*, Communicated Case No 39371/20 (ECtHR, 13 November 2020) <<http://hudoc.echr.coe.int/eng?i=001-206535>> accessed on 31 August 2022.

154 See Benoit Mayer, 'Interpreting States' General Obligations on Climate Change Mitigation: A Methodological Review' (2019) 28 RECIEL 107; Benoit Mayer, 'The Judicial Assessment of States' Action on Climate Change Mitigation' LJIL (forthcoming).

On the other hand, *Urgenda* may have a diffuse long-term chilling effect on international negotiations. The Courts in *Urgenda* relied on various policy and negotiation documents to justify the target they imposed on the state, including the COP's allusion to the IPCC least-cost global mitigation pathways,¹⁵⁵ the EU's offer to enhance its Cancun pledge if other countries did the same,¹⁵⁶ and the Netherlands' advocacy for a high level of collective ambition in European and international negotiations.¹⁵⁷ National governments could hesitate taking an active role in international climate negotiations if they fear that any allusion to a target in a COP decision, any offer to enhance their mitigation action, or even any proposed international objective could be used against them in a court of law.¹⁵⁸

Overall, even though the implementation measures were ineffective and likely counterproductive, they came at a significant cost for both the state and society in general.¹⁵⁹ Even the tax on foreign waste, which raised some revenues for the state,¹⁶⁰ resulted in economic loss for waste incineration plants, with likely consequences for their employees.¹⁶¹ More generally, ineffective measures could result in a public frustration that could erode the political support needed for enhanced mitigation action.

5. UNDERSTANDING URGENDA'S SHORTFALL

This last section seeks to understand *Urgenda's* shortfall and to gauge the significance of this analysis beyond the case. The following shows that the particular circumstances in which the case has unfolded do not fully explain its shortfall, which has rather to do with the limited ability of judges to impose effective climate policy.

5.1. Particular Circumstances of the Case

One might argue that fortuitous circumstances have undermined the outcomes of *Urgenda* in two ways. First, extraneous factors caused a drop in national emissions in 2020, limiting the emissions that implementation measures could reduce. Second, one could wonder whether another government would have done more to comply with the judgment. The following argues that, while these circumstances are relevant, they do not fully explain the shortfall of the case.

National emissions dropped unexpectedly in 2020 due to social distancing measures and economic factors (eg, the price of natural gas and of emission allowances). The responses to the Covid-19 pandemic interfered little with the outcomes achieved by the implementation measures, as social distancing measures reduced emissions mainly in the transport sector, while the implementation measures focussed on emissions from other sectors.¹⁶² By contrast, the international economic environment did undermine the mitigation outcome of closing the Hemweg coal plant, in particular in 2020.¹⁶³ Were one to assume that the level of emissions at the Hemweg

¹⁵⁵ *Urgenda III* (n 3) paras 7.2.1–7.2.3.

¹⁵⁶ *ibid*, para 7.3.3. See also Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention, FCCC/SBSTA/2014/INF.6 (9 May 2014), para 11.

¹⁵⁷ *Urgenda III* (n 3) para 7.5.3.

¹⁵⁸ See also Peeters (n 6) 126; André Nollkaemper and Laura Burgers, 'A New Classic in Climate Change Litigation: The Dutch Supreme Court Decision in the *Urgenda* Case' (*EJIL:Talk!*, 6 January 2020) <<https://www.ejiltalk.org/a-new-classic-in-climate-change-litigation-the-dutch-supreme-court-decision-in-the-urgenda-case/>> accessed on 31 August 2022.

¹⁵⁹ Jonathan Watts, 'Dutch Officials Reveal Measures to Cut Emissions After Court Ruling', *Guardian* (24 April 2020), reporting *Urgenda's* estimate that the measure of implementation cost €2bn.

¹⁶⁰ Netherlands, 'Raming uitbreiding afvalstoffenbelasting' (n 88) 2 (estimating that the tax on foreign waste would yield €37 and 18 million in 2020 and 2021 in revenue); Netherlands, 'Uitwerking maatregelen uitvoering *Urgenda-vonnissen*' (March 2019) <<https://open.overheid.nl/repository/ronl-845aadad-2034-40df-87bd-dd8d7cf59a69/1/pdf/6-factsheet-heffing-op-het-verbranden-van-buitenlands-afval-uitsnede-06-23a.pdf>> accessed 10 June 2022 and archived at <<https://perma.cc/B8WP-VSXE>> 38 (predicting a total revenue net of €41.4 million, net of the costs of collection).

¹⁶¹ PWC (n 84) 6 (predicting a revenue loss of €162 million).

¹⁶² See note 72.

¹⁶³ See note 43

coal plant in 2020 would have remained at its 2019 level (despite the general trend towards a reduced reliance on coal), the implementation measures could have achieved as much as 2.4 MtCO₂e in 2020, representing 1.1% of the state's 1990 emissions—but the Netherlands would not have come close to achieving the *Urgenda* target. The implementation measures would have achieved a slight net reduction in global GHG emissions, but at a disproportionate cost.

On the other hand, political conditions could have been different. Had the Dutch government reacted more promptly to the first judgment, it might have been able to secure an earlier implementation of the SDE+ top-up and of the biofuel mandate for inland navigation, or to adopt other measures that could have been both more ambitious and more effective. A better use of the time available might also have permitted the government to weigh more carefully the measures that it was adopting.¹⁶⁴ However, there is no reason to assume that another government would have done better, rather than worse, in carrying out the complex and politically fraught task at hand. A government willing to enhance national climate action would not need the judgments to do so. That the judgments did little to force a reluctant government to take effective measures points to the shortcomings of the judgments, in particular the lack of legal or political incentive for compliance.

5.2. Structural Limitations of Strategic Climate Litigation

Beyond the circumstances of the case, *Urgenda*'s shortfall has to do with structural issues that would likely arise in any case where a court imposes a climate change mitigation target on the defendant. Judges do not ordinarily have the time or the expertise to develop fine-tuned policies on climate change mitigation. Court-imposed emission-reduction targets, despite their apparent simplicity, are poor substitutes because their achievement does not accurately reflect a state's efforts or achievements on climate change mitigation. Even before a global pandemic broke out, the realisation of the *Urgenda* target was bound to be highly contingent on economic factors that the state can neither control nor predict, in particular, the price of natural gas and of emission allowances.¹⁶⁵ By contrast to a target imposed by a court, the targets that states commit to under climate treaties can be implemented with flexibility (eg, relying on the international transfer of mitigation outcomes),¹⁶⁶ and they apply either to a multi-year period (which reduces exposure to short-term events)¹⁶⁷ or only as the object of an obligation of conduct.¹⁶⁸

Overall, after years of judicial procedure challenging existing treaty commitments, a court-imposed target is likely to apply within a shorter time span than treaty commitments. In *Urgenda*, the District Court ordered the state to achieve a target within less than five years; by contrast, treaty commitments typically apply within a time span of 10 to 15 years.¹⁶⁹ A shorter time span incentivises rushed decisions and ineffective measures, while also reducing the political cost of implementing ill-designed policies by limiting the opportunity for political scrutiny.¹⁷⁰ Governments pressed into achieving emission reductions within a few years are likely to do it through simple, fast-acting measures that merely displace emissions abroad. Thus, the measures that reduced national emissions in 2020 (the closure of the Henweg coal plant and the tax on

164 eg Letter of the Minister of Environment and Housing of 4 December 2019, in documents of the House of Representatives 2019–20, file 35302 nr 70 <<https://zoek.officielebekendmakingen.nl/kst-35302-70.html>> accessed on 31 August 2022, 1.

165 Letter of the Minister of Economic Affairs and Climate Policy of 24 April 2020 (n 58).

166 Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005), arts 6, 12, 17; Paris Agreement (n 29), art 6.

167 Kyoto Protocol (n 166), art 3(1).

168 Paris Agreement (n 29), art 4(2), second sentence.

169 See eg Decision 6/CMA.3, 'Common time frames for nationally determined contributions referred to in Article 4, paragraph 10, of the Paris Agreement' (13 November 2021), FCCC/PA/CMA/2021/10/Add.3, 3, at para 2 (requiring Parties to communicate NDCs ten years before their end date).

170 eg Letter of the Minister for the Environment of 12 November 2019, in documents of the House of Representatives 2019–20, file 35302 nr 65 <<https://zoek.officielebekendmakingen.nl/kst-35302-65.html>>, accessed on 31 August 2022 (declining, for lack of time, to consider alternatives to the tax on foreign waste proposed by waste incineration plants).

foreign waste) caused far more carbon leakage than the measures that only reduced national emissions in subsequent years.

Overall, a more structural flaw of target-setting judgments is the lack of mechanisms to ensure compliance. No enforcement action was taken when it appeared increasingly unlikely that the Netherlands would achieve the *Urgenda* target and despite the fact that, until September 2021, preliminary emission data suggested that the target had not been achieved.¹⁷¹ Part of the difficulty is practical. Before the target year, one cannot accurately predict whether it will be achieved. A retrospective assessment of compliance can only be conducted years later, once a national inventory has been compiled and, ideally, has undergone its technical review.¹⁷² At this point, it is unclear how non-compliance could be remedied, especially when the target is imposed on a state (rather than a corporation). Monetary damages would ultimately be borne by the general public on whose behalf the case is brought.¹⁷³ A court could order the state to achieve a more stringent target in subsequent years to make up for excess emissions,¹⁷⁴ but compliance would rapidly become extraordinarily expensive, and, at any rate, the state could fail to comply with this new decision too. Holding officials civilly or criminally responsible would likely require a statutory reform. Political accountability might have been the main incentive to compliance in *Urgenda* but, for lack of transparency on the effect of implementation measures, it was a weak incentive for the adoption of expensive measures.

6. CONCLUSION

This article has questioned the contribution of *Urgenda* to the mitigation of climate change. The few measures of implementation that the state has taken have mostly displaced emissions to neighbouring countries, with one—the tax on foreign waste—resulting in a greater increase in emissions abroad than reductions domestically. As a whole, these measures have likely resulted in a slight net increase in global emissions in the long-term. While the case has raised public awareness, it is not clear that this has led to an enhanced political support for mitigation action; it could just as well have hindered international cooperation and eroded political support for action on climate change mitigation. Altogether, *Urgenda* has likely caused more harm than good from the perspective of international action on climate change mitigation.

These observations have implications beyond the case. They justify, in particular, the cautious approach to the exercise of judicial functions that has led to the rejection of comparable cases in other jurisdictions. Courts are ill equipped to devise comprehensive policies on climate change mitigation, and emission-reduction targets are poor substitutes.

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171 Letter of the Minister of Economic Affairs and Climate Policy of 25 January 2019, in documents of the House of Representatives 2018–19, file 32813 nr 267 <<https://zoek.officielebekendmakingen.nl/kst-32813-267.html>> accessed on 31 August 2022. See also n 31. *Urgenda* has considered taking action but has not acted out. See eg ‘*Urgenda* opnieuw naar rechter in klimaatzaak, eisen dwangsom van Staat’ *RTL Nieuws* (27 June 2021).

172 Under the enhanced transparency framework established by the Paris Agreement, the reporting and review mechanism will take at least three years, possibly four years for developing states. See decision 18/CMA.1, ‘Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement’ (15 December 2018), FCCC/PA/CMA/2018/3/Add.2, 18, at Annex paras 58, 162(h).

173 cf Diederik Baazil, ‘After Climate Court Victories Comes the Problem of Enforcement’ *Bloomberg* (18 August 2021).

174 By analogy, see *Oxfam* (n 10) art 2.