

Articles

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Liability for Climate Change: Cases, Challenges and Concepts

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Abstract: The authors examine the intricate questions of liability for climate change-related damage. They take a comparative approach and after informing about the developments in the mother country of climate change litigation – the United States of America – turn to an in-depth analysis of liability for tort.

I Introduction

Climate change has recently become an increasingly popular realm for lawyers around the globe.¹ The legal dimension of global warming, however, cannot be understood without the scientific evidence. Therefore, it is imperative to be aware of what we know, and what we do not know.

Although some may still consider global warming a concept ‘created by and for the Chinese in order to make U.S. manufacturing non-competitive’,² there is

1 Cf the comprehensive contributions by *G Kaminskaité-Salters*, *Constructing a Private Climate Change Lawsuit under English Law* (2010); *R Lord/S Goldberg/L Rajamani/J Brunnée* (eds), *Climate Change Liability* (2012); *E Pöttker*, *Klimahaftungsrecht* (2014); *J Spier/U Magnus* (eds), *Climate Change Remedies* (2014).

2 Trump Has Called Climate Change a Chinese Hoax. Beijing Says It Is Anything But, *The New York Times*, <https://www.nytimes.com/2016/11/19/world/asia/china-trump-climate-change.html?_r=0> (viewed on 5 May 2017). Cf also Trump begins tearing up Obama’s years of progress on tackling climate change, *The Guardian*, <<https://www.theguardian.com/us-news/2017/mar/28/trump-begins-tearing-up-obamas-years-of-progress-on-tackling-climate-change>> (viewed on 5 May 2017); Donald Trump ‘taking steps to abolish Environmental Protection Agency’, *The Guardian*, <<https://www.theguardian.com/us-news/2017/feb/02/donald-trump-plans-to-abolish-environmental-protection-agency>> (viewed on 5 May 2017).

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strong consensus that global warming is taking place.³ Meteorologists say that 2016 was the warmest year on record. Before that, 2015 was in first place, and before that, 2014 marked the all-time high.⁴ But such changes in the global climate are nothing unique. There were always temperature peaks and lows, ranging from a virtually ice-free Earth to the Last Glacial Maximum around 20,000 years ago. Back then, ice sheets 3–4 kilometres thick extended roughly to the latitude of modern Manhattan or Beijing and covered large parts of Europe, with sea levels around 130 metres below today.⁵

Many factors play a role in such peaks or lows. They range from the solar output to phytoplankton, from plate tectonics to slight variations in the orbit of the earth, the so-called Milankovitch cycles which alter the distribution of sunlight.⁶ Those are all natural driving forces man cannot influence. The emission of greenhouse gases, on the other hand, is a factor man can influence.⁷ These gases lock in solar energy, which is reflected by the earth, and reemit it back to earth. The most important greenhouse gas is water vapour, which contributes around 50–85 % to global warming.⁸ But water vapour stands at the end of a vicious circle. The emission of carbon dioxide and methane, which are said to contribute to global warming by around 9–26 % and 4–9 % respectively,⁹ increases the

3 Cf *M Allen et al*, Scientific Challenges in the Attribution of Harm to Human Influence on Climate (2006/07) 155 University of Pennsylvania Law Review (U Pa L Rev) 1353; *G Stix*, A Climate Repair Manual (2001) 295 Scientific American 46; Und den Klimawandel gibt es doch, ZeitOnline, <<http://www.zeit.de/wissen/umwelt/2017-05/globale-erwaermung-klimawandel-klimafor-schung-klimamodelle>> (viewed on 5 May 2017).

4 How 2016 Became Earth's Hottest Year on Record, The New York Times, <<https://www.nytimes.com/interactive/2017/01/18/science/earth/2016-hottest-year-on-record.html>> (viewed on 5 May 2017).

5 *PU Clark et al*, The Last Glacial Maximum (2009) 325 Science 710, <<http://science.sciencemag.org/content/325/5941/710.full>> (viewed on 5 May 2017).

6 *Allen et al* (2006/07) 155 U Pa L Rev 1360; *O Gaffney/W Steffen*, The Anthropocene equation (2017) 4 The Anthropocene Review 53.

7 IPCC, Climate Change 2007 The Physical Science Basis (2007) 665ff, <http://www.ipcc.ch/publications_and_data/publications_ipcc_fourth_assessment_report_wg1_report_the_physical_sciences_basis.htm> (viewed on 5 May 2017).

8 *Z Hausfather*, The Water Vapor Feedback, <<https://www.yaleclimateconnections.org/2008/02/common-climate-misconceptions-the-water-vapor-feedback-2/>> (viewed on 5 May 2017); *JT Kiehl/E Trenberth*, Earth's Annual Global Mean Energy Budget (1997) 78 Bulletin of the American Meteorological Society 197, 206; *G Schmidt*, Taking the Measure of the Greenhouse Effect, NASA Science Brief, <https://www.giss.nasa.gov/research/briefs/schmidt_05/> (viewed on 5 May 2017).

9 *JK Choi/BR Bakshi*, Attribution of Global Warming, in: SG Philander (ed), Encyclopedia of Global Warming and Climate Change (2008) 95, 96. Detailed calculations, however, are difficult, cf *Allen et al* (2006/07) 155 U Pa L Rev 1359.

greenhouse effect which in turn boosts water vapour which increases global warming...¹⁰ At the same time, Siberian permafrost is thawing, creating a gigantic source of additional methane. What is troubling is that – depending on the source – carbon dioxide and methane – the most prominent greenhouse gases – are at an 800,000 or even a 15 million year high.¹¹

The Intergovernmental Panel on Climate Change has a suspect to blame: ‘It is extremely likely that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together.’¹² And man-made greenhouse gases are made to stay.¹³ The lifetime of carbon dioxide is on average 20–200 years,¹⁴ with some molecules staying in the atmosphere for millennia.¹⁵ Chlorofluorocarbon (CFC), on the other hand, not only has a global warming potential which is 11,000 times worse than that of carbon dioxide. It also stays in the atmosphere for up to 1,000 years.¹⁶ And tetrafluoromethane, which is created during the production of aluminium, has a lifespan of up to 50,000 years.¹⁷ Hence, the current stock of greenhouse gases will influence the global climate for centuries and millennia to come.

The complexity and magnitude of global warming must be borne in mind when addressing liability for climate change. The intricate scientific questions will inevitably lead to intricate legal questions. Plainly speaking: if carbon dioxide contributes 9–26 % to global warming and remains in the atmosphere between 20–200 years, the classical means of attributing specific damage to specific tortfeasors will certainly be challenging.

10 If water vapour is the key greenhouse gas, why are man-made emissions important? The Guardian, <<https://www.theguardian.com/environment/2011/jan/28/water-vapour-greenhouse-gas>> (viewed on 5 May 2017).

11 A Freedman, The Last Time CO₂ Was This High, Humans Didn’t Exist, <<http://www.climatecentral.org/news/the-last-time-co2-was-this-high-humans-didnt-exist-15938>> (viewed on 19 May 2017).

12 IPCC Fifth Assessment Synthesis Report (2014) 48, <<https://www.ipcc.ch/report/ar5/syr/>> (viewed on 16 May 2017); but cf BE Harlow/RW Spencer, An Inconvenient Burden of Proof? CO₂ Nuisance Plaintiffs Will Face Challenges in Meeting the Daubert Standard (2011) 32 Energy Law Journal (Energy L) 459, 480ff.

13 M Inman, Carbon is forever (2008) 2 Nature Reports Climate Change 156, <<http://www.nature.com/climate/2008/0812/full/climate.2008.122.html>> (viewed on 5 May 2017).

14 How long do greenhouse gases stay in the air? The Guardian, <<https://www.theguardian.com/environment/2012/jan/16/greenhouse-gases-remain-air>> (viewed on 26 May 2017).

15 IPCC, Climate Change 2013 The Physical Science Basis (2013) 472, <<http://www.ipcc.ch/report/ar5/wg1/>> (viewed on 10 May 2017).

16 IPCC, Climate Change 2013, 731.

17 H Hulpke/HA Koch/R Nießner, Römpp Lexikon Umwelt (2nd edn 2000) 313.

II International law framework

Taking the intricacy and the sheer scope of global warming into account, it is no surprise that for the longest time the legal dimension of climate change was limited to international attempts on a global policy level. Throughout the years, political efforts have materialised in numerous international treaties and conventions.¹⁸

The 1992 UN Framework Convention on Climate Change (UNFCCC), currently signed by 197 states, for the first time recognised that climate change is induced by man-made greenhouse gas emissions and ‘may adversely affect natural ecosystems and humankind’.¹⁹ The 1992 Rio Declaration on Environment and Development, signed by more than 170 countries, stipulates the precautionary principle.²⁰ This principle shifts the burden of proof to policy makers: in case of scientific uncertainty, they need to show that a presumptive measure is not dangerous for the environment.²¹ Additionally, the Rio Declaration promotes the idea of common but differentiated responsibilities placing the main burden for emissions reductions on developed countries.²² In 1997, international attempts to tackle global warming were taken one step further by the Kyoto Protocol, which introduced an emissions trading system.²³ The most recent step is the Paris Agreement, which aims at holding global warming ‘to well below 2 °C above pre-industrial levels’.²⁴ It requires states to determine ‘ambitious’ national contribution levels in order to achieve the purposes of the agreement.²⁵ At the time of the publication of this paper, Paris is at stake though, because the President of the

18 For an overview cf *M Fitzmaurice, Responsibility and Climate Change* (2010) 53 *German Yearbook on International Law* 89, 101ff; *U Stäsche, Entwicklungen des Klimaschutzrechts und der Klimaschutzpolitik 2015/16* (2016) *Zeitschrift für das gesamte Recht der Energiewirtschaft (EnWZ)* 303.

19 Preamble to the UNFCCC, <https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf> (viewed on 5 May 2017).

20 Principle 15 of the Rio Declaration, <<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>> (viewed on 5 May 2017).

21 *G Loibl, Internationales Umweltrecht*, in: A Reinisch (ed), *Österreichisches Handbuch des Völkerrechts* (5th edn 2013) no 2110f.

22 Principle 7 of the Rio Declaration (fn 20).

23 *EB Bluemel, Unraveling the Global Warming Regime Complex: Competitive Entropy in the Regulation of the Global Public Good* (2006/07) 155 *U Pa L Rev* 1981, 1991ff; *K Ipsen, Völkerrecht* (6th edn 2014) § 49 no 59.

24 Art 2 a of the Paris Agreement, <http://unfccc.int/paris_agreement/items/9485.php> (viewed on 5 May 2017); *W Frank, Anmerkungen zum Pariser Klimavertrag aus rechtlicher Sicht* (2016) 27 *Zeitschrift für Umweltrecht (ZUR)* 352.

25 Art 3 of the Paris Agreement.

United States just announced the withdrawal from that agreement. Nonetheless, Rio, Kyoto and Paris are the milestones of an international legal framework which is tightening up.²⁶

This has recently inspired two important initiatives of legal experts. The International Law Association published its ‘Legal Principles on Climate Change and Climate Liability Under Public International Law’,²⁷ whereas another initiative produced the ‘Oslo Principles on Global Climate Change Obligations’.²⁸ Both sets of rules try to fit climate change into the well-established and relatively clear-cut framework of state responsibility, drawing on generally accepted obligations in environmental law, human rights law and tort law.²⁹

III Bread and butter cases

Global warming, however, not only keeps high-level policy makers and academic working groups busy. It also appears in very palpable and concrete court cases around the globe. The first steps can still be taken on well-trodden paths. One could speak of the ‘bread and butter cases’.

In a recent Austrian case, for example, the operator of the Vienna airport applied for permission to build a third runway.³⁰ Quite surprisingly, however, the project failed the environmental impact assessment on appeal before the Federal Administrative Court. The Court conceded that the construction of the additional runway would not only improve infrastructure, but also create new jobs and increase air safety. However, the construction would also result in a significant increase in greenhouse gas emissions.³¹ Since the Austrian Constitution and the European Charter of Fundamental Rights provide for a ‘high level of environmen-

26 Other important agreements include the Doha Amendment (2012), the Bali Action Plan (2007), the Cancun Agreements (2010) and the Durban Decisions (2010).

27 *W Frank/C Schwarte*, Klimawandel und Völkerrecht – Anmerkungen zu den “Legal Principles Relating to Climate Change” der International Law Association (2014) ZUR 643.

28 The Principles and the Commentary to it can be downloaded at <<http://globaljustice.macmillan.yale.edu/news/oslo-principles-global-climate-change-obligations>> (viewed on 5 May 2017); *W Frank*, Anmerkungen zu den “Oslo Principles on Global Climate Change Obligations” (2015) *Neue Zeitschrift für Verwaltungsrecht (NVwZ)* 1499.

29 Cf Commentary to the Oslo Principles 15ff.

30 Bundesverwaltungsgericht (BVerwG) 2.2.2017 W109 2000179-1/291E. After submitting this paper, however, this decision was quashed by the Austrian Supreme Constitutional Court (VfGH) in E 875/2017, E 886/2017.

31 BVerwG 2.2.2017 W109 2000179-1/291E.

tal protection', the Court concluded that climate protection prevailed over the airport operator's interests.³²

The question whether the court was right in balancing these interests in that case at all, and whether the outcome was right, shall not be addressed in detail here. But on a structural level, the court did something very common and usual. It interpreted the law, weighed different interests and came to a conclusion as to which interest prevailed. This is common ground, and similar cases of everyday business could be reported from all over the world.³³ In Australia, for example, the Land and Environmental Court of New South Wales ruled that greenhouse gas emissions needed to be taken into account when assessing the environmental impact of a coal mine (*Anvil Hill*).³⁴

A similar approach, employing rather conservative methodology, can also be found in the most prominent climate change case of all, the US Supreme Court's decision in *Massachusetts v Environmental Protection Agency (EPA)*. This judgment shifts attention to the United States which has since seen the most aggressive and comprehensive approach to climate change litigation and therefore deserves special attention.³⁵

32 The fundamental right to pursue business activities is also enshrined in the Austrian Constitution (art 6 StGG). In another case, climate protection was employed to justify interference with nature conservation. The construction of a hydroelectric power station can therefore be justified by the overriding public interest in clean energy, even if it has a slightly negative impact on the water quality in the affected river, Verwaltungsgerichtshof (VwGH) 24.5.2016 2013/07/022715 (2016) 23 Recht der Umwelt 165 (*Schulev-Steindl*).

33 Cf Verwaltungsgericht (VG) Berlin 14.5.2009 VG 1 A 417.08 (2009) 20 ZUR 556 on the prohibition of patio heaters for climate protection.

34 *Grey v Minister of Planning* [2006] New South Wales Land and Environment Court (NSWLCC) 720, <<https://www.ecolex.org/details/court-decision/peter-gray-v-the-minister-for-planning-director-general-of-the-department-of-planning-and-centennial-hunter-pty-ltd-57d9db6b-cd22-4095-ba38-d1fd0a1171ab/>> (viewed on 5 May 2017); cf *A Rose, Gray v Minister for Planning: The Rising Tide, of Climate Change Litigation in Australia*, <https://sydney.edu.au/law/slr/slr29_4/Rose.pdf> (viewed on 5 May 2017); *E Kassman, How Local Courts Address Global Problems: The Case of Climate Change* (2013/14) 24 *Duke Journal of Comparative & International Law* (Duke J Comp & Int'l L) 201, 218f.

35 A comprehensive overview of US cases is provided by an online database provided by the law firm Arnold & Porter Kaye Scholer LLP at <<http://www.apks.com/~media/files/climatechange-chemicallegislation/climatechangelitigationchart.pdf>> (viewed on 30 May 2017); *S Lach/H Morbach, Aktuelle Entwicklungen des Umwelthaftungsrechts in den Vereinigten Staaten von Amerika* (2010) 10 *Versicherungsrecht* (VersR) 442; *R Verheyen/M Lührs, Klimaschutz durch Gerichte in den USA, 1. Teil: Öffentliches Recht* (2009) 20 ZUR 73; *R Verheyen/M Lührs, Klimaschutz durch Gerichte in den USA, 2. Teil: Zivilrecht* (2009) 20 ZUR 129.

IV The ‘American way’

A Massachusetts v EPA

In *Massachusetts v Environmental Protection Agency*,³⁶ the state of Massachusetts and eleven other states sued the Environmental Protection Agency (EPA) for a violation of sec 202(a)(1) of the Clean Air Act, which reads as follows: ‘The [EPA] shall...prescribe...standards applicable to the emission of any air pollutant from... new motor vehicles...which...cause, or contribute to, air pollution, which may reasonably be anticipated to endanger public health or welfare’.

Upon the claimants’ rulemaking petition to set emission standards for motor vehicles, the EPA maintained that it lacked authority to regulate carbon dioxide emissions for climate change purposes and that, even if it had such authority, it declined to set emissions standards. The US Supreme Court, however, found that the EPA had misread the Clean Air Act because it does indeed have authority to regulate carbon dioxide and therefore cannot simply refuse to set standards without a reasoned explanation.

Given the text of the Clean Air Act, this judgment is not ground-breaking at all. On the contrary, it is very conservative in its legal rationale. The Supreme Court interpreted a specific provision of the Clean Air Act, and determined whether it is permissible that a public authority refuses to act accordingly for no apparent reason. From that point of view, the EPA case seems even more straightforward than the Austrian case concerning the Vienna airport.

Nonetheless, there is a widespread perception that in *Massachusetts v EPA* the US Supreme Court handed down a landmark judgment on global warming. This led to high hopes and false expectations with environmentalists.³⁷ The Court, however, was not at all keen on taking climate change cases, and very reluctant to be involved in environmentalism. Only with this in mind, can one understand what came next. When climate change litigants entered the field of private law, it became apparent that they had misread *Massachusetts v EPA*.

³⁶ *Massachusetts et al v Environmental Protection Agency et al*, 549 United States Supreme Court Reports (US) (2007) 30.

³⁷ <<http://www.yaleclimateconnections.org/2010/09/mr-mass-v-epa-an-interview-with-the-manwho-put-climate-change-on-americas-legal-map/>> (viewed on 5 May 2017).

B Public nuisance, political question and displacement

Speaking of climate change litigation in a common law environment, the concept of public nuisance immediately comes to mind. Public nuisance is defined as an ‘unreasonable interference with a right common to the general public’.³⁸ Even though this concept is rather blurred,³⁹ it definitely can apply to transboundary pollution and was identified as a viable path for climate change plaintiffs.⁴⁰

When the state of California sued General Motors and a number of other car manufacturers for its expenses to protect its coastline and for increased health care costs, it therefore based its claim on public nuisance. California’s attempt was short-lived though, because the District Court dismissed the case as a non-justiciable ‘political question’.⁴¹ It read the *Massachusetts v EPA* decision as a decision that enabled a state to ‘challenge [in court] the rejection of its rulemaking petition as arbitrary and capricious’,⁴² but that left the rulemaking itself to the authority. The court therefore found that it could not ‘adjudicate Plaintiff’s... global warming nuisance tort claim without making an initial policy determination of a kind clearly for nonjudicial discretion’.⁴³ By playing the political question card, the court asserted that it had no authority to determine or review

38 Restatement (Second) of Torts § 821B(1); cf *L Case*, Climate Change: A New Realm for Tort Litigation, and How to Recover When the Litigation Heats Up (2011) 51 Santa Clara Law Review (Santa Clara L Rev) 265, 271ff; *K Horsey/E Rackley*, Tort Law (4th edn 2015) 556ff; *MF Pawa/BA Krass*, Global Warming as a Public Nuisance: Connecticut v. American Electric Power (2004/05) 16 Fordham Environmental Law Review (Fordham Envtl L Rev) 407, 439.

39 *WL Prosser/WP Keeton*, Torts (5th edn 1984) 616; *Verheyen/Lühns* (2009) 20 ZUR 133.

40 *D Hunter/J Salzman*, Negligence in the Air: The Duty of Care in Climate Change Litigation (2006/07) 155 U Pa L Rev 1741, 1791ff; *Kaminskaité-Salters* (fn 1) 140ff; *Pawa/Krass* (2004/05) 16 Fordham Envtl L Rev 439ff; cf also *BP Harper*, Climate Change Litigation: The Federal Common Law of Interstate Nuisance and Federalism Concerns (2005/06) 40 Georgia Law Review 661, 672ff; but cf *D Dana*, The Mismatch Between Public Nuisance Law And Global Warming (2010) 18 Supreme Court Economic Review 9.

41 The criteria for the application of the political questions doctrine were established in *Baker v Carr*, 369 US 186 (1997).

42 *Massachusetts et al v Environmental Protection Agency et al*; cf 42 US Code § 7607d9A.

43 *California v General Motors et al*, No C06–05755 MJJ (2007); but cf *EC Borissov*, Global Warming: A Questionable Use of the Political Question Doctrine (2008) 41 Indiana Law Review 415; *SM LaTourette*, Global Climate Change: A Political Question? (2008/09) 40 Rutgers Law Journal 219; *JR May*, Climate Change, Constitutional Consignment and the Political Question Doctrine (2007/08) 85 Denver University Law Review 919, 939.

carbon dioxide standards.⁴⁴ Consequently, it was barred from exploring whether there was a global warming nuisance claim.

California later withdrew its claim, which is why the Supreme Court never had the chance to rule on the case. The district court's decision, however, seems to be corroborated by the Supreme Court's judgment in *American Electric Power v Connecticut*. In this case, a group of eight states and non-profit land trusts sued five private electric power companies asking the court to cap the defendants' carbon dioxide emissions. The claim was dismissed by the US Supreme Court in a unanimous decision. However, contrary to *California v General Motors*, the Supreme Court did not rely on the political question doctrine. Instead, it ruled that regardless of whether or not the plaintiffs had a common law claim for curtailment of greenhouse gas emissions under general rules, any such claim would be displaced by the Clean Air Act.⁴⁵ This doctrine of displacement is based on the separation of powers between the judicial and legislative branch. Where Congress addresses a question (in this case by means of the Clean Air Act), displacement takes place and the courts can no longer rely on the federal common law.⁴⁶

The scope of displacement, however, remains unclear in climate change cases. Whereas *American Electric Power v Connecticut* made it clear that a court ruling on emissions limits is inadmissible, this is not entirely certain for claims for damages. After all, displacement only applies where the statute 'speak[s] directly to [the] question'.⁴⁷ Since the Clean Air Act only provides for the prescription of emissions standards but does not serve as a basis for claims for damages, it might be argued that it does not displace claims for damages.⁴⁸ However, the subse-

⁴⁴ *Marbury v Madison*, 5 US 137 (1803): 'Questions, in their nature political or which are, by the Constitution and laws, submitted to the Executive, can never be made in this court'; *JR May*, *AEP v. Connecticut and the Future of the Political Question Doctrine* (2011/12) 121 *Yale Law Journal* (Yale LJ) 127; *Pöttker* (fn 1) 255.

⁴⁵ *American Electric Power Company v Connecticut*, 564 US 410 (2011); *TW Merrill*, *Global Warming as a Public Nuisance* (2005) 30 *Columbia Journal of Environmental Law* (Colum J Envtl L) 293, 316ff.

⁴⁶ *HM Osofsky*, *AEP v. Connecticut's Implications for the Future of Climate Change Litigation* (2011/12) 121 *Yale LJ* 101, 102f; but cf *S Olinger*, *Filling the Void in an Otherwise Occupied Field: Using Federal Common Law to Regulate Carbon Dioxide in the Absence of a Preemptive Statute* (2007) 24 *Pace Environmental Law Review* 237.

⁴⁷ *American Electric Power Co Inc v Connecticut*, 564 US 410 (2011); *County of Oneida v Oneida Indian Nation of New York State*, 470 US 226 (1985); *Milwaukee II*, 451 US 302 (1981); *Mobil Oil Corp v Higginbotham*, 436 US 618 (1978); *Pawa/Krass* (2004/05) 16 *Fordham Envtl L Rev* 461; *Pöttker* (fn 1) 261.

⁴⁸ Cf *MB Gerrard/GE Wannier*, *United States of America*, in: R Lord/S Goldberg/L Rajamani/J Brunnée (eds), *Climate Change Liability* (2012) no 20.76; *S Lawson*, *The Conundrum of Climate*

quent *Kivalina v ExxonMobil* case does not give much hope to climate change litigants. In this case, the residents of Kivalina, a small rural town 70 miles north of the Arctic circle, had to relocate their village which was threatened by dramatic erosion.⁴⁹ Their claim for damages was dismissed by the 9th Circuit Court of Appeals for displacement. The court stressed that displacement of a federal common law right of action meant displacement of all remedies.⁵⁰

In the aftermath of *American Electric Power v Connecticut*, courts put further ‘nails in the coffin’ of climate change litigation.⁵¹ In *Comer v Murphy Oil*, plaintiffs who had lost their homes in Hurricane Katrina filed suit against energy companies and utilities. They alleged that ‘prior to striking the Mississippi Gulf Coast, Hurricane Katrina had developed into a cyclonic storm of unprecedented strength and destruction, fuelled and intensified by the warm waters and warm environmental conditions present in the Atlantic Ocean, Caribbean Sea, and the Gulf of Mexico. These high sea surface temperatures, which were a direct and proximate result of the defendants’ greenhouse gas emissions, increased the intensity and magnitude of Hurricane Katrina.’⁵² Again, displacement led to the dismissal of the claim.

This is the end of the ‘American way’. Statutory law does not leave space for a tort of public nuisance for global warming. One statement issued on the day of the Kivalina decision bluntly summarises the present state of affairs: ‘The federal common law of public nuisance died after a long illness on Sept. 21, 2012’.⁵³

It is important to understand, however, that there is a significant difference between *California v General Motors* and *American Electric Power v Connecticut*. Both cases were lost by the plaintiffs and both cases were lost because of separation of powers issues: the political question doctrine and the displacement doctrine. However, the outcome is markedly different. Political questions are

Change Causation: Using Market Share Liability to Satisfy the Identification Requirement in Native Village of Kivalina v. ExxonMobil Co. (2010/11) 22 Fordham Envtl L Rev 433, 478; Pöttker (fn 1) 264 ff.

⁴⁹ More details on the case are provided by *E Mayer* in a panel discussion on climate change litigation (2010) 7 Journal of Law, Economics & Policy 325, 329 ff.

⁵⁰ *Native Village of Kivalina et al v ExxonMobil et al* No 4:08-cv-01138-SBA (2012).

⁵¹ *S Jeffe*, Another nail in the public nuisance litigation coffin: the 9th Circuit affirms dismissal of the Kivalina claims, <<http://www.lexology.com/library/detail.aspx?g=cf839238-7a68-468b-b9d4-ab69a49cd5d8>> (viewed on 5 May 2017).

⁵² *Comer v Murphy Oil USA* 585 F3d 855 (5th Cir 2009); <<http://www.climatelawyers.com/post/2012/03/22/Dismissed-Means-Dismissed-The-First-Climate-Change-Liability-Damages-Suit-Comer-v-Murphy-Oil-Is-Tossed-Again.aspx>> (viewed on 16 May 2017).

⁵³ <<https://www.mcguirewoods.com/Client-Resources/Alerts/2012/10/Death-Environmental-Common-Law.aspx?print=true>> (viewed on 5 May 2017).

excluded from judicial determination. The displacement doctrine, on the other hand, only bars federal common law claims that concur with statutory provisions. Hence, displacement leaves a backdoor open for administrative challenges, pushing litigation along a regulatory-focused course.⁵⁴ One could therefore read the US Supreme Court in a way that while nuisance claims are precluded by displacement, a challenge of EPA standards in court is not precluded by the political question doctrine.

In conclusion, the United States has seen the most comprehensive attempts of climate litigation. These cases were not successful in the end, but they might well inspire European lawyers. After all, the cases were not lost on their merits, but on particular doctrines of separation of powers. However, such US particularities do not necessarily have to stand in the way of European claims.

V The European theatre

When returning to the European theatre, one has to turn back the clock because the current European landmark case somehow resembles the *Massachusetts v EPA* decision. In *Urgenda v The Netherlands*, the nongovernmental organisation Urgenda brought a claim against the state demanding stricter carbon dioxide standards.⁵⁵ The claim was based on a peculiar provision of the Dutch civil code which vests nongovernmental organisations with a right to bring claims in matters of public welfare.⁵⁶

The District Court of The Hague had to determine whether the state had breached its duty of care by planning to reduce emissions only by 17%. It conceded that such a duty of care is ‘a legal issue which has never before been answered in Dutch proceedings and for which jurisprudence does not provide a ready-made framework’.⁵⁷ Still, it ruled that the state had breached its duty of care

⁵⁴ *Osofsky* (2011/12) 121 Yale LJ 102f; cf *May* (2011/12) 121 Yale LJ 127ff. It might even leave room for state common law claims: *Gerrard/Wannier* (fn 48) no 20.71ff.

⁵⁵ An English version of the judgment can be found at <<https://uitspraken.rechtspraak.nl/inzien/document?id=ECLI:NL:RBDHA:2015:7196&keyword=urgenda>> (viewed on 5 May 2017).

⁵⁶ Art 3:305a para 1 NWB: ‘A foundation or association with full legal capacity that, according to its articles of association, has the objection to protect specific interests, may bring to court a legal claim that intends to protect similar interests of other persons.’ <<http://www.dutchcivillaw.com/civilcodebook033.htm>> (viewed on 5 May 2017); *J Saurer/K Purnhagen*, Klimawandel vor Gericht – Der Rechtsstreit der Nichtregierungsorganisation “Urgenda” gegen die Niederlande und seine Bedeutung für Deutschland (2016) 27 ZUR 16, 17ff.

⁵⁷ *Urgenda v The Netherlands* C/09/456689/HA ZA 13–1396 (2015, English translation) no 4.53.

because it failed to reduce emissions by at least 25% until 2020.⁵⁸ The court took into consideration the nature and extent of the damage ensuing from climate change, the knowledge and foreseeability of this damage, the chance that hazardous climate change will occur and the onerousness of taking precautionary measures.⁵⁹ It pondered the nature of the acts (or omission) of the state and it considered (a nod to the political question doctrine) the discretion of the State to execute its public duties. The court also addressed separation of powers questions, and found that it ‘does not enter the political domain with the associated considerations and choices’.⁶⁰ The Dutch government, however, has a different view and appealed the case.

From a tort law perspective, the creation of a duty of care is remarkable. Still, one must not forget that the defendant was the state. *Urgenda v The Netherlands* is therefore as far away from private law as a duty of care can be. Against this backdrop, the case seems to be public law in disguise. *Urgenda v The Netherlands* is undoubtedly a milestone in climate change litigation because a state was forced to dramatically reduce its emissions. But it is probably no milestone for tort law.

Nonetheless, the very general duty of care adopted by the Dutch court has already inspired others. In Switzerland, the *Klimaseniorinnen* – senior female citizens – have instigated administrative proceedings, claiming that they are particularly affected by climate change because heat is especially dangerous for women their age.⁶¹ They maintain a violation of their fundamental right to health and the obligation of the State to protect the environment. Similar claims have been reported from Norway, Belgium and Pakistan.⁶²

These cases are important steps and the ideas brought forward might not stop at curbing emissions, but might also trigger state liability. After all, the notion of positive obligations arising from fundamental rights is not new. According to the European Court of Human Rights’ settled case law, art 2 and art 8 of the European Convention on Human Rights provide for a positive obligation of states to take

58 *Urgenda v The Netherlands* C/09/456689/HA ZA 13–1396 (2015) no 4.93; cf *RHJ Cox*, *The Liability of European States for Climate Change* (2014) 30 *Utrecht Journal of International and European Law* 125, 128ff; *J Van Zeben*, *Establishing a Governmental Duty of Care for Climate Change Mitigation: Will Urgenda Turn the Tide?* (2015) 4 *Transnational Environmental Law* 339.

59 *Saurer/Purnhagen* (2016) 27 *ZUR* 19.

60 *Urgenda v The Netherlands* C/09/456689/HA ZA 13–1396 (2015) no 4.95.

61 *Klimaseniorinnen reichen Klage ein*, *Neue Züricher Zeitung* (NZZ), <<https://www.nzz.ch/schweiz/klimawandel-klimaseniorinnen-reichen-klage-ein-ld.123993>> (viewed on 5 May 2017).

62 *Ashgar Leghari v Federation of Pakistan* W P No 25501/2015, <<https://www.ecolex.org/details/court-decision/ashgar-leghari-v-federation-of-pakistan-caa612e8-3d57-48eb-ae32-f5abe92c30b7/>> (viewed on 5 May 2017); cf *W Frank*, *Staatliche Klimaschutzpflichten* (2016) 35 *NVwZ-Extra* 1, 4ff.

appropriate steps to safeguard the lives of those within their jurisdiction.⁶³ In *Kolyadenko v Russia*, where water was released from a dam in case of emergency and caused a flood, the Court held that ‘the authorities had been aware that in case of heavy rain it might be necessary urgently to release water’.⁶⁴ The Court therefore found that the ‘authorities failed to do everything in their power to protect the applicants’ rights’ and awarded damages.⁶⁵ In another case, Russia was ordered to pay damages to the victims of a mudslide because its authorities had failed to implement protective measures despite urgent warnings by an environmental institute.⁶⁶

It seems to be a small step to extend this concept to climate change cases. But one should not succumb to the illusion that these rulings on fundamental rights also pave the way for private tort litigation. As regards responsibility of private entities, we are still at square one.

Recently, however, a Peruvian farmer sued a German energy supplier seeking compensation for precautionary measures he had taken to protect his home from being flooded by a glacial lake,⁶⁷ the link being that RWE had contributed to the worldwide glacial melting.⁶⁸ The idea that inspired this suit is clear: fundamental rights closely resemble absolute rights in private law. If public law provides preventative measures to protect fundamental rights, why should we not also think about private law injunctions against violations of absolute rights? And why should we stop there, and not also consider damages?

63 European Court of Human Rights (ECtHR) *Brincat et al v Malta*, 24.7.2014, no 60908/11.; ECtHR *Kolyadenko et al v Russia*, 28.2.2012, no 17423/05; ECtHR *Budayeva et al v Russia*, 20.3.2008, no 15339/02; ECtHR *Öneryildiz v Turkey*, 30.11.2004, no 48939/99.

64 ECtHR *Kolyadenko*, 28.2.2012, no 17423/05, § 165.

65 ECtHR *Kolyadenko*, 28.2.2012, no 17423/05, § 216.

66 ECtHR *Budayeva*, 20.3.2008, no 15339/02; *J Meyer-Ladewig/B Huber* in: J Meyer-Ladewig/M Nettesheim/von Raumer (eds), EMRK Handkommentar (4th edn 2017) art 2 no 14.

67 Peruanischer Kleinbauer verklagt RWE – wegen Klimawandel, *Süddeutsche Zeitung* (SZ), <<http://www.sueddeutsche.de/wirtschaft/klimawandel-peruanischer-kleinbauer-verklagt-rwe-wegen-klimawandel-1.3264228>> (viewed on 5 May 2017); *Hält dieser Mann den Klimawandel auf?* Die Zeit Dossier, 8 June 2017.

68 Landgericht (LG) Essen 15.12.2016 2 O 285/15; *W Frank*, *Störerhaftung für Klimaschäden?* (2017) 36 NVwZ 664.

VI Tort liability of enterprises

A International dimension

Before turning to substantive tort law, however, the cross-border implications of climate change litigation need to be addressed. The international law of civil procedure and international private law need to be consulted in order to determine jurisdiction and the applicable law in cases where claimant and defendant are domiciled in different countries.

1 Jurisdiction

The first matter to address is jurisdiction. Cross-border litigation within the European Union is governed by the recast Brussels I regulation (1215/2012/EU). According to art 4(1) of this regulation, persons domiciled in a Member State shall generally be sued in the courts of that Member State (*actor sequitur forum rei*).⁶⁹ Pursuant to art 63, a company or other legal person or association of natural or legal persons is domiciled at the place where it has its statutory seat, its central administration or its principal place of business. Therefore, the Brussels I regulation provides for jurisdiction in Europe for climate change claims against European companies.⁷⁰ The same result is provided by the Lugano Convention which applies to Iceland, Norway and Switzerland.⁷¹

In matters relating to tort, delict or quasi-delict, the plaintiff may also initiate proceedings at the place where the harmful event occurred or may occur (art 7 (2)). This provision applies not only to claims for damages, but also to injunctive relief.⁷² Based on a broad interpretation of art 7(2) by the European Court of Justice, the plaintiff may commence proceedings either at the place where the damage occurred or the place of the event giving rise to it (principle of ubiquity).⁷³

⁶⁹ On this rule *R Geimer*, Internationales Zivilprozessrecht (7th edn 2015) no 1138ff.

⁷⁰ *U Magnus*, Injunctive Relief against Climate Change, in: J Spier/U Magnus (eds), Climate Change Remedies (2014) 121, 135f.

⁷¹ *Magnus* (fn 70) 136.

⁷² *S Leible* in: T Rauscher (ed), Europäisches Zivilprozess- und Kollisionsrecht I (4th edn 2016) art 7 no 115; *R Schütze*, Rechtsverfolgung im Ausland (5th edn 2016) no 168; *A Stadler* in: H Musielak/W Voit (eds), Zivilprozessordnung (14th edn 2017) art 7 EuGVVO no 18.

⁷³ Court of Justice of the European Union (CJEU) 30.11.1976, C-21/76, *Bier v Mines de Potasse*, ECLI:EU:C:1976:166; CJEU 7.3.1995, C-68/93, *Shevill v Press Alliance SA*, ECLI:EU:C:1995:61; CJEU 1.10.2002, C-167/00, *Verein für Konsumenteninformation v Henkel*, ECLI:EU:C:2002:555; CJEU 16.7.2009, C-189/08, *Zuid-Chemie v Philippo's Mineralenfabriek*, ECLI:EU:C:2009:475; *PG Mayr*,

However, art 7(2) only provides jurisdiction at these places if they lie within the territory of a Member State.⁷⁴ In climate change cases, however, the place where the damage occurred will often be located outside Europe, precluding the plaintiff from commencing proceedings there.⁷⁵

If the defendant is a European company, however, the place of the event giving rise to the damage will often be located in Europe. If this place differs from the defendant's domicile, it provides the plaintiff with an additional venue. However, the determination of the place of the event giving rise to the damage is not so simple in climate change cases. It could either be the defendant's place of central administration where its business strategy is designed, or it could be the place where the defendant operates his greenhouse gas (GHG) emitting factories. Since mere acts of preparation are generally not covered by art 7(2),⁷⁶ one might argue that the place of the event giving rise to the damage is rather the place where the GHG emitting plants are located. According to this view, art 7(2) provides plaintiffs with an additional venue, as long as this place lies within the EU.⁷⁷

Plaintiffs could use this option as a procedural strategy by choosing especially 'climate-friendly' fora. Such 'forum shopping', however, needs further consideration. Article 7(2) establishes (local⁷⁸) jurisdiction at the place of the event giving rise to the damage because there is a close connection between the court and the tortious act.⁷⁹ The local court is deemed to be the best suited forum to take the relevant evidence and assess the harmful act and the corresponding damage.⁸⁰ Its jurisdiction should therefore be limited to acts which occurred at its

Europäisches Zivilprozessrecht (2011) no II/55; *DA Simotta* in: HW Fasching/A Konecny (eds), *Kommentar zu den Zivilprozessgesetzen* (2nd edn 2008) art 5 EuGVVO no 301.

74 *D Czernich* in: D Czernich/GE Kodek/PG Mayr (eds), *Europäisches Gerichtsstands- und Vollstreckungsrecht* (4th edn 2014) art 7 no 121.

75 *Magnus* (fn 70) 137.

76 *R Geimer* in: R Geimer/RA Schütze (eds), *Europäisches Zivilverfahrensrecht* (3rd edn 2010) art 5 no 250; *Rauscher/Leible* (fn 72) art 7 no 135; *Fasching/Konecny/Simotta* (fn 73) art 5 EuGVVO no 303; *G Wagner*, *Haftung für Menschenrechtsverletzungen* (2016) 80 *Rabels Zeitschrift für ausländisches und internationales Privatrecht* (*RabelsZ*) 717, 735 with further reference.

77 *Magnus* (fn 70) 137. In a product liability case, the ECJ considered the place where goods are manufactured relevant, CJEU 16.1.2014, C-45/13, *Andreas Kainz v Pantherwerke AG*, ECLI:EU:C:2014:7, but cf *Rauscher/Leible* (fn 72) art 7 no 135.

78 *Geimer/Schütze/Geimer* (fn 76) art 5 no 239; *Musielak/Voit/Stadler* (fn 72) art 7 EuGVVO no 17.

79 *P Mankowski* in: U Magnus/P Mankowski (eds), *ECPII I Brussels Ibis Regulation* (2016) art 7 no 227.

80 *J Adolphsen*, *Europäisches Zivilverfahrensrecht* (2nd edn 2011) 98; *P Gottwald* in: T Rauscher/W Krüger (eds), *Münchener Kommentar zur ZPO* (4th edn 2013) art 5 no 59.

place. This is also true in climate change cases. After all, the local court is not suited to assess tortious acts all around the world. For example, a Swedish court would be an appropriate forum to deal with emissions of a power plant run by a Dutch company at the court's place in Sweden. However, it is not an appropriate forum to deal with emissions of power plants run by the same Dutch company in France. Consequently, jurisdiction will be fragmented, if the plaintiff chooses to base his claims on art 7(2).⁸¹ The same would be true, if he based his claims on art 7(5), which provides for a venue at the place of one of the defendant's establishments. This provision is also limited to claims arising out of the operations of this establishment, branch or agency.⁸²

If multiple defendants are involved, plaintiffs will also look at art 8(1). According to this provision, one defendant can also be sued in the (local) court where any one of the defendants is domiciled, 'provided the claims are so closely connected that it is expedient to hear and determine them together'. The requirement of close connection is ambiguous. But since all greenhouse gas emitters act independently and there is no imminent danger of irreconcilable decisions, climate change plaintiffs will generally not be able to sue several emitters together at one defendant's domicile.⁸³ Article 8(1), however, might be applied if the victim suffers identical damage from two or more members of one group of companies which act in concert. For example, harm could stem from the conduct of a parent company and its subsidiary.⁸⁴ In this case, art 8(1) only applies to defendants that are domiciled in the European Union, but does not apply to third country defendants.⁸⁵ National law, however, might also establish jurisdiction for claims against third country subsidiaries.⁸⁶

81 However, if the plaintiff wants to recover the whole damage at once, he can sue the tortfeasor at his domicile anyway, *Magnus/Mankowski/Mankowski* (fn 79) art 7 no 259.

82 *Magnus/Mankowski/Mankowski* (fn 79) art 7 no 450; *Fasching/Konecny/Simotta* (fn 73) art 5 no 372 mwN; *Musielak/Voit/Stadler* (fn 72) art 7 EuGVVO no 26.

83 *Magnus* (fn 70) 141f.

84 Cf in a similar field *Wagner* (2016) 80 *RabelsZ* 736.

85 CJEU 11.4.2013, C-645/11, *Land Berlin v Ellen Mirjam Sapir and others*, ECLI:EU:C:2013:228; *Rauscher/Leible* (fn 72) art 8 no 9; *P Schlosser* in: *P Schlosser/B Hess*, *EU-Zivilprozessrecht* (4th edn 2015) art 8 EuGVVO no 2; but cf *Geimer/Schütze/Geimer* (fn 76) art 6 no 6f; *Wagner* (2016) 80 *RabelsZ* 737.

86 Cf C/09/337058/HA ZA 09–1581; C/09/365482/HA ZA 10–1665 (*Royal Dutch Shell*), <<http://jur.e.nl/ECLI:NL:GHDHA:2015:3586>> (English translation, viewed on 5 May 2017); cf *L Enneking*, *The Future of Foreign Direct Liability? Exploring the International Relevance of the Dutch Shell Nigeria Case* (2014) 10 *Utrecht Law Review* 44. Under Austrian law, international jurisdiction for claims against third-country defendants can be established under § 11 Z 1 ZPO, § 93 JN, § 27a JN, if the requirements of these provisions are met; *Fasching/Konecny/Simotta* (fn 73) § 93 JN no 18.

In conclusion, plaintiffs have a wide range of opportunities to bring their claims before European courts. European courts could play a major role in the legal fight against global warming. This could be considered to be part of a further-reaching trend. In the field of human rights violations, Wagner recently observed that the scope of US jurisdiction has been narrowed by the Supreme Court, whereas the scope of European jurisdiction has expanded.⁸⁷ Based on an extensive interpretation of the Alien Tort Statute from 1789 by US courts, the United States used to be the primary forum for extraterritorial human rights claims. However, in its 2013 *Kiobel v Royal Dutch Petroleum* decision, the US Supreme Court put an end to this era by refusing to apply the Alien Tort Statute on delicts that had been committed outside the territory of the United States.⁸⁸ In its reasoning in a subsequent judgment, the Court expressly referred to the jurisdiction of European courts according to the Brussels regulation.⁸⁹ The reluctance of US courts to take on extraterritorial climate change claims⁹⁰ might therefore put European courts into the spotlight.

2 Applicable law

Once jurisdiction is established in Europe, courts in the European Union will have to apply the Rome II regulation⁹¹ to determine the applicable law.⁹² This regulation applies not only to claims for damages but also to injunctive relief (art 2(3)).⁹³ Article 4(1) of the regulation stipulates that the law applicable to an obligation arising out of a tort/delict shall be the law of the country in which the damage occurs (*lex loci damni*).⁹⁴ The law specified by the Rome II

⁸⁷ Wagner (2016) 80 RabelsZ 731ff.

⁸⁸ *Kiobel v Royal Dutch Petroleum* 569 US __ (2013); M Reimann, Das Ende der Menschenrechtsklagen vor den amerikanischen Gerichten? (2013) 33 Praxis des Internationalen Privat- und Verfahrensrechts (IPRax) 455.

⁸⁹ *Daimler AG v Bauman* 571 US __ (2014).

⁹⁰ J Kilinski, International Climate Change Liability: A Myth or a Reality (2008/09) 18 Journal of Transnational Law & Policy (J Transnatl L & Pol'y) 377, 407ff.

⁹¹ Regulation (EC) No 864/2007 [2007] Official Journal (OJ) L 199/40.

⁹² Denmark is excluded from the scope of the regulation according to its art 1 para 4.

⁹³ A Junker in: FJ Säcker/R Rixecker/H Oetker/B Limperg (eds), Münchener Kommentar zum BGB X (6th edn 2015) art 4 Rom II-VO no 7; A Spickhoff in: HG Bamberger/H Roth (eds), Beck'scher Online-Kommentar BGB (42nd edn 2013) art 2 Rom II-VO no 2.

⁹⁴ According to recital 16 of the regulation, this 'strikes a fair balance' between both parties and 'reflects the modern approach to civil liability'. The rule can be based on the fact that the victim trusts in the protection of his goods according to the rules in his home state, H Koziol, Einige

regulation applies regardless of whether it is the law of a Member State or of a third country (art 3).⁹⁵ If the plaintiff's damage occurred in his home state outside Europe, European courts will therefore have to apply third country tort law.⁹⁶ Jurisdiction and applicable law do not necessarily go hand in hand.⁹⁷

In cases where the standards on climate protection are higher in the victim's home state than in the state where the event giving rise to the damage occurred, the application of the former state's rules is unfavourable to the defendant. This potential drawback is mitigated by art 17 of the Rome II regulation. According to art 17, in assessing the conduct of the defendant, 'account shall be taken, as a matter of fact and in so far as is appropriate, of the rules of safety and conduct which were in force at the place and time of the event giving rise to the liability'. According to prevailing opinion, this provision also applies to safety rules on environmental standards.⁹⁸ The defendant shall not be surprised by the applica-

Fragen des internationalen Schadenersatzrechts (1980) 25 Zeitschrift für Verkehrsrecht 1, 4; *G Wagner*, Internationales Deliktsrecht, die Arbeiten an der Rom II-Verordnung und der Europäische Deliktsgerichtsstand (2006) 26 IPRax 371, 376; see further *T Kadner Graziano*, Europäisches Internationales Deliktsrecht (2003) 51ff; but cf *H Koziol/T Thiede*, Kritische Bemerkungen zum derzeitigen Stand des Entwurfs einer Rom II-Verordnung (2007) 106 Zeitschrift für vergleichende Rechtswissenschaft 235, 242ff.

95 *Bamberger/Roth/Spickhoff* (fn 93) art 3 Rom II-VO no 1.

96 Art 4 para 2 provides for an exception to the general rule laid down in para 1, if both parties have their habitual residence in one country at the time when the damage occurs. A branch, agency or any other establishment of the company is treated as the place of a company's habitual residence, if the event giving rise to the damage occurs, or the damage arises, in the course of operation of this branch, agency or establishment (art 23 para 1). However, even if the defendant has established such a branch, agency or other establishment in the claimant's home state where the damage occurs, the outcome will be the same as under art 4 para 1. Both provisions indicate the law of the victim's home state. Art 4 para 3 seems to be of no relevance in climate change cases because a manifestly closer connection with a third country will not be established. After all, a merely factual connection between the victim and the tortfeasor is not sufficient, *H Heiss/LD Loacker* (2007) 129 Juristische Blätter (JBl) 613, 627 fn 165; *MüKo/Junker* (fn 93) art 4 Rom II no 54; *G Wagner*, Die neue Rom II-Verordnung (2008) 28 IPRax 1, 6.

97 *H Unberath/J Cziupka/S Pabst* in: *T Rauscher* (ed), Europäisches Zivilprozess- und Kollisionsrecht III (4th edn 2016) art 4 Rom II-VO no 14.

98 *Heiss/Loacker* (2007) 129 JBl 637 fn 307; *MüKo/Junker* (fn 93) art 17 no 14f; *M Neumayr* in: *H Koziol/P Bydlinski/R Bollenberger* (eds), ABGB Kurzkommentar (5th edn 2017) (KBB) art 7 Rom II-VO no 4; *Rauscher/Unberath/Cziupka/Pabst* (fn 97) art 7 Rom II-VO no 43; contra *P Mankowski*, Ausgewählte Einzelfragen zur Rom II-Verordnung: Internationales Umwelthaftungsrecht, internationales Kartellrecht, renvoi, Parteiautonomie (2010) 30 IPRax 389, 390ff.

tion of stricter foreign rules, if he acted in compliance with the rules of the state in which he performed his conduct.⁹⁹

In cases where the standards on climate protection are lower in the victim's home state where the damage occurred, on the other hand, the application of that state's rules would be unfavourable to the plaintiff. However, art 7 of the Rome II regulation provides the plaintiff with an option to choose the law of the country in which the event giving rise to the damage occurred. The scope of this rule is wide.¹⁰⁰ Its application only requires that damage to a person or property results from the interference with natural resources like water, ground or air.¹⁰¹ In accordance with the purpose of the rule, which aims at 'a high level of protection based on the precautionary principle',¹⁰² art 7 therefore also applies to climate change litigation.¹⁰³ Hence, the plaintiff can also base his claim on the law of the country in which the event giving rise to the damage occurred.

B Claims for damages

Once the applicable law is determined, the success of climate change litigation depends on national tort law which can vary considerably from state to state. Still, the particularities of national tort law shall not be addressed here because – on a structural level – one can identify at least three bedrock requirements for a successful claim for damages under all jurisdictions (on injunctive relief see section V.C below): harm, inflicted by misconduct, and a causal link between the

99 KBB/*Neumayr* (fn 98) art 17 Rom II-VO no 2; *W Posch*, Zur Bestimmung des Deliktsortes bei außervertraglichen Schuldverhältnissen, in: Festschrift (FS) Koziol (2010) 835, 848f; *Wagner* (2016) 80 *RabelsZ* 742. However, some commentators restrict the application of art 17 to cases where the tortfeasor could not reasonably foresee the effects of his actions in a different country, cf *Wagner* (2008) 28 *IPRax* 5 drawing on a parallel to art 5 para 1 of the Rome II regulation; KBB/*Neumayr* (fn 98) art 17 no 2. According to this view, art 17 will hardly exonerate the emitter of greenhouse gases because the global implications of climate change are well-known.

100 *Heiss/Loacker* (2007) 129 *JBl* 632; *S Matthes*, Umwelthaftung unter der Rom II-VO (2011) 8 *Zeitschrift für Gemeinschaftsprivatrecht* 146.

101 *MüKo/Junker* (fn 93) art 7 no 12; *H Ofner*, Die Rom II-Verordnung – Neues Internationales Privatrecht für außervertragliche Schuldverhältnisse in der Europäischen Union (2008) 49 *Zeitschrift für Europarecht, Internationales Privatrecht und Rechtsvergleichung* (ZfRV) 13, 18; *Rauscher/Unberath/Cziupka/Pabst* (fn 97) art 7 Rom II-VO nos 8ff, 21f; *Wagner* (2008) 28 *IPRax* 9.

102 Recital 25; *J von Hein*, Europäisches Internationales Deliktsrecht nach der Rom II-Verordnung (2009) 17 *Zeitschrift für Europäisches Privatrecht* (ZEuP) 6, 30.

103 *S Goldberg/R Lord*, England, in: *R Lord/S Goldberg/L Rajamani/J Brunnée* (eds), *Climate Change Liability* (2012) no 17.103; *Magnus* (fn 70) 147.

two. These three aspects – harm, misconduct, and causation – shall be discussed in greater detail along with strict liability.

1 Harm

So far, climate change litigants have sought compensation for the infringement of property rights. The plaintiffs in *Comer v Murphy Oil* lost their homes to Hurricane Katrina. The Inuit tribe in *Kivalina v ExxonMobil* had to relocate their village because it had become inhabitable. And the Peruvian farmer in *Lluyva v RWE* had to protect his property from being flooded by a glacial lake. But violations of property rights not only appeared on a private level, but also on a public level. In *Massachusetts v EPA*, the state of Massachusetts maintained that its coastal line and therefore its property of the shores was threatened by rising sea levels. In *California v General Motors*, the state of California alleged that its coastline was eroding and its woods were threatened by wildfires. In these cases, the states sued on behalf of their citizens at an aggregate level, as *parens patriae*.¹⁰⁴

Violations of property rights indeed seem to be a logical starting point for climate change litigation. The right to property is not only protected as a fundamental right,¹⁰⁵ but also widely protected by tort law. For example, § 823 para 1 *Bürgerliches Gesetzbuch* (German Civil Code, BGB) explicitly enlists the right to property as a protected absolute right next to life, bodily integrity, freedom and health.¹⁰⁶ Hence, at the level of identifiable harm, climate change plaintiffs have not faced any major challenges so far. Among protected rights, life and health are ranked even higher than property rights.¹⁰⁷ Violations of life or health could therefore also give rise to tort liability.¹⁰⁸

If this is the case, the next pending issue will be consequential damage, that is, economic harm resulting from the violation of absolute rights, such as loss of

104 *Massachusetts v EPA* 549 US __ (2007) 18ff; *DA Grossman*, Warming Up to a not-so-radical Idea: Tort-Based Climate Change Litigation (2003) 28 Colum J Envtl L 1, 21, 24; cf *BC Mank*, Standing and Future Generations: Does *Massachusetts v. EPA* Open Standing for Generations to Come? (2009) 34 Colum J Envtl L 1, 78ff.

105 Art 1 of the Protocol to the Convention for the Protection of Human Rights and Fundamental Freedoms.

106 *H Koziol*, Rechtswidrigkeit, bewegliches System und Rechtsangleichung (1998) 120 JBl 619, 625; *K Larenz/CW Canaris*, Schuldrecht II/2 (13th edn 1994) 374f.

107 *H Koziol*, Compensation for Pure Economic Loss from a Continental Lawyer's Perspective, in: *W van Boom/H Koziol/CA Witting* (eds), Pure Economic Loss (2004) no 10; cf *W van Gerven/J Lever/P Larouche*, Tort Law (2000) 77ff.

108 *Goldberg/Lord* (fn 103) no 17.39.

profits. In many countries, consequential damage is still recoverable.¹⁰⁹ But global warming potentially threatens pure economic interests, too. For example, a ski operator could lose revenue because of reduced snowpack, an innkeeper at the beach could lose revenue because the beach has disappeared. Ironically, even oil companies could incur losses due to the reduced number of exploration days available in the Arctic.¹¹⁰ It depends on the applicable national tort law whether some of these losses are recoverable. But courts in all countries – including those with a broad general clause for the compensation of damage like France or Austria¹¹¹ – would draw a line somewhere in order not to open the floodgates.¹¹²

Another sensitive issue is harm to the ecosystem. Global warming could reduce biodiversity, it could cause coral bleaching or it could dry up streams and lakes.¹¹³ In many jurisdiction, there is currently no tort liability for harm to the ecosystem, if personal or property rights are not affected.¹¹⁴ The EU environmental liability directive¹¹⁵ only vests individuals and non-governmental organisations with a right to request the competent public authority to take action.¹¹⁶ The directive, however, does not provide a basis for a direct claim under tort law.¹¹⁷ In

109 *Koziol* (fn 107) nos 24, 28; eg, § 1327 ABGB awards compensation for the loss of maintenance. Consequential damage can in principle be recovered, *E Karner* in: H Koziol/P Bydlinski/R Bollenberger (eds), *ABGB Kurzkommentar* (5th edn 2017) § 1295 ABGB no 2. § 1323 f ABGB, however, restrict liability for the loss of profits to grossly negligent behaviour.

110 All these examples in *DA Kysar*, *What Climate Change Can Do About Tort Law* (2011) 41 *Environmental Law* (EL) 1, 32f.

111 *H Koziol*, *Generalnorm und Einzelatbestände als Systeme der Verschuldenshaftung: Unterschiede und Angleichungsmöglichkeiten* (1995) 3 *ZEuP* 359, 362; *van Boom* in: W van Boom/H Koziol/CA Witting (eds), *Pure Economic Loss* (2004) no 9ff; *C van Dam*, *European Tort Law* (2nd edn 2013) 137f, 208ff; *G Wagner*, *Comparative Tort Law*, in: M Reimann/R Zimmermann (eds), *The Oxford Handbook of Comparative Law* (2006) 1003, 1009.

112 *Goldberg/Lord* (fn 103) no 17.39; *Kysar* (2011) 41 EL 43; *Pöttker* (fn 1) 63ff.

113 *DA Farber*, *Basic Compensation for Victims of Climate Change* (2006/07) 155 *U Pa L Rev* 1605, 1609ff.

114 *M Hinteregger*, *Der Umweltschaden im österreichischen Privatrecht* (1992) 47 *Österreichische Juristen-Zeitung* 561; *H Koch*, *Die Verbandsklage im Umweltrecht* (2007) 26 *NVwZ* 369; *R Reischauer*, in: P Rummel (ed), *Kommentar zum ABGB* (3rd edn 2007) § 1293 ABGB no 1a; *G Wagner* in: *Münchener Kommentar zum Bürgerlichen Gesetzbuch* (MüKo) (7th edn 2017) § 823 no 309ff.

115 Directive 2004/35/EC [2004] OJ L 143/56.

116 *M Hinteregger*, *Environmental Liability*, in: M Bussani/F Werro (eds), *European Private Law: A Handbook II* (2014) 179, 192ff; cf *W Wessely*, *Terra incognita – Die Umweltbeschwerde*, in: FS Raschauer (2013) 671.

117 *P Beyer*, *Eine neue Dimension der Umwelthaftung in Europa?* (2004) 15 *ZUR* 257, 265; *G Wagner*, *Die gemeinschaftsrechtliche Umwelthaftung aus der Sicht des Zivilrechts* (2005) 56 *VersR* 177, 178f.

conclusion, it is likely that climate change litigation will be limited to the interference with absolute rights like life, bodily integrity or property.

2 Misconduct

The mere interference with absolute rights, however, generally does not give rise to tort liability. On the contrary, the crucial question is whether the defendant can be charged with ‘misconduct’. The term misconduct, however, will not immediately sound familiar. Common lawyers would rather refer to the breach of a duty of care. Lawyers from other countries will have notions of fault (*Verschulden*, *faute*), wrongfulness or unlawfulness (*Rechtswidrigkeit*, *illicéité*) in mind. However, all these terms mirror distinct and particularly national notions.¹¹⁸ The term misconduct, on the other hand, averts such national prejudgement and points to the substantive idea behind these terms which is shared by all jurisdictions,¹¹⁹ namely, that the defendant is liable only if he failed to meet the required standard of behaviour.¹²⁰ From a comparative perspective, this standard is predominantly determined according to objective criteria.¹²¹ In climate change cases, therefore, the essential question will be whether by emitting greenhouse gases the defendant did something ‘which a prudent and reasonable [person] would not do’.¹²²

118 *H Koziol*, Basic Questions of Tort Law from a Germanic Perspective (2012) no 6/2ff; *van Dam* (fn 111) 136ff; *van Gerven/Lever/Larouche* (fn 107) 301.

119 It is therefore employed by the Institute for European Tort Law for a comparative study, <<http://ectil.org/etl/Projekte/Current-Research-Projects/National-Court-Practice-and-European-Tort-Law.aspx#Part%20Projects>> (viewed on 5 May 2017).

120 *G Brüggemeier*, Prinzipien des Haftungsrechts (2006) 57ff; *Koziol* (1998) 120 JBl 620; *Larenz/Canaris* (fn 106) 363ff; *MüKo/Wagner* (fn 114) § 823 no 11f; *van Gerven/Lever/Larouche* (fn 107) 305.

121 *Wagner* (fn 111) 1003, 1024ff; cf § 276 para 2 BGB; for the UK *T Weir*, An Introduction to Tort Law (2nd edn 2006) 61. Austrian law generally requires both objective (*Rechtswidrigkeit*) and subjective (*Verschulden*) criteria. However, in a professional context, the objective standard of care prevails (§§ 1297, 1299 ABGB), *H Koziol*, Objektivierung des Fahrlässigkeitsmaßstabes im Schadenersatzrecht? (1996) 196 Archiv für die civilistische Praxis (AcP) 593, 598, 608; cf *van Dam* (fn 111) 267ff.

122 *Blyth v Birmingham Waterworks Co* (1856) 11 Exchequer Reports (Exch) 781, 784. This formula for negligence is similarly applied in Continental Europe, *Koziol* (fn 118) no 6/10; cf art 4:102 PETL.

a The time frame

In determining misconduct, the time frame is of particular importance. The defendant's conduct needs to be judged by the standards applicable at the time he performed his conduct.¹²³ In this regard, it is true that the first studies on global warming date back to the 19th century.¹²⁴ However, scientific consensus on global warming evolved only much later¹²⁵ and for the first time put climate change on the political agenda in the late 20th century. Hence, there is widespread agreement that 'early' emissions are 'innocent'.¹²⁶ Proponents of climate change liability, however, argue that 'modern' emissions are 'guilty'. They contend that the risks of global warming are reasonably foreseeable today.¹²⁷ After all, 'global warming may be the most carefully and fully studied scientific topic in human history'.¹²⁸ The tipping point is often attributed to the 1992 UNFCCC, which recognises the anthropogenic nature of global warming.¹²⁹ At this point, one can already anticipate that the indistinguishable mixing of 'innocent' historical emissions with allegedly 'guilty' modern emissions would create a 'legal nightmare'¹³⁰ for the attribution of damage (see below at section V.B.4.). First, however, it is

123 Cf art 8 para 4 lit b of the directive 2004/35/EC; *MG Faure/A Nollkaemper*, International Liability as an Instrument to Prevent and Compensate for Climate Change (2007) 43 Stanford Journal of International Law (SJIL) 123, 171ff.

124 Cf *J Tyndall*, On the Absorption and Radiation of Heat by Gases and Vapours, and on the Physical Connexion of Radiation, Absorption, and Conduction (1861) 151 Philosophical Transactions of the Royal Society of London 1; A brief history of climate change, BBC, 20.9.2013, <<http://www.bbc.com/news/science-environment-15874560>> (viewed on 5 May 2017).

125 *Allen et al* (2006/07) 155 U Pa L Rev 1370f.

126 *EA Posner/CR Sunstein*, Climate Change Justice (2007/08) 96 The Georgetown Law Journal (Geo LJ) 1565, 1598.

127 *Kaminskaité-Salters* (fn 1) 94 f; *Pöttker* (fn 1) 130ff; *J Spier*, Injunctive Relief: Opportunities and Challenges: Thoughts About a Potentially Promising Legal Vehicle to Stem the Tide, in: *J Spier/U Magnus* (eds), Climate Change Remedies (2014) 54.

128 *R Cicerone*, President of the National Academy of Sciences, in a statement before the House of Representatives, cited after *WC Tucker*, Deceitful Tongues: Is Climate Change Denial A Crime? (2012) 39 Ecology Law Quarterly 831, 842 fn 58.

129 *J Brunnée/S Goldberg/R Lord/L Rajamani*, Overview of legal issues relevant to climate change, in: *R Lord/S Goldberg/L Rajamani/J Brunnée* (eds), Climate Change Liability (2012) no 3.22; *M Hinteregger*, Civil Liability and the Challenges of Climate Change: A Functional Analysis (2017) 8 JETL 253; *Kysar* (2011) 41 EL 10f; *N Durrant*, Tortious Liability for Greenhouse Gas Emissions? Climate Change, Causation and Public Policy Considerations (2007) 7 Queensland University of Technology Law & Justice Journal (Queensland U Tech L & JJ) 403, 410ff argues that the tipping point could also be 2007 when the 4th IPCC Assessment Report was released; similarly *Hunter/Salzman* (2006/07) 155 U Pa L Rev 1758ff; *Pöttker* (fn 1) 130ff argues that certain types of harm became foreseeable already at the end of the 1970s.

130 *Spier* (fn 127) 17f.

necessary to examine whether ‘modern’ emissions are indeed ‘guilty’, that is, whether emitting greenhouse gases violates the relevant standard of behaviour.

b The relevant standard of behaviour

The determination of the relevant standard of behaviour follows a similar pattern in all jurisdictions. Regard is had to the likelihood and seriousness of damage, to the degree of danger of the incriminated conduct and to the utility of this conduct.¹³¹ Under the common law, this assessment has a strong economic underpinning. According to the Learned Hand formula,¹³² the costs of the injury are weighed against the costs of prevention. The tortfeasor must take all precautions that cost less than the injuries avoided thereby.¹³³

Proponents of climate change liability apply this cost benefit analysis to build their cases. They contend that the likelihood and seriousness of climate change related harm is particularly high. The cost of reducing greenhouse gas emissions, on the other hand, is said to be rather low.¹³⁴ Consequently, the emitter of greenhouse gases should pay damages if he fails to adequately reduce emissions: it ‘seems to belabour the obvious that exposing present and future generations to the most grievous harm ever is wrongful’.¹³⁵

This argument, however, turns out to be less compelling than it may sound. From an aggregate perspective, it is certainly true that climate change is a serious threat and it might also be true that it could be averted at rather reasonable costs. At the individual level,¹³⁶ however, the costs of emissions reductions could soon drive enterprises out of business.¹³⁷ For example, everyone will agree that the

131 *H Koziol*, Österreichisches Haftpflichtrecht I (3rd edn 1997) no 4/18; *Koziol* (fn 118) no 6/39ff; *P Widmer* in: European Group of Tort Law (EGTL) (eds), Principles of European Tort Law (PETL) Text and Commentary (2005) art 4:102 no 4ff; *van Dam* (fn 111) 235 ff.

132 *United States v Carroll Towing Co* 159 Federal Reporter, Second Series (F 2d) 169 (2d Cir 1947).

133 *R Posner*, A Theory of Negligence (1972) 1 Journal of Legal Studies 29; *H Schäfer/C Ott*, Lehrbuch der ökonomischen Analyse des Zivilrechts (5th edn 2012) 182f; *Wagner* (fn 111) 1025.

134 *Hunter/Salzman* (2006/07) 155 U Pa L Rev 1756ff; *Kaminskaić-Salters* (fn 1) 97ff; *Pöttker* (fn 1) 130ff; cf also the Commentary to the Oslo Principles 35ff.

135 *Spier* (fn 127) 46; cf *Hunter/Salzman* (2006/07) 155 U Pa L Rev 1756ff.

136 Cf the Commentary to the Oslo Principles 36.

137 *ER de Jong/J Spier*, Climate Change: A Major Challenge and a Serious Threat to Enterprises (2013) Dovens Schmidt Quarterly 36. On insurance coverage cf *AES Corporation v Steadfast Insurance Company* 725 South Eastern Reporter, Second Series (SE 2d) 532 (Va 2012); *I Ebert*, Climate Liability and Liability Insurance, in: FS Spier (2016) 79; *J MacDougald/P Kochenburger*, Insurance and Climate Change (2013/14) 47 The John Marshall Law Review 101; *DP Vincent*, AES v. Steadfast and the Concept of Foreseeability in Climate Change Litigation (2013/14) 26 Georgetown International Environmental Law Review 47.

climate would do better without SUVs, and that such cars are rather unreasonable in quite a large number of cases. From the individual car manufacturer's perspective, however, the production of SUVs is probably vital because there is strong demand for these vehicles on the market. Should car manufacturers still be held liable, even for their customer's emissions?¹³⁸

What do we expect car manufacturers to do from the perspective of tort law? Nobody would probably ask for a complete shutdown of all their facilities. However, the Oslo Principles suggest that enterprises should avoid 'excessive' emissions.¹³⁹ Similarly, scholars argue that enterprises should refrain from emissions the avoidance of which is less costly than the cost of the potential harm.¹⁴⁰ However, this requires judges to take into account the social value of emissions, too.¹⁴¹ But how are judges supposed to determine the social value and the social cost of one tonne of carbon dioxide emissions?¹⁴² Should we give preference to driving cars or to air travel or to undertaking cruises on cruise ships? Is energy-consuming air-conditioning in summer worse or better than eating imported strawberries in winter?

It also seems rather arbitrary to hold only enterprises liable for their emissions.¹⁴³ If a duty to avoid 'excessive' emissions were to exist, it would rather have to rest on all individuals making virtually anybody a potential target for climate change litigation.¹⁴⁴ Furthermore, scholars have already pointed out the delicate

138 Cf S Hsu, *A Realistic Evaluation of climate Change Litigation Through the Lens of a Hypothetical Lawsuit* (2008) 79 Colorado Law Review (Colorado L Rev) 701, 725; J Peel, *Issues in Climate Change Litigation* (2011) Carbon & Climate Law Review 15, 21f.

139 This is proposed by art 7f of the Oslo Principles: For example, enterprises should 'switch off power-consuming equipment when not in use' and eliminate 'excessive power consumption where possible'. Similarly, Spier calls for 'effective efforts', however, he concedes that these concepts are 'rather vague', Spier (fn 127) 56; cf Kassman (2013/14) 24 Duke J Comp & Int'l L 206.

140 Faure/Nollkaemper (2007) 43 SJIL 150f; Hinteregger (2017) 8 JETL 252.

141 DJ Grimm, *Global Warming and Market Share Liability: A Proposed Model for Allocating Tort Damages among CO₂ Producers* (2007) 32 Colum J Envtl L 209, 236ff; Hsu (2008) 79 Colorado L Rev 736ff.

142 DA Farber, *Apportioning Climate Change Costs* (2008) 26 UCLA Journal of Environmental Law & Policy (UCLA J Envt'l L & Pol'y) 21, 41. This is, of course, is a general problem of the Economic Analysis of Law and the Learned Hand formula in particular, cf Larenz/Canaris (fn 106) 417.

143 Cf EA Posner, *Climate Change and International Human Rights Litigation: A Critical Appraisal* (2006/07) 155 U Pa L Rev 1925, 1927, 1934. From an economic viewpoint, one might add that a decrease in emissions would eventually result in an increase in prices burdening the poor the most, Posner (2006/07) 155 U Pa L Rev 1943f.

144 KB Maag, *Climate Change Litigation: Drawing Lines to Avoid Strict, Joint, and Several Liability* (2009/10) 98 Geo LJ 185, 194f. Still, the Commentary to the Oslo Principles 64 argues that

questions of justice that climate change raises on a policy level: they include, among others, the fair and just distribution of risks and emissions rights between nations, regions, generations and social classes.¹⁴⁵ These issues can best be addressed at the state level. Civil courts, on the other hand, do not seem to be the appropriate fora to handle these questions since they have to reach a fair decision in a lawsuit between two equal parties.¹⁴⁶

At an individual level, it therefore seems doubtful that the defendant can be blamed for misconduct. In this regard, the global nature of climate change and the complex chain of causation already need to be taken into account. This aspect is particularly stressed by common lawyers because the challenges plaintiffs face in establishing a duty of care are similar to the challenges in determining proximate causation.¹⁴⁷ In conclusion, we seriously doubt that it is appropriate to create individual legal obligations regarding the global challenges of climate change.¹⁴⁸

c Public authorisation

Moreover, the standard of behaviour can be influenced by public authorisation. Major greenhouse gas emitters are subject to tight regulation by public law. They have to apply for permits for the construction and operation of their plants. In the European Union, projects that are likely to have significant effects on the environment are subject to an environmental impact assessment.¹⁴⁹ In this assessment, the project's effects on nature and climate are taken into consideration.¹⁵⁰ On this basis, the Austrian Federal Administrative Court prohibited the construction of the third runway at the Vienna airport, because it would have triggered a significant increase in greenhouse gas emissions (III). However, if greenhouse gas emitters act within the boundaries of their permits, their emissions do not seem to qualify as unlawful.¹⁵¹

German and Austrian law have incorporated this notion into the law concerning neighbours. According to § 14 *Bundesimmissionsschutzgesetz* (Federal Emis-

only enterprises 'have the ability to effect major reductions'. But how is an 'enterprise' defined anyway?

145 *Posner/Sunstein* (2007/08) 96 Geo LJ 1565.

146 *Posner* (2006/07) 155 U Pa L Rev 1937ff.

147 *Kysar* (2011) 41 EL 17ff; cf *J Spier*, *The Oslo Principles and the Enterprises Principles: legal strategies to come to grips with climate change* (2017) 8 JETL 227.

148 Cf *MüKo/Wagner* (fn 114) § 823 no 893.

149 Directive 2011/92/EU (initially directive 85/337/EEC).

150 Art 3 lit b of the directive 2011/92/EU.

151 Cf *Gerrard/Wannier* (fn 48) no 20.77.

sions Control Act, BImSchG) and § 364a *Allgemeines bürgerliches Gesetzbuch* (Austrian Civil Code, ABGB), neighbours generally have to tolerate any interference with their land resulting from the operation of an authorised plant. They are denied injunctive relief because their interests have already been taken into consideration during administrative proceedings and because the operator of the plant will be able to rely on his permit.¹⁵² As a compensation, the neighbour receives a claim for reimbursement in money. This is a case of strict liability which applies regardless of misconduct (*Aufopferungs-* or *Eingriffshaftung*, see section V.B.3 below). The legislator introduced strict liability because §§ 14 BImSchG and § 364a ABGB generally leave no room for liability for misconduct.¹⁵³

On the other hand, there is consensus that compliance with public law standards does not exonerate from liability for misconduct in all cases.¹⁵⁴ The German Federal Supreme Court (*Bundesgerichtshof*, BGH) has consistently held that – even though compliance with public emission limits regularly indicates lawful behaviour – it does not necessarily bar tort claims.¹⁵⁵ The same is true for authorised plants. The specific circumstances of a case may require the defendant to act even more carefully than it is proscribed by public law. After all, public law can only design general rules which necessarily abstract from the individual circumstances of the case. Moreover, the circumstances might have changed since the public law rule entered into force. Or the defendant's conduct may result in harm which the authorities did not foresee. Since the authorities cannot take into account all possible harm the permitted activity might cause, public authorisation cannot bar all tort claims.¹⁵⁶

However, public authorisation generally covers typical risks.¹⁵⁷ The harm currently discussed in climate change litigation is harm resulting from rising sea

152 *F Baur/R Stürner*, Sachenrecht (18th edn 2009) § 25 D II no 31; *C Holzner* in: Kletečka/Schauer (eds), ABGB-ON^{1.03} (2016) § 364a no 1.

153 Cf *H Koziol*, Österreichisches Haftpflichtrecht II (2nd edn 1984) 316 f; *Larenz/Canaris* (fn 106) 416; *H Koch/M Lührs/R Verheyen*, Germany, in: R Lord/S Goldberg/L Rajamani/J Brunnée (eds), *Climate Change Liability* (2012) no 15.83; *G Wagner*, Öffentlich-rechtliche Genehmigung und zivilrechtliche Rechtswidrigkeit (1989) 100ff, 170ff.

154 *Kilinski* (2008/09) 18 J Transnatl L & Pol'y 404; *Larenz/Canaris* (fn 106) 416 f; *Rummel/Reischauer* (fn 114) § 1299 no 4; cf *Spier* (fn 127) 96; *E Wagner*, Die Betriebsanlage im zivilen Nachbarrecht (1997) 121ff; *MüKo/Wagner* (fn 114) § 823 no 77, 443ff, 890; from a comparative perspective *Faure/Nollkaemper* (2007) 43 SJIL 153ff; cf CJEU 1.6. 2017, C-529/15, *Folk* no 26ff.

155 BGH Neue Juristische Wochenschrift (NJW) 1985, 47, 49; NJW 1977, 1917, 1919f; NJW 1978, 419, 420f; NJW 1993, 1656, 1657f; NJW 1997, 2748, 2749.

156 *Faure/Nollkaemper* (2007) 43 SJIL 153; *Wagner* (fn 154) Betriebsanlage 3ff.

157 *Koziol* (fn 153) 316 f; *Wagner* (fn 153) 272f; *M Winner* in: P Rummel/M Lukas (eds), *Kommentar zum ABGB* (4th edn 2016) § 364a ABGB no 14.

levels, melting glaciers or unusual weather phenomena. These are the typical risks of climate change which have been well-known since the 1990s. They are exactly the risks the European legislator had in mind when issuing comprehensive rules on greenhouse gas emissions. Based on the Kyoto Protocol, the European Union has implemented a Europe-wide emission allowance trading scheme.¹⁵⁸ Under this scheme, enterprises need to apply for greenhouse gas emissions permits and monitor and report their emissions.¹⁵⁹ The European Commission has set a Europe-wide cap for emissions which will decrease over time.¹⁶⁰ And European rules provide for the allocation of emissions rights and establish a trading scheme for emissions certificates.¹⁶¹

One might still argue that these rules primarily serve a public purpose and originally have little to do with tort law.¹⁶² But the message they send to enterprises seems to be unambiguous. The trading scheme – with permits often referred to as pollution rights – extends far beyond abstract emissions limits. In the face of the threats of global warming, which became apparent in the 1990s, the European legislator decided to restrict economic activity to the extent to which emissions certificates are distributed. This creates legitimate trust with enterprises that they will not be subject to a higher standard of behaviour. Otherwise, emissions certificates would be of little avail to them.¹⁶³ This seems to leave no room for a higher standard of behaviour than the one proscribed by public law.

One might maintain, though, that the trading scheme does not cover all sectors of the economy and therefore cannot influence the standard of behaviour for enterprises that are not covered by it. However, the trading scheme is accompanied by an array of legislative acts on greenhouse gas emissions including the

158 Directive 2003/87/EC.

159 Art 4f, 14 of the directive 2003/87/EC.

160 Commission Decision 2010/634/EU based on art 9, 9a of the directive 2003/87/EC; *E Schulev-Steindl*, *Instrumente des Umweltrechts – Wirksamkeit und Grenzen*, in: FS Raschauer (2013) 527, 546ff.

161 Arts 10, 12 of the directive 2003/87/EC; *M Burgi/W Lange*, *Der Emissionshandel als Herausforderung für die gesamte Rechtsordnung* (2006) 170 *Zeitschrift für das gesamte Handelsrecht* 539, 544ff; *A Gorbach*, *Emissionszertifikatrecht*, in: M Holoubek/M Potacs (eds), *Öffentliches Wirtschaftsrecht II* (3rd edn 2013) 1131, 1146ff; *E Sommer*, *Die zivilrechtliche Ausgestaltung des Emissionsrechtehandels* (2006) 60 *Wertpapier-Mitteilungen* 2029.

162 *Hinteregger* (2017) 8 *JETL* 253f; *J Kohler* in: Staudinger, BGB III, *Sachenrecht, Umwelthaftungsrecht* (2010) no 54; *Pöttker* (fn 1) 124ff; from an economic perspective *Faure/Nollkaemper* (2007) 43 *SJIL* 157.

163 This is also conceded by *Staudinger/Kohler* (fn 162) no 54 who nevertheless maintains that emissions certificates ‘cannot’ preclude tort claims.

Renewable Energy Directive,¹⁶⁴ the Energy Efficiency Directive¹⁶⁵ and the regulation on type approval of motor vehicles stipulating emission performance standards for the car industry.¹⁶⁶ Hence, the European legislator has enacted a recent, comprehensive and clear-cut framework on greenhouse gases. Enterprises that comply with these standards can probably not be held liable. But even enterprises that have not yet been made subject to tight greenhouse gas regulation will legitimately conclude that their emissions will be even less likely to be considered unlawful. In conclusion, defendants can hardly be blamed for misconduct.

3 Strict liability

Since it will be hard to make a case for misconduct, strict liability could come into play. Some commentators argued that product liability claims could be a viable course of action for climate change plaintiffs.¹⁶⁷ However, carbon-intensive production is unlikely to make a product defective under art 6 of the product liability directive.¹⁶⁸ Other commentators suggest that emitters could be held strictly liable according to the rules of environmental law which exist in some states targeting hazardous activities (for example, the German § 1 *Umwelthaftungsgesetz* (Environmental Liability Act, UmwHG)).¹⁶⁹ In principle, one might also think of the strict *Aufopferungs-* or *Eingriffshaftung* according to § 14 BImSchG, § 364a ABGB (see section V.B.2.c above) as a legal basis for claims for damages. However, this is rejected even by proponents of climate change liability. They highlight that the application of the law concerning neighbourhood requires a close and individual relationship between the authorised plant and the affected land which cannot be established in the climate change scenario.¹⁷⁰ In fact, this argument is revealing. Why should the fact that a close and individual relationship cannot be established between the parties be completely ignored under liability for misconduct? Moreover, the argument anti-

164 Directive 2009/28/EC; cf also the Commission's proposal to a revised directive COM/2016/0767 final/2.

165 Directive 2012/27/EU.

166 Regulation (EC) No 715/2007, amended by regulation (EC) No 692/2008.

167 *L Leone*, Putting the Heat on the Fossil Fuel Industry: Using Products Liability in Climate Change Litigation (2011/12) 21 Boston University Public Interest Law Journal 365.

168 Directive 85/374/EEC.

169 *Pöttker* (fn 1) 76 ff.

170 *Hinteregger* (2017) 8 JETL 250; *Pöttker* (fn 1) 90 f.

pates the ‘major stumbling block’¹⁷¹ for climate change litigation under all liability rules (including strict liability): causation.¹⁷²

4 Causation

a The ‘but-for’ test

Everywhere, causation is determined according to the ‘but-for’ test.¹⁷³ It must be determined whether the defendant’s conduct was *conditio sine qua non* for the plaintiff’s damage. If the plaintiff’s damage had not occurred *but for* the defendant’s conduct, there is a causal link between the defendant’s conduct and the damage.¹⁷⁴ The defendant is usually also held liable for the entire (indivisible) damage if he only caused a fraction of it.¹⁷⁵ The burden of proof for causation, however, generally rests on the plaintiff.¹⁷⁶ Under German and Austrian law, the plaintiff needs to prove that there is a high probability that the defendant’s conduct caused the harm.¹⁷⁷ Under the common law, the standard of proof is more lenient. The plaintiff needs to prove that the defendant’s conduct more likely than not caused his harm.¹⁷⁸

171 *Spier* (fn 127) 12; *Kysar* (2011) 41 EL 29.

172 Some commentators suggest to hold enterprises liable for making misrepresentations about the risks of global warming, *E Dubats*, An Inconvenient Lie: Big Tobacco Was Put on Trial for Denying the Effects of Smoking; Is Climate Change Denial Off-Limits? (2012) 7 Northwestern Journal of Law and Social Policy 510; cf *RF Blomquist*, Comparative Climate Change Torts (2011/12) 46 Valparaiso University Law Review 1053, 1059. Causation will be the major obstacle for these cases, too.

173 *H Koziol*, Comparative Conclusions, in: *H Koziol* (ed), Basic Questions of Tort Law from a Comparative Perspective (2015) no 8/204; *J Spier/OA Haazen*, Comparative Conclusions on Causation, in: *J Spier* (ed), Unification of Tort Law: Causation (2000) 127; *van Dam* (fn 111) 310; *R Zimmermann* in: *B Winiger/H Koziol/BA Koch/R Zimmermann* (eds), Digest of European Tort Law 1: Causation (2007) 1/29 no 1; art 3:101 PETL.

174 *Horsey/Rackley* (fn 38) 244f; *Koziol* (fn 173) no 8/204.

175 § 1302 ABGB; § 840 BGB; *van Gerven/Lever/Larouche* (fn 107) 430ff.

176 *Pöttker* (fn 1) 149ff with further reference to BGHZ 92, 143, 150ff (*Kupolofen*). This burden to prove causation is considered the ‘Achilles’ heel’ of all environmental liability claims, *MüKo/Wagner* (fn 114) § 823 no 891.

177 *U Foerste* in: *H Musielak/W Voit* (eds), Zivilprozessordnung (14th edn 2017) § 286 ZPO no 18; *H Prütting* in: *Münchener Kommentar zur Zivilprozessordnung (MüKo-ZPO)* § 286 ZPO no 35ff; *W Rechberger* in: *HW Fasching/A Konecny* (eds), Kommentar zu den Zivilprozessgesetzen (2004) Vor § 266 ZPO no 11ff. The differences in the standard of proof between Germany and Austria do not have to be explored here.

178 *S Brinker*, Opening the Door to the Indeterminate Plaintiff: An Analysis of the Causation Barriers Facing Environmental Toxic Tort Plaintiffs (1999) 46 UCLA Law Review 1289, 1302ff;

But regardless of which standard applies, the plaintiff in climate change cases will fail the but-for test. The but-for test requires a causal link between the emissions of a particular defendant and the particular harm of a particular plaintiff. For example, the Peruvian farmer in *Lluyta v RWE* would not only have to prove that the German energy supplier contributed to global warming and global warming caused worldwide glacial melting, which eventually threatened his property. He would also have to prove that the particular threat to his property was caused by the particular German energy supplier's 'guilty' emissions. However, the present state of science does not allow for the determination of such 'specific' causation.¹⁷⁹ This is all the more true if harm does not stem from 'signature diseases'¹⁸⁰ like glacial melting or permafrost erosion, but rather from unusual weather phenomena. Heavy rainfalls, heat waves or hurricanes (like in *Comer v Murphy Oil*) are subject to natural fluctuations in frequency and severity and can even less be attributed to a particular defendant.

Therefore, it did not come as a surprise that the *Lluyta v RWE* case was dismissed for a lack of causation. If the defendant had refrained from emitting greenhouse gases, the plaintiff's harm would still have occurred. The court stressed that the defendant's individual contributions to global warming were only marginal. Moreover, it argued that the chain of causation in climate change is extremely complex, diluted and still debated in science.¹⁸¹ One may specify that the defendant's allegedly 'guilty' emissions mix indistinguishably with innocent emissions (that is, historical,¹⁸² private and natural emissions). Moreover, the effects of greenhouse gas emissions are not linear. On the contrary, if the stock of greenhouse gases in the atmosphere exceeds a certain threshold, the probability of fatal climate related events is suddenly increased.¹⁸³ Therefore, every emission above this threshold no longer contributes to the harm.¹⁸⁴ But it is impossible to

S Gold, Causation in Toxic Torts: Burdens of Proof, Standards of Persuasion, and Statistical Evidence (1986) 96 Yale LJ 376, 395; *K Oliphant*, Alternative Causation: A Comparative Analysis of Austrian and English Law, in: FS Koziol (2010) 795, 796.

179 *Case* (2011) 51 Santa Clara L Rev 266; *Farber* (2006/07) 155 U Pa L Rev 1640; *Grossman* (2003) 28 Colum J Envtl L 23f; *Harlow/Spencer* (2011) 32 Energy LJ 459; *Kaminskaité-Salters* (fn 1) 159ff; *Pöttker* (fn 1) 12ff, 49f.

180 *Kysar* (2011) 41 EL 32.

181 LG Essen 2 O 285/15.

182 *Spier* (fn 127) 17f; *Kysar* (2011) 41 EL 38f, 40.

183 Cf *Durrant* (2007) 7 Queensland U Tech L & JJ 415; *Pawa/Krass* (2004/05) 16 Fordham Envtl L Rev 426.

184 *Pöttker* (fn 1) 53; *Verheyen/Lühns* (2009) 20 ZUR 136; cf also *Farber* (2008) 26 UCLA J Envt'l L & Pol'y 42f.

determine, of course, which emission was below or above the threshold.¹⁸⁵ Finally, the (long) life span of greenhouse gases varies considerably. In conclusion, it remains completely open *who* caused the plaintiff's harm and *what* happened between the defendant's emissions and the occurrence of the plaintiff's harm.¹⁸⁶ The but-for requirement is not fulfilled.

b Joint and several liability?

However, courts do not strictly adhere to the but-for test if this test provides for patently unjust results.¹⁸⁷ Therefore, climate change litigants have tried to fit the climate change scenario into well-recognised exceptions to the but-for test. One prominent exception is 'alternative causation'.¹⁸⁸ In cases of alternative causation, it remains unclear *who* caused the plaintiff's harm because a number of potential tortfeasors could be responsible. An illustrative example is the English *Fairchild v Glenhaven Funeral Services* case which is frequently cited in climate change literature.¹⁸⁹ In this case, the plaintiff contracted lung cancer after he had been negligently exposed to asbestos by three employers. It could not be established, however, which employer's negligence had caused the injury. Therefore, the but-for test was not met. Still, the House of Lords held the employers jointly and severally liable for the plaintiff's illness.¹⁹⁰ Assuming that the exposure to asbestos is the only potential cause of the illness, courts in most countries would take the same view.¹⁹¹ After all, it would seem inequitable to leave the victim without compensation, even though he undoubtedly has a claim against either

185 Pöttker (fn 1) 203.

186 Faure/Nollkaemper (2007) 43 SJIL 163.

187 Plenty of examples can be found in Winiger/Koziol/Koch/Zimmermann (eds), Digest of European Tort Law 1: Causation (2007). The PETL also allow for exceptions to the but-for test in arts 3:102 to 3:106.

188 Art 3:103 PETL, which, however, provides for proportional liability, cf *J Spier* in: European Group of Tort Law (EGTL) (eds), Principles of European Tort Law (PETL) Text and Commentary (2005) PETL art 3:102 no 8ff.

189 Durrant (2007) 7 Queensland U Tech L & JJ 417f; Kaminskaité-Salters (fn 1) 161ff.

190 *Fairchild v Glenhaven Funeral Services* [2002] United Kingdom House of Lords (UKHL) 22 no 125: the defendants conceded to be, if liable at all, jointly and severally liable. However, statutes now explicitly provide for this result, *G Wagner*, Asbestschäden – Bismarck was right (2007) ZEuP 1122, 1128f.

191 *H Koziol* in: B Winiger/H Koziol/BA Koch/R Zimmermann, Digest of European Tort Law 1: Causation (2007) 6a/29 no 1ff; *WVH Rogers*, Comparative Report on Multiple Tortfeasors, in: *WVH Rogers* (ed), Multiple Tortfeasors (2004) 271, 303 pointing inter alia at Austria, England, Germany, the Netherlands and the United States.

one of the three negligent employers.¹⁹² The German Civil Code therefore explicitly provides for joint and several liability in § 830(1)(2) BGB.¹⁹³

Fairchild, however, is fundamentally different from the climate change scenario. In *Fairchild*, the House of Lords could establish that the defendant's conduct had created a material risk of injury to the claimant himself and that the claimant's injury had been caused by the eventuation of the kind of risk created by the defendant's wrongdoing.¹⁹⁴ Each defendant had contributed a potential cause for the plaintiff's entire harm. Similarly, German and Austrian lawyers justify joint and several liability in cases of alternative causation by the fact that each potential tortfeasor acted particularly dangerously with respect to the particular victim.¹⁹⁵ The lack of proven causation is compensated by this particular dangerousness.¹⁹⁶

In the climate change scenario, however, it cannot be established that the defendant (for example, the German energy supplier in *Lliuya v RWE*) acted in a particularly dangerous way with respect to the plaintiff (for example, the Peruvian farmer). A single defendant's isolated emissions can never be a sufficient cause for the victim's harm. Even if global warming was 100 % man-made (which it is not!), it could not be established that the defendant materially increased the risk of the particular harm occurring. After all, even large-scale emitters' contributions to global warming are only minimal.¹⁹⁷ Moreover, climate change is a complex global process triggered by multiple 'innocent' causes like the growth of the world population, deforestation, natural weather phenomena or 'innocent' greenhouse gas emissions.¹⁹⁸ In conclusion, joint and several liability of emitters

192 BGH NJW 1976, 1934, 1935; *F Bydlinski*, Aktuelle Streitfragen um die alternative Kausalität, in: FS Beitzke (1979) 3, 11; *R Zimmermann/J Kleinschmidt* in: B Winiger/H Koziol/BA Koch/R Zimmermann, Digest of European Tort Law 1: Causation (2007) 6a/2 no 2. If all potential tortfeasors' activities were considered the activities of one person, causation could be established under the but for-test, MüKo/Wagner (fn 114) § 830 no 60.

193 There is disagreement whether this provision is the basis for liability or simply a rule on the burden of proof, cf MüKo/Wagner (fn 114) § 830 no 45ff.

194 *Fairchild v Glenhaven Funeral Services* [2002] UKHL 22; *Kaminskaité-Salters* (fn 1) 169ff.

195 *T Bodewig*, Probleme alternativer Kausalität bei Massenschäden (1985) 185 AcP 505, 519 ff; *F Bydlinski* (fn 192) 9; *C Eberl-Borges* in: Staudinger, BGB II, Unerlaubte Handlungen 3 (2014) § 830 nos 69, 90; *Koziol* (fn 131) Haftpflichtrecht I no 3/31; *G Spindler*, Kausalität im Zivil- und Wirtschaftsrecht (2008) 208 AcP 283, 307; for comparative observations cf *Oliphant* (fn 178) 801.

196 *F Bydlinski*, Probleme der Schadensverursachung nach Deutschem und Österreichischem Recht (1964) 70ff.

197 *R Abbs/P Cashman/T Stephens*, Australia, in: R Lord/S Goldberg/L Rajamani/J Brunnée (eds), Climate Change Liability (2012) no 567; *Kaminskaité-Salters* (fn 1) 161; *Kysar* (2011) 41 EL 35, 38f; *Pöttker* (fn 1) 212.

198 MüKo/Wagner (fn 114) § 823 no 893.

under the alternative causation rule is off the table in the climate change scenario.¹⁹⁹

c Proportional liability?

At least in some countries, however, doctrine and courts are open to proportional liability. This notion is discussed in the area of minimal causation.²⁰⁰ A practical example would be unlawful strikes. In an unlawful strike, each employee contributes only marginally to the employer's harm. The employer's damage would therefore almost certainly also have occurred, if the employee had refrained from participating in the strike.²⁰¹ However, arguing a complete exemption of liability under the but-for test is not convincing. On the other hand, joint and several liability of all strikers for the entire damage also seems excessive; at least if strikers did not act in concert.²⁰² Therefore, commentators have advocated proportional liability²⁰³ which is also stipulated by art 3:105 of the Principles of European Tort Law (PETL). But unlawful strikes hardly compare to the climate change scenario. Whereas in cases of unlawful strikes, it is obvious *who* caused the harm and *what* the respective individual did to contribute to the harm; both aspects still remain unclear in climate change cases.²⁰⁴

d The DES cases as precedents?

The idea of proportional liability, however, also appeared in the diethylstilbestrol (DES) cases. In these cases, a number of drug manufacturers had produced similar drugs containing DES, a chemical substance which caused cancer with

199 *Goldberg/Lord* (fn 103) no 17.64; *Kaminskaité-Salters* (fn 1) 172; *Spier* (fn 127) 58; *MüKo/Wagner* (fn 114) § 823 no 311; but cf *Pöttker* (fn 1) 204ff, 237ff.

200 From a comparative perspective, however, this seems to be a minority opinion, cf *BA Koch* in: B Winiger/H Koziol/BA Koch/R Zimmermann, *Digest of European Tort Law 1: Causation* (2007) 9/29 no 5, 8.

201 *Larenz/Canaris* (fn 106) 567.

202 *Koziol* (fn 131) *Haftpflichtrecht I* no 3/82f therefore advocates joint and several liability, if strikers act wilfully and collectively. Joint and several liability was also employed in very old decisions by the Austrian Supreme Court (GIUNF 3873; JBl 1931, 81) and by the Norwegian Supreme Court, *B Askeland* in: B Winiger/H Koziol/BA Koch/R Zimmermann, *Digest of European Tort Law 1: Causation* (2007) 9/16 no 1 ff.

203 *Bydlinski* (fn 196) 110f; *Koziol* (fn 131) *Haftpflichtrecht I* no 3/82f.

204 A different view is expressed by *Hinteregger* (2017) 8 JETL 256 at least for 'signature diseases' like the melting of glaciers and rising sea levels.

patients' descendants. However, plaintiffs were not able to prove which drug manufacturer had marketed the particular drug their mothers had ingested during pregnancy. Hence, the but-for requirement was not met. Unlike the simpler cases of alternative causation, the DES cases not only involve alternative tortfeasors, but also alternative victims. Courts in many countries therefore dismissed claims for damages.²⁰⁵ On the other hand, the Supreme Court of California held drug manufacturers proportionally liable according to their market share.²⁰⁶ A French appellate court has recently taken the same view.²⁰⁷ Proportional liability is also favoured by many scholars²⁰⁸ and complies with the PETL.²⁰⁹

The DES examples could spur climate change plaintiffs' hopes.²¹⁰ After all, the defendant drug manufacturer was held liable although it could not be determined in the DES cases that he had acted particularly dangerously towards the respective plaintiff. But the DES cases are still much more straightforward than the climate change cases.²¹¹ In the DES cases, the risk was homogenous.²¹² It was quite clear *what* had happened: plaintiffs' mothers had ingested the toxic drug and their children consequently suffered the harm. Statistically, the defendant's market share (eg 20%) was exactly the fraction of the harm he caused. Hence, he certainly caused some harm and he acted dangerously towards the market as a whole. Based on these two factors, the defendant could be held proportionally liable.²¹³

The climate change scenario, on the other hand, is substantially different. Even if 100 % of global warming was man-made (which it is not!), the simple equation between emissions and harm is erroneous because a 20% contribution to global emissions does not equal a 20% contribution to the harm. After all,

205 Cf the German Supreme Court BGH NJW 1994, 932 (934); *Brüggemeier* (fn 120) 191f; *Staudinger/Eberl-Borges* (fn 195) § 830 no 115; *Spindler* (2008) 208 AcP 315ff. This approach was also taken by the Spanish Supreme Court in a similar case, *J Ribot/A Ruda* in: B Winiger/H Koziol/BA Koch/R Zimmermann, Digest of European Tort Law 1: Causation (2007) 6d/10 no 1ff.

206 *Sindell v Abbotts Laboratories* 607 Pacific Reporter, Second Series (P 2d) 924 Cal (1980), cert den 449 US 912 (1980).

207 *C Derycke/C Dessault/B Schulte* (2017) *Produkthaftpflicht international* (PHI) 52.

208 *Bodewig* (1985) 185 AcP 505; *Koziol* (fn 118) no 5/107; *MüKo/Wagner* (fn 114) § 830 no 78ff; for further reference cf *Lawson* (2010/11) 22 *Fordham Envtl L Rev* 460ff.

209 *Spier* (fn 188) PETL art 3:103 no 11. The Dutch Hoge Raad, on the other hand, even awarded full compensation to DES claimants, *I Klinge-van Rooij/E Snijder*, *Auf dem Weg zu einem neuen Produkthaftungsrecht* (1993) 4 *Europäische Zeitschrift für Wirtschaftsrecht* 569; cf *van Gerwen/Lever/Larouche* (fn 107) 447ff; for French decisions cf *van Dam* (fn 111) 334.

210 *Case* (2011) 51 *Santa Clara L Rev* 293f; *Lawson* (2010/11) 22 *Fordham Envtl L Rev* 475ff.

211 *Ebert* (fn 137) 79, 82; *Grossman* (2003) 28 *Colum J Envtl L* 24.

212 *Brüggemeier* (fn 120) 190.

213 *Koziol* (fn 118) no 5/105 ff.

global warming is not the harm itself. On the contrary, there is an additional uncertainty regarding the link between global warming and the harm. For example, in *Comer v Murphy Oil*, plaintiffs would have had to show that the defendant's allegedly 'guilty' emissions first caused global warming, that global warming then added to the ferocity of Hurricane Katrina and that the increased intensity of the hurricane was subsequently the reason for the destruction of their homes.²¹⁴ However, all the uncertainties mentioned above come into play here again: the uncertain life span of greenhouse gases, the chaotic effects of greenhouse gas emissions in the atmosphere, the time lag between emissions and climate alterations et cetera.²¹⁵ Unlike in the DES cases, it therefore remains open *what* happened. The 'market' of CO₂ emissions does not provide for a suitable scheme for the attribution of damage.

What is more, global warming is not 100% man-made. Unlike in the DES cases, where 100% of the harm was caused by manufacturers who had marketed interchangeable products, carbon dioxide contributes only between 9 and 26% to global warming. On the other hand, there is a large number of potential 'innocent' causes in the climate change scenario;²¹⁶ deforestation, growth of the world population and natural effects also contribute to global warming;²¹⁷ innocent 'early' emissions will still be in the atmosphere. In conclusion, the DES cases cannot serve as a precedent for climate change litigation.

e Alternative causation with contingency?

If potential 'innocent' causes appear next to potential allegedly 'guilty' causes, however, commentators tend to speak of 'alternative causation with contingency' or 'alternative causation including hazard'.²¹⁸ In these cases, courts in most countries would dismiss claims.²¹⁹

Austrian courts, however, tend to award proportional damages in cases of alternative causation including hazard.²²⁰ Without explicitly addressing the issue,

214 *Harlow/Spencer* (2011) 32 Energy LJ 492; *Posner* (2006/07) 155 U Pa L Rev 1934.

215 Cf *Durrant* (2007) 7 Queensland U Tech L & JJ 422; *Goldberg/Lord* (fn 103) no 17.65; *Kassman* (2013/14) 24 Duke J Comp & Int'l L 223.

216 *Case* (2011) 51 Santa Clara L Rev 290; *Grimm* (2007) 32 Colum J Envtl L 224ff; *Harlow/Spencer* (2011) 32 Energy LJ 478.

217 *MüKo/Wagner* (fn 114) § 823 no 893.

218 *Oliphant* (fn 178) 795, 802ff; *Winiger/Koziol/Koch/Zimmermann* (fn 187) 6b.

219 *Koziol* (fn 191) 6b/29 no 3.

220 4 Ob 554/95 JBl 1996, 181; 8 Ob 608/92; 6 Ob 2144/96d; 6 Ob 36/01i; contra *Staudinger/Eberl-Borges* (fn 195) § 830 no 85ff; *A Kletečka*, Alternative Verursachungskonkurrenz mit dem Zufall – Die Wahrscheinlichkeit als Haftungsgrund? (2009) 131 JBl 141. *MüKo/Wagner* (fn 114) § 830

English courts also seem to be open to this idea. In *Barker v Corus*, the plaintiff received damages proportional to the defendant's negligence who had exposed him to asbestos, but whose acts were not exclusively tortious.²²¹

However, this can hardly boost climate change plaintiffs' hopes. After all, damages are not awarded in all cases of alternative causation including hazard. On the contrary, in *Wilsher v Essex Area Health Authority*, the House of Lords did not hold the defendant liable at all for the negligent acts of a doctor who had given the newborn claimant too much oxygen.²²² The reason for the court's reluctance to grant damages seems to be that multiple and quite different risks were at issue in this case.²²³ Similarly, Austrian courts and Austrian and German scholars award damages only, if the potential tortfeasor acted particularly dangerously with regard to the plaintiff.²²⁴ As elaborated before, this particular dangerousness cannot be established in climate change cases. Therefore, liability in climate change cases cannot be based on the notion of alternative causation including hazard either.

f Conclusion

In conclusion, the climate change scenario does not fit into any recognised exception to the but-for test. Still, creative plaintiffs could be inclined to combine the DES approach with the notion of alternative causation including hazard. They might maintain that carbon dioxide emitters are responsible for 9 to 26% of global warming, which is why every emitter of carbon dioxide should

no 65f; *R Welser*, Zur solidarischen Schadenshaftung bei ungeklärter Verursachung im deutschen Recht (1968) ZfRV 38, 42ff.

221 *Barker v Corus* [2006] House of Lords (HL) 3 All England Law Reports (All ER) 785; cf *Holtby v Brigham & Cowan (Hull) Ltd* [2000] 3 ALL ER 421 Court of Appeal; *van Dam* (fn 111) 332; *Weir* (fn 121) 74. In *Bonnington Castings Ltd v Wardlaw* [1956] Appeal Cases (AC) 613 HL, however, the House of Lords even held a negligent employer fully liable for his employee's damage, even though the employee's illness could also have stemmed from inevitable (that is, not negligently produced) silica dust. In fact, *Fairchild* was also a case of alternative causation including hazard because congenital predisposition can probably never be ruled out as a potential cause for cancer, cf *Oliphant* (fn 178) 807f. However, the circumstances of both cases were very particular.

222 *Wilsher v Essex Area Health Authority* [1988] 1 AC 1074 HL.

223 *Horsey/Rackley* (fn 38) 249f, 251 fn 18: there were no less than four other potential 'innocent' causes for the claimant's illness; *Oliphant* (fn 178) 805 f.

224 *F Bydlinski*, Haftungsgrund und Zufall als alternativ mögliche Schadensursachen, in: FS Frotz (1993) 3, 6 with further considerations on limiting liability to gross negligence; *E Heinrich*, Teilhaftung bei alternativer Kausalität mit Zufall (2011) 133 JBl 277, 279; *KBB/Karner* (fn 109) § 1302 no 5; *Kozioł* (fn 131) Haftpflichtrecht I no 3/38; *Larenz/Canaris* (fn 106) 579.

be held liable for the respective fraction of this 9 to 26% according to the extent of his emissions.

However, there currently seems to be no workable scheme for the attribution of damage. A 1% contribution to global emissions does not equal a 1% less x% (influence of natural causes) contribution to the harm. As elaborated above, the uncertainties in the chain of causation are simply overwhelming. A striking example of these uncertainties is the life span of greenhouse gases. If carbon dioxide stays in the atmosphere for 20 to 200 years, this marks a 180 years uncertainty. It is therefore literally written in the stars whether the emissions of a particular defendant are still in the atmosphere, whether they have already vanished, whether their effects have been offset by natural cooling effects, or whether, and at which point in time, they might materialise in climate alterations.²²⁵

Granting damages would certainly require ‘bold judicial activism (to an unheard-of extent)’ from courts.²²⁶ However, if courts want to maintain consistency in tort law, they will struggle to overcome this hurdle. They would have to stretch – probably overstretch – the general requirements for causation in order to grant damages. They will therefore most likely dismiss claims.

C Injunctive relief?

Against this backdrop, claims for damages will rarely be successful. This induced Spier to advocate the idea of injunctive relief instead.²²⁷ After all, preventive injunctions are often considered to be less burdensome to the defendant than the payment of damages.²²⁸ They do not require fault; it is sufficient for the plaintiff to show that there is an imminent threat of interference with his rights.²²⁹ Spier also suggests a more lenient standard of proof for causation.²³⁰ This could make injunctive relief an attractive alternative for plaintiffs.

An in-depth analysis of injunctive relief against emissions cannot be provided in this article. However, a few critical remarks must be made. First, under

²²⁵ *Allen et al* (2006/07) 155 U Pa L Rev 1386.

²²⁶ *J Spier*, The Need for Judicial Activism in a Wicked World, in: FS Koziol (2010) 1481, 1493.

²²⁷ *Spier* (fn 127) 1ff; see also the forthcoming paper of *E Wagner*, Klimaschutzrecht mit Mitteln des Privatrechts? Präventive privatrechtliche Instrumente: Klimaschutzklagen, in: G v Kirchengast/E Schulev-Steindl/G Schnedl (eds), Klimaschutzrecht zwischen Wunsch und Wirklichkeit.

²²⁸ *Koziol* (fn 118) no 2/7; *Spier* (fn 127) 5f.

²²⁹ *Koziol* (fn 118) no 2/7.

²³⁰ *Spier* (fn 127) 13.

Austrian and German law, § 364a ABGB and § 14 BImSchG explicitly preclude preventive injunctions.²³¹ But even outside the scope of these rules, courts would have to stretch the general requirements for injunctive relief quite far. Injunctions are generally designed to prevent an imminent and direct interference with the plaintiff's rights. It seems doubtful that they can also be granted against the threat of a marginal, insidious and very indirect interference with plaintiff's rights.²³² Additionally, the crucial question to what extent enterprises are supposed to refrain from future emissions reappears (see section V.B.2 above).

If enterprises are forced to drastically reduce their future emissions, preventive injunctions might be even more burdensome to them than the payment of damages. In this context, it is important to recall the history of US climate change litigation that went exactly the other way around (see section III above): whilst the Supreme Court dismissed Connecticut's request for injunctive relief in *AEP v Connecticut*, claims for damages were still on the table in *Kivalina v ExxonMobil*. Apparently, US lawyers do not share the view that injunctive relief is less burdensome to defendants than claims for damages. It is therefore doubtful whether courts would be willing to stretch the requirements for injunctive relief in climate change cases.

VII Results

At this point, we can draw some brief conclusions:

1. Climate change has clearly become a legal category. This is old news in international law, but over recent years climate change policy has become increasingly subject to judicial review before national courts. The landmark cases *Massachusetts v EPA* in the United States and *Urgenda v The Netherlands* in Europe are powerful and impressive examples of this development. They have not only raised awareness, but might also influence future policy determinations.²³³ Depending on the constitutional framework, we might soon see similar cases in other countries. And the step from capping emissions to liability for failing to do so could be small.

231 For the common law cf *Boomer v Atlantic Cement Co*, 26 New York Reports, Second Series (NY 2d) 219, 309 New York Supplement, Second Series (NYS 2d) 312 (N.Y. 1970); *Hunter/Salzman* (2006/07) 155 U Pa L Rev 1790 fn 176.

232 Cf *Wagner* (fn 153) 271.

233 Cf *H Sigman*, Legal Liability as Climate Change Policy (2006/07) 155 U Pa L Rev 1953; *HM Osofsky*, The continuing importance of climate change litigation (2010) 1 Climate Law 3.

2. However, if we look at climate change litigation against private entities, we must say that it died where it was born. In the US, the federal common law of torts is displaced and no longer applicable. In Europe, climate change litigation against private entities is only in its infancy. Its prospect for success, however, seems limited. Courts would have to stretch, probably overstretch, the regular standards of imposing liability. This is not only true for causation, but also for misconduct.

3. Overall, climate change has definitely become a case for law because we can make use of the law to mitigate the effects of global warming. But we doubt that climate change is a good case for tort law.

Endnote: This and the following articles are revised versions of the lectures given at the 16th Annual Conference on European Tort Law from 20–22 April 2017 in Vienna in a special conference session on Climate Change and Environmental Liability.