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International Liability as an Instrument to Prevent and Compensate for Climate Change

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I. INTRODUCTION

When the Framework Convention on Climate Change was signed in 1992, four small island states (Fiji, Kiribati, Nauru, and Tuvalu) entered the following declaration: “Understanding that signature of the convention shall in no way constitute a renunciation of any rights under international law concerning state responsibility for the adverse effects of climate change and that no provisions in the convention can be interpreted as derogating from the principles of general international law.”¹ All four states, especially the island of Tuvalu, are often mentioned as among the potential first victims of climate change. With rising sea levels, the homes and infrastructure of the population of Tuvalu could quickly become uninhabitable and unusable so that immigration would be their only option.²

The possibility that a small island state, or another injured party, would bring a liability claim against states responsible for climate change no longer is a topic for fiction³ or a theoretical prospect. There is a rise in plans for litigation worldwide for

¹ United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107.

² Richard S.J. Tol & Roda Verheyen, *State Responsibility and Compensation for Climate Change Damages— A Legal and Economic Assessment*, 32 ENERGY POL’Y 1109, 1109 (2004).

³ MICHAEL CRICHTON, STATE OF FEAR (2004). In this book, *Jurassic Park* author Michael Crichton used the hypothesis that the fictional Pacific Island nation of Vanuatu would prepare a lawsuit against the Environmental Protection Agency of the United States over global warming as the basis for a fiction novel.

consequences of global warming.⁴ Though a majority of the cases appears to be public or administrative law cases, there is also an increase in the number of liability cases. One example is a lawsuit brought in Nigeria by local communities against oil companies and the government to stop the flaring of gas that contributes to greenhouse gases (GHGs) and local air pollution.⁵

Such cases raise a string of fundamental questions: Can actors be held liable for contributions to climate change if there may be hundreds, thousands or perhaps millions of other actors who also have contributed? How can liability law deal with the uncertainties of causation between emissions, climate change, and harmful effects? Is liability law an option at all now that both domestic and international public law regulate climate change? Can liability have significant effects, not only for providing compensation for victims, but also for influencing the behavior of potential emitters? Though these issues arise primarily in civil law cases, some issues, such as causation, will be equally relevant to administrative law cases.⁶

In this Article, we will examine some of the fundamental questions that would arise in litigation on liability for climate change. We will sketch some of the questions and issues that would have to be dealt with when a potential liability suit is brought (without suggesting that such a suit could successfully be brought, which is rather difficult to predict). On a practical level, this Article is an attempt to explore the issues and set the agenda for those who wish to pursue such a liability suit. On a more fundamental level, our

⁴ For an overview of the legal actions in different parts of the world, see JOYEETA GUPTA, WHO'S AFRAID OF CLIMATE CHANGE? 43 (2005). Examples of such actions include: *Friends of the Earth, Inc. v. Watson* 35 Env't. L. Rep. 20, 179 (N.D. Cal. 2005); *Center for Biological Diversity v. Spencer Abraham*, 218 F. Supp. 2d 1143 (N.D. Cal. 2002); *Bund für Umwelt und Naturschutz Deutschland e.V. (BUND) (German section of NGO Friends of the Earth) and Germanwatch e.V. v. Federal Republic of Germany represented by the Minister of Economy and Labour (BMWA), Verwaltungsgericht [VG] [Administrative Court Berlin]* Jan. 10, 2006, 10A 215.04. For an unofficial translation to English, see <http://www.climatelaw.org/media/Germany/de.export.decision.eng.doc>.

GUPTA, *supra* note 4, at 41–42. In April 2006, the Federal High Court of Nigeria ordered the Shell Petroleum Development Company of Nigeria Limited (Shell Nigeria) and the Nigerian National Petroleum Corporation (NNPC) to end flaring in the Iwherek community (Nigeria) by April 2007 and to appear in court in person on May 31 with a detailed plan to this effect. Press Release, Climate Justice Programme, Legal Action to Stop Nigeria Gas Flaring, June 20, 2005, available at <http://climatelaw.org/media/gas.flaring.suit/#release>. [hereinafter Press Release, *Shell Nigeria Case*].

⁶ *E.g.*, *Friends of the Earth, Inc. v. Watson*, No. C 02-4106, 2005 WL 2035596 (N.D. Cal. 2005) (holding that the plaintiffs' evidence was sufficient to demonstrate it was reasonably probable that emissions from projects supported by the defendants would threaten plaintiffs' concrete interests).

paper examines the power and limits of liability law to address such a highly complex and transnational issue as climate change.

We recognize that the answers to some of these questions will differ among jurisdictions and between international law⁷ and domestic law.⁸ However, we seek to transcend these differences and aim for an integrated approach to the topic. It is in that respect that we seek to contribute or add to existing literature.⁹

We seek to straddle the boundary between different domestic jurisdictions by identifying general concepts that are common to several systems. In our examples, we will focus in particular on approaches taken in Europe, but we believe that these may be of interest for other jurisdictions. When addressing the possibilities of national tort law, we also will make use of some harmonization projects that have attempted to identify general principles of tort law either in the United States¹⁰ or in Europe¹¹ and that thus transcend particular jurisdictions.

We also will straddle the boundary between international and domestic liability law. While we recognize that these bodies of law in many respects are different, there are good reasons for considering them in an integrated manner. Questions of liability for climate change often involve both domestic and international law.¹² Moreover, the general principles of liability law will be common to

⁷ Tol & Verheyen, *supra* note 2, at 1109–30.

⁸ See, e.g., David A. Grossman, *Warming Up to a Not-So-Radical Idea: Tort-Based Climate Change Litigation*, 28 COLUM. J. ENVTL. L. 1 (2003) (discussing the possibility of tort liability for climate change).

⁹ Earlier studies include: RODA VERHEYEN, CLIMATE CHANGE DAMAGE AND INTERNATIONAL LAW: PREVENTION DUTIES AND STATE RESPONSIBILITY 137–224 (2005); Myles Allen, *Liability for climate change: Will it ever be possible to sue anyone for damaging the climate?*, 421 NATURE 891, 891–92 (2003). See also GUPTA, *supra* note 4, at 40–44; Jaap Spier, *Legal Aspects of Global Climate Change and Sustainable Development*, REVISTA PARA EL ANALISIS DEL DERECHO 346 (Apr. 2006), available at http://www.indret.com./pdf/346_en.pdf.

¹⁰ RESTATEMENT OF THE LAW ON TORTS—TORTS: GENERAL PRINCIPLES (Discussion Draft 1999).

¹¹ EUROPEAN GROUP ON TORT LAW, PRINCIPLES OF EUROPEAN TORT LAW (2005).

¹² We use the terms “state liability” and “state responsibility” interchangeably to refer to the consequences of a wrongful act committed by a state and more specifically to the obligation to provide reparation for damage caused by a wrongful act. Though the term “state liability” is often used to refer to the consequences of injury caused by lawful acts, with a view to terminological coherence between national and international concepts, we use the term here in a broader manner, more akin to the concept as used in national law. For more discussion of this difference between the concepts of liability and responsibility, see RENÉ J.M. LEFEBER, TRANSBOUNDARY ENVIRONMENTAL INTERFERENCE AND THE ORIGIN OF STATE LIABILITY 13–15 (1996); Alan E. Boyle, *State Responsibility and International Liability for Injurious Consequences of Acts Not Prohibited by International Law: A Necessary Distinction?*, 39 INT’L & COMP. L.Q. 1, 1–26 (1990).

both domestic law and international law. Domestic (private) law often influences international principles of liability¹³ and, in turn, international law can influence domestic law.¹⁴

Our approach will also be integrated as we will make use of the economic analysis of tort law. We believe that this approach is particularly useful because it allows us to pay attention to the difficult issues regarding how tort liability could or should be established in case of uncertainty concerning the causal relationship,¹⁵ as well as cases of multiple tortfeasors—both highly relevant issues within the context of climate change litigation. Thus, our ultimate aim is to connect the approaches in international law and domestic law with the additional insights from economic analysis of tort law, in an attempt to enhance our understanding of the powers and limitations of liability law in relation to climate change.

We do not discuss the scientific questions relating to the existence, causes, and effects of climate change. However, we recognize that there is scientific evidence that damage to the environment, by individuals and by groups, has occurred and may occur. This can—at least in part—be attributed to climate change which would be the result of anthropogenic emissions.¹⁶ Some

¹³ HERSCH LAUTERPACHT, *PRIVATE LAW SOURCES AND ANALOGIES OF INTERNATIONAL LAW* 38–42 (1927) (discussing that many rules and concepts of international law stemmed from private law and that international courts and tribunals often resort to private law analogies to fill gaps in the law).

¹⁴ Frederick Alexander Mann, *The Consequences of an International Wrong in International and National Law*, BRIT. Y.B. INT'L L. 1 (1977). For an earlier discussion, see also FREDERICK ALEXANDER MANN, *STUDIES IN INTERNATIONAL LAW* 366–91 (1973) (discussing how domestic courts should give effect to international wrongs).

¹⁵ See, e.g., ARIEL PORAT & ALEX STEIN, *TORT LIABILITY UNDER UNCERTAINTY* (2001). Economic analysis is now increasingly also applied to international law, including state liability. See, e.g., JACK L. GOLDSMITH & ERIC A. POSNER, *THE LIMITS OF INTERNATIONAL LAW* (2005); Eric A. Posner & Alan O. Sykes, *An Economic Analysis of State and Individual Responsibility Under International Law* (Univ. of Chicago Law Sch., John M. Olin Law and Econ., Working Paper No. 279, 2006).

¹⁶ The Intergovernmental Panel on Climate Change (IPCC) finds that “there is new and stronger evidence that most of the warming observed over the last fifty years is attributable to human activities. Detection and attribution studies consistently find evidence for an anthropogenic signal in the climate record of the last 35 to 50 years.” The report equally holds that “the estimated rate and magnitude of warming due to increasing greenhouse gases alone are comparable with, or larger than, the observed warming.” IPCC, *Climate Change 2001: Synthesis Report, Summary for Policy Makers* 5–6 (2001), available at <http://www.ipcc.ch/pub/un/syrcng/spm.pdf>. These findings have been confirmed since their original publication. IPCC, *Climate Change 2007: The Physical Science Basis, Summary for Policymakers* 10 (2007), available at http://ipcc-wg1.ucar.edu/wg1/docs/WG1AR4_SPM_Approved_05Feb.pdf (stating that “[m]ost of the observed increase in globally averaged temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations.”).

certainties and uncertainties surrounding climate change are relevant to liability and will be considered later.

After this introduction, we will discuss two preliminary issues pertaining to climate change litigation: In Part II, we sketch various basic models of international climate change litigation in which liability claims could be made; we then address the potential goals of liability in regard to climate change in Part III. The core of our Article consists of a discussion of six central issues for the determination of liability: the basis of liability (Part IV), the potential effects of following regulations or conventions (Part V), causal uncertainty (Part VI), liability in case of multiple tortfeasors (Part VII), the problem of retrospectivity (Part VIII), and the potential remedies in case of liability (Part IX). The paper concludes by addressing a few policy consequences from the analysis (Part X).

II. BASIC MODELS

Our aim is to transcend differences between particular jurisdictions, including the difference between international and domestic law, and to focus on more general conceptions of liability law. However, in actual litigation, such general conceptions of liability have to be brought down to the nature of the parties, the applicable law, the powers of courts and so forth. Some conceptions of liability will be more relevant in certain settings than in others. It is therefore useful to sketch some basic models in which liability claims may be brought. We will distinguish between interstate claims, claims between private persons and states, and claims between private persons.

A. *Interstate Claims*

The scenario in which a state-victim of climate change seeks to bring a liability claim in an international court against one or more other states that allegedly contributed to climate change is a rather unlikely prospect. States do not usually present their complaints about other states' climate change policies in terms of liability claims. Even if they were to do that, states usually do not present such claims in court. Though the Climate Change Convention envisages

resorting to the International Court of Justice or arbitration, contingent on further declarations by states,¹⁷ thus far very few states have made a declaration accepting a mode of compulsory dispute settlement under Article 14 of the Convention.¹⁸ However, a state may still be prepared to present an interstate claim and perhaps even find a forum to present such a claim. As mentioned above, some small island states have expressly reserved the right to bring such a claim.

Such claims would have a number of features that are relevant for our purposes. They would generally concern an international claim, not only in terms of the forum (states do not usually litigate against each other in domestic courts) but also in terms of the basis of the claim. That is, the claim would be based on an alleged violation of an international obligation, engaging the international responsibility of the wrongdoing state. The principles of liability that would be applied are principles of international law, rather than domestic law. However, domestic liability principles may influence the contents of international liability law. For instance, domestic principles on such issues as joint and several liability and causation may, through the concept of general principles of law, inform the content of international principles of liability.¹⁹ It is in this respect that some of our analysis below on domestic liability may be relevant to such interstate claims.

¹⁷ Article 14(2) provides that when ratifying, accepting, approving or acceding to the Convention, or at any time thereafter, a party (which is not a regional economic integration organization) may declare in a written instrument submitted to the Depositary that in respect to any dispute concerning the interpretation or application of the Convention, it recognizes as compulsory *ipso facto* and without special agreement the submission of the dispute to the ICJ and this in relation to any other party accepting the same obligation. Article 14(2)(b) of the Framework Convention on Climate Change provides that under the same conditions mentioned above parties can also refer a dispute to arbitration “in accordance with procedures to be adopted by the conference of the parties as soon as practicable, in an annex on arbitration.” United Nations Framework Convention on Climate Change *supra* note 1, art. 14.

¹⁸ United Nations Framework Convention on Climate Change, Status of Ratification (Apr. 11, 2007), available at http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/unfccc_rat_130407.pdf (noting that only two countries made a declaration with regard to Article 14(2), Cuba and the Solomon Islands.)

¹⁹ See, e.g., *Oil Platforms (Iran v. U.S.)*, 2003 I.C.J. 90 (Nov. 6) (separate opinion of Judge Simma); *Certain Phosphate Lands in Nauru (Nauru v. Austl.)*, 1993 I.J.C. 80 (Sept. 13) (separate opinion of Judge Shahabuddeen) (both finding support for the existence of a general principle of law on joint and several liability in domestic law).

B. *Claims by Private Persons Against States*

In a second scenario, private persons who are (potentially) injured by climate change would hold a state liable that allegedly caused or contributed to the damage. This indeed has happened on a number of occasions.²⁰ An alternative is that sub-state entities would bring claims against states. For instance, it has been suggested that the state of Alaska could claim compensation against the U.S. federal government.²¹

Such claims may have a substantial international law component if the affected interests are protected under human rights law (e.g., right to life, right to health, right to home). Individuals then could, under international law, have a claim against the state under whose jurisdiction they are. However, the requirement that the victims should be under the jurisdiction of the wrongdoing state substantially limits the relevance of this scenario for “transboundary” climate change cases.²²

Assuming that a competent international body is available, individuals could file a human rights-based claim at the international level.²³ There has been at least one failed attempt to do so, when the Inuit Circumpolar Conference, which represents 150,000 people in northern Alaska, Canada, Russia and Greenland, filed a claim against the United States with the Inter-American Human Rights Commission. The claim was based, inter alia, on alleged breach of rights of indigenous peoples, the right to a healthy environment, and the rights of people to freely dispose of their natural wealth and resources under the Inter-American Convention on Human Rights (IACHR). However, the claim was not considered by the

²⁰ On human right claims related to environmental harm, see generally ALAN E. BOYLE & MICHAEL R. ANDERSON, *HUMAN RIGHTS APPROACHES TO ENVIRONMENTAL PROTECTION* (1996).

²¹ It is the hypothesis examined by Grossman, *supra* note 8, at 1. There are already examples of states filing administrative law case against the central government, e.g., *Mass. v. EPA*, 549 U.S. ___ (2007), *rev'g* *Mass. v. EPA*, 415 F.3d 50 (D.C. Cir. 2005).

²² For a critical assessment of the use of human rights law in regard of climate change, see Eric A. Posner, *Climate Change and International Human Rights Litigation: A Critical Appraisal* (Univ. of Chicago Law Sch. John M. Olin Law & Econ., Working Paper No. 329, 2007) (arguing that, because the health of the global climate is a public good, and domestic courts have limited ability to control the behavior of corporations on foreign territory, and because optimal climate policy varies greatly across countries, it is unlikely that domestic courts can, in human rights cases, provide remedies that are economically sound and politically acceptable) *available at* <http://ssrn.com/abstract=959748>.

²³ That would hold primarily for the European Court of Human Rights, the Inter-American Court of Human Rights and in the future the African Court on Human Rights.

Commission, because it found that the information submitted did not enable the Commission to determine whether the alleged facts could be characterized as a violation of the IACHR.²⁴

International claims such as these would be governed by international law. This holds for the liability principles as well,²⁵ though the application of principles of liability to relationships between individuals and states need not be identical to the law of state responsibility that applies between states. As in the first scenario concerning interstate claims, domestic tort law is only indirectly relevant.²⁶

If no human rights are at issue, the claim can only be presented before a domestic court as a domestic tort law issue. In this scenario, we can distinguish two alternatives: The victim could litigate against her own state or against a foreign state. As to the former, claims by individuals against the state itself were impossible in many countries for a long time and for a variety of reasons.²⁷ It was often held that the state was immune from tort claims and that the sovereignty of the state made it impossible to file tort claims against it. Today, as a result of jurisprudential and legislative evolutions, state liability is possible in many jurisdictions,²⁸ opening an opportunity for climate change-related litigation against the state. One example where this opportunity has been used is the liability claim relating to climate change against the governments of Nigeria.²⁹

²⁴ Letter from Ariel Dulitzky, Assistant Executive Secretary, Inter-American Commission of Human Rights, to Paul Crowley, Legal Representative, Barrister and Solicitor, Canada (Nov. 16, 2006), available at http://graphics8.nytimes.com/packages/pdf/science/16commission_letter.pdf.

²⁵ International Law Commission, Draft Articles on Responsibility of States for Internationally Wrongful Acts art. 33, ¶ 2, G.A. Res. 56/83, 56th Sess., Supp. No. 10, U.N. Doc. A/56/10(SUPP) (Dec. 12, 2001) [hereinafter Draft Articles], reprinted in JAMES CRAWFORD, *THE INTERNATIONAL LAW COMMISSION'S ARTICLE ON STATE RESPONSIBILITY: INTRODUCTION, TEXT AND COMMENTARIES* (2002) (arguing that Article 33 (2) indicates that states not only owe an obligation to provide reparation to states but also to individuals). See also James Crawford, *Third Report on State Responsibility*, UN Doc. A/CN.4/507 (Mar. 15, 2000).

²⁶ Luzius Wildhaber, *The Role of Comparative Law in the Case Law of the European Court of Human Rights*, in *INTERNATIONALE GEMEINSCHAFT UND MENSCHENRECHTE: FESTSCHRIFT FÜR GEORG FESS ZUM 70. GEBURTSTAG AM 21. (Jan. 2005)* (discussing how the European Court of Human Rights resorts to comparative law in its legal reasoning).

²⁷ See generally BASIL S. MARKESINIS ET AL., *TORTIOUS LIABILITY OF STATUTORY BODIES: A COMPARATIVE AND ECONOMIC ANALYSIS OF FIVE ENGLISH CASES* (1999) (exploring whether statutory bodies should be liable in tort towards persons harmed by their negligent actions).

²⁸ WALTER VAN GERVEN, JEREMY LEVER & PIERRE LAROCHE, *CASES, MATERIALS AND TEXT ON NATIONAL, SUPRANATIONAL AND INTERNATIONAL TORT LAW* 358–94 (2000) (providing a comparative overview of the law of tort in English, German and Belgian jurisprudence).

²⁹ Press Release, *Shell Nigeria Case*, *supra* note 5.

The latter situation, concerning claims against a foreign state on the basis of national tort law, presents separate issues.³⁰ Such claims will mostly be brought in the courts of the defendant state. Cases in the courts of a foreign (victim) state will normally be blocked by state immunity. The 2004 U.N. Convention on Jurisdictional Immunities of States and their Property has not changed this. Its exception for extraterritorial torts only applies if the tortfeasor was present in the territory at the time of the act—for instance, torts caused by traffic accidents. The exception does not seem applicable to transfrontier harm like climate change.³¹ The key question, then, is whether the plaintiff has access to the courts of the foreign state. This question applies similarly to litigation against private actors in foreign courts and will be considered in Part II.C.

A climate change claim against a state under domestic tort law presumes that the domestic law of that state allows for such liability claims. Whether this is the case is not governed by international law. There exists no treaty on civil liability for transboundary damage that would apply to climate change damage and that would provide for liability on the part of the state. The International Law Commission's (ILC) 1996 proposals for making states strictly liable for significant transboundary harm proved to be too progressive and have not been included in the 2006 draft articles.³² The general availability of civil law remedies in a procedure against the state that allegedly caused climate change damage, cannot, therefore, be assumed.³³ As such, everything depends on the applicable domestic law.

³⁰ GERRIT BETLEM, CIVIL LIABILITY FOR TRANSFRONTIER POLLUTION: DUTCH ENVIRONMENTAL TORT LAW IN INTERNATIONAL CASES IN THE LIGHT OF COMMUNITY LAW (1993).

³¹ United Nations Convention on Jurisdictional Immunities of States and Their Property art. 12, U.N. Doc. A/RES/59/38 (Dec. 16, 2004), 44 I.L.M. 803 (“Unless otherwise agreed between the States concerned, a State cannot invoke immunity from jurisdiction before a court of another State which is otherwise competent in a proceeding which relates to pecuniary compensation for death or injury to the person, or damage to or loss of tangible property, caused by an act or omission which is alleged to be attributable to the State, if the act or omission occurred in whole or in part in the territory of that other State and if the author of the act or omission was present in that territory at the time of the act or omission.”); see also Gerhard Hafner & Ulrike Kohler, *The United Nations Convention on Jurisdictional Immunities of States and Their Property*, 35 NETH. Y.B. INT’L L. 3 (2004) (discussing the scope of the extraterritorial tort exception in the U.N. Convention). See generally HAZEL FOX, *THE LAW OF STATE IMMUNITY* (2002) (analyzing the extraterritorial tort exception).

³² For the full text of the 1996 draft see International Law Commission, *Report of the Working Group on International Liability for Injurious Consequences Arising Out of Acts Not Prohibited by International Law* 235, Supp. No. 10, Annex I, U.N. Doc. A/51/10(SUPP) (Jan. 1, 1996).

³³ Alan E. Boyle, *Globalising Environmental Liability, The Interplay Between National and International Law*, in MULTILEVEL GOVERNANCE OF GLOBAL ENVIRONMENTAL CHANGE: PERSPECTIVES FROM SCIENCE, SOCIOLOGY AND THE LAW 559 (Gerd Winter ed., 2006).

C. *Claims Between Private Persons*

In a third scenario, private plaintiffs present a liability claim against individual GHG emitters. One example is *Connecticut v. American Electric Power Co.* in which the plaintiffs sought under federal common law of the United States or, in the alternative, state law, to abate what plaintiffs described as the “public nuisance” of “global warming.”³⁴ In *Northwest Environmental Defense Center v. Owens Corning Corp.*, environmental groups brought an action alleging that the manufacturer was constructing a facility without having obtained the preconstruction permit required under the U.S. Clean Air Act. One of their arguments was that emissions from defendant’s Gresham facility would contribute to global warming which, in turn, would harm environmental resources in Oregon used or enjoyed by members of the plaintiff organizations.³⁵ An alternative to this type of claim would be a product liability claim against petroleum companies.³⁶ Additionally, a state or sub-state entity could bring a claim against individual emitters of greenhouse gases. An example of the latter situation could be claims by U.S. victims, such as coastal states, island states and Alaskan villages, against U.S. defendants such as automobile and gasoline manufacturers.³⁷

Whereas in the previous scenario (claims by private parties against the state) there was a possibility that claims might end up in an international court (if human rights violations were involved), in this scenario that option does not exist and claims will have to be brought in domestic courts. As in the previous situation, a distinction can be drawn between a national tort suit—wherein both victim and defendant are located within one country—and the transboundary tort suit. In contrast to the previous situation, in the case of transboundary torts, the plaintiff need not confine him or herself to the courts of the defendant state; because the claim will be filed against a private party, issues of immunity will not arise.

In the European system, both options are open and the plaintiff can choose the forum. Council Regulation (EC) 44/2001 on

³⁴ *Conn. v. Am. Elec. Power Co.*, 406 F. Supp.2d 265, 268 (S.D.N.Y. 2005).

³⁵ *Nw. Env'tl. Def. Ctr. v. Owens Corning Corp.*, 434 F. Supp.2d 957, 961 (D. Or. 2006).

³⁶ For the possibility of a product liability claim see Grossman, *supra* note 8, at 39–51.

³⁷ *Id.* at 14, 28.

jurisdiction and the recognition and enforcement of judgments in civil and commercial matters provides that a person domiciled in a Member State may be sued in another Member State “in matters relating to tort, delict or *quasi* delict, in the courts for the place where the harmful event occurred or may occur.”³⁸ This means that, if one were to consider wrongful GHG emissions a tort, a victim of climate change could bring a suit against the defendant for this tort “in the court for the place where the harmful event occurred or may occur.” Following the judgment of the European Court of Justice in *Bier*, it is clear that the defendant may be sued, at the option of the plaintiff, either in the courts of the place where the damage occurred or in the courts of the place where the source of the damage originated.³⁹ The court held:

Where the place of the happening of the event which may give rise to liability in tort, delict or *quasi* delict and the place where that event results in damage are not identical, the expression “place where the harmful event occurred,” in article 5(3) of the Convention . . . must be understood as being intended to cover both the place where the damage occurred and the place of the event giving rise to it.⁴⁰

For our climate change case, this means that if both victim and defendant fall within the framework of Council Regulation 44/2001, the victim could choose where to bring his lawsuit.⁴¹

If the plaintiff chooses to litigate in the foreign state, a whole range of issues arise that deserve a brief discussion. First, there is the question of whether victims of climate change would have access to a court in the state where the damage is caused. This is primarily a matter of domestic law. Some legal systems, such as that of the

³⁸ Council Regulation 44/2001 art. 5, ¶ 3, 2001 O.J. (L 12) 1.

³⁹ Case 21/76, *Bier v. Mines de Potasse d’Alsace*, 1976 E.C.R. 1735, 1748–49 (interpreting the meaning of “the place where the harmful event occurred” in article 4(3) of the Convention of 27 September 1968).

⁴⁰ *Id.*

⁴¹ On the basis of the *Bier* case, many claims were brought by victims based in the Netherlands against defendants in France and Belgium for claims of transboundary water pollution. For a brief overview, see J.G. Lammers, *The Rhine: Legal Aspects of the Management of a Transboundary River*, in *NATURE MANAGEMENT AND SUSTAINABLE DEVELOPMENT* 440, 451–53 (Wil D. Verwey ed., 1989).

United States, have very broad provisions allowing foreign victims to bring claims in U.S. courts. Under their “diversity jurisdiction,” U.S. courts may have jurisdiction over cases between foreign states or foreign citizens and citizens of the United States as long as the amount in controversy exceeds \$75,000. But the access of transboundary claimants is not only a matter of domestic law. International law recognizes the principle of non-discriminatory access to remedies in the state where the source of the harm is located.⁴²

A second question is whether we can assume in such cases that a foreign plaintiff will find a liability regime applicable to climate change. Access is irrelevant if the state chooses to make no provision for liability, denies any remedy, or confers immunity on defendants. The situation here is slightly more favorable than in the scenario of claims of private parties against foreign states. Building upon the 1992 Rio Declaration⁴³ and work of the International Law Association (ILA),⁴⁴ the Draft Principles on the Allocation of Loss adopted by the ILC propose a minimum standard of timely and effective redress. Principle 3 sets out that the Draft Principles aim “to ensure prompt and adequate compensation to victims of transboundary damage,” including damage to the environment.⁴⁵

If the barriers in a foreign legal system prove to be too many or to create too many uncertainties, the victim can bring suit in his own state against a foreign defendant. There may be many practical reasons why individual plaintiffs will prefer to bring a suit in their own state. Not only will the costs be substantially lower (there is then no need to call on a foreign counsel), but the victim may also expect his own courts to be more sympathetic towards his climate change

⁴² International Law Commission, Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities, Principle 6, ¶ 2, in *Report of the International Law Commission on the Work of its Fifty-Eighth Session* 106, at 109, U.N. Doc. A/61/10 (Oct. 1, 2006) (providing that victims of transboundary damage should have access to remedies in the state of origin that are no less prompt, adequate and effective than those available to victims that suffer damage, from the same incident, within the territory of that state); see also U.N. Watercourses Convention, G.A. Res. 51/229, art. 32, U.N. Doc. A/RES/51/229 (May 21, 1997); Boyle, *supra* note 33.

⁴³ United Nations Conference on Environment and Development, Rio Declaration on Environment and Development, June 14, 1992, Annex 1, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. 1), available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.

⁴⁴ International Law Association London Conference (2000), Committee on Water Resources Law, *Campione Consolidation of the International Law Association Rules on International Water Resources 1966-1999*, art. 51 (2000), available at <http://www.ila-hq.org/pdf/Water%20Resources/Water%20Res%20Report%202000.pdf>.

⁴⁵ Draft Principles on the Allocation of Loss, *supra* note 42, at Principle 3.

claim than a foreign defendant's court would, particularly since the claim relates to damage occurring within the victim's home territory. In addition, it will often be the *lex fori* that will determine the applicable law. This may also be a reason why victims might prefer to bring a suit in their own state rather than in the defendant state.⁴⁶ On the other hand, we have to reckon with the problems of execution of judgments that will arise in this scenario.

While the possibility that a plaintiff may sue in her own courts is available when a specific treaty or other international instrument like Council Regulation 44/2001 is applicable, in the absence of such a treaty or other international instrument, the victim will often have no other choice than to sue the defendant before the courts of the defendant state. In many cases the domestic conflict of laws rules will determine that only the courts of the state where the defendant resides or is registered are competent.

One final aspect of claims brought by private parties, applicable both to claims against a state and claims against private persons, is that both scenarios presume that particular victims have a sufficient interest to file such a suit. Many legal systems require that the victim's subjective rights be either infringed or endangered and do not allow the victim to act on behalf of the general interest if she cannot prove any personal interest. Since the damage caused by climate change is so widespread, this may be an important restriction as far as the use of tort law is concerned. It is possible that the individual loss suffered by each individual victim is so small that no particular victim has a sufficient interest to bring a claim. This proved fatal in a number of domestic cases⁴⁷ and also in the claim of the Inuits in the Inter-American Commission on Human Rights.⁴⁸

Some countries have awarded the right to file suits for climate change damage to specific administrative agencies.⁴⁹ If this is the

⁴⁶ Of course, this should not necessarily always be the case. In some cases, the material tort law in the defendant state may be more generous to the plaintiff. That explains why many victims (including European and Asian victims) try to bring their suits before U.S. courts in cases of damage caused by U.S. companies on foreign territories; they wish to enjoy the application of what are often more generous U.S. tort rules.

⁴⁷ See, e.g., *Ctr. for Biological Diversity v. Abraham*, 218 F. Supp.2d 1143, 1155 (N.D. Cal. 2002) (holding that the concerns regarding global warming were "too general, too unsubstantiated, too unlikely to be caused by defendants' conduct, and/or too unlikely to be redressed by the relief sought to confer standing."). *But see* *Nw. Env'tl. Def. Ctr.*, 434 F. Supp. at 961 (finding that the criteria for standing were satisfied); *Friends of the Earth, Inc.*, *supra* note 6, at *2 (granting standing to the plaintiff).

⁴⁸ Letter from Ariel Dulitzky, *supra* note 24.

⁴⁹ Grossman, *supra* note 8, at 55.

case, national tort law could hold that administrative law has preempted the victim's right to bring suit. That would effectively mean that the victim could only petition the agency to take action towards GHG emitters to reduce emissions. Depending upon the specific administrative agency's competence or willingness to respond to such citizen petitions, this could effectively bar the right of victims to claims. Of course, it is largely a matter of national tort law whether this construction is followed.

Precisely because the damage is widespread, one could imagine that it would not be an individual victim but a non-governmental organization (NGO) that would represent all those who suffer a loss from climate change. This has indeed been done in a number of climate related cases.⁵⁰ Two distinct solutions may exist here: Either the victims can collectively act together in a so-called class action (provided that national law allows this) or an NGO defending particular public interests may file a claim. Many national and international legal documents now recognize the right of NGOs to file such claims, but usually strict conditions apply.⁵¹ For instance, if national law allows NGO claims in civil law at all, the NGO often must demonstrate that it has existed for a substantial number of years and that it clearly stipulated the specific protected interest as a goal in its articles of incorporation.⁵² Moreover, most national laws hold that the NGO may make claims for injunctions, but not for damages.⁵³ Hence, the choice of the victim has relevance for the remedy as well. In the case of transboundary litigation in a foreign court, separate questions arise. In that case the question will be whether the foreign legal system recognizes the legal status⁵⁴ and procedural rights that have been accorded by the state in which the NGO was set up.

⁵⁰ See, e.g., *Nw. Env'tl Def. Ctr.*, 434 F. Supp. at 961.

⁵¹ John McCormick, *The Role of Environmental NGO's*, in *THE GLOBAL ENVIRONMENT: INSTITUTIONS, LAW AND POLICY*, 252-71, (Regina S. Axelrod, David L. Downie & Norman J. Vig eds., 2005) (discussing NGO litigation and monitoring of environmental law implementation).

⁵² For the *locus standi* of environmental organizations, see *BETLEM*, *supra* note 30, at 305-34.

⁵³ *Id.* at 497 (discussing a few exceptional cases in which NGO's were also awarded damages, for instance with respect to "bird clean-up" costs).

⁵⁴ In Europe some harmonization is now achieved through the European Convention on the Recognition of the Legal Personality of International Non-Governmental Organizations, Strasbourg, Fr., Apr. 24, 1986, *Explanatory Report*, Doc No. 124 (1986), available at <http://conventions.coe.int/Treaty/en/Treaties/Html/124.htm>.

D. Combination of International and Domestic Law

We noted above that both in claims by private parties against states and in claims between private parties, claims would normally be brought in a domestic court under domestic tort law. However, in both scenarios international environmental law may well be relevant in civil litigation.⁵⁵

The general rule in this respect is relatively clear: International obligations to protect the environment apply between states. Citizens in principle cannot bring a claim based on a breach of a treaty obligation by a defendant state, nor could the victim of climate change directly base tort liability of GHG emitters on the violation of treaty obligations since these only bind states. However, the influence of international law on domestic liability is not to be excluded.

Theoretically, a court dealing with a civil law action has two opportunities to apply a norm of international law in a tort case. One rather revolutionary solution would be to bypass national law and to provide redress for violations of international law in a tort case on the basis of international law. However, this appears to be very rare. The literature only reports one example of a case where this was accepted: the District Court of Rotterdam in a suit by Dutch farmers against the French Mines de Potasse d'Alsace⁵⁶ considered the violations of the French enterprise on the basis of a violation of an international norm.⁵⁷

The more common and elegant way is to provide redress for violations of international law in transboundary civil litigations through the application of domestic law and to give effect to international law in the application of domestic liability law. Whether and how this is possible of course differs between states. For instance, in the Netherlands, there are basically three constructions that can be followed in this respect: the court can examine whether the act constitutes a violation of a statutory duty (which could be the result of the implementation of international law); the act could have violated

⁵⁵ André Nollkaemper, *How Public (International) Environmental Law Can Furnish a Rule of Decision in Civil Litigation*, 12 TIJDSCHRIFT VOOR MILIEUAANSPRAKELIJKHEID 3–11 (1998).

⁵⁶ Handelskwekerij Firma Gebr. Strik B.V. & Handelskwekerij Jac. Valstar B.V./MDPA [District Court of Rotterdam], Jan. 8, 1979, NJ 113 (Neth.) in 11 NETH. Y.B. INT'L L. 326–33 (1980).

⁵⁷ For a discussion on this case, see Nollkaemper, *supra* note 55, at 4.

a right (that can be based on or interpreted in accordance with international law); or the act could have violated a rule of unwritten duty of care. In the latter scenario, international law arguably may be relevant in giving substance to what “due care” requires.⁵⁸

III. GOALS OF LIABILITY

In any of the above scenarios the question is why a plaintiff, whether a state, a sub-state entity, or a private person, would seek to hold either emitters of greenhouse gasses or states liable for such emissions. Addressing the causes of climate change may be said to be primarily a regulatory problem. However, as yet that challenge has not been taken up across the world with much success. What is the residual role that liability may serve?

The answers to this question are similar irrespective of whether one approaches this from the perspective of domestic tort law⁵⁹ or liability under international law.⁶⁰ In all systems, liability serves essentially two purposes: compensation and prevention.⁶¹

The primary aim of liability is to secure redress for victims, whether for states faced with the consequences of the prospect of flooding, communities or individuals in low-lying areas faced with flooding or other adverse consequences of climate change, or the environment itself. A liability rule should lead to compensation or to other forms of reparation (such as restitution) that make good for the harm inflicted. This aim applies to domestic law no less than international law. This is an objective that at best is at the outer margins of regulatory schemes and thus remains an obvious rationale and justification of the resort to liability with regard to climate change.⁶²

⁵⁸ *Id.*

⁵⁹ For a discussion of the various goals of tort law in national law see VAN GERVEN, LEVER & LAROUCHE, *supra* note 28, at 13–32; *see generally* UNIFICATION OF TORT LAW: WRONGFULNESS (Helmut Koziol ed., 1998).

⁶⁰ For a discussion of the goals of state liability, see RENÉ J.M. LEFEBER, *TRANSBOUNDARY ENVIRONMENTAL INTERFERENCE AND THE ORIGIN OF STATE LIABILITY* 1–4 (1996).

⁶¹ *See e.g.*, IAN BROWNLIE, *THE RULE OF LAW IN INTERNATIONAL AFFAIRS* 79–80 (1998); *compare generally* Institut de Droit International, *Resolution on Responsibility and Liability under International Law for Environmental Damage*, 67 *ANNUAIRE* 486 (1998) (common to both objectives, and thus arguably an overarching objective, is that state liability, or responsibility fulfils an essential function for the maintenance of the rule of law).

⁶² *But see* Tullio Scovazzi, *Some Remarks on International Responsibility in the Field of Environmental Protection*, in *INTERNATIONAL RESPONSIBILITY TODAY: ESSAYS IN MEMORY OF*

The second aim is to change behaviors of the actors that cause greenhouse gas emissions. That may be a direct aim (for instance when plaintiffs ask for injunctive relief) or may be an intended or unintended side-effect of the first aim. This aim is based on the economic theory which holds that liability provides incentives for preventive action.⁶³ The simple economic logic is that when a potential tortfeasor is confronted with economic costs of his action, or when he is only aware of the fact that he may be confronted with the costs of his action, he will take a sufficient amount of care in order to reduce or avoid the damage.⁶⁴ Economists, of course, would not hold that liability rules should give incentives for a complete termination of the damage, but only for a minimization up to the point where marginal costs of pollution abatement equal marginal benefits in damage reduction.⁶⁵ Applied to climate change liability, if states or GHG emitters were confronted with the marginal costs of their GHG emissions⁶⁶ they would, so economic theory holds, have incentives to reduce the damage to efficient levels.

In this respect, liability would supplement regulatory action aimed at curbing emissions. Indeed, both under domestic and international law, regulatory schemes aimed at prevention (for instance by providing for emission reductions) and principles of liability should be considered as two alternative, but complementary means that may assist in achieving the overall aim of reducing emissions that may contribute to climate change.⁶⁷ In the context of this Article, for instance, this is reflected in the dual role of the precautionary principle: playing a role aimed at preventing emissions

OSCAR SCHACHTER 213 (Maurizio Ragazzi ed., 2005) (stating that with respect to global concerns, “the very idea of compensation becomes meaningless, as the damage, if it really occurs, would exceed any capacity to provide remedies”).

⁶³ The preventive function of state liability is also stressed by LEFEBER, *supra* note 60, at 313–15.

⁶⁴ A “classic” in this domain is STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* (1987) [hereinafter SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW*]; see also STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW* 175–288 (2004).

⁶⁵ See, e.g., Steven Shavell, *Strict Liability versus Negligence*, 9 J. LEGAL STUD. 1–25 (1980). Also as far as state responsibility is concerned, Posner and Sykes hold that the goal should be efficient deterrence of harmful acts, based on an appropriate balancing of costs and benefits of deterrent measures. Posner & Sykes, *supra* note 15, at 5.

⁶⁶ This of course assumes that it would be possible to identify the marginal contribution to the damage suffered by the victims of each particular defendant.

⁶⁷ Institut de Droit International, *supra* note 61, art. 13 (stating that “[e]nvironmental regimes should consider the appropriate connections between the preventive function of responsibility and liability and other preventive mechanisms such as notification and consultation, regular exchange of information and the increased utilization of environmental impact assessments”).

as well as a role in determining the degree of predictability required for a finding of causation and, consequently, liability.⁶⁸

Whether the possibility of liability has any such effects is uncertain. None of the liability claims that have been brought have resulted in an award for damages, making the application of economic theory somewhat speculative. As far as international liability is concerned, the deterrence theory is indeed feeble, as significant awards of compensation have been extremely rare. That holds both for interstate liability and for international civil liability schemes. As to the latter, Boyle notes that skeptics rightly question whether these schemes have had much impact on industry or have contributed to improving standards and that the principal purpose of liability therefore is not necessarily to influence the behavior of defendants.⁶⁹ However, there is at least anecdotal evidence that, at the domestic level, liability claims pertaining to environmental harm have led to changes in behavior, in particular when such claims were directed against corporations (rather than states).⁷⁰ The possibility of a successful claim might well drive corporations into emission-reducing policies and also be accorded due weight by states where such corporations are located.

It is often said that an additional goal of liability is the implementation of the polluter-pays principle. This principle requires that the cost of pollution be borne by the one responsible for causing it.⁷¹ Liability would thus guarantee that costs of polluting activities (like GHG emissions) would be borne by the actor who is the source of this action.⁷² The polluter-pays principle can be seen as a variant of the prevention-objective, since cost-internalization would

⁶⁸ See *infra* Part VI.A.

⁶⁹ See Boyle, *supra* note 33; see also LUCAS BERGKAMP, *LIABILITY AND THE ENVIRONMENT: PRIVATE AND PUBLIC LAW ASPECTS OF CIVIL LIABILITY FOR ENVIRONMENTAL HARM IN AN INTERNATIONAL CONTEXT* (2001); Jutta Brunnée, *Of Sense and Sensibility: Reflections on International Liability Regimes as Tools for Environmental Protection*, 53 *INT'L & COMP. L.Q.* 351, 367 (2004) (stating that it is unlikely that liability regimes will play a significant role as tools for environmental protection).

⁷⁰ For differences in application of the economic theory to corporations and states, see Posner & Sykes, *supra* note 15.

⁷¹ On the consequences of the polluter-pays principle see, e.g., PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 279–85 (2d ed. 2003); NICOLAS DE SADELEER, *ENVIRONMENTAL PRINCIPLES. FROM POLITICAL SLOGANS TO LEGAL RULES* 21–60 (2002).

⁷² This is also the common interpretation of the polluter-pays principle in European environmental law. See, e.g., ALEXANDRE C. KISS & DINAH SHELTON, *MANUAL OF EUROPEAN ENVIRONMENTAL LAW*, 43–44, (2d ed. 1997).

lead to a change in behavior.⁷³ However, the polluter-pays principle also has the distinct objective of allocating costs away from the victim and to the polluter. In that respect it can also contribute to a fair allocation of benefits and costs between polluters and victims. As is the case for deterrence, for the time being the power of liability law to achieve any redistribution of costs between relevant actors remains theoretical, but at the same time the prospect thereof may be a driving force for attempts to initiate liability litigation.

IV. BASES OF LIABILITY

Liability claims may be grounded on a variety of bases. These will of course depend on the jurisdiction in which a claim is brought. Claims brought in domestic courts will rely primarily on sources of domestic liability law (either the law of the forum or foreign law, depending on the *lex fori*).⁷⁴ Parallel sources may be found in international law.⁷⁵ Economics may be helpful as well in identifying the appropriate liability rule for climate change damage.⁷⁶

A. *International Law*

The liability of a state under international law rests essentially on the commission of a prohibited act. In addition, there may be a narrow role for strict liability.

First, liability can be based on the commission of a prohibited act. This can either be the violation of a treaty obligation or of a rule of customary international law. As to the first option, one could envisage a situation where there would be state liability simply because the obligations of the United Nations Framework Convention on Climate Change (UNFCCC) or the Kyoto Protocol had been violated. Many writers have indeed already examined whether climate change constitutes a violation of international commitments, not only under UNFCCC or the Kyoto Protocol, but

⁷³ MICHAEL FAURE & GÖRAN SKOGH, *THE ECONOMIC ANALYSIS OF ENVIRONMENTAL POLICY AND LAW* 26–30 (2003).

⁷⁴ *See infra* Part IV.B.

⁷⁵ *See infra* Part IV.A.

⁷⁶ *See infra* Part IV.C.

potentially also under world trade law or even the United Nations Convention on the Law of the Sea (UNCLOS).⁷⁷

Some particular scenarios can be distinguished. If the defendant state were a signatory to the UNFCCC, but not the Kyoto Protocol (a hypothesis which was examined in the literature with respect to Canada before the entry into force of the Kyoto Protocol⁷⁸), a question would arise as to whether the state violated its commitments under Article 4 of the UNFCCC, and whether that breach could be the basis of a liability claim. The latter may not be obvious, as the requirements of Article 4(1) are rather vague. For instance, it refers to the obligation to promote and cooperate in the development and transfer of technologies that control, reduce or prevent anthropogenic emissions,⁷⁹ as well as the obligation to promote sustainable management of sinks and reservoirs of all greenhouse gases.⁸⁰ These obligations are so vague that it is doubtful that violating these obligations would constitute a sufficient basis for state liability.

However, states (like Canada or the United States) that are Annex I countries also have committed themselves to “take corresponding measures on the mitigation of climate change, by limiting its anthropogenic emissions of greenhouse gases and protecting and enhancing its greenhouse gas sinks and reservoirs.”⁸¹ This obligation is still rather vague, but does stipulate a commitment for Annex I countries to at least take corresponding measures for the mitigation of climate change by limiting their anthropogenic emissions of greenhouse gases and arguably could be the basis of a liability claim.

The situation is different in the case of a country that has committed to the obligations of both the UNFCCC and the Kyoto Protocol. Annex B to the Kyoto Protocol contains very specific quantified emission limitation or reduction commitments for every separate country specified in a percentage of the base year or period.

⁷⁷ See e.g., A.L. Strauss, *The Legal Option: Suing the United States in International Forums for Global Warming Emissions*, 33 ENVTL. L. REP. 1085 1087–89 (2003).

⁷⁸ Patrick Hamilton, *Can't Unring the Bell: Canada's Obligations and International Law Pending Entry into Force of the Kyoto Protocol* 24–25 (unpublished winning essay, 2004 Department of Justice/Canadian Bar Association National Law School Essay Contest), available at <http://www.cba.org/CBA/News/pdf/kyotoessay.pdf>.

⁷⁹ United Nations Framework Convention on Climate Change, *supra* note 1, art. 4(1)(c).

⁸⁰ *Id.* art. 4(1)(d).

⁸¹ *Id.* art. 4(2)(a).

For instance, for Australia, this is 108 percent, and for the United States it is 93 percent⁸² (note, however, that neither Australia nor the United States are parties to the Protocol). Article 3(1) provides that Annex I parties shall individually or jointly ensure that their aggregate anthropogenic carbon dioxide equivalent emissions of the greenhouse gases listed in Annex A do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B.⁸³ The objective is to reduce the overall emissions of such gases by at least five percent below 1999 levels in the commitment period 2008 to 2012. In this case, there is a clear obligation on the parties that have accepted the Kyoto Protocol. A breach of these very specific quantified emission limitation and reduction commitments could thus be considered a breach of a treaty obligation that potentially could give rise to state liability (provided other conditions are met).

The main rule of customary international law that is relevant as a basis for responsibility for climate change is the obligation of states not to cause damage to the environment of other states or of areas beyond national jurisdiction.⁸⁴ This basis for liability can be relevant if the climate change were caused by a state, whether or not it has made commitments to reduce emissions under the UNFCCC or any other specific treaty. This would be relevant if a victim state would like to direct the claim against, for example, China and/or India. Even though they equally have accepted commitments as parties to the UNFCCC, their commitments as formulated in Article 4(1) mainly relate to the provision of information, cooperation and promoting sustainable development. Hence, a claim of state liability against those parties could hardly be based on a breach of the UNFCCC or the Kyoto Protocol. In that case, the basis of liability would be the good neighbor principle as incorporated in customary international law.

⁸² Kyoto Protocol to the United Nations Framework Convention on Climate Change, Annex B, Dec. 10, 1997, U.N. Doc. FCCC/CP/1997/CRP.6; for a final version with quantified emission limitation or reduction commitments, see <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

⁸³ *Id.* art. 3(1).

⁸⁴ Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226, ¶ 29 (July 8) (stating that “[t]he existence of the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control is now part of the corpus of international law relating to the environment”); see also RODA VERHEYEN, CLIMATE CHANGE DAMAGE AND INTERNATIONAL LAW 147 (2005).

The obligation of states to prevent transboundary pollution extends not only to state entities, but also to emissions by private actors within the state—usually enterprises that emit from the state’s territory. Such emissions are not, as such, attributable to the state. Nonetheless, the state may incur liability since it may have been obliged to prevent or control such “private emissions.”⁸⁵ Since a state can control the emission of GHGs through government regulation or licensing procedures, even emissions by private actors can result in state responsibility (even when they are not attributable). In terms of civil law, one would hold that there is a type of vicarious liability of the state for wrongful acts committed by actors within the particular state.⁸⁶ In international law, the term vicarious liability is generally considered inapplicable, but the result is largely the same.⁸⁷

In international law, liability does not depend on fault and is established on the basis of attribution and breach alone.⁸⁸ Thus, a plaintiff would “only” have to show that an obligation of the Kyoto Protocol was breached. The situation is different when the primary obligation that is breached provides for a requirement of fault. Such is the case for the customary obligation that states should prevent transboundary damage. This is a due diligence obligation and breach depends on what the state could reasonably have done. Under this standard, liability will not cover damage resulting from events that are either unforeseeable or unavoidable using reasonable diligence.⁸⁹ In these circumstances the loss will not be recoverable in international law.⁹⁰ If the state has been diligent in regulating and controlling the harmful activity, yet transboundary damage still occurs, recourse

⁸⁵ This construction could already be found in the *Trail Smelter* case holding that, under principles of international law, no state has the right to use or permit the use of territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence. *Trail Smelter Arbitration (U.S. v. Canada)*, 3 R. Int’l Arb. Awards 1911 (1938). The aspect of “permitting the use of territory” consists precisely of the fact that the emission of greenhouse gases will usually have been the subject of a licensing procedure of the state or related public authorities. SANDS, *supra* note 71, at 241–42.

⁸⁶ Also Posner and Sykes construct state responsibility as “vicarious liability.” See Posner & Sykes, *supra* note 15, at n.6.

⁸⁷ SANDS, *supra* note 71, at 241–46. On the historical background of the theory of vicarious responsibility in international law, see J.A. Hessbruegge, *The Historical Development of the Doctrines of Attribution and Due Diligence in International Law*, 36 N.Y.U.J. INT’L L. & POL. 295 (2004).

⁸⁸ Draft Articles, *supra* note 25, arts. 1 & 2.

⁸⁹ See *e.g.*, *Corfu Channel (U.K. v. Albania)*, 1949 I.C.J. 4 (Apr. 9).

⁹⁰ Draft Principles on the Allocation of Loss *supra* note 42, commentary to Principle 1, ¶¶ 7–9.

against private actors is the only option left. That avenue, as indicated above, depends on domestic law, though emerging international law now provides for a minimum standard of liability.⁹¹

Much has been said on the possibility or desirability of holding a state liable for damage arising out of a perfectly lawful activity, without any wrong having been done.⁹² This form of liability mostly has been reserved for so-called ultrahazardous activities.⁹³ This complies with findings in the economic literature which, as we will argue below, equally holds that the ultrahazardous character of an activity is considered as a criterion for a strict liability rule.⁹⁴

However, state support for a general rule of strict liability of states for ultrahazardous activities seems modest at best. The development of the ILC Draft Articles on the Allocation of Loss presented a new chance to test support for the idea of strict state liability, but it was clear that few governments had any enthusiasm for accepting that no-fault liability for damage caused by activities within their jurisdiction should fall on states themselves. Special Rapporteur Rao concluded:

The hesitation to peg State liability to strict liability is also understandable. It is mainly due to an assessment that in international practice, as between States, that form of liability is not accepted for activities that are considered as lawful to pursue in their domestic jurisdiction in accordance with their sovereign rights.⁹⁵

⁹¹ *Id.*

⁹² NATHALIE L.J.T. HORBACH, LIABILITY VERSUS RESPONSIBILITY UNDER INTERNATIONAL LAW. DEFENDING STRICT STATE RESPONSIBILITY FOR TRANSBOUNDARY DAMAGE 420–24 (1996) (arguing that there is a gradual acceptance of a type of state responsibility based upon the mere occurrence of transboundary damage, especially as far as ultrahazardous activities are concerned, but increasingly so for other sources of transboundary damage as well). For an older but still useful discussion, see Gunther Handl, *State Liability for Accidental Transnational Environmental Damage by Private Persons*, 74 AM. J. INT'L L. 525 (1980). See also Institut de Droit International, *supra* note 61, at art. 4 (stating that “[t]he rules of international law may also provide for the engagement of strict responsibility of the State on the basis of harm or injury alone. This type of responsibility is most appropriate in case of ultrahazardous activities, and activities entailing risk or having other similar characteristics”).

⁹³ SANDS, *supra* note 71, at 881–82. See also HORBACH, *supra* note 92, at 420–24.

⁹⁴ See *infra* Part IV.C.

⁹⁵ International Law Commission, *Second Report on the Legal Regime for the Allocation of Loss in Case of Transboundary Harm Arising out of Hazardous Activities*, ¶ 22, U.N. Doc A/4/540 (2004).

In any case, even if a general exception for ultrahazardous activities were accepted, it is doubtful that it would be applicable to climate change emissions under positive law.

B. *Domestic Tort Law*

Although the basis of a tort claim in domestic law will largely differ between legal systems, we can notice harmonizing tendencies both in the United States and in Europe. In the United States, we can point at the work of the American Law Institute in the Restatement of Torts.⁹⁶ In Europe, we can point at some harmonization efforts of the European Commission (although modest) in the areas of products liability⁹⁷ and environmental liability.⁹⁸ Even though in both cases the European systems are superimposed upon existing national laws (limiting the resulting harmonization), these efforts identify a few similar tendencies within national tort laws. These tendencies (for instance, a trend towards imposing strict liability for ultrahazardous activities) can also be found in the harmonization attempt made by the European Group on Tort Law, which presented in 2005 its Principles of European Tort Law.⁹⁹ Even though these Principles have no force of law, they provide a kind of common denominator of tendencies in tort law in many jurisdictions and provide a useful indication of the state of tort law.

As far as the European Union is concerned, we can point in particular to the recent Directive 2004/35/CE on environmental liability as an example of one approach to the prevention and remedying of environmental damage.¹⁰⁰ Of course, the territorial scope of this document is limited to the European Union and the scope of application is relatively limited as a result of the given

⁹⁶ RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL HARM (Tenative Draft No. 1, 2001); RESTATEMENT (THIRD) OF TORTS: GENERAL PRINCIPLES (Discussion Draft 1999).

⁹⁷ Council Directive 85/374/EEC, 1985 O.J. (L 210) 29. For a comment, see Michael Faure, *Product Liability and Product Safety in Europe: Harmonization or Differentiation?*, 53 KYKLOS 467 (2000).

⁹⁸ Council Directive 2004/35/CE, 2004 O.J. (L 143) 56. For a comment, see, *inter alia*, DETERRENCE, INSURABILITY, AND COMPENSATION IN ENVIRONMENTAL LIABILITY: FUTURE DEVELOPMENTS IN THE EUROPEAN UNION (Michael Faure, ed., 2003) and ENVIRONMENTAL LIABILITY IN THE EU: THE 2004 DIRECTIVE COMPARED WITH US AND MEMBER STATE LAW (Gerrit Betlem and Edward Brans, eds, 2006).

⁹⁹ PRINCIPLES OF EUROPEAN TORT LAW, *supra* note 11.

¹⁰⁰ Council Directive 2004/35/CE, *supra* note 98.

definitions. However, some aspects of climate change damage may under certain circumstances fall within the scope of the Directive.

The Directive's practical application may seem limited since individuals and states within the European Union are not likely to use the Directive as a source for civil litigation for climate change damage. Most of the heavy emitters do not seem to be based in Europe, while most of the primary victims of climate change damage are probably located outside the continent. However, the application of the Directive to climate change is not to be discounted. Particular European emitters (or states) may fail to reach their Kyoto targets (an outcome that is in fact very likely) and European states, too, may suffer from climate change related damage (for example from a sea level rise).¹⁰¹ In those cases, the European Liability Directive may play a role. Moreover, one could well imagine that national legislation implementing the Directive would play a role in an additional set of possible scenarios, for example if non-European victims should bring a lawsuit within Europe for GHG emissions by European industry.

Directive 2004/35/CE on environmental liability applies to environmental damage caused by any of the occupational activities listed in Annex III and to any imminent threat of such damage occurring as a result of any of those activities.¹⁰² Damage to protected species and natural habitats caused by occupational activities other than those listed in Annex III will give rise to liability only where the operator has been at fault or negligent.¹⁰³ This means that when environmental damage as defined in the Directive is caused by an activity listed in Annex III, a strict liability rule applies. The activities listed in Annex III contain, *inter alia*, the operation of installations subject to a permit in pursuance of the Directive concerning Integrated Pollution Prevention and Control.¹⁰⁴ Many of the GHG emitters will also fall under the scope of the IPPC Directive and will hence in principle be subject to the strict liability regime. Note, however, that this only applies to environmental damage as defined in article 2(1) of the Directive, including, *inter alia*, damage to protected species and natural habitats, water damage, and land

¹⁰¹ This may particularly be threatening for countries which are already, to a large extent, located below sea level and will thus face substantial costs, such as the Netherlands' need to fortify dikes to protect against inundation by sea water.

¹⁰² Council Directive 2004/35/CE, *supra* note 98, at art. 3(1)(a).

¹⁰³ *Id.* art. 3(1)(b).

¹⁰⁴ Council Directive 96/61/EC, 1996 O.J. (L 257) 26.

contamination creating a significant risk of adverse effects to human health.¹⁰⁵ It is therefore doubtful that economic loss resulting from climate change, for example, would fall under the scope of the Directive. Nonetheless, the importance of the Directive is that it confirms a trend in national tort laws to apply a strict liability rule to environmental damage originating from ultrahazardous activities.

Harmonization attempts have also been undertaken by various groups that have attempted to draft overarching principles of tort law.¹⁰⁶ Recently, the European Group on Tort Law presented its Principles of European Tort Law. Even though these principles do not specifically focus on transboundary problems like climate change damage, they contain a few interesting indications for the standard of liability.¹⁰⁷

These Principles of European Tort Law also support the application of a strict liability rule. According to article 5:101, “[a] person who carries on an abnormally dangerous activity is strictly liable for damage characteristic to the risk presented by the activity and resulting from it.”¹⁰⁸ The article defines an activity as abnormally dangerous if “a) it creates a foreseeable and highly significant risk of damage even when all due care is exercised in its management and b) it is not a matter of common usage.”¹⁰⁹ Article 5:101(3) provides that “[a] risk of damage may be significant having regard to the seriousness or the likelihood of the damage.”¹¹⁰ According to the commentary, strict liability is triggered under the Principles “if a highly significant risk of harm remains despite all proper precautions taken by the defendant.”¹¹¹ The commentary adds that the “failure to exercise reasonable care when pursuing an abnormally dangerous activity within the meaning of the article may also lead to an additional basis of liability” under the Principles.¹¹² One could well hold that GHG emissions create a “foreseeable and highly significant risk of damage even when all due care is exercised in [their]

¹⁰⁵ Council Directive 2004/35/CE, *supra* note 98, art. 2(1).

¹⁰⁶ For a summary of these harmonization projects, see Gerhard Wagner, *The Project of Harmonizing European Tort Law*, 42 COMMON MKT. L. REV. 1269 (2005); CHRISTIAN VON BAR, *THE COMMON EUROPEAN LAW OF TORTS* (2000).

¹⁰⁷ PRINCIPLES OF EUROPEAN TORT LAW, *supra* note 11.

¹⁰⁸ *Id.* art. 5.101.

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ Bernhard Koch, *Strict Liability*, in PRINCIPLES OF EUROPEAN TORT LAW 105 (2005).

¹¹² *Id.*

management” and thus that they should trigger strict liability under the Principles of European Tort Law.

Finally, we can reiterate that the ILC Draft Articles on Allocation of Loss aim to harmonize domestic tort law, with a view to ensuring prompt and adequate compensation to natural or legal persons—including states—that are victims of transboundary damage, including damage to the environment. The ILC Draft, like most of the ¹¹³civil liability treaties, proposes a strict liability scheme in national law.

C. *Economic analysis.*

The development of the principle of strict liability for environmental harm caused by ultrahazardous activities is supported by harmonizing developments at the international and European levels, as well as economic analysis. Economists generally favor strict liability when harm is caused by an ultrahazardous activity, because only this standard gives a potential injurer incentive for optimal internalization of the externality.¹¹⁴

Strict liability would be especially useful in cases where victims can have no influence on the accident risk—so called unilateral accidents.¹¹⁵ Even though some may argue that victims of climate change may be in a position to take precautionary measures, the most significant influence on the damage caused by climate change is undoubtedly created by GHG emissions. Hence, economists would argue that it is most important to control the injurer’s activity and that therefore a strict liability rule should apply.¹¹⁶

¹¹³ Similarly, see Institut de Droit International, *supra* note 61, art. 5 (“[E]nvironmental regimes should prefer the strict liability of operators as the normal standard applicable under such regimes, thereby relying on the objective fact of harm and also allowing for the appropriate exceptions and limits to liability.”).

¹¹⁴ L.E.E. Goldie, *Concepts of Strict and Absolute Liability and the Ranking of Liability in Terms of Relative Exposure to Risk*, in 16 NETH. Y.B. INT’L L. 175 (1985).

¹¹⁵ Faure, *supra* note 98, at 29–32; Hans-Bernd Schäfer & A. Schönenberger, *Strict liability versus negligence*, in II ENCYCLOPEDIA OF LAW AND ECONOMICS, CIVIL LAW AND ECONOMICS 597–624 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000); Hans-Bernd Schäfer & A. Schönenberger, *Strict Liability Versus Negligence: An Economic Analysis*, in THE BOUNDARIES OF STRICT LIABILITY IN EUROPEAN TORT LAW 37, 39–46 (Franz Werro & Vernon V. Palmer eds., 2004); Shavell, *supra* note 65, at 2–6 (1980).

¹¹⁶ The classic contribution in this respect is SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW, *supra* note 64, at 1–25.

Even if a strict liability rule does not apply under some domestic legal systems, GHG emissions could still be governed by a fault regime that would not necessarily preclude liability. The argument could be made that excessive emissions of those GHGs responsible for climate change should be considered as wrongful and should thus give rise to liability on the basis of fault. The reasoning would be that the marginal costs of measures to reduce GHG emissions may be minor¹¹⁷ relative to the marginal benefits in reducing the climate change damage which results from GHG emissions. Not taking cost-effective precautionary measures could thus be qualified as fault.

V. EFFECT OF FOLLOWING REGULATION / INTERNATIONAL STANDARDS

To a large extent, the problem of climate change is being tackled by imposing GHG emission reductions through either general regulations and/or the issuance of specific permits to large emitters. The question is whether these permits have an influence on the liability issue. Can it be argued that as long as a state or company follows regulatory conditions, no finding of negligence in tort is possible—in other words, that large emitters would have a “regulatory compliance defense”? This problem can play a role in international liability since it could be argued that compliance with the Kyoto obligations precludes liability. At the domestic level, it could likewise be argued that as long as emitters follow the standards mandated by a regulation or a permit, they should be freed from liability.

This question is heavily debated in legal doctrine. Some argue strongly in favor of a “regulatory compliance defense.”¹¹⁸ Others are strong opponents of such a regulatory compliance defense, arguing that it could completely reduce the effectiveness of environmental liability.¹¹⁹

¹¹⁷ Of course, a lot will depend on the amount of measures already taken by the particular industry and hence on the level of development in the particular country.

¹¹⁸ For instance, the Dutch legal scholar Lucas Bergkamp argues that if polluters first have to comply with the conditions of a license and subsequently still can be held liable for damages, they have to “pay twice.” See BERGKAMP, *supra* note 69 at 239–58; see generally LUCAS BERGKAMP, *DE VERVUILER BETAALT DUBBEL: OVER DE VERHOUDING TUSSEN PRIVAAT- EN PUBLIEKRECHT* [THE POLLUTER PAYS TWICE: ON THE RELATIONSHIP BETWEEN PRIVATE AND PUBLIC ENVIRONMENTAL LAW] (1998).

¹¹⁹ See, e.g., Pål Wenneras, *Permit Defenses in Environmental Liability Regimes – Subsidizing Environmental Damage in the EC?*, in 4 Y.B. EUR. ENVTL. L. 149 (Thys F.M. Ety & Han Somsen eds., 2005).

A. *Compliance with Kyoto Obligations: Defense to a Claim?*

The first scenario to consider is one where a state has ratified both the UNFCCC and the Kyoto Protocol and is in compliance with all of the applicable provisions of both agreements. An example would be the case of a European Union country like the Netherlands meeting its obligation to reduce its emissions to ninety-two percent of its former levels as provided in Annex B to the Kyoto Protocol. Could a victim state still hold the defendant state liable even though the latter state has complied with its treaty obligations?

The victim state (or other plaintiff) could argue that following the requirements from the Kyoto Protocol is just a minimum that does not free an Annex I country from taking further measures if this would be necessary to meet another obligation—for instance, the obligation to prevent transboundary harm under customary international law. Indeed, there seems to be increasing evidence that even if all Kyoto Protocol commitments are met, climate change would not be reduced in an effective manner. For instance, it has been estimated that even with the execution of the Kyoto Protocol, the world energy-related carbon dioxide emissions will still increase by fifty-two percent by 2030 unless further countermeasures are taken.¹²⁰

The question of whether compliance with Kyoto Protocol obligations could present a defense to a claim in principle is only relevant to relations between two or more states when each is a party to the Protocol. If they are indeed parties, it might be argued that between them, the obligations of the Protocol would replace a pre-existing rule of customary law.¹²¹ However, that argument is not compelling. There seems to be little or no evidence that the parties intended to replace customary law on this point with the Protocol's obligations. It also is questionable whether preexisting legal obligations really overlap with the Protocol's requirements. The

¹²⁰ It is a warning that was formulated by the International Energy Agency (IEA) in a press release issued in Nov. 2005. See *World CO₂ to Increase by 52% by 2030*, ENDS EUROPE DAILY, Nov. 7, 2005, available at <http://www.ends.europedaily.com/articles/index.cfm?action=article&ref=19762&searchtext=mondain&sterachtige=All>.

¹²¹ On the relationship between treaties and customary law, see generally MARK E. VILLIGER, *CUSTOMARY INTERNATIONAL LAW AND TREATIES: A STUDY OF THEIR INTERACTIONS AND INTERRELATIONS WITH SPECIAL CONSIDERATION OF THE 1969 VIENNA CONVENTION ON THE LAW OF TREATIES* (1985).

Kyoto obligations are not concerned with interstate damage. Given the global effects of climate change, it is also very doubtful whether states could opt out of their obligations by bilateral or even multilateral (but not worldwide) agreements. In any case, such interstate agreements would not apply to a state not party to the Kyoto Protocol. In sum, the general proposition that compliance with the Protocol does not necessarily present a defense to liability claims seems reasonable.

B. *Domestic Law*

A similar issue can arise under domestic law: Does compliance with the emission standards contained in a domestically issued permit constitute an excuse under tort law? The answer to this question varies widely among legal systems. For instance, the notion that industry would be freed from liability as long as a regulatory standard is followed is firmly rejected in Belgium.¹²² The basic idea is that the administrative authority, when granting a license and setting permit conditions, cannot take into account the possible harm that the licensed activity might cause to all possible third parties. Third party rights to compensation for damages, therefore, may not be impaired simply because the operator of a plant followed the conditions of a license. Legal doctrine and case law in Belgium clearly state that meeting the conditions of a permit is just a minimum.¹²³ In addition, a plant owner has to take all possible precautions as required by tort law in order to avoid causing harm to third parties through his licensed activity.

In the Netherlands, the question of whether following the conditions of a license would have a justificative effect in tort has been extensively debated and has been firmly answered in the negative. In Dutch case law, it is generally accepted that following the conditions of a license does not release a plant owner from potential

¹²² Mario Deketelaere, *Milieu aansprakelijkheid, burgerrechtelijke aansprakelijkheid voor milieuschade, strafrechtelijke aansprakelijkheid voor milieumisdrijven, administratieve sancties en veiligheidsmaatregelen, en verzekering voor milieuschade*, in *MILIEURECHT IN BELGIË, STATUS QUESTIONIS ANNO 1997*, 682 (Kurt Deketelaere ed., 1997); A. van Oevelen, *Civielrechtelijke aansprakelijkheid voor milieuschade*, in *RECHT PRAKTIJK EN MILIEUBESCHERMING* 138–39 (1991).

¹²³ For further details see Michael Faure, *Environmental Liability in Belgium*, in *ENVIRONMENTAL LAW IN THE UNITED KINGDOM AND BELGIUM FROM A COMPARATIVE PERSPECTIVE* 203 (Kurt Deketelaere & Michael Faure eds., 1999).

liability.¹²⁴ An exception would only exist if the interests of the potential victims were clearly taken into account when the conditions of the permit were set.¹²⁵ This point is made very clear in a famous case in the Dutch Supreme Court that dealt with pollution caused by the French potassium mines in the Alsace region.¹²⁶ The potassium mines argued that the emissions were within the limits set by their permit and, therefore, not illegal. The court, however, judged that the license had not taken into account the potential harmful effects of the emissions for third parties and thus could not release the potassium mines from liability.

In Germany, the governing 1990 German Environmental Liability Act contains several limitations. While the Act otherwise alleviates the burden of proof in cases of environmental harm, Article 6.2 provides that causation must still be proved if the establishment has operated in accordance with the relevant legislative, regulatory, and permit requirements.¹²⁷ Moreover, the operator must also prove that there has not been a disturbance in the operation of the installation. In such a case, the victim will have to prove the causal link without being able to rely upon the principle of presumption of liability—propensity. The objective of such a provision is to create an incentive for German industries to comply with laws and regulations. Note, however, that compliance with regulation does not free the operator from liability; it merely has an influence on the burden of proof.

This brief overview shows that although regulatory compliance may play some role in assessing liability, several legal systems hold that following regulations is merely a minimum. Thus, there is not

¹²⁴ Banketbakker Krul/Joostens, Hoge Raad der Nederlanden [HR] [Supreme Court of the Netherlands], Jan. 30, 1914, NJ 497 (Neth.); Vermeulen/ Lekkerkerker, Hoge Raad der Nederlanden [HR] [Supreme Court of the Netherlands], Mar. 10, 1972, NJ 278 (ann. G.J. Scholten) (Neth.).

¹²⁵ M. Rus-Van der Velde, *Onrechtmatige daad en vergunning*, in *CIVIELRECHTELIJKE AANSPRAKELIJKHEID VOOR MILIEUSCHADE* 111 (N.S.J. Koeman, W.J. Ouwerkerk & J.M. van Dunné eds., 1989); J.H. Nieuwenhuis, *Blinddoek en balans in het milieurecht. Drie manieren om belangen af te wegen*, in *DILEMMA'S VAN AANSPRAKELIJKHEID* 44–47 (A.M. Hol & M.A. Loth eds., 1991).

¹²⁶ Mines de Potasse d'Alsace S.A. (MDPA) v. Onroerend Goed Maatschappij Bier B.V. et al., Hoge Raad der Nederlanden [HR] [Supreme Court of the Netherlands], Sept. 23, 1988, 21 NETH. Y.B. INT'L L. 434 (1990); MICHAEL FAURE, (G)EEN SCHIJN VAN KANS. BESCHOUWINGEN OVER HET STATISTISCH CAUSALITEITBEWIJS BIJ MILIEUGEZONDHEIDSCHADE 128–29 (1993).

¹²⁷ Environmental Liability Act, Dec. 10, 1990, BGBl. I 1990, 2634 (as amended) (translation by the Cologne Re), available at http://www.ucl.ac.uk/laws/global_law/german-statutes/print_statute.shtml?environment_1990.

generally a “regulatory compliance defense.” Such a defense might rather play a role in exceptional cases where all the interests have been weighed *ex ante* and the potential victim’s damage was taken into account when the administrative conditions were set. Such an application should not, however, be regulated in a general matter, but should be left to the discretion of the courts. As a general rule, compliance with regulation should not preclude liability in the absence of special exceptions to be applied by a judge.

An interesting issue which we cannot discuss further within the scope of this Article is whether domestic and foreign licenses would have different effects on a regulatory compliance defense. The Supreme Court in the Netherlands held in the well-known Alsacian potassium mine case that the influence of the license on the liability issue (in the particular case it was a French license) will depend upon the nature of the license, the interest it is intended to protect, and the circumstances of the case. In that particular case, it appeared that the French license itself made an express reservation regarding the rights of third parties. Thus the French license did not free the French operator from liability towards Dutch victims.¹²⁸

C. *European Directive on Environmental Liability: Justificative Effect of License Not Regulated*

The drafters of the European Environmental Liability Directive of April 21, 2004 apparently could not reach unanimity on the sensitive topic of the justificative effect of regulatory compliance. Hence, Article 8(4) of the Directive provides that:

Member States may allow the operator not to bear the cost of remedial actions taken pursuant to [the] Directive where he demonstrates that he was not at fault or negligent and that the environmental damage was caused by: (a) an emission or event expressly authorised by, and fully in accordance with the conditions of, an authorisation conferred by or given under applicable national laws and regulations which implement those

¹²⁸ For a detailed discussion of the effect of a foreign license see BETLEM, *supra* note 30, at 424–40.

legislative measures adopted by the Community . . . as applied at the date of the emission or event.¹²⁹

The Directive thus provides Member States with the option to allow a “compliance with permit” defense on the basis of national law.

D. *Law and Economics*

There can be some support for this point of view from an economic perspective. Economics usually holds that the injurer should still be held liable even though the regulatory standard was followed. The basis for this reasoning is that following the regulatory standard is often merely a minimum. Exposure to liability will give the potential injurer incentives to take all precautions, even if doing so requires more than just following the regulation.¹³⁰ Allowing a regulatory compliance defense would largely remove the beneficial effects from a liability rule. Economists thus argue that a compliance defense would prevent any precaution in excess of the regulatory standard. An additional argument is that there is often serious under-enforcement of standards, and thus the role of liability as an incentive for injurers to take precautions remains important. To that, the argument is added that the regulatory standard may often be too lenient as a result of lobbying by interest groups. Therefore, regulatory standards are not always set efficiently. If the optimal care level is higher than the regulatory standard, liability will provide additional incentives efficiently.¹³¹

These arguments apply equally to the case of state liability for climate change. One may certainly hold that there seems to be evidence that the standard laid down in the Kyoto Protocol is merely a minimum, but that it is not likely to be the efficient standard in order to mitigate the problem of climate change. Thus, if scientific evidence would prove that the efficient standard would be higher

¹²⁹ Council Directive 2004/35/CE, *supra* note 98, art. 8(4).

¹³⁰ Paul Burrows, *Combining Regulation and Liability for the Control of External Costs*, 19 INT'L REV. L. & ECON. 227, 236–39 (1999); Susan Rose-Ackerman, *Public Law Versus Private Law in Environmental Regulation: European Union Proposals in the Light of United States and German Experiences*, in LAW AND ECONOMICS OF THE ENVIRONMENT 13–39 (Erling Eide & Roger Vanden Bergh eds., 1996); Steven Shavell, *Liability for Harm Versus Regulation of Safety*, 13 J. LEGAL STUD., 357, 365–71 (1984).

¹³¹ ALESSANDRA ARCURI, GOVERNING THE RISKS OF ULTRAHAZARDOUS ACTIVITIES. CHALLENGES FOR CONTEMPORARY LEGAL SYSTEMS 137–54 (2005).

than the standard laid down in the Kyoto Protocol, allowing state liability would give states incentives to go beyond the regulatory requirements as laid down in the Kyoto Protocol. Moreover, international documents like the Kyoto Protocol are undoubtedly more likely to be the result of lobbying and competition between interest groups. A suboptimal standard may thus be the result. Allowing state liability, even though the standard in the Kyoto Protocol is followed, will force states to take precautionary measures beyond the minimum requirements contained in the Protocol. Thus, liability can achieve its goal of prevention of pollution and implement the polluter-pays principle.

The situation is the same for the question of whether compliance with regulation could free individual emitters from liability. This could be the case if, for instance, a state were to have implemented the Kyoto obligations in national measures and consequently imposed emission standards in environmental permits. From an economic perspective, one would argue that it depends whether the emission standard as imposed in the permit corresponds with the efficient standard or whether additional cost-effective measures could be taken. If the regulator has already set the emission standard at the optimal level, a judge in a civil liability case should not “second guess” efficient agency decisions. However, when the efficient emission standard is higher than the regulatory norm (in the sense that GHG emissions could be further reduced in a cost-effective manner), economics teaches that the GHG emitter should still be held liable since it will provide additional incentives for a cost-effective reduction of GHG emissions.¹³²

VI. UNCERTAINTY OVER CAUSATION

The most difficult issue in a liability claim, either state liability under international law or “simple” tort liability based on national law for climate change damage, is undoubtedly the issue of causation. The primary question is whether a clear and causal link exists between anthropogenic emissions and climate change. Even though scientists, especially the experts gathered in the IPCC, seem to be increasingly convinced of an effect of anthropogenic emissions on the likelihood of climate change, they also indicate that a large

¹³² Faure, *supra* note 98, at 57.

degree of uncertainty still exists. The second type of uncertainty relates to the question of whether the particular damage suffered by one victim is effectively caused by CO₂ emissions from one particular source. Even if a causal link between the damage and anthropogenic emissions could be accepted, problems of causation will still arise. Since climate change is a combination of natural sources and CO₂ emissions from various emitters, it can be caused by many sources.

A large body of literature—much of it economic—addresses issues of technical causality and how this may lead to legal causation even in cases of uncertainty.¹³³

A. *International Law*

In international law, the starting point is that a responsible state needs only to compensate for damage that is *caused* by the wrongful act. This requires a link between emissions, climate change, and harmful effects. Whether damage is “caused” by an act is primarily determined by the criteria of normality and predictability (or foreseeability).¹³⁴ Under the criterion of normality, an injury is sufficiently linked to an unlawful act whenever the normal and natural course of events indicates that the injury is a logical consequence of the act. Under the criterion of predictability, an injury is linked to an unlawful act whenever the author of the unlawful act could have foreseen the damage it caused. The important question thus is whether a state emitting carbon dioxide could foresee the damage, or whether emissions would cause the harm in the “normal course of events.”

A pertinent question in this context is whether the precautionary principle may have an effect on the application and interpretation of causality.¹³⁵ This principle increasingly has influenced the way the law reacts to issues of causal uncertainty, especially concerning the question of whether regulation is required notwithstanding causal uncertainty. The UNFCCC preamble

¹³³ See Rob Young, Michael Faure, & Paul Fenn, *Causation and Causality*, 24 INT’L REV. L. & ECON. 507, 508–17 (2004).

¹³⁴ *Report on International Liability for Injurious Consequences*, *supra* note **Error! Bookmark not defined.**, art. 44; *Report of the Commission to the General Assembly on the Work of the Forty-Eighth Session*, Y.B. INT’L COMM’N at 68–79, U.N. Doc. A/48/10* (1993); Draft Articles, *supra* note 25, art. 31; IAN BROWNLIE, SYSTEM OF THE LAW OF NATIONS: STATE RESPONSIBILITY, PART I 225–26 (1983) (briefly discussing causation in the law of state responsibility).

¹³⁵ Spier, *supra* note 9, at 16.

recognizes that “there are many uncertainties in predictions of climate change, particularly with regard to the timing, magnitude and regional patterns thereof.”¹³⁶ Under the heading of principles, Article 3(3) further provides that “the parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects.” The UNFCCC defines the principle in the following terms:

Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.¹³⁷

One could argue that the precautionary principle might be used to construct a liability suit against a state by arguing, for example, that not taking adequate measures to reduce the risks of climate change could be considered a breach of the precautionary principle or, more properly, of the obligation to refrain from harmful activities, as interpreted by the precautionary principle.¹³⁸ Moreover, one might argue that once an international wrong has been determined, the precautionary principle can be relevant for determining what damage should be compensated by the wrongdoing state, thus influencing the traditional requirement of foreseeability.

B. *Domestic Law*

There are still substantial differences in the way the issue of causation, and more specifically, uncertainty over causation are dealt with in various legal systems.¹³⁹ When causal uncertainty exists, some

¹³⁶ United Nations Framework Convention on Climate Change *supra* note 1, art. 3(3).

¹³⁷ *Id.* Preamble.

¹³⁸ Miriam Haritz, faculty member at the law school of Maastricht University, is undertaking Ph.D. research addressing this question. See Miriam Haritz, *The Application of the Precautionary Principle and Liability with Respect to Climate Change* (forthcoming Sept. 2009).

¹³⁹ For a comparative overview, see UNIFICATION OF TORT LAW: CAUSATION (Jaap Spier ed. 2000); VON BAR, *supra* note 106, at 433–98; VAN GERVEN, LEVER, & LAROUCHE, *supra* note 28, at 452–66.

legal systems adopt a kind of a threshold liability rule, which often amounts to an all-or-nothing approach. This means that the victim either gets full compensation if she can prove the causal link, or no compensation at all if the court is not convinced of a causal relationship between wrongfulness and damage. Other systems have an intermediate solution by applying a proportionate liability rule.¹⁴⁰

Strikingly, Directive 2004/35/CE, concerning environmental liability, has not taken care of the causation issue.¹⁴¹ Article 9 refers to cost allocation in cases of multiple party causation and simply mentions that the Directive is without prejudice to national regulations concerning cost allocation among multiple parties, especially between producers and users of products.

The Principles of European Tort Law explicitly deal with the issue of uncertainty over causation. Article 3:105 addresses uncertain partial causation and holds:

In the case of multiple activities, when it is certain that none of them has caused the entire damage or any determinable part thereof, those that are likely to have (minimally) contributed to the damage are presumed to have caused equal shares thereof.¹⁴²

This article could well be applied to the GHG emissions leading to climate change damage of the type discussed in this Article. Climate change damage is undoubtedly caused by multiple activities, and no single one has caused the entire damage. Although the commentary makes clear that there is still uncertainty as to the interpretation of this provision,¹⁴³ it seems that the article amounts to a proportionate liability rule. From an economic perspective, it can also be held that the most efficient solution to the issue of causal uncertainty is to apply a proportionate liability rule. The result would be that GHG emitters are held liable for the climate change damage in proportion to the amount to which they contributed to the loss, assuming that this equals their GHG emissions.

¹⁴⁰ See generally Spier, *supra* note 9 (discussing proportionate liability rules).

¹⁴¹ See generally Betlem & Brans, *supra* note 98 (concerning the Directive and the issue of causation).

¹⁴² PRINCIPLES OF EUROPEAN TORT LAW, *supra* note 11, art. 3:105; Jaap Spier, *Causation, in PRINCIPLES OF EUROPEAN TORT LAW, supra* note 11, at 54–5.

¹⁴³ *Id.* at 43–64.

C. Exclusion of the Background Risk

Two particular questions arise in cases of uncertainty concerning the causal link between GHG emissions by a certain (group of) state(s) and climate change. First, experts may indicate (the argument that will probably be used by the defendant state(s)) that climate change has many causes other than anthropogenic emissions and that there is a background risk for which the defendant state cannot be held liable. Second, experts may still be uncertain as to the likelihood that the anthropogenic emissions contributed to climate change. Third, there may be uncertainty as to which emitters caused the climate change damage. Let us address the first two issues; the issue of multiple actors will be discussed in further detail in the next part.

The literature indicates that potential polluters (like GHG emitters) should not be held liable for the background risk that they have not caused. Indeed, the liability should only extend to the amount to which the GHG emitter has actually contributed to the damage. Hence, a formula for liability ought to ensure that the emitting state or enterprise is held liable only for the excess risk (caused by the GHG emissions from its territory) and not for the background risk.

In international law literature, this is a somewhat underdeveloped topic. It is well recognized that damage may not be caused simply by the wrongful act but also by one or more other causes, such as acts of third states, acts of private actors or indeed natural causes.¹⁴⁴ Still, there has been little comprehensive analysis of how these causes can be isolated.

This issue has been examined at length with respect to liability for radiation, especially since natural radiation is a contributing factor to diseases, such as lung cancer. Hence, the liability rule has to be constructed in such a way that statistical and scientific evidence is used to examine the probability that the specific activity (in our case GHG emissions from one state) caused the damage (in our case climate change). This is referred to as the “probability of

¹⁴⁴ CRAWFORD, *supra* note 25, at 203–06 (discussing Article 31 of the Draft Articles).

causation.”¹⁴⁵ This probability of causation can be found by dividing the excess risk by the background risk and the excess risk:

$$\frac{\text{Excess risk}}{\text{Background risk} + \text{excess risk}}$$

This probability of causation formula excludes background risk (i.e., climate change due to natural causes) and focuses solely on the probability that the wrongful act (GHG emissions) caused the climate change damage.¹⁴⁶

D. Causal uncertainty: four options

The second problem is that after excluding the background risk, scientific expertise (e.g., that provided by IPCC) may attempt to establish the probability of causation, with all of the inherent uncertainties this involves. They may indicate that there is, for example, a thirty, fifty, or seventy percent probability that the aggregate GHG emissions from particular defendant states would have caused the climate change damage suffered by the victim state. The question then obviously arises of how to deal with this uncertainty within the legal system if expert opinion cannot provide certainty on causation. In this hypothesis, we assume that scientists agree that there is a likelihood (of say thirty percent) that a certain activity causes certain damage, but no absolute scientific certainty. The question then arises of how the law should deal with this information.

Using an economic approach, four options exist. First, one could determine that as soon as there is any statistical chance that a certain activity, like GHG emissions, may cause certain damage, the

¹⁴⁵ D. Kaye, *The Limits of the Preponderance of the Evidence Standard: Justifiably Naked Statistical Evidence and Multiple Causation*, AM. BAR FOUND. RES. J. 487 (1982); G. Robinson, *Probabilistic Causation and Compensation for Tortuous Risk*, 14 J. LEGAL STUD. 779 (1985); see also David Rosenberg, *The Causal Connection in Mass Exposure Cases: A “Public Law” Vision of the Tort System*, 97 HARV. L. REV. 849 (1984).

¹⁴⁶ This formula for determining the probability of causation has also extensively been used in radiobiology and radiation protection, inter alia, to determine, e.g. the amount of radiation to which an employee in a nuclear facility can be exposed. See, e.g., V. Bond, *Cancer Risk Attributable to Radiation Exposure: Some Practical Problems*, in HEALTH PHYSICS 108–11 (1981); L. Ketchum, *Epidemiologic Tables. Law Groundwork for Future Radiogenic Cancer Claims*, J. NUCLEAR MED. 967–72 (1985).

victim receives one hundred percent compensation for all damage. A second possibility is to refuse the claim of the victim unless there is one hundred percent certainty that the act caused the damage.

The third possibility is to award compensation only when the probability that the damage was caused by the act passes a certain threshold of, say, fifty percent. This threshold rule is a kind of “all or nothing” approach: If the probability is lower than the threshold, the victim receives no compensation at all; if the probability is higher than the threshold, the victim receives full compensation. This threshold rule is known in U.S. literature as the “more probable than not” standard, referring to the fact that the plaintiff must convince the finder of fact that it is “more probable than not” that the damage was caused by the tort.

The final possibility takes into account the probability that the emission caused a certain damage and awards compensation accordingly. This would mean that if the scientific expertise indicates that the likelihood of damage is forty percent, the victim would receive compensation for forty percent of its damage.

E. *An Economic Approach: Proportional Liability as a Solution?*

Without going into a detailed discussion of the four possible solutions to causal uncertainty,¹⁴⁷ one can easily see that both the all-or-nothing approach and the threshold liability have major disadvantages. The first solution, simply arguing that in case of causal uncertainty the victims can claim full compensation, is inefficient and unjust. The same is true for the second solution, in which the victim would be required to prove with one hundred percent certainty that his damage was caused by the tort. That requirement would mean that in many cases injurers would escape the clutches of the law when their activities have effectively created an additional risk. That solution would lead to under-deterrence.

However, the same disadvantage applies to a threshold liability rule that would require that a probability of causation passes a threshold of, say, fifty percent. The disadvantages of this hard and fast rule are obvious. If the probability of causation were

¹⁴⁷ See Michael Faure, *Causal Uncertainty, Joint and Several Liability and Insurance*, in *LIBER AMICORUM PIERRE WIDMER* 78–98 (Helmut Koziol & Jaap Spier eds., 2003) (discussing literature on causal uncertainty).

systematically lower than the threshold, for example forty percent, both under-deterrence and under-compensation would arise.

A more fine-tuned alternative can be found by awarding the victim a proportionate amount of its damage based upon the probability of causation. In practice, this would mean that if the probability that the victim's damage was caused by the injurer's activity was forty percent, the victim would be compensated forty percent of her damage. From an economic perspective, the advantage of this proportionate liability is that it exposes the injurer to precisely the excess risk that was caused by the (assumed wrongful) activity of the injurer. The enterprise will then have to compensate forty percent of all the damage of every particular victim, which amounts at the aggregate level to the same as compensating forty out of one hundred victims whose illness would have been caused by the enterprise.¹⁴⁸

The result of this proportionate liability is that the injurer will receive optimal incentives for prevention, since he is exposed to precisely the liability for the risk which was caused by his activity.¹⁴⁹ A proportionate liability rule therefore provides optimal incentives for accident reduction, so it is generally held in the economic literature.¹⁵⁰

Much more could be said about this complicated issue, but at least this economic approach to causal uncertainty shows that if a proportionate liability rule is applied, uncertainty over causation should not necessarily exclude state liability for climate change. The only consequence may be that if the victim state could aggregate the group of defendant states' emissions responsible for, say, thirty percent of climate change (excluding the background risk), the consequence would be that the victim state could claim thirty percent compensation from this group of defendants. Of course, applying proportionate liability is far easier in theory than in practice, given all the uncertainties surrounding climate change. One obvious difficulty is that there needs to be some scientific evidence (although certainty is obviously not required) concerning the assessment of the probability of causation. Scientific difficulties in assessing the

¹⁴⁸ SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW*, *supra* note 64, at 116.

¹⁴⁹ BERGKAMP, *supra* note 69, at 290–91.

¹⁵⁰ John Makdisi, *Proportional Liability: A Comprehensive Rule to Apportion Tort Damages Based on Probability*, 67 N.C. L. REV. 1063 (1989) (discussing proportionate liability); William M. Landes & Richard Posner, *Tort Law as a Regulatory Regime for Catastrophic Personal Injuries*, 13 J. LEGAL STUD. 417 (1984); Robinson, *supra* note 145, at 797–98.

probability of causation will, of course, always exist, no matter what type of approach one follows regarding causal uncertainty. Moreover, notwithstanding the difficulties, the IPCC has provided some modest indications on the likelihood that anthropogenic emissions have caused climate change (so some exclusion of the background risk may be possible). Moreover, the amounts of GHG emissions from the different states are relatively well-known, not only because of the work of the IPCC but as a result of the inventories drafted as a result of the implementation of the UNFCCC.

VII. MULTIPLE ACTORS

A. *Individual or Joint and Several Liability?*

A difficulty which is largely related to the issue of causal uncertainty is that anthropogenic emissions which allegedly are the source of climate change are caused by large groups of states and enterprises, some having emitted large quantities in the past, others still emitting today. Excluding the issue of past emissions for a moment,¹⁵¹ the question is whether the mere fact that multiple states or enterprises have contributed—and continue to contribute—to anthropogenic emissions is a reason to exclude (state) liability. A related question is whether states or enterprises will only be held liable individually for the amount of their own GHG emissions or whether a joint and several liability rule could be applied. An issue of causal uncertainty may exist here since there could be uncertainties concerning the contribution of each particular state to climate change. That may be a problem for the past in the sense that it may be unknown which state emitted what amounts of GHGs over time. Today the amounts of GHG emissions from different states are relatively well documented. This can therefore limit the uncertainty concerning the present contribution of each particular state to the total contribution of anthropogenic emissions to climate change. Even if the causal uncertainty problem discussed in the previous Part can be handled by assuming that the damage to the victim is proportional to the emissions by particular states or actors, the question still arises of what the consequence will be when the particular contribution of each actor has been determined: Is each

¹⁵¹ See *infra* Part VIII.

held liable separately for his own emissions (with the consequence that the victim has to bring a high number of lawsuits) or can a joint and several liability rule be applied?

Though there are variations between legal systems, a joint and several liability rule generally amounts to this: if it cannot be established who of the many tortfeasors contributed to a certain loss to a specific extent, all of them will be held jointly and severally liable. The effect is that the victim can choose to sue any of the injurers falling within the joint and several liability regime and claim full compensation from any of them. The injurer who had to fully compensate the victim can then in turn reclaim from the other tortfeasors the amount which they contributed to the loss. In this recourse action, the amount which the individual tortfeasors contributed to the loss may then play a role again.

The question of whether several states or enterprises can be seen as acting together to create climate change can be addressed from an international law, domestic law, and economic perspective.

B. *Joint and Several State Liability in International Law*

International law recognizes that two or more states may commit identical offenses in concert or simultaneously. An example is a case where two states bordering an international river each causes pollution harming a third, downstream state. The two upstream states may act independently, or may act in concert—for example on the basis of a bilateral agreement that stipulates that both states are allowed to discharge polluting wastes in the river. Can the injured downstream state hold both upstream states responsible, can it sue only one upstream state and claim the entire damage, or can it only claim that part of the damage caused by either of the states?¹⁵²

The general principle that applies to such cases is that when two or more states commit separate wrongful acts that result in a single injury, in principle, each state is separately responsible for its acts. In the above example, each of the riparian states will be responsible for its own acts and for the damage caused by its own acts.

These types of situations, where causal links are unclear, are not normally examined under the principle of joint and several liability as it exists in many national systems. Crawford has noted

¹⁵² James Crawford, *Third Report of State Responsibility*, *supra* note 25.

that there is no need to resort to the principle of joint and several liability, since the same result could be achieved under normal rules of attribution.¹⁵³ For instance, in the *Corfu Channel* case the ICJ did not suggest that Albania's responsibility for failure to warn was reduced, let alone precluded, by reason of the possible concurrent responsibility of a third State (Yugoslavia).¹⁵⁴ This suggests that the claimant state could obtain the entirety of the damage from one state, based on the operation of the normal rules of attribution. However, it is questionable if that applies in case of complex factual scenarios with multiple responsible states, as in climate change. Arguably it is fruitful to examine these under the principle of joint and several liability.¹⁵⁵ Liability would be "joint" in that two or more states can be responsible for each other's wrongful conduct vis-à-vis third states. It would be "several" insofar as each state can be held separately responsible, yet there is no need to hold both responsible.¹⁵⁶

In his separate opinion in *Oil Platforms*, Judge Simma argued that joint and several liability is a general principle of law recognized by major domestic legal systems. In U.S. law, for instance, Simma found that the principle of joint and several liability would apply when three conditions are met. First, each of the participants must have engaged in the activity leading to loss or damage (irrespective of causality); second, one of the participants must necessarily have caused such loss or damage; but, third, it is impossible to determine which one of the participants did so, in whole or in part. He suggested that this principle can be elevated to international law.¹⁵⁷

However, even if one would accept the existence of the principle of joint and several liability, this does not necessarily mean that one state indeed could be burdened with the entire costs of climate change. It is noteworthy that Judge Simma, in the separate opinion mentioned above, was concerned with apportionment of responsibility, not with damages. The development of such a

¹⁵³ *Id.*

¹⁵⁴ *Corfu Channel*, *supra* note 89, at 16–18, 36; *see also* CRAWFORD, *supra* 25, art. 31, at 205.

¹⁵⁵ Institut de Droit International, *supra* note 61, art. 11.

¹⁵⁶ CRAWFORD, *supra* 25, art. 31.

¹⁵⁷ *Oil Platforms*, *supra* note 19, ¶¶ 66–77 (separate opinion of Judge Simma); *but see* *Construction and Operation by Private Concessionaires of a Channel Fixed Link (Channel Tunnel Group Ltd. v. Sec. of State for Transport (U.K.))*, Partial Award, ¶¶ 173–87, Jan. 30, 2007 (Perm. Ct. Arb. 2007) (indicating that unless an agreement specifically provides otherwise, international law does not provide for joint and several liability), *available at* http://www.pca-cpa.org/PDF/ET_PAen.pdf.

principle would require further development of the criteria that could be used to determine contribution and allocation.

It has been suggested that such criteria should include causation, blameworthiness, the character of each state's intent in breaching its international obligation (specific intent to cause a wrong would likely be treated more harshly than negligence), the measure of each state's legal authority or jurisdiction over the injury-producing conduct, and, directly related to this, causality: the state with the greater measure of jurisdiction to control conduct is deemed to possess a greater causal connection to the consequences of such conduct. Such apportionment on the basis of authority to control would also contribute to deterrence by imposing the burden of compensation in proportion to the relative capacities of the states to prevent repetition of the injurious event.¹⁵⁸

C. *Domestic Law*

The solutions proffered by the various legal systems for dealing with multiple tortfeasors also diverge significantly.¹⁵⁹ As mentioned in the previous section, Directive 2004/35/CE on environmental liability does not provide a solution either, since cost allocation in cases of multiple party causation has been left to national regulations.¹⁶⁰

Strikingly, the Principles of European Tort Law indicate divergent solutions to the issues of multiple tortfeasors and the causal uncertainty issue. Whereas in cases of causal uncertainty, a proportionate liability rule was chosen, in cases of damage caused by multiple tortfeasors Article 9:101 of the Principles of European Tort Law proposes "solidary" liability.¹⁶¹ This applies where the whole or a distinct part of the damage suffered by the victim is attributable to two or more persons. According to this provision, the liability is *inter alia* "solidary" where one person's independent behavior or activity causes damage to the victim and the same damage is also attributable

¹⁵⁸ John E. Noyes & Brian D. Smith, *State Responsibility and the Principle of Joint and Several Liability*, 13 YALE J. INT'L L. 225, 237-38 (1988) (discussing the criteria relevant to apportionment of damage).

¹⁵⁹ BETLEM, *supra* note 30, at 471-78 (discussing the Dutch tort law approach to dealing with multiple tortfeasors). See generally UNIFICATION OF TORT LAW: LIABILITY FOR DAMAGE CAUSED BY OTHERS (Jaap Spier ed., 2003).

¹⁶⁰ Council Directive 2004/35/CE, *supra* note 98.

¹⁶¹ PRINCIPLES OF EUROPEAN TORT LAW, *supra* note 11, art. 9:101.

to another person. Article 9:101(2) of the Principles makes clear that where persons are subject to “solidary” liability, the victim may claim full compensation from any or all tortfeasors, provided that the victim does not recover more than the full amount of the damage suffered by him. It is, as the commentary makes clear, to be applied in situations where there are “several concurrent tortfeasors”—parties whose independent acts cause indivisible damage.¹⁶² On the basis of this reasoning, one can easily hold that all emitters of GHGs have, through their independent acts, caused the indivisible damage of climate change. The consequence for the one GHG emitter who is sued by the victim of climate change damage is dramatic; the victim may on the basis of the mentioned principle claim full compensation from anyone or more of the multiple tortfeasors. Only afterwards, as article 9:102 of the Principles provides, may a person subject to “solidary” liability recover from any other party liable to the victim with respect to the same damage.

D. *Economic Perspective*

A joint and several liability rule looks at first blush like a regime whereby the legal system deviates from the principle that a tortfeasor should only be liable for the damage caused by its own behavior. Under joint and several liability, the tortfeasor is also held liable in full for damage which was not caused by its own behavior.

One could therefore argue that joint and several liability may be inefficient insofar as it leads to over-deterrence: The state or enterprise liability is not limited to the climate change created by its own emissions. However, such a conclusion is too simple. One may argue that a distinction should be made between the situations where all contributing tortfeasors are fully solvent and those in which one or more of them are insolvent.¹⁶³ In cases where all actors are fully solvent, one can argue that there is no efficiency loss caused by joint and several liability.¹⁶⁴ In that case, the liable state that has to

¹⁶² Horton W.V. Rogers, *Multiple Tortfeasors*, in *PRINCIPLES OF EUROPEAN TORT LAW* 143 (2005).

¹⁶³ Pierre Widmer, *Causation Under Swiss Law*, in *UNIFICATION OF TORT LAW: CAUSATION* 105, 112–13 (Jaap Spier ed., 2000) (arguing that joint and several liability amounts to a shifting of the risk of insolvency to the joint tortfeasors).

¹⁶⁴ Lewis A. Kornhauser & Richard L. Revesz, *Sharing Damages Among Multiple Tortfeasors*, 98 *YALE L.J.* 831 (1989) (providing a detailed analysis of joint and several liability when all defendants are fully solvent). *See also* Lewis A. Kornhauser & Richard L. Revesz, *Apportioning*

compensate the victim can in turn exercise a redress against the other state that contributed to the loss in proportion to its contribution. Assuming that the other states are fully solvent, the one that first paid merely prefinances the compensation of the victim and will be able to recover a part of the damage paid. Thus, in the end, joint and several liability also permits an equitable outcome in which every contributor pays in proportion to its contribution to the risk—more specifically, in proportion to its GHG emissions. In that sense, a joint and several liability rule, combined with a right of recourse and solvent actors, amounts to a proportionate solution. The exposure to liability of every state in this model is limited to its own GHG emissions and thus optimal incentives will follow.

One may wonder what the additional benefit is of a joint and several liability rule compared to the situation requiring the victim to sue every individual state or tortfeasor separately. One could make a victim protection argument on the basis of the difficulty the victim will face in proving a causal link with the action of one particular actor. Thus, it certainly makes the life of the victim easier if the victim can claim full compensation from one defendant who then has to exercise the right of redress against the other states who contributed to the loss. In addition to this distributional argument, there are undoubtedly efficiency arguments as well. One can argue that the joint and several liability may give ex ante incentives for mutual monitoring between potential joint tortfeasors.¹⁶⁵ Indeed, a victim may well encounter difficulties in proving a causal link between the action of every particular tortfeasor and the climate change damage she suffered. That may result in too few claims and hence in under-deterrence. Shifting the risk to the defendant states would mean that they have an excellent ex ante incentive to mutually monitor their activities. Joint and several liability in fact shifts the risks of uncertainty concerning the proof of the causal link to the defendants. The victim can sue just one of the many potentially liable states and claim full compensation. If the one defendant who is sued does not succeed in proving that others contributed to the loss, the damage will ultimately fall on him.

Damages Among Potentially Insolvent Actors, 19 J. LEGAL STUD. 617 (1990) (providing an analysis of joint and several liability in cases of limited solvency).

¹⁶⁵ See generally Tom H. Tietenberg, *Indivisible Toxic Torts: The Economics of Joint and Several Liability*, 65 LAND ECON. 305 (1989) (arguing that joint and several liability may give ex ante incentives for potential joint tortfeasors to “take efficient levels of precaution” and monitor each other’s conduct).

VIII. RETROSPECTIVITY

A difficult issue in constructing liability for climate change is that due to the cumulative effect of greenhouse gas emissions, one would not only have to take into account current emissions today, but also emissions that occurred in the past and thus contributed to climate change. One problem in this respect is simply evidentiary: One would have to be able to acquire evidence on the amounts by which the various defendant states contributed to climate change in the past. That problem may not be easy to solve since data on past emissions may be lacking.

Another issue is whether holding emitters of today liable for past pollution would amount to retrospective liability. Retrospective liability would mean that emissions which were lawful in the past would be considered wrongful today. Retrospectivity may be hard to reconcile with state liability under international law and with economic starting points of liability.

Article 13 of the Draft Articles on State Responsibility states: “An act of a State does not constitute a breach of an international obligation unless the State is bound by the obligation in question at the time the act occurs.”¹⁶⁶ As the Commentary points out, this is but the application of the general principle of intertemporal law to the field of state responsibility.¹⁶⁷ As stated by Judge Huber in the *Island of Palmas* case: “A juridical fact must be appreciated in the light of the law contemporary with it, and not of the law in force at the time when a dispute in regard to it arises or falls to be settled.”¹⁶⁸ This holds true not only for primary, but also for secondary liability rules.¹⁶⁹ There thus exists a guarantee against the retrospective application of international law in matters of State responsibility. On the other hand, one might argue that the emission of carbon dioxide and resultant climate change is a “composite act” that only becomes wrongful after a long series of emissions. The wrongful act occurs when the emissions occur. In the case of climate change it will be

¹⁶⁶ Draft Articles, *supra* note 25, art. 13.

¹⁶⁷ *Id.* at commentary to art. 13, ¶ 1.

¹⁶⁸ *Island of Palmas* (Neth. v. U.S.), 2 R. Int'l Arb. Awards 829, 845 (Perm. Ct. Arb. 1928).

¹⁶⁹ *In Re Bouterse*, Hoge Raad der Nederlanden [HR] [Supreme Court of the Netherlands], 18 Sept. 2001, NJ 2001 (Neth.) (indicating that the legality principle also applies to principles of jurisdiction).

impossible to pinpoint that moment, but the effect will be that past emissions will only be subjected to a responsibility regime at the date when they become cumulatively wrongful.¹⁷⁰

Also, in economic analysis, some arguments can be found against retrospective liability. Liability should, in principle, give incentives to correct future behavior. If a certain type of behavior (like GHG emissions) would only be considered wrongful *ex post* whereas it was considered lawful *ex ante*, a finding of liability would not affect the future incentives of that particular wrongdoer. Retroactive liability can therefore not serve any purpose as far as the prevention of damage is concerned.¹⁷¹ However, in the particular case of climate change, this should not necessarily be a serious problem. Tol and Verheyen rightly indicate that as early as 1827, a scientific study showed a relationship between concentration of GHGs (particularly CO₂) and warming of the atmosphere. Moreover, since the IPCC presented its first assessment report in 1990, states cannot now argue a lack of awareness of the fact that GHG emissions may lead to climate change.¹⁷²

In sum, the fact that many anthropogenic emissions took place in the past, and that this accumulation caused climate change and the resulting damage should not necessarily exclude state liability. Rather, the task will be to assess when, on the one hand, the legal obligation came into existence and, on the other hand, climate change with all its adverse effects was foreseeable. The only effect of the importance of past emissions may be that the proportional contribution of industrialized states to the damage will likely be significantly larger than that of developing countries, even though the amount of emissions of countries like China and India may have increased considerably today. This is recognized in the preamble to the UNFCCC which states:

Noting that the largest share of historical and current global emissions of greenhouse gases has originated in developed countries, that *per capita* emissions in developing countries are still relatively low and that the

¹⁷⁰ CRAWFORD, *supra* note 25, art. 15.

¹⁷¹ Michael Faure & Paul Fenn, *Retroactive Liability and the Insurability of Long-Tail Risks*, 19 INT'L REV. L. & ECON. 487 (1999). See also Jim Boyd & Howard Kunreuther, *Retroactive Liability or the Public Purse?*, 11 J. REG. ECON. 79 (1997).

¹⁷² Tol & Verheyen, *supra* note 2, at 1117–18.

share of global emissions originating in developing countries will grow to meet their social and development needs.¹⁷³

This has not only led to the construction of commitments in the UNFCCC and the Kyoto Protocol where commitments to reduce anthropogenic emissions are only imposed upon Annex I countries, but it may also have an impact on the liability issue. If a claim were to be brought against China or India, for instance, on the basis of the significant amount of emissions today, the defense would probably (correctly) be that the apportionment of liability should not take into account actual emissions but the amount to which the various states have contributed to climate change through their emissions, taking into account their cumulative affect. In that respect, the likelihood of a finding of liability against developing countries is significantly lower—or at least their share of the liability will be lower.

IX. REMEDIES

A. *International Law*

Sands noted that “The rules of international law relating to reparation for environmental damage remain undeveloped.”¹⁷⁴ This remains true for the difficulty in assessing environmental damage, though substantial work has been done to develop the issues involved.¹⁷⁵ Apart from environmental damage, the principles on reparation are relatively well-developed. The perpetrator of an internationally wrongful act is under an obligation to make reparation for the consequences of the violation. In the *Factory at Chorzów* case, the Permanent Court of International Justice said in 1927:

¹⁷³ United Nations Framework Convention on Climate Change, *supra* note 1, Preamble.

¹⁷⁴ SANDS, *supra* note 71, at 884.

¹⁷⁵ Scovazzi, *supra* note 62, at 221 (stating that “rules of customary international [law] do not address the problems posed by the so-called ecological damage”). *See generally* ENVIRONMENTAL DAMAGE IN INTERNATIONAL AND COMPARATIVE LAW: PROBLEMS OF DEFINITION AND VALUATION (Michael Bowman & Alan Boyle eds., 2002).

Reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed. Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear; the award, if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it – such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.¹⁷⁶

Applying this principle to climate change damage, a victim state (e.g. a small island) could thus claim restitution or, more likely, monetary compensation for damage. Applying the proportional liability rule discussed above, the liability would arguably be equal to the probability that the defendant states contributed to the climate change that damaged the victim state. Precisely because of the proportional character of the liability, monetary compensation seems the most appropriate remedy. Restitution in kind may be more difficult since the defendant state(s) will only have contributed proportionally to the climate change that caused the damage.

In addition to reparation for harm done in the past (in the form of monetary damages), claims can also relate to measures to be taken in the future to prevent the damage from continuing. Indeed, this is the primary consequence of an international wrong.¹⁷⁷ It may make little sense for the victim states to sue for a proportion of monetary damages representing the value of the damage caused by climate change if GHG emissions were to continue unabated.¹⁷⁸ Thus, a claim could appropriately include both a duty to mitigate and liability for the residual climate change damage.

Though state responsibility vis-à-vis other states and state responsibility vis-à-vis private persons are not necessarily identical, largely the same remedial principles would apply to claims brought against states by private persons on the basis of international law and, in particular, human rights law. However, to the extent that such

¹⁷⁶ Factory at Chorzów (F.R.G. v. Pol.), 1928 P.C.I.J. (ser. A) No.17, at 47 (Sept. 13).

¹⁷⁷ Draft Articles, *supra* note 25, art. 29.

¹⁷⁸ Tol & Verheyen, *supra* note 2, at 11–13 (arguing that climate change liability could also amount to a duty for the liable state to mitigate the damage by preventing a risk of damage from anthropogenic climate change).

claims would come within the scope of the European Court of Human Rights (ECHR) or the IACRH, *lex specialis* would prevail,¹⁷⁹ and remedies may take the idiosyncratic forms that have developed in these institutions.¹⁸⁰

B. *Domestic Law*

As far as the transboundary civil tort suit for climate change damage is concerned, the question again arises: What remedy could the victim potentially claim?¹⁸¹ Again, depending upon national legal systems, a distinction can be made between claims for compensatory damages for harms already suffered (e.g., compensation for costs incurred for fortifying dikes) and claims to stop further harm from occurring.¹⁸²

In this respect, the European Directive 2004/35/CE on environmental liability provides some help since both remedies seem to be included in the Directive.¹⁸³ Article 5 provides the possibility of taking preventive action when environmental damage has not yet occurred but there is an imminent threat of such damage occurring.¹⁸⁴ Article 6 refers to the situation where remedial action needs to be taken because environmental damage has occurred in the past.¹⁸⁵ Article 8 goes on to provide that the operator shall bear the costs of both the preventive and the remedial action taken pursuant to the Directive.¹⁸⁶ The recovery of these costs shall in principle be taken on the initiative of a competent authority. However, natural or legal persons (and under some circumstances NGOs) can, on the basis of Article 12, submit a request for action to the competent authority when there is environmental damage or an imminent threat of such damage.¹⁸⁷

¹⁷⁹ Draft Articles, *supra* note 25, art. 55.

¹⁸⁰ *See generally* DINAH SHELTON, *REMEDIES IN INTERNATIONAL HUMAN RIGHTS LAW* (2d. ed. 2005).

¹⁸¹ *Id.*

¹⁸² *See supra* Part III for more on this distinction and the goals of liability.

¹⁸³ Council Directive 2004/35/CE, *supra* note 98.

¹⁸⁴ *Id.* art. 5.

¹⁸⁵ *Id.* art. 6.

¹⁸⁶ *Id.* art. 8.

¹⁸⁷ *Id.* art. 12.

Many Member States' laws also make a distinction, as far as remedies are concerned, between victims suffering a personal damage on the one hand and plaintiffs acting in the public interest on the other hand. The first category consists, for instance, of citizens living on the small island state endangered by the climate change and who, as a result, suffer severe economic and other losses. Depending upon national law, they can usually both claim compensatory damages for damage already suffered as well as seek an injunction to prevent the harm from continuing in the future. More difficulties arise when the damage is not suffered personally by the victim, but when damage is caused to collective goods. National laws in those cases often award the right to government authorities (in the words of the European Directive, "the competent authority") to bring an action on behalf of the group, allowing them again to claim either compensation or an injunction. Others, such as NGOs acting in the public interest, can, in the cases where national laws have granted them standing, usually seek only an injunction rather than compensatory damages. Only in the exceptional case where the NGO has itself suffered a personal loss would national law award it the right to claim compensatory damages as well.

X. CONCLUDING REMARKS

The aim of this Article was relatively modest: We merely tried to highlight some of the issues that would have to be addressed in (international) climate change litigation. In that sense, our Article was more an attempt towards agenda-setting than an attempt to provide final answers.¹⁸⁸ The analysis also showed that this domain is so complex that even an attempt to provide final answers would undoubtedly fail. Although climate change litigation has recently received increasing attention in legal doctrine, we hoped to show with this contribution that the debate on the possibility of climate change liability can benefit from both the input of domestic civil law and international law as well as law and economics. Indeed, many issues that are of importance in (international) state liability for climate change, like the roles of causal uncertainty, multi-actor causation, or remedies have been less debated in international law

¹⁸⁸ See generally VERHEYEN, *supra* note 84 (providing a more comprehensive analysis of the subject of international climate change litigation).

but have received some attention in domestic civil law and law and economics. Moreover, we believe that this integrative approach may generally also be a promising road for developing the methodology of the study of international law.

Of course, many issues could only briefly be touched upon in this Article and other issues have not been addressed at all. For instance, traditional tort law (or state liability in international law) always assumes the existence of a damage. With climate change, many costs may already be incurred by victims today, anticipating climate change, even though one could question whether there is already damage in the traditional sense. This raises the question of whether state liability could also exist, for instance, when costs are incurred as a result of a risk of damage. Also, we discussed many potential liability constellations both in domestic and international law and with many potential victims and defendants. In reality, combination of those may well be possible. This raises the question of how an attribution should take place in case of such a combination of various liability suits. Finally, we briefly touched upon the evidence of climate change. In a specific liability case, it will, of course, be this evidence that will be the decisive issue.

However, notwithstanding the many uncertainties, we equally indicated that both in international law and in tort principles of national law, indications can be found that climate change litigation should not per se fail. To a large extent, the success of those claims will depend upon their technical expertise and upon whether victims can substantiate their claim that defendant (states) have significantly contributed to the climate change damage they suffer.

We also showed that to some extent, the economic analysis of tort law can be used in a helpful way to provide indications, not only concerning the type of liability rule that should govern climate change damage (e.g., negligence or strict liability), but also concerning the way in which the law could deal with causal uncertainty. Economic analysis, legal doctrine, and numerous legal systems are increasingly applying proportionate liability. Of course, even though proportionate liability may help to some extent to solve the issue of causal uncertainty, the proportions in which the various sources have contributed to the climate change damage will still have to be substantiated by means of technical evidence.

In sum, even though there are still many questions to be answered and many legal uncertainties, we have indicated that, depending upon the different scenarios (more particularly of the

defendant state(s)) there are ways to construct a liability regime for climate change, provided that sufficient proof exists of some relationship between the anthropogenic emissions from the defendant state(s) and climate change. At the same time, we have indicated that scientific uncertainty should not necessarily limit the possibilities of a claim for state liability. If a proportional liability rule were to be applied, first the probability of causation (excluding the background risk) would have to be established scientifically. Next, the contribution of the particular state to man-made climate change would have to be established so that liability could be apportioned accordingly. However, we equally indicated that this liability should not only be established on the basis of current emissions, but on the basis of the total contribution of the particular state to climate change via anthropogenic emissions. This should not necessarily amount to an inefficient retrospective liability, since many emissions took place after there was at least some evidence of a relationship between CO₂ emissions and warming of the atmosphere. When all of these conditions for state liability are met, the victim could not only claim monetary damages for its adaptation measures and for residual climate change damage, but it could equally claim mitigation measures from the defendant state(s). To the extent that many states have contributed to climate change, we argue that at least when economic analysis is used, there may be an argument in favor of joint and several liability of various defendant states.

Climate change litigation—and more particularly, liability suits—are not the panacea that will bring about a miraculous solution to the enormous problems that the world faces as a result of global warming. Undoubtedly, regulatory solutions and economic instruments like emissions trading will play a far more important role in reducing GHG emissions than liability suits ever will. Even though the goal of our Article was to discuss the possibilities of climate change litigation, we also made clear that victims will face significant hurdles in effectuating such a claim. Hence, the reduction of GHG emissions will undoubtedly not result primarily from liability suits. On the other hand, this does not mean that liability suits can play no role at all. The international arena has shown how increasingly difficult it is to reach consensus to reduce GHG emissions to acceptable levels. The discussions on the steps to be taken after the implementation of the Kyoto Protocol show that many consider the Kyoto Protocol merely as a first step towards an effective reduction of GHG emissions. In that respect, the well-known doctrine that “liability rules,” (i.e. that threats of liability may play an important

back-up role in cases of regulatory failure) may be valid in this context as well.¹⁸⁹ That is probably where one could see the most important role of international climate change litigation. It is not very likely that the litigation will itself lead to decisions whereby plaintiffs would be directly compensated for climate change damage suffered. However, the threat of such litigation may have an important effect on the negotiations concerning further reductions of GHG emissions. Thus, exploring the possibilities of such international climate change litigation can be seen as a useful device for furthering the international process and negotiations aiming at the reduction of GHG emissions.

¹⁸⁹ See generally SUSAN ROSE-ACKERMAN, *RETHINKING THE PROGRESSIVE AGENDA: THE REFORM OF THE AMERICAN REGULATORY STATE* 123 (1992) (suggesting that tort law is sometimes considered a “stop gap” for situations not dealt with by statutes).