

Central and South America

Brazil

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(A) Introduction

The Brazilian legal system

- 21.01 The legal system of Brazil is, unlike common law systems, based on codified law, which in turn is based on the Federal Constitution of 1988. However, the influence of Anglo-American law is nonetheless considerable, as is the importance of the law created by the jurisprudence of Brazilian courts, which supplements written law.
- 21.02 Brazil is divided into twenty-seven states, which in turn are divided into municipalities. Although each state has its own Constitution, the legislative and administrative powers of each member of the Federation, especially as regards certain areas, is given by the Federal Constitution of 1988, by which each state is bound.
- 21.03 The basic principles that are spelled out in the Constitution of the Federal Republic of Brazil of 1988 include human dignity, which underpins the exercise of all other constitutional rights and the boundaries of which extend far beyond the wellbeing of the individual. For present purposes, the fact that this constitutional principle encompasses the right to an ecologically balanced environment, as set out in Article 225 of the Constitution is of particular interest. Since this right is underpinned by the principle of sustainable development, it is tied to a responsibility to treat the environment as a legacy left by past generations and to be passed on to future generations for them to enjoy equal access to, and quality and benefits, of natural resources.

- 21.04 In addition to these principles which are directly relevant to the environmental and legal implications of climate change, other less directly relevant principles nonetheless guide the Brazilian government in relation to climate change. These include the principles of priority of human rights, defence of peace, and cooperation among peoples for human progress, all set out in Article 4 of the Constitution.

The governmental stance on climate change

- 21.05 While the environment can be protected by domestic law and constitutional law, academics correctly point to ‘the transactional nature of environmental protection and the universal nature of the needs of environmental protection’.¹ And it is in this transnational and global respect that Brazil is actively participating in the defence of environmental values.
- 21.06 In terms of Brazil’s international engagement, it is worth mentioning that Brazil is a member of the United Nations Environment Programme’s Governing Council and of the Sustainable Development Commission that operates under the auspices of the Economic and Social Council of the United Nations. Brazil has also made efforts to modify its environmental legislation in order to put into practice the commitments undertaken under the United Nations Convention Framework on Climate Change (‘UNFCCC’), to which it is a Party, as well as the Kyoto Protocol, by transposing both treaties into domestic legislation.² Brazil’s efforts to give its international commitments national effect is also reflected in legislation such as Law No. 12.187/2009 on National Policy on Climate Change, discussed at para. 21.13 below.
- 21.07 Under the Cancun Agreements, the Brazilian government has made a significant commitment to reducing greenhouse gases by

¹ D. Dimoulis and L. Martins, *Teoria Geral dos Direitos Fundamentais* (São Paulo: Editora Revista dos Tribunais, 2007), p. 96.

² The Framework Convention was adopted by Congress by way of Legislative Decree No. 1, on 3 February 1994, and ratified on 28 March 1994 and promulgated by Decree No. 2652 of 1 July 1998. The Kyoto Protocol, in turn, was endorsed by Congress by way of Legislative Decree No. 144 of 20 July 2002, and ratified on 23 August 2002 and promulgated by Legislative Decree No. 5445 of 12 May 2005.

pledging to cut the same by between 36.1 per cent and 38.9 per cent below its projected emissions in 2020.³

Industrial and natural resources context

- 21.08 Brazil has an abundance of water resources and most of its energy capacity comes from hydropower. Hydropower represents almost 50 per cent of renewables.⁴ As for other renewables, the energy generated from waste sugar cane should reach up to 4,500 MW. Further, there is currently around 417 MW of installed wind-power capacity in Brazil, with an additional 442 MW under construction and 441 projects near conclusion, creating a total wind power capacity of around 13,000 MW. Finally, in 2008, the National Development Bank ('BNDES') financed 47 renewable energy projects worth \$5.7 million.⁵
- 21.09 Regarding oil reserves, according to the latest statistics from the Brazilian Petroleum *Natural Gas and Bio Fuels Statistical Yearbook*,⁶ as of 31 December 2009 there were 404 blocks in the exploration phase, 61 in development and 313 fields in the oil production phase and yielding 711.9 million barrels in 2009.⁷
- 21.10 The monoculture of sugar cane remains prominent in eastern Brazil, both in the north but above all in the southeast. There is a monoculture of soybeans in mid-western Brazil. In addition, large-scale cattle breeding predominates in the midwest, with subsistence farming in the northeast, making agriculture and cattle breeding another significant component of the Brazilian economy.

National climate change risks

- 21.11 However, the economic outlook is worrisome with regard to the economic activities mentioned above in the event of further

³ *Compilation of information on nationally appropriate mitigation actions to be implemented by Parties not included in Annex I to the Convention*, Note by the secretariat, FCCC/AWGLCA/2011/INF.1, p. 8.

⁴ MERCOSUR, *Las energías renovables en el ámbito del Mercosur, sus estados asociados y en el escenario internacional: su dimensión estratégica, productiva, ambiental y económica*, (Montevideo, 2009), p. 1.

⁵ *Ibid.*, p. 11.

⁶ Agência Nacional de Petróleo, *Anuário Estatístico Brasileiro do Petróleo, Gás Natural e Biocombustíveis 2010* (Rio de Janeiro: ANP, 2010).

⁷ *Ibid.*

accelerated climate change, especially given that one can already see the consequences that climate change has had: floods in large cities like São Paulo, Rio de Janeiro among others; droughts in northern and southern Brazil, accompanied by the death of animals in the fields; and fires in the midwest due to low air humidity and the increase in temperatures, resulting in the death or displacement of wild animals.

(B)(1) Public law: the role of the State in the mitigation of climate change

- 21.12 In order to try to mitigate the adverse effects of climate change, the federal, state and municipal governments have made efforts to adopt legislative instruments that protect the environment and reverse these effects. Article 23, section VI of the Federal Constitution of 1988 sets out the shared competences of the Federation, States, Federal Districts and municipalities to ‘protect the environment and combat pollution whatever its form’. Moreover, the protection of the environment also appears in the Federal Constitution as a general principle of economic activity (Article 170, VI).
- 21.13 Brazil recently implemented measures that are emblematic of the struggle against global warming, promoting sustainable development in a variety of areas. An important instrument was the proclamation of Law No. 12.187/2009, creating the National Policy for Climate Change.⁸ This initiative consists in the creation of a domestic legal institution that, in conjunction with other international instruments⁹ signed by Brazil, will not only establish guidelines and jurisdictional instruments, but will also outline principles to guide public policies in combating global warming. Thus the Brazilian government aims to pursue the mitigation of global warming in line with sustainable development, so as to promote economic growth, eradicate poverty and reduce social inequalities. The national climate change policy that was enacted by the Federal Government is based on these legal principles. According to Article 3 of the National Policy on Climate Change,

⁸ Brazilian Law on the National Policy on Climate Change, No. 12.189/2009.

⁹ UNFCCC, Kyoto Protocol, COP15.

the implementation of the aforementioned law must respect the principles of precaution and prevention, citizen participation, sustainable development and common responsibilities. It is also worth noting that the principle of sustainable development, either explicitly or in its policy goals, is reiterated throughout the text. One example is Article 4, section I, which provides that the National Policy on Climate Change aims to reconcile social and economic development with the protection of the climate system, demonstrating Brazil's commitment to promoting economic growth without compromising environmental considerations. The law in question represents an advance in Brazilian legislation compared to the previous situation. Furthermore, it reflects international developments, evidencing an effort on the part of the Brazilian government to adopt domestic standards in order to implement, or even anticipate, international commitments.

- 21.14 New legal instruments were also developed at the subnational levels, designed to mitigate regional climate change. An example is Law No. 3.135 of 5 June 2007, which established the Policy on Climate Change, Environmental Conservation and Sustainable Development of the State of Amazonas. This law, like the aforementioned National Policy on Climate Change, is guided by the principles of precaution, prevention, common responsibility, sustainable development, participation, transparency and information, as well as national and international cooperation. Its ultimate goal is the creation of instruments (economic, tax and market instruments), including those that enable the execution of projects to reduce emissions from deforestation, clean energy, and net emissions of greenhouse gases, inside or outside the Kyoto Protocol's clean development mechanism.¹⁰
- 21.15 The Amazonian policy also includes the promotion of actions to increase environmental awareness of traditional communities, poor communities and students from State schools with respect to the impact and consequences of climate change. Certification seals will be instituted for public and private entities that develop projects related to climate change, environmental conservation

¹⁰ P. Lavratti and V. B. Prestes (eds.), *Direito e mudanças climáticas [recurso eletrônico]: inovações legislativas em matéria de mudanças climáticas* (São Paulo: Instituto O Direito por um Planeta Verde, 2010), p. 118.

and sustainable development in the State of Amazonas. Action plans that contribute to mitigating the adverse effects of climate change will be elaborated and included in general and sectorial State planning.¹¹

- 21.16 Although Brazil is not obliged to fulfil the emissions goals established by the Kyoto Protocol, it has sought to reassess its policies so as to accord with the international objective of reducing greenhouse gas emissions. Among the measures adopted, the use of clean and renewable energy stands out, in light of the fact that Brazil holds a leading position in the production of ethanol and related technologies in addition to being a country with excellent prospects for agri-business. In this context, another instrument created by the Federal Government to mitigate climate change is the National Programme of Biodiesel Production ('PNPB').
- 21.17 The PNPB is the rebirth of a programme that was originally not very successful – the Vegetable Oil Production Plan for Energy Purposes ('PRO-OLEO'). Due to a lack of technology at the time, the programme failed and the use of petroleum diesel was maintained. The PNPB consists of an inter-ministerial programme whose primary purpose is the sustainable economic, technical and environmental implementation of biodiesel production, with a focus on regional development and social inclusion. It is characterised by the focus on small rural communities alluding to one of the fundamental objectives of the Federal Republic of Brazil, set out in Article 3, § 3, III, of the Constitution, which is to 'reduce social and regional inequalities'. A further constitutional basis of the PNPB is described in Article 170 of the 1988 Constitution, which enshrines an overarching principle of the Constitutional Economic Order that is subject to the principles of social justice.
- 21.18 Furthermore, promoting competitive prices in the international market generates employment and income, diversifies the energy matrix and motivates research to improve biodiesel quality and expand the national fuel supply capacity. Substituting part of the imported oil-derived diesel remains an objective of the PNPB, promoting, above all, the environmental gains from

¹¹ *Ibid.*

this substitution, as there are significant reductions in the release of sulphur and other particles into the environment. To create a production incentive, Law No. 11.097/2005 increased the percentage of biodiesel added to diesel oil sold to final consumers throughout the country from 2 per cent to 5 per cent.

- 21.19 Besides playing an instrumental role in the establishment of public policies to control climate change, Brazil's biofuel programme looks to a number of other socioeconomic objectives.¹² It is also worth pointing out that, although the biofuel programme entails damage or impact at the local level, there are significant global benefits. In this context, it is worth recalling that, among other things, Article 13 of Law No. 11.116/2005 which provides for the inclusion of biofuels in Brazil's energy policy also falls within the national strategy for mitigating climate risk.¹³

(B)(2) Public law: judicial review and climate change

- 21.20 Judicial review has become an important tool in implementing the right to an ecologically balanced environment that is guaranteed by Article 225 of the Brazilian Federal Constitution. An example of this type of implementation is the use of an extraordinary appeal (*Recurso Extraordinário*) in order to achieve environmental protection, a feature enshrined in Article 102, III of the Constitution. The Brazilian Constitutional Court – the Supreme Court – decides constitutional disputes brought against decisions of a court of lower instance. An extraordinary appeal can be used to declare unconstitutional any legal provisions that rank below Article 225 of the Constitution and which contravene the same. Rules that hamper the implementation and effectiveness of Article 225 may also be subject to a special appeal and may be annulled.
- 21.21 Other constitutional actions, such as injunctions (*Mandado de Injunção*), provided in Article 5, subsection LXXI of the Brazilian Federal Constitution of 1988, can also be used as instruments of environmental protection. An injunction is granted where the

¹² R. S. R. Sampaio, 'Biocombustíveis no Contexto da Regulação do Risco Climático no Brasil', available at www.planetaverde.org/artigos/arq_12_06_47_16_09_10.pdf, p. 11.

¹³ Brasil Lei No. 11.116/2005, Art. 13.

absence of regulations precludes the exercise of constitutional rights and freedoms and of the prerogatives inherent to nationality, sovereignty and citizenship.

- 21.22 According to a literal interpretation of Article 5, at first glance it appears that the relief following a successful injunction is individual in nature. However, leading academics suggest that the injunction may be collective. Having analysed the function and purpose of this constitutional action, we conclude that even if the object of the injunction is the protection of an individual right, it can be used as an instrument of collective protection where the injunction benefits a large group of persons.¹⁴ Therefore, this instrument could be used where it is determined that, due to public authorities' inaction, the absence of regulatory standards makes it impossible to enjoy the right to an ecologically balanced environment.
- 21.23 It is worth highlighting that, as these examples suggest, it is not only the pollution caused by the State or another entity that may give rise to environmental liability. The omission of the constitutional duty to protect the environment (lack of control, lack of compliance with rules when granting environmental licences, inadequate installation or maintenance of waste disposal and sewage treatment systems) can also give rise to liability. The failure of the State to monitor and/or control the occurrence of environmental damage becomes all the more serious by virtue of its constitutional duty.¹⁵ Thus, the Brazilian Constitutional Court is in fact a body that is responsible for ensuring the implementation of public policies when faced with the inaction of government bodies, especially as regards the protection of the environment.
- 21.24 Another instrument available is the direct action of unconstitutionality by omission (*Ação Direta de Inconstitucionalidade por Omissão*). This instrument can be used when a constitutional norm appears to protect a given right, but in practice depends

¹⁴ F. Didier Jr., *Ações Constitucionais*, 4th edn (Salvador: Jus Podium, 2009).

¹⁵ T. Fensterseifer, 'A responsabilidade do estado pelos danos causados às pessoas atingidas pelos desastres ambientais ocasionados pelas mudanças climáticas: uma análise à luz dos deveres de proteção ambiental do estado e da correspondente proibição de insuficiência na tutela do direito fundamental ao ambiente', p. 17, available at www.mp.ro.gov.br/c/document_library/get_file?uuid=f24433ad-986d-467b-a649-8ce573dfd6a8&groupId=41601.

on a regulation by a given public entity that remains inoperative. Thus, in order to ensure the effectiveness of constitutional norms, an action is commenced to declare the unconstitutionality of the norm that is not directly enforceable. The same applies with respect to constitutional norms that deal with environmental matters. In order to promote the effectiveness and enforcement of environmental standards, these rules are equally susceptible to direct actions of unconstitutionality by omission.¹⁶

(C) Private law: environmental liability and climate change

- 21.25 The duty to compensate damage results from a breach of a legal obligation (in our case, the duty to preserve the environment). Hence, liability is contingent on the existence of an unlawful act.¹⁷
- 21.26 The focus of civil liability has shifted in recent times, becoming increasingly concerned with compensating the victim of unjustly suffered harm and less with punishing the person who committed the breach. It is for criminal law to impose punishment where the perpetrator of damage should be held criminally responsible, while it is for the civil law to address the victim's situation.
- 21.27 However, it is also worth noting that there is a parallel trend of expansion of liability so as to allow for the compensation of all damage. Hence, besides the original and primary function of civil liability (i.e. the reparation of material loss and compensation of immaterial loss), civil liability has also come to acquire punitive and deterrent functions. Perhaps this last function is most relevant to the present study, precisely because the damage from climate change manifests itself in the future, so that prevention is of critical importance.
- 21.28 The basis for imposing civil liability on those causing environmental damage is found in Article 225, § 3 of the Constitution. It provides that 'the conduct and activities considered harmful to the environment shall subject the offender, individuals or legal entities, to criminal and administrative sanctions, regardless of the obligation to repair the damage caused'.

¹⁶ J. J. G. Canotilho, J. R. M. Leite, *Direito Constitucional Ambiental Brasileiro* (São Paulo: Saraiva, 2007), pp. 343–9.

¹⁷ S. C. Filho, *Programa de Responsabilidade Civil*, 8th edn (São Paulo: Atlas, 2009), p. 2.

- 21.29 From a policy perspective, environmental liability should be a regime of strict liability. In other words, it should arise under Article 927 of the Brazilian Civil Code, which affirms the obligation to compensate damage regardless of fault when the activity that gives rise to the damage entails an inherent risk of harming others. If a risk or danger to others is introduced into society, the perpetrator will be liable for the damage resulting. Regarding climate change, the biggest challenge involves identifying the causes of climate change. Brazilian law focuses on identifying the author of the immediate damage and has not yet regulated the identification of future environmental damage.
- 21.30 Developing this tradition of strict liability, Article 14 § 1 of Law No. 6938 of 1981 provides that ‘notwithstanding the application of the penalties provided in this article, the polluter is required, regardless of fault, to repair or indemnify the damage caused to the environment and to third parties as a result of its activities ...’.

With the enactment of Law No. 6938 of 31 August 1981, strict liability for environmental damage was clearly established. As a result, a vast and relatively new normative field emerged, specifying how this liability will attach to an operator once it has been verified that a harmful incident has occurred and has caused degradation of the environment. According to Brazilian legal scholars, this strict liability regime represents the best way to meet society’s needs and to help ensure through civil liability that present and future generations can enjoy a healthy environment and ecologically balanced world.¹⁸ To prove liability in these cases, one dispenses with the need to prove intention, recklessness and negligence, focusing instead on the causal link between the conduct of the polluter and the environmental damage in question.¹⁹ The rationale for this approach is that what is being protected are high-value goods in which the entire community has an interest, and whose degradation or even destruction would cause disruptive consequences for

¹⁸ E. Milaré, ‘O Ministério Público e a responsabilidade civil do profissional nas atividades modificadoras do meio ambiente’, *Revista dos Tribunais*, 623 (1987), 31; and in R. Stoco, *Tratado de Responsabilidade Civil*, 6th edn (São Paulo: Editora Revista dos Tribunais, 2004), p. 840.

¹⁹ A. Rizzardo, *ibid.*, p. 700.

present and future generations.²⁰ From a climate change perspective, these legal developments highlight the importance of studying the implications for the fuel industry, given the enormous potential of liability for irreversible damage to the environment, requiring a rapid and effective response in the event of accidents.

- 21.31 Furthermore, Article 4, section VII of Law No. 6938 of 1981 imposes the application of the 'polluter pays' principle in the event of environmental damage, asserting that the polluter and the perpetrator will be under the obligation to restore and/or indemnify for the damage caused to the environment as a result of the use of environmental resources for economic purposes.
- 21.32 Overall, the regime of strict liability constitutes a major step in achieving the effective protection of the environment. Only strict liability can guarantee that those engaged in activities that generate risks to the environment will actually take appropriate remedial action in the event of damage.
- 21.33 Even though there have been considerable legislative developments in the area of environmental protection, it is still difficult to establish liability in the case of environmental damage and to address large-scale environmental incidents, as is illustrated, for example, by oil spills at sea.

*Difficulties in applying a civil liability regime
to environmental damage*

- 21.34 Strict civil liability in relation to oil pollution originating from ships was put in place by the enactment of Decree No. 79,437 of 28 March 1977, which implemented the International Convention on Civil Liability of 1969 for Damage Caused by Oil Pollution. The 1977 Decree was modified by Decree No. 83540 of 4 June 1979, and provides that shipowners, whether they be natural or legal persons, are liable for pollution by oil discharges from their ships. However, this liability is limited in its quantum despite the system of compulsory insurance being established in order to effectively protect the reparation of the loss.

²⁰ P. A. L. Machado, *ibid.*, 322–3.

- 21.35 Even with these laws in place, there is a tendency to hold lengthy court proceedings on the topic of civil liability for environmental damage as a result of long discussions that are raised in the preliminary discussions. This shows that civil liability is, in contrast to preventive measures which are more effective,²¹ a purely reactive mechanism unable to bring about environmental protection.
- 21.36 Despite Brazil's environmental laws having been noted as some of the more 'advanced' in the world, more efficient mechanisms for the prevention of environmental damage are still required. The main issue in this respect is that these laws are essentially structured on the principle of responsibility, or equivalent compensation, with liability being deemed only after the damage occurred. As part of the search for an equivalent compensation, the lawsuits turn into long disputes, which do not allow for quick and satisfactory results for the truly disadvantaged, thus favouring the perpetrators of the damage.²²
- 21.37 Thus, we can only conjecture about what the ambit of civil liability for damage caused to the environment must be for it to be able to respond to promote the development of activities that prevent the occurrence of environmental harm.

Environmental protection as responsibility of private entities and public authorities

- 21.38 The responsibility for environmental and ecological protection lies both with the Government as well as the private sector. Thus, it could be argued that the State should be held jointly responsible for damages caused to the environment and may be asked to account for these losses individually and collectively.²³
- 21.39 This liability may occur when the State does not exercise its supervisory power, which it is bound to exercise in light of a binding administrative decision. So if the Government fails to exercise its policing and supervisory duties, it will be liable alongside the

²¹ P. B. Antunes, *ibid.*, 245–6.

²² P. B. Antunes, *ibid.*, 246. ²³ R. Stoco, *ibid.*, 246.

relevant private entities for any damage caused as a result of this failure.²⁴

- 21.40 The central tenet of environmental law in Brazil is that a polluter, be it a natural or legal person, including public authorities, should be held liable for any damage caused. Furthermore, many authors argue that the Government can always be joined to any claim which ultimately aims to repair the environment. Given that if it is not directly responsible for having caused the damage, it will at least be jointly and severally liable through one of its agents as a result of an omission of a duty to monitor and prevent such damage from occurring. This fact demonstrates that it is ultimately the State's responsibility to pursue those who directly cause environmental damage.²⁵
- 21.41 The State will be reimbursed for its spending on environmental preservation by the relevant tortfeasor. This provision enables rapid responses and effective action against environmental degradation as well as the prevention of climate change as part of a search for an ecologically balanced environment, favouring the total compensation for damage, or even a reduction of any future damage that could be aggravated by delays in reparations.

*Jurisdictional instruments for controlling
climate change*

- 21.42 The Brazilian legal system provides legal instruments both for public and private entities in order to achieve environmental protection. The first instrument we will discuss is 'Public Civil Action'.
- 21.43 Public Civil Actions for liability resulting from environmental damage are an important legal mechanism the application of which is set out in Law No. 7.347/85. This mechanism is a procedural tool designed to protect the interests of individuals, such as

²⁴ This is the understanding of Rui Stoco which is exemplified by the situation through cases in which the industry is not authorised (business licence) to exercise the activity, or when there is no prior survey by health authorities. R. Stoco, *ibid.*, p. 840.

²⁵ E. Milaré, *A ação civil pública e a Tutela jurisdicional dos interesses difusos* (São Paulo: Saraiva, 1984), p. 76; and see n. 18 above.

the right to an ecologically balanced environment, contained in Article 225 of the Constitution. Prior to the introduction of this procedure, there was no instrument that matched today's scope of the Public Civil Action, which is only available to defend the environment against administrative decisions of the State.

- 21.44 As such, Public Civil Actions are an instrument of the Brazilian legal system in the realm of procedural law, which ensures the implementation of Article 225 by providing, if successful, for pecuniary compensation or the specific performance of an obligation to act or not act.²⁶
- 21.45 Although it is mainly the Public Prosecutor who has standing to bring this type of action to protect the environment in accordance with Article 129 III of the Brazilian Constitution, Article 5 of the Law on Public Civil Action provides that foundations and associations may also have standing. However, the stand-out feature of this legislation is the possibility that the law provides for promoting environmental protection by popular participation. Article 6 of the Law of Public Civil Action states that anyone can, and in some cases should, trigger a report of the (Public Prosecutor), providing them with necessary information about the facts that constitute the object of action.

(D) Other laws/rights

- 21.46 The problems resulting from global warming and climate change play an important role in the international agenda and contributed to the creation of international organisations which address such issues. Climate change does not only affect States on the basis of their territory. We can also observe a multitude of human rights violations which we outline below.
- 21.47 In this limited context, the international community is united in its efforts to change the present situation. In 2005 the Complementação Energética Regional entre os Estados Partes do Mercosul e Países Associados was signed among Member States of the MERCOSUR and Associated Countries.²⁷ In its Preamble,

²⁶ Brazil Law No. 7.347/85, Art. 3. A civil action may have as its object the condemnation of money or the fulfilment of obligations to do or not to do.

²⁷ www2.mre.gov.br/dai/complementacaoenergetica.htm.

the Agreement highlights the rights of people to access to energy and energy cooperation between States.

- 21.48 The agreement brings a new perspective to existing multilateral agreements. While it recognises the right of States to administer their energy resources in a sovereign manner, it also provides for the gradual development of integration and energy security at regional level, aimed at economic, social and sustainable development. In turn, the aim of this agreement is to improve production, transportation and distribution systems and marketing of energy in order to reduce transaction and exchange costs amongst States so as to ensure a fair and reasonable valuation of these resources, thereby strengthening the processes of development in a sustainable manner.²⁸
- 21.49 Lastly, one of the most important provisions with regard to the issue of climate change and global warming is the encouragement of the rational and efficient use of conventional energy. This goal encompasses energy efficiency, conservation of the environment, renewable energy and harmonisation of safety standards and quality. Such standards would be achieved through the technical improvements of each Member State, the use of best practices, and institutional capacity building of each State.
- 21.50 However, the treaty does not stipulate any deadlines or pre-set goals or clearly defined objectives. The treaty is drafted using clauses with no binding or mandatory character, allowing for interpretation according to the principles of gradualism and flexibility.
- 21.51 In 2009, the Declaration of Manaus was signed by the States that share the Amazon Basin.²⁹ This new Declaration represents another effort by Brazil in the fight against global warming. According to Brazilian President Luiz Inácio Lula da Silva, this Declaration would serve as a basis for negotiations in Copenhagen.³⁰

²⁸ According to Article 1 of the Treaty.

²⁹ www.itamaraty.gov.br/sala-de-imprensa/notas-a-imprensa/2009/11/26/declaracao-de-manaus-reuniao-de-cupula-dos-paises.

³⁰ www.bbc.co.uk/portuguese/noticias/2009/11/091126_manaus_clima_pc_np.shtml.

- 21.52 The States which are Party to this Declaration support the goal established by the United Nations to reduce 40 per cent of global emissions of greenhouse gases by 2020. The Declaration of Manaus reaffirms existing support for maintaining the proposed monetary contribution of between 0.5 per cent and 1 per cent of GDP of developed countries for tackling climate change in developing countries.³¹
- 21.53 There are many questions surrounding the issue of global warming and amongst such diverse aspects surrounding current discussions about the environment, one question is often neglected – that of environmental refugees³² and internally displaced persons.³³ These people, though not in the media limelight, are potentially the greatest victims of environmental disasters and climate change on our planet.
- 21.54 The exponential growth of global warming has caused sea levels to steadily increase. In addition to deficits widely reported by international media, these increases have also led to the creation of new legal questions which are still not resolved.
- 21.55 The increase in sea levels has generated sensitive changes in the fundamental structures of some States, like the enormous change in borders in Bangladesh. According to predictions from environmentalists, these changes may result in 20 to 25 per cent of the country disappearing in the next few years as a consequence of

³¹ www.itamaraty.gov.br/sala-de-imprensa/notas-a-imprensa/2009/11/26/declaracao-de-manaus-reuniao-de-cupula-dos-paises.

³² Environmental refugees are those who, due to imbalances in the natural environment which cause significant changes that are unsustainable in the environment, leave their countries in search of a new place to live with their families which hosts them and gives them subsidies in order to develop a life similar to the one they once had in their country of origin. P. L. M. Soares, 'Refugiados ambientais: a construção de um novo conceito e suas implicações à luz do Direito Internacional' in Jahyr-Philippe Bichara *et al.*, *Realidades – Organizações Internacionais e Questões da Atualidade* (Natal: Editora da UFRN, 2008), p. 187.

³³ Coming from the English term, internally displaced persons are those who suffer from the same pattern of harassment or problems listed in the 1951 Convention, the 1967 Protocol and the Cartagena Declaration of 1984, without, however, leaving the territory of their country, but in a state of flight or migration, requiring therefore protection. This term can also be used to refer to victims of disasters caused by humans, which leaves them in a similar position to that of refugees already mentioned in the referred documents: International Law Commission, Fifty-eighth Session, *Expulsion of Aliens*, (Geneva, 2006), pp. 110–24.

an increase in sea levels.³⁴ Or, in the case of Tuvalu, with a small land mass and a maximum elevation of only five metres above sea level, there is not just the threat of the diminishment of the State's borders, but the imminent threat of extinction of the entire State by the disappearance of one of its fundamental attributes: the territory.

- 21.56 With respect to Brazil, the right to property and housing has been violated particularly in coastal communities, exemplified by cases relating to the northeast – the communities of the Icarai in Fortaleza³⁵ and the city of Branquinha, in the state of Alagoas.³⁶ In these places, global warming has caused water levels to rise sharply, threatening coastal communities, destroying their homes or making it impossible to live in these areas, creating homeless families and potentially internally displaced persons in the Brazilian territory.
- 21.57 There have also been large fires in the interior of Brazil, specifically in the midwest and some parts of the southeast. According to the magazine *New Environment*, in 2010 about 260,000 hot spots were recorded by the Space Research Institute. Out of these, more than 70,000 were confirmed as fires, which represents an increase of 185 per cent compared to 2009.³⁷
- 21.58 These catastrophic effects of climate change (including major floods and severe drought) have caused a widespread exodus from one region to another in Brazil, providing evidence of the existence of internally displaced persons in Brazil as a result of environmental disasters which are a direct result of global warming and climate change in general.
- 21.59 Climate change is constant and even though these aforementioned provisions are unshakable, it has rendered them unachievable and additionally impedes the enjoyment of other rights, such as the right to health, which is enshrined as a social right of the Brazilian Constitution. Global warming and climate change

³⁴ www.bbc.co.uk/portuguese/forum/story/2007/11/071102_bangladeshnovo.shtml.

³⁵ diariodonordeste.globo.com/materia.asp?codigo=794687.

³⁶ www.correiopovo-al.com.br/v3/municipios/4727-Fotos-mostram-Branquinha-antes-depois-chuvas-destruidoras.html.

³⁷ S. Queimada, *Revista Novo Ambiente, desenvolvimento com equilibrio*, 1(4) (2010), 13 (available at www.revistanovoambiente.com.br/revista/default.php?nac=17).

have caused severe changes, leading to the emergence of micro-climates in major cities, such as the existence of heat islands in São Paulo, causing its residents to suffer from heatstroke, thermal discomfort and aggravation of respiratory diseases from high temperatures.³⁸

- 21.60 Such incidents are also found in the study of micro-climates in slums conducted by the Faculty of Public Health, São Paulo, USP.³⁹ The study affirms the higher incidence of hospitalisations for pneumonia in infants, bronchitis and asthma attacks, which are diseases related to atmospheric factors, correlating with warmer micro-climates such as those in the slums. As a result, it can be concluded that the violation of the right to health is a reflection and consequence of global warming.
- 21.61 Finally, in cases of drought in the Pantanal and the Amazon region, there are various violations of Article 225 of the Constitution and all other international rights which are equivalent to it.
- 21.62 In 2010, the levels of the rivers of the Amazon Basin at some sections were very close to the lowest levels ever recorded.⁴⁰ As for the Pantanal, the situation is also critical and can be considered the worst since 1972.⁴¹

(E) Conclusion

- 21.63 One can make the following observations from the preceding study on the impact of climate change in Brazil and its repercussions in the legal system:
- 21.64 In terms of regional effects, according to the Economic Survey of Climate Change in Brazil,⁴² the regions that will suffer most from climate change will be the Amazon and the northeast. This allows us to draw a much more serious background against

³⁸ H. Ribeiro and E. N. Silva, 'Alterações da temperatura em ambientes externos de favela e desconforto térmico', *Revista de Saúde Pública*, 40(4) (2006) (available at www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-89102006000500016).

³⁹ *Ibid.*

⁴⁰ www1.folha.uol.com.br/cotidiano/817477-nivel-do-rio-negro-baixa-mais-e-ja-e-a-2-maior-vazante-em-108-anos.shtml.

⁴¹ www.olhardireto.com.br/noticias/exibir.asp?edt=33&id=127683.

⁴² J. Marcovitch, *Economia da Mudança do Clima no Brasil: custos e oportunidades* (São Paulo: IBEP Gráfica, 2010).

which to assess the effects of climate change, considering that the two regions which are most vulnerable with regard to social and economic factors are the north and northeast.⁴³

- 21.65 According to the study, the increase in temperatures could reach 7°C to 8°C in 2100, which would result in the desertification of the Amazon as around 40 per cent of forest cover will be eliminated and replaced by a desert biome.
- 21.66 In the northeastern region rainfall could decrease by between 2 to 2.5 mm per day by 2100, causing severe crop losses throughout the region, with a 25 per cent reduction in capacity for grazing beef cattle. In other regions of Brazil, such as the southeast, there is a real prospect that the Paraíba River, which traverses the states of Rio de Janeiro, São Paulo and Minas Gerais, could have a 90 per cent reduction in flow by 2100.
- 21.67 The Economic Survey of Climate Change in Brazil also suggests that there will be a significant adverse impact on the energy sector if the pace of climate change does not slow down. One of the consequences would be that the system of hydroelectric power generation might cease to be reliable with a possible reduction of around 30 per cent in power generation – again with the greatest impact on electricity supply in the most vulnerable regions of Brazil.
- 21.68 Finally, it is estimated that between 130 and 200 billion Brazilian Reals would be lost as a result of an increase in sea levels and extreme environmental incidents in Brazilian coastal areas by 2100.
- 21.69 All the same, this cataclysmic picture can be reversed. And we can already see this in Brazil, even only through isolated individual projects. There is a growing trend to apply principles such as sustainable development in the decisions of the judiciary and actions of the executive.⁴⁴ This is possibly influenced by foreign jurisprudence which has been making new advances in environmental protection,⁴⁵ and we believe that Brazil is moving towards

⁴³ *Ibid.*

⁴⁴ See, for instance, STF. AD In 3540 MC/DF. Tribunal Pleno. Min. Rel: Celso de Mello. Date of Judgment 1 September 2005, published on 3 February 2006.

⁴⁵ The European Court of Human Rights, in recent rulings, has brought about an innovation by using the evolutionary interpretation of the European Convention on Human

the use of modern mechanisms such as those already observed in other countries.⁴⁶ However, much remains to be done in this area.

- 21.70 Moreover, the 2009 Law on National Policy on Climate Change can be seen as an instrument of progress, revealing a new governmental attitude in relation to environmental preservation.
- 21.71 The Government is sourcing around 417 MW of energy from wind power, and 442 MW from capacity under construction and 441 projects nearing completion. These latest efforts add to the existing wind-energy network of around 13,000 MW. In 2008, BNDES financed numerous projects for renewable energy, amounting to about US\$ 5.7 million investment for a total of 47 projects.
- 21.72 Brazil's economy has grown over the years, and its environmental preservation policies have matured in an overall effort to integrate these policies together with the right to economic development. However, much remains to be done so that we can realise the right to an ecologically balanced environment and the principle of sustainable development, so that climate change will not interfere with the success of future generations.

Rights, of 1950, by using its provisions to safeguard the right to environment. We can see this in the cases *Lopez Ostra v. Spain*, *Moreno Gomez v. Spain*, *Hatton and Others v. UK*, *Fadaieva v. Russia*, *War and Others v. Italy*, which had placed the right to the environment as the foundation of the right to private and family life, referring to Article 8 of the 1950 Convention, in the cases *Öneryildiz v. Turkey* and *LCB v. United Kingdom*, with focus on Article 2 of the 1950 Convention, the European Court of Human Rights addressed the right to a balanced environment and quality as the foundation of the right to life itself, whereas in *Mc Ginley and Egan v. UK*, *Roche v. UK*, *Steel and Morris v. UK Clubs and Voids Aizsardzības v. Latvia*, the European Court considered, basing its reasoning on Article 10 of the Convention, which deals with the right to freedom of expression in order to guarantee freedom of expression and the right to environmental information itself. Silva, José Antonio Tietzmann e, 'A efetividade do Direito Internacional do Meio Ambiente: a jurisprudência da Corte Europeia de Direitos Humanos' in Ana Flávia Barros-Platiau and Marcelo Dias Varela (eds.), *A efetividade do Direito Internacional Ambiental* (Brasília: UNICEUB, UNITAR e UnB, 2009), pp. 293–316.

⁴⁶ Brazil is advancing the use of new principles and new interpretations of environmental law, as well as the instruments of public and private law that we have discussed throughout this chapter. The tendency is that Brazil now has a jurisprudence as advanced as the European courts, such as the ECtHR.

Mexico

JOSÉ JUAN GONZÁLEZ MARQUEZ

(A) Introduction

The Mexican legal system

- 22.01 Mexico is a federal democratic republic consisting of thirty-one states and the federal district of Mexico City, and governed by a civil law system. The main sources of law are (i) the Constitution, which is written; (ii) international treaties signed by the executive with the ratification of the Senate; (iii) federal laws passed by the federal Congress; (iv) state laws passed by state congresses; (v) judicial decisions; and (vi) jurisprudence.
- 22.02 The constitutional reform of 1987 established a concurrent jurisdiction system according to which the federal and state governments share the power to legislate on environmental matters.¹ Furthermore, in 1999 the federal Constitution was amended to recognise both the right of people to a healthy environment and the principle of sustainability.² Notwithstanding the concurrent jurisdiction system, it is generally assumed that Article 27 of the federal Constitution, which regulates the property system that governs waters, land and natural resources, remains the main foundation for Mexican environmental law.
- 22.03 Based on the above-mentioned constitutional principles, a complex system of federal and state environmental laws has been passed in Mexico. Most of this environmental legislation has been built on the command-and-control approach. Hence environmental issues, and specifically climate change problems, are generally addressed from the perspective of administrative law.

¹ Official Gazette of Federation, 19 August 2004.

² *Ibid.*, 4 December 2000.

However, in cases of damages caused by climate change, private law – civil liability – could also be applicable.

- 22.04 Nevertheless, applying administrative law and private law to the restoration of climate change damage could present serious problems, as this chapter illustrates.

The governmental stance on climate change

- 22.05 In Mexico, no specific ministry has been created to deal with climate change. However, under Article 32-bis of the Organic Act of Federal Public Administration,³ the Ministry of Environment and Natural Resources must conduct national public policies on climate change and protection of the ozone layer. Furthermore, under Article 33 of the Act, the Ministry of Energy must regulate and promote the development and use of alternative sources of energy.
- 22.06 The Mexican government ratified the Kyoto Protocol and has since created a number of bodies to implement it. In January 2004, an Executive Ordinance created the Mexican Inter-Ministerial Committee for Emission-Reduction Projects and Green House Gas Capture.⁴ This Committee was designated as the National Authority for CDM projects under the Kyoto Protocol. In 2005, another Executive Ordinance replaced the Committee with the Inter-Ministerial Commission on Climate Change (the ‘Commission’).⁵
- 22.07 The Commission has the power, among others, to approve projects for emission reduction and carbon sequestration in accordance with the Protocol. The Commission is composed of representatives of the Ministries of Foreign Affairs; Social Development; Environment and Natural Resources; Energy; Economy; Agriculture, Rural Development, Fisheries and Alimentation and Communications and Transport.
- 22.08 Article 10 of the 2005 Executive Ordinance that created the Commission established the Advisory Committee for Climate Change, which includes climate change experts from the

³ *Ibid.*, 29 December 1976, as amended on 17 June 2009.

⁴ *Ibid.*, 23 January 2004. ⁵ *Ibid.*, 25 June 2005.

social, private and academic sectors who are appointed by the President.

- 22.09 Additionally, on 15 February 2005 a group of public and private institutions⁶ signed an agreement to create the Energy Sector Committee for Climate Change. The Committee's objective is to coordinate the energy sector actions regarding climate change with the Ministry of Environment.⁷

Climate change laws

- 22.10 Air pollution has been a constant concern for the Mexican government. At the beginning of the twentieth century, the air pollution issue was addressed only from the perspective of private law. For example, the Federal Civil Code of 1928 prohibited the construction of chimneys in close proximity to neighbouring/adjacent properties. It also prescribed minimum distances at which chimneys had to be set back from adjoining properties.
- 22.11 The Government then began to address pollution as a public health issue. This resulted in the enactment of the Regulation for Dangerous, Disgusting and Unhealthy Industrial or Commercial Facilities of 1940, which provided that the air emissions from such facilities should be channelled through chimneys of a certain height and should not exceed a certain concentration of pollutant particles.
- 22.12 In 1971, the Federal Act to Control and Prevent Pollution was enacted. Like the 1940 regulation, this law focused on the effects of air pollution on human health. The Act prohibited the emission or discharge of pollutants in concentrations that can affect human life and health, flora and fauna, and natural resources in general. This law provided that all sources of pollution (industries and vehicles) must have a license granted by the Federal

⁶ The Ministry of Energy, the Mexican Institute of Petroleum, the State-owned oil company PEMEX, the Federal Commission of Electricity, the Light and Power Company of the Center (which no longer exists), the National Commission for Energy Savings, the Regulatory Commission of Energy, the Institute for Electric Research and the Fund for Energy Savings.

⁷ See Ubaldo Inclán Gallardo, 'Mercado de bonos de carbon y sus beneficios potenciales para proyectos en México, and Comision Intersecretarial para el Cambio Climático', *Reporte de Actividades de la SENER en materia de cambio climático 2005-2006*, available at www.semarnat.gob.mx/temas/cambioclimatico/Documents/enac/reporte.

Environmental Authority and must comply with the limits of pollutant emissions established by the regulations. A regulation under this Act established the parameters of emissions from pollutant sources and many standards were developed to regulate the emissions of (i) solid particles, (ii) humidity, (iii) SO₂, (iv) CO₂, (v) CO, (vi) oxygen present in combustion gases, and (vii) SO₃, among other gases.⁸

- 22.13 The Federal Act for Environmental Protection of 1982 replaced the Act of 1971 but did not introduce any fundamental changes. However, when it came into force, new standards related to air pollution emissions were also approved.
- 22.14 In 1988, the Ecological Equilibrium and Environmental Protection General Act ('LGEEPA') changed the Government's approach to dealing with air pollution. LGEEPA focuses not only on air pollution's effects on human health but also on the protection of the environment as a whole, including natural resources. According to LGEEPA, the biggest industrial sources of air pollution come under federal jurisdiction whereas vehicle and medium- and small-sized industrial and commercial sources of air pollution come under local jurisdiction.
- 22.15 However, neither LGEEPA nor state environmental law establishes specific obligations to reduce pollutant emissions; they only require industrial sources to control them. Furthermore, neither LGEEPA nor state environmental law refers specifically to climate change mitigation and adaptation issues. The only instruments aimed at controlling air pollutant emissions under the Act are, in the case of industrial sources, the licensing system for operation granted by the Minister of Environment and Natural Resources and, in the case of mobile sources (that is to say, vehicles), the 'hoy no circula' programme. Under this programme, those vehicles whose emissions surpass the applicable emission limits established by Mexican Official Norms (standards) may not be operated for one day each week.
- 22.16 As this brief survey illustrates, the Mexican environmental law system does not yet provide a sufficient foundation for an

⁸ See Official Gazettes of Federation, 4 March 1974; 27 June 1974; 2 August 1976; 6 September 1979; 17 June 1980 and 8 August 1980.

appropriate policy on climate change issues. Recently, however, a group of senators from the government party proposed a Bill for a Climate Change Act. Approval of the Bill is still pending. Article 1 of the Bill states the Act's objectives to be promoting adaptation to and mitigation of climate change and contributing to sustainable development.⁹ The Bill establishes the general criteria for policies on mitigation and adaptation, the national system for climate change and the instruments of this system.

- 22.17 In order to create a national system for climate change, the Bill proposes to establish a National Commission on Climate Change¹⁰ that would be in charge of formulating and implementing national climate change policy,¹¹ as well as a Climate Change Council that would function as a consultative and evaluative institution and would comprise members representing civil society, private corporations and academic organisations. Among the instruments for climate change mitigation and adaptation, the Bill would establish a Green Fund, a National Register of Emissions and a Market of Carbon Emissions.
- 22.18 In regard to liability, the Bill merely states in Article 57 that '[t]he public employees regulated by this law who do not comply with its provisions shall be punished with an administrative sanction'.¹² However, the Bill does not specify the form or content of such an administrative sanction.
- 22.19 A number of legislative steps have also been taken at the state levels. In November 2010, the State of Veracruz passed the Act of Mitigation and Adaptation of Climate Change Effects.¹³ In December 2010, the State of Chiapas¹⁴ and the federal district of Mexico City¹⁵ both passed Acts for climate change

⁹ The full text of the Bill is available at www.bionero.org/sociedad/iniciativa-de-ley-general-de-cambio-climatico-para-mexico.

¹⁰ According to the Bill, this Commission will replace the Commission on Climate Change created in 2005.

¹¹ Currently such functions are for the Inter-ministerial Commission on Climate Change.

¹² Translated by the author from the text available at www.bionero.org/sociedad/iniciativa-de-ley-general-de-cambio-climatico-para-mexico.

¹³ Available at www.ordenjuridico.gob.mx/Documentos/Estatal/Veracruz/wo55538.pdf.

¹⁴ Available at www.cambioclimaticochiapas.org/portal/descargas/nuestro_trabajo/ley_adaptacion_mitigacion_ccch.pdf.

¹⁵ Available at www.partidoverde.org.mx/pvem/2010/11/ley-de-cambio-climatico-del-df-ejemplo-para-ejecutivo-federal/.

adaptation. Similar to the Bill for the federal Climate Change Act, these new state acts create public institutions in charge of climate change policy and green funds to support such policies. However, none of the legislation incorporates provisions regarding liability.

Industrial and natural resources (emissions sources and energy mix)

- 22.20 In Mexico, combustion of fossil fuels to produce energy generates 61% of the country's total CO₂ emissions. The remainder of the CO₂ emissions comes from land use change (14%), management of waste (10%), agriculture (8%) and industrial processes (7%).¹⁶ Thus, energy efficiency is one of the important Mexican strategies for climate change mitigation.¹⁷ Energy efficiency actions yielded a reduction of energy consumption of 12,558 GWh (equivalent to 10.2 million tonnes of CO₂) in 2009.¹⁸

National climate change risks

- 22.21 Mexico is responsible for no more than 1.6 per cent of the world's total fossil fuel-based carbon emissions, placing it thirteenth in the rank of emitter countries.¹⁹ However, because of its geographical conditions, Mexico is very vulnerable to climate change.²⁰ Every state in the Mexican Federation is confronted with at least one considerable threat from climate change effects.²¹

¹⁶ See National Plan of Development, Official Gazette of Federation, 31 May 2007, available at <http://dof.gob.mx/>.

¹⁷ See Mexican Special Programme for Climate Change 2009–2010, Official Gazette of Federation, 28 August 2009, pp. 8–9.

¹⁸ Mexico Fourth National Communication to United Nations Framework Convention on Climate Change, available at <http://unfccc.int/resource/docs/natc/mexnc4s.pdf>.

¹⁹ See Mexican Special Programme for Climate Change 2009–2010, Official Gazette of Federation, 28 August 2009.

²⁰ Adrian Fernández *et al.*, 'Cambio Climático y Acciones para enfrentarlo' in Ninfa Salinas Sada and Yolanda Alaniz (eds.), *Temas Selectos de Medio Ambiente* (Mexico: Cámara de Diputados, 2011), pp. 121–80.

²¹ Mexico is among the countries with high vulnerability because 15% of its national territory, 68% of its population and 71% of its GDP are highly exposed to risk of adverse direct impacts of climate change.

22.22 According to the National Institute of Ecology,²² there are ten especially vulnerable sectors, including agriculture,²³ health²⁴ and water.²⁵ Forty million Mexicans living in extreme poverty conditions are particularly vulnerable to climate change.²⁶ This applies mainly in the northern parts of the country, where water scarcity is a central issue, and in the southern parts of the country, where tropical storms cause extensive damage to crop and livestock production.

(B) Public law

Overview

22.23 Climate change damage could implicate an administrative agency decision²⁷ because, under both Mexican federal and local environmental law, public agencies are in charge of authorising and regulating public and private activities that generate greenhouse gas ('GHG') emissions.²⁸ The federal Constitution holds that all decisions of public agencies must be issued in writing by a competent authority and must state the legal grounds and justification for the relevant action. In addition, all public agency decisions must comply with the requirements set up by Article 3 of the federal Act of Administrative Procedure. Thus, an administrative

²² See the website of the National Institute of Ecology, available at http://www2.ine.gob.mx/climatico/edo_sector/sector/sector.html.

²³ It is expected that, by 2030, over-exploitation and pollution of aquifers will make all irrigation districts economically unsustainable and that, by 2050, there will be a reduction of 5 to 29% in the ability of the soil to produce corn and other cereals.

²⁴ The risk of death from heat impacts will increase during the following years and some areas will be more vulnerable to diseases such as dengue or paludism as well as gastrointestinal infections. The effects will mostly be borne by children and old people.

²⁵ From 2020 to 2050 the medium summertime temperature will increase by between 1 and 3°C, and precipitation will decrease by 5 to 10% annually, diminishing the availability of water.

²⁶ According to official data, the areas most vulnerable to climate change are the States of Baja California, Sonora and Sinaloa, the basin of the 'Rio Lerma' and the south of the country.

²⁷ See José Juan González, 'Mexico' in Kurt Deketelaere, 'Environmental Law', *International Encyclopedia of Law* (Kluwer Law International, 2009), pp. 183–203.

²⁸ The main authorisation in this regard is the environmental impact authorisation that may be granted by federal or state environmental authorities.

decision that violates these constitutional or legal requirements may be challenged in the local or federal administrative courts.

Grounds for judicial review

- 22.24 The circumstances in which administrative courts may review decisions of public agencies are strictly limited to the following situations:
- (1) the decision has been issued by an incompetent authority;
 - (2) it lacks a specific object, that is to say it does not produce any legal effect;
 - (3) it contradicts the public trust protected by the applicable law;
 - (4) it has not been issued in writing or lacks the signature of the competent authority;
 - (5) it lacks foundation²⁹ and motivation;³⁰
 - (6) it has been issued without complying with applicable procedural rules;
 - (7) it has been issued with a mistake as to its object, cause or motivation;
 - (8) it has been issued on the basis of bad faith or violence;
 - (9) it does not identify the issuing authority;
 - (10) it has been issued with an error regarding the relevant file, document or persons; or
 - (11) it does not specify the date or place of issuing.³¹

Other aspects of judicial review

- 22.25 While procedure is generally governed by the federal Act of Administrative Procedure, it is complemented by provisions under LGEEPA.
- 22.26 Judicial review can only occur where there has been a ‘decision’ by a public authority.

²⁹ Foundation is defined as the expression of all specific legal provisions that support the administrative authority resolution.

³⁰ Motivation means that the administrative authority is obliged to express legal arguments that support why a specific legal provision is applicable to the specific case decided by the authority.

³¹ Article 3 of the federal Act of Administrative Procedure.

- 22.27 The only possible remedies resulting from a successful judicial review are (i) to nullify the decision, (ii) to oblige the administrative agency to issue a new decision, or (iii) to restart the decision-making process from where a violation occurred. In the field of administrative law, there is no remedy for damage, although judicial revision could halt activities that represent a risk of damage. For instance, when a court nullifies an environmental impact authorisation, the project cannot be built or operated.

Standing

- 22.28 A claimant must be able to show ‘sufficient interest’, that is, must have legal standing to file an action in court. Generally, administrative law only grants standing to those who were parties to the administrative decision-making process, i.e. the petitioner and the Government.
- 22.29 However, in the case of environmental authorities’ decisions, Article 180 of LGEEPA (as amended in 2006 and 2011)³² is more broad, granting legal standing to ‘individuals or communities that could be affected by ... works or activities’ that are contrary to law and that ‘cause or could cause damage to the environment, natural resources, wildlife or public health’.³³
- 22.30 This generous standing rule enables civil society organisations to stop activities that could cause climate change by filing an action in the administrative courts.
- 22.31 No challenges directly related to climate change have been brought under this rule. However, cases in the field of environmental protection more generally illustrate the application of this provision. For instance, in 1996 a non-governmental organisation called ‘Pro San Luis Ecológico’ filed an *amparo* action (injunction) to challenge the Environmental Impact Assessment Authorisation issued by the Ministry of Environment and Natural Resources to a Canadian mining company established in the state of San Luis Potosi. The court considered that the administrative authority had made many mistakes when

³² Official Gazettes of Federation, 13 December 1996 and 28 January 2011.

³³ Translated by the author from the text of the Act, available at www.diputados.gob.mx/LeyesBiblio/ref/lgeepa.htm.

authorising the project and therefore ordered the nullification of the authorisation.³⁴

Human rights law and judicial review

- 22.32 Article 4 of the federal Constitution establishes the right of Mexicans to a healthy environment. Thus, public agencies' decisions, laws or plans that violate this right may be directly reviewed by the federal courts via the filing of an *amparo* action (injunction). However, the 'Amparo Act' grants standing to file an action only to those people directly affected by the decision, law or plan. Consequently, other parties interested in filing an *amparo* action to enforce Article 4 of the Constitution must have previously filed an administrative action in accordance with Article 180 of LGEEPA. In addition, the scope of any resulting judicial decision is limited to those who filed the claim. Judicial decisions in *amparo* trials cannot provide remedies for damages.
- 22.33 Notwithstanding the above legislative limitation on filing *amparo* actions, the Supreme Court of Justice issued a decision that construed standing more broadly. In 1996, the NGO 'grupo de los cien' filed an *amparo* action (injunction) challenging an administrative agreement issued by the Ministry of Environment and Natural Resources that exempted a number of small- and medium-sized industries from the requirement to conduct environmental impact assessments. At that time, LGEEPA had not yet been amended to grant legal standing to third parties to challenge administrative decisions. However, the Court reasoned that because Mexico had signed the Rio Declaration, which included a commitment to protect the right of people to a healthy environment as a human right, individuals or NGOs therefore had standing to file legal actions necessary to protect this right.³⁵ In June 2011, Articles 103 and 107 of the Mexican Constitution were modified to allow NGOs to file *amparo* actions in defence of the human right to a healthy environment. It is expected that the Amparo Act will be amended to broadly recognise legal standing as well (see Official Gazette of Federation, 10 June 2011).

³⁴ A brief explanation of this issue may be found at www.newgold.com/Theme/NewGold/files/CSP%20Fact%20Sheet%20June%202010.pdf.

³⁵ An excellent analysis of this case is available in Lucio Cabrera Acevedo, *El amparo protector del derecho al ambiente y de otros derechos humanos* (Mexico: Porrúa, 2000).

Property rights and planning law

- 22.34 Property rights are protected under the federal Constitution. Article 27 of the Mexican Constitution recognises that the original property of the lands and waters of the Mexican territory was vested in the Nation. The Article also recognises that natural elements such as waters and lands may be situated on private property. However, Article 27, paragraph 3 establishes that, for reasons of environmental protection, the nation shall at all times have the right to impose on private property such limitations as the public interest may demand.
- 22.35 Hence, Article 27, paragraph 3 of the Constitution grants the executive branch (i.e. the Mexican President or state governors) the power to limit the exercise of property rights by individuals. Ordinances on territory, urban planning and protected natural areas are examples of limitations imposed by the nation on private property with the aim of preserving ecological balance as well as to mitigate negative effects of climate change by protecting, through these instruments, natural carbon sequestration. Similar limitations on the use of private property could be established to avoid the emission of GHGs. Conversely, disobeying the provisions established by ecological ordinance or urban plans as well as protected natural areas declarations could contribute to climate change damage because stored carbon might be released due to deforestation and environmental degradation.

(C) Private law

Preliminary considerations

- 22.36 The civil liability regime could provide a remedy for damage caused to people or the environment and resulting from emissions generated by activities either conducted or authorised by private or public parties.
- 22.37 Mexican private law recognises two types of liability: fault liability and strict liability. Fault liability is based on three elements: damage, fault (improper behaviour) and a link of causation between that conduct and the damage. Strict liability shares the elements of damage and causation but does not require proof of fault. Because strict liability is linked to dangerous activities, i.e. those involving

a considerable level of risk, it has the potential to be applied to environmental, and therefore climate change, damages.

- 22.38 Most Mexican environmental laws envisage the application of civil liability to remedy environmental damages. For instance, Article 203 of LGEEPA (as amended in 1996) asserts that all persons contaminating or deteriorating the environment or affecting natural resources shall be responsible and shall be forced to repair the resultant damage in accordance with the Civil Code.
- 22.39 Similarly, Article 96 bis-1 of the Waters Act provides that individuals or corporations that illegally discharge waste waters that cause contamination in a receiving body shall assume the responsibility of repairing the environmental damage caused.

Who might claim?

- 22.40 While in administrative law standing is limited to those directly affected by the administrative decision, under the Code of Civil Procedure, standing is limited to those individuals or corporations directly affected by the damage.³⁶ However, environmental laws have changed these rules for certain contexts. For example, the Wildlife Act holds in Article 107: 'Any person or corporation may denounce to the Attorney General Office for Environmental Protection damage to wildlife or its habitat without demonstrating that it has been personally or directly affected by such damages. The Attorney General Office for Environmental Protection shall carefully evaluate the file and when it proceeds, it will file an action for such damages under strict and solidary liability.'³⁷
- 22.41 Article 17 of the federal Constitution recently was amended to provide that the federal Congress must pass laws regulating class actions.³⁸ Such laws shall establish the matters where class action is available, the judicial procedures and the mechanisms for damage restoration. Such legislation has been submitted to Congress but its approval is still pending. When approved, the resulting Act will be applicable to the field of environmental protection and therefore to actions concerning damage due

³⁶ See Francisco Cornejo Certucha, 'Interés Jurídico' in *Diccionario jurídico* (Mexico: UNAM, 1992), pp. 1777-79.

³⁷ See Jose Juan Gonzalez Marquez, *La responsabilidad por el Daño Ambiental. El paradigma de la reparación* (Mexico: UAM-Porrúa, 2002), pp.195-205.

³⁸ The reform was published in the Official Gazette of the Federation on 29 July 2010.

to climate change. However, the constitutional reform did not change the rules on standing established by the Federal Act of Administrative Procedure, the Civil Code or the various environmental laws. The reform just allows those who have standing to file an action to do so through a class action.

Who might be defendants?

- 22.42 Even though there has been no case on this question, those responsible for GHG emissions may be civilly liable for climate change damage under the general principles of the Mexican legal system.

Issues of causation

- 22.43 In the Mexican legal system, the victim must prove that the damage has already occurred and that such damage is the consequence of the defendant's conduct. Proving this link of causation would be one of the main challenges in applying civil liability to climate change damage.³⁹
- 22.44 The first problem lies in proving the evidence of climate change. Such proof would necessarily involve complex science that is not as common or familiar to the courts as are evidentiary issues in cases involving traditional civil damages. Secondly, a plaintiff would have to prove that climate change is the consequence of human conduct. Thirdly, a plaintiff would have to prove which specific human conduct caused climate change. Finally, the plaintiff would have to prove that climate change has produced the civil damages, that is to say damage to persons or their properties.
- 22.45 To avoid the problems of proving the link of causation in cases of environmental damage, Mexican environmental laws channel liability to a specific entity. For instance Article 151 of LGEEPA (as amended in 1996) holds:

Liability for management and final disposition of hazardous waste falls upon those who generated the waste. Where the generators have hired out the management services and final disposition of the waste to companies authorized by the Secretary and where the waste has been given to these companies, liability for these companies' operations will be independent from the liability of the generators.⁴⁰

³⁹ See José Juan González Marquez, n. 37 above, pp. 167–82.

⁴⁰ Translated by the author from the text published in the Official Gazette of the Federation on 13 December 1996.

- 22.46 However, at the federal level, there is no specific causation rule applicable to damage resulting from climate change.

‘Specific causation’

- 22.47 By contrast, two state environmental laws have established heterodox principles to avoid problems related to causation by inverting the burden of proof. According to the environmental laws of the State of Colima and the federal district of Mexico City, when an industrial facility situated close to the place where damage has occurred has the capacity of producing the damage, there is a rebuttable presumption that the facility is liable.

Other factors

Limitation issues

- 22.48 According to Article 1934 of the Federal Civil Code, a civil action for damages must be brought within two years of the accrual of the cause of the damage. LGEEPA (as amended in 1996) modifies this term to five years. In the context of climate change, however, calculating the limitation period might be challenging because climate change damage could be generated by a series of acts that occur at different times and that do not have enough autonomy to establish a defining moment. In addition, climate change damage might not become evident until many years after its causes occurred.
- 22.49 The jurisprudence of the National Supreme Court of Justice may resolve such issues. Decisions of the Court have consistently established that the limitation term must be computed from the time that the cause stops producing damaging effects rather than from the time that the cause arose. The Court was moving in this direction by 1956, when it held in an injunction trial that ‘when damage is not caused from a singular act but results from a continuous sequence of events whose combinations produce the damage, the term to file the action must be computed from the time such process has concluded’.⁴¹

⁴¹ This judicial decision is available at *Judicial Journal of the Federation*, 5^a época, tomo CXXVIII, 295, Tercera Sala.

- 22.50 This rule was later legislated locally by Mexico City's Environmental Protection Act.⁴²

Remedies

Remedies in judicial review proceedings

- 22.51 Given that the outcome of successful judicial review proceedings is to modify decisions issued by public agencies, it is not possible to obtain a physical remedy for climate change damage through this route. However, through judicial review it is possible to stop those activities that could represent a risk of damages. For instance, when the court nullifies an environmental impact authorisation, the project cannot be built or operated.

Remedies in civil liability procedure

- 22.52 In general, according to Article 1915 of the Federal Civil Code, restoration of damage must consist of the re-establishment of the previous condition or, when re-establishment is impossible, the payment of an economic compensation. However, Mexican environmental laws stress the priority of remediation over economic compensation. For instance, Article 152-bis of LGEEPA (as amended in 1996) provides:

When generation, management or final disposition of dangerous waste or materials results in soil pollution, those responsible for the operation will carry out the necessary actions to recover and to re-establish the conditions of the soil, so as it can be designated to some of the activities foreseen in the applicable programme of urban development plans or of ecological zoning plans for such soil or area.⁴³

- 22.53 In regard to damages caused to wildlife or their habitats, Article 108 of the Wildlife Act provides:

The restoration of the damage in the case of liability for damage to wildlife and their habitats will consist in the re-establishment of the conditions previous to the commission of this damage and, if the re-establishment is impossible, in the payment of an economic compensation which will be dedicated, according to the regulation of

⁴² Mexico City's Environmental Protection Act was published in the Official Gazette of Mexico City on 13 January 2000.

⁴³ Translated by the author from the text published in the Official Gazette of the Federation on 3 July 2000.

this Act, to the development of programmes, projects and activities linked to the restoration, conservation and recovery of species and populations, as well as to the diffusion of wildlife protection, to qualification of people in charge of enforcing the law and to monitoring programmes to verify compliance with the Wild Life Act.⁴⁴

- 22.54 In contrast, Article 136 of the Forest Act prioritises the payment of economic compensation over ecological restoration. In cases of damage caused to forest resources, to the environment, to ecosystems or their components, the responsible party must provide the corresponding compensation.
- 22.55 Finally, although the Waste Act does not establish the obligation to repair environmental damage, it allows for the restoration of soils polluted by hazardous wastes in Articles 78 and 79, which respectively provide:

Article 78. The Secretary, in coordination with the Secretary of Health, shall issue the Mexican official norms for the characterisation of polluted places and shall evaluate the risks to the environment and public health that derive from them in order to determine, in function of the risk, the restoration actions that proceed.

Article 79. The regulation on land use and the programmes of ecological classification and of urban development shall be considered when determining the level of remediation of polluted places with hazardous waste, based on the risks that will be avoided.

(D) Other law

Criminal law

- 22.56 Although criminal law does not have the objective of damage restoration, modern criminal environmental laws may nevertheless contribute to this aim by adapting traditional principles of criminal law.⁴⁵
- 22.57 Title 25 ('Crimes against the environment and environmental management') of the Federal Criminal Code contains the provisions in relation to environmental crimes. The Title contains five

⁴⁴ Translated by the author from the text published in the Official Gazette of the Federation on 13 December 1996.

⁴⁵ See Candido Conde-Pumpido, 'Introducción al delito ecológico' in Juan Terradillos Basoco, *El delito ecológico* (Valladolid: Trotta, 1992), pp. 25–45.

chapters, four of which classify twenty types of criminal conduct related to technological and dangerous activities, biodiversity, bio-safety and environmental management, whereas the fifth chapter contains general provisions related to innovative penalties and precautionary measures to be adopted by judges when an environmental criminal act is committed. According to Article 415, it is criminal behaviour to commit or authorise a discharge into the atmosphere of pollutant gases, smoke or dusts that may cause damage to natural resources, flora, fauna, ecosystems or the environment.

- 22.58 The criminal punishment consists of imprisonment from one to nine years and an administrative fine equivalent to one thousand daily minimum salaries. However, Article 421 of the Federal Criminal Code directs that, apart from these sanctions, those polluting the atmosphere may be obliged to carry out the necessary actions to re-establish the conditions of the affected natural elements to the state in which they were before the relevant crime was committed.
- 22.59 Generally, holding a person criminally responsible requires a complex process. In accordance with the Mexican Constitution and the Federal Code of Criminal Procedure, in order to indict someone for a criminal violation, the prosecution must acquire enough evidence to prove all of the elements of the specific crime charged as well as the probable participation of an individual in the commission of the crime.
- 22.60 The elements of environmental pollution crimes are: (i) a specific action, such as the emission of pollutants into the atmosphere; (ii) a result, such as the harm to public health, natural resources, wildlife, water quality or ecosystems; and (iii) the violation of an environmental statute, regulation or legal standard, such as the discharge of pollutants into a river in a quantity that exceeds the statutory limits. Failure to obtain a regulatory permit or introducing a hazard into the environment may also be considered elements of a crime in some cases.
- 22.61 Under Mexican law, to indict a person for the commission of an environmental crime the Government must present evidence sufficient to demonstrate that the person either purposely harmed the environment or possessed knowledge that such harm was

possible. Under current regulations, criminal negligence is not sufficient for an indictment for the commission of an environmental crime.

The influence of international law on climate change liabilities in Mexico

- 22.62 Mexico is Party to the two principal international treaties aimed at tackling the problems associated with climate change, the United Nations Framework Convention on Climate Change ('FCCC') and the Kyoto Protocol.⁴⁶ However, since Mexico did not assume any GHG emissions reduction commitment, these treaties have not had any impact on domestic litigation.

Public trust – might the doctrine be applied in Mexico?

- 22.63 The public trust doctrine governs the property regime of natural resources. This doctrine prevents private ownership of air, flora and fauna. Furthermore, even where private ownership of forest land is allowed, the doctrine allows the nation to impose serious limitations on property rights in order to prevent forest degradation. The doctrine provides the foundation for the powers of the Ministry of the Environment to compel trustees to ensure that proper care is taken of the natural resources and their use or exploitation.

World heritage

- 22.64 There are twenty-seven UNESCO World Heritage sites in Mexico. Articles 4, 5 and 6 of the 1972 World Heritage Convention, which engage climate change mitigation, obligate the Mexican government to protect these sites. Most of these sites have been declared to be natural protected areas under LGEEPA, and thus they contribute to CO₂ sequestration and to the prevention of emissions from deforestation and degradation.

⁴⁶ See the FCCC website, at <http://maindb.unfccc.int/public/country.pl?country=MX>.

Liability in public international law

- 22.65 As mentioned, Mexico is not an Annex I Party to the FCCC and as such is subject only to the general commitments set out in Article 4(1), such as the obligation to develop the national inventory of anthropogenic emissions and the obligation to promote and cooperate in the development, application and diffusion of technologies that control, reduce or prevent anthropogenic emissions. As a result, State responsibility for violation of the Convention is highly unlikely.

(E) 'Soft' law*OECD*

- 22.66 Mexico is a member of the OECD and it is thus possible to bring a complaint before the national contact point for failure of a multinational enterprise to comply with the OECD Guidelines containing recommendations for 'responsible business conduct consistent with applicable law'. However, there is no case that illustrates this possibility.

(F) Practicalities*Founding jurisdiction for a claim*

- 22.67 Under the Federal Code of Civil Procedure, Mexican courts have personal jurisdiction where the defendant's legal domicile is in the country or where the damage occurs in Mexican territory, without taking into account the nationality of the defendant but under the condition that the damage is the result of non-compliance with a Mexican law.⁴⁷

Enforcement

- 22.68 Mexico is a Party to the North American Free Trade Agreement ('NAFTA'). Under the Environmental Side Agreement to NAFTA, the North American Agreement on Environmental

⁴⁷ See Article 24 paragraph IV of the Federal Code of Civil Procedure.

Cooperation ('NAAEC'), residents of Mexico who consider that the Mexican government does not comply with Mexican environmental laws may file an action called a 'petition of information' to request that the NAAEC Secretariat investigate whether there is a case of non-enforcement. This has been the main mechanism used by citizens to force public agencies to protect the environment during recent years. Although none of the cases investigated by the NAAEC Secretariat so far has related to climate change, such petitions may well occur in the future.⁴⁸

Litigation costs

- 22.69 Generally, in civil litigation in Mexico each party funds its own costs as matters progress. At the conclusion of the litigation and only if the interested party includes a petition in that regard in its complaint, the court may order an unsuccessful party to pay at least the majority of the costs of the party who is successful in a claim or on a specific part of the proceedings. Thus the basic rule is that the loser pays and the winner recovers.

Obtaining information

- 22.70 Access to climate change justice supposes access to information.⁴⁹ The right to access to environmental information is recognised by Mexican legislation in four different ways.
- 22.71 Firstly, access to information is considered by the Mexican Constitution as a human right. In this way, Article 8 of the Mexican Federal Constitution provides:

Public officials and employees shall respect the exercise of the right of petition, provided it is made in writing and in a peaceful and respectful manner; but this right may only be exercised in political matters by citizens of the Republic. Every petition shall be replied to in writing by the official to whom it is addressed, and said official is

⁴⁸ For information on the submission process and a record of petitions, see the section on citizen submissions on enforcement matters, available at www.cec.org.

⁴⁹ Paulo Affonso Leme Machado, *Direito à informação e meio ambiente* (Brazil: Malheiros, 2006), pp. 94–5.

bound to inform the petitioner of the decision taken within a brief period.⁵⁰

- 22.72 Secondly, under LGEEPA, any person can claim access to environmental information in the context of an environmental impact assessment. In that regard, Article 34 of the Act states that once the Ministry of Environment has received an environmental impact assessment request all information pertaining to it is available for public consultation.
- 22.73 Thirdly, Articles 159, 159 bis-1 and 159 bis-2 of the Act require the environmental authority to gather, systematise and make accessible to the public environmental information, whereas Article 159 bis-3 gives the people the right to access information.
- 22.74 Finally, in 2002 the Federal Act of Transparency and Access to Information ('Access to Information Act') was passed by the federal Congress.⁵¹ According to Article 1, the Act has the objective of guaranteeing to people the right to access information that governmental offices possess. This Act also created the Federal Institute for Access to Information as an autonomous entity in charge of promoting the right to access to information that governmental offices possess. Thus, this Act provides more comprehensive access to information on environmental matters than does LGEEPA.
- 22.75 When public authorities do not grant access to information as provided for in the Constitution and the Access to Information Act, relevant parties may file an *amparo* action (injunction) in order to force the authorities to disclose the requested information.

Disclosure (formerly 'discovery')
in civil litigation

- 22.76 According to Article 134 of the Federal Code of Civil Procedure, under the request of any party the judge may require the government offices to disclose any document or piece of information that is relevant to prove the action.

⁵⁰ Translated by the author from the text published in the Official Gazette of the Federation on 5 February 1917, as amended in 2010, available at www.diputados.gob.mx.

⁵¹ Official Gazette of the Federation, 11 July 2002.

Document retention requirements

- 22.77 According to LGEEPA, corporations and public bodies are under various obligations to retain documentation and records specifically regarding air pollutant emissions. For instance, all industrial sources of pollution are required to elaborate their own inventory of pollutant emissions and annually report it to the Ministry of Environment.

Disclosure obligation

- 22.78 Rights to information are closely allied to obligations to disclose. In that regard, in Mexico there is a constant pressure from civil society to compel corporations and government to disclose information not only through available legal procedures but through political action as well.

(G) Conclusion

- 22.79 Although Mexican environmental laws refer indirectly to climate change issues, no specific rules on climate change liability have been passed yet. Mexico's civil liability system appears to be applicable to climate change damage. However, a number of problems, such as proving the link of causation, standing to sue, time limitations to file an action, and the availability of a suitable remedy, must be solved in order to hold a defendant liable and for a plaintiff to obtain a remedy.
- 22.80 From the perspective of public law, administrative courts may issue a decision ordering the cessation of those activities that are causing or may cause climate change damage. But they are not empowered to order the restoration of damage already caused.
- 22.81 Finally, criminal law has been amended to encompass so-called environmental crimes, including provisions that criminalise specific types of air pollutant emissions. However, establishing criminal liability is also complicated, firstly because it requires the Attorney General to conduct a very careful investigation aimed at proving (i) all the elements of the criminal behaviour described by the Criminal Code, and (ii) the probable participation of the person in the commission of the crime; and, secondly, because the remedy does not consist directly in restoration.

Although a number of state climate change laws have been passed and a Bill for a federal climate change law is under discussion, none of these items includes specific provisions on climate change liability.

Thus, unless a fundamental reform is passed by Mexican Congresses (state and Federal), establishing climate change liability remains a difficult challenge.