

Institute for Governance & Sustainable Development (IGSD)

MEMO ON FAIR SHARE

15 August 2023

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I. Executive Summary

Although the term “fair share” is frequently used, there is no single generally accepted definition of the term in international environmental law.¹ This memorandum summarizes the key concepts emerging out of fair share frameworks set out in existing literature. The memorandum then outlines at a high level the Climate Action Tracker, a key framework which determines a fair share range for 42 countries. It also discusses approaches courts have taken in addressing fair share mechanisms in several recent cases from around the world. Finally, the memorandum includes a table of the Americas showing a carbon budget per capita and, where available, the CAT allocation.

II. Different Concepts of Fair Share

Höhne et al., updating previous work for the Intergovernmental Panel on Climate Change (IPCC),² have categorized four principles of equity common in fair share method studies: responsibility, equality, capability/need, and cost effectiveness.³

- (a) **Responsibility** refers to “historical contribution to global emissions or warming,” and is often linked to Article 3 of the United Nations Framework Convention on Climate Change (UNFCCC), which states that countries should take action based upon “common but differentiated responsibilities and respective capabilities.”⁴
- (b) **Capability**, also referred to as “capacity” or “ability to pay for mitigation,” is also related to “common but differentiated responsibilities and respective capabilities” in Article 3.⁵ Capability also encompasses the “basic needs” principle, also known as the “right to development,” because one expression of the capability principle is the proposition that

“the least capable countries could have a less ambitious reduction effort to secure their basic needs.”⁶

- (c) The **equality principle** describes “equal rights per person, which translates into equal emission allowances per person, immediately or over time.”⁷
- (d) Finally, some approaches use the **principle of cost effectiveness**, which calls for increased mitigation from countries that could make those emissions reductions at the lowest cost.⁸

Höhne et al. also outline three additional categories, each combining two or more of the first four principles listed above. The first category, equal cumulative per capita emissions, combines equality (per capita) and responsibility (cumulative accounting for historical emissions).⁹ The second is the responsibility, capability, and need category, including approaches that emphasize historical responsibility, capability, and the need for sustainable development.¹⁰ Finally, the authors outline a “staged approaches” category, with approaches that consist of several stages and compromise between several principles.¹¹ The Working Group III Contribution to the IPCC’s 6th Assessment Report (AR6 WGIII) noted that some equity approaches incorporate “grandfathering” as an allocation principle, “which some argue has led to ‘cascading biases’ against developing countries and is morally ‘perverse’.” (citations omitted)¹²

The principles discussed above are derived from effort sharing studies, but as AR6 WGIII notes, equity issues are often discussed in the literature via frameworks that are firmly established within ethical literature but have not yet been translated into a quantitative allocation framework.¹³ These perspectives include frameworks based in human rights, human capabilities, environmental justice, ecological debt, transitional justice, and planetary boundaries.¹⁴

III. Different Methods of Fair Share

The multiple approaches to deriving “fair share” incorporating multiple concepts have resulted in a wide range of effort sharing methods. As AR6 WGIII noted, “the existence of multiple metrics associated with a range of equity approaches has implications for how the ambition and ‘fair’ share of each state is arrived at; some average out multiple approaches and indicators, others exclude indicators and approaches that do not, in their interpretation, accord with principles of international environmental law”. The report draws attention to the work of one group of scholars which has suggested that utilitarianism offers an ‘ethically minimal and conceptually parsimonious’ benchmark that promotes equity, climate and development” (citations omitted).¹⁵

A. The Climate Action Tracker

The Climate Action Tracker (CAT) is an “independent scientific project that tracks government climate action and measures it against the [Paris Agreement].”¹⁶ CAT has calculated a “fair share range” for 42 countries by considering “over 40 studies used by the 5th Assessment Report of the IPCC, new studies that have been published since, and additional analyses that CAT has performed to complete the dataset” (citations omitted).¹⁷

CAT constructs this range “for each country from the range of fairness estimates from the literature,” using a weighting scheme to ensure all equity viewpoints are considered equally by equally weighting the seven identified categories (discussed below).¹⁸ The range published by CAT

consists of the inner 90% of the fairness estimates.¹⁹ CAT next divides this range into sections, or ratings, “by taking the same level within that range for all countries.”²⁰ To do so, CAT calculates the temperature outcomes that would result “if all other governments were to put forward targets with the same relative position on their respective fair share range, i.e. the same ambition level.”²¹ CAT thus divides the fair share range into critically insufficient (peak warming over the 21st century above 4°C), highly insufficient (peak warming over the 21st century below 4°C with a 66% chance), insufficient (peak warming over the 21st century below 3°C with a 66% chance), almost sufficient (peak warming over the 21st century below 2°C with a 66% chance), and 1.5°C compatible (limited end-of-century warming below 1.5°C with a 50% chance in 2100).²²

The seven categories of studies equally weighted by CAT closely follow Höhne et al.’s 2013 work, described above.²³ CAT uses responsibility, capability/need, equality, equal cumulative per capita emissions, responsibility/capability/need, and staged.²⁴ However, though Höhne et al. identified cost effectiveness as a distinct category, CAT uses capability/cost, defined as “a range of studies [that] use equal costs or welfare loss per GDP as a basis.”²⁵

IV. Judicial Approaches to “Fair Share”

A. Approaches by Courts

In *Urgenda*, the plaintiffs alleged that the Netherlands’ commitment to cut emissions by 20% by 2020 was insufficient because the State had an obligation to reduce emissions by 25% to 40% below 1990 levels by 2020.²⁶ The plaintiffs based this 25% to 40% determination on AR4.²⁷ The Netherlands argued that this percentage was intended for the Annex I countries as a whole and was therefore not indicative of the emission reduction that the Netherlands individually should achieve.²⁸ The Court held that “[t]he State has failed to provide substantiation for why a lower emission reduction percentage should apply to the Netherlands than to the Annex I countries as a whole.”²⁹ The Court noted that a distribution in proportion to the per capita GDP was a premise in the EU’s Effort Sharing Decision for distributing EU emission reductions, and that “[t]here is reason to believe that the Netherlands has one of the highest per capita GDPs of the Annex I countries and in any case is far above the average of those countries.”³⁰ Therefore, it is “reasonable to assume that what applies to the Annex I countries as a whole should at least also apply to the Netherlands.”³¹ The Court stated that the Court of Appeal had also considered the GDP per capita in fair share calculations,³² though there were multiple possible distribution formulas for these calculations based on GDP per capita.³³ The Court also stated that the Netherlands had one of the highest emissions per capita.³⁴ However, analysts have noted that if every country followed the least-ambitious end of the equity range, as the Court required the Netherlands to do in *Urgenda*, the goal of the Paris Agreement would not be achieved.³⁵

In *Neubauer*, the Federal Constitutional Court of Germany considered whether the German climate plan’s planned reduction in emissions was sufficient under German Basic Law.³⁶ In approaching the fair share question, the Court started by converting the “temperature limit of well below 2°C and preferably 1.5°C” to a corresponding global carbon budget.³⁷ The Court cited the IPCC’s estimated carbon budgets of 420Gt from 2018 onwards for a 67% probability of limiting warming to 1.5°C, and 1,170Gt for 2°C.³⁸ The German Advisory Council on the Environment calculated the national budget of 6.7 Gt from 2020 onwards based on a “target . . . of 1.75°C with a 67%

probability of success”³⁹ using a simple per capita approach.⁴⁰ The Court noted that “no exact [distribution] mechanism” can be derived from the relevant portion of German Basic Law, but that “Germany’s contribution. . . must be determined in a way that promotes mutual trust in the willingness of the Parties to take action.”⁴¹ The Court held that the 55% emissions reduction was insufficient, stating that if the carbon budget is 6.7Gt, “this remaining budget will have already been largely used up by 2030.”⁴²

Other courts have also outlined principles at play in determining fair share, though only in *Urgenda* and *Neubauer* did the courts quantify these principles. The principle of common but differentiated responsibilities is referred to by the Administrative Court of Berlin in *Family Farmers and Greenpeace Germany v. Germany*,⁴³ in the District Court of the Hague’s decision in *Urgenda*,⁴⁴ and the Supreme Court of the Netherlands’ decision in *Urgenda*.⁴⁵ The Supreme Court of Nepal, in *Shrestha*, referred to the need to “embrace the principles of sustainable development and allied principles of inter-generational and inter-generational equity.”⁴⁶ Finally, the principles of equity (inter- or intragenerational) appear in an Australian court’s opinion (the New South Wales Land and Environment Court, a specialist environmental state court) in *Gloucester Res. Ltd. v. Minister for Plan* (‘*Gloucester*’),⁴⁷ and the Supreme Court of Colombia’s decision in *Future Generations v. Ministry of the Environment and Others* (also referencing precaution and solidarity).⁴⁸

Other cases have endorsed the carbon budget approach without making any determinations on fair share. In *Gloucester*, a coal company sued the Minister of Planning over the Minister’s denial of the company’s application to construct a new coal mine in New South Wales, Australia. The Court noted that a “commonly used approach [in determining sufficiency of NDCs] is the carbon budget approach.”⁴⁹ The Court acknowledged three major areas of uncertainty regarding the carbon budget: “the probability of meeting the target; accounting for other greenhouse gases; and accounting for feedbacks in the climate system.”⁵⁰ The *Gloucester* Court did note that non-CO₂ gases are also relevant, stating that the IPCC estimates that if non-CO₂ emissions are not reduced, the carbon budget must be reduced. The Court appealed to distributive equity, including intergenerational equity and the differential effects on vulnerable groups,⁵¹ and upheld the Minister’s denial of the coal mine application.⁵²

In *Waratah Coal Pty Ltd v Youth Verdict Ltd and Others (No 6)* (‘*Waratah*’), the plaintiffs lodged an objection to a proposed coal project, and the Court found that the project would unjustifiably limit the plaintiffs’ rights.⁵³ In doing so, the Land Court of Queensland (another specialist environmental state court) determined that the expected emissions of the project, 1.58Gt of CO₂, “is a meaningful contribution to the remaining carbon budget to meet the long-term temperature goal of the Paris Agreement.”⁵⁴ The Court relied on a carbon budget and acknowledged tipping points and three climate scenarios in the course of defining the remaining carbon budget for two scenarios.⁵⁵ The Court noted that “[t]he climate change experts described the carbon budget as the most robust way to determine the changes in human activity required to meet the aims of the Paris Agreement.”⁵⁶

In the first instance decision of the Federal Court of Australia in *Sharma v. Minister for the Environment*, the Court also relied on a carbon budget analysis.⁵⁷ Though the Full Federal Court on appeal overturned the first instance holding on the duty of care, the findings on “the nature of the risks and the dangers from global warming” were left undisturbed.⁵⁸

Finally, the parties in two cases are asking courts to expressly use the CAT. In the European Court of Human Rights in *Duarte Agostinho v. Portugal* ('*Duarte*'), the applicants argue that ambiguity on fair share should be resolved in favor of the applicants because ambiguity "is a direct consequence of the failure by states (globally) to agree a clearly defined approach to sharing the burden of mitigating climate change."⁵⁹ The *Duarte* applicants suggest that the Court "ought to adopt/rely" on the Climate Action Tracker (CAT), which would allow the Court to determine the application "without any need to determine the 'correct' measure for global burden-sharing," while limiting the respondent States' ability "to 'extricate' themselves from their presumptive shared responsibility for the harm caused by climate change by relying upon mitigation efforts which are collectively incapable of keeping global warming to the 1.5°C target."⁶⁰

In *A Sud et al. v. Italy*, the applicants argue that the Civil Court of Rome must tackle the fair share question in order to determine States' obligations, and rely on CAT as a fair way to determine emissions.⁶¹

V. Methods of fair share allocation in the Americas

The Table below includes all members States of the OAS and shows the carbon budget per capita and, where available, the CAT fair share allocation.

Table 1. Carbon budget by capita and CAT

Country	Carbon budget per country from 2018 onwards per capita (MtCO ₂)	CAT Fair Share (in MtCO ₂ e/year & AR4 GWPs, excluding LULUCF)		
		2025	2030	2050
Anguilla	0.83			
Antigua and Barbuda	4.92			
Argentina	2390	234.94	191.30	47.75
Aruba	5.55			
Bahamas	21.5			
Barbados	14.7			
Belize	21.4			
Bolivia	646			
Brazil	11300	912.83	855.59	681.32
British Virgin Islands	1.65			
Canada	2020	369.00	296.30	-120.10
Caribbean Netherlands	1.42			
Cayman Islands	3.62			
Chile	1020	77.94	64.02	16.73
Colombia	2720	163.71	138.93	78.88
Costa Rica	272	15.92	14.91	3.92
Cuba	584			
Curaçao	10			
Dominica	3.81			
Dominican Republic	591			

Country	Carbon budget per country from 2018 onwards per capita (MtCO ₂)	CAT Fair Share (in MtCO ₂ e/year & AR4 GWPs, excluding LULUCF)		
		2025	2030	2050
Ecuador	949			
El Salvador	332			
Falkland Islands	0.198			
French Guiana	16.3			
Grenada	6.58			
Guadeloupe	20.7			
Guatemala	944			
Guyana	42.5			
Haiti	612			
Honduras	553			
Jamaica	147			
Martinique	19.1			
Mexico	6700	531.03	418.68	131.78
Montserrat	0.229			
Nicaragua	368			
Panama	233			
Paraguay	358			
Peru	1790	108.37	102.69	83.76
Puerto Rico	170			
Saint Kitts & Nevis	2.49			
Saint Lucia	9.41			
Saint Martin	1.67			
Sint Maarten	2.31			
St. Vincent & Grenadines	5.41			
Suriname	32.5			
Trinidad and Tobago	80.1			
Turks and Caicos	2.4			
United States	17700	3218.81	1854.66	-4614.24
U.S. Virgin Islands	5.15			
Uruguay	179			
Venezuela	1500			

References

- ¹ Rajamani L., Jeffery L., Höhne N., Hans F., Glass A., Ganti G., & Geiges A. (2021) *'National 'fair shares' in reducing greenhouse gas emissions within the principled framework of international environmental law'*, CLIM. POLICY. 21(8): 983–1004, 984 (“Although the phrase ‘fair share’ is frequently used, there is no single accepted definition of the term. This article uses the term ‘fair share’ to mean a share of the effort for mitigating climate change that is in accordance with the equitable principles of international environmental law.”).
- ² Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 122 (“Over 40 studies that analyse future GHG emissions allowances or reduction targets for different regions based on a wide range of effort-sharing approaches and long-term concentration stabilization levels are compared. This updates previous work undertaken for the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.”).
- ³ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 125 (“The large number of effort-sharing approaches can be categorized using equity principles, i.e. general concepts of distributive justice or fairness (Rose, Stevens, Edmonds, & Wise, 1998). Many different categorizations of these principles can be found in the literature (Aldy et al., 2003; Ringius, Torvanger, & Underdal, 2002; Rose et al., 1998). The studies and their scenarios were grouped according to the categories depicted in Figure 1 to allow the comparison of the substantially different proposals to allocate emission allowances. It was found that the studies have often shared efforts based on one or more basic dimensions: responsibility, capability, equality, and cost-effectiveness.”).
- ⁴ United Nations (1992) *UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE*, Art. 3 (“The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”).
- ⁵ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 126 (“Capability. This is sometimes also called ‘capacity’ or ‘ability to pay for mitigation’. Its origin is also often taken to be the reference in Article 3 of the UNFCCC to CBDR-RC.”).
- ⁶ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 126 (“Capability. This is sometimes also called ‘capacity’ or ‘ability to pay for mitigation’. Its origin is also often taken to be the reference in Article 3 of the UNFCCC to CBDR-RC. The ‘basic needs’ principle, also known as the ‘right to development’, was also considered in this category because it could be considered a special expression of the capability principle – the least capable countries could have a less ambitious reduction effort to secure their basic needs.”).
- ⁷ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 126 (“Equality. Many approaches are based on equal rights per person, which translates into equal emission allowances per person, immediately or over time.”).
- ⁸ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 126 (“Cost effectiveness. Some approaches allocate emissions reduction targets (in part) based on mitigation potential or costs–effectiveness. For example, emissions could be reduced in each country to the extent that the marginal costs of further reductions are the same everywhere (applying an equal carbon tax in an economic model). The triptych approach (Phylipsen, Bode, Blok, Merkus, & Metz, 1998) contains elements of cost–effectiveness in that those with high specific emissions (i.e. high potential for reductions) have to reduce more. It was used as a basis to share the emissions reductions of the first commitment period for the Kyoto Protocol within the EU.”).
- ⁹ Höhne N., den Elzen M., & Escalante D. (2013) *Regional GHG reduction targets based on effort sharing: a comparison of studies*, CLIM. POLICY 14: 122–147, 126 (“In addition to the four dimensions listed above, two additional categories that combine two of the four dimensions were included. ‘Equal cumulative per capita emissions’,

which is sometimes derived from a carbon budget, combines equality (per capita) with responsibility (cumulative accounting for historical emissions).”).

¹⁰ Höhne N., den Elzen M., & Escalante D. (2013) [Regional GHG reduction targets based on effort sharing: a comparison of studies](#), CLIM. POLICY 14: 122–147, 126 (“Approaches in the category ‘Responsibility, capability, and need’ put much emphasis on historical responsibility and, at the same time, on capability plus the need for sustainable development.”).

¹¹ Höhne N., den Elzen M., & Escalante D. (2013) [Regional GHG reduction targets based on effort sharing: a comparison of studies](#), CLIM. POLICY 14: 122–147, 126 (“Finally, a further category, ‘staged approaches’, includes those that already constitute a compromise over several principles.”).

¹² Patt A., Rajamani L., Bhandari P., Ivanova Boncheva A., Caparrós A., Djemouai K., Kubota I., Peel J., Sari A. P., Sprinz D. F., & Wettestad J. (2022) [Chapter 14: International Cooperation](#), in [CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE](#), Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Shukla P. R., Skea J., Slade R., Al Khourdajie A., van Diemen R., McCollum D., Pathak M., Some S., Vyas P., Fradera R., Belkacemi M., Hasija A., Lisboa G., Luz S., & Malley J. (eds.), 1468 (“Some of the equity approaches rely on ‘grandfathering’ as an allocation principle, which some argue has led to ‘cascading biases’ against developing countries (Kartha et al. 2018), and is morally ‘perverse’ (Caney 2011). While no country’s NDC explicitly supports the grandfathering approach, many countries describe as ‘fair and ambitious’ NDCs that assume grandfathering as the starting point (Robiou du Pont et al. 2017).”).

¹³ Lecocq F., Winkler H., Daka J. P., Fu S., Gerber J. S., Kartha S., Krey V., Lofgren H., Masui T., Mathur R., Portugal-Pereira J., Sovacool B. K., Vilariño M. V., & Zhou N. (2022) [Chapter 4: Mitigation and Development Pathways in the Near- to Mid-term](#), in [CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE](#), Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Shukla P. R., Skea J., Slade R., Al Khourdajie A., van Diemen R., McCollum D., Pathak M., Some S., Vyas P., Fradera R., Belkacemi M., Hasija A., Lisboa G., Luz S., & Malley J. (eds.), 472 (“Equity issues are often discussed in the literature via frameworks that are well-founded in the ethical literature and that have a strong bearing on effort-sharing, but have not yet been quantitatively modelled and expressed in the form of an emissions allocation quantified framework.”).

¹⁴ Lecocq F., Winkler H., Daka J. P., Fu S., Gerber J. S., Kartha S., Krey V., Lofgren H., Masui T., Mathur R., Portugal-Pereira J., Sovacool B. K., Vilariño M. V., & Zhou N. (2022) [Chapter 4: Mitigation and Development Pathways in the Near- to Mid-term](#), in [CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE](#), Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Shukla P. R., Skea J., Slade R., Al Khourdajie A., van Diemen R., McCollum D., Pathak M., Some S., Vyas P., Fradera R., Belkacemi M., Hasija A., Lisboa G., Luz S., & Malley J. (eds.), 472 (“These include, for example, ethical perspectives based in human rights (Johl and Duyck 2012), human capabilities (Klinsky et al. 2017b), environmental justice (Mohai et al. 2009; Schlosberg 2009), ecological debt (Srinivasana et al. 2008; Warlenius et al. 2015), transitional justice (Klinsky 2017; Klinsky and Brankovic 2018), and planetary boundaries (Häyhä et al. 2016).”).

¹⁵ Patt A., Rajamani L., Bhandari P., Ivanova Boncheva A., Caparrós A., Djemouai K., Kubota I., Peel J., Sari A. P., Sprinz D. F., & Wettestad J. (2022) [Chapter 14: International Cooperation](#), in [CLIMATE CHANGE 2022: MITIGATION OF CLIMATE CHANGE](#), Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Shukla P. R., Skea J., Slade R., Al Khourdajie A., van Diemen R., McCollum D., Pathak M., Some S., Vyas P., Fradera R., Belkacemi M., Hasija A., Lisboa G., Luz S., & Malley J. (eds.), 1468 (“It is worth noting that the existence of multiple metrics associated with a range of equity approaches has implications for how the ambition and ‘fair’ share of each state is arrived at; some average out multiple approaches and indicators (Hof et al. 2012; Meinshausen et al. 2015; Robiou du Pont and Meinshausen 2018), others exclude indicators and approaches that do not, in their interpretation, accord with principles of international environmental law (Rajamani et al. 2021). One group of scholars has suggested that utilitarianism offers an ‘ethically minimal and conceptually parsimonious’ benchmark that promotes equity, climate and development (Budolfson et al. 2021).”).

¹⁶ Climate Action Tracker, [What is CAT?](#) (last visited 20 July 2023) (“The Climate Action Tracker is an independent scientific project that tracks government climate action and measures it against the globally agreed Paris Agreement aim of ‘holding warming well below 2°C, and pursuing efforts to limit warming to 1.5°C.’ A collaboration of two organisations, Climate Analytics and NewClimate Institute, the CAT has been providing this independent analysis to policymakers since 2009.”).

¹⁷ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“The effort-sharing studies in the CAT’s database include over 40 studies used by the 5th Assessment Report of the IPCC (chapter 6 of WG III, Höhne et al. (2013)), new studies that have been published since, and additional analyses the CAT has performed to complete the dataset. A full overview of the studies used is in the references list below. They cover very different viewpoints of what could be fair, including considerations of equity such as historical responsibility, capability, and equality. We take into account results from studies that are originally compatible with the former 2°C goal, as well as the 1.5°C limit in the Paris Agreement, to cover the full range of perspectives and historical developments of the long-term temperature goals.”).

¹⁸ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“We construct a “fair share range” for each country from the range of fairness estimates from the literature. We further use a weighting scheme to make sure that all equity viewpoints (categories) are considered equally.”).

¹⁹ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“We construct a “fair share range” for each country from the range of fairness estimates from the literature. We further use a weighting scheme to make sure that all equity viewpoints (categories) are considered equally. The fair share boundaries are chosen as the inner 90% of the study distribution. By doing so, we limit the influence of extreme studies while having the wide majority of studies included in the fair share range.”).

²⁰ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“We then divide the “fair share range” into sections, or ratings, by taking the same level within that range for all countries. This allows to define the same level of ambition for all countries with regards to their individual fair share literature and determine fair emission allowances in the years 2025, 2030 and 2050. Each possible level corresponds to the temperature outcomes that would result if all other governments were to put forward targets with the same relative position on their respective fair share range, i.e. the same ambition level.”).

²¹ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“We then divide the “fair share range” into sections, or ratings, by taking the same level within that range for all countries. This allows to define the same level of ambition for all countries with regards to their individual fair share literature and determine fair emission allowances in the years 2025, 2030 and 2050. Each possible level corresponds to the temperature outcomes that would result if all other governments were to put forward targets with the same relative position on their respective fair share range, i.e. the same ambition level.”).

²² Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“Finally, the CAT identifies which levels of same ambition on the global range lead to global warming levels relevant for the Paris Agreement: Critically insufficient (peak warming over the 21st century above 4°C) Highly Insufficient (peak warming over the 21st century below 4°C with a 66% chance) Insufficient (peak warming over the 21st century below 3°C with a 66% chance) 2°C compatible (peak warming over the 21st century below 2°C with a 66% chance) 1.5°C compatible (limited end-of-century warming below 1.5°C with a 50% chance in 2100”).

²³ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“Categories of effort sharing approaches (Höhne, den Elzen, & Escalante, 2014). Note: cost effectiveness is a concept included in the capability/costs category, but isn’t a stand-alone category.”).

²⁴ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“Each category puts an emphasis on one particular aspect of effort-sharing and can therefore result in (very) different outcomes from the other categories: Responsibility. . . Capability/Need. . . Equality. . . Equal cumulative per capita emissions. . . Responsibility/capability/need. . . Capability/cost. . . Staged”).

²⁵ Climate Action Tracker, [CAT Rating Methodology: Fair Share](#) (last visited 20 July 2023) (“Capability/cost: a range of studies use equal costs or welfare loss per GDP as a basis. This is essentially a combination of mitigation potential and capability.”); (“Categories of effort sharing approaches (Höhne, den Elzen, & Escalante, 2014). Note: cost effectiveness is a concept included in the capability/costs category, but isn’t a stand-alone category.”).

²⁶ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 8.3.4 (“This case involves an exceptional situation. After all, there is the threat of dangerous climate change and it is clear that measures are urgently needed, as the District Court and Court of Appeal have established and the State acknowledges as well (see 4.2-4.8 above). The State is obliged to do ‘its part’ in this context (see 5.7.1-5.7.9 above). Towards the residents of the Netherlands, whose interests Urgenda is defending in this case, that duty follows from Articles 2 and 8 ECHR, on the basis of which the State is obliged to protect the right to life and the right to private and family life of its residents (see 5.1-5.6.4 and 5.8-5.9.2 above). The fact that Annex I countries, including the Netherlands, will need to reduce their emissions by at least 25% by 2020 follows from the view generally held in climate science and in the international community, which view has been established by the District Court and the Court of Appeal (see 7.2.1-7.3.6 above). The policy that the State pursues since 2011 and intends to pursue in the future (see 7.4.2 above), whereby measures are postponed for a prolonged period of time, is clearly not in accordance with this, as the Court of Appeal has established. At least the State has failed to make it clear that its policy is in fact in accordance with the above (see 7.4.6 and 7.5.1 above).”).

²⁷ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 2.2.2 (“Under both national and international law, the State is obliged, in order to prevent dangerous climate change, to ensure the reduction of the Dutch emissions level. This duty of care entails that, in 2020, the Netherlands must achieve a reduction in greenhouse gas emissions of 25-40% compared to emissions in 1990, in accordance with the target referred to in AR4 (see para. 2.1(11), above). A reduction of this magnitude is necessary in order to maintain the prospect of achieving the 2°C target. This is also the most cost-effective option.”).

²⁸ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.178 (This is the first of the two sub-themes that deal with the individual responsibility of the Netherlands. They all concern one or more of the following findings of the Court of Appeal: ‘60. The State has furthermore argued that the emission reduction percentage of 25-40% in 2020 is intended for the Annex I countries as a whole, and that this percentage can therefore not be taken as a premise for the emission reduction an individual Annex I country, such as the Netherlands, should achieve. The State has failed to provide substantiation for why a lower emission reduction percentage should apply to the Netherlands than to the Annex I countries as a whole. That is not obvious, considering a distribution in proportion to the per capita GDP, which has been taken as a premise in inter alia the EU’s Effort Sharing Decision for distributing the EU emission reductions among the Member States. There is reason to believe that the Netherlands has one of the highest per capita GDPs of the Annex I countries and in any case is far above the average of those countries. That is also evident from Appendix II of the Effort Sharing Decision, in which the Netherlands is allocated a reduction percentage (16% relative to 2005) that is among the highest of the EU Member States. It is therefore reasonable to assume that what applies to the Annex I countries as a whole should at least also apply to the Netherlands.”).

²⁹ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.178 (“This is the first of the two sub-themes that deal with the individual responsibility of the Netherlands. They all concern one or more of the following findings of the Court of Appeal: ‘60. The State has furthermore argued that the emission reduction percentage of 25-40% in 2020 is intended for the Annex I countries as a whole, and that this percentage can therefore not be taken as a premise for the emission reduction an individual Annex I country, such as the Netherlands, should achieve. The State has failed to provide substantiation for why a lower emission reduction percentage should apply to the Netherlands than to the Annex I countries as a whole. That is not obvious, considering a distribution in proportion to the per capita GDP, which has been taken as a premise in inter alia the EU’s Effort Sharing Decision for distributing the EU emission reductions among the Member States. There is reason to believe that the Netherlands has one of the highest per capita GDPs of the Annex I countries and in any case is far above the average of those countries. That is also evident from Appendix II of the Effort Sharing Decision, in which the Netherlands is allocated a reduction percentage (16% relative to 2005) that is among the highest of the EU Member States. It is therefore reasonable to assume that what applies to the Annex I countries as a whole should at least also apply to the Netherlands.”).

³⁰ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.178 (“This is the first of the two sub-themes that deal with the individual responsibility of the Netherlands. They all concern one or more of the following findings of the Court of Appeal: ‘60. The State has furthermore argued that the emission reduction percentage of 25-40% in 2020 is intended for the Annex I countries as a whole, and that this percentage can therefore not be taken as a premise for the emission reduction an individual Annex I country, such as the Netherlands, should achieve. The State has failed to provide substantiation for why a lower emission reduction percentage should apply to the Netherlands than to the Annex I countries as a whole. That is not obvious, considering a distribution in proportion to the per capita GDP, which has been taken as a premise in inter alia the EU’s Effort Sharing Decision for distributing the EU emission reductions among the Member States. There is reason to believe that the Netherlands has one of the highest per capita GDPs of the Annex I countries and in any case is far above the average of those countries. That is also evident from Appendix II of the Effort Sharing Decision, in which the Netherlands is allocated a reduction percentage (16% relative to 2005) that is among the highest of the EU Member States. It is therefore reasonable to assume that what applies to the Annex I countries as a whole should at least also apply to the Netherlands.”).

³¹ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.178 (“This is the first of the two sub-themes that deal with the individual responsibility of the Netherlands. They all concern one or more of the following findings of the Court of Appeal: ‘60. The State has furthermore argued that the emission reduction percentage of 25-40% in 2020 is intended for the Annex I countries as a whole, and that this percentage can therefore not be taken as a premise for the emission reduction an individual Annex I country, such as the Netherlands, should achieve. The State has failed to provide substantiation for why a lower emission reduction percentage should apply to the Netherlands than to the Annex I countries as a whole. That is not obvious, considering a distribution in proportion to the per capita GDP, which has been taken as a premise in inter alia the EU’s Effort Sharing Decision for distributing the EU emission reductions among the Member States. There is reason to believe that the Netherlands has one of the highest per capita GDPs of the Annex I countries and in any case is far above the average of those countries. That is also evident from Appendix II of the Effort Sharing Decision, in which the Netherlands is allocated a reduction percentage (16% relative to 2005) that is among the highest of the EU Member States. It is therefore reasonable to assume that what applies to the Annex I countries as a whole should at least also apply to the Netherlands.”).

³² Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.182 (“The Court of Appeal furthermore held that it is not obvious that a different reduction target should apply to the Netherlands when considering, put succinctly, the distribution of the reduction efforts in proportion to the gross domestic product (GDP) per capita.”); (The Court of Appeal hereby refers to a possible distribution formula for a ‘fair’ distribution of the reduction effort. Such distribution formulas involve legally non-binding statements about what a ‘fair’ distribution of the necessary reduction effort between the various countries would be (see section 4.129). Earlier on in this opinion, it was explained that the Court of Appeal may refer to such legally non-binding statements in connection with specifying the State’s duty of care (see section 2.31). Contrary to the complaints in grounds for cassation 7.1 and 4.3 (end), 7.3 (section 2) and 7.4, this is not incorrect, inconsistent or otherwise incomprehensible. The Court of Appeal recognised that the IPCC reports on the global situation and does not proffer opinions on individual countries, so that the complaints in grounds for cassation 7.1 and 4.3(i) and (ii) fail. The Court of Appeal also recognised that there are differences between the Annex I countries.⁴⁶⁶ The Court of Appeal reasoned why the lower limit of the 25%-40% range of the reduction target for Annex I countries applies to the Netherlands. Therefore, the complaint in grounds for cassation 7.1 and 4.3(iv) et seq. where these differences are pointed out, fails. This also shows that the Court of Appeal did not consider the 25%-40% reduction target to be a legal norm addressed to the Annex I countries as a group or to the Netherlands individually, as argued in ground for cassation 7.3 (section 1) (see in more detail section 4.93 et seq.).”).

³³ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.183 (“The State argues against the reference to a distribution of the reduction effort in proportion to the gross domestic product (GDP) per capita that several distribution formulas are conceivable (ground for cassation 7.4).⁴⁶⁷ That is true, but this fact does not affect the Court of Appeal’s reasoning. After all, the Court of Appeal is concerned about whether there is reason to assume that the reduction target of at least 25% for the Annex I countries would not apply to the Netherlands. The Court of Appeal has not found such reasons.”).

³⁴ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 4.184–4.186 (“In view of the foregoing, it cannot be said, contrary to what is asserted in ground for cassation 7.5, that the findings in para. 60 deny the State’s discretion to agree with other countries on a distribution of the reduction efforts. The Court of Appeal only offers a factual opinion on the applicability to the Netherlands of the lower limit of the range of the reduction target of 25%–40% for Annex I countries. 4.185 Ground for cassation 7.4 (end) also contains a complaint against the finding in para. 26 that of the 33 countries with higher emissions than the Netherlands, only nine have higher emissions per capita. Indeed, the State has argued that, measured in terms of per capita emissions, the Netherlands occupies the 28th position in the global ranking. In doing so, the State based its argument on data from the EDGAR database ‘CO2 time series 1990–2014 per capita for world countries’.⁴⁶⁸ This complaint fails. Contrary to what is stated in ground for cassation 7.4 (end), the Court of Appeal did not find, or not in a general sense, that the Netherlands ranks tenth in terms of per capita emissions. The Court of Appeal found that, of the group of countries that, in absolute terms, have higher emissions than the Netherlands, only nine have higher emissions per capita, and none of those nine is an EU Member State. This finding, and its comprehensibility, does not detract from the State’s assertion that the Netherlands ranks 28th on the global ranking in terms of per capita emissions. After all, this assertion relates to the per capita emissions of all countries (regardless of their emissions in an absolute sense).⁴⁶⁹ It should be noted that the State does not have any interest in this complaint being sustained, because the part of the facts challenged there does not support the Court of Appeal’s contested ruling. 4.186 The complaints in grounds for cassation 4.3 and 7.1 through 7.5 directed against para. 60 do not hold.”).

³⁵ Liston G. (2020) [Enhancing the efficacy of climate change litigation: how to resolve the ‘fair share question’ in the context of international human rights law](#), CAMBRIDGE INT’L L. J. 9(2): 241–263, 248 (“The decision in Urgenda has rightly been celebrated as setting a major precedent with global significance. According to Patrícia Ferreira, referring to the first instance decision which was upheld by the Supreme Court, it proves that, ‘despite the vague nature of the concept “to take the lead” in the climate regime, this core aspect of differentiation [between developed and developing countries] may have sufficient persuasive force to be used as a complementary tool in the interpretation of national obligations’. It is, at the same time, important to highlight that if every country were to reduce their emissions by the lowest amounts in the range considered in Urgenda, this would be insufficient to achieve the global temperature target to which that range is linked. As Yann Robiou du Pont and Malte Meinshausen have stated in relation to this decision, ‘systematic court decisions that governments must follow the least-ambitious end of an equity range would be insufficient to achieve the [goal of the] Paris Agreement’. This weakness is compounded by the fact that developing countries already viewed the equity range considered in Urgenda with ‘scepticism and outright hostility’. This means, of course, that if domestic courts in developing countries were to follow the approach adopted in Urgenda, they could not even require their governments to reduce their emissions by the lower end of this range.”).

³⁶ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 1 (“With their constitutional complaints, the complainants primarily allege that the state has not introduced a legal framework sufficient for swiftly reducing greenhouse gases, especially carbon dioxide (CO₂) – a legal framework they claim is necessary to limit the increase in global temperature to well below 2°C and preferably to 1.5°C. They challenge specific provisions of the Federal Climate Change Act. They claim that the reduction of CO₂ emissions specified in the Federal Climate Change Act is not sufficient to stay within the remaining CO₂ budget that correlates with a temperature limit of 1.5°C. Their constitutional complaints rely primarily on duties of protection arising from fundamental rights under Art. 2(2) first sentence and Art. 14(1) of the Basic Law (Grundgesetz – GG), as well as on a fundamental right to a future consistent with human dignity (menschenwürdige Zukunft) and a fundamental right to an ecological minimum standard of living (ökologisches Existenzminimum), which they derive from Art. 2(1) in conjunction with Art. 20a and from Art. 2(1) in conjunction with Art. 1(1) first sentence GG.”).

³⁷ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 216 (“(a) The temperature limit of well below 2°C and preferably 1.5°C can, in principle, be converted into a corresponding global CO₂ emission amount which can then be allocated to states. As has already been seen, this type of conversion is permissible due to the roughly linear relationship between the total amount of anthropogenic CO₂ emissions accumulated over time and the global temperature increase (see para. 32 above). In order to perform this conversion, the first step is to ascertain the amount of global emissions that can still be produced if the temperature is to be kept within the specified limit - this amount is the specific remaining global CO₂ budget. The second step is to determine how much of this is attributable to Germany - this is the specific remaining national

CO2 budget. The IPCC has defined specific remaining global CO2 budgets for various temperature limits and different probabilities of occurrence. On this basis, the Advisory Council has calculated a specific remaining national budget for Germany. This can be used to measure whether the emission amounts allowed in § 3(1) second sentence and § 4(1) third sentence KSG are compatible with the temperature limit.”).

³⁸ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 219 (“(b) The IPCC has provided numerical figures quantifying the size of the remaining global CO2 budget for different temperature limits and different probabilities of staying within those limits. For example, with a 67% probability of limiting global warming to 1.5°C, it has estimated the remaining global CO2 budget from 2018 onwards as being 420 gigatonnes. For a 2°C target, it has estimated the remaining budget from 2018 onwards as being 1,170 gigatonnes (IPCC, Special Report, Global Warming of 1.5°C, 2018, Chapter 2, p. 108, Table 2.2). On the basis of the IPCC figures, the Advisory Council has calculated the specific remaining national budget from 2020 onwards as being 6.7 gigatonnes. This is based on the target of limiting the rise in the global average temperature to 1.75°C with a 67% probability of success (SRU, Für eine entschlossenene Umweltpolitik in Deutschland und Europa, Umweltgutachten 2020, pp. 52, 88 para. 111).”).

³⁹ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 219 (“(b) The IPCC has provided numerical figures quantifying the size of the remaining global CO2 budget for different temperature limits and different probabilities of staying within those limits. For example, with a 67% probability of limiting global warming to 1.5°C, it has estimated the remaining global CO2 budget from 2018 onwards as being 420 gigatonnes. For a 2°C target, it has estimated the remaining budget from 2018 onwards as being 1,170 gigatonnes (IPCC, Special Report, Global Warming of 1.5°C, 2018, Chapter 2, p. 108, Table 2.2). On the basis of the IPCC figures, the Advisory Council has calculated the specific remaining national budget from 2020 onwards as being 6.7 gigatonnes. This is based on the target of limiting the rise in the global average temperature to 1.75°C with a 67% probability of success (SRU, Für eine entschlossenene Umweltpolitik in Deutschland und Europa, Umweltgutachten 2020, pp. 52, 88 para. 111).”).

⁴⁰ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 225 (“For example, the national share of the remaining global CO2 budget can be calculated using various distribution methods. For its recommendations, the Advisory Council took a per capita approach to emissions law - i.e. a distribution based on current population size - and accordingly used Germany’s 1.1% share of the total world population in 2016 as a basis (SRU, Für eine entschlossenene Umweltpolitik in Deutschland und Europa, Umweltgutachten 2020, p. 51)

⁴¹ Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 225 (“Other distribution methods are also conceivable (SRU, loc. cit., p. 48; Winter, ZUR 2019, 259), but no exact mechanism can be derived from Art. 20a GG. In particular, Art. 20a GG does not specify what share of the overall burden would be appropriate for Germany in light of fairness considerations. However, this does not make it permissible under constitutional law for Germany’s required contribution to be chosen arbitrarily. Nor can a specific constitutional obligation to reduce CO2 emissions be invalidated by simply arguing that Germany’s share of the reduction burden and of the global CO2 budget are impossible to determine. Since Art. 20a GG also includes an obligation to reach the climate goal through international cooperation, Germany’s contribution in this regard must be determined in a way that promotes mutual trust in the willingness of the Parties to take action, and does not create incentives to undermine it (see para. 203 above).”).

⁴² Bundesverfassungsgericht [BverfG] [Federal Constitutional Court] 1 BvR 2656/18, Mar. 24, 2021 ([Neubauer v. Germany](#)) (Ger.), ¶ 231 (“(a) Nonetheless, it does not seem certain that the remaining budget can be complied with on the basis of these provisions. If the specific amount of the remaining national CO2 budget that is still available from 2020 onwards is taken to be 6.7 gigatonnes – in line with the Advisory Council’s calculation for the target of limiting the increase in the global average temperature to 1.75°C with a probability of 67% (SRU, Für eine entschlossenene Umweltpolitik in Deutschland und Europa, Umweltgutachten 2020, pp. 52, 88 para. 111) – this remaining budget will have already been largely used up by 2030 by the CO2 amounts allowed in § 4(1) third sentence KSG in conjunction with Annex 2.”).

⁴³ Verwaltungsgericht Berlin (VGH) [Administrative Court Berlin], VG 10 K 412.18, Oct. 31, 2019 ([Family Farmers and Greenpeace Germany v. Germany](#)) (Ger.), 17–18 (“The Percentage by which the 2020 climate protection target is missed has a comparatively small share in annual emissions. Nevertheless, the state has a common but differentiated responsibility for mitigating climate change. . . Art. 3 para. 1 of the 1992 Framework Convention on Climate Change stipulates that the Parties shall protect the climate system for the benefit of present and future generations on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. The developed countries should take the lead in combating climate change and its adverse effects. The principle of common but differentiated responsibilities is reaffirmed in Art. 10 para. 1 of the 1997 Kyoto Protocol and is also found in Art. 2 para. 2 of the 2015 Paris Convention. According to Art. 4 para. 3 of the Paris Convention, the Parties are to show "maximum ambition" in their reduction contributions.”).

⁴⁴ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 2.36, 2.38 (“The purpose of the Convention, in brief, is to reduce greenhouse gas emissions and thereby prevent the undesired consequences of climate change. Among other things, Its opening words state the following: “Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions . . . Article 3 of the UN Climate Change Convention contains the following principles, among other things: 1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof.”).

⁴⁵ Hoge Raad [HR] [Supreme Court] The Hague, Dec. 20, 2019, 19/00135 ([De Staat Der Nederlanden v. Stichting Urgenda](#)) (Neth.), ¶ 5.7.2–5.7.3 (“The UNFCCC is based on the idea that climate change is a global problem that needs to be solved globally. Where emissions of greenhouse gases take place from the territories of all countries and all countries are affected, measures will have to be taken by all countries. Therefore, all countries will have to do the necessary. The preamble to this convention states, among other things, the following in this context: “Acknowledging that the global nature of climate change calls for the widest possible cooperation by all countries and their participation in an effective and appropriate international response, in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions, (...). Recalling also that States have (...) the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.” The objective of the UNFCCC is to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human induced interference with the climate system (Article 2). Article 3 contains various principles to achieve this objective. For instance, Article 3(1) provides that the parties “should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities”. Article 3(3) provides that the parties “should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects”.”).

⁴⁶ [Shrestha v. Office of the Prime Minister et al.](#) (2015) Supreme Court of Nepal, 61 NKP 3, 11 (“The petitioners have submitted that the extant law that was formulated for protection of the environment, namely, Environment Protection Act 1997, does not include provisions of climate change adaptation and mitigation, hence, there is a need for a separate law. The petitioners have demanded that until such a law is drafted and implemented, the respondents must immediately effectuate the provisions outlined in Climate Change Policy 2010. Climate change has not only affected human lives but all plants and animal species, their habitats and created an imbalance in ecology and biodiversity, therefore making it a matter of public concern. Therefore, while carrying out any activity relating to climate change, it should embrace the principle of climate justice. The need to mitigate the effects of climate change and to gradually reduce the vulnerability from disasters occurring because of climate change is similarly without contestation. If only we embrace the principles of sustainable development and allied principles of inter-generational and inter-generational equity, and formulate a law to conserve biodiversity and ecosystem, we can establish an edifice of climate justice for present and future generations.”).

⁴⁷ [Gloucester Res. Ltd. v Minister for Plan.](#) [2019] NSWLEC 7 (Austl.), 406–15 (“I find that the Rocky Hill Coal Project will raise issues of distributive equity, both intra-generational equity and inter-generational equity, as Dr Lawrence and Dr Askland have explained. The burdens of the Project, the various negative environmental, social and economic impacts, will be distributed to people in geographical proximity to the Project. The physical impacts of the Project,

such as the high visual impact and the particulate, noise and light pollution, will be experienced by people in geographical proximity to the Project. As Dr Askland observed: “There is a distinct inequity embedded in the development. It exposes a particular part of the local population - those within the estates in close proximity to the mine site – to distinct impact which is not accounted for” (Askland report, [12]). These physical impacts in turn trigger social impacts on these people. 407 The physical impacts of the Project will affect some groups in the community, including marginalised and vulnerable groups, more than other groups. The Project will have particular negative impacts on Aboriginal people whose Country is to be mined. They have strong cultural and spiritual connections to Country, which will be severely damaged by the Project. This will cause negative social impacts to a disadvantaged and vulnerable group in society. 408 The Project may also impact on other disadvantaged groups within the community, such as lower socio-economic groups and people over the age of 55 years, but the Social Impact Assessment for the Project fails to assess the potential social impacts on such disadvantaged groups. . . These negative environmental, social and economic impacts (burdens) will be distributed to these people and groups in the community. The economic and social benefits of the Project will, however, be distributed to other people and groups. . . The result is inequity in the distribution of the environmental, social and economic burdens and benefits of the Project within the current generation (intra-generational inequity). . . There is also inequity in the distribution between current and future generations. The economic and social benefits of the Project will last only for the life of the Project (less than two decades), but the environmental, social and economic burdens of the Project will endure not only for the life of the Project but some will continue for long after. The visual impact of the Project, even after mining rehabilitation, will continue. The natural scenery and landscape will be altered forever, replaced by an artificial topography and landscape. The social impacts on culture and community, especially for the Aboriginal people whose Country has been mined, will persist. A sacred cultural land created by the Ancestors of the Aboriginal people cannot be recreated by mine rehabilitation. As discussed below, the Project will emit greenhouse gases and contribute to climate change, the consequences of which will burden future generations.:)

⁴⁸ Corte Suprema de Justicia [C.S.J.] [Supreme Court], Civil. abril 5, 2018, M.P. L. A. T. Villabona, STC4360-2018, No. 11001-22-03-000-2018-00319-01 ([Future Generations v. Ministry of the Env.](#)) (Colom.), ¶ 10 (“The factors reviewed directly generate deforestation in the Amazon, causing short, medium, and long term imminent and serious damage to the children, adolescents and adults who filed this lawsuit, and in general, all inhabitants of the national territory, including both present and future generations, as it leads to rampant emissions of carbon dioxide (CO₂) into the atmosphere, producing the greenhouse gas effect, which in turn transforms and fragments ecosystems, altering water sources and the water supply for population centers and land degradation. . . This previous reality, in contrast with the legal environmental principles of i) precaution; intergenerational equity; and (iii) solidarity, leads the Court to conclude the following.”).

⁴⁹ [Gloucester Res. Ltd. v Minister for Plan.](#) [2019] NSWLEC 7 (Austl.), ¶ 441 (“A commonly used approach to determine whether the NDCs of the parties to the Paris Agreement cumulatively will be sufficient to meet the long term temperature goal of keeping the global temperature rise to between 1.5°C and 2°C is the carbon budget approach.”).

⁵⁰ [Gloucester Res. Ltd. v Minister for Plan.](#) [2019] NSWLEC 7 (Austl.), ¶ 440 (“The carbon budget required to meet a temperature target is influenced by at least three areas of uncertainty: the probability of meeting the target; accounting for other greenhouse gases; and accounting for feedbacks in the climate system. Professor Steffen explained these three areas of uncertainty”)

⁵¹ [Gloucester Res. Ltd. v Minister for Plan.](#) [2019] NSWLEC 7 (Austl.), ¶ 669 (“Thirdly, issues of distributive equity need to be considered. As explained earlier, there is distributive inequity in the distribution of the benefits of the Project (which are largely economic benefits) and the burdens or costs of the Project (such as the environmental, social and economic costs). This distributional inequity is between members of the present generation (intra-generational equity), such as by affecting different parts of the local community differently and having different impacts on different socio-economic and vulnerable groups. The distributional inequity is also between the present and future generations (inter-generational equity), such as by groups within the current generation receiving economic benefits but future generations experiencing environmental costs (Economic Assessment Guidelines, p 19).”).

⁵² [Gloucester Res. Ltd. v Minister for Plan.](#) [2019] NSWLEC 7 (Austl.), ¶ 699 (“In short, an open cut coal mine in this part of the Gloucester valley would be in the wrong place at the wrong time. Wrong place because an open cut coal mine in this scenic and cultural landscape, proximate to many people’s homes and farms, will cause significant

planning, amenity, visual and social impacts. Wrong time because the GHG emissions of the coal mine and its coal product will increase global total concentrations of GHGs at a time when what is now urgently needed, in order to meet generally agreed climate targets, is a rapid and deep decrease in GHG emissions. These dire consequences should be avoided. The Project should be refused.”).

⁵³ [*Waratah Coal Pty. Ltd. v. Youth Verdict Ltd. & Ors. \(No 6\)*](#) [2022] QLC 21 (Austl.), ¶ 44 (“I have found that several human rights would be limited by the Project. For the owners of Bimblebox, that is their right to property and to privacy and home. In relation to climate change, I have found that the following rights of certain groups of people in Queensland would be limited: the right to life, the cultural rights of First Nations peoples, the rights of children, the right to property and to privacy and home, and the right to enjoy human rights equally. Doing the best I can to assess the nature and extent of the limit due to the Project, I have decided the limit is not demonstrably justified.”).

⁵⁴ [*Waratah Coal Pty. Ltd. v. Youth Verdict Ltd. & Ors. \(No 6\)*](#) [2022] QLC 21 (Austl.), ¶ 35 (“It does not mean that approving the applications guarantees a particular temperature outcome, and I have not made my decision on that basis. This Project alone is not the difference between acceptable and unacceptable climate change. But 1.58 Gt of CO₂ is a meaningful contribution to the remaining carbon budget to meet the long-term temperature goal of the Paris Agreement. Making the coal available for combustion could limit the options for achieving that goal.”).

⁵⁵ [*Waratah Coal Pty. Ltd. v. Youth Verdict Ltd. & Ors. \(No 6\)*](#) [2022] QLC 21 (Austl.), ¶ 720, 721, 767 (“Waratah refers in its submissions to the percentage the GHG emissions represent to annual Australian or global emissions. Assessments on an annual basis are unhelpful in understanding the contribution of emissions associated with the Project, over its life, to the atmospheric concentration of CO₂. In any case, the climate scientists stated the remaining carbon budget for keeping temperatures to 1.5°C in 2100 will be exhausted in 8 years at the current rate of emission, and to keep temperatures to well below 2°C by 2100 will be exhausted in 15.5 years.”; “The Court heard evidence about scenarios that may assist the Court in understanding that contribution. They include climate scenarios used by the climate change experts derived from reports of the IPCC. Other scenarios considered in this section were developed by the International Energy Agency (IEA) and Wood Mackenzie (WM), an energy research and consultancy company which employs one of the market experts, Mr Manley. The IEA and WM models are discussed later (see [818]-[861]). Here I consider the climate scenarios used by the climate change experts, how they were derived, the temperature outcomes for those scenarios, and how the concept of a carbon budget relates to the scenarios . . . Climate scenario 1 is the best possible or near best possible outcome because it would stabilise global average surface temperature in 2100 at below 2°C above preindustrial temperatures. It is consistent with the goal of the Paris Agreement and can be equated to 2 SSPs: SSP1-1.9 and SSP1-2.6. [745] SSP1-1.9 relates to an increase in temperature of 1.4°C, SSP1-2.6 to an increase of 1.8°C. Both SSPs are challenging to achieve, SSP1-1.9 exceptionally so. SSP1-1.9 would see temperature overshoot 1.5°C in 2050 before decreasing in the second half of the century with a large drawdown of CO₂., [746] Both SSPs will require drawdown of CO₂ from the atmosphere. This means that, globally, we will need to draw down more CO₂ from the atmosphere than we emit.”; “Waratah refers in its submissions to the percentage the GHG emissions represent to annual Australian or global emissions. Assessments on an annual basis are unhelpful in understanding the contribution of emissions associated with the Project, over its life, to the atmospheric concentration of CO₂. In any case, the climate scientists stated the remaining carbon budget for keeping temperatures to 1.5°C in 2100 will be exhausted in 8 years at the current rate of emission, and to keep temperatures to well below 2°C by 2100 will be exhausted in 15.5 years.”; “The SSPs that meet the goal of the Paris Agreement of keeping temperature well below 2°C with the aim of limiting it to 1.5°C are SSP1-1.9 (1.4°C) and SSP1-2.6 (1.7°C)”); “Assuming a 67% probability of keeping the temperature to the target, and accounting for the 80 Gt CO₂-e emitted in the last two years’ emissions, the remaining carbon budget for SSP1-1.9 is 320 Gt CO₂-e and for SSP 1-2.7 is 620 Gt CO₂-e.”).

⁵⁶ [*Waratah Coal Pty. Ltd. v. Youth Verdict Ltd. & Ors. \(No 6\)*](#) [2022] QLC 21 (Austl.), ¶ 768 (“The climate change experts described the carbon budget as the most robust way to determine the changes in human activity required to meet the aims of the Paris Agreement. Professor Church said that, as science has evolved, the carbon budget encapsulates a lot of the knowledge from the climate models and is the most appropriate way forward now.”).

⁵⁷ [*Minister for the Environment v. Sharma*](#) [2022] FCAFC 35, Judgment of the Federal Court of Australia, Mar. 15 2022, VID 389, ¶ 331, 391 (“There is an approximately linear relationship between CO₂ emissions and increases in the Earth’s global average surface temperature in the absence of non-linear feedback effects. On the evidence, the best possible outcome for global warming is the stabilisation of the global average surface temperature at about 2°C above

pre-industrial levels. To achieve this best possible outcome, based on a carbon budget analysis by Professor Steffen, no new coal mines, or extensions of existing coal mines (and one can suppose, the extension of this mine), can be approved. . . . McGlade and Ekins used a global carbon budget framework to assess the amount of fossil fuel reserves that could be exploited without transgressing a particular temperature target. For example, based on a 50% probability of meeting the 2°C temperature target, they estimated the global carbon budget for the 2011-2050 period to be 1,100 Gt CO₂. This was somewhat higher than the budget of 855 Gt CO₂ in the second parameter for the first future used by Professor Steffen. I should note that if a higher probability were adopted, say 67%, the remaining carbon budget would be much less than 1,100 Gt CO₂, and even less coal and other fossil fuel reserves could be exploited.”).

⁵⁸ *Minister for the Environment v. Sharma [2022] FCAFC 35*, Judgment of the Federal Court of Australia, Mar. 15 2022, VID 389, ¶ 2 (“There are challenges to some of the primary judge’s findings (which should be rejected), but, by and large, the nature of the risks and the dangers from global warming, including the possible catastrophe that may engulf the world and humanity was not in dispute.”).

⁵⁹ *Duarte v. Portugal*, 20 Eur. Ct. H.R. 39371 (2020), ¶ 29 (“The question of what constitutes a state’s ‘fair share’ of the global burden of mitigating climate change is central to the determination of whether that state’s mitigation measures are adequate for the purpose of the Convention. In light of the above, ambiguity on this issue (or likewise as to the meaning, per Article 4(3) of the Paris Agreement, of the term “common but differentiated responsibilities and respective capabilities, in the light of different national circumstances”) must be resolved in favour of the Applicants. The Applicants contend, in this regard, as follows: [. . .]In any event, it is more appropriate that the Respondents rather than the Applicants bear the consequences of the absence of a clearly defined approach to global burden-sharing. The ambiguity surrounding the nature of a state’s ‘fair share’ is a direct consequence of the failure by states (globally) to agree a clearly defined approach to sharing the burden of mitigating climate change. Burden-sharing is, by definition, a matter for states, including the Respondents, to resolve between themselves rather than a matter arising as between the Applicants (or victims of climate change generally) and the Respondents (or states generally).”).

⁶⁰ *Duarte v. Portugal*, 20 Eur. Ct. H.R. 39371 (2020), ¶ 31, 32 (“In light of the above, the Applicants contend that the Court ought to adopt/rely upon the approach taken by the Climate Action Tracker (‘CAT’) – ‘an independent scientific analysis that tracks government climate action and measures it against the globally agreed [goal of the] Paris Agreement’ – to assessing the fairness of states’ mitigation measures.”; “This would allow the Court to determine this application without any need to determine the “correct” measure for global burden-sharing. At the same time, it limits the potential for Respondents being able to “extricate” themselves from their presumptive shared responsibility for the harm caused by climate change by relying upon mitigation efforts which are collectively incapable of keeping global warming to the 1.5°C target. It is submitted, therefore, that use of the CAT as a basis for the Court’s assessment produces an interpretation of the relevant Convention obligations which “is the most appropriate in order to realise the aim and achieve the object of the treaty,”⁶⁴ that of course being the “protection of individual human beings.”⁶⁵ Indeed, in the absence of an agreed approach to burden-sharing, it respectfully submitted that this is necessary in order to ensure that the right to live in an environment where global warming has not exceeded the 1.5°C target is “practical and effective” rather than “theoretical and illusory”).

⁶¹ Tribunale Civile di Roma (Trib. civ.) [Civil Court of Rome], *A Sud et al. v. Italy*, 5 June 2021, (It.), ¶ III.18–III.19 (“As proof, on 5 May 2021, the report by the international research organisation Climate Action Tracker, entitled Global Update: Climate Summit Momentum, verified the new emission reduction scenarios resulting from the announcements by Heads of State and Government at the aforementioned Summit. The result is still insufficient: the trajectory of global warming would be reduced by just -0.2°C compared to current state plans, with a projected increase in global temperature of +2.4°C, far exceeding the legal constraints of the Paris Agreement. . . . Moreover, according to Climate Action Tracker, the EU - if it wanted to contribute in a fair way to the achievement of the long-term goal set in the Paris Agreement - should reduce its emissions by 85% by 2030 compared to 1990.”).