Climate Change Law (2022)

*Rosemary Lyster**

Introduction

The year 2022 was a difficult one for building up any optimism about the prospects of the world meeting the goals of the 2015 Paris Agreement.[1] All regions of the world were severely impacted by climate-induced extreme weather events and disasters, with the IPCC's Sixth Assessment Reports warning that these will continue and escalate well into the future.[2] Russia's invasion of Ukraine precipitated a global energy crisis, with many countries forced to move away from gas, formerly supplied by Russia, to coal, with obvious climate change consequences. This exacerbated the already heavy preponderance of fossil fuels in the global energy mix. Meanwhile, the international climate change negotiations at Sharm el-Sheikh in November 2022 only served to highlight the very significant challenges and roadblocks on the road to reaching Net Zero by 2050.

1 Overview of Climate-Induced Disasters in 2022

In 2022 multiple records for extreme weather events were broken across every continent, including more frequent and severe storms, heatwaves, droughts, and other extreme weather events. For example, in early 2022, record-breaking intense rainfall occurred across vast areas of the states of south-eastern Queensland and north-east New South Wales in Australia. In the last week of February, based on the 1961–1990 period, rainfall was 2.5 to more than 5 times the monthly average. More than 50 sites in south-eastern Queensland and

* Rosemary Lyster is the Professor of Climate and Environmental Law at The University of Sydney Law School. She is also the Co-Leader of the multidisciplinary Climate Disaster and Adaptation Cluster, Sydney Environment Institute, The University of Sydney.

1 United Nations Framework on Climate Change, 'Conference of the Parties, Adoption of the Paris Agreement' (adopted December 12 2015, entered into force November 4 2016) UN Doc. FCCC/CP/2015/L.9/REV/1 (December 12 2015), at <https://unfccc.int/sites/default/files/english_paris_agreement.pdf>, last accessed (as any subsequent URL) on 8 June 2023.

2 Valérie Masson-Delmotte et al. (eds.), Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (CUP 2021).

 | DOI:10.1163/26662531_00501_025

north-east New South Wales (NSW) recorded more than 1 metre (1,000 mm) of rain in the week ending 1 March. Consequently, vast areas were subject to catastrophic flooding.[3]

From June to August 2022, monsoon rainfall in Pakistan caused flash floods and landslides as rivers and glacial lakes overflowed, destroying 1.7 million homes and displacing 32 million people internally. Water-borne diseases emanating from stagnant flood water displaced an additional 8 million displaced people. Over 1,700 lives were lost. One-third of the country was completely submerged inflicting serious damage on infrastructure, with the Pakistan Floods 2022 Post Disaster Need Assessment (PDNA)[4] estimating total damages in excess of USD 14.9 billion with nearly USD 16.3 billion needed for post-disaster reconstruction and rehabilitation.[5] The flood could have pushed 8.4–9.1 million more people below the poverty line.[6]

Towards the end of 2022, NASA and the Earth Observatory reported that millions of people in the Horn of Africa were facing starvation as the region experienced the longest and most severe drought on record.[7] This was caused by a combination of human-induced warming, Indian Ocean Sea surface temperatures, and La Niña resulting in four consecutive dry rainy seasons, which is unprecedented in the 70-year precipitation record. The drought, together with high food prices, has impacted many people's ability to grow crops, raise livestock, and buy food.[8] More than 3 million people were regularly going a day or more without eating, requiring them to sell their possessions. In Somalia, over 1.3 million people have been internally displaced upon abandoning their farms. Severe child malnutrition and acute water insecurity have also occurred. Water insecurity resulted in increased vulnerability to water-borne diseases, while women and children faced heightened risks of violence and exploitation as they travelled longer distances to fetch water.

Turning to Europe, 2022 was the second-worst wildfire season in the European Union since record keeping by the Copernicus' European Forest Fire Information System (EFFIS) began in 2000. In a report entitled Advance Report

3 See 2022 Flood Inquiry available at <https://www.nsw.gov.au/sites/default/files/noindex/2022-08/VOLUME_ONE_Summary.pdf>.

4 Available at <https://reliefweb.int/report/pakistan/pakistan-floods-2022-post-disaster-needs-assessment>.

5 *Ibid*., 12.

6 *Ibid*., 11.

7 Available at <https://earthobservatory.nasa.gov/images/150712/worst-drought-on-record-parches-horn-of-africa>.

8 Available at <https://fews.net/sites/default/files/Joint%20Alert%20on%202023%20MAM%20Rains%20Final_0.pdf>.

on Forest Fires in Europe, Middle East and North Africa 2022,[9] the EFFIS noted that wildfire damages in 2022 were surpassed only by those of 2017. A total of 16,941 fires occurred in 45 countries burning 1,624,381 hectares (ha).[10] Spain was the country most affected by wildfires with a total of 315,705 ha burnt.[11]

Furthermore, according to the Met Office, between 19 July and 14 August 2022, England, Wales, Scotland and Northern Ireland recorded their highest maximum and minimum temperatures on record.[12] In the United States, the National Oceanic and Atmospheric Administration reported[13] that nine weather and climate disasters, each accounting for USD 1 billion in damage, occurred in the first six months of 2022. This included droughts, tornadoes, severe weather events, hailstorms and derechoes.

2 The Intergovernmental Panel on Climate Change's (IPCC's) Sixth Assessment Reports

All of these climate-induced disasters, provide evidence for the findings contained in the 2021 and 2022, IPCC Sixth Assessment Reports. Working Group I's Report 'Climate Change 2021: The Physical Science Basis' (AR6) confirms that '[t]he impacts of climate change are already being felt in dramatic ways. The frequency and intensity of hot extremes (including heatwaves) has increased across most land regions since the 1950s, while cold extremes (including cold waves) have become less frequent and less severe (virtually certain). The IPCC confirms that the main driver of these changes is human-induced climate change (high confidence),[14] and that some of the hot extremes over the past decade would have been extremely unlikely to occur without this human influence.[15] Moreover, it is likely that the chance of compound extreme events has increased since the 1950s due to human influence.[16] This includes increases in the frequency of concurrent heatwaves and droughts on the global scale (high confidence), and of fire weather events in some regions of all inhabited

9 Available at <https://publications.jrc.ec.europa.eu/repository/handle/JRC133215>.
10 *Ibid.*, 10.
11 *Ibid.*, 16–36.
12 See <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-extremes>.
13 Available at <https://www.noaa.gov/news/june-2022-us-dominated-by-remarkable-heat-dryness>.
14 IPCC (n 2) 10.
15 *Ibid.*
16 *Ibid.*, 11.

continents (medium confidence).[17] As warming progresses, we can expect increases in the frequency and intensity of hot extremes, heavy precipitation, and agricultural droughts in some regions.[18]

3 The United Nations Emissions Gap Report 2022: the Closing Window – Climate Crisis Calls for Rapid Transformation of Societies

Turning now to the prospect of averting any of these impacts, the UNEP Emissions Gap Report 2022, released prior to the COP 27 negotiations, stated that there is currently no credible pathway to keeping the rise in global temperatures to below 1.5°C, in spite of the 2015 Paris Agreement temperature goal.[19] According to UNEP, progress on committing to strengthened 2030 Nationally Determined Contributions (NDCs) has been 'woefully inadequate'. The only action that can avoid an accelerating climate disaster is 'an urgent system-wide transformation'. At present, if there is no further strengthening of policies an increase of 2.8°C in global temperatures is expected. However, and although this is extremely unlikely to occur, if all NDCs plus Net-Zero commitments are implemented this could drop to a 1.8°C increase. To meet the Paris Agreement temperature goal, global greenhouse gases need to be reduced by unprecedented levels over the next eight years. By 2030, existing unconditional and conditional NDCs will only reduce global greenhouse gas emissions by 5 and 10 per cent respectively, compared with all policies that are currently in place. Yet, these percentages must reach 30 per cent and 45 per cent reductions respectively. After 2030, emissions must continue to decline rapidly so as to not use up the remaining atmospheric carbon budget. The global 'large-scale, rapid and systemic transformation' must occur across the electricity supply, industry, transport and buildings sectors, supported by a transformation in the food and financial systems.

4 BP Statistical Review of World Energy 2022

To get a "real world" perspective of the challenge of achieving this scale of transformation, it is always illuminating to read the BP Statistical Review of

17 *Ibid.*
18 *Ibid.*, 28.
19 Paris Agreement (n 1) para. 14.2.

World Energy. The 2022 Review, which reports on 2021 statistics, states that the 2020 reduction in global energy demand and emissions, resulting from the COVID-19 pandemic, was temporary with both of these bouncing back to pre-pandemic levels in 2021. In fact, primary energy demand increased by 5.8% in 2021, an increase of 1.3% compared with 2019. There was a marginal drop in the percentage of fossil fuels in the primary energy mix – 82% compared with 83% in 2019 and 85% in 2016. This indicates that there has been little progress in reducing reliance on fossil fuels since the 2015 Paris Agreement. CO_2 emissions from energy rose 5.9%, close to 2019 levels. In 2021, oil consumption increased by 5.3 million barrels per day (b/d) compared with 2020, nevertheless remaining below 2019 levels. What is significant, however, is that oil prices averaged USD 70.91/bbl[20] in 2021, the second-highest level since 2015. These prices provide little incentive to reduce production and consumption seemed unaffected by price. Regionally, the US dominated the consumption market (1.5 million b/d), followed by China (1.3 million b/d) and the EU (570,000 b/d). In 2021, OPEC+ accounted for more than three-quarters of the 1.4 million b/d increase in global oil production.

Like oil, natural gas prices grew strongly across all three major gas regions in 2021, rising fourfold to the highest annual levels in Europe (averaging USD 16/mmBtu) and tripling in the Asian LNG spot market (averaging USD 18.6/mmBtu). US prices nearly doubled to average USD 3.8/mmBtu in 2021 – their highest annual level since 2014. Demand for natural gas demand also grew globally by 5.3% in 2021, recovering above pre-pandemic 2019 levels. Its 24% share in primary energy in 2021 was the same as in 2020. Coal prices rose dramatically in 2021, with European prices averaging USD 121/tonne and the price in Asia averaging USD 145/t, its highest since 2008, with coal consumption also growing over 6% in 2021, slightly above 2019 levels, reaching its highest level since 2014. Meanwhile, China and India accounted for over 70% of the growth in coal demand in 2021. Global coal production matched consumption, with the increase in production attributable largely to domestic consumption in China and India. Indonesia, Europe and North America showed an increase in coal consumption in 2021 after nearly 10 years of declines in the EU and US.

In 2021, renewable primary energy (including biofuels but excluding hydro) grew by 15% - higher than that of any other fuel in 2021, with solar and wind capacity continuing to grow rapidly and close to the levels seen in 2020. China accounted for about 36% and 40% of the global solar and wind capacity respectively. However, it is salutary to note that in 2021 wind and solar reached

20 Note: bbl is an acronym for 'oilfield barrel' representing a volume of 42 gal US of oil.

only 10.2% share of power generation in 2021, surpassing the contribution of nuclear energy. Power generation in 2021 was dominated by coal which increased its share to 36%. Next was natural gas in power generation making up a 22.9% share in power generation in 2021.

5 What Insights Do the COP 27 Sharm El-Sheikh Negotiations Offer about Global Efforts to Tackle the Climate Emergency?

Given the discussion above, the question is whether the international negotiations under the UNFCCC and the Paris Agreement are likely to deliver outcomes to halt the impacts of climate change. As discussed below, the answer is a resounding no – certainly not judging by the outcomes of the 2022 COP 27 negotiations at Sharm el-Sheikh held in November 2022. The negotiations also represent the fourth meeting of the Parties (MOP 4) to the Paris Agreement.

Significantly, the Sharm el-Sheikh Implementation Plan[21] confirmed that there is now a 'global climate emergency' and the Parties reiterated their resolve to implement transitions to low-emission and climate-resilient development.[22] The Parties acknowledged that there are significant gaps in meeting the adaptation[23] and emissions goals[24] of the Paris Agreement.

They also acknowledged the impacts of climate change on the cryosphere, and the need to better understand these impacts, while also mentioning for the first time the notion of climatic 'tipping points'.[25] The Parties recognised that to limit global warming to 1.5° C requires rapid, deep and sustained reductions in greenhouse gas emissions (GHGs) of 43% by 2030 relative to 2019 levels',[26] and refer frequently to the 'critical decade of action'.[27] There is a new chapter on 'Energy' which expresses the urgency to rapidly transform energy systems to renewable energy in the context of 'the unprecedented global energy crisis' resulting from Russia's invasion of Ukraine in 2022.[28]

21 'Sharm el-Sheikh Implementation', available at <https://unfccc.int/sites/default/files/resource/cop27_auv_2_cover%20decision.pdf>.
22 *Ibid*., para. 6.
23 *Ibid*., para. 3.
24 *Ibid*.
25 *Ibid*., para. 5.
26 *Ibid*., para. 11.
27 *Ibid*., paras. 11, 13.
28 *Ibid*., para. 9.

5.1 *Finance*

It is the 'Finance' chapter of the Plan that seems to provide the most pause for thought as to whether the Paris goals can ever be achieved. The Plan highlights that, according to the International Energy Agency (IEA), about USD 4 trillion per year – USD 32 trillion in total – must be invested in renewable energy up until 2030 to reach net zero by 2050. At least another USD 4–6 trillion per year – USD 32–36 trillion in total – is needed for a global transformation to a low-carbon economy.[29] However, the IEA reports that in 2021 only USD 472 billion was spent globally on renewable energy.[30] This is 1/1000th of the amount needed – meaning that the world is already far behind where it needs to be. Moreover, developing countries need USD 5.8–5.9 trillion in the pre-2030 period to implement their nationally determined contributions under the Paris Agreement. Yet total global climate finance flows to developing countries in 2019–2020 was estimated to be USD 803 billion – only 31–32 per cent of annual investment needed to meet the Paris temperature goal.[31] 'Serious concern' is expressed that developed countries have still not met their 2010 Cancun commitment of jointly mobilising USD100 billion per year by 2020 to assist developing countries.[32]

The Report of the Green Climate Fund to COP27 notes that the total amount of funding disbursed from developed countries to developing countries through its offices is only USD 11.3 billion, which is entirely inadequate to meet their mitigation and adaptation needs.[33] Clearly, the GCF is not operating effectively with the Parties expressing serious concern that developed countries' funding commitments have not been met and it urges developed countries to meet the goal.[34]

---

29 *Ibid.*, para. 30.

30 International Energy Agency, 'World Energy Investment 2022' (2022) <https://www.iea.org/reports/world-energy-investment-2022/overview-and-key-findings>.

31 Sharm El-Sheikh Implementation Plan (n 21) para. 35.

32 *Ibid.*, para. 33.

33 UN Framework Convention on Climate Change, 'Addendum to the eleventh report of the Green Climate Fund to the Conference of the Parties to the United Nations Framework Convention on Climate Change' UN Doc. FCCC/CP/2022/4/Add.1 (5 November 2022) <https://unfccc.int/sites/default/files/resource/cp2022_04a01.pdf>; see also the UN Framework Convention on Climate Change, 'Decision -/CP 27 – Report of the Green Climate Fund to the Conference of the Parties and guidance to the Green Climate Fund (Sharm el-Sheikh Climate Change Conference, Sharm el-Sheikh, Egypt, 20 November 2022) <https://unfccc.int/sites/default/files/resource/cop27_auv_8c_Guidance_GCF.pdf>para. 3(a).

34 Sharm El-Sheikh Implementation Plan (n 21) para. 33.

The essential message arising from the COP 27 negotiations is that developed and developing countries are far away from achieving the Paris Agreement goals. While some may be encouraged by the significant investment in the United States in emissions reduction funding, this is dwarfed by the financing required, as discussed above. For example, the US Inflation Reduction Act of 2022[35] commits only USD 369 billion in incentives for investment in renewable energy, electrification and development of clean industries such as green hydrogen, while the Infrastructure Law[36] invests USD 5 billion in EV charging, USD 10 billion in transmission lines to transport clean energy and over USD 7 billion the critical minerals and materials needed for EV battery components.

5.2 *Adaptation*

The Parties note with serious concern the gap between current levels of adaptation and what is needed as set out by the IPCC in Working Group II's Sixth Assessment Report.[37] For the first time, Parties are urged to adopt a 'transformational approach' to enhancing adaptative capacity as well as strengthening resilience and reducing vulnerability to climate change.[38] The Parties also note the large number of countries that have not been able to submit their first national adaptation plan, as well as the challenges, complexities and delays in experience by developing Country parties in accessing funding and support from the Green Climate Fund.[39]

References to the transformational approach rely on the work of Pelling[40] who has asserted that current work on adaptation does not yet capture the full significance of adapting to climate change as a dynamic socio-ecological coevolution, especially given its focus on resilience.[41] The problem with resilience is that it aims to maintain 'functional persistence' which may have the effect of allowing unsustainable or socially unjust practices to persist. Furthermore,

35 See <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/>.

36 See <https://www.whitehouse.gov/briefing-room/statements-releases/2023/02/15/fact-sheet-biden-harris-administration-announces-new-standards-and-major-progress-for-a-made-in-america-national-network-of-electric-vehicle-chargers/#:~:text=President%20Biden's%20Bipartisan%20Infrastructure%20Law,%2C%20critical%20minerals%2C%20and%20materials>.

37 Sharm El-Sheikh Implementation Plan (n 21) para. 17.

38 *Ibid*., para. 18.

39 National Adaptation Plans, Decision -/CP.27, <https://unfccc.int/sites/default/files/resource/cop27_auv_3b_NAPs.pdf>.

40 Mark Pelling, 'Adaptation to Climate Change: From resilience to transformation' (Routledge 2011). See also Rosemary Lyster, Climate Justice and Disaster Law (CUP 2015) Chapter 4.

41 *Ibid*., 169.

it maintains the *status quo* without seeking the broader change in social and political power relations that can be achieved through adaptation.[42] For Pelling, there are a further two possible forms of adaptation – transition and transformation. Transition might be regarded as an intermediary form of adaptation where citizens' rights are expressed and enforced under existing political and governance regimes. Unfortunately, "rigidity traps" can develop where people and institutions try to resist change and persist with their current management and governance systems. If these rights and their application are inadequate, then the transition form of adaptation might become more like the transformation form, and will require significant efforts to overcome entrenched vested interest in the status quo. This opens up space for new rights to be won so that over time transformational change occurs.[43] Pelling asserts that when climate disasters strike, there is the potential for new understandings of identity and social organisation, as well as an alternative to established structures in the social contract.

Under the transformation form of adaptation, the causes rather than just the symptoms of vulnerability and risk, must be addressed.[44] The deep shifts which may occur in national political life at the time of climate disasters, precipitated often by the instability generated by development failures, can even catalyse regime change.[45] Pelling states that in developing a transformational form of adaptation, the interests of future generations, or citizens of second countries, should be admitted to the conversation, which fundamentally challenges the established social organisation based upon the nation-state.[46] Pelling notes further that if vulnerability to climate disasters is attributed to unsafe buildings, inappropriate land use and fragile demographics, adaptation will be regarded as a local concern and more amenable to resilience than transitional forms of adaptation. However, if the disasters are framed as an outcome of the wider social processes at play, then transformation becomes relevant.[47]

The Implementation Plan also urges developed countries to urgently and significantly scale up their provision of climate finance, technology transfer and capacity-building for adaptation for developing countries to formulate and implement their adaptation plans and communications.[48] Very weakly,

42 *Ibid.*, 170.
43 *Ibid.*, 172.
44 *Ibid.*, 172.
45 *Ibid.*, 86–87.
46 *Ibid.*, 84.
47 *Ibid.*, 97.
48 *Ibid.*, para. 19.

the Parties draw attention to the role of the Least Developed Country and the Special Climate Change Funds to assist developing countries to adapt and invite developed countries to make further contributions to these Funds.[49] For the first time, the Parties emphasise the importance of protecting, conserving and restoring water and water-related ecosystems and urge Parties to integrate water into adaptation plans.[50]

As mentioned above, the Report of the Green Climate Fund to COP27[51] notes that the total amount of funding disbursed from developed countries to developing countries through its offices is only USD 11.3 billion. The funding supports 209 adaptation and mitigation projects in 128 developing countries using a wide range of financial instruments including loans (42 per cent), followed by grants (41 per cent), equity (9 per cent), results-based payments (RBPS) (4 per cent) and guarantees (3 per cent).[52] Public sector funding amounts to only USD 7.3 billion with the remaining USD 3.9 billion raised from the private sector[53] in accordance with the GCF's Private Sector Strategy,[54] adopted in May 2022. Developing countries will need to pay back both the public and private sector loans. Clearly, the GCF is not operating effectively with the Parties expressing serious concern that developed countries' funding commitments have not been met and it urges developed countries to meet the goal.[55] The commitments are a far cry from the commitments made under the 2010 Cancun Agreements[56] to contribute USD 100 billion per year by 2020,[57] and the Paris Agreement 'mobilization of climate finance should represent a progression beyond previous efforts'.[58]

Consequently, only a small proportion of global climate finance comes from the GCF.[59] The most recent analysis reports that between 2011–2020 total

49 *Ibid*., para. 20.

50 *Ibid*., para. 21.

51 GCF Report, available at <https://unfccc.int/sites/default/files/resource/cp2022_04a01.pdf>; see also the COP's Guidance to the GCF. available at <https://unfccc.int/sites/default/files/resource/cop27_auv_8c_Guidance_GCF.pdf> para. 3(a).

52 GCF Report *ibid*., para. 12.

53 *Ibid*.

54 Available at <https://www.greenclimate.fund/sites/default/files/document/private-sector-strategy.pdf>.

55 Sharm El-Sheikh Implementation Plan (n 23) para. 33.

56 See <https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.

57 *Ibid*., para. 98.

58 *Ibid*., para. 9(3).

59 For example, under the auspices of the UNFCCC, the Green Climate Fund (USD 590.1 million), incorporating also the Least Developed Country Fund and the Special Climate Change Fund, and the Adaptation Fund (USD 1.235 billion) all provide funding to developing countries for mitigation and adaptation. However, like the GCF, the

climate finance from all public and private sources amounted to USD 4.8 trillion or an average of USD 480 billion annually.[60] This represents a considerable shortfall from the figures laid out at COP 27. It is no wonder, then, that for the first time the Plan highlights that what is needed is the transformation of the global financial system 'engaging governments, central banks, commercial banks, institutional investors and other financial actors'.[61] Multilateral development banks and international financial institutions are urged to transform themselves to adequately address the 'global climate emergency'.[62]

5.3 *Loss and Damage*

The Parties note 'with grave concern … the growing gravity, scope and frequency in all regions' of the devastating cost of economic and non-economic losses, including forced displacement and impacts on cultural heritage, human mobility and the lives and livelihoods of local communities. This underlines the importance of an adequate response to loss and damage with the Parties expressing deep concern about the growing debt burden occasioned by these losses and the impact on realising the Sustainable Development Goals.[63]

The Parties welcome, for the first time, consideration of a loss and damage fund (L&D Fund),[64] and welcome the establishment of institutional arrangements under the Santiago network for adverting, minimising and addressing loss and damage, including through catalysing technical assistance.[65]

A separate decision entitled 'Funding arrangements for responding to loss and damage associated with the adverse effects of climate change, including a focus on addressing loss and damage' is dedicated to the institutional arrangements for establishing the Fund.[66] In the Preamble, the Parties welcome the

---

funding disbursed to date is insignificant compared with the challenges facing developing countries. See the Report of the Green Climate Fund to COP 27 available at <https://unfccc.int/sites/default/files/resource/cp2022_05E.pdf> and the Report of the Adaptation Fund Board to COP27 available at <https://unfccc.int/sites/default/files/resource/cmp17_auv_7a.pdf>.

60 See Global Climate Finance: A Decade of Data 2011–2020 (Climate Policy Institute, October 2022).

61 Sharm el-Sheikh Implementation Plan (n 21) para. 30.

62 *Ibid*., para. 37.

63 *Ibid*., 23.

64 *Ibid*., para. 24.

65 *Ibid*. para. 25. See also <https://public.wmo.int/en/media/press-release/early-warnings-all-action-plan-unveiled-cop27#:~:text=The%20Executive%20Action%20Plan%20for,50%20billion%20in%20adaptation%20financing>.

66 'Funding arrangements' available at <https://unfccc.int/sites/default/files/resource/cma4_auv_8f.pdf>.

establishment of the Global Shield Against Climate Change Risks, which is a collaboration between the G7 and Vulnerable Group of 20 (V20), and the Early Warning for All.[67] The Global Shield is designed to assist V20 countries to develop Contingency Plans which analyse their greatest risks as well as preparedness mechanisms.[68] The Shield will enable these countries to quickly access pre-arranged finance at the government level, insurance, and social protection benefits. The German government has already dedicated €170 million towards the Shield. The Shield then complements the institutions and mechanisms set up under the UNFCCC and the Paris Agreement.

The L&D Fund will be managed by a Transitional Committee which will make recommendations on the operationalisation of the fund to COP 28 in November-December 2023. This will include the institutional arrangements, modalities, structure, governance and terms of reference for the fund.[69] The Committee must be informed by the current landscape of global, regional and national institutions operating in the L&D space and identify the gaps which relate to speed, eligibility, adequacy and access to finance. Solutions should be explored for priority gaps as well as the most effective ways of addressing the gaps for vulnerable populations and ecosystems. Potential sources of funding must be identified.[70] Two workshops will be held in 2023 and a synthesis report on existing funding arrangements and innovative sources of funding for loss and damage will be compiled.[71] The UN Secretary-General is invited to convene a meeting of the principals of international financial institutions and other relevant entities to identify the most effective ways of providing funding for L&D.[72] The World Bank and the International Monetary Fund are also invited to consider their contributions to funding arrangements for L&D.[73] The incoming President of COP 28 is requested to convene a ministerial consultation on L&D funding prior to the commencement of COP 28.[74]

However, the Secretariat is to take note of the budgetary implication of all of these activities and to undertake all actions subject to the availability of resources.[75]

67 *Ibid.*, Preamble.
68 See <https://www.bmz.de/resource/blob/122148/global-shield-information-note-v20-g7.pdf>.
69 Funding arrangements (n 66) paras. 4–5.
70 *Ibid.*, para. 6.
71 *Ibid.*, para. 7.
72 *Ibid.*, para. 11.
73 *Ibid.*, para. 12.
74 *Ibid.*, para. 14.
75 *Ibid.*, paras. 17, 18.

5.4 *Early Warning and Systematic Observation*

For the first time, the Parties recognise that one-third of the world, including sixty per cent of Africa, does not have access to early warning and climate information services. This impedes understanding of the limits of adaptation and attribution of climate change to extreme events.[76] Consequently, a new initiative was established – the Early Warnings for All initiative. The UN Secretary-General made a call on World Meteorological Day on 23 March 2022 to protect everyone on Earth through universal early warning systems within the next five years. Development partners, international financial institutions and the operating entities of the Financial Mechanism were called upon to support this initiative.[77] For example, Africa's lack of access to early warning and climate information services reminds one of the devastating consequences for Mozambique of Cyclone Ida, which destroyed 90% of Beira – the capital city.[78] The goal of this project is universal coverage of early warning systems in the next five years requiring an investment of USD 3.1 billion. The four pillars of this initiative are: Disaster Risk Knowledge; Observations and Forecasting; Dissemination and Communication; and Preparedness and Response.

5.5 *Implementation – Pathways to Just Transition and Action by Non-Party Stakeholders*

The Parties affirm, emphasise, and highlight that sustainable and just solutions to the climate crisis must be founded on meaningful and effective social dialogue with all stakeholders and that social protections to mitigate the impacts of the transition should be implemented, in the interests of social solidarity.[79]

Non-Party Stakeholders can play an important role in meeting the Paris targets. Consequently, the Parties welcome the Sharm el-Sheikh Adaptation Agenda[80] and the Breakthrough Agenda as well as the establishment of the High-Level Expert Group on the Net-Zero emissions Commitments of Non-State Entities launched by the UN Secretary General in March 2022. The Expert Group released its first Report entitled Integrity Matters Net Zero Commitments by Businesses, Financial Institutions, Cities and Regions in

76 Sharm el-Sheikh Implementation Plan (n 21) para. 26.

77 *Ibid*., para. 27.

78 See <https://www.ifrc.org/press-release/mozambique-cyclone-90-cent-beira-and-surrounds-damaged-or-destroyed>.

79 Sharm el-Sheik Implementation Plan (n 21) paras. 28–29.

80 See <https://climatechampions.unfccc.int/wp-content/uploads/2022/11/SeS-Adaptation-Agenda_Complete-Report-COP27_FINAL-1.pdf>.

November 2022.[81] In this Report, the Expert Group offers a roadmap to prevent Net Zero by 2050 commitments from being undermined by false claims, ambiguity and "greenwash". The Experts have created a universal definition of Net Zero, as well as five principles and ten recommendations to guide the future of Net Zero. The intention is to ensure the integrity of the actions that need to be taken by non-Party stakeholders such as cities, states, corporations, as well as regulators. The risk of greenwashing is that it will undermine genuine efforts, so 'creating both confusion, cynicism and a failure to deliver urgent climate action'. The Experts call for regulations to create a level playing field and ensure the implementation of stated ambitions.

6 Conclusion

The aforegoing discussion across a range of issues explains why it is that at the beginning of this article, the author stated that 'the year 2022 was a difficult one for building up any optimism about the prospects of the world meeting the goals of the 2015 Paris Agreement'. In fact, the situation is looking very grim indeed – and this is after 30 years of negotiations under the UNFCCC. The question is what can be achieved over the next 27 years as the world allegedly achieves Net Zero in 2050?

81 See <https://www.un.org/sites/un2.un.org/files/high-level_expert_group_n7b.pdf>.