



**INSOLVENCY
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A THOUGHT PAPER ON
**CLIMATE CHANGE
AND INSOLVENCY
IN INDIA**

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A Thought Paper on Climate Change and Insolvency in India

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Abstract

Climate change has emerged as a pressing global issue. The earth's climate is now changing at an unprecedented rate, driven by our continued reliance on fossil fuels and non-renewable resources, which have significantly increased carbon footprints worldwide. Despite growing access to clean energy alternatives and a heightened awareness of the economic benefits of sustainability, the impact of climate change continues to intensify. Global temperatures are projected to continue to rise posing significant risks at local, regional, and global levels, affecting natural ecosystems, human societies, and economies. The physical and transition risks of climate change are already evident across all sectors crucial to society, including human health, agriculture, food security, water supply, transportation, energy, and biodiversity. These effects are expected to become increasingly disruptive in the coming decades and impact enterprises operating across many sectors due to direct and indirect physical risks of climate change, and the cost of transition necessitated on account of policy, regulatory and technological changes. There is empirical evidence available on the economic loss of physical risks of climate change and their impact on the businesses and the economies they serve.

India stands at the cusp of transformation, poised to redefine its global stature as it marches towards its centennial milestone of becoming a developed country by 2047. As the world's largest democracy and the fastest-growing major economy, India's journey towards becoming an economic powerhouse by its 100th year of Independence is both compelling and complex. India has been at the forefront of mitigating and adapting to the adverse impact of climate change. The country's domestic climate policy is combative as well as preventive. This Thought Paper argues that there is a stark juxtaposition between the goals of insolvency law and climate change risk mitigation and adaptation and advocates that India can use the Insolvency and Bankruptcy Code 2016 (IBC) to effectively address many risks arising for businesses from climate change. Many measures can be taken without having to make any fundamental shifts in the existing policy framework or disrupting the process of stabilisation of IBC, a law still at its nascent stage; some policy changes will require recalibration of the

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policy underlying IBC. Nothing short of profound measures are required to address the risks of climate change considering the gravity of the challenge faced by humans, but the proposals in the Paper do not require shifting of tectonic plates in the short and midterm. However, a deeper evaluation of these proposals is required at the time of considering policy choices.

India, which is rapidly becoming the voice of the Global South, can implement measures to promote the achievement of climate mitigation goals in insolvency and restructuring procedures and set a high bar for other countries including developed economies. As climate change is primarily created by the excesses of the rich nations, India needs to continue highlighting that for the world to succeed in combating climate change, developed economies need to properly respect the principles of equity and common but differentiated responsibilities, and respective capabilities.

This Thought Paper is the outcome of a Problem Paper presented by the Insolvency Law Academy (ILA) at a roundtable held on Friday, 19 April 2024 (April Roundtable) in New Delhi. Later, the draft of this Paper was presented at another roundtable held on Friday, 20 September 2024 (September Roundtable) in New Delhi. Both roundtables were attended by policymakers, lawyers, insolvency experts, and insolvency practitioners, from India and other parts of the world. Deliberations at the roundtable offered invaluable inputs in shaping this Paper and the recommendations made herein. This Thought Paper will be circulated for wider consultation. Based on feedback, a policy paper will be presented at the ILA Annual Conference scheduled from 14th to 16th March 2025 to be held at Tijara Fort Palace, Alwar, Rajasthan. Link for the conference <https://insolvencylawacademy.com/the-3rd-annual-conference/>.

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Section 1

Climate Change

Climate change is the defining issue of the 21st century. It has emerged as a significant threat to human life, economies, and businesses worldwide, including in India. The climate refers to the long-term average of temperature, humidity, and precipitation patterns in a region or globally, assessed over seasons, years, or decades. Climate change, on the other hand, signifies a substantial shift in these average conditions, such as becoming warmer, wetter, or drier, over an extended period—typically decades or longer. This enduring trend separates climate change from the natural variability of weather.¹ Climate change is attributed directly or indirectly to human activity that alters the composition of the global atmosphere.² These changes collectively caused over time as well as exacerbated due to human activity during the Anthropocene Epoch³ are termed, by the scientific community, as climate change.

Carbon dioxide is one of the main gases causing climate change. Human activity is one of the leading causes of the increase in the levels of carbon dioxide, for example, the burning of fossil fuels, infrastructure projects, mining, etc. Its increase is a consequence of our economic success which has led to sustainability becoming secondary in our list of priorities. The generation of greenhouse gases leads to an increase in the average temperature of the earth because these gases act as a shield not allowing the excess heat to escape from the earth's atmosphere.⁴ The earth's average temperatures have risen by 1.4 degrees since 1850, which causes changes in the weather patterns around the globe. For example, changes in seasonal precipitation, summers lasting longer and winters ending sooner.⁵ El Niño, a period of unusual warming of Pacific Ocean waters, alongside its cold counterpart La Niña, causes cooling of the Pacific Ocean⁶, producing contrasting weather patterns locally and across the global climate such as disruptive rainfall during

¹ World Bank, "Climate Change Knowledge Portal," World Bank, accessed October 9, 2024, <https://climateknowledgeportal.worldbank.org/overview>.

² World Health Organization, "Climate Change and Health Fact Sheet," World Health Organization, accessed October 9, 2024, [https://www.who.int/docs/default-source/wpro---documents/hae---regional-forum-\(2016\)/climatechange-factsheet-rfhe.pdf?sfvrsn=75d570fd_2](https://www.who.int/docs/default-source/wpro---documents/hae---regional-forum-(2016)/climatechange-factsheet-rfhe.pdf?sfvrsn=75d570fd_2).

³ The Anthropocene Epoch is an unofficial unit of geologic time, used to describe the most recent period in Earth's history when human activity started to have a significant impact on the planet's climate and ecosystems. The word Anthropocene is derived from the Greek words *anthropo*, for "man," and *cene* for "new," coined and made popular by biologist Eugene Stormer and chemist Paul Crutzen in 2000.

⁴ United Nations, "What Is Climate Change?" United Nations, accessed October 9, 2024, <https://www.un.org/en/climatechange/what-is-climate-change#:~:text=Climate%20change%20refers%20to%20long,activity%20or%20large%20volcanic%20eruptions>

⁵ Intergovernmental Panel on Climate Change, "Climate Change 2023: Synthesis Report," IPCC, accessed October 9, 2024, <https://www.ipcc.ch/2023/03/20/ipcc-ar6-synthesis-report-climate-change-findings>.

⁶ Penn State University, "El Niño and La Niña," METEO 3: Introductory Meteorology, accessed October 9, 2024, <https://www.e-education.psu.edu/meteo3/node/2272>.

cultivation season.⁷ The impact of El Niño in 2023 on the sea surface temperature was particularly strong, driving it two degrees Celsius over the average from 1991 to 2020⁸ and record-breaking surface temperatures in regions of Southeast Asia that could increase the likelihood of extreme weather events.⁹ It is predicted that as a result of the greenhouse effect, average global temperatures are set to increase, making 2023 the hottest year on record with global temperatures close to 1.5 degrees Celsius.¹⁰

The World Meteorological Organisation predicts that the upcoming five years will be the highest in heat on record decreasing the thickness of ice caps and increasing extreme weather events as a result of climate change.

In recent times, the world witnessed one of the most extreme heat waves in the world in western North America in June 2021, which was one of the deadliest weather-based causes of death in history, taking nearly 1400 lives.¹¹ The summer monsoon in India in 2021 claimed over a thousand lives.¹² Apart from heat waves, the higher intensity of hurricanes witnessed lately¹³ is also considered a consequence of climate change. Hurricane Ida, which crashed in Louisiana in August 2021 was a Category 4 storm with wind speed of 150 miles per hour and estimated damages worth approximately \$65 billion. The European summer floods caused estimated damage worth \$43 billion according to AON Plc.¹⁴ A study by the World Weather Attribution found that the likelihood of extreme one-day rainfall events has increased two times because of global warming and human activities.¹⁵ Along with weather-based disasters, the earth's ecosystem also suffers as a result of climate change that is inducing unnatural migration, and infiltration of unsuitable elements into and also destroying habitats, leading to

⁷ AgroClimate, "El Niño, La Niña and Climate Impacts on Agriculture: Southeastern U.S.," AgroClimate, accessed October 9, 2024, <http://agroclimate.org/wp-content/uploads/2016/03/ENSO-Impacts-southeast.pdf>.

⁸ Down To Earth, "At Peak Value of 2°C Above Average Sea Surface Temperature, 2023-24 El Niño Among Strongest on Record," Down To Earth, accessed October 9, 2024, <https://www.downtoearth.org.in/news/climate-change/at-peak-value-of-2-c-above-average-sea-surface-temperature-2023-24-el-nino-among-strongest-on-record-94825>.

⁹ Jiang, N., Zhu, C., Hu, ZZ. *et al.* Enhanced risk of record-breaking regional temperatures during the 2023–24 El Niño. *Sci Rep* 14, 2521 (2024). <https://doi.org/10.1038/s41598-024-52846-2>

¹⁰ Copernicus Climate Change Service, "2023: Hottest Year on Record," Copernicus, accessed October 9, 2024, <https://climate.copernicus.eu/copernicus-2023-hottest-year-record/>.

¹¹ American Geophysical Union, "The Impact of Climate Change on Global Weather Patterns," *Geophysical Research Letters*, accessed October 9, 2024, <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2021GL097036>.

¹² Aon, "2021 Weather, Climate & Catastrophe Insight," Aon, accessed October 9, 2024, <https://www.aon.com/reinsurance/getmedia/1b516e4d-c5fa-4086-9393-5e6afb0eeded/20220125-2021-weather-climate-catastrophe-insight.pdf>.

¹³ NASA, "A Force of Nature: Hurricanes in a Changing Climate," NASA, accessed October 9, 2024, <https://science.nasa.gov/earth/climate-change/a-force-of-nature-hurricanes-in-a-changing-climate/>.

¹⁴ *Supra* note 12

¹⁵ World Weather Attribution, "Heavy Rainfall Which Led to Severe Flooding in Western Europe Made More Likely by Climate Change," World Weather Attribution, accessed October 9, 2024, <https://www.worldweatherattribution.org/heavy-rainfall-which-led-to-severe-flooding-in-western-europe-made-more-likely-by-climate-change/>.

dropping numbers of wildlife.¹⁶ Salmon habitats have become unpredictable, causing the species to have to constantly adapt and move for more options of feeding and survival.¹⁷ Drought, soil desiccation cracking and carbon dioxide emissions have become an inescapable loop for humans and are causing extreme hunger and poverty for the agrarian economy.¹⁸ Forest wildfires have become commonplace which signal the onset of climate distress and the smoke blanket brought about as a consequence chokes the planet further warming the oceans.¹⁹ This has led to the average global ocean temperature rising to 21.1 degrees Celsius which is 0.69 degrees Celsius higher than the century's average²⁰, with an increase of 0.14 degrees Fahrenheit every decade from 1901 to 2020²¹. This has resulted in the melting of polar ice caps which further results in flooding in coastal areas around the globe. The coastlines are expected to rise 10 to 12 inches in the next thirty years as a result of the rise in sea level because of melting Antarctic ice.²² As per a report by the U.S. Office for Coastal Management²³: By 2050, up to \$106 billion worth of coastal property will likely be below sea level. The precipitation patterns are set to evolve and the cases of flooding are bound to increase as some places around the globe get drier and some get wetter.²⁴ The flooding also raises the chances of the sinking of major coastal cities like Mumbai, Venice etc. by the year 2100 to the estimates of various scientists²⁵. The Inter-Governmental Panel on Climate Change²⁶ (IPCC) predicts heavy precipitation

¹⁶ U.S. Environmental Protection Agency, "Climate Impacts on Ecosystems," EPA, accessed October 9, 2024, <https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-ecosystems.html>.

¹⁷ ScienceDaily, "Diverse Habitats Help Salmon Weather Unpredictable Climate Changes," ScienceDaily, accessed October 9, 2024, <https://www.sciencedaily.com/releases/2024/03/240314171501.htm>.

¹⁸ ScienceDaily, "Drought, Soil Desiccation Cracking, and Carbon Dioxide Emissions: An Overlooked Feedback Loop Exacerbating Climate Change," ScienceDaily, accessed October 9, 2024, <https://www.sciencedaily.com/releases/2024/03/240313135541.htm>.

¹⁹ NASA, "Ocean Warming: Vital Signs of the Planet," NASA, accessed October 9, 2024, <https://climate.nasa.gov/vital-signs/ocean-warming/?intent=121>.

²⁰ World Economic Forum, "Ocean Weather Events and Heat," World Economic Forum, accessed October 9, 2024, <https://www.weforum.org/agenda/2023/01/ocean-weather-events-heat/>.

²¹ U.S. Environmental Protection Agency, "Climate Change Indicators: Sea Surface Temperature," EPA, accessed October 9, 2024, <https://www.epa.gov/climate-indicators/climate-change-indicators-sea-surface-temperature>.

²² NOAA, "Sea Level Rise Technical Report Sections," NOAA, accessed October 9, 2024, <https://oceanservice.noaa.gov/hazards/sealevelrise/sealevelrise-tech-report-sections.html>.

²³ NOAA, "Climate Change Fast Facts," NOAA, accessed October 9, 2024, <https://coast.noaa.gov/states/fast-facts/climate-change.html>.

²⁴ Full Report: Intergovernmental Panel on Climate Change, "Climate Change 2022: Impacts, Adaptation and Vulnerability," IPCC, accessed October 9, 2024, https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_FullReport.pdf.

Summary for Policymakers: Intergovernmental Panel on Climate Change, "Climate Change 2022: Impacts, Adaptation and Vulnerability: Summary for Policymakers," IPCC, accessed October 9, 2024, https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf.

²⁵ NOAA Climate.gov, "Antarctic Sea Ice Reaches Early Winter Record Low in June 2023," NOAA, accessed October 9, 2024, <https://www.climate.gov/news-features/event-tracker/antarctic-sea-ice-reaches-early-winter-record-low-june-2023>.

²⁶ The Intergovernmental Panel on Climate Change is an intergovernmental body of the United Nations. Its job is to advance scientific knowledge about climate change caused by human activities. The World Meteorological Organization and the United Nations Environment Programme set up the IPCC in 1988 - Intergovernmental Panel on Climate Change, "About the IPCC," IPCC, accessed October 9, 2024, <https://www.ipcc.ch/about/>.

and flooding to become more frequent and intense in Africa, Asia, North America and Europe while storms and cyclones will also intensify²⁷. Research has discovered that species in the Amazon rainforest face the risk of extinction due to it nearing the tipping point of transforming into savannah due to wildfires and droughts. The IPCC has projected a 70% to 90% decline in coral reefs once the average temperatures touch 1.5 degrees or higher which would also result in 4% of mammals losing 50% of their habitats.²⁸ High temperatures and droughts could combine in forests, compounding the risks of wildfires.²⁹ Conservation of existing ecosystems while monitoring the excesses of humanity will prove to be mitigating the climate risks while restoration of efforts can help save ecosystems and animals. Climate change is estimated to impact agricultural production, particularly in Asia³⁰ and thus leading to an increase in global consumer inflation.³¹

The greenhouse gas (GHG) emissions are the most significant threat to humanity and the inescapable reality the world faces. Action to reduce carbon emissions and adapt to the changing climatic conditions are required urgently as the world has already started to experience its consequences. For instance, it is estimated that by 2030, about 700 million people worldwide will be at risk of displacement by drought alone.³² Climate and weather variables affect the air people breathe, the food they eat, the water they drink, and the chances of getting infected with a life-threatening infectious disease. The IPCC has predicted that people living in Africa, Australia, North America and Europe are at risk for health issues due to rising temperatures and heat waves. According to NASA's climate research³³, one-fourth of the world population may experience severe heat stress for an extra month relative to the period of 1950-1979. Millions of people in Southeast Asia continue to struggle with torrential rain, floods, and landslides triggered by Typhoon Yagi, the strongest tropical cyclone Asia has seen in the year 2024 thus far, and the second most powerful storm in the world so far this year after Hurricane Beryl. While Typhoon Yagi has severely impacted multiple countries, including the Philippines, China, Laos, Myanmar, and

²⁷ Intergovernmental Panel on Climate Change. *Climate Change 2021: The Physical Science Basis*. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, 2021. <https://www.ipcc.ch/report/ar6/wg1/chapter/chapter-11/>.

²⁸ Intergovernmental Panel on Climate Change, "Global Warming of 1.5°C: Chapter 3," IPCC, accessed October 9, 2024, https://www.ipcc.ch/site/assets/uploads/sites/2/2022/06/SR15_Chapter_3_LR.pdf.

²⁹ Intergovernmental Panel on Climate Change, "Climate Change 2021: The Physical Science Basis, Chapter 11," IPCC, accessed October 9, 2024, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf, Page 98.

³⁰ Economist Intelligence Unit, "El Niño: South and South-east Asia's 2023 Wild Card," EIU, accessed October 9, 2024, <https://www.eiu.com/n/el-nino-south-and-south-east-asias-2023-wild-card/>.

³¹ Intergovernmental Panel on Climate Change, "El Niño Weather Patterns Could Impact Global Food Production," World Economic Forum, accessed October 9, 2024, <https://www.weforum.org/agenda/2023/06/el-nino-weather-impact-food-production/>.

³² United Nations, "Sustainable Development Goals," United Nations Sustainable Development Portal, accessed October 9, 2024, <https://sdgs.un.org>.

³³ NASA, "NASA Study Reveals Compounding Climate Risks at Two Degrees of Warming," NASA, accessed October 9, 2024, <https://climate.nasa.gov/news/3278/nasa-study-reveals-compounding-climate-risks-at-two-degrees-of-warming/>.

Thailand, it has hit Vietnam the hardest, where the death toll stands at around 233. The overall toll across these countries has crossed 300 as of mid-September 2024.

Global warming is a reality, and so is climate change. Nor is there much doubt that human activity is primarily responsible for it this time, although climate change occurred in the distant past even when Planet Earth was scarcely populated.³⁴

Climate Change and Environment, Social and Governance (ESG)

The Climate Change and Environment, Social and Governance (ESG) considerations are often conflated in the minds of investors. However, there are important distinctions between the two. The ESG is a framework used to assess an organization's business practices and performance on various sustainability and ethical issues. It also provides a way to measure business risks and opportunities in those areas. It is an investor-driven concept permeating the considerations surrounding investment or capital allocation³⁵, corporate finance and managerial conduct of corporations³⁶. This investor model tends to measure the impact of socio-economic and environmental concerns on the company's financial performance and operational prospects.³⁷ It is ideally aimed at internally mitigating adverse long-term financial consequences associated with rising regulatory costs, shifts in customer preferences and viability issues of the current production footprints.³⁸

Climate change is understood to be the E in ESG, covering all things related to the causes and impacts of climate change, as well as the transition to a lower-carbon economy. Environment or E in ESG investment-driven conduct based on 'single materiality' is narrowly defined in strict parameters that are measurable and designed to be simplistically appealing to investing

³⁴ Climate Change and Environment: Preparing to Face the Future, The Economic Survey, India, 2022-2023.

³⁵ PwC, "ESG-Focused Institutional Investment Seen Soaring 84% to USD 33.9 Trillion in 2026, Making Up 21.5 Percent of Assets Under Management: PwC Report," PwC, accessed October 9, 2024, <https://www.pwc.com/id/en/media-centre/press-release/2022/english/esg-focused-institutional-investment-seen-soaring-84-to-usd-33-9-trillion-in-2026-making-up-21-5-percent-of-assets-under-management-pwc-report.html>.

³⁶ International Journal of Trade, Economics and Finance, "The Impact of Environmental, Social and Governance Practices on Economic Performance," IJTEF, accessed October 9, 2024, <https://www.ijtef.com/vol7/501-FR00013.pdf>.

³⁷ Wang, Luna. "Environmental, Social, and Corporate Governance: A History of ESG Standardization from 1970s to the Present." Undergraduate Senior Thesis, Department of History, Columbia University, accessed October 9, 2024, https://history.columbia.edu/wp-content/uploads/sites/20/2023/05/Wang-Luna_thesis.pdf.

³⁸ McKinsey & Company, "Five Ways that ESG Creates Value," McKinsey & Company, accessed October 9, 2024, available at [https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Strategy%20and%20Corporate%20Finance/Our%20Insights/Five%20ways%20that%20ESG%20creates%20value/Five-ways-that-ESG-creates-value.ashx#:~:text=From%20our%20experience%20and%20research.capital%20expenditures%20\(Exhibit%202\).](https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Strategy%20and%20Corporate%20Finance/Our%20Insights/Five%20ways%20that%20ESG%20creates%20value/Five-ways-that-ESG-creates-value.ashx#:~:text=From%20our%20experience%20and%20research.capital%20expenditures%20(Exhibit%202).)

stakeholders³⁹. Metrics of climate strategy, low carbon strategy and fuel efficiency that form a part of E in ESG, often in practice tend to be geared more towards enhancing a company's reputation and risk profile in public perception primarily, to prevent financial failures induced by a loss of trust.⁴⁰ For reference, under the Indian regulatory regime, SEBI's BRSR Core⁴¹ contains environmental concerns to key performance indicators such as intensity of GHG emissions, water consumption, energy consumption and waste generation and management etc.⁴² Moreover, the reporting formats are entirely generic and applicable across sectors to companies that meet the market capitalisation requirements. Each company is likely to feel unique ramifications of climate risks to varied degrees, due to factors such as sector resilience⁴³, access to technology, firm resources, production process, location, supply chain vulnerability and customer demand.⁴⁴ The ESG ratings, on the other hand, may be focused on the industry-specific systemic issues faced by a company as opposed to its own company-specific risks⁴⁵, thus failing to appropriately identify risks for the revival of the enterprise. Larger enterprises with deeper financial resources are perceived as better equipped to manage climate concerns, or mitigating credit risk for its climate-vulnerable business operations.⁴⁶ Consequently, it can be said that even within the same sector, climate changes are not uniform across companies and depends considerably on individual business characters such as size and supply-chain interdependence.⁴⁷ At the same time, fossil resource industries are facing higher environmental litigations and claims⁴⁸ with increasing public awareness and stricter

³⁹ Kenneth P. Pucker and Andrew King, "ESG Investing Isn't Designed to Save the Planet," Harvard Business Review, accessed October 9, 2024, <https://hbr.org/2022/08/esg-investing-isnt-designed-to-save-the-planet>.

⁴⁰ Group Caliber, "ESG Strategy: Drive Positive Change with Perception Tracking," Group Caliber, accessed October 9, 2024, <https://www.groupcaliber.com/esg-strategy-drive-positive-change-with-perception-tracking/>.

⁴¹ The BRSR Core is a sub - set of the BRSR, consisting of a set of Key Performance Indicators (KPIs) /metrics under 9 ESG attributes.

⁴² Securities and Exchange Board of India, "BRSR Core - Framework for Assurance and ESG Disclosures for Value Chain," SEBI, accessed October 9, 2024, https://www.sebi.gov.in/legal/circulars/jul-2023/brsr-core-framework-for-assurance-and-esg-disclosures-for-value-chain_73854.html.

⁴³ IPCC. 2014. Climate Change 2014: Synthesis Report. In *Contribution of working groups I, II and III to the fifth assessment report of the intergovernmental panel on climate change* (eds Core Writing Team, Pachauri RK, Meyer LA), Page 151 Geneva, Switzerland: IPCC.

⁴⁴ National Center for Biotechnology Information, "Whether or Not a Climatic Event is Considered a Disaster Depends on the Economy as a Whole," NCBI, accessed October 9, 2024, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5938638/#:~:text=Whether%20or%20not%20a%20climatic,the%20economy%20as%20a%20whole>.

⁴⁵ Timothy M. Doyle, "Ratings That Don't Rate: The Subjective World of ESG Ratings Agencies," American Council for Capital Formation 1 (2018) Pages 11-12, accessed October 9, 2024, https://accfcorgov.org/wp-content/uploads/2018/07/ACCF_RatingsESGReport.pdf.

⁴⁶ The Influence of Firm Size on the ESG Score: Corporate Sustainability Ratings Under Review, accessed October 9, 2024, <https://link.springer.com/article/10.1007/s10551-019-04164-1>

⁴⁷ National Center for Biotechnology Information, "Whether or Not a Climatic Event is Considered a Disaster Depends on the Economy as a Whole," NCBI, accessed October 9, 2024, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5938638/#RSTA20170307C32>.

⁴⁸ United Nations Environment Programme, "Climate Litigation More Than Doubles in Five Years, Now a Key Tool in Delivering Climate Justice," UNEP, accessed October 9, 2024, <https://www.unep.org/news-and-stories/press-release/climate-litigation-more-doubles-five-years-now-key-tool-delivering#:~:text=As%20climate%20litigation%20increases%20in,2017%20to%202%2C180%20in%202022>

regulatory enforcements, while their ESG scores do not adequately reflect the impact of such claims on their financial resources.⁴⁹

Conventionally, environmental regulations tend to be accompanied by a corporate mindset that there is no cost benefit for the company beyond the cost minimization induced by compliance with the relevant regulations which reduces the companies' exposure to legal liability.⁵⁰ While ESG disclosures do offer a financial incentive beyond the aforesaid cost reductions, there are some systemic problems associated with this disclosure-based regime, and reliance solely on the current ESG framework may fall short of providing a holistic and potent solution to addressing climate change by urging a radical transitioning process.⁵¹

Climate change impacts most ESG issues and society's response to it in reshaping the broader ESG landscape. Climate change is not a subset of ESG; it is a factor relevant to all ESG issues. Financial institutions face a growing demand for products linked to organizations and investments that seek to minimize ESG risks and their own impacts on the environment and society. To meet this demand, a variety of ESG-related financial products have emerged, including loans, bonds, and exchange-traded funds (ETFs), among others. Products referencing climate-friendly organizations and investments are also in vogue. These include funds that invest in companies with no or little involvement in the fossil fuel industry, and so-called 'green bonds, where the proceeds are earmarked for investment in low-carbon activities.' This demand in turn has fuelled the development of a thriving ESG and climate analytics industry, which aims to help investors understand how aligned specific investments are with ESG and/or climate goals. This industry is also working to promote and enhance the disclosure of ESG and climate factors by organizations to improve investor understanding.

The ESG reporting and rating framework is unlikely to instrumentally capture the diverse sources of climate-associated risks on financial stability and production capacities for most of the market, even more so for the more climate-sensitive sectors. For instance, the research found that major players in the oil industry have adopted ESG terminology enthusiastically within their corporate governance with very little concrete action to show for it in terms of decreasing fossil fuel reliance and undertaking a carbon-efficient transition.⁵² This divergence between the ESG approach and the need of the hour due to climate risk for corporations is further sharpened by the former's preoccupation with the direct and entity-driven

Tom Lyon, "How a Sustainability Index Can Keep Exxon but Drop Tesla – And 3 Ways to Fix ESG Ratings to Meet Investors' Expectations," Michigan Ross, accessed October 9, 2024, <https://michiganross.umich.edu/news/how-sustainability-index-can-keep-exxon-drop-tesla-and-3-ways-fix-esg-ratings-meet-investors>.

⁵⁰ Kevin Watson, Beate Klingerberg, Tony Polito, Tom G. Guerts, *Impact of environmental management system implementation on financial performance: A comparison of two corporate strategies*, 15(6) MANAGEMENT OF ENVIRO. QUAL. AN INT. JUR. 622-628, 625 (2004).

⁵¹ World Economic Forum, "AI Can Help Meet ESG Goals and Address Climate Change," World Economic Forum, accessed October 9, 2024, <https://www.weforum.org/agenda/2023/01/ai-can-help-meet-esg-goals-and-climate-change/>.

⁵² Benjamin Franta, "The Clean Energy Claims of BP, Chevron, ExxonMobil and Shell: A Mismatch Between Discourse, Actions and Investments," PLOS ONE 17, no. 2 (2022): e0263596, accessed October 9, 2024, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0263596>.

environmental concerns⁵³ without accounting for the climate impact on macroeconomics or international concerns such as trade routes and shipping⁵⁴ that cannot be addressed by individual adaptive measures of the company.⁵⁵ On the other hand, the demand generated by establishing a clear link between systemic threat of debt default and climate change risks operating over a particular corporation, business model or sector, moves away from aspiration abstraction of ESG parameters towards implementable transition strategies developed on the basis of a comprehensive risk assessment.

Global Response

Much of the global angst associated with climate change is about the emission of GHGs and carbon, in particular. The more GHGs are emitted, the more they stay trapped in the atmosphere, accelerating global warming. If some of the cataclysmic consequences are to be avoided, then global warming must be arrested, slowed and, if possible, reversed. One way to strive for it is to reduce emissions of GHG, including carbon.

The urgent need to combat climate change and reduce greenhouse gas emissions has spurred a wave of international cooperation and agreements. The foundation for this global effort is the United Nations Framework Convention on Climate Change (UNC), adopted in 1992, which aims to stabilize greenhouse gas concentrations⁵⁶. Building on this framework, the Kyoto Protocol, adopted in 1997, took a significant step by setting binding emission reduction targets for developed countries⁵⁷. Further solidifying the global commitment to climate action, the landmark Paris Agreement, reached in 2015, set ambitious goals to limit global warming to well below 2°C above pre-industrial levels, with aspirations to limit the increase to 1.5°C.⁵⁸ While the Montreal Protocol, adopted in 1987, primarily focuses on phasing out ozone-depleting substances, its success in mitigating another global environmental crisis serves as a model for climate action. Most nations vowed in the Paris Agreement of 2015 to act to prevent a two-degree Celsius increase

⁵³ OECD, “ESG Investing: Practices, Progress and Challenges,” OECD, accessed October 9, 2024, <https://www.oecd.org/finance/ESG-Investing-Practices-Progress-Challenges.pdf>, Page 17.

⁵⁴ Chatterton J, et al. 2016. The Costs and Impacts of the Winter 2013 to 2014 Floods. Report SC140025/R1, Flood and Coastal Erosion Risk Management Research and Development Programme.

⁵⁵ National Center for Biotechnology Information, “Whether or Not a Climatic Event is Considered a Disaster Depends on the Economy as a Whole,” NCBI, accessed October 9, 2024, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5938638/#RSTA20170307C54>.

⁵⁶ Access information on Multilateral Environmental Agreements, 1997 - InforMEA, “United Nations Framework Convention on Climate Change,” InforMEA, accessed October 9, 2024, <https://www.informea.org/en/treaties/united-nations-framework-convention-climate-change>.

⁵⁷ Lavanya Rajamani, “The Making and Unmaking of the Copenhagen Accord,” *International and Comparative Law Quarterly* 59, no. 3 (2010): 824-843, accessed October 9, 2024, <https://www.cambridge.org/core/journals/international-and-comparative-law-quarterly/article/abs/iii-the-making-and-unmaking-of-the-copenhagen-accord/2B36C776916CF3CBBBD545C049B1C8157>.

⁵⁸ United Nations Framework Convention on Climate Change (UNFCCC). “History of the Convention.” 2020. Accessed October 15, 2024. <https://unfccc.int/process/the-convention/history-of-the-convention>.

and to target an increase of no greater than 1.5 degrees.⁵⁹ Many nations pledge to reduce their net emission to zero by 2050. Some wish to achieve it by 2060 and by 2070.

Science is not very clear on whether further emission reduction would necessarily guarantee a stoppage or reversal of global warming. The reason being much carbon dioxide and other GHGs have already been emitted over the last two and half centuries of industrialisation-led economic growth in today's advanced nations, principally in North America and Europe. The share of developing countries in the stock of GHGs (usually measured as carbon dioxide equivalent) has been minimal compared to developed countries. This is corroborated by the IPCC, which highlights that the challenges faced due to global warming are mainly due to cumulative historical and current GHG emissions of developed countries. The impact of the accumulation would also be iniquitous, with the developing countries not only bearing the brunt of climate change but also constrained by their capacity to respond to its challenges. The IPCC's Sixth Assessment Report (AR6) notes that high human vulnerability global hotspots are found particularly in West, Central & East Africa, South Asia, Central, and South America, Small Island Developing States, and the Arctic.

India's Response

The IPCC's Sixth Assessment Report (AR6) notes that Asia is most vulnerable to climate change, especially to extreme heat, flooding, sea level rise, and erratic rainfall. Ironically, the burden of adaptation is highest for those who have contributed the least to global warming.⁶⁰ Climate change is primarily attributed to disproportionately high cumulative emissions, both historical and high per capita annual emissions of GHGs of the developed countries. India has contributed only 4 per cent (until 2019) to the cumulative global emissions and its per capita emission is far less than the world average.⁶¹ That unfortunate inevitability means the stock of GHGs in the atmosphere may have already set a train of events that future emission reduction could do very little to stop or reverse. The global nature of the problem makes India one of the most vulnerable regions despite having contributed only about 4 per cent in the cumulative global emissions (for the period 1850-2019) and maintaining its per capita emission at far less than the world average. While India is less responsible for the high stock of emissions, however, it has consistently engaged in demonstrating global leadership towards adopting various measures and ensuring a low-emission growth pathway with a commitment to the net-zero emissions goal by 2070.⁶²

⁵⁹ Paris Agreement of the United Nations Framework Convention on Climate Change, *supra* note 9, art. 2; see, The Paris Agreement, *supra* note 9; see, also United States v. California, No. 19-cv-02142, 2020 WL 4043034, at 3 (E.D. Cal. July 17, 2020)

⁶⁰ Government of India *Climate Change and Environment: Preparing to Face the Future*. Economic Survey 2022-2023. New Delhi: Ministry of Finance, 2023. <https://www.indiabudget.gov.in/budget2023-24/economicsurvey/doc/eschapter/echap07.pdf>.

⁶¹ *Supra* note 42

⁶² *Supra* note 38

Developed nations are better endowed and equipped to absorb the economic concussions of natural disasters because of better disaster-resilient infrastructure, disaster risk financing mechanisms, effective pre-disaster preparedness, public policy and proactive private support for disaster risk reduction. These capacities allow them to be more resilient and less vulnerable towards the adverse consequences of natural disasters. Largely, these capacities are either absent or limited in developing nations. In contrast, climate change poses a double whammy for lower-middle-income countries like India. Being in Asia, they bear the brunt of the disasters caused by climate change.⁶³

India has taken noteworthy initiatives both on the international stage and nationally to deal with climate change challenges. The country has actively engaged in global actions by championing the formation and strengthening of various intergovernmental organisations. India has integrated the development goals with ambitious climate action goals, be it in the form of augmented solar power capacity (installed), or higher energy saving targeting notified in PAT cycle-VII, improved green cover facilitated by Green India Mission, among other targeted government actions.⁶⁴ As part of dedicated efforts to preserve ecosystems, continued river conservation and rejuvenation efforts are underway. In August 2022, the country updated the Nationally Determined Contributions (NDCs) as expressed in the 26th meeting of the Conference of Parties of UNFCCC⁶⁵. In terms of transition to renewable energy sources, India has already achieved its target of 40 per cent installed electric capacity from non-fossil fuels ahead of 2030. It has advanced the target to 50 per cent, which shall also translate to a significant reduction in the average emission rate. The National Hydrogen Mission and Green Hydrogen Policy have been introduced to enable India to be energy independent by 2047. Its pivotal role is also reflected in India's Long Term Low Emissions Development Strategy (LT-LEDS).⁶⁶

India has been striving to pursue the goal of sustainable development. It spearheads one of the most robust climate actions through its NDCs, which includes an ambitious programme for transitions to clean energy in the world. Despite the adverse impacts of COVID-19 on the economy, the country has enhanced its climate ambition manifold and embarked on a long-term strategy towards a low GHG emission-based development. Action on addressing climate action was initiated even before the Paris Agreement came into being. In 2008, India launched the National Action Plan on Climate Change (NAPCC), establishing eight National Missions, covering several initiatives and a slew of measures in the area of solar, water, energy

⁶³ India@100, Envisioning Tomorrow's Economic Powerhouse, Krishnamurthy Subramanian, Rupa, 2024

⁶⁴ Ministry of Environment, Forest and Climate Change, Government of India. "India's Climate Action Plan." Accessed October 15, 2024. <https://moef.gov.in/climate-change/>.

⁶⁵ UNFCC stands for United Nations Framework Convention on Climate Change. The Convention has near universal membership (198 Parties) and is the parent treaty of the 2015 Paris Agreement. The main aim of the Paris Agreement is to keep the global average temperature rise this century as close as possible to 1.5 degrees Celsius above pre-industrial levels. The UNFCCC is also the parent treaty of the 1997 Kyoto Protocol. The ultimate objective of all three agreements under the UNFCCC is to stabilize greenhouse gas concentrations in the atmosphere at a level that will prevent dangerous human interference with the climate system, in a time frame which allows ecosystems to adapt naturally and enables sustainable development.

⁶⁶ Supra note 38.

efficiency, forests, sustainable habitat, sustainable agriculture, sustaining Himalayan ecosystem, capacity building and research and development. The sustainable finance framework has also evolved from the initial steps covering the top listed 100 companies required to conform to sustainability standards. The requirement has now not only been extended to 1000 top listed companies on a mandatory basis but also the sustainability standards have become much stronger and measurable that correspond to the best practices while taking into account the specific context of India.

Resources have competing uses, and development strategies are not substitutable. Modification in the development pathway has a transition cost, including social and economic costs. India's climate ambitions require resources to be dedicated to the cause of climate change, in addition to, what is needed for the country's development goals. The global climate agenda will advance if advanced countries can set examples of policy and behavioural changes that work in their backyard and whose trade-offs are well recognised and accepted by their people. Then, it might be realistic to expect such policies and behavioural expectations of households to succeed in developing countries with suitable adaptation.⁶⁷

Section 2

Risks of Climate Change on Enterprises

Climate change poses serious risks to economies. The increasing frequency and intensity of natural calamities such as floods, cyclones, extreme heat, wildfires and other manifestations of climate change leads to substantial operational disruptions and financial losses for enterprises. These events not only cause direct damage to infrastructure and assets but also result in prolonged operational downtimes, supply chain disruptions, and increased insurance costs. The mitigation efforts can substantially increase operational costs in key areas like energy consumption, production, and supply chain management, ultimately affecting overall financial performance.⁶⁸ This can impact corporate financial performance including climate-related financing constraints, such as carbon pricing, emission regulations, and other climate-related policies, which can impose significant costs and financial burdens on companies. Ironically, businesses themselves contribute to climate change through greenhouse gas emissions, creating a vicious cycle of environmental degradation and economic vulnerability.

In 2016, the G20⁶⁹ leaders called on the Financial Stability Board (FSB) to address the financial risks associated with climate change. A year later, the FSB's Task Force on Climate-

⁶⁷ Supra note 38.

⁶⁸ Climate Change and Corporate Financial Performance by Lian Liu, John Beirne, Dina Azhgaliyeva and Dil Rahut available at <https://www.adb.org/sites/default/files/publication/977631/adbi-wp1457.pdf>

⁶⁹ The G20 or Group of 20 is an intergovernmental forum comprising 19 sovereign countries, the European Union, and the African Union. It works to address major issues related to the global economy, such as international financial stability, climate change mitigation and sustainable development.

Related Financial Disclosures (TCFD) made a series of recommendations regarding climate disclosure and governance.⁷⁰ Its framework has now been endorsed by hundreds of organizations, including three-quarters of the world's globally systemically important banks, eight of the top ten global asset managers, the world's leading pension funds and insurers managing almost US \$110 trillion in assets, and the 'big four' accounting firms.⁷¹ The TCFD reported that climate-related risks fall into two major categories: risks related to the physical impacts of climate change and risks related to the transition to a lower-carbon economy. The physical risks arise from direct climatic events such as floods, storms, and heat waves, which can disrupt operations and damage infrastructure⁷². The transition risks stem from the shift towards a low-carbon economy, including regulatory changes, market shifts, and technological advancements⁷³. The Basel Committee on Banking Supervision defines climate-related physical risks as economic and financial losses resulting from the increasing severity and frequency of (1) extreme weather events (for example, heatwaves, floods, wildfires, storms); (2) longer-term gradual shifts of the climate (chronic risks, such as rising sea levels and average temperatures); and (3) indirect effects of climate change, such as loss of ecosystem services (for example, water shortages or degradation of soil quality or marine ecology).⁷⁴

Disruptions caused by extreme weather events, or the escalating costs associated with transitioning to a low-carbon economy can significantly impact a company's bottom line,⁷⁵ leading to financial distress and potential insolvency. Extreme weather events, such as floods, cyclones, and wildfires, can disrupt operations, damage infrastructure, and lead to substantial financial losses. When a business faces disrupted operations and cash flows on account of the direct or indirect impact of physical risks of climate change or is unable to transition to cleaner technologies or compete with renewable energy providers, to meet regulatory requirements or the market environment, it can suffer financial and operational distress. This financial distress inevitably erodes investor confidence, triggering a decline in stock prices and making raising the capital needed to navigate the crisis nearly impossible. Ultimately, this downward spiral of declining revenue, mounting

⁷⁰ Financial Stability Board, Task Force on Climate-related Financial Disclosures, "Final Report, Recommendations of the Task Force on Climate-related Financial Disclosures" (June 2017), at 5, online: *Task Force on Climate-related Financial Disclosures* [https:// www.fsb-tcfd.org/publications/final-recommendations-report/](https://www.fsb-tcfd.org/publications/final-recommendations-report/) [TCFD Final Report].

⁷¹ Task Force on Climate-related Financial Disclosures. "TCFD Supporters." July 2019. Accessed October 9, 2024. <https://www.tcfddhub.org/resource/task-force-on-climate-related-financial-disclosures-2019-status-report/>

⁷² Deloitte. "Physical Risk Modeling: A Deep Dive into Climate Risk Management." May 2023. Accessed October 9, 2024. <https://www2.deloitte.com/content/dam/Deloitte/us/Documents/financial-services/us-physical-risk-modeling-a-deep-dive-into-climate-risk-management-may23.pdf>.

⁷³ Council of Economic Advisers. "New Tools Needed to Assess Climate-Related Financial Risk." The White House. Accessed October 9, 2024. <https://www.whitehouse.gov/cea/new-tools-needed-to-assess-climate-related-financial-risk>.

⁷⁴ Bank for International Settlements. "Climate-Related Risk Drivers and Their Transmission Channels." Basel, Switzerland, April 2021. Accessed October 9, 2024. <https://www.bis.org/bcbs/publ/d517.htm>.

⁷⁵ Press Trust of India. "Indian Railways Aims to Significantly Reduce Carbon Footprints." The Indian Express, July 22, 2016. Accessed October 9, 2024. <https://indianexpress.com/article/india/india-news-india/indian-railways-aims-to-significantly-reduce-carbon-footprints-2929919/>.

debt, and evaporating investor confidence can lead to a company's collapse. As cash flow dwindles, meeting debt obligations becomes increasingly challenging, leading to loan defaults, and potentially exposing vulnerable companies to risk of insolvency. These risks can create a cascade of financial distress for businesses, potentially pushing them into insolvency. Non-performing assets, in turn, cause stress in the economy.

Physical Risks

Physical risk is associated with the damage of tangible assets, disruption of supply chains and operations from extreme weather events like hurricanes, floods, droughts etc. impacting supply and demand (customer preferences) chain lines as well as disrupting business operations in terms of increased impairment costs and productivity loss.⁷⁶ This tends to apply regardless of the specific business model or climate-specific vulnerabilities of the sector such as reliance on natural resources because climate impact is also occurring at a macroeconomic level in the long term.⁷⁷ The physical risks are decidedly exacerbated for specific sectors such as utilities, energy and telecommunication that are heavily reliant on natural resources.⁷⁸ Research conducted by S&P Global Sustainable¹⁷⁹, analysed that, some sectors are more sensitive than others in terms of the potential financial impact of climate hazards. The research assessed seven physical climate hazards: extreme heat, water stress, coastal flood, fluvial flood, tropical cyclone, drought and wildfire. The communication services sector in the S&P Global 1200⁸⁰ would face a significant financial impact: 5.4% per annum of real asset values by the 2050s. This sector includes telecommunications firms, data providers and media companies. Absent adaptation, extreme heat would generate the largest impact, followed by water stress, drought and fluvial flooding. In communication services, 97% of real assets with financial impact of 10% or more by the 2050s are data centres, and data centre assets have the highest average financial impact for this sector at 8.3%. Datacenters are sensitive to extreme temperatures and restricted access to water due to their dependency on heating, ventilating and air conditioning (HVAC) and cooling. Extreme heat represents the largest share of financial

⁷⁶ Furlan Matos Alves, Marcelo Wilson, Ana Beatriz Lopes de Sousa Jabbour, Devika Kannan, and Charbel Jose Chiappetta Jabbour. "Contingency Theory, Climate Change, and Low-Carbon Operations Management." *Supply Chain Management: An International Journal* 22, no. 3 (2017): 223-236. Accessed October 9, 2024. <https://www.emerald.com/insight/content/doi/10.1108/SCM-09-2016-0311/full/pdf?title=contingency-theory-climate-change-and-low-carbon-operations-management>.

⁷⁷ Byrne, Joseph P., and Prince Asare Vitenu-Sackey. "The Macroeconomic Impact of Global and Country-Specific Climate Risk." *Environmental and Resource Economics* 87, no. 3 (2024): 655-682. Accessed October 9, 2024. <https://link.springer.com/article/10.1007/s10640-023-00831-0>.

⁷⁸ Surminski, Swenja, Manuela Di Mauro, J. Alastair R. Baglee, Richenda K. Connell, Joel Hankinson, Anna R. Haworth, Bingunath Ingirige, and David Proverbs. "Assessing climate risks across different business sectors and industries: an investigation of methodological challenges at national scale for the UK." *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 376, no. 2121 (2018): 20170307. <https://doi.org/10.1098/rsta.2017.0307>.

⁷⁹ This research was prepared by and reflects the views of S&P Global Sustainable1, which is separate and independent from other businesses/divisions of S&P Global, including S&P Global Ratings.

⁸⁰ The S&P Global 1200 is an index that covers the largest companies across North America, Europe, Asia, Australia and Latin America, capturing approximately 70% of global market capitalization.

impact for most sectors in the 2050s. However, in sub-Saharan Africa, South Asia, the Middle East and North Africa, water stress will have the greatest financial impact. The financial impacts from coastal flooding and drought become more severe across many sectors.⁸¹

Historical data suggests that debilitating acute events such as floods, wildfires and landslides can impact immediate cash flow⁸² due to “short-term moderate decrease in corporate sales”⁸³. But this alone may not reflect a stark shift in long-term credit availability for businesses⁸⁴ Extreme weather events are expected to be accompanied by a larger longer-term shift of the climate marked by extreme weather variability, permanent changes in weather patterns, exhibiting extreme heat stress, sea levels and precipitation levels to adversely impact the availability and quality of natural resources.⁸⁵ Such chronic physical risks may completely erode the viability of certain business sectors, especially in ecologically sensitive geographies.⁸⁶ Compared to acute disaster events, risks such as an incremental rise in temperature also threaten the financial health of companies, with extreme heat most likely to drive increasing financial costs such as operational and revenue losses.⁸⁷ The threat of physical risk towards insured assets⁸⁸ as well as business models is likely to increase liability exposure⁸⁹ and decrease the premium profits for insurers⁹⁰ which is expected to result in a rise in insurance premiums⁹¹ for

⁸¹ Quantifying the financial costs of climate change physical risks for companies S&P Global Insights Published on November 20, 2023. Available at: <https://www.spglobal.com/esg/insights/featured/special-editorial/quantifying-the-financial-costs-of-climate-change-physical-risks>

⁸² Bank for International Settlements. “Climate-Related Risk Drivers and Their Transmission Channels.” Basel, Switzerland, April 2021. Accessed October 9, 2024. <https://www.bis.org/bcbs/publ/d517.pdf>.

⁸³ Moody’s Analytics. “Quantifying the Impact of Climate on Corporate Credit Risk.” April 2023. Accessed October 9, 2024. <https://www.moodys.com/web/en/us/insights/climate-risk/quantifying-the-impact-of-climate-on-corporate-credit-risk.html>.

⁸⁴ Ibid.

⁸⁵ United Nations Environment Programme Finance Initiative. “Emerging Economies Climate Risks and Best Practices for Climate Risk Disclosure—Part 1.” December 2023. Accessed October 9, 2024. <https://www.unepfi.org/wordpress/wp-content/uploads/2023/12/Part-1-Emerging-Economies-Climate-Risks-and-Best-Practices.pdf>.

⁸⁶ Ibid.

⁸⁷ Laidlaw, Jennifer, Rick Lord, Matthew MacFarland, and Kuntal Singh. “Quantifying the Financial Costs of Climate Change Physical Risks.” *S&P Global*, November 20, 2023. Accessed October 9, 2024. <https://www.spglobal.com/esg/insights/featured/special-editorial/quantifying-the-financial-costs-of-climate-change-physical-risks>.

⁸⁸ Khoo, Felicia, and Jeffery Yong. “Too Hot to Insure – Avoiding the Insurability Tipping Point.” FSI Insights on Policy Implementation, no. 54 (November 2023). Accessed October 9, 2024. <https://www.bis.org/fsi/publ/insights54.pdf>.

⁸⁹ Ibid.

⁹⁰ Laidlaw, Jennifer, Rick Lord, Matthew MacFarland, and Kuntal Singh. “Climate Change and P&C Insurance: The Threat and Opportunity.” McKinsey & Company, May 14, 2024. Accessed October 9, 2024. <https://www.mckinsey.com/industries/financial-services/our-insights/climate-change-and-p-and-c-insurance-the-threat-and-opportunity>.

⁹¹ Khoo, Felicia, and Jeffery Yong. “Too Hot to Insure – Avoiding the Insurability Tipping Point.” FSI Insights on Policy Implementation, no. 54 (November 2023): 7. Accessed October 9, 2024. <https://www.bis.org/fsi/publ/insights54.pdf>.

customers and may create an availability crisis for certain sectors⁹² as insurers seek to reduce their exposure to carbon incentive businesses⁹³. Climate change is likely to impact the economic growth of countries due to climate variability since even countries with colder climates are undergoing deviation from historical norms of temperature.⁹⁴

Thailand's experience with climate change-induced flooding provides an illustrative case. The severe floods in 2011 caused widespread damage to industrial estates, leading to estimated losses of \$45.7 billion⁹⁵. Major manufacturing hubs, including those producing electronics and automotive parts, were submerged, resulting in prolonged production halts and supply chain disruptions⁹⁶. This event highlighted the vulnerability of businesses to climate-related risks and underscored the need for robust resilience and adaptation strategies. In North America, cyclones and hurricanes have had devastating effects on businesses. For example, Hurricane Harvey in 2017 caused extensive flooding in Texas, leading to estimated economic losses of \$125 billion. The energy sector, including oil refineries and petrochemical plants, was particularly hard hit, with significant operational disruptions and infrastructure damage. Similarly, the aviation industry faced substantial losses due to airport closures and flight cancellations, impacting both passenger and cargo operations⁹⁷. Physical risks are estimated to result in substantial damage to assets by extreme weather events⁹⁸ and value erosion as fixed assets depreciate⁹⁹ to the tune of trillions in the coming decades. According to AON, in 2023 alone the Asia Pacific region suffered \$65 billion worth of economic losses, largely uninsured, due to natural disasters, while the US and Europe led the \$380 billion loss suffered globally.¹⁰⁰

⁹² Climate Trends. "Physical Climate Risks for Indian Insurers." March 2022. Accessed October 9, 2024. <https://climatetrends.in/wp-content/uploads/2022/03/physical-climate-risks-for-indian-insurers.pdf>.

⁹³ Laidlaw, Jennifer, Rick Lord, Matthew MacFarland, and Kuntal Singh. "Net-Zero Underwriting in P&C and the Growth at Stake." McKinsey & Company, January 2023. Accessed October 9, 2024. <https://www.mckinsey.com/industries/financial-services/our-insights/insurance/net-zero-underwriting-in-p-and-c-and-the-growth-at-stake>.

⁹⁴ Burke, Marshall, Solomon M. Hsiang, and Edward Miguel. "Climate Change and Economic Growth: Evidence from the Last Half Century." *Journal of Environmental Economics and Management* 108 (2021): 7. Accessed October 9, 2024. <https://www.sciencedirect.com/science/article/abs/pii/S0140988321004898>.

⁹⁵ Avory, Brooke, Edward Cameron, Cammie Erickson, and Paolo Fresia. "Climate Resilience and the Role of the Private Sector in Thailand." BSR, September 2015. Accessed October 9, 2024. https://www.bsr.org/reports/BSR_Climate_Resilience_Role_Private_Sector_Thailand_2015.pdf.

⁹⁶ Avory, Brooke, Edward Cameron, Cammie Erickson, and Paolo Fresia. "Climate Resilience and the Role of the Private Sector in Thailand." BSR, September 2015. Accessed October 9, 2024. <https://www.rockefellerfoundation.org/report/climate-resilience-and-the-role-of-the-private-sector-in-thailand/>.

⁹⁷ U.S. Climate Resilience Toolkit. "Case Studies." Accessed October 9, 2024. <https://toolkit.climate.gov/case-studies>.

⁹⁸ "Quantifying the Financial Costs of Climate Change Physical Risks." S&P Global, November 20, 2023. Accessed October 9, 2024. <https://www.spglobal.com/esg/insights/featured/special-editorial/quantifying-the-financial-costs-of-climate-change-physical-risks>.

⁹⁹ B o Chen, Liuxin Chu, Decoupling the double jeopardy of climate risk and fiscal risk: A perspective of infrastructure investment, *Climate Risk Management*, Volume 37, 2022, 100448, ISSN 2212-0963, available at https://doi.org/10.1016/j.crm.2022_100448

¹⁰⁰ Aon. "Natural Catastrophes Caused USD 65 Billion Economic Loss in Asia Pacific in 2023." Asia Newsroom, April 2, 2024. Accessed October 9, 2024. <https://www.aon.com/apac/in-the-press/asia-newsroom/2024/natural-catastrophes-caused-usd-65-billion-economic-loss-in-asia-pacific-in-2023?elqTrackId=64D14D9E8A79B9B3DB4859EF571D314D&elqaid=3061&elqat=2>.

India's geophysical and climatic conditions make it one of the most disaster-prone countries in the world. During 2000-22, India experienced 383 disasters that claimed 88,000 lives and affected 1.11 billion people. The resulting cumulative economic loss amounted to \$136 billion. Compared to the previous two decades (1980-99), the number of disasters and economic losses increased by 72 per cent and 177 per cent, respectively, during the last three decades (2000-22).¹⁰¹ Among the different types of natural disasters, hydrological disasters have the largest recorded instances and the highest mortality and damage costs. Since the 1990s, floods have accounted for more than half the natural and climate-related disasters in the country, with damage costs running into billions of dollars. The recent landslides in Kerala (approximately 334 people were killed in July 2024) triggered by heavy rainfall, tragically underscore the vulnerability of communities to increasingly frequent and intense extreme weather events. The interplay of deforestation, land-use change for tea and coffee cultivation, and heavier rainfall patterns has heightened the risk of landslides in hilly regions like Himachal Pradesh (6 people were killed in July 2024), Uttarakhand and north-eastern states. These events not only result in loss of life but also inflict severe damage to homes, businesses, and critical infrastructure, further exacerbating economic vulnerabilities.

The catastrophic flooding in Assam and many parts of northern and Southern India, prompting red alerts in several states, highlights the urgent need to address the impacts of climate change. The floods in 2020 alone resulted in economic losses estimated at over ₹2,000 crores, affecting industries such as tea, agriculture, and transportation¹⁰². The impacts on people of such extreme, large-scale events depend on their vulnerability and exposure. The impacts are further intensified by socio-economic factors such as population increase, rapid urbanization, infrastructure expansion, and large numbers of people residing in informal settlements in poor and destitute conditions. This underscores the need to characterize the impacts of extreme precipitation on different stakeholders and formulate policies and action plans to mitigate them.¹⁰³ The annual floods in Assam have caused significant disruptions to local businesses. The tea industry, a major economic driver in Assam, faced severe setbacks due to damaged plantations and disrupted supply chains¹⁰⁴. Similarly, the agricultural sector experienced crop losses and reduced productivity, further exacerbating the economic impact on local businesses¹⁰⁵.

¹⁰¹ India@100, *Envisioning Tomorrow's Economic Powerhouse*, Krishnamurthy Subramanian, Rupa, 2024

¹⁰² Premkumar, A., D. Kalaiarasi, A. Rohini, and D. Muruganathi. "Climate Change and Its Effects on Major Crops Production in Assam, India." In *Climate Change and Human Adaptation in India*, 223-234. Sustainable Development Goals Series. Springer, 2024. Accessed October 9, 2024. https://link.springer.com/chapter/10.1007/978-3-031-55821-4_16.

¹⁰³ Patankar, Archana. "Impacts of Natural Disasters on Households and Small Businesses in India." ADB Economics Working Paper Series, no. 603 (December 2019). Accessed October 9, 2024. <https://www.adb.org/sites/default/files/publication/547031/ewp-603-disasters-households-small-businesses-india.pdf>.

¹⁰⁴ *Climate Change* Continues to Impact Assam's Tea Production, December 29, 2022. Accessed October 9, 2024. <https://weather.com/en-IN/india/climate-change/news/2022-12-29-climate-change-continues-to-impact-assam-tea-production>.

¹⁰⁵ Supra note 102

Flash floods due to unexpected heavy rain cause huge capital loss and damage due to the floods.¹⁰⁶ The city of Mumbai is the second most exposed megacity to coastal flooding as a result of sea level rise. Without climate mitigation, the city could suffer economic damages of USD 49-50 billion by 2050 (cumulatively) from coastal flooding alone (chapter 10.4.6.3.4).¹⁰⁷ Mumbai experienced the most extreme precipitation in its history on 26 July 2005 when a cloudburst resulted in record rainfall of 944 mm over the city's suburbs. The city recorded 43% of its annual average rainfall amount in a single day. The rainfall intensity was 5 times greater than that the old stormwater drainage system was designed to accommodate and 2.5 times more than the current system is designed to cope with.

A flash flood triggered by a glacier lake outburst in 2013 caused devastating floods and landslides, killing over 5,000 people in the state of Uttarakhand. This disaster is viewed as India's most noticeably awful natural disaster since December 2004 caused by the Indian Ocean tidal wave, these areas are in danger from the staggering impacts of future tidal waves because of the presence of a structural intelligent plate, absence of a tsunami warning system in the Indian Ocean, and absence of set up correspondence network giving opportune data to that region.¹⁰⁸ The report published by the government of Uttarakhand and the Asian Development Bank, the World Bank Group, and the Global Facility for Disaster Reduction and Recovery, uncovered the extent of sector-specific damage by the flooding, which included an estimated \$1 billion loss in tourism revenue for the year and, by the end of the recovery period, more than \$3.8 billion in total economic losses.¹⁰⁹

Chennai suffered from incessant rainfall during November 2015 and extreme single-day precipitation on 2 December 2015, which led to large-scale inundation across the city. One of the worst affected was the automotive industry on Chennai's outskirts, where factories of top companies are located. Overall, flood-affected households experienced damage to assets in which their life savings were invested (houses) or on which their livelihood depended. Manufacturing industries with large quantities of these assets and heavy machinery suffered the most. Only 37% of businesses had insurance against natural calamities and only 50% of the insurance claimed for the reported damages was received. General Insurance Corporation reported insurance claims of around \$300 million

¹⁰⁶ Bhuyan, Sanjeevan. "Economic Impact of Flash Floods on the People of Assam: An Analysis." *International Journal of Advanced Engineering and Management*, March 2023. Accessed October 9, 2024. https://ijaem.net/issue_dcp/Economic%20Impact%20of%20Flash%20Floods%20on%20the%20People%20of%20Assam%20An%20Analysis.pdf.

¹⁰⁷ Climate Trends. "Physical Climate Risks for Indian Insurers." March 2022. Accessed October 9, 2024. <https://climatetrends.in/wp-content/uploads/2022/03/physical-climate-risks-for-indian-insurers.pdf>.

¹⁰⁸ Flash Flood in Himalayan Region of Uttarakhand (A Case Study of Kedarnath Flood 2013 and Rishi Ganga Flash Flood, Reini Village 2021) accessible at https://www.researchgate.net/publication/362181024_Flash_Flood_in_Himalayan_Region_of_Uttrakh_and_A_Case_Study_of_Kedarnath_Flood_2013_and_Rishi_Ganga_Flash_Flood_Reini_Village_2021

¹⁰⁹ World Bank. "Rapidly Assessing Flood Damage in Uttarakhand, India." July 29, 2014. Accessed October 9, 2024. <https://www.worldbank.org/en/results/2014/07/29/rapidly-assessing-flood-damage-uttarakhand-india>.

(approximately ₹2,010 crore)¹⁵¹ Most businesses remained without electricity for an average of 13 days and without water supply for 12 days. For most businesses, solid waste and sewage issues were not resolved for more than 15 days. For some, it took a month or more. It took an average of 9 days to recover from waterlogging inside the premises. Limited or no access to financial capital amplified the impacts of the floods. The Chennai flood had a devastating impact on businesses, especially on MSMEs, which were unprepared and vulnerable to both direct and indirect impacts. Flood water entered the first level of most of the offices and shops, reaching a height of approximately two meters in some areas. This damaged products, stocks, storage units, and electrical equipment.¹⁵²

The Very Severe Cyclonic Storm (VSCS) *Phailin* made landfall at the coast of Odisha near Gopalpur in Ganjam district on 12 October 2013. Eighteen out of the thirty districts in the state were affected by the storm and subsequent floods. The majority of damages were due to high-speed winds of up to 220 kmph followed by flooding ensued by torrential rains. The observed storm surge was up to about 3.5 m above normal, inundating large areas in the districts of Ganjam, Puri, Khordha, and around Chilika lagoon¹¹⁰

The experiences of these events illustrate the impact of climate-related events on economy. The economic impact per disaster has increased significantly in recent times; the economic losses per disaster grew sharply, indicating a growth of 61 per cent from 0.22 billion in 1990-99 to 0.36 billion in 2000-22. Globally, 9,399 disasters were recorded during the period 2000-22, claiming 1.39 million lives and affecting 4.37 billion. In total, these disasters resulted in economic losses of \$3.59 trillion. These statistics illustrate a sharp rise as compared to the figures of the previous 20 years, i.e., 1980-99. The number of disasters and economic losses rose by 123 per cent and 50 per cent, respectively, during the last two decades (2000-22) when compared to the previous two decades (1980-99). The global comparison clearly highlights that the increase in the economic impact per disaster has been disproportionately greater in India when compared to the rest of the world. While the economic impact per disaster increased by 1.6 times in India in the last two decades when compared to the previous three decades, the economic impact per disaster has declined globally by 33 per cent during the last two decades when compared to the previous three decades. Over the last twenty years, the impact of climate-induced disasters has been disproportionately borne by the Asian continent. Eighty-three per cent of the total affected and 58 per cent of the total deaths from natural disasters are borne by the Asian continent, as 39 per cent of the natural disasters maximum for any continent-occur here. This results in 41 per cent of the global economic loss from natural disasters manifesting in Asia.¹¹¹

¹¹⁰ Asian Development Bank, Government of Odisha, and World Bank. “Rapid Damage and Needs Assessment: Cyclone Phailin in Odisha 2013.” December 2013. Accessed October 9, 2024. <https://ncrmp.gov.in/wp-content/uploads/2014/03/Odisha-Phailin-report-Final.pdf>.

¹¹¹ India@100, *Envisioning Tomorrow’s Economic Powerhouse*, Krishnamurthy Subramanian, Rupa, 2024

The impact of climate change is being progressively felt beyond rising temperature, heat events or water disturbances, in the form of eroding economic growth at the macro levels as well as in corporate balance sheets.¹¹²

Indirect and Secondary Impact

The imminence of these physical risks leads to further indirect or secondary impacts, often intangible and not measurable directly, that are further all-encompassing and long-term.¹¹³ Rapid urbanization and heavy reliance on industrialization aimed at raising levels of productivity and standard of living in emerging markets pose a considerable environmental challenge, further aggravated by climate change-induced risks of resource depletion. As a consequence, there is an increasing trend¹¹⁴ of businesses shifting supply-chain manufacturing, particularly for carbon-intensive products¹¹⁵ such as semiconductors,¹¹⁶ to emerging markets.¹¹⁷ This presents an additional set of challenges to actively transitioning towards environment-friendly practices and assimilating sustainable technological processes in production activities, even when propelled by domestic policies.¹¹⁸ The cumulative impact of these risks appears on the balance sheets of governments as fiscal risk is incurred due to increasing expenditure outlay for climate mitigation¹¹⁹ coupled with the disruption of public revenue flow from sectors threatened

¹¹² Basel Committee on Banking Supervision, *Climate-related Financial Risks – Measurement Methodologies*, (Basel: Bank for International Settlements, 2023), accessed October 9, 2024, <https://www.bis.org/bcbs/publ/d517.pdf>.

¹¹³ Financial Stability Board, *The Implications of Climate Change for Financial Stability*, (Basel: Financial Stability Board, 2020), accessed October 9, 2024, <https://www.fsb.org/wp-content/uploads/P231120.pdf>.

¹¹⁴ S&P Global, *S&P Global Unveils Insights on Future of Global Supply Chains in Latest Look Forward Research Series*, (New York: S&P Global, 2024), accessed October 9, 2024, <https://press.spglobal.com/2024-02-21-S-P-Global-Unveils-Insights-on-Future-of-Global-Supply-Chains-in-Latest-Look-Forward-Research-Series#:~:text=Global%20supply%20chain%20expansion%20will,subsidies%20could%20increase%20inflationary%20pressures.>

¹¹⁵ Samuel K. Moore, “Figuring Out Semiconductor Manufacturing’s Climate Footprint,” *IEEE Spectrum*, February 9, 2024, accessed October 9, 2024, <https://spectrum.ieee.org/semiconductor-manufacturing-climate-footprint>.

¹¹⁶ Semiconductor Industry Association, *New Report Suggests India Can Expand Role in Global Semiconductor Value Chains with the Right Policies*, (Washington and New Delhi: Semiconductor Industry Association, 2024), accessed October 9, 2024, <https://www.semiconductors.org/new-report-suggests-india-can-expand-role-in-global-semiconductor-value-chains-with-the-right-policies/>.

¹¹⁷ World Economic Forum, *Shifting Global Value Chains: The India Opportunity*, (Geneva: World Economic Forum, 2021), accessed October 9, 2024, https://www3.weforum.org/docs/WEF_Shifting_Global_Value_Chains_2021.pdf.

¹¹⁸ Dimitri Zenghelis, “What are the Likely Costs of the Transition to a Sustainable Economy?” *Economics Observatory*, October 11, 2021, accessed October 9, 2024, <https://www.economicsobservatory.com/what-are-the-likely-costs-of-the-transition-to-a-sustainable-economy>.

¹¹⁹ Asian Development Bank, *Fiscal Risks and Climate Change: Governance Brief No. 55*, (Mandaluyong City: Asian Development Bank, 2023), accessed October 9, 2024, <https://www.adb.org/sites/default/files/publication/940096/governance-brief-055-fiscal-risks-climate-change.pdf>.

by climate change such as tourism, agriculture and trade, among others¹²⁰ Long-term indirect costs for governments, especially in emerging sectors of Asia Pacific, are estimated to be significant as microeconomic shocks escalate government liabilities.

There is a general measure of climate vulnerability for emerging economies at the macroeconomic level on investment, productivity and consumption¹²¹, as the pervasive impact of climate change is felt across industries and ultimately the financial system of a country as a whole¹²². Research has also narrowed down on uncertainty associated with climate change as a critical risk factor affecting economies adversely. Firstly, the uncertainty prevents arriving at very accurate impressions as to the economic implications of climate change¹²³. Secondly, this leads to uncertainty in policies aimed at mitigating climate change impact and adds an element of unpredictability in the financial market.¹²⁴ This unpredictability significantly influences investment decisions by firms and the apprehension is likely to dampen capital-intensive and irreversible investment decisions.

Emerging markets are often characterized by relatively weaker institutional and legal infrastructures¹²⁵, corresponding to a general sentiment of unpredictability and legal ambiguity¹²⁶ when it comes to financial regulatory compliances. This is further associated with financial system problems arising out of a lack of a resilient legal system¹²⁷ coupled with weak enforcement as there may be more frequent debt defaults.¹²⁸ Moreover, since these markets tend to be more fossil-fuel-dependent¹²⁹, they face rising pressures from shifting shareholder perceptions of fossil-fuel assets¹³⁰ that hurt investment prospects

¹²⁰ Ibid.

¹²¹ Manisha Nitin Paliwal, “Mergers and Acquisitions in India: A Trend Analysis and Future Forecasting,” *SSRN Journal*, October 5, 2015, accessed October 9, 2024, <http://www.ssrn.com/abstract=2759676>.

¹²² James Oguntuase O (2020) *Climate Change, Credit Risk and Financial Stability*. Banking and Finance. IntechOpen. Available at: <http://dx.doi.org/10.5772/intechopen.93304>.

¹²³ James Oguntuase O (2020) *Climate Change, Credit Risk and Financial Stability*. Banking and Finance. IntechOpen. Available at: <http://dx.doi.org/10.5772/intechopen.93304>.

¹²⁴ Organisation for Economic Co-operation and Development, *Measuring and Assessing the Effects of Climate Policy Uncertainty*, (Paris: OECD Publishing, 2021), accessed October 9, 2024, <https://www.oecd-ilibrary.org/deliver/34483d83-en.pdf?itemId=/content/paper/34483d83-en&mimeType=pdf>.

¹²⁵ Nilay Biçakcıoğlu-Peynirci, Internationalization of emerging market multinational enterprises: A systematic literature review and future directions, *Journal of Business Research* 164 (2023) 114002 Page 2.

¹²⁶ Ananthkrishnan Prasad, Elena Loukoianova, Alan Xiaochen Feng, and William Oman, “Mobilizing Private Climate Financing in Emerging Market and Developing Economies,” *IMF Staff Climate Notes*, Volume 2022, Issue 007, July 27, 2022, accessed October 9, 2024, <https://www.elibrary.imf.org/view/journals/066/2022/007/article-A001-en.xml>.

¹²⁷ Rafael La Porta, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, “Law and Finance,” *Journal of Political Economy* 106, no. 6 (1998): 1113-1155.

¹²⁸ Sujit Kumar Sikder, *Exploring Urban Structure to Approach Energy Optimization: The Case of Residential Settlement Development in Dhaka City, Bangladesh*, (Bonn: Rheinische Friedrich-Wilhelms-Universität Bonn, 2017), accessed October 9, 2024, <https://d-nb.info/1139118927/34>.

¹²⁹ E&E News, Document CW 01, (Washington, D.C.: E&E News, 2018), accessed October 9, 2024, https://legacy-assets.eenews.net/open_files/assets/2018/03/21/document_cw_01.pdf.

¹³⁰ Financial Times, Content 30c35bbc-56f4-478e-82f2-a8dd07c01f82, (London: Financial Times, 2024), accessed October 9, 2024, <https://www.ft.com/content/30c35bbc-56f4-478e-82f2-a8dd07c01f82>.

while also being subject to a higher instance of transition risks due to this dependence¹³¹. As a natural corollary, the credit risk outlook for emerging markets tends¹³² to invoke anxiety in response to the additional risks associated with an economy prone to volatility of short-term or stop-gap policies. Credit risks increase when climate risk drivers reduce borrowers' ability to repay or service their loans and lenders' ability to recover the loan due to default,¹³³ climate change is also likely to impact all stages of the credit lifecycle¹³⁴, increasing costs of credit and decreasing avenues for it as evidenced by the linkage between higher carbon emissions and increasing cost of bank loans¹³⁵.

Climate change can also significantly impact employment and jobs. Extreme weather events can lead to job losses in sectors such as agriculture, construction, and tourism. According to the International Labour Organization (ILO), up to 3.8% of total working hours worldwide could be lost due to climate-induced high temperatures by 2030, equivalent to 136 million full-time jobs. Poor air quality, disease-carrying pests, flooding, and wildfires will also impact workers' ability to carry out their jobs¹³⁶. Climate change can also lead to inflationary pressures. For instance, extreme weather events can disrupt food production, leading to higher food prices. The IMF found that climate shocks, such as droughts and storms, can lead to higher levels of inflation¹³⁷. This inflationary pressure can further strain businesses already facing operational disruptions due to climate change. As, both physical and transitional risks pose significant threats to business continuity and financial stability. The interconnected nature of modern supply chains means that the insolvency of one business can have far-reaching impacts on dependent industries. Understanding and mitigating these risks is crucial for businesses to navigate the challenges posed by climate change.

¹³¹ James Oguntuase O (2020) Climate Change, Credit Risk and Financial Stability. Banking and Finance. IntechOpen. Available at: <http://dx.doi.org/10.5772/intechopen.93304>.

¹³² United Nations Environment Programme Finance Initiative, Emerging Economies Climate Risks and Best Practices for Climate Risk Disclosure—Part 1, (Geneva: UNEP FI, 2023), accessed October 9, 2024, <https://www.unepfi.org/wordpress/wp-content/uploads/2023/12/Part-1-Emerging-Economies-Climate-Risks-and-Best-Practices.pdf>.

¹³³ Reserve Bank of India. (2020) Climate Change: Macroeconomic impact and policy options for mitigating risks. RBI Bulletin.; Reserve Bank of India. (2023). Report on currency and finance: Towards a greener India. <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RCF03052023395FAF37181E40188BAD3AFA59BF3907.PDF>

¹³⁴ Deloitte, Climate Change Credit Risk Management, (New York: Deloitte, 2021), accessed October 9, 2024, <https://www2.deloitte.com/us/en/insights/industry/financial-services/climate-change-credit-risk-management.html>.

¹³⁵ Kleimeier S, Viehs PM. Carbon disclosure, emission levels, and the cost of debt. Maastricht University Graduate School of Business and Economics Research Memorandum 3; 2015

¹³⁶ How *Climate Change* Impacts the Economy – State of the Planet (columbia.edu)

¹³⁷ This is How *Climate Change* Could Impact The Global Economy | World Economic Forum (weforum.org)

Transition Risk

The many agreements by international communities, along with ongoing negotiations and commitments from world leaders, demonstrate a growing recognition of the shared responsibility to address climate change and transition towards a more sustainable future. Businesses have set year-wise targets to reduce their carbon footprint and achieve net-zero emissions. For instance, the International Maritime Organization aims to reduce the carbon intensity of international shipping by at least 40% by 2030 and 70% by 2050, compared to 2008 levels. Similarly, the aviation industry, through the International Air Transport Association, has committed to achieving net-zero carbon emissions by 2050.¹³⁸ Policies are being framed aimed at constraining actions that contribute to the adverse effects of climate change, or aimed at promoting adaptation to climate change, include implementing carbon-pricing mechanisms to reduce GHG emissions, shifting energy use toward lower emission sources, adopting energy-efficiency solutions, enhancing forests as ‘carbon sinks’, and promoting more sustainable land-use practices.

A number of initiatives have been taken in India to mitigate climate change risks. On 3 November 2021, the RBI published its ‘Statement of Commitment to Support Greening India’s Financial System’ (NGFS). The RBI laid out, keeping in view its national commitments, priorities, and complexity of the country’s financial system, committed to, among others, exploring how climate scenario exercises can be used to identify vulnerabilities in RBI-supervised entities’ balance sheets, business models and gaps in their capabilities for measuring and managing climate-related financial risks. Also, in 2007, RBI advised banks to put in place an appropriate action plan for making a meaningful contribution to sustainable development. Over time, RBI has incentivised bank lending towards greener industries and projects. For example, renewable energy projects have been included under priority sector lending. The RBI has also been spreading awareness on the issue of green and sustainable finance by discussing the opportunities and challenges of green finance through its publications and other communication.

The Securities and Exchange Board of India (SEBI) introduced the regulatory framework for issuance of green debt securities as a mode of sustainable finance under the erstwhile SEBI (Issue and Listing of Debt Securities) Regulations, 2008, (ILDS Regulation) on 30 May 2017. At the time of review of the ILDS Regulations, the provisions of the erstwhile circular were subsumed, and the definition of “green debt security” was incorporated in the regulation (NCS Regulations).¹³⁹ The disclosure requirements were prescribed vide Operational Circular on 10 August 2021. In 2022, SEBI allowed an issuer under the SEBI (Issue and Listing of Municipal Debt Securities) Regulations, 2015 (‘ILMDS Regulations’) to issue a green debt security if it falls within the definition of “green debt security”. Such an issuer has to comply

¹³⁸ What is the United Nations Framework Convention on *Climate Change*? | UNFCCC

¹³⁹ Regulation 2(1)(q) in the SEBI (Issue and Listing of Non-Convertible Securities) Regulations, 2021

with both ILMDS Regulation and NCS Regulations. In the backdrop of increasing interest in sustainable finance in India as well as around the globe, and with a view to aligning the extant framework for green debt securities with the updated Green Bond Principles recognised by International Organisation of Securities Commission (IOSCO), SEBI has decided to enhance the scope of the definition of green debt security by including new modes of sustainable finance in relation to pollution prevention and control, eco-efficient products, etc.; and introduce the concept of blue bonds (related to water management and marine sector), yellow bonds (related to solar energy) and transition bonds as subcategories of green debt securities. The SEBI has been one of the early adopters of sustainability reporting for listed entities and requires mandatory ESG-related disclosures for the top 100 listed entities (by market capitalisation) since 2012. Over the years, the requirement was strengthened to cover the top 500 and then the top 1000 entities. The SEBI has issued new sustainability reporting requirements under the Business Responsibility and Sustainability Report (BRSR), which are more granular with quantifiable metrics in line with the principles enshrined in the ‘National Guidelines on Responsible Business Conduct’. The BRSR was made mandatory for the top 1000 listed entities (by market capitalisation) from 2022–23.

The transition to low-carbon operations involves significant costs, including investments in new technologies, infrastructure upgrades, and compliance with rapidly changing policies, globally and domestically, and compliances with regulatory standards. Some enterprises will experience additional costs, either in terms of paying for their carbon emissions or paying higher costs for supplies, energy and other inputs that have higher prices due to carbon pricing or the cost of developing new products and services to meet policy shifts. The economic and financial impacts of transitioning to economic policies, legal and regulatory practices and technologies towards a low-carbon economy and a similar paradigm shift in lending practices involves transitional risks.¹⁴⁰

Technology risks are related to the substitution of the products as well as technological processes that are compliant with lower emissions that would require additional capital investments in new assets,¹⁴¹ research & development¹⁴² as well as operational transitioning to appropriate practices.¹⁴³ Regulatory changes, such as stricter emissions standards, can increase operational costs for businesses. Market shifts towards sustainable

¹⁴⁰ Basel Committee on Banking Supervision, Climate-related Financial Risks – Measurement Methodologies, (Basel: Bank for International Settlements, 2023), accessed October 9, 2024, <https://www.bis.org/bcbs/publ/d517.pdf>.

¹⁴¹ Jeremy Jurgens, “3 Ways Technological Innovation Can Help Us Meet Climate Goals,” World Economic Forum, May 25, 2022, accessed October 9, 2024, <https://www.weforum.org/agenda/2022/05/3-ways-technological-innovation-can-help-us-meet-climate-goals/>.

PwC, State of Climate Tech 2023: Investment Analysis, (London: PwC, 2023), accessed October 9, 2024, <https://www.pwc.com/gx/en/issues/esg/state-of-climate-tech-2023-investment.html>.

¹⁴² Xiaoyang Chen, “The Role of Technological Innovation in Climate Change Mitigation: A Review,” Applied Energy 275 (2020): 115-155, accessed October 9, 2024, <https://www.sciencedirect.com/science/article/pii/S0306261920303603#s0155>.

¹⁴³ Söderholm, P. The green economy transition: the challenges of technological change for sustainability. Sustain Earth 3, 6 (2020). <https://doi.org/10.1186/s42055-020-00029-y>

products can render existing business models obsolete. For example, a coal-based power plant may face financial strain due to rising carbon taxes, declining demand for electricity generated from coal, and increasing regulatory pressures to reduce carbon emissions¹⁴⁴. A considerable transition becomes necessary with the growing market demand from both customers and investors for more environmentally friendly products¹⁴⁵. Continuing existing products and production processes can entail a decrease in revenue due to declining demand alongside rising production costs due to more expensive production inputs and output processing.¹⁴⁶ The intangible impact on public sentiment and investor outlook can also translate into a reduction in capital availability caused due to uncertainty about future demand, growth prospects, substantial input price impacts and rising costs of insurance or credit¹⁴⁷.

Legal and regulatory risks associated with climate change arise out of the increased exposure to environmental tortious liability¹⁴⁸. Policies aimed at mitigating harmful practices such as implementing carbon pricing for CGH emissions and regulatory reporting of environmental disclosures¹⁴⁹ tend to impact the financial operations of companies since their operational costs¹⁵⁰, including compliance and insurance premiums, are likely to increase¹⁵¹. On the policy end of things, carbon pricing, other fiscal instruments as well and mandatory disclosure requirements aimed at reducing emissions and encouraging the transition to a low-carbon economy are quickly snowballing into rising regulatory costs¹⁵², especially for fossil fuel and high-emission sectors. Similarly, phasing out such dependence on such resources is a tremendous challenge for companies; particularly in emerging markets as they are faced with limited resources and capacity constraints¹⁵³.

¹⁴⁴ S&P Global. “Coal Power, Mining and Finance Are Still Obstacles to Net-Zero.” *S&P Global Sustainable1*. January 9, 2024. <https://www.spglobal.com/esg/insights/featured/special-editorial/coal-power-mining-and-finance-are-still-obstacles-to-net-zero>.

¹⁴⁵ Ashley Reichheld, John Peto, and Cory Ritthaler, “Research: Consumers’ Sustainability Demands Are Rising,” *Harvard Business Review*, September 18, 2023, accessed October 9, 2024, <https://hbr.org/2023/09/research-consumers-sustainability-demands-are-rising>.

¹⁴⁶ Task Force on Climate-related Financial Disclosures, *2021 TCFD Implementing Guidance*, (New York: TCFD, 2021), accessed October 9, 2024, <https://assets.bbhub.io/company/sites/60/2021/07/2021-TCFD-Implementing-Guidance.pdf>.

¹⁴⁷ Parker M. The impact of disasters on inflation. *Economics of Disasters and Climate Change*. 2018;2(1):21-48

¹⁴⁸ Peter Seley, “Emerging Trends in *Climate Change* Litigation,” *Law 360*, March 7, 2016.

¹⁴⁹ Harvard Law School Forum on Corporate Governance, *The Rise of International ESG Disclosure Standards*, (Cambridge: Harvard Law School, 2023), accessed October 9, 2024, <https://corpgov.law.harvard.edu/2023/06/29/the-rise-of-international-esg-disclosure-standards/>.

¹⁵⁰ Task Force on Climate-related Financial Disclosures, *Climate-related Risks and Opportunities*, (New York: TCFD, 2021), accessed October 9, 2024, <https://www.tcfddhub.org/Downloads/pdfs/E06%20-%20Climate%20related%20risks%20and%20opportunities.pdf>.

¹⁵¹ KPMG, *Ten Key Regulatory Challenges of 2024*, (New York: KPMG, 2023), accessed October 9, 2024, <https://kpmg.com/us/en/articles/2023/ten-key-regulatory-challenges-2024.html>.

¹⁵² PwC, *The Hidden Cost of Carbon*, (London: PwC, 2023), accessed October 9, 2024, <https://www.pwc.com/gx/en/issues/esg/the-hidden-cost-of-carbon.html>.

¹⁵³ United Nations Environment Programme Finance Initiative, *Emerging Economies Climate Risks and Best Practices for Climate Risk Disclosure—Part 1*, (Geneva: UNEP FI, 2023), accessed October 9, 2024,

Technology risk is also part of transition risk, as technological innovations that support the transition to a lower-carbon, energy-efficient economic system can have a significant impact on businesses. The TCFD points to technologies such as renewable energy, energy efficiency, and carbon capture and storage, all of which are developing rapidly and will affect the competitiveness of certain companies, their production and distribution costs, and demand for their products and services.¹⁵⁴ Financing institutions are incorporating climate-specific risk management measures while assessing¹⁵⁵ lending opportunities and also transitioning towards more carbon-neutral activities.¹⁵⁶ The most vulnerable business models that appear to be progressively impacted as a result of climate change, such as oil exploration,¹⁵⁷ for instance, present a unique set of challenges as credit risk management in such sectors involves higher carbon pricing and standard of scrutiny¹⁵⁸ that some emerging economies may struggle to withstand considering the broader macroeconomic vulnerability to climate impact.¹⁵⁹ Thus, climate risk categorically affects the creditworthiness of loans and bonds issued by corporations as well as increases the likelihood of default¹⁶⁰, particularly in developing countries¹⁶¹ and companies with a higher carbon footprint.¹⁶² As a result, there is an inevitable vulnerability for emerging economies as they are pressed to undertake substantial transition costs that may be underserved by conventional financing methods.¹⁶³

<https://www.unepfi.org/wordpress/wp-content/uploads/2023/12/Part-1-Emerging-Economies-Climate-Risks-and-Best-Practices.pdf>.

¹⁵⁴ Janis P Sarra, *Fiduciary Obligations in Business and Investment: Implications of Climate Change* (2018) University of Oxford Commonwealth Climate and Law Initiative Working Paper, at 12, online: SSRN <https://ssrn.com/abstract=3356024> or <http://dx.doi.org/10.2139/ssrn.3356024> [Sarrra, *Fiduciary Obligations*].

¹⁵⁵ Basel Committee on Banking Supervision, *Working Paper No. 40: The Prudential Treatment of Problem Assets – Definitions of Non-Performing Exposures and Forbearance* (Basel: Bank for International Settlements, 2017), <https://www.bis.org/bcbs/publ/wp40.pdf>.

¹⁵⁶ CFA Institute, “How Banks and Green Finance are Helping Address Climate Change,” accessed October 9, 2024, <https://www.cfainstitute.org/en/professional-insights-stories/how-banks-and-green-finance-are-helping-address-climate-change>.

¹⁵⁷ S&P Global Market Intelligence, “Where is the Oil and Gas Industry Headed? A Look at Credit Risks in 2024,” accessed October 9, 2024, <https://www.spglobal.com/marketintelligence/en/news-insights/blog/where-is-the-oil-and-gas-industry-headed-a-look-at-credit-risks-in-2024>.

¹⁵⁸ Institute for Energy Economics and Financial Analysis (IEEFA), “Credit Rating Agency Evolution on Climate Change Risk and Fossil Fuel Financial Viability,” accessed October 9, 2024, <https://ieefa.org/articles/credit-rating-agency-evolution-climate-change-risk-and-fossil-fuel-financial-viability>.

¹⁵⁹ Financial Stability Board, *The Implications of Climate Change for Financial Stability* (Basel: Financial Stability Board, 2020), 12, <https://www.fsb.org/wp-content/uploads/P231120.pdf>.

¹⁶⁰ Capasso G, Gianfrate G, Spinelli M. *Climate Change and credit risk*. EDHEC-Risk Institute Working Paper; 2020 Page 19

¹⁶¹ Financial Stability Board, *The Implications of Climate Change for Financial Stability* (Basel: Financial Stability Board, 2020), accessed October 9, 2024, <https://www.fsb.org/wp-content/uploads/P231120.pdf>.

¹⁶² World Bank Group, *Climate Risk Country Profile: India* (Washington, DC: World Bank Group, 2021), 19, https://climateknowledgeportal.worldbank.org/sites/default/files/country-profiles/15503-WB_India%20Country%20Profile-WEB.pdf.

¹⁶³ International Monetary Fund, “Credit Rating Agency Evolution on Climate Change Risk and Fossil Fuel Financial Viability,” accessed October 9, 2024, <https://www.elibrary.imf.org/view/journals/001/2022/182/article-A001-en.xml>.

The transition risks are expected to drive up the requirement for investment to shift to a low-carbon economy.¹⁶⁴ Investors, regulators, and society are likely to increase pressure on the industry to respond to climate risk as large portions of the economy and society continue to be affected. Some historically stable premium and profit pools will shrink, and possibly disappear, in places and industries that are exposed to climate risk while assets will become harder to insure.¹⁶⁵ According to the OECD, to address climate mitigation objectives in line with the Paris Agreement, there is a need for investments of USD 6.9 Trillion every year till 2030.¹⁶⁶ A study¹⁶⁷ by RBI reveals that India's financial sector is not ready or prepared for a low-carbon transition to meet the 1.5°C or below 2°C target. Currently, lending for fossil fuel power generation and production far outstrips loans for renewables and such trends will result in investment lock-in that can jeopardise the financial sector. Similarly, lack of awareness and neglect of climate risks by banks threatens behavioural and institutional lock-ins that can increase the impact of transition risks.¹⁶⁸

The ripple effect of climate change on businesses goes far beyond the initially impacted enterprise. The impact on a business due to climate change isn't an isolated event; it sends shockwaves through the economy, impacting a wide range of stakeholders and interconnected businesses. Job losses are often the most immediate and severe consequence, as employees of the insolvent company face unemployment, impacting livelihoods and local economies.¹⁶⁹ Investors in the company, both shareholders and creditors, experience financial losses, potentially impacting their portfolios and financial stability.¹⁷⁰ The disruption doesn't stop there – businesses reliant on the insolvent company for goods or services face disruptions to their operations, leading to potential financial losses and challenges in meeting their obligation.¹⁷¹ This ripple effect can be particularly devastating when a major employer in a local community goes under, leading to economic decline and social hardship.¹⁷² Take, for example, a large manufacturing company heavily reliant on a steady supply of raw materials transported by rail. A

¹⁶⁴ European Central Bank. Positively green: Measuring *Climate Change* risks to financial stability; 2020

¹⁶⁵ Ibid.

¹⁶⁶ OECD (2017), Investing in Climate, Investing in Growth, OECD Publishing, Paris, https://www.oecd-ilibrary.org/economics/investing-in-climate-investing-in-growth_9789264273528-en.

¹⁶⁷ Reserve Bank of India. (2020) Climate Change: Macroeconomic impact and policy options for mitigating risks. RBI Bulletin.; Reserve Bank of India. (2023). Report on currency and finance: Towards a greener India. <https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RCF03052023395FAF37181E40188BAD3AFA59BF3907.PDF>

¹⁶⁸ Ibid.

¹⁶⁹ Business and industry - *Climate Change* Committee, 2016 <https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/ccra-chapters/business-and-industry>

¹⁷⁰ How *Climate Change* could affect corporate valuations, 2008 <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/how-climate-change-could-affect-corporate-valuations/>

¹⁷¹ The Impacts of *Climate Change* on Business, by Deepmala Shrestha, 2014 <https://www.nepjol.info/index.php/CTBIJIS/article/view/10816/>

¹⁷² The business cost of *Climate Change*: what the science says, 2014 <https://www.theguardian.com/sustainable-business/2014/jul/14/business-cost-risks-climate-change-science/>

persistent rise in temperatures, changes in precipitation patterns and/or more volatile weather events can have long-term macroeconomic effects by adversely affecting labour productivity, slowing investment and damaging human health.¹⁷³ If extreme rainfall, exacerbated by climate change, damages railway infrastructure and disrupts freight services, the company's production could be severely impacted. This could lead to production delays and contract breaches, potentially incurring financial penalties and damaging the company's reputation.

Furthermore, businesses that rely on the company's products as inputs for their manufacturing processes could face inventory shortages, impacting their production schedules and potentially leading to their financial difficulties. This domino effect can cascade through the supply chain, impacting the revenue and employment of numerous interconnected businesses, from raw material suppliers and transportation providers to retailers. This interconnectedness highlights the systemic risks posed by climate change and the importance of building resilience across all sectors of the economy. A robust insurance sector may be critical to mitigating the financial impact of climate risk on economies as a whole.¹⁷⁴ However, the additional uncertainty of climate-associated risks¹⁷⁵, produced by severe weather events and the systemic repels in the financial fabric, is rendering the conventional risk-hedging strategies utilised by the insurance industry rather ineffective.¹⁷⁶ Financial markets can rapidly reprice assets that are exposed to climate risk, affecting insurers' investment portfolios and their market valuations negatively.¹⁷⁷ On the other hand, for corporations, the projected escalation of climate risk, such as the occurrence of more floods and wildfires, may lead to underinsurance—or to no insurance at all. The result, substantial market dislocation will include premium loss, higher rates of self-insurance, and an increased demand for disaster relief from the public sector.¹⁷⁸ The rising instances of claims due to more frequent natural disasters¹⁷⁹ or the piling losses due of heat stress have propelled the incorporation of evolving risks to rearrange and reassess portfolios to avoid long-term exposure to climate-vulnerable and carbon-emitting industries.¹⁸⁰ In fact,

¹⁷³ Long-term macroeconomic effects of climate change: A cross-country analysis, Energy Economics, Volume 104, December 2021, 10524

<https://www.sciencedirect.com/science/article/abs/pii/S0140988321004898>

¹⁷⁴ Basel Committee on Banking Supervision, Working Paper No. 40: The Prudential Treatment of Problem Assets – Definitions of Non-Performing Exposures and Forbearance (Basel: Bank for International Settlements, 2017), 20, <https://www.bis.org/bcbs/publ/wp40.pdf>.

¹⁷⁵ Financial Stability Institute, Turning up the heat – climate risk assessment in the insurance sector (Basel: Bank for International Settlements, 2019), 3, <https://www.bis.org/fsi/publ/insights20.pdf>.

¹⁷⁶ Ibid.

¹⁷⁷ McKinsey & Company, “Climate Change and P&C Insurance: The Threat and Opportunity,” accessed October 9, 2024, <https://www.mckinsey.com/industries/financial-services/our-insights/climate-change-and-p-and-c-insurance-the-threat-and-opportunity>.

¹⁷⁸ Ibid.

¹⁷⁹ Hindustan Times, “LS Polls: Over 60 Environmental Groups Demand Ban on Mega Infrastructure Projects in Himalayas,” accessed October 9, 2024, <https://www.hindustantimes.com/environment/ls-polls-over-60-environmental-groups-demand-ban-on-mega-infrastructure-projects-in-himalayas-101711777842250.html>.

¹⁸⁰ Supra note 177

regulators across jurisdictions are actively linking climate change to financial risks at firm level as well as level of broader financial system.¹⁸¹

Risks for Micro, Small and Medium Enterprises

Climate change risks, driven by policy changes and market shifts, can severely impact the Micro, Small and Medium Enterprises (MSMEs). MSME often faces significant hurdles in adopting sustainable practices. A key challenge is their limited resources – they often lack the financial capacity to invest in expensive low-carbon technologies and struggle to meet the demands of evolving environmental regulations.¹⁸² Access to finance poses another barrier, as securing funding for sustainability initiatives is difficult for MSMEs due to their limited collateral and credit history, making traditional lending options unattractive.¹⁸³ Furthermore, a lack of awareness and knowledge about sustainable practices and the tangible benefits of transitioning to a low-carbon economy prevents many MSMEs from recognizing the urgency and potential gains of adopting greener approaches.¹⁸⁴ These combined challenges highlight the need for targeted support and tailored solutions to empower MSMEs in their journey towards sustainability. The transition to a low-carbon economy can have significant implications for employment and the broader economy. While new green jobs may be created, there is a risk of job losses in traditional sectors that are unable to adapt. For instance, MSMEs in the manufacturing sector may face increased costs and operational disruptions, leading to job losses and financial distress¹⁸⁵.

A captive enterprise or a dependent business is impacted directly. Businesses heavily reliant on a single large entity, operate as part of a larger ecosystem and are directly tied to the success of the dominant player. Imagine a small business that supplies parts exclusively to a single, much larger company. This is a captive market scenario because the small business is entirely reliant on the larger one for orders and survival. If the large company faces difficulties, like going insolvent, the smaller supplier is also severely impacted. Without that crucial customer, the small business loses its revenue stream and may be unable to find new buyers quickly enough, potentially leading to its own

¹⁸¹ Financial Stability Institute, Turning up the heat – climate risk assessment in the insurance sector (Basel: Bank for International Settlements, 2019), 7, <https://www.bis.org/fsi/publ/insights20.pdf>.

¹⁸² Asmawati Hasan et al., “Ranking of Drivers and Barriers for the Green Management Implementation at MSME in Banda Aceh City, Indonesia,” in Proceedings of the 2nd Borobudur International Symposium on Science and Technology (BIS-STE 2020), Advances in Engineering Research (Atlantis Press, 2021), <https://www.atlantis-press.com/proceedings/bis-ste-20/125959944>.

¹⁸³ Challenges in Micro, Small and Medium Enterprises, by Aakriti Goel, 2015 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2626736/

¹⁸⁴ Innovation and Indian MSMEs: Emerging Challenges and Opportunities, by M. Pramila Devi & Dr. S Ramachandran, 2011 [https://www.worldwidejournals.com/indian-journal-of-applied-research-\(IJAR\)/file.php?val=February_2014_1391258877_a81fc_85.pdf/](https://www.worldwidejournals.com/indian-journal-of-applied-research-(IJAR)/file.php?val=February_2014_1391258877_a81fc_85.pdf/)

¹⁸⁵ Micro, Small, and Medium Enterprises: Key Players in Climate Adaptation | World Resources Institute (wri.org)

insolvency or significant business disruption. This dependence on a single buyer makes the smaller business extremely vulnerable to the larger company's fortunes. For example, leading automobile manufacturers in India rely on numerous MSMEs for parts like seats, gearboxes, and other components. If a large vehicle manufacturer were to face insolvency, these MSMEs would be severely impacted, as their products are designed specifically for the manufacturer of automobiles. This dependency illustrates the concept of captive business, where the failure of a major company can lead to the collapse of its suppliers¹⁸⁶. In the port and shipping industry, climate change can disrupt container businesses and the trucks used for transportation. For instance, severe storms and rising sea levels can damage port infrastructure, leading to delays and increased costs for shipping companies. This disruption affects not only the shipping companies but also the businesses that rely on the timely delivery of goods.¹⁸⁷ The container businesses often handling storage and movement of containers, would lose their primary source of income. With no ships arriving or departing, demand for their services plummets, likely leading to layoffs, closures, or a desperate search for new markets. Trucking companies that transport goods to and from the port would face a similar fate. Their routes become obsolete, contracts are broken, and they're left with idle trucks and unemployed drivers. Some might find alternative routes or cargo, but many would struggle. The closure of a major hub like a port creates a ripple effect throughout the local economy. Dependent businesses suffer directly, leading to job losses and reduced economic activity. The impact can extend to restaurants, shops, and other businesses that serve port workers and related industries. It highlights the risks of over-reliance on a single customer or industry and the importance of diversification for long-term economic resilience. For instance, a steel or iron ore plant heavily dependent on continuous operations can face significant challenges if a flood damages its infrastructure. The construction industry, reliant on steel from this plant, would experience delays and increased costs, potentially leading to financial distress¹⁸⁸.

For India this is a greater concern as MSMEs are the backbone of the Indian economy, contributing approximately 33 per cent to the GDP and providing employment to over 110 million workers¹⁸⁹. They play a crucial role in job creation and economic development. For the MSMEs, transition costs can be prohibitive due to their limited financial resources and access to capital. Moreover, MSMEs can be heavily reliant on a single large entity or industry. Climate change risks, driven by policy changes and market shifts, can severely disrupt dependent businesses. For instance, government policies like carbon taxes or stricter emission standards can significantly increase operational costs for companies reliant on fossil fuels or carbon-intensive processes, impacting their profitability. Simultaneously, growing consumer preference for sustainable products and

¹⁸⁶ *Climate Change: how will it impact medium-term inflation?* | World Economic Forum (weforum.org)

¹⁸⁷ International Monetary Fund, *Climate Change and Financial Stability* (Washington, DC: International Monetary Fund, 2023), accessed October 9, 2024, <https://www.imf.org/-/media/Files/Publications/WP/2023/English/wpia2023087-print-pdf.ashx>.

¹⁸⁸ Climate inflation: How rising temperatures impact household budgets (thehill.com)

¹⁸⁹ How MSMEs can transition towards more sustainable business models - SME News | The Financial Express

divestment from fossil fuel companies can further erode their market share and value. This double whammy of policy pressure and changing consumer behaviour makes it crucial for dependent businesses to adapt and diversify to ensure their long-term viability in a rapidly changing world. For MSMEs, the transitional risks are particularly pronounced due to their limited resources and capacity to adapt to new regulations and market demands.

Effective Strategies

The most effective strategies to address climate change are likely to be a combination of mitigation and adaptation. ‘Mitigation’ refers to efforts to reduce or prevent the emission of GHG, or to enhance the absorption of gases already emitted, thus limiting the magnitude of future warming. The IPCC reports that “mitigation requires the use of new technologies, clean energy sources, reduced deforestation, improved sustainable agricultural methods, and changes in individual and collective behaviour”, which can also benefit biodiversity, air quality and sustainable development.¹⁹⁰ ‘Climate adaptation’ refers to the actions taken to manage impacts of climate change by reducing vulnerability and exposure to its harmful effects and developing any potential benefits. Mitigation and adaptation taking place at international, national and local levels are key to developing and reinforcing measures for reducing weather- and climate-related risks.

Section 3

Climate Change - Induced Risks of Insolvency

Climate change poses significant physical and transition risks to vulnerable businesses across various sectors exposing them to the perils of insolvency. The climate crisis has aggravated during the 25-year period from 1990 to 2015 as global annual carbon emissions registered a growth of approximately 60 per cent, and the total emissions added to the atmosphere doubled since the mid-1800s.¹⁹¹

A notable case of physical risk of climate change leading to insolvency is that of Pacific Gas and Electric Company (PG&E) in the United States.

¹⁹⁰ Intergovernmental Panel on Climate Change, “Global warming of 1.58C – An IPCC Special Report on the impacts of global warming of 1.58C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty” (October 2018), online: *IPCC* <https://www.ipcc.ch/sr15/> [IPCC 2018].

¹⁹¹ India@100, *Envisioning Tomorrow’s Economic Powerhouse*, Krishnamurthy Subramanian, Rupa, 2024

Pacific Gas and Electric Company

PG&E filed for Chapter 11 bankruptcy in 2019, citing liabilities exceeding \$30 billion due to wildfires linked to climate change. The wildfires, exacerbated by prolonged droughts and high winds, caused extensive damage to infrastructure and led to significant financial liabilities for the company¹⁹². Climate change has significantly increased the frequency and intensity of wildfires in California.¹⁹³ Warmer temperatures, drier vegetation, and strong winds create ideal conditions for wildfires to ignite and spread rapidly.¹⁹⁴ PG&E's equipment was found responsible for igniting several devastating wildfires in California, including the 2018 Camp Fire, the deadliest and most destructive wildfire in the state's history, caused over \$16 billion in damages, making it the most expensive natural disaster worldwide that year.¹⁹⁵ The Camp Fire alone killed at least 86 people and caused billions of dollars in damages.¹⁹⁶ It destroyed the town of Paradise, California, displacing over 50,000 people and causing widespread economic hardship. Facing billions of dollars in liabilities from wildfire lawsuits, PG&E filed for bankruptcy protection in 2019.¹⁹⁷

The case of P&G highlights the growing risk of climate change-related bankruptcy. It illustrates that climate-related impacts can suddenly manifest themselves in various sectors. The PG&E bankruptcy serves as a stark reminder that climate change is not just an environmental issue; it's a significant economic and business challenge.

Increase in Climate Change Related Litigation

Environmental violations occur when individuals or corporations breach laws or regulations designed to protect the environment. These infractions can lead to severe ecological damage, affecting wildlife, ecosystems, and human health. Corporations found guilty of such

¹⁹² 3 Real-World Examples of Companies Tackling Climate Change (hbs.edu)

¹⁹³ Climate Change is increasing the likelihood of extreme autumn wildfire conditions across California by Michael Goss, Daniel L Swain, John T Abatzoglou, Ali Sarhadi, Crystal A Kolden, A Park Williams, and Noah S Diffenbaugh, August 2020, available at <https://iopscience.iop.org/article/10.1088/1748-9326/ab83a7/>

¹⁹⁴ Anthropogenic climate change impacts exacerbate summer forest fires in California. Marco Turco, John T Abatzoglou, Sixto Herrera and Ivana Cvijanovic, June 2023. Available at <https://www.pnas.org/doi/10.1073/pnas.2213815120/>

¹⁹⁵ Wildfire impacts on education and healthcare: Paradise, California, after the Camp Fire, Sara Hamideh, Payal Sen & Erica Fischer, October 2021, Available at <https://link.springer.com/article/10.1007/s11069-021-05057-1/>

¹⁹⁶ Climate Change drives major US corporation to bankruptcy: are businesses listening?, 2023

¹⁹⁷ Ibid.

violations often face legal repercussions, including fines, mandated restoration of affected areas, and in some cases, compensation to impacted communities.

Climate change litigation, including claims against corporates for climate damage or alleging noncompliance with climate regulations or failure to adapt, have grown considerably over the past several years.¹⁹⁸ Award of substantial damages or threat thereof can force an enterprise into insolvency. There is a growing trend of climate-related claims being brought before the courts, alleging that the enterprises failed to mitigate impacts of climate change, failed to adapt, and failed to disclose material financial risks. There are numerous recent examples of litigation in which attribution science is being used to bring tort and nuisance claims against fossil fuel companies, claiming damages based on their specific contributions to harm. In recent years, cities and counties in more than ten US states have filed separate lawsuits against major fossil fuel companies, alleging that they have continued to produce fossil fuels while knowingly concealing their clear scientific evidence of the harms being caused to the climate.¹⁹⁹ The claimants are seeking compensation for the portion of these firms' GHG emissions that have caused climate change and resulting damages from sea level rise, flooding and other catastrophes.²⁰⁰ Protests and agitations, and public interest litigation by activist organisations in courts has caused the courts and the governments to reconsider policies and decisions that can harm environment. Such pause or upturn of decisions by courts or by the government can force enterprises out of businesses compelling the creditors to file for their bankruptcy. In India, protests by activists against mining, construction and other activities has been a growing phenomenon.²⁰¹

In India, the National Green Tribunal (NGT)²⁰², since its inception, has been vigorously adjudicating environmental disputes in accordance with the legislative and governmental

¹⁹⁸ Joana Setzer and Catherine Higham (2022), *Global Trends in Climate Change Litigation: 2022 Snapshot* (London: Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science); available at <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2022/08/Global-trends-in-climate-change-litigation-2022-snapshot.pdf> (last accessed on December 5, 2022).

¹⁹⁹ See, e.g. *County of Marin v Chevron Corp*, CIV-1702586, Complaint (Cal Super Ct filed 17 July 2017), *County of San Mateo v Chevron Corp*, 17-CIV-03222, Complaint (Cal Super Ct filed 17 July 2017), *Mayor & City Council of Baltimore v BP plc*, 18-CV-02357 (ELH), Document 192 Memorandum (D Md filed 31 July 2019), online (pdf): http://blogs2.law.columbia.edu/climate-change-litigation/wp-content/uploads/sites/16/case-documents/2019/20190731dock-et-118-cv-02357_memorandum.pdf.

²⁰⁰ “The claimants are seeking compensation for the portion of these firms' GHG emissions that have caused climate change and resulting damages from sea level rise, flooding and other catastrophes,” Inside Climate News, May 19, 2023, <https://insideclimatenews.org/news/19052023/fossil-fuel-companies-climate-reparations/>.

²⁰¹ Nayak, Arun Kumar. “Environmental Resistance in India: Special Reference to Northeast India.” In *Media, Politics and Environment*, 139-156. Springer, 2023. https://link.springer.com/chapter/10.1007/978-3-031-31252-6_11.

²⁰² The National Green Tribunal was established under this the National Green Tribunal Act, 2010 Act to handle environmental disputes involving multi-disciplinary issues. The NGT Act is an Indian legislation that establishes a special tribunal for the expeditious disposal of cases related to environmental issues. It deals with matters such as environmental protection, conservation of forests, and enforcement of legal rights related to the environment.

policies. The role of NGT in addressing environmental concerns and ensuring compliance with environmental regulations is crucial. The NGT has played a pivotal role in adjudicating environmental cases and imposing environmental compensations to deter environmental violations and promote environmental conservation: the State of Meghalaya was ordered to pay an interim compensation of 100 crores for coal mining-related threats to life in South Garo Hills District; the State of Uttar Pradesh faced multiple Environmental Compensations (ECs), including 7.5 crores for environmental violations and 100 crores for another case; the State of Rajasthan was also imposed with an interim compensation of 100 crores; the State of Kerala was ordered to pay 10 crores, and the Kochi Municipal Corporation faced an EC of 100 crores for a waste dump fire incident. Additionally, the State of Punjab was fined 50 crores for discharging untreated effluents into rivers Sutlej and Beas. In the Mining sector, Northern Coal Field was imposed with an EC of 10 crores for illegal dumping. Another case involved an EC of 25 crores for environmental damages. In the real estate sector, various compensations were imposed, including 153.5 crores on a real estate company and additional amounts of 2 crores on TCPD Gurgaon. Another case involved a total EC of 68 crores on various entities involved in environmental violations²⁰³.

Climate change litigation is no longer confined to fossil fuel companies; food and agriculture, transport, plastics, and finance sectors are also target of climate change litigation. In some cases, damages were sought from companies for their alleged contribution to climate change harms,²⁰⁴ and in others, companies faced large liability claims under the strict liability doctrine for damage that was, at least in part, caused or amplified by the effects of climate change.²⁰⁵ Physical and transitional climate change risks can be entwined, both being a source of litigation risk for corporates. Allegations of breach of fiduciary obligation are on the rise as evidenced by a recent judgment in Poland where shareholders successfully challenged the directors' decision to proceed with a coal plant that was likely to become a stranded asset.²⁰⁶ There are also lawsuits alleging that directors and officers beached their disclosure duties. For example, the Commonwealth Bank of Australia recently settled a lawsuit alleging that it

²⁰³ *Case citation and the amount of Environmental Compensation imposed by the NGT*. Source: Office of National Green Tribunal as mentioned in Live Law article Available at: <https://www.livelaw.in/articles/a-review-of-the-ngt-on-environmental-compensation-and-waste-management-implementation-231437>

²⁰⁴ Grantham Research Institute on Climate Change Laws of the World, "Luciano Lliuya v. RWE," accessed October 9, 2024, <https://climate-laws.org/geographies/germany/litigationcases/luciano-lliuya-v-rwe>.

²⁰⁵ *In re PG&E Corporation and Pacific Gas and Electric Company*, Case No. 19-30088-DM (the "Main Case Docket"). The summary of case facts is based on information provided on the Kroll Restructuring Administration website, available at <https://restructuring.ra.kroll.com/pge/> (last accessed on September 9, 2022).

²⁰⁶ Client Earth, "Court win in world-first climate risk case puts future of Ostrołęka C coal plant in question," August 1, 2019, <https://www.clientearth.org/latest/press-office/press/court-win-in-world-first-climate-risk-case-puts-future-of-ostroleka-c-coal-plant-in-question/>; Client Earth, "Ostrołęka C: Energa's and Enea's Board Members' Fiduciary Duties to the Companies and Shareholders," September 20, 2018, <https://www.clientearth.org/latest/documents/ostroleka-c-energa-s-and-enea-s-board-members-fiduciary-duties-to-the-companies-and-shareholders/>.

violated its corporate law duties by failing to disclose climate change-related business risks.²⁰⁷ As loss and damage arising from climate change grows, litigation risk is likely to increase, as will insolvencies arising from such litigation. In addition to litigation directly against companies, there is litigation risk in respect of companies seeking regulatory approvals for development projects. For example, in Australia, there have been successful challenges to residential and business developments proposed in coastal areas, with the courts finding that land near the coast is unsuitable for development as it poses hazards for erosion, storm surges and inundation in the future due to climate change.²⁰⁸ These factors can serve as pressure on enterprises to transit to climate-friendly businesses or regulations. Failure to transit can force such enterprises into insolvency.

Debt Default

Default in payment of debt is an imminent consequence of physical and transition risks. There can be significant financial impact on the revenue generation capacity as well as cash flow of the company due to reduction in demand for products and services owing to risk of climate change.²⁰⁹ Expenditures may rise as the company struggles to recuperate business losses arising out of physical threats to assets and the transition costs, from the growth in carbon pricing mechanisms for instance.²¹⁰ These raises need for fresh credit. Empirical data suggests that the fossil fuel industry may have lost some access to equity finance, leading to larger borrowing by these firms.²¹¹ But these requirements may remain unmet due to the proposed orientation shift in lending practices, leading to a dearth in credit availability for businesses that are not built around low-emission operations. Banks charge higher rates to firms with reliance on fossil fuel which caused them to have higher exposure to transition risk, particularly after 2015.²¹² Financial institutions accommodate

²⁰⁷ “Summary: *Abrahams*” (2019), online: *LSE* <http://www.lse.ac.uk/GranthamInstitute/litigation/abrahams-v-commonwealth-bank-of-australia/>, citing *Abrahams v Commonwealth Bank of Australia*, No VID/879 (2017), online (pdf): *Environmental Justice Australia* [https://envirojustice.org.au/sites/default/files/files/170807%20Concise%20Statement%20\(as%20filed\).pdf](https://envirojustice.org.au/sites/default/files/files/170807%20Concise%20Statement%20(as%20filed).pdf). See also G Hutchens, “Commonwealth Bank shareholders drop suit over nondisclosure of climate risks” (21 September 2017), online: *The Guardian* <https://www.theguardian.com/australia-news/2017/sep/21/commonwealth-bank-shareholders-drop-suit-over-non-disclosure-of-climate-risks>, referencing “Annual Report” (2017) at 10- 11, 24, 44-47, 151, online (pdf): *The Commonwealth Bank of Australia* <https://www.commbank.com.au/content/dam/comm-bank/about-us/shareholders/pdfs/annual-reports/annualreport-t201714aug2017.pdf>.

²⁰⁸ *Insolvency Risk and Climate*, Dr Janis Sarra, Presidential Distinguished Professor and Professor of Law, Peter A. Allard School of Law, University of British Columbia.

²⁰⁹ Task Force on Climate-related Financial Disclosures, *Climate-Related Risks and Opportunities*, 9, accessed October 15, 2024, <https://www.tcfhub.org/Downloads/pdfs/E06%20-%20Climate%20related%20risks%20and%20opportunities.pdf>.

²¹⁰ Basel Committee on Banking Supervision, *Climate-related Risk Drivers and Their Transmission Channels* (Basel: Bank for International Settlements, 2021), accessed October 9, 2024, <https://www.bis.org/bcbs/publ/d517.pdf>.

²¹¹ Basel Committee on Banking Supervision, Working Paper No. 40: *The Prudential Treatment of Problem Assets – Definitions of Non-Performing Exposures and Forbearance* (Basel: Bank for International Settlements, 2017), accessed October 9, 2024, <https://www.bis.org/bcbs/publ/wp40.pdf>.

²¹² *Ibid.*

environmental concerns as one of the factors in their risk assessment to anticipate default risk. This naturally results in green assets outscoring brown assets or they undertake a fundamental change based on economic policy that entails shifting capital allocation from brown to green activities.²¹³ The latter may operate to create a financial incentive for transition to low-carbon operations.²¹⁴ However, it is also true for companies that are undertaking a transition to low-carbon-driven long-term environmental and financial considerations as they are not immune from continued threats to their financial stability that may be associated with the transition costs.²¹⁵ The credit risk for financial institutions is palpably present due to the cumulative financial impact of several macroeconomic factors²¹⁶ due to capital depreciation, productivity changes, and socioeconomic changes such as changes in consumption patterns²¹⁷. This is alongside the credit risk exposure from corporates due to tangible decreases in revenue or value of assets and increasing costs, such as the wider economic shock induced by climate change that reduces the credit quality of carbon-heavy borrowers.²¹⁸

For financial institutions, physical risks can materialize directly, through their exposures to corporations, households, and countries that experience climate shocks, or indirectly, through the effects of climate change on the wider economy and feedback effects within the financial system. Exposures manifest themselves through increased default risk of loan portfolios or lower values of assets. For example, rising sea levels and a higher incidence of extreme weather events can cause losses for homeowners and diminish property values, leading to greater risks in mortgage portfolios. Corporate credit portfolios are also at risk, as highlighted by the bankruptcy of California's largest utility, Pacific Gas and Electric. In what *The Wall Street Journal* called the first "climate-change bankruptcy"²¹⁹, rapid climatic changes caused prolonged droughts in California that dramatically increased the risk of fires from Pacific Gas and Electric's operations. Tighter financial conditions might follow if banks reduce lending, in particular when climate shocks affect many institutions simultaneously.

Anticipating higher default risks, the RBI issued a Discussion Paper on the lines of international developments directing the incorporation of climate-related risks in the risk

²¹³ Berenguer M, Cardona M, Evain J. Integrating climate-related risks into banks' capital requirements. Institute for Climate Economics (I4CE). Paris; 2020

²¹⁴ Ibid.

²¹⁵ Javier Ojea-Ferreiro, Juan C. Reboredo, and Andrea Ugolini, The Impact of Climate Transition Risks on Financial Stability: A Systemic Risk Approach (Ispra: European Commission, 2022), accessed October 9, 2024, https://joint-research-centre.ec.europa.eu/document/download/b4f04d48-ebdd-4e07-845c-129d9e61e2f2_en?filename=JRC127352.pdf.

²¹⁶ Basel Committee on Banking Supervision, Climate-related Risk Drivers and Their Transmission Channels (Basel: Bank for International Settlements, 2021), 15, <https://www.bis.org/bcbs/publ/d517.pdf>.

²¹⁷ United Nations Environment Programme Finance Initiative, Emerging Economies Climate Risks and Best Practices for Climate Risk Disclosure – Part 1 (Geneva: UN Environment Programme Finance Initiative, 2023), 10, <https://www.unepfi.org/wordpress/wp-content/uploads/2023/12/Part-1-Emerging-Economies-Climate-Risks-and-Best-Practices.pdf>.

²¹⁸ Ibid.

²¹⁹ Gold, Russell. "PG&E: The First Climate-Change Bankruptcy, Probably Not the Last." *The Wall Street Journal*, January 18, 2019. <https://www.wsj.com/articles/pg-e-wildfires-and-the-first-climate-change-bankruptcy-11547820006>.

assessment mechanisms of regulated entities with a focus on financial risks arising out of climate change-induced physical and transition risks, including credit concentration risk, underwriting risk, reputational risk, and strategic risk²²⁰, among others.

Additionally, tortious environmental liabilities that may arise due to negative externalities of the business are becoming increasingly more pressing with enabling policy changes which presents an additional operational risk factor for the company's resources but also the liability exposure is unattractive for investors as well as insurers, who are likely to be disincentivized to provide capital coverage.

Even for sectors that have limited direct exposure to climate-vulnerable resources, the combined exposures to climate policy-relevant sectors are large, heterogeneous, and amplified by large indirect exposures via financial counterparties. Global Production Networks (GPNs) constitute a complex network of manufacturers, suppliers, customers and consumers that provide global arrangements enabling cutting costs, increasing revenue and increasing flexibility and agility.²²¹ However, it is pointed out by scholars that this reliance could also lead to an increase in exposure to risks due to differences in the social, economic and political profile of different locations²²². Given their significant place in global production, it is postulated that a large supply shock affecting one supplier in the production network can have large macroeconomic consequences depending on the overall network structure²²³. In identifying risks, issues of insolvencies of individual nodes in such networks are also considered impactful, especially in the context of greater interdependencies and higher supplier risks. Thus, it becomes imperative to perceptively develop a framework that identifies the most vulnerable industries, sectors or businesses in the supply chain especially those in emerging markets. This process would include the analysis of parameters that have the highest impact on GPN performance and the necessary reduction in uncertainty in those parameters should be reduced to reduce the financial loss due to risk.

²²⁰ Reserve Bank of India, Discussion Paper on Climate Risk and Sustainable Finance (Mumbai: Reserve Bank of India, 2022), accessed October 9, 2024, <https://www.rbi.org.in/Scripts/PublicationsView.aspx?id=21071>.

²²¹ Neil M. Coe, Peter Dicken, Martin Hess, Global production networks: realizing the potential, *Journal of Economic Geography*, Volume 8, Issue 3, May 2008, Pages 271–295, <https://doi.org/10.1093/jeg/lbn002/>

²²² Dobrila Petrovic and Ali Niknejad, *Analysis of Impact of Uncertainty in Global Production Networks' Parameters* (Coventry: Coventry University, 2017), accessed October 9, 2024, <https://pureportal.coventry.ac.uk/files/11567610/CIEDpetrovic.pdf>.

²²³ Organisation for Economic Co-operation and Development (OECD), *Climate Change Risks to Financial Stability in Emerging Markets* (Paris: OECD, 2023), accessed October 9, 2024, <https://www.oecd-ilibrary.org/deliver/9bcde495-en.pdf?itemId=/content/paper/9bcde495-en&mimeType=pdf>.

Negative bankruptcy spill-over²²⁴ is an observed phenomenon that adversely impacts²²⁵ other corporate entities in a common financial or operational network and may result in simultaneous bankruptcy of firms in a corporate network depending on their strategic capital structure choices post-impact. There are two perspectives to managing the negative bankruptcy spillovers. Firstly, liquidation could arguably operate to the benefit of the local economy since the assets of the inefficient company can be reabsorbed by stakeholders, including capital by lenders, which can be reallocated to more productive avenues allowing for the materialisation of the ‘creative destruction’ process of a market economy²²⁶. On the other hand, reorganisation of the financially stressed company may limit the adverse impact as continued operations will preserve the supply-chain links. Negative bankruptcy spill-over, thus is likely to be aggravated for ‘agglomeration economies’ where supply-chain firms are geographically proximate. Secondly, credit risk or liquidity risks associated with climate events are only one part of the equation since the market also reacts to the volatility in the operating environment, with shifting investor as well as consumer preferences.²²⁷ This fundamentally erodes the viability of a business and its products or services as they become obsolete in the market. Lastly, it is important to highlight the circular nature of the relationship between financial risk and climate vulnerability such that both reinforce and aggravate the impact of both²²⁸, turning it into a systemic risk that suffocates a company. When this impact is felt across portfolios and sectors, while also dampening prospects unless addressed by a considerable financial rescue which is difficult, the threat goes beyond corporations and is likely to sweep governments and financial institutions within its nets as well. Estimates of global investments required to achieve the Paris Agreement’s temperature and adaptation goals range between US\$3 to \$6 trillion per year until 2050.²²⁹ Global climate finance currently adds to about US\$1.3 trillion annually,²³⁰ mostly financed by debt which attests to a significant gap between the transition costs and funding.

²²⁴ Javier Ojea-Ferreiro, Juan C. Reboredo, and Andrea Ugolini, “The Impact of Climate Transition Risks on Financial Stability: A Systemic Risk Approach,” *Journal of Financial Stability* 56 (2021), accessed October 9, 2024, https://www.sciencedirect.com/science/article/pii/S0165188921001998?ref=pdf_download&fr=RR-2&tr=86243b26cd225994.

²²⁵ Ibid.

²²⁶ Anusha Chari, Lakshita Jain, and Nirupama Kulkarni, *The Origins of India’s NPA Crisis* (New York: Columbia University, 2019), accessed October 9, 2024, <https://indianeconomy.columbia.edu/sites/default/files/content/201904-Chari%20et%20al-NPA%20Crisis.pdf>.

²²⁷ Basel Committee on Banking Supervision, *Climate-related Risk Drivers and Their Transmission Channels* (Basel: Bank for International Settlements, 2021), accessed October 9, 2024, <https://www.bis.org/bcbs/publ/d517.pdf>.

²²⁸ Oluwaseun James Oguntuase, “Climate Change, Credit Risk and Financial Stability,” in *Banking and Finance*, ed. Razali Haron, Maizaitulaidawati Md Husin, and Michael Murg (London: IntechOpen, 2020), accessed October 9, 2024, <https://www.intechopen.com/chapters/72986>.

²²⁹ Inger Andersen, “Investment and Trade to Meet the Paris Climate Goals,” United Nations Environment Programme, accessed October 9, 2024, <https://www.unep.org/news-and-stories/speech/investment-and-trade-meet-paris-climate-goals>.

²³⁰ Barbara Buchner et al., “Global Landscape of Climate Finance 2023,” Climate Policy Initiative, accessed October 9, 2024, <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2023/>.

Section 4

Insolvency and Bankruptcy Code 2016 and Climate Change Risk Mitigation and Adaption

The corollary of direct and indirect impact of physical risks, environmental liabilities because of failure to transit to climate friendly regulations or award of environmental damages is that the enterprises will be exposed to the risks of default in servicing their debt leading to their insolvency. The risk can be more profound for MSMEs. This profound linkage between climate change and insolvency law needs a deeper examination. This section examines this linkage and offers suggestions on the application of the Insolvency and Bankruptcy Code 2016 for climate change risk mitigation and adaption.

Accepting linkages between Climate Change and Insolvency

With time, the recognition that there are linkages between climate change and insolvency regimes is gaining ground, but scepticism persists on the use and application of insolvency laws for climate change risk mitigation and adaption. At the April Roundtable, some participants argued that environmental policy is a non-bankruptcy matter which is best addressed outside of insolvency policy although they stayed open to a deeper consideration of the subject; the others were convinced of the nexus between climate change and insolvency. The September Roundtable ended on a greater positive note as the participants were unanimous on recognising the linkage and the definite role an insolvency law has in climate change risk mitigation and adaption. However, it is also clear that for some time the foremost task of scholars will have to be to persuade the policymakers to accept the linkages and ignite the appetite of policy makers to act on this. This will not be a mean effort by any standards.

It often seems that the chief aim of science is to predict the future - to forecast whether tomorrow will bring rain or sunshine, or a natural calamity; to project an economic crisis or downturn; to foresee whether chemotherapy or radiation therapy will be more successful in curing lung cancer; or if an epidemic may strike; predict successes or failures of economies, enterprises, and ideas. But it almost never works. Economic crisis, turndowns, and enterprise failures continue to occur at regular intervals, climate change is ravaging the world through droughts, flooding, fires, intense heat and, deforestation, among other environmental events; pandemics like COVID-19 continue to strike, causing social and economic disruption. Global institutions and insolvency experts have, with the best intent, created archetypes of model insolvency laws to prevent insolvencies, and provide solutions for stressed enterprises in times of crisis, hoping these models would fit into any country or economy, emerging or

mature, developed or developing. That has not worked nearly as hoped or expected. Insolvencies continue to occur and offer challenges despite preventive measures and model legislation. Insolvency scholars and experts strive to stay ahead of the issues that confront the world. They continue to research and experiment to broaden the horizons of policy makers and market players, thereby opening before them new and unknown futures. Climate change is one such critical issue that threatens humanity on which scholars need to invest their efforts.

It is well-accepted that insolvency law is not just a confined body of law. An insolvency law has a complete solar system of substantive laws, regulations, and cultural practices that orbit around it. They operate independently of one another but establish contact with insolvency law when insolvency proceedings are commenced. An array of laws becomes active during insolvency. A few become more active than the other. By touching virtually, the commercial, tax, labour, and environmental laws (to name but a few), the insolvency law is a kind of metalayer encompassing all of them which makes its understanding and application highly complicated. The laws not compatible with the insolvency law create obstacles in the effective implementation and outcome of the rescue exploration or liquidation.²³¹

The scope of climate laws and policies is also not limited to laws explicitly aimed at addressing climate change mitigation or adaptation, but also include laws purporting to facilitate the transition, for instance, by way of incorporating climate change into broader developmental plans.²³² Governing climate change and its impact at the macroeconomic as well as firm level is a polycentric exercise seen in the context of its linkages with other governing regimes such as trade, investment and human rights.²³³ Economics and associated laws evolved out of moral philosophy. Adam Smith, who is regarded as the father of economics, was a professor of moral philosophy and not economics. Thomas Kuhn, the philosopher, and intellectual historian, argued, that early in the development of a new field, “social needs and values” are a major force determining what problems its practitioners take up. The climate emergency today equates to the social needs and values of our time.²³⁴ Climate change is also undisputedly a moral issue. It is well-recognised that exogenous policy concerns have always altered the law of corporate reorganizations.²³⁵ If these various social and policy interests are valid justifications for altering bankruptcy procedures and priorities, surely an imminent ecological catastrophe falls in that category as well.

A growing body of empirical evidence confirms the positive relationship between firms’ exposure to transition risks (such as new carbon regulations) and physical risks related to

²³¹ Corporate Insolvency: Law and Practice, Sumant Batra, Eastern Book Company (2017).

²³² Joana Setzer and Michal Nachmany, National Governance: The State’s Role in Steering Polycentric Action, in *Governing Climate Change: Polycentricity in Action* (Andrew Jordan, Dave Huitema, Harro Van Asselt and Johanna Forster ed.) (CUP 2018) at 50.

²³³ Ibid.

²³⁴ Should Environment Claims Be Granted the Status of Secured Creditors in the Insolvency and Bankruptcy Code, 2016? Devendra Mehta, *GNLU Student Law Review*, Volume IV, 2023

²³⁵ Going Concerns and Environmental Concerns: Mitigating Climate Change Through Bankruptcy Reform, Alexander Gouzoules, *Legal Studies Research Paper Series Paper Number 2022-19*, Loyola University, New Orleans, College of Law.

climate change and those firms' corporate default risk.²³⁶ There is the reciprocal relationship between climate change and economic activity viewed through the prism of business insolvency in particular, the effects of climate change on corporate solvency and the potential role that insolvency and restructuring frameworks can play in addressing climate-related risks and contributing to mitigating the effects of climate change. Climate risks manifest themselves in enterprises in many ways exposing them to risk of distress as discussed in the earlier sections. Impact of physical and transition risks can cause inability to service debt in timely manner exposing the enterprise to the perils of insolvency or distress sales of assets. Fossil fuel companies are usually the primary target of climate change litigation actions; they find it challenging to raise new investments or transition to environment compliant policies. For the MESMEs this challenge is even more profound. Rapid decrease in the value of collateral increases credit risk. Cost of insurance can become unaffordable for enterprises exposes to physical risks of climate change and the risks related to the transition to a lower-carbon economy. Many carbon-emitters may end up with stranded assets²³⁷ carrying environmental obligations, such as clean-up or other end-of-life obligations.²³⁸ Stranded assets may be considered environmental obligations. In the event of an insolvency of a firm, such obligations may need to be addressed within the insolvency rules framework. Different aspects of insolvency law and practice, such as disclaimers of liabilities, priorities, restructuring practices, and rights to standing in insolvency proceedings, could contribute to or undermine climate mitigation efforts. Companies that fail to take account and remedial actions for climate risks are more likely to become financially distressed.

Stronger insolvency regimes moderate the adverse effects of heightened economic policy uncertainty and economic shocks on firms' risk of default.²³⁹ A robust legal framework would limit the uncertainty associated with lending and strengthen the rights of the credit, leading to risk reduction and the resultant increase in the supply of credit at lower costs.²⁴⁰ Integrating climate change concerns with the insolvency regime can fundamentally address the necessity for incorporating climate change regulation into broader thematic regulations in a way to fill the gaps within the existing laws to align with this all-pervasive concern.²⁴¹ Access to capital emerges as a significant concern for climate change mitigation and adaptation. Insolvency law is positioned at the interface of economics and law. A well-devised insolvency regime can enhance the willingness of people to lend money to businesses, minimise the costs incurred by vulnerable creditors (such as employees), and promote overall business dynamism. Managers of investment funds are fiduciaries charged

²³⁶ Climate Change and Sinking Corporates: Mitigating the Risks, Antonia Menezes and Akvile Gropper, World Bank Group (2023)

²³⁷ Stranded assets are investments that become unviable because of changes in operating environments, in policy, or in market conditions (for example, fossil fuel infrastructure that will no longer be used).

²³⁸ A. Dalman and M. Coffin (2021) "Adapt to Survive" (Carbon Tracker initiative, London) Available at <https://carbontracker.org/reports/adapt-to-survive/>.

²³⁹ Gertler, M., & Bernanke, B. (1989). Agency costs, net worth and business fluctuations. In Business cycle theory. Edward Elgar Publishing Ltd.

²⁴⁰ Shivangi Dhawan, "Online Learning: A Panacea in the Time of COVID-19 Crisis," Journal of Educational Technology Systems 49, no. 1 (2020): 5-22, accessed October 9, 2024, <https://journals.sagepub.com/doi/10.1177/0256090920939809>.

²⁴¹ Ibid.

with oversight and management of investment vehicles in the best interests of multiple generations of beneficiaries; they consider the intergenerational implications of their investment decisions to integrate climate change considerations in their investment portfolios. Investment risks are arising from downward pressure on the value of carbon-linked assets during the transition towards a lower-carbon economy. Companies that fail to disclose their risks and their business plans to address them could face problems accessing capital. The role of the insolvency regime in ensuring credit availability is a core ideal and objective²⁴². It is a vital consideration in the policy design of Insolvency and Bankruptcy Code 2016 (IBC).²⁴³ Creditors who benefit from improved recovery as a result of more efficient procedures are more inclined to extend credit. Efficient insolvency systems are associated with greater access to credit as the efficiency of procedures increases confidence among creditors. Access to credit can provide the necessary financial resources that enable business and livelihood adjustments during climate crises, and investments in long-term climate resilience.

Climate change mitigation goals are also inter-linked with another key goal of IBC of maximising the value of assets of the corporate debtor.²⁴⁴ As discussed in the earlier sections, climate change risks can erode the value of assets and business of enterprises which in turn will impact the price discovery and impact the goal of maximisation under IBC. Institutional investors are increasingly seeking additional information to quantify their exposure to carbon-linked assets. Climate change could substantially affect the valuation of assets of many companies. The risks and attendant costs associated with stranded assets can accrue not only to companies, but to particular industries. There may also be costs borne by governments and taxpayers as a whole, where there is no one else to pay for decommissioning, remediation and reclamation of these stranded assets. The investors now stress test their asset portfolios to quantify the potential impact of changes in carbon-based asset prices, in order to guide their investment decisions. A number have commenced shifting their investment activities.²⁴⁵ The enterprises which do not meet climate change policies and regulations are likely to fetch lower value in insolvency resolution process and liquidation.

Global events in last few decades have persuaded governments around the globe and international institutions to make resilience central in the insolvency policy strategies and policy-guiding principles. This approach clearly derives from the growing uncertainty and complexity that policymakers are faced with. There is a growing recognition of the

²⁴² Bankruptcy Law Reforms Committee. The Report of the Bankruptcy Law Reforms Committee Volume I: Rationale and Design. New Delhi: Ministry of Finance, 2015. https://ibbi.gov.in/BLRCReportVol1_04112015.pdf. Page 14

²⁴³ See, Statement of Objectives of IBC: An Act to consolidate and amend the laws relating to reorganisation and insolvency resolution of corporate persons, partnership firms and individuals in a time bound manner for maximization of value of assets of such persons, to promote entrepreneurship, availability of credit and balance the interests of all the stakeholders including alteration in the order of priority of payment of Government dues and to establish an Insolvency and Bankruptcy Board of India, and or matters connected therewith or incidental thereto.

²⁴⁴ Ibid

²⁴⁵ Insolvency Risk and Climate, Dr Janis Sarra, Presidential Distinguished Professor and Professor of Law, Peter A. Allard School of Law, University of British Columbia.

importance of policy designs that can address or minimize the impacts of potential shocks and uncertainty. In particular, policy designers are faced with the challenges of uncertain linkages between policy actions and outcomes, a highly complex and ill-defined policy problem space that encompasses multiple interacting elements. Many countries have recently reviewed their insolvency policies to address the challenges thrown by the black swan event - COVID -19 and deal with the dynamics resulting from the recent geo-political developments, to make the insolvency systems not just robust, but also resilient.

Thus far, the legal system's contributions to climate change have been underwhelming. As businesses grapple with these challenges, it is imperative to develop and implement robust insolvency policies and strategies to mitigate the insolvency risks associated with climate change. The increasing frequency and severity of climate-related events like the PG&E case highlight a critical need to re-evaluate the existing insolvency framework in light of environmental sustainability. Appropriate policy, legal and regulatory steps representing different degrees of intervention for policymakers in many areas including in insolvency are necessary for both mitigation and adaptation by embedding climate goals in restructuring practice. Although already belated, it is time reinvent insolvency policies yet again, this time to address the risks arising from climate change aimed at facilitating climate adaptation.

The World Bank Group, in partnership with the INSOL International and the International Insolvency Institute have jointly established *The Insolvency and Climate Change Working Group*²⁴⁶ to advance the collective understanding of the complex interaction between insolvency law and climate change, and explore the ways in which insolvency law can enhance climate adaptation, resilience and mitigation efforts. The Working Group held its first meeting in Washington, D.C. on 23-24 February 2024. The Working Group discussed the role of insolvency systems in promoting climate resilience, adaptation and mitigation. The deliberations of the Insolvency and Climate Change Working Group were informed by a discussion paper, prepared by the World Bank Insolvency and Debt Resolution Program. A report is being prepared highlighting the linkages between the climate agenda and insolvency law and policy, and the extent to which insolvency law, along with features of other associated laws and policies (such as environmental regulations, corporate law and government-sponsored debt relief measures), can support climate adaptation and/or mitigation goals.

India stands at the cusp of transformation, poised to redefine its global stature as it marches towards its centennial milestone of becoming a developed country by 2047. As the world's largest democracy and the fastest-growing major economy, India's journey towards becoming an economic powerhouse by its 100th year of Independence is both compelling and complex. India's domestic climate policy must be combative as well as preventive. This Thought Paper advocates that India can use IBC to effectively address many risks arising for businesses from climate change. Some ideas when shaped into policy, legislative or regulatory measures could go a long way in mitigating the effects of climate change on Indian businesses. Many measures can be taken without having to make any fundamental shifts in existing policy

²⁴⁶ Sumant Batra is a member of the Working Group.

framework or disrupting the process of stabilisation of IBC; some policy changes will require recalibration of the policy underlying IBC, a law still at its nascent stage. Some proposals can be promoted as best practices. The country's goal to become a developed country, and of addressing climate change risks to businesses complement one another.

At first glance, some of the ideas articulated in this Paper may appear somewhat radical. Although nothing short of profound measures are required to address the risks of climate change considering the gravity of the challenge faced by humans but the proposals in the Paper do not require any shifting of tectonic plates of insolvency policy. However, certainly, a deeper evaluation of these proposals, and a wider stakeholders' consultation, is required at the time of considering policy choices. Suffice to say that recognition of 'climate insolvency' can contribute to the green agenda by facilitating the liquidation or restructuring of carbon-intensive firms and stranded assets by putting an end to a polluting activity of a firm or its stranded assets, or alternatively, facilitating its transition (through restructuring) towards a more climate-friendly business model. It can address climate change risks in an orderly and efficient way. They can help enterprises recover from financial distress caused by climate hazards by alleviating the debt burden through debt discharge provisions; and facilitating their restructuring and in turn, their continuance. These measures can build resilience to climate change through better access to credit.

India, which is rapidly becoming the voice of the Global South, can implement measures to promote the achievement of climate mitigation goals in insolvency and restructuring procedures, and set a high bar for other countries including developed economies. At the same time, as climate change is primarily created by the excesses of the rich nations, India needs to continue highlighting that for the world to succeed in combating climate change, developed economies need to properly respect the principles of equity and common-but differentiated-responsibilities, and respective capabilities.

Trigger for Insolvency for mitigating Climate Change Risks

The IBC allows corporate insolvency resolution proceedings to be initiated by creditors (financial and operational creditors) or the corporate debtor, in the event of default in payment of debt, as elaborated later in this section. Not only its creditor, even the corporate debtor has to wait till the default in payment of debt occurs. Although a financial creditor has the right to initiate a proceeding under IBC after a default of the threshold amount has been committed, it is not obliged to do so at the first available opportunity. It may defer the initiation of proceeding indefinitely. Admission of application by National Company Law Tribunal

(NCLT) can also take time due to procedures to be followed for admission and other factors.²⁴⁷

A corporate debtor which may not have defaulted in payment of debt but is likely to default in view of climate change risks, is unable to seek the remedial measures available under IBC to prevent erosion of enterprise value on account of default and its cascading effect. For example, a company may suffer damage to one of its significant plants from floods, wildfires, landslides, hurricanes or other natural calamity events arising from climate change. Such a company may need to use IBC to seek moratorium relief or avail the benefits from process of resolution under IBC, unless it defaults in payment of debt. The debt default test will prevent such an enterprise from initiating an insolvency resolution process. The impact of climate change on financial health is difficult to ascertain and identify except in cases where the insolvency happens to be a direct result of environmental liabilities imposed on the company or damages awarded by a court²⁴⁸. Delay in initiating insolvency by creditors and the debtor could continue damage to climate by non-compliant enterprises or which are unable to transition due to lack of resources. In insolvency process, insolvency professional or similar office holder would be duty-bound to take suitable urgent steps to curb the damage. The commencement of insolvency can also enable the resolution professional of the corporate debtor to raise interim finance (post commencement funding under IBC to fund the cost of compliances and transition, which the management of debtor may otherwise find difficult to mobilise. The importance of interim finance to mitigate transition risk is discussed separately later in the Paper.

An important issue for all companies – not just the legacy carbon-intensive companies – is early identification of financial distress. Insolvency regimes enable coping with adverse climate shocks by providing enterprises with mechanisms to detect early signals of financial distress; and procedures that enable consensual arrangements with creditors to restore their financial viability. In many jurisdictions, the test for default is not whether at the date of the alleged insolvency, it is probable that the debtor will be unable to pay the debt when it arises; rather, at the date of the alleged insolvency, the debtor must already be in a state of inability to pay those debts when they fall due. That is the distinction between a debtor that is likely to become insolvent in the future and one that is already insolvent. The more time before a debt falls due, the greater the potential for events to occur impacting the debtor's liability to pay. Consequently, that debt will present a less convincing argument for insolvency the further it is in the future. A high degree of probability is required to establish that a debtor

²⁴⁷ Hybrid Insolvency Resolution Process, A Creditor Led, Debtor in Possession Resolution Process for India, Insolvency Law Academy, July 2024 accessed on October 9 2024, <https://insolvencylawacademy.com/wp-content/uploads/2024/08/hybrid-insolvency-resolution-process-v3.pdf>

²⁴⁸ Filippo A. Raso et al., “Artificial Intelligence & Human Rights: Opportunities & Risks,” Berkman Klein Center Research Publication No. 2018-6, accessed on October 9, 2024, <https://deliverypdf.ssrn.com/delivery.php?ID=60509106809407500112212512709410106504005600802206209403009509908712602300710202800701101002900711904301912700002909811409309005608200003504012408707111710308812604107600210307106508711612103011909606908400711100009402101120084007112024117079087119&EXT=pdf&INDEX=TRUE>.

would be unable to repay debts as they became due. Even if the debtor's balance sheet shows that it has more liabilities than assets, it may be necessary to consider whether the company will be able to generate enough profit or liquidate assets to pay long-term debts. Conversely, if the company's balance sheet shows more assets than liabilities, that will usually support a case for solvency. That is why many jurisdictions around the world allow commencement of insolvency of debtor where default is imminent, and not when only when it has actually occurred.

It is a generally accepted principle of insolvency law that collective action is more efficient in maximizing the assets available to creditors than a system that leaves creditors free to pursue their individual remedies that could lead to distress slump sale of assets. Individual creditor enforcement actions in the wake of value of their security interest getting depleted because of physical risks of climate change may also destroy the going-concern value of an economically viable business facing temporary financial trouble. The enterprise value is typically higher than the liquidation value at the time when the red flags of stress in corporate debtor may be visible, but the actual default may not have occurred. The value remains high even in the early days of default, but it often continues to erode with passage of time. A bonafide corporate debtor, seeking a genuine resolution of stress on account of climate change risks, would be keen for an early resolution of problem, by using insolvency mechanism, with the cooperation of its creditors and other stakeholders.

As the IBC stands today, for making use of IBC, the corporate debtor must wait for the default to occur before it can initiate insolvency process.

Initiation of Insolvency to mitigate Climate Change Risks

The Parliament in its wisdom recognized five types of creditors - "financial creditor" or "operational creditor", "secured creditor", "unsecured creditor" and a "decree-holder".²⁴⁹ The phrases "financial creditor", "operational creditor" and "secured creditor" are defined in clauses (7), (20) and (30) of S.3 of the IBC, respectively²⁵⁰. S. 6 of the IBC provides as to who may initiate corporate insolvency resolution process (CIRP); other than the debtor itself, IBC allows only a financial creditor and operational creditor to initiate insolvency process²⁵¹ where any corporate debtor commits a default. Clause (12) of S.3 of IBC defines the term "default" to mean non-payment of default of debt when whole or any part or instalment of the amount of debt has become due and payable and is not paid by the debtor or the corporate debtor, as the case may be. Clause (11) of S.3 of IBC defines the term "debt" to mean, a liability or obligation in respect of a claim which is due from any person and includes a financial debt and operational debt. A claim means a right to payment, whether or not such right is reduced to judgement, fixed, disputed etc. As stated earlier, the trigger point

²⁴⁹ Refer to definition of "creditor" in clause (10) of section 3 of the IBC.

²⁵⁰ Refer S. 3 (7), (20) and (30) of IBC

²⁵¹ Refer S. 6,7, 9 and 10 of IBC.

to initiate CIRP is when a default takes place. A creditor may hold a decree from an environmental claim against a company which constitutes a debt under IBC, but the decree may not in itself suffice to initiate insolvency proceeding, unless the debt underlying the decree qualifies as a financial debt or an operational debt. The NCLT looks at the nature of the debt underlying the decree to determine the eligibility of the decree-holder to initiate the process. An application under IBC for initiation of insolvency process is accepted on behalf of a decree-holder where the underlying debt entitles the holder to proceed either as a financial creditor or operational creditor. For instance, if a liability in respect of a claim arising out of a recovery certificate issued under Recovery of Debts Due to Banks and Financial Institutions Act, 1993 is a “financial debt” within the ambit of its definition under clause (8) of S.5 IBC, as a natural corollary thereof, the holder of such recovery certificate would be a financial creditor within the meaning of clause (7) of S.5 IBC, and such decree holder would be qualified to initiate proceedings under S.7 of IBC.²⁵²

There is a merit in allowing environmental liability decree-holders to institute insolvency process in cases where the liability arising from an environmental claim remains unmet for a particular period either in cases where individual claims satisfy the pecuniary threshold of ₹1 crore or a critical mass²⁵³ of decree-holders with debt of ₹1 crore are seeking to make such an application collectively. The allottees of real estate projects were classified as homebuyers, and more than one allottee can file a petition under S.7 of IBC for commencement of insolvency process if the total number of allottees is not less than one hundred or not less than ten per cent of the total number of allottees under the same real estate project, whichever is less. The pecuniary threshold may be determined based on the debt stated in the decree-holder being equivalent to ₹1 crore. A critical mass in several applicants may become necessary to address the concerns of heterogeneity that could pose a threat to viable businesses due to the possibility of individualistic actions.²⁵⁴

Making room for Ad Hoc Committees

Committees are an essential part of the restructuring process and function as the wheels and gears that make possible the collective action that may ultimately lead to a successful restructuring. Committees are watchdogs that investigate and verify financial assumptions and data. Importantly, they are also negotiators who formalise and harmonise the occasionally disjointed thinking of creditors, assembling what may be disparate individual points of view into a coherent expression of the business objectives and restructuring expectations of a representative body of creditors.

²⁵² Kotak Mahindra Bank Limited Vs. A. Balakrishnan and Another, (2022) 9 Supreme Court Cases 186, decided on May 30, 2022

²⁵³ Manish Kumar v. Union of India, decided on 19th January 2021, 2021 SCC OnLine SC 30

²⁵⁴ Ibid.

In India, committee of creditors (CoC) is the fulcrum of IBC. The interim resolution professional (IRP) invites claim from the corporate debtor's creditors by making a public announcement. She verifies and collates the claims received and constitutes a CoC comprising unrelated financial creditors of the corporate debtor who have lent money to the corporate debtor against time value for money or provided guarantee. The voting share is assigned to the member of the CoC based on the amount of its claim as verified by IRP. In CoC, no priority is accorded amongst financial creditors on account of being secured, unsecured or for providing a guarantee. An alternative provision in IBC provides that CoC be formed with operational creditors when corporate debtor has no financial creditor or when all its financial creditors are related parties. Simply stated, operational creditors are trade creditors or those from whom corporate debtor has availed services (including employees) but has not paid them. The central and state governments and statutory bodies also fall under the category of operational creditors if any dues are owed to them by the corporate debtor.

The CoC is responsible for making many key decisions during the insolvency process. Amongst the first decision that is required to be taken when it meets is to either confirm IRP as the resolution professional (RP) or replace her with another independent insolvency professional. It is the duty of both IRP (during her term) and RP to run the corporate debtor as a going concern and conduct its insolvency process. The RP invites resolution plans from eligible and credible resolution applicants (investors) for resolution of insolvency of the corporate debtor on the terms approved by CoC. The resolution plans found compliant of the provisions of IBC are placed by RP before CoC for consideration. If CoC approves a resolution plan within the stipulated time with 66 per cent majority in value of total debt, RP moves NCLT to seek its approval. The NCLT approves the plan, binding it on all concerned, if the resolution plan is found to be in conformity with IBC and the prescribed regulations. If CoC does not approve any resolution plan placed before it, it can resolve to liquidate the corporate debtor. If NCLT finds the plan approved by CoC as non-compliant of the provisions of IBC, NCLT may pass an order of liquidation of the corporate debtor. In other words, CoC decides the fate of the corporate debtor by approving a plan for its resolution or opting for liquidation. If NCLT passes an order of liquidation, an insolvency professional is appointed as liquidator to conduct the liquidation process. Generally, an order of liquidation is passed by NCLT after ensuring that adequate effort has been made for resolution of corporate debtor.

Unofficial, or ad hoc, committees have become leading actors in global restructurings. These committees, often composed of aggressive and activist stakeholders, now populate and occasionally dominate restructuring negotiations. The business judgment, negotiating tactics and goals of their members, and the character and reputations of their chosen professional advisers are the engines that drive outcomes.²⁵⁵ Ad hoc committees collect and harmonise the views of members of a class of pari or distressed investors and transform those views into actionable restructuring aims and binding agreements. This can happen before a filing as a way to achieve a pre-negotiated consensus or to exert litigation leverage, or after a

²⁵⁵ James Peck, Introduction, *The Art of the Ad hoc*, Howard Morris, Sonya Van de Graaff and James M Peck, GRR, Third Edition (2022)

filing as means to advocate for and against debatable reorganization propositions. The collective objective is a sustainable transaction to optimise value for members of the class represents by the committee, which promotes a restructuring that benefits all interested parties. The ad hoc committees are examples of freedom of assembly. Parties join or exit at will, working with shared professionals, often with access to confidential information. Material non-public information is evaluated in settlement discussions during periods when investors choose to be restricted, limiting their ability to trade freely. No one is compelled to join an ad hoc committee. Like-minded stakeholders who join an ad hoc committee in a distressed credit naturally function as coherent counterparties to the debtor and other stakeholders, and they are far more formidable together than they would be if acting on their own. An ad hoc committee is an expedient means to an economic end. The flexibility of ad hoc committee, in terms of both their formation and their role, has meant that they are far more adapted to deal with the range of creditor interests prevalent in multi-creditor distressed situations, particularly those involving bonds where identification of noteholders is not a straightforward process.²⁵⁶

Addressing climate change requires a collective effort. The CoC under IBC comprises only of the financial creditors. In climate change risks-induced insolvency, the insolvency framework should encourage the participation of other stakeholders, including environment regulator, local communities, non-governmental organisations, and environmental experts, to ensure a holistic approach to resolution. There is merit in recognising ad hoc committee generally, or at least in climate change-induced insolvency, to enable participation of stakeholders. However, the ad hoc committees should not have any voting right in the matters on which CoC has jurisdiction to take decisions including the approval of resolution plan and appointment/removal of RP. One nominee of the ad hoc committee can attend the meetings of CoC to relay the views and suggestions of ad hoc committee to CoC. Such nominee should have right to receive certain documents subject to execution of confidentiality documents.

Allowing stakeholders to have visibility of the insolvency resolution process and voice in CoC will help in sustainability of resolution plan approved by CoC. Such stakeholders would likely approach NCLT at the stage of approval of resolution plan and object to its approval for the reasons of not having had a say, which is only likely to add to delays in approval of resolution plan.

Balancing Public Interest with Creditors' Rights

The traditional approach to insolvency is to protect the interest of creditors in order of priorities of interest they hold in assets of the debtor. The IBC is a credit-in-control insolvency

²⁵⁶ The Art of the Ad hoc, Howard Morris, Sonya Van de Graaff and James M Peck, GRR, Third Edition (2022)

law. The CoC plays a pivotal role in providing a creditor greater control over the amount and method of payment of its prepetition claim and greater control over the direction of the corporate debtor's business. Depending on the circumstances of the case, creditors who play an active role in insolvency can make a significant difference to affect best returns for them. The ultimate goal of IBC proceedings is to formulate and confirm a plan that will allow the debtor to emerge from bankruptcy. The pressing issue of climate change is a matter of public interest. The design of insolvency law should accommodate public interest in its various aspects. The public interest would weigh in favour of reserving certain assets for climate remediation, rather than selling them to other extractive firms for the benefit of creditors.

Balancing Going Concern and Liquidation

One of the key objectives of commercial insolvency regimes is reorganization of viable businesses, and efficient liquidation, where liquidation of an enterprise is likely to produce a greater return to creditors. Under most insolvency regimes, a considerable degree of priority is attributed to rescuing a failing corporate debtor²⁵⁷, and the process seeks to address the consequences of insolvency²⁵⁸. While streamlining the exit process for the business to ensure allocative efficiency in the market is one of the key responsibilities of insolvency law, at the same time it must prevent premature liquidation of a viable or sustainable business²⁵⁹ by providing rescue mechanisms. The objective of IBC is to maximise the value of assets of corporate debtor by resolution of its insolvency; its liquidation is to be the last resort, as held by the Supreme Court in *Swiss Ribbons*.²⁶⁰ The NCLT does not approve of liquidation in early stages of resolution process.

This approach needs recalibration when an enterprise, or even a specific plant within a larger enterprise, continues to contribute to environmental damage and the cost of damage would be greater than the benefits from liquidation. Going concern of an enterprise with irreversible climate change risks or which cannot transition to compliant regime, has drastic ramifications for the environment and thus significant public policy implications. Where the debtor corporation's continued operation as a going concern would significantly contribute to greenhouse gas emissions, thereby impeding the public's interest in climate-change mitigation, liquidation should be resorted in the first instance. The IBC should enable

²⁵⁷ Ansh Gupta & Ajanta Gupta, Going Concern Sale under Liquidation: Antithesis to Resolution, in IBC Evolution: learnings and Innovation Page 216.

²⁵⁸ Sriram Prasad, "Environmental Claims in Insolvency in India," Oxford Business Law Blog, May 17, 2023, accessed October 9, 2024, <https://blogs.law.ox.ac.uk/oblb/blog-post/2023/05/environmental-claims-insolvency-india>.

²⁵⁹ Gertler, M., & Bernanke, B. (1989). Agency costs, net worth and business fluctuations. In Business cycle theory. Edward Elgar Publishing Ltd.

²⁶⁰ *Swiss Ribbons Pvt. Ltd. & Anr. v. Union of India & Ors.*, (2019) 4 SCC 17, AIR 2019 SC 739

bankrupt fossil fuel firms to liquidate rather than reorganize, while also mandating consideration of the public interest.

S.33(2) of IBC allows the creditors to take such a decision at any stage of the proceedings. The CoC may, as empowered decide in favour of its liquidation without exploring the resolution at any stage of the insolvency resolution process. Continuing operations without addressing the root cause of the harm contradicts IBC's objective of maximizing value, as the environmental liability will only escalate, potentially leading to greater losses in the future.

Further, RP tasked with upholding the 'going concern' principle, must adopt a broader perspective. This includes evaluating the environmental impact of continued operations and considering whether a temporary halt or closure of the damaging unit is necessary to mitigate further harm.

Priority of Environmental Claims

A robust process involving the submission and consideration of claims is the epicentre of an insolvency process. In fact, there is no issue more important to the individual creditor than the establishment of its claim in an insolvency or liquidation proceeding. Admission or rejection of a claim crystallizes the liability of the corporate debtor towards the creditor and the security interest, if any, held by the creditor in the debtor's assets. It is necessary for determining the eventual distribution in a resolution plan or liquidation. It also settles if the creditor can vote in the proceedings as also the value of the vote. If a claim made by a financial creditor is admitted, it gets a seat and vote in CoC. An operational creditor gets neither of the two unless such debt constitutes 10 per cent or more of the total aggregate debt of the corporate debtor in which case such creditor gets a seat in CoC but without a vote.

The process of receipt and collation of claims plays a pivotal role in ascertaining the overall financial position, helps determine the liabilities and value of a corporate debtor, provides a participatory opportunity to the creditors, and prevents extinguishing claims without due consideration. It also assists CoC and the prospective resolution applicant in ascribing fair value to the corporate debtor. The IBC and its regulations provide a comprehensive framework for submission, verification, and admission of claims, and the consequences of failure of submission or verification of a claim. A creditor wishing to be a part of the insolvency procedure of a corporate debtor is required to submit a claim. Any creditor including the government and statutory bodies can also file claim under IBC. The IBC incorporates a broad definition of claims, including determinable and indeterminable rights, which are not limited to mere monetary obligations of the corporate debtor. It is a right to payment and right to remedy. The right to payment underlines the claim. If there is no right to receive payment, no claim exists, whether or not such right is reduced to judgment, fixed,

disputed, undisputed, legal, equitable, secured or unsecured. As a general principle, claim can only be submitted in respect of debt incurred prior to insolvency commencement date.

Distribution of proceeds from corporate debtor's estate is the penultimate and the most anticipated event. Parties expecting their claims to be paid eagerly wait for this moment. In fact, they may have had to wait for years and mostly not without struggle. However, distribution of proceeds is not free from challenges and can often result in disappointment for many claimants as insolvency laws generally rank creditors by reference to their claims for the purposes of distribution of the proceeds of the estate in liquidation. Establishing a clear and predictable ranking system for distribution can help to ensure that creditors are certain of their rights at the time of entering into commercial arrangements with the debtor and, in the case of secured credit, facilitate its provision.²⁶¹ Global standards on priorities in distribution are well established. The order of priorities is often also termed as 'waterfall' in insolvency parlance. The priority rules are necessary to provide equitable treatment to different types of creditors with diverse and competing interests.

Most claims are based on a legal and contractual relationship the creditors had with the debtor prior to the insolvency. There are creditors, however, who have not entered such an arrangement with the debtor, such as taxing authorities. The rights of such creditors are governed by many different laws. While many creditors will be similarly situated with respect to the kinds of claims they hold based on similar legal or contractual rights, others will have superior claims or hold superior rights. The ranking of creditors may be justified by the desirability of the insolvency system to recognize and respect the different bargains, preserve legitimate commercial expectations, foster predictability in commercial relationships, and promote equal treatment of similarly situated creditors.²⁶²

When a corporate debtor is admitted into insolvency under IBC, a moratorium under S.14 of IBC comes into operation. This results in a stay against initiation of any proceedings or continuation of an ongoing proceeding against corporate debtor. In terms of S.14(1)(a), the right of the decree-holder to execute the decree in civil law, freezes by virtue of the mandatory and judicially recognized moratorium that commences on the insolvency commencement date. The IBC requires creditors including those who may hold a decree to submit their claim with RP of corporate debtor. If the proceeding has not been finally adjudicated or a claim is not crystallised, or is disputed, RP labels these as contingent claims which is often assigned a nominal value. But if a decree exists in favour of a creditor, it the recognition of a claim of the decree-holder, however, the said claim itself is ultimately subject to doubt till the execution proceedings are finalized or appeal against it is pending. Therefore, whereas IBC rightly recognizes decree-holders as a class of creditors whose claims need to be acknowledged in a CIRP, IBC by express provision of S.14 (1)(a) bars execution of a decree by the same decree-holder against the corporate debtor²⁶³. Therefore, IBC categorises a decree holder, as a creditor in terms of the definition contained in S.3(10). Looked at from

²⁶¹ The UNCITRAL Legislative Guide on Insolvency Law, UNCITRAL, Page 267

²⁶² Sumant Batra, *The Jaypee Infra Insolvency Saga*, Om International Publishers, 2024

²⁶³ *Subhankar Bhowmik v. Union of India*, 2022 SCC OnLine Tri 208 (India)

another angle, the decree-holder gets a statutory status as a creditor under S.3(10) of IBC, by virtue of the decree. Since the decree cannot be executed by operation of the moratorium under S.14, IBC makes a provision to protect the interests of a decree holder by recognizing it as a creditor. The interest recognized is that in the decree and not in the dispute that leads to the passing of the decree. This is apparent from the fact that decree holders as a class of creditors are kept separate from "financial creditors" and "operational creditors". No divisions or classification is made by the statute within this class of decree holders. The inescapable conclusion from the aforesaid discussion is, that IBC treats decree holders as a separate class, recognized by virtue of the decree held. The IBC does not provide for any malleability or overlap of classes of creditors to enable decree holders to be classified as financial or operational creditors. It is trite to say that the assets of a corporate debtor inure to the benefit of all creditors, decree holders being one of them. The distinction of decree holders as creditors from "financial creditors" and "operational creditors", as seen aforesaid is intelligible and take forward the purpose of the IBC.²⁶⁴

Public interest and political and social compulsions outweigh the established priority rules in many jurisdictions. Money may need to be set aside to pay workmen and labour. In many countries, priority is also provided for post-commencement finance.

Some priorities are based on social concerns – such as social welfare legislation – that can be addressed more readily by law than by designing an insolvency law to achieve social objectives that are only indirectly related to questions of debt and insolvency. Providing a priority under the insolvency law may at best afford an incomplete and inadequate remedy for the social problem and, at the same time, render insolvency proceedings less effective.²⁶⁵

Under the IBC, S. 53 provides the priority rules,²⁶⁶ also referred in insolvency parlance as waterfall mechanism. The dues of secured creditors are paid in priority, followed by unsecured creditors. The dues of secured creditors and workmen dues for twenty-four months preceding the insolvency commencement date however rank pari-passu and must be paid in

²⁶⁴ Subhankar Bhowmik v. Union of India, 2022 SCC OnLine Tri 208 (India)

²⁶⁵ Ibid.

²⁶⁶ In simple words, ranking of priorities under S. 53 is as follows:

- (1) The insolvency resolution process costs and the liquidation costs paid in full.
- (2) Workmen's dues for the period of twenty-four months preceding the liquidation commencement date; and debts owed to a secured creditor (where he has relinquished security).
- (3) Wages and any unpaid dues owed to employees other than workmen for the period of twelve months preceding the liquidation commencement date.
- (4) Financial debts owed to unsecured creditors.
- (5) The debt of the following ranks equally:
 - (a) Any amount due to the central government and the state government including the amount to be received on account of the consolidated fund of India and the consolidated fund of a state, if any, in respect of the whole or any part of the period of two years preceding the liquidation commencement date.
 - (b) Debts owed to a secured creditor for any amount unpaid following the enforcement of security interest.
- (6) Any remaining debts and dues.
- (7) Preference shareholders, if any.
- (8) Equity shareholders or partners, whatever the case may be.

priority over all the other dues except the costs of resolution or liquidation, which take precedence over all other dues. This is followed by other types of creditors. The dues of environmental claimants and decree holders being contingent claims (as discussed in previous section) rank far below in priority; they are unlikely to get anything.²⁶⁷

There are some exceptions to the above rule under IBC. S. 17B of the Employees' Provident Funds and Miscellaneous Provisions Act of 1952 (EPF Act) creates an obligation on the transferee to pay the contribution and other sums due from the employer whenever an establishment is transferred. S. 36 (4)(a)(iii) of IBC excludes “all sums due to any workman or employee from the provident fund, the pension fund, and the gratuity fund” from the liquidation estate of the corporate debtor, thereby, excluding it from the waterfall mechanism under S.53 of IBC. The decision to include payment of dues of workmen in priority to dues of other unsecured creditors is a political and social compulsion for India and is not uncommon in insolvency laws. Insolvency laws often attribute priority rights to certain (mainly unsecured) claims, which in consequence will be paid in priority to other unsecured and non-privileged (or less privileged) claims. These priority rights, which are often based upon social and sometimes political considerations, militate against the principle of pari passu distribution and generally operate to the detriment of ordinary unsecured creditors by reducing the value of the assets available for distribution to them. The provision of priority rights has the potential to foster unproductive debate on the assessment of which creditors should be afforded priority and why. It also has an impact on the risk premium and cost and availability of credit, which increases as the amount of funds available for distribution to other creditors decreases. In *Precision Fasteners v. Employees Provident Fund Organization*²⁶⁸, NCLT interpreted the term ‘workmen’s dues’ by tracing the legislative history of the term and purported the meaning by drawing a comparison between the old regime under the Companies Act of 1956 and IBC; it was noted that the legislature explicitly excluded EPF dues from the liquidation estate under IBC by virtue of its S. 36(4)(a)(iii) fortifying the rights of workmen with respect to EPF dues. The interpretation aligns with the purpose and object of the EPF Act of protecting the rights of the employees for it is a social welfare legislation. This was highlighted by the Supreme Court in *Employees Provident Fund Commissioner. O.L. of Esskay Pharmaceuticals Ltd.*²⁶⁹ by observing that “the EPF Act is a social welfare legislation intended to protect the interest of a weaker section of the society, i.e., the workers employed in factories and other establishments who have made a significant contribution in economic growth of the country. The workers and other employees provide services of different kinds and ensure continuous production of goods, which are made available to the society at large.” This position of law has now been endorsed by the Supreme Court in *Sunil Kumar Jain v. Sundresh Bhatt*²⁷⁰ by explicitly stating that ‘Section 36(4) of the IB Code has clearly given outright protection to workmen’s dues under the provident fund,

²⁶⁷ M. P. Ram Mohan and Sriram Prasad, “Environmental Claims under Indian Insolvency Law: Concepts and Challenges,” IIMA Working Paper Series, updated April 11, 2023, accessed October 15, 2024, available at <https://www.iima.ac.in/sites/default/files/2023-04/WP-2023-02-01-updated.pdf>.

²⁶⁸ 2018 SCC OnLine NCLT 27284

²⁶⁹ (2011) 10 SCC 727

²⁷⁰ 2022 SCC OnLine SC 467

gratuity fund and pension fund, which are not to be treated as liquidation estate assets and the liquidator shall have no claim over such dues. In *Tourism Finance Corporation of India Ltd. v. Rainbow Papers Ltd.*²⁷¹, National Company Law Appellate Tribunal (NCLAT) has explicitly held that since no provisions of IBC and EPF Act are in conflict, the application of S. 238 of IBC does not arise. The Supreme Court concurred with the reasoning set out by NCLAT and refrained from interfering with the judgment, ultimately dismissing the appeal. In *Jet Aircraft Maintenance Engineers Welfare Association v. Ashish Chhawchharia Resolution Professional of Jet Airways*²⁷², NCLAT harmoniously construed Ss. 36 and 18 of IBC to conclude that EPF dues do not fall under the scope of the term ‘assets’ even during CIRP and, therefore, IRP cannot alienate or transfer such assets. The NCLAT observed, “...the said funds i.e., provident fund, pension fund and gratuity fund maintained by the corporate debtor, have to be utilized fully for payment of provident fund, pension fund and gratuity fund of the workmen and employees and thus, these assets cannot be included in the information memorandum as the assets of the corporate debtor, while inviting the resolution plan”.

The intersection between environmental liability claims and insolvency of the entity concerned has grown increasingly complex.²⁷³ There are many instances of environmental liability interacting with insolvency in jurisdictions across the world which help explain the interplay. In the United States, coal companies strategically use bankruptcy to manage and evade environmental liabilities by “either (filing) for bankruptcy themselves, or (spinning off) or selling underfunded subsidiaries laden with environmental and retiree obligations.”²⁷⁴ The underfunded subsidiaries then usually file for bankruptcy themselves, eventually liquidating with it the environmental obligations. In the United Kingdom, strategic insolvency may be used to manage and evade liabilities. In a recent case, the directors knew of the risk of the company facing administration in the future due to its environmental liability, yet paid out a hefty dividend to their sole shareholder, the parent company, within the statutory framework.²⁷⁵ The UK Supreme Court held that the directors had a responsibility to the creditors of the company even before insolvency was initiated if they knew insolvency would likely be initiated. While this case was decided on the aspect of the directors' responsibility to the creditors of the company if they had prior knowledge of the risk of insolvency, it

²⁷¹ 2019 SCC OnLine NCLAT 91

²⁷² 2022 SCC OnLine NCLAT 418

²⁷³ Environmental Claims under Indian Insolvency Law: Concepts and Challenges, M.P. Ram Mohan, Sriram Prasad, Indian Institute of Management Ahmedabad, 11 April 2023.

²⁷⁴ Joshua Macey & Jackson Salovaara, *Bankruptcy as bailout: coal company insolvency and the erosion of federal law*, 71 STAN REV 879 (2019); Blanca Mamutse, *Environmental liabilities in insolvency—an area ripe for reform?*, INT. J. LAW BUILT ENVIRON. (2016); David Neiman, *International Insolvency and Environmental Obligations: A Prelude to Resolving the Conflicting Policies of a Clean Slate Versus a Clean Site in Transnational Bankruptcies*, 8 FORDHAM J CORP FIN L 789 (2003).

²⁷⁵ BTI 2014 LLC v. Sequana S.A. [2022] UKSC 25 (UK)); The UK SC held that the directors had a responsibility to the creditors of the company even before insolvency was initiated if they knew insolvency would likely be initiated. While this case was decided on the aspect of the directors' responsibility to the creditors of the company if they had prior knowledge of the risk of insolvency, it showed the approach companies try to take by overloading the subsidiary with environmental liability while underfunding the subsidiary. Therefore, in such cases, when the subsidiary is declared insolvent and liquidated, the environmental liability ceases to exist.

showed the approach companies try to take by overloading the subsidiary with environmental liability while underfunding the subsidiary. Therefore, in such cases, when the subsidiary is declared insolvent and liquidated, the environmental liability ceases to exist. The subsidiary eventually defaulted and entered administration (insolvency in the UK is termed administration), where environmental and other liabilities were sought to be extinguished through liquidation. It is to be noted though, that such transactions may be scrutinized under the look back period or the director's duty to the creditors may void such bad faith transactions (as was the outcome of the case).²⁷⁶

It predominantly tries to categorise and structure creditor rights to best allow for the struggling company to be given one last chance.²⁷⁷ Environmental claimants would be categorised as tortious right holders, which is given lower priority compared to contractual right holders as is reflected in the waterfall mechanism. This prioritization does not mean insolvency law overrides social causes, it merely leaves social causes to be resolved under a different framework. It is also important to understand insolvency as a consequence and not the cause.²⁷⁸

The Supreme Court of Canada's *Redwater*²⁷⁹ decision in January 2019 clarified the treatment of environmental clean-up obligations in insolvency proceedings. The Supreme Court of Canada (SCC) overturned the Alberta Court of Appeal's contentious decision to prioritize the interests of secured creditors in bankruptcy over the fulfilment of oil well abandonment and reclamation obligations. At issue was whether the province's rules for cleaning up oil wells frustrated the purpose of Canada's federal bankruptcy regime. The SCC held there was no conflict. As a result, the trustees of bankrupt oil and gas companies can no longer disclaim remediation liabilities and simply walk away from uneconomic oil and gas sites. Environmental clean-up now takes priority over payments to creditors. Broadly speaking, the case pitted the public's interest in ensuring that oil and gas facilities are reclaimed against the interests of secured creditors in the federal bankruptcy regime. In a 5-2 decision, the majority of the SCC ruled that Alberta's environmental regulatory regime can coexist alongside the scheme of distribution set out under the Bankruptcy and Insolvency Act (BIA). It determined that the Regulator's orders were based on valid provincial laws of general application – exactly the kind of valid provincial laws that

²⁷⁶ Environmental Claims under Indian Insolvency Law: Concepts and Challenges, M.P. Ram Mohan, Sriram Prasad, Indian Institute of Management Ahmedabad, 11 April 2023.

²⁷⁷ Environmental Claims under Indian Insolvency Law: Concepts and Challenges, M.P. Ram Mohan, Sriram Prasad, Indian Institute of Management Ahmedabad, 11 April 2023.

²⁷⁸ *See generally*, THOMAS H. JACKSON, THE LOGIC AND LIMITS OF BANKRUPTCY LAW (2001) where Jackson cautions scholars against “viewing bankruptcy law as somehow conflicting with and perhaps overriding some other urgent social or economic goal” and implores them to examine bankruptcy in the context of what it is. Jackson writing in the US context observes bankruptcy to be a “debt collection law” which provides “a financial fresh start” to the debtors and provides a “compulsory and collective forum (for the creditors) to sort out their relative entitlements.” While some of these conceptions also describe insolvency law in India, the IBC predominantly tries to rescue a failing firm and should be examined as a restructuring law.

²⁷⁹ Orphan Well Association v Grant Thornton Limited, 2019 SCC 5 (Redwater) <https://www.scc-csc.ca/case-dossier/cb/2019/37627-eng.aspx>

underpin the BIA. The BIA is clear that the ownership of certain assets and the existence of particular liabilities depend upon provincial law. In this case, the provincial laws provide certain end-of-life obligations for Redwater's production facilities which define how much of the bankrupt's estate is available for distribution. In other words, in crafting the priority scheme of the BIA, Parliament intended to permit regulators to place a first charge on the real property of a bankrupt affected by an environmental condition or damage in order to fund remediation and reclamation. Thus, the BIA explicitly contemplates that environmental regulators will extract value from the bankrupt's real property if that property is affected by an environmental condition or damage. Therefore, there is no conflict to trigger the doctrine of paramountcy in this case. The Regulator's orders supersede the distribution. The SCC also stated that bankruptcy is not a license to ignore rules. Redwater has remedial obligations that are not claims provable in bankruptcy²⁸⁰. Section 14.06(4) of the BIA is purely concerned with a trustee's personal liability and does not empower the trustee to walk away from the environmental liabilities of the estate it is administering. Pursuant to orders of the lower courts, GTL had already sold or renounced all of Redwater's assets, and the sale proceeds were being held in trust. Accordingly, the SCC ordered that these funds be used to address Redwater's end-of-life obligations and reclaim the well sites.²⁸¹ There is no question, however, that this case will have far-reaching implications across several different industries nationwide. While environmental regulators and advocates will consider this ruling a significant victory, the decision also introduces uncertainty for secured lenders in the oil and gas sector, as well as secured lenders to other industries with potential for significant environmental liability.

No insolvency statute has, however, defined "environmental claims" precisely. Many courts and tribunals have dealt with environmental claims in the past. However, they were termed as claims arising out of environmental harm, broadly covering pollution, contamination, loss of biodiversity, or merely termed "damage" by the courts and accordingly compensated for. The term "environmental claims" has also not been precisely defined by the courts to be able to help in application in insolvency law. Nonetheless, a broad understanding elicited from the literature review is that any claim caused due to environmental liability is an environmental claim. Any claim arising from the company's environmental liability may be termed "environmental claims". While government fines and clean-up costs may technically be termed environmental claims, government fines are punitive, which is why it would be difficult to term them as an "environmental claim", in the realm of insolvency law. It is also not possible to treat government fines as insolvency resolution costs. Insolvency process costs are costs incurred in keeping the company operational or a going concern. Therefore, it can be stated that the application of insolvency law can undermine or supersede environmental policy. A commercial law i.e., insolvency can be used as a defence against a human

²⁸⁰ Redwater Decision Overturned by the Supreme Court of Canada available at <https://www.mross.com/what-we-think/article/redwater-decision-overturned-by-the-supreme-court-of-canada>

²⁸¹ Ibid.

rights/fundamental rights law i.e., environmental law and absolute liability.²⁸² The government fines arising from environmental liability are not recovered and environmental claimants often get nothing.

Currently, no universal policy exists regarding the priority of environmental claims and obligations or the ability to discharge them in insolvency. However, the courts in many jurisdictions have established the super-priority or “super-responsibility” of environmental obligations enforced by environmental regulators through jurisprudence. The Supreme Court of Canada has held that the bankruptcy estate’s environmental obligations were not financial claims or claims provable in bankruptcy and that the bankruptcy estate must fulfill environmental obligations in priority to any other claims, including those of the secured creditors.²⁸³ Treating the environmental obligations of insolvent companies as ordinary monetary claims provable in bankruptcy affects the choice between restructuring and liquidation, favouring liquidation.²⁸⁴ This is because in liquidation the costs of addressing environmental obligations are diluted among the creditors according to the *pari passu* rule, whereas in restructuring the debtor company bears that responsibility. In the United States, under Chapter 11 of the US Bankruptcy Code, environmental claims can be exempt from the automatic stay provision, and the debtor must comply with environmental laws prior to filing its plan of reorganization and, if it remains in possession, subsequently. Because insolvency frameworks determine the treatment of environmental obligations and claims, their preferential treatment may have a negative impact on the cost and availability of credit to businesses with greater environmental—including climate—risks and, likewise, a positive impact on businesses with “green performance”.²⁸⁵ In jurisdictions such as the US, UK, Canada and Australia where principles that are more responsive to climate change are progressively taking center stage.²⁸⁶ In Canada, a public authority ordering a citizen to obey the general law doesn’t become a creditor for any amount the citizen may ultimately be required to pay in complying,²⁸⁷ which means that environmental remediation orders do not conflict with the scheme of distribution under bankruptcy law because it is part of the general law that has to be respected as a duty to the public.²⁸⁸ However, compliance with such orders took priority over debts because they constituted a public duty owed by

²⁸² Environmental Claims under Indian Insolvency Law: Concepts and Challenges, M.P. Ram Mohan, Sriram Prasad, Indian Institute of Management Ahmedabad, 11 April 2023, accessed on October 9 2024, <https://www.iima.ac.in/sites/default/files/2023-04/WP-2023-02-01-updated.pdf>

²⁸³ *Orphan Well Association v. Grant Thornton Ltd.*, 2019 SCC 5, [2019] 1 S.C.R. 150. The case summary is available on the website of the Supreme Court of Canada at <https://scc-csc.lexum.com/scc-csc/scc-csc/en/item/17474/index.do> (last accessed on September 7, 2022).

²⁸⁴ T. Linna (2020), “Business Sustainability and Insolvency Proceedings—The EU Perspective,” *Journal of Sustainability Research*, Hapres (April).

²⁸⁵ Dianne R. Phillips and Maria de la Motte, “When Considering Bankruptcy, Don’t Forget About Environmental Obligations,” Holland & Knight, September 17, 2020, accessed October 15, 2024, <https://www.hklaw.com/en/insights/publications/2020/09/when-considering-bankruptcy-dont-forget-about-environmental>.

²⁸⁶ M. P. Ram Mohan & Sriram Prasad, Environmental Claims under Indian Insolvency Law: Concepts and Challenges (IIM Ahmedabad W. P. No. 2023-02-01) accessed on October 9 2024 <https://www.iima.ac.in/sites/default/files/2023-04/WP-2023-02-01.pdf> .

²⁸⁷ Re: Lamford Forest Products Ltd., 1991 CanLII 2246 at Page 4 (BC SC)

²⁸⁸ *Panamericana de Bienes y Servicios, S.A. v. Northern Badger Oil & Gas Ltd. et al.*, 1991 ABCA 181

all the citizens of the community. Moreover, the bankruptcy law was amended to state that a claim against a debtor in a bankruptcy or proposal for the costs of remedying any environmental condition or environmental damage affecting the property of the debtor shall be a provable claim, whether condition arose or damage occurred before or after the date of the filing of the proposal or the date of the bankruptcy.²⁸⁹

In fact, a ‘super-priority’ over the contaminated property is attached to the remediation cost if the public authority undertakes the environmental remediation of the property itself, which ranks above any other claim, charge, or security against such property. However, if exercising the ‘super-priority’ claim does not result in the realization of the full cost of remediation, the remaining cost is then recognized as an ordinary unsecured claim on the remainder of the estate of the bankrupt enterprise (other than the contaminated property).²⁹⁰ At the same time, environmental remediation claims usually will not form part of the cost of administration of the entire estate, and will not compromise priority and distribution to the secured creditor of the remainder of the insolvent estate.²⁹¹ In the United States, bankruptcy law permits the Environmental Protection Agency (EPA) to initiate claims of recovery that they may have against the bankrupt party. Businesses seeking bankruptcy protection are required to include environmental disclosures in their Statement of Financial Affairs submitted to the bankruptcy court, which then is reviewed to assess potential environmental liabilities by EPA.²⁹²

Not all kinds of environmental violations are given priority. In general, environmental creditors are treated as other unsecured creditors, thus the claims are lower in priority and may not be settled in full. In certain cases, clean-up costs have been declared a part of administrative expenses, used to bring the debtor’s operations into compliance with environmental law and preserve the value of assets of the debtor, and thus given priority in the waterfall.²⁹³ Courts have actively expanded the meaning of ‘preserving the estate’, to extend to environmental and public health concerns deemed necessary for the benefit of the estate as it enables the estate to remain in compliance with environmental laws.²⁹⁴ Most environmental claims in bankruptcy proceedings in the United States involve CERCLA and RCRA. The Comprehensive Environmental Response, Compensation, and

²⁸⁹ S 14.06(8) BIA

²⁹⁰ Canada, Senate, Standing Senate Committee on Banking, Trade and Commerce at Page 10 (Jacques Hains, Director of Corporate Law Review Branch, Industry Canada); see also: Canada, House of Commons, Standing Committee on Industry, Bill C-5, An Act to amend the Bankruptcy and Insolvency Act, the Companies’ Creditors Arrangement Act and the Income Tax Act, 35th Leg, 2nd Sess, Meeting 17 (17 September 1996) at 1615

²⁹¹ Robert M. Fishlock, “Environmental Liability of an Insolvent Business in Canada” (Toronto: Blake, Cassels & Graydon LLP, 2002) p17.

²⁹² U.S. Environmental Protection Agency, “Recovering Costs from Parties in Bankruptcy,” accessed October 9, 2024, <https://www.epa.gov/enforcement/recovering-costs-parties-bankruptcy>.

²⁹³ 11 USC, § 507(a)(1)

²⁹⁴ C. Gregory Rogers, “Accounting for Environmental Liabilities in Bankruptcy,” *Eratosthenes*, September 2016, accessed October 9, 2024, <http://www.era-tos-thenes.com/wp-content/uploads/2016/09/Accounting-for-Environmental-Liabilities-in-Bankruptcy.pdf>.

Liability Act (CERCLA), commonly known as the Superfund Act, aimed to address the cleanup of inactive hazardous waste sites and establish liability for those responsible for environmental contamination. EPA would initiate cleanup efforts at the site of contamination and subsequently seek to recover the costs from liable companies, under CERCLA. Such recovery amount, as a pre-petition right to payment of money pursued by a governmental unit, may be allocated as a ‘claim’ and is subject to discharge. On the contrary, the Resource Conservation and Recovery Act (RCRA) entitles a plaintiff, including the EPA, to demand a cleanup. It mandates that the defendant must undertake the cleanup of a contaminated site at their expense but prohibits the government from seeking monetary damages or relief against the failure to comply with the order. Consequently, it has been held that the cleanup orders under RCRA, although require expenditure at the defendant’s end, do not establish a right to payment and thus, do not constitute a claim that can be discharged under bankruptcy.²⁹⁵ Similarly, obligations pertaining to ongoing threats to human health, or the environment are considered ‘public duties’ and may not be characterized as ‘claims’ and therefore may not be dischargeable.²⁹⁶

In England, the bankruptcy policy operates in favour of the creditors to state that the compliance and remediation cost imposed by the environmental authorities cannot be prioritized over the provable debts and the interest of the creditors, as there is nothing in the bankruptcy law regime to suggest the same, and that the polluter pays principle cannot be applied or given primacy where the polluter cannot pay (polluter is insolvent).²⁹⁷ However, in Scotland, a priority has been allocated to paying off the cost of remediation imposed by environmental authorities before distribution to the creditors, even when such remediation costs exceed the funds available to the company and nothing is left for distribution among creditors,²⁹⁸ and that ongoing remediation is not to be paused at the filing of liquidation, even at the cost of reducing assets available for distribution to the creditors.²⁹⁹

In Australia, through an amendment brought to the Environmental Protection Act, of 2017, a primacy has been given to the environmental policy over the insolvency regime. Section 297(5) of the Environment Protection Act, 1970 (EPA) establishes that recovery of remediation or clean-up cost from the polluter is to be carried out despite anything contrary provided in the bankruptcy law. The amendment was preceded by a Supreme Court decision to set aside the notice of liquidators disclaiming a property for which clean-up cost liabilities were owed, stating that prejudice to the environmental authorities caused by the disclaimer is grossly out of proportion to the prejudice to the creditors

²⁹⁵ *Oil Company, Inc. v. United States*, 208 F. Supp. 2d 642 (E.D. La. 2002).

²⁹⁶ *In re Torwico Elec, Inc*, 8 F.3d 146, 151 (3d Cir 1993)

²⁹⁷ *Celtic Extraction Ltd and Bluestone Chemicals Ltd v Environmental Agency* [1999] EWCA Civ 1835, [2001] Ch 475

²⁹⁸ *Sellar QC, Addleshaw Goddard LLP v. Lake QC, Brodies LLP*, [2018] CSOH 89

²⁹⁹ *Howie QC, Shepherd & Wedderburn LLP v. Thomson QC, Roxburgh, Dodd; Lay Representative, Delibegovic-Broome QC; Burness Paull LLP*, [2018] CSOH 52.

caused by setting aside the disclaimer.³⁰⁰ Practically, this entails a priority attached to the clean-up costs over other claims, including remuneration paid to the insolvency practitioner/liquidator.

In no jurisdictions, the insolvency law provides special treatment to environmental claims or liabilities. It is the judiciary, keeping in mind the public interest, that has overextended its reach to grant special status to environmental claims, even priority in some of the cases. However, extra-judicial legislations will result in different yardsticks in different jurisdictions and will create conflicting precedents, which will be detrimental to the cause of insolvency. Governments across the world need to wake up to climate emergency, weigh the competing options between the environment and secured creditors, and legislate accordingly.³⁰¹

In India, a creditor may hold a decree from an environmental claim which may constitute a debt but may not constitute a financial or operational debt under IBC. Such decree holders would be treated as ‘other creditors’ in CIRP and as unsecured creditors in liquidation under IBC. Such unsecured debt would fall below the claims of unsecured financial and operational creditors.

There is no explicit provision in IBC that grants environmental dues any priority. Under IBC, claim of the holder of the decree of environmental damages would be considered a claim by an unsecured “other creditor” falling below financial and operational creditors in preference of payments in a resolution plan. The government claim from environmental liability would be treated as an operational debt and get paid only at their liquidation value although paid in preference to dues of financial creditors. The dues of environmental agencies are considered as an unsecured operational debt. However, in *Rainbow Papers Limited*³⁰² (2020; Review against the decision dismissed in 2023), the Supreme Court held that a government body could become a secured creditor of a corporate debtor by operation of law even if no security interest had been created specifically in its favour. In *Anand Sonbhadra*³⁰³ (2022), Supreme Court decided that Noida Authority is an operation creditor; and in *Prabhjit Singh Soni* (2024), Supreme Court held that Greater Noida Industrial Development Authority is a secured creditor in view of the charge created in its favour on the assets of corporate debtor by operation of the provisions of Ss. 13 and 13A of the Uttar Pradesh Industrial Area Development Act, 1976. The Supreme Court decision in *Rainbow Papers Limited* is seen as incongruent with S. 53 of the IBC, as one of the primary purposes of the IBC, as also noted in Statement of Objectives³⁰⁴, was to revise the priority of crown debt – dues owed to the government or state authorities.

³⁰⁰ EPA & Anor v. Australian Sawmilling Company Pty Ltd (in liq) & Ors [2020] VSC 550.

³⁰¹ Should Environment Claims Be Granted The Status Of Secured Creditors In The Insolvency And Bankruptcy Code, 2016?, Devendra Mehta, GNLU Student Law Review, Volume IV (2023).

³⁰² *Sales Tax Officer v. Rainbow Papers Limited*, 2022 SCC Online SC 1162

³⁰³ *New Okhla Industrial Development v. Anand Sonbhadra*, 2023 1 SCC 724

³⁰⁴ Supra note 242

Most Indian environmental and related laws allow the amount of compensation to be recovered as arrears of land revenue (*Please see, Table 1*), except for Mines and Minerals (Development and Regulation) Act of 1957 which creates a statutory first charge on any rent, royalty, tax, fee or other sum due to the government either under the Act or any rule made thereunder or under the terms and conditions of any mineral concession:

25. Recovery of certain sums as arrears of land revenue.

(1) Any rent, royally, tax, fee or other sum due to the Government under this Act or the rules made thereunder or under the terms and conditions of any [mineral concession] may, on a certificate of such officer as may be specified by the State Government in this behalf by general or special order, be recovered in the same manner as an arrear of land revenue.

(2) Any rent, royalty, tax, fee or other sum due to the Government either under this Act or any rule made thereunder or under the terms and conditions of any mineral concession may, on a certificate of such officer as may be specified by the State Government in this behalf by general or special order, be recovered in the same manner as if it were an arrear of land revenue and every such sum which becomes due to the Government after the commencement of the Mines and Minerals (Regulation and Development) Amendment Act, 1972 (56 of 1972), together with the interest due thereon shall be a first charge on the assets of the holder of the 'mineral concession, as the case may be.

Applying *Rainbow Papers Limited*, the claims of the government under S. 25 of the Mines and Minerals (Development and Regulation) Act of 1957 would be treated as 'operational debt' under the IBC and get priority in payment as a secured operational creditor. However, the government claims arising from none of the other environmental and related laws would attain priority; the land revenue arrears would be considered as unsecured 'operational debt' under the IBC as no charge, first or otherwise is created by those statutes.

Table 1: Provisions on Damages and Fines in Environmental and Allied Laws

Category	Legislation / Policy	Year	Provisions regarding fines and damages
Water-related Legislation	Water (Prevention and Control of Pollution) Act	1974	Section 9(3): The expenses, if any, incurred by any authority or agency with respect to the remedial measures referred to in subsection (2), together with interest (at such reasonable rate as the Government may, by order, fix) from the date when a demand for the expenses is made until it is paid, may be recovered by such authority or agency from the person concerned as arrears of land revenue or of public demand.

**Air-related
Legislation**

Water (Prevention and Control of Pollution) Cess Act	1977	Section 10 allows the recovery of unpaid cess (a tax imposed on water consumption) from industries as if it were arrears of land revenue.
Air (Prevention and Control of Pollution) Act	1981	<p>22A. Power of Board to make application to court for restraining person from causing air pollution.</p> <p>(4) All expenses incurred by the Board in implementing the directions of the court under clause (b) of sub-section (3) shall be recoverable from the person concerned as arrears of land revenue or of public demand.]</p> <p>Under section 26A State Board or its empowered officer can take samples of air or emissions from various outlets for analysis. And under section 27(4) Any costs incurred for the analysis requested by the occupier or due to their refusal to cooperate are payable by the occupier, and if unpaid, can be recovered as arrears of land revenue or public demand.</p> <p>Under section 23(3), any expenses incurred by the State Board or agencies in taking remedial measures to mitigate the emissions under section 23(2), along with interest (at a rate fixed by the State Government), can be recovered from the responsible person as arrears of land revenue or public demand.</p>
Indian Forest Act	1927	<p>82. Recovery of money due to Government.—All money payable to the Government under this Act, or under any rule made under this Act, or on account of the price of any forest-produce, or of expenses incurred in the execution of this Act in respect of such produce, may, if not paid when due, be recovered under the law for the time being in force as if it were an arrear of land-revenue.</p> <p>82-A. Recovery of penalties due under a bond.-When in respect of any forest lease any person binds himself by any bond or instrument to perform any duty or act, or covenants by any bond or instrument that he, or that he and his servant and agents will abstain from any act, the whole sum mentioned in such bond or instrument as the amount to be paid in case of a breach of the conditions thereof shall notwithstanding</p>

		anything in section 74 of the Indian Contract Act, 1872, be recovered from him in case of such breach as if it were an arrear of land revenue.
Waste Management-related Legislation	Wildlife (Protection) Act	1972 58. Offences by Companies.-(1) Where an offence against this Act has been committed by a company, every person who, at the time the offence was committed, was in charge of, and was responsible to, the company for the conduct of the business of the company as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly: Provided that nothing contained in this subsection shall render any such person liable to any punishment, if he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.
	Environment (Protection) Act	1986 Section 9 talks about If there is an excess discharge of pollutants or a risk of it due to unforeseen events, responsible parties must immediately inform authorities and assist them. Authorities must take necessary actions to prevent or mitigate pollution upon receiving such information. Expenses incurred by authorities for remedial measures can be recovered from the responsible parties, along with interest, as arrears of land revenue or public demand. Section 16 states if a company commits an offence under this Act, both the company and individuals directly responsible for its business at the time of the offence are deemed guilty and can be punished. Individuals can avoid liability if they prove that the offence occurred without their knowledge or that they exercised due diligence to prevent it. If the offence is proved to have resulted from the consent, connivance, or neglect of a director, manager, secretary, or other officer, that individual is also considered guilty and can be punished.
Climate Change and Energy-related Legislation	Energy Conservation Act	2001 26. Penalty. (5) Any amount payable under this section, if not paid, may be recovered as if it were an arrear of land revenue.

Biological Diversity-related Legislation	National Green Tribunal Act	2010	25. Execution of award or order or decision of Tribunal (3) Where the person responsible, for death of, or injury to any person or damage to any property and environment, against whom the award or order is made by the Tribunal, fails to make the payment or deposit the amount as directed by the Tribunal within the period so specified in the award or order, such amount, without prejudice to the filing of complaint for prosecution for an offence under this Act or any other law for the time being in force, shall be recoverable from the aforesaid person as arrears of land revenue or of public demand
	Biological Diversity Act	2002	S25 Execution of award or order or decision of Tribunal (3): Where the person responsible, for death of, or injury to any person or damage to any property and environment, against whom the award or order is made by the Tribunal, fails to make the payment or deposit the amount as directed by the Tribunal within the period so specified in the award or order, such amount, without prejudice to the filing of complaint for prosecution for an offence under this Act or any other law for the time being in force, shall be recoverable from the aforesaid person as arrears of land revenue or of public demand.
Chemical and Industrial Disaster-related Legislation	Public Liability Insurance Act	1991	Section 7(6): Where the insurer or the owner against whom the award is made under sub-section (1) fails to deposit the amount of such award within the period specified under sub-section (3), such amount shall be recoverable from the owner, or as the case may be, the insurer as arrears of land revenue or of public demand.
Land and Natural Resource-	National Environment Tribunal Act	1995	23. Extension of award or order of Tribunal. (3) Where the owner against whom the award or order is made by the Tribunal fails to make the payment or deposit the amount as directed by the Tribunal within the period specified in the award or order, such amount shall be recoverable from the owner as arrears of land revenue or of public demand.
	Mines and Minerals (Development and Regulation) Act	1957	25. Recovery of certain sums as arrears of land revenue. (1) Any rent, royally, tax, fee or other sum due to the Government under this Act or the rules made thereunder or

**related
Legislation**

		<p>under the terms and conditions of any '[mineral concession] may, on a certificate of such officer as may be specified by the State Government in this behalf by general or special order, be recovered in the same manner as an arrear of land revenue.</p> <p>(2) Any rent, royalty, tax, fee or other sum due to the Government either under this Act or any rule made thereunder or under the terms and conditions of any '[mineral concession] may, on a certificate of such officer as may be specified by the State Government in this behalf by general or special order, be recovered in the same manner as if it were an arrear of land revenue and every such sum which becomes due to the Government after the commencement of the Mines and Minerals (Regulation and Development) Amendment Act, 1972 (56 of 1972), together with the interest due thereon shall be a first charge on the assets of the holder of the mineral concession, as the case may be.</p>
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While it is fair to criticise the decision of Supreme Court in *Rainbow Papers Limited* for undermining the principles enshrined in IBC, particularly S.53 thereof, and an amendment in IBC may be due to clarify the statutory intent, it is advocated by the authors that it is necessary that the application of *Rainbow Papers Limited*, if any clarification is proposed in IBC), is confined to environmental and related laws to mitigate the climate change risks.

The priority structure of redistribution under the IBC reflects deference to the contractual agreements entered into between the creditors and the debtor to ensure the availability of credit in the market.³⁰⁵ In the interaction of environmental liability and insolvency laws, insolvency laws are instrumentalized to evade environmental liabilities³⁰⁶ since the imposition of the moratorium³⁰⁷ automatically stays any ongoing or future litigation against the insolvent firm and reduces such claims to 'contingent claims' under IBC³⁰⁸,

³⁰⁵ Bankruptcy Law Reforms Committee. *The Report of the Bankruptcy Law Reforms Committee Volume I: Rationale and Design*. New Delhi: Ministry of Finance, 2015. https://ibbi.gov.in/BLRCReportVol1_04112015.pdf.

³⁰⁶ M. P. Ram Mohan and Sriram Prasad, "Environmental Claims under Indian Insolvency Law: Concepts and Challenges," IIMA Working Paper Series, updated April 11, 2023, accessed October 15, 2024, available at <https://www.iima.ac.in/sites/default/files/2023-04/WP-2023-02-01-updated.pdf>.

³⁰⁷ IBC, Section 14.

³⁰⁸ M. P. Ram Mohan & Sriram Prasad, *Environmental Claims under Indian Insolvency Law: Concepts and Challenges* (IIM Ahmedabad W. P. No. 2023-02-01); IBBI (Insolvency Resolution Process for Corporate Persons) Regulations 2016, Reg. 14.

which are often assigned nominal values.³⁰⁹ This marginalization of environmental policy through provisions of insolvency laws is especially aggravated since the status of contingency claims under the IBC waterfall mechanism is much lower in the priority ladder, resulting in no or paltry satisfaction of the claim in the redistribution.³¹⁰ Since the claims accepted under the resolution plan approved by CoC³¹¹ attain finality³¹², such contingent claims may even be extinguished entirely.³¹³ Even in case the claim has crystallized in the form of a decree of a court, such decree-holders are categorised as ‘other creditors’³¹⁴ and placed in low priority order under the residual category of ‘other debts and dues’³¹⁵ since they are effectively unsecured creditors. Moreover, the moratorium also prohibits any parallel proceedings for enforcement of the civil remedy.³¹⁶ With respect to government dues, the position is that while the resolution plan cannot ignore such claims³¹⁷, the status of government dues still falls below other contractual arrangements, including unsecured financial creditors,³¹⁸ of the corporate debtor under the waterfall mechanism.

In pursuit of its economic objectives, IBC may end up assisting in the undermining of environmental policy by the very design of its framework and impact the long-term policy objectives³¹⁹. In its current design, insolvency acts as a defence against much of environmental liability as the other creditors stand far below the waterfall. A climate-related insolvency involves complex claims and/or mass tort claims against the debtor company and a number of third parties. The insolvency process in such cases will require a somewhat different approach and process for resolving claims. Considering the public interest, it is in the interest of all the players in the insolvency ecosystem, including ‘traditional’ secured lenders to embark on a path which grants environmental claims the same status as that of secured claims.³²⁰ The treatment of environmental claims in insolvency proceedings needs prioritizing appropriately.

³⁰⁹ Saksham Chaturvedi and Devansh Sehgal, "Ignorance is Bliss (?): Analysing the Treatment of Contingent Claims under the Insolvency and Bankruptcy Code, 2016," IndiaCorpLaw, November 4, 2023, <https://indiacorpLaw.in/2023/11/ignorance-is-bliss-analysing-the-treatment-of-contingent-claims-under-the-insolvency-and-bankruptcy-code-2016.html>.

³¹⁰ M. P. Ram Mohan & Sriram Prasad, Environmental Claims under Indian Insolvency Law: Concepts and Challenges (IIM Ahmedabad W. P. No. 2023-02-01); IBBI (Insolvency Resolution Process for Corporate Persons) Regulations 2016, Reg. 14.

³¹¹ IBC, Section 30(4).

³¹² Ghanashyam Mishra and Sons Private Limited v. Edelweiss Asset Reconstruction Company limited

³¹³ Sriram Prasad, Environmental Claims in Insolvency in India, Faculty of Law Blogs / University of Oxford.

³¹⁴ Sri Subhankar Bhowmik v. Union of India, 2022 SCC OnLine SC 1436.

³¹⁵ IBC, Section 53(1)(f).

³¹⁶ M. Govindarajan, Exceptions to Moratorium Under Section 14(1) of the Insolvency and Bankruptcy Code, 2016 THE RESOLUTION PROFESSIONAL (Jan. 2024).

³¹⁷ State Tax Officer v. Rainbow Papers 2022 SCC OnLine SC 1162.

³¹⁸ Section 53(1)(e).

³¹⁹ Sandeep Gopalan, "Environmental Claims in Insolvency in India," Oxford Business Law Blog, May 23, 2023, <https://blogs.law.ox.ac.uk/oblb/blog-post/2023/05/environmental-claims-insolvency-india>.

³²⁰ Should Environment Claims Be Granted the Status of Secured Creditors in the Insolvency and Bankruptcy Code, 2016? Devendra Mehta, GNLU Student Law Review, Volume IV, 2023

Where the firm is subjected to the climate insolvency-specific insolvency process, the cost of environmental obligations necessary to preserve the estate of the corporate debtor and maintain it as a going concern may be made a part of the resolution cost under IBC. The United Nations Commission on International Trade Law (UNCITRAL) also defines “administrative claim or expense” as claims that include costs and expenses of the proceedings, such as remuneration of the insolvency representative and any professionals employed by the insolvency representative, expenses for the continued operation of the debtor, debts arising from the exercise of the insolvency representative’s functions and powers, costs arising from continuing contractual and legal obligations and costs of proceedings.³²¹ Since the essence of a dedicated climate insolvency regime would ideally be not simply to resolve cash flow interruption of the firm but instead also to facilitate a transition towards a sustainable business model³²², it would be critical to adopt a favourable strategy towards discharging pending environmental liabilities and government dues as a matter of priority to ensure reputational reconstruction³²³ of the firm as well. As a result, as part of such costs, environmental liabilities will be the first claim to be met in priority to the payment of other debts³²⁴ and in the waterfall in case of liquidation.³²⁵—In the alternative, for certain categories of environmental liabilities, particularly contingent claims, it is imperative to prevent the deliberate misuse of IBC to unfairly compromise legitimate environmental claims for compensation or restitution. In that light, the discharge of all claims against the corporate debtor once the successful resolution applicant has emerged³²⁶, should not operate on environmental contingent claims.

One way insolvency law can contribute is by prioritizing environmental claims during insolvency proceedings. By giving higher priority to environmental liabilities, such as fines for exceeding emissions limits or costs associated with environmental cleanup, firms would be financially motivated to address these issues proactively to avoid substantial liabilities in the event of insolvency. This approach would not only help mitigate environmental damage but also ensure that the financial consequences of unsustainable practices are borne by the responsible entities, thus internalizing the costs of environmental degradation. S. 53(1) of IBC recognises unpaid dues of employees and workers for a particular period to be treated as *pari passu* with secured creditors, to advance a social objective. Therefore, the policy flexibility to accommodate dues of decree holders of environment claims is built into the IBC framework.

³²¹ UNCITRAL Page 4.

³²² Tuula Linna. “Business Sustainability and Insolvency Proceedings—The EU Perspective.” *Journal of Sustainability Research* 2, no. 2 (2020): e200019. https://sustainability.hapres.com/htmls/JSR_1212_Detail.html.

³²³ Karpoff, Jonathan M., John R. Lott, Jr., and Eric W. Wehrly. “The Reputational Penalties for Environmental Violations: Empirical Evidence.” *The Journal of Law & Economics* 48, no. 2 (2005): 653–75. <https://doi.org/10.1086/430806>.

³²⁴ Section 30(2)(a).

³²⁵ Section 53(1)(a).

³²⁶ *Swiss Ribbons Pvt. Ltd. & Anr. v. Union of India & Ors.*, (2019) 4 SCC 17, AIR 2019 SC 739.

A fear may be expressed in some quarters, that if the value of security held by 'traditional' secured creditors, is diluted by the introduction of secured-equivalent creditors in the mix, this would lead to secured creditors increasing interest rates, to safeguard themselves and increase their returns when the company is solvent. However, these fears are unfounded. Once a cost-benefit analysis of the dilution of security versus the losses arising out of physical and transition risks, described above, is undertaken, the 'traditional' secured creditors will not hesitate to concede equal rights to environmental claims.³²⁷

Viability and Feasibility of Resolution Plan

S. 30(2)(e) of IBC requires that the resolution plan must be compliant with all the laws presently in force in India. S. 31 of IBC allows the resolution applicant to obtain the government and regulatory approvals within one year from the approval of the resolution plan by the NCLT. This creates a dichotomy. As S. 31 allows one year time, a resolution applicant may argue that the non-availability of pollution or other licenses under environment laws by corporate debtor cannot be a reason for treating the resolution plan as non-compliant; such approvals can be obtained after approval of resolution plan by NCLT. In other words, resolution plan may not be climate-compliant at the time of consideration of resolution plan by CoC or NCLT.

One solution is to provide criteria for a mandatory environmental audit and impact assessments of the resolution plan. Plans should demonstrate a commitment to environmental remediation and future compliance with environmental regulations. Mandatory climate risk assessments can require organizations to evaluate and disclose their exposure to climate-related risks and identify and address potential climate-related hazards. The IBC empowers CoC to examine the viability and feasibility of the resolution plan while considering its approval³²⁸. This is largely a matter of commercial wisdom³²⁹ Even where the cause of a debtor company's insolvency is not directly related to climate change, as companies file insolvency proceedings, part of the assessment of the resolution plan should be an assessment of the company's existing carbon footprint and its capacity for technological innovation to meet expectations regarding low- carbon economic activity. Attracting interim and exit financing will depend, in part, on the ability of the company to redeploy productive assets to meet demands for a lower-carbon footprint and to capture the potential upside from the introduction of new technology and energy-efficient processes. To ensure climate change sustainability of the business is meaningfully incorporated in the process as a consideration, it is imperative for CoC to also understand its evolved responsibility in the special context of climate insolvency. The CoC should vet the projects through the lens of established financial industry benchmarks to assess and manage future environment-related

³²⁷ Should Environment Claims Be Granted The Status Of Secured Creditors In The Insolvency And Bankruptcy Code, 2016?, Devendra Mehta, GNLU Student Law Review, Volume IV (2023).

³²⁸ IBC, Section 30(4)

³²⁹ The Supreme Court case K. Sashidhar v. Indian Overseas Bank is cited as (2019) 12 SCC 150

risks. S. 30(2) may be amended to include, in CoC's consideration of the fairness and reasonableness of proposed plans, the intergenerational nature of climate change. Just as pension funds, as institutional investors and pension fiduciaries, are required to manage their assets to consider the intergenerational implications in their decisions and the need to integrate climate change considerations in their investment portfolios, CoC may wish to be satisfied that the harms caused by climate change are being addressed both in the resolution of claims and in the debtor's going-forward business strategy.

Exit financiers will also want some assurance that the company has an effective governance structure in place for management and oversight of the technological shifts required to make the business viable. While assessing the technological capabilities of a company going forward has always been a role for insolvency professionals, they will need to be very adept at understanding a rapidly changing market for new technologies and at providing informed advice to the debtor and to the courts in respect of the debtor's governance and financial capacity to meet these challenges.

Adaptation strategies may be of two kinds: aimed at maintaining the essence of the impacted system (incremental adaptation, or resilience) or changing fundamental attributes of the system to respond to the impacts of climate change or its effects (transformational adaptation).³³⁰ Thus, a viable and feasible reorganization plan may also focus on either shedding the most carbon-intensive operations or implementing a systematic green transition for the same or a mixture of both aforementioned terms. Even outside of climate insolvency, a resolution plan that proposes a change in the nature of business of the corporate debtor where the current business is obsolete or non-viable may be fit for approval by CoC.³³¹ This is an admittance of the complexities involved in the commercial decision of a resolution plan which is uniquely designed to address the insolvency of each corporate debtor. Converging market forces and refocused business models in the decision-making process of CoC in approving a resolution plan is well accepted³³². Thus, it may be argued that there is sufficient flexibility in the content and terms of the resolution plan to allow a transition process in line with climate risk mitigation.

The NCLT has to approve the resolution plan by ascertaining it complies with the key requirements under S. 30(2)³³³ of IBC without intruding on the domain of the CoC.³³⁴ The NCLT, in this limited judicial review, has to see among, inter alia, whether CoC has taken into account that the corporate debtor needs to keep going as a going concern during

³³⁰ Robbert Biesbroek and Alexandra Lesnikowski, *Adaptation: The Neglected Dimension of Polycentric Climate Governance?* in *Governing Climate Change: Polycentricity in Action* (Andrew Jordan, Dave Huitema, Harro Van Asselt and Johanna Forster ed.) (CUP 2018) at 306.

³³¹ *Next Orbit Ventures Fund vs Print House India Pvt. Ltd Company Appeal (AT) (Insolvency) No. 417 of 2020*.

³³² *Ibid.*

³³³ IBC, Section 31(1).

³³⁴ *K. Sashidhar v. Indian Overseas Bank* (2019) 12 SCC 150.

the insolvency resolution process.³³⁵ The NCLT is also required to assess if the resolution plan approved by CoC is implementable.³³⁶ S. 31 may be amended to include, in CoC's consideration of the fairness and reasonableness of proposed plans, the intergenerational nature of climate change.

Integrating Environmental Expertise

Independent environmental agencies are responsible for enforcing laws that protect the environment. Environmental regulators need to play a more proactive role in the insolvency process. While CoC plays a vital role in the insolvency process, their expertise primarily lies in financial matters. To effectively address climate-related concerns, IBC should enable the involvement of environmental agencies in the insolvency process. Environmental should be able to exercise this right and influence the outcome of the insolvency and restructuring process. Participating in the resolution process through an ad hoc committee and providing expert opinion of the resolution plan by such regulator will ensure environmentally sound decisions are made. This will ensure that environmental considerations are not sidelined in the pursuit of financial recovery.

Limiting Disclaimers of Environmental Liabilities

Insolvency laws allow many disclaimers by the insolvency practitioner to relieve the estate from the burdensome obligations or costs associated with these assets. This action is typically taken when the assets in question are either onerous or of negligible value, making them a liability rather than an asset to the insolvent estate; it is also to ensure that the estate is not depleted further and value is preserved for the creditors. A legal framework which allows for the general use of disclaimers to offload environmental liabilities from distressed companies indirectly promotes moral hazard and does not incentivize climate adaptation or climate mitigation strategies. In climate-related cases disclaimers could potentially pass through the clean-up costs on society at large. Insolvency law should contain disclaimers when distressed debtors still have assets to meet environmental liabilities. The IBC should promote climate mitigation strategies by forcing insolvency estates with available funds to use such funds in meeting environmental liabilities arising from the disclaimed assets. Addressing environmental liabilities, such as cleaning up pollution and responsibly managing waste, may directly contribute to climate mitigation by reducing harmful emissions and promoting sustainable practices that help stabilize the climate and mitigate the firms' impact on the environment. It may encourage the adoption of greener practices and cleaner technologies, as well as *ex-ante* lender behavioural change. In countries where disclaimers are an established feature of the insolvency framework, countries could There does not seem to have been much systematic policy consideration of this topic. It has mostly played out in the courts, with

³³⁵ CoC v Satish Kumar Gupta. (2020) 8 SCC 531.

³³⁶ IBC, Section 31.

advances in the law being, as a result, piecemeal. As a result, to date, these policy considerations have only played a very limited role in climate mitigation strategies in insolvency and/or restructuring procedures.

Post Commencement Finance

For a distressed company, post-commencement finance is not only a requisite to meet the insolvency resolution process costs, but to provide for regular payments made for availing critical input supplies. This assumes greater importance when the company hardly has any cash flows or deposits available but has operational capacity to generate revenue and stand on its feet. Interim Finance to a corporate debtor during the insolvency process can help mitigate climate risks by enabling preferential funding to reduce carbon emissions, enhance sustainability, and manage transitional risks.

The IBC provides for raising of Interim Finance during the insolvency resolution process with the approval of CoC. Interim Finance has been included in the 'insolvency resolution process costs' which is given priority in payment, over other debts of the corporate debtor, both in the resolution plan and during the settlement of debts in liquidation. The IBC safeguards the interests of the creditors by providing that while raising Interim Finance, no security interest shall be created over any encumbered property of the corporate debtor, without the prior consent of the creditors, whose debt is secured over such encumbered property. Additionally, to encourage interim finance, on the recommendations of the Insolvency Law Committee, the IBBI (Liquidation Process) Regulations of 2016 were amended to include 'interest on interim finance for a period of twelve months or for the period from the liquidation commencement date till repayment of interim finance, whichever is lower' in the liquidation costs. The RBI also acknowledged the need for Interim Finance facilitated under IBC and provided for the relaxation of provisioning norms for the treatment of Interim Finance provided by the banking institutions. The Prudential Framework for Resolution of Stressed Assets issued in June 2019 provides that any Interim Finance extended by the lenders to debtors undergoing insolvency proceedings under IBC may be treated as a 'standard asset' during the insolvency process. The Interim Finance empowers the resolution professional to approach lenders for fresh finance during the insolvency process to maintain it as a going concern. Under the current creditor-in-control model of IBC, interim financing is largely considered a stop-gap arrangement,³³⁷ as opposed to a result-oriented revival instrumentality that it could potentially be. Interim Finance, while lucrative for the purpose of enhancing the rescue potential of the firm, is limited in its success because of the lack of a robust framework within IBC to incentivize investors to undertake the same.³³⁸ The priority in distribution

³³⁷ Amol Baxi, Interim Finance in Creditor-Oriented Bankruptcy Codes: A Study in the Context of Insolvency & Bankruptcy Code, India.

³³⁸ Malika Tiwari, Rescue Financing in Light of the Insolvency and Bankruptcy Code, 2016: Success, Challenges and Inspirations, https://gnlu.ac.in/Content/the-gnlu-law-review/pdf/volume-8-issue-2/08_malika_tiwari.pdf/

provided to Interim Finance as part of insolvency costs³³⁹ operates as an incentive for any third-party lenders to infuse capital at a critical juncture to keep the entity as a going concern during the process.³⁴⁰ While in some cases, the CoC is opposed to lending finance to the distressed entity, in other cases, Interim Finance is given only to meet the process costs, which may not be adequate to sail the company through its reorganisation. Considering the level of uncertainty and risk, the lenders remain apprehensive about lending amounts to a company already under stress. A research study indicates that in around 85% of the cases, amounts less than ₹5 crore were raised as Interim Finance³⁴¹, which may suggest that the said funds were likely utilised to cover the process costs only.

The availability of adequate and affordable finance remains a constraint in India's climate actions. The country has so far largely met its requirements from domestic sources only. Finance is a critical input for its climate actions. Provision for raising Interim Finance under IBC³⁴² may also be an important aspect of climate insolvency to meet the requirements of transition costs³⁴³. It is necessary to develop a robust market for Interim Finance to take advantage of its super-priority status under IBC so that climate-focused loans can be encouraged during the insolvency process to mitigate transition risks. Incentives may be introduced in lending policies for investment in green projects. This is particularly critical for MSMEs, which find it difficult to mobilise the financial resources needed to mitigate climate change risks. The challenges in generating lender interest, and getting adequate approvals from CoC, especially at the cost of significantly higher interest rates and demands for incremental security in a risk-adverse system deplete the time-critical utility of interim financing.³⁴⁴ The law should enable greater flexibility where if refused more than once, the administrator should be able to raise Interim Finance without requiring CoC approval.

Insurance

Insurance can reduce the financial impact of climate-related physical hazards to corporates, households, and banks. The future effectiveness, affordability, and availability of climate risk

³³⁹ Section 5(13).

³⁴⁰ Amol Baxi, Interim Finance in Creditor-Oriented Bankruptcy Codes: A Study in the Context of Insolvency & Bankruptcy Code, India.

³⁴¹ Iyer V. V. et al. (2022), "An analysis of interim finance ecosystem as a supporting tool for the IBC regime", Anusandhan: Exploring New Perspectives on Insolvency, Page 276.

³⁴² IBC, Section 20.

³⁴³ Basel Committee on Banking Supervision, "Climate-related Risk Drivers and Their Transmission Channels," Bank for International Settlements, April 2021, accessed October 9, 2024, <https://www.bis.org/bcbs/publ/d517.pdf>.

³⁴⁴ Malika Tiwari, Rescue Financing in Light of the Insolvency and Bankruptcy Code, 2016: Success, Challenges and Inspirations, https://gnlu.ac.in/Content/the-gnlu-law-review/pdf/volume-8-issue-2/08_malika_tiwari.pdf/

insurance, however, may depend considerably on climate change scenarios³⁴⁵ and insurance market development.³⁴⁶ For insurers and reinsurers, physical risks are important on the asset side, but risks also arise from the liability side as insurance policies generate claims with a higher frequency and severity than originally expected. There is evidence that losses from natural disasters are already increasing. As a result, insurance is likely to become more expensive or even unavailable in at-risk areas of the world. Climate change can make banks, insurers, and reinsurers less diversified, because it can increase the likelihood or impact of events previously considered uncorrelated, such as droughts and floods. Insurance risk relates to both cost and availability of insurance for companies. Being under-insured when catastrophic events occur may result in financial distress or insolvency. There may also be new categories of uninsurable risk, as the effects of climate change become more acute, frequent and widespread. The insurance industry needs to develop innovative products that cover climate-related risks and liabilities.

ESG and Sustainable Financing

While understanding the limitations of ESG in actively reducing climate risks for companies and the environmental impact of their operations, it would be imprudent to disregard the potential inter-section between ESG practices and insolvency. We may argue on two grounds. Firstly, research posits that there is a correlation between ESG conduct and the financial performance of companies such as better performance on ESG parameters. It must be noted that studies focused on this correlation have increased exponentially, resulting in a variety of results and fragmented conclusions as to any positive relation between ESG and financial performance. However, a meta-analysis of over 2000 studies³⁴⁷ revealed that a majority of them showcased positive or non-negative findings and at the very least, very few found a negative impact of ESG on corporate financial performance. Other meta-studies also posit a robust and positive association between some form of sustainability measures and financial performance at the company level and the results are found to be stable over time.³⁴⁸

Moreover, a direct relationship between ESG and insolvency can also be established. Another study, based on a US-based sample of 902 public-listed companies, converted

³⁴⁵ Bank for International Settlements (2021), “Climate-Related Risk Drivers and Their Transmission Channels,” (Bank for International Settlements, Basel, Switzerland, April 2021).

³⁴⁶ Insurance markets are generally underdeveloped in EMDEs. See Stephane Hallegatte, Fabian Lipinsky, Paola Morales, Hiroko Oura, Nicola Ranger, Martijn Gert Jan. Regelink, and Henk Jan Reinders (2022), “Bank Stress Testing of Physical Risks under Climate Change Macro Scenarios: Typhoon Risks to the Philippines” IMF Working Paper, WP/22/163, International Monetary Fund, Washington, DC (August 2022).

³⁴⁷ Gunnar Friede, Timo Busch, & Alexander Bassen, A. (2015). ESG and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917/>

³⁴⁸ Global Research Institute, ESG & Corporate Financial Performance: Mapping the global landscape, December 2015.

credit ratings into default probabilities and found that the probability of corporate credit default was significantly lower for firms with high ESG performance.³⁴⁹

That said, it may not necessarily be just risk mitigation³⁵⁰ driving the positive correlation between non-financial considerations and financial outcomes. Transitioning towards sustainable products and processes helps widen the market access for companies³⁵¹ while engagement with the community builds social capital that drives up valuations.³⁵² What we observe from the aforementioned findings is that there is a needed re-orientation in the definition of economic outcomes³⁵³ for companies to incorporate social and environmental considerations in all aspects of business operations. There are evident practical benefits arising from an ESG investment-driven market such as ESG schemes under the purview of the thematic category of Equity Schemes in India, regulated under SEBI (Mutual Funds) Regulations of 1996.³⁵⁴ It is mandated that 80 per cent of the total AUM of the scheme must be invested in equity or equity-related instruments that correspond to the strategy identified for it. Moreover, the remaining assets of the investment cannot be applied for objectives in contrast with the strategy of the scheme.³⁵⁵

Moreover, a study by RBI found empirical data indicating a positive impact of ESG disclosures on reducing stock price volatility.³⁵⁶ It also noted the association between ESG considerations and goodwill, reputation and positive consumer perception. In response to unanticipated economic shocks, the ESG leaders' index was found to have outperformed the broader index across a sample of 18 jurisdictions, thus indicating the positive short-term and long-term impact of ESG considerations on financial risks.³⁵⁷ Research is also beginning to posit that ESG performance could lower the cost of capital for companies. This has tangibly materialised in India, wherein the Economic Survey 2022-23 found that the ESG performance of top Indian companies has resulted in improved investor confidence, leading to increased access to capital at lower costs.³⁵⁸ Thus, ESG becomes another policy tool that could be incorporated as part of the climate

³⁴⁹ Aslan A, Poppe L, Posch P. Are Sustainable Companies More Likely to Default? Evidence from the Dynamics between Credit and ESG Ratings. *Sustainability*. 2021; 13(15):8568. <https://doi.org/10.3390/su13158568>

³⁵⁰ Witold Henisz, Tim Koller, and Robin Nuttall, Five ways that ESG creates value, McKinsey Quarterly, Nov 2019.

³⁵¹ Ibid.

³⁵² Sinziana Dorobantu, Witold J. Henisz, and Lite J. Narthey, "Spinning gold: The financial returns to stakeholder engagement," *Strategic Management Journal*, December 2014, Volume 35, Number 12, Pages 1727–48, www.onlinelibrary.wiley.com.

³⁵³ Sudhaker Shukla, Amit Behera, The intersection of ESG and Insolvency: An exploration of Responsible Restructuring practices in India.

³⁵⁴ Securities and Exchange Board, Circular on New category of Mutual Fund schemes for Environmental, Social and Governance ("ESG") Investing and related disclosures by Mutual Funds, SEBI/HO/IMD/IMD-I–PoD1/P/CIR/2023/125 (Issued on Jul. 20, 2023).

³⁵⁵ Ibid.

³⁵⁶ Saurabh Ghosh, Siddhartha Nath, *ESG Disclosures and Performances: Cross-Country Evidence*, Reserve Bank of India Bulletin, Feb. 17, 2023.

³⁵⁷ Ibid.

³⁵⁸ Ministry of Finance, Economic Survey 2023-23 (2023) at 232.

insolvency framework to ensure long-term sustainability by using the identified parameters of risks and opportunities that constitute ESG and benefiting from the market responsiveness to ESG Disclosures.

This discussion on sustainable reporting and financing is particularly relevant since credit risk management is undergoing a transition that is very concerned with the sustainability of a business proposition, is long-term oriented and risk-averse for a particular sector³⁵⁹. Thus, if at the stage of insolvency, the future prospects of the entity do not undergo a course correction, it is likely to ring the death knell for the entity with liquidation as the only resort.³⁶⁰ As a result, an opportunistic approach must be incorporated into decarbonisation-focused financial avenues.

Transition bonds are intended to be one such instrument for targeted sustainable financing that would assist companies in reducing emissions for their core business operations or on-board less carbon-intensive activities.³⁶¹ Such bonds could be particularly significant for emissions-heavy industries or sectors that are highly reliant on fossil fuels, as they could facilitate the necessary overhaul of the core business operations.³⁶² However, while transition bonds have great potential for mobilizing capital specifically for catering to the accelerating demand for decarbonization, they are currently under-utilized due to credibility issues arising out of regulatory ambiguity.³⁶³

To tap into the appropriate financing resources for transitioning businesses, certain regulatory measures are suggested by IMF scholars³⁶⁴, particularly engaging with the following: addressing climate data gaps, data disclosure standards, and developing taxonomies for sustainable financing; elevating commitments and coordination of all participants; enhancing regulations for sustainable finance; and creating clear transition pathways.³⁶⁵ These reforms would be geared towards providing regulatory stability, transparency, risk mitigation and direction for financial recoveries across sectors.³⁶⁶ For

³⁵⁹ Patrick Bolton et al., “Integrating Climate Risks into Credit Risk Analysis,” Centre for Economic Policy Research, February 2019, accessed October 9, 2024, <https://www.cepreweb.org/wp-content/uploads/2019/02/CEP-DN-Integrating-climate-risks-into-credit-risk-analysis.pdf>.

³⁶⁰ Tuula Linna, “Business Sustainability and Insolvency Proceedings—The EU Perspective,” *Journal of Sustainability Research* 2, no. 2 (2020): e200019, accessed October 9, 2024, https://sustainability.hapres.com/htmls/JSR_1212_Detail.html.

³⁶¹ International Capital Market Association, “Climate Transition Finance Handbook,” June 2023, accessed October 9, 2024, <https://www.icmagroup.org/assets/documents/Sustainable-finance/2023-updates/Climate-Transition-Finance-Handbook-CTFH-June-2023-220623v2.pdf>.

³⁶² Ibid.

³⁶³ Rajat Kathuria, “Why We Need Transition Bonds,” *The Hindu Business Line*, May 1, 2023, accessed October 9, 2024, <https://www.thehindubusinessline.com/opinion/why-we-need-transition-bonds/article65293161.ece>.

³⁶⁴ International Monetary Fund, “Mobilizing Private Climate Financing in Emerging Market and Developing Economies,” July 26, 2022, accessed October 9, 2024, <https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/07/26/Mobilizing-Private-Climate-Financing-in-Emerging-Market-and-Developing-Economies-520585>.

³⁶⁵ *Mobilizing Private Climate Financing in Emerging Market and Developing Economies* / Ananthkrishnan Prasad, Elena Loukoianova, Alan Xiaochen Feng, and William Oman July 2022

³⁶⁶ Ibid.

funding the transition towards a low-carbon economy³⁶⁷ risk mitigation is particularly significant when the insolvency process seeks to encourage private investment in general.

Disclosures, including ESG disclosures as discussed above, may be relevant from the perspective of both, pre-insolvency risk mitigation and post-initiation of CIRP for ensuring allocative efficiency³⁶⁸ in the financial markets. Information asymmetry is sought to be addressed under the IBC framework as well³⁶⁹, channelized through the duties of RP.³⁷⁰

On a bigger scale, public and private sector collaboration can effectuate a system of priority debt financing for sector-specific entities in a stage-wise manner reflective of public interest priorities. For instance, Special Window for Affordable and Mid-Income Housing Investment Fund (SWAMIH) funds³⁷¹ were introduced by the government as an investment fund for affordable housing, sponsored by the Ministry of Finance that provides debt financing for the completion of stressed and stalled RERA-registered residential projects falling in the affordable, mid-income housing category. Market-friendly approach to climate mitigation should aim at creating an incentive structure to attach financial value to the prospects of infusing capital into an entity that is inhibited in its prospects by the very nature of its model or operations, something that is not as easily fixed as replacing erring management.

Sustainable finance, an emerging avenue, can also contribute to climate change mitigation by providing incentives for firms to adopt less carbon-intensive technologies and specifically financing the development of new technologies.³⁷² Unfortunately, this is likely to be oriented towards solvent firms where recovery visibility is higher and smaller firms may struggle to afford the costs of such financing.³⁷³ However, policy intervention can mobilize such funds for the purposes of addressing the insolvency resolution

³⁶⁷ International Monetary Fund, “Mobilizing Private Climate Financing in Emerging Market and Developing Economies,” July 26, 2022, accessed October 9, 2024, <https://www.imf.org/en/Publications/staff-climate-notes/Issues/2022/07/26/Mobilizing-Private-Climate-Financing-in-Emerging-Market-and-Developing-Economies-520585>.

³⁶⁸ Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 BROOK L.REV. 763, 764–65 (1995).

³⁶⁹ Bankruptcy Law Reforms Committee. *The Report of the Bankruptcy Law Reforms Committee Volume I: Rationale and Design*. New Delhi: Ministry of Finance, Government of India, 2015.

³⁷⁰ Section 25 of IBC.

³⁷¹ “Explained: What is the SWAMIH Investment Fund and How Will it Help Affordable Housing?,” *The Indian Express*, February 28, 2023, accessed October 9, 2024, <https://indianexpress.com/article/explained/explained-economics/swamih-investment-fund-affordable-housing-explained-8480560/>.

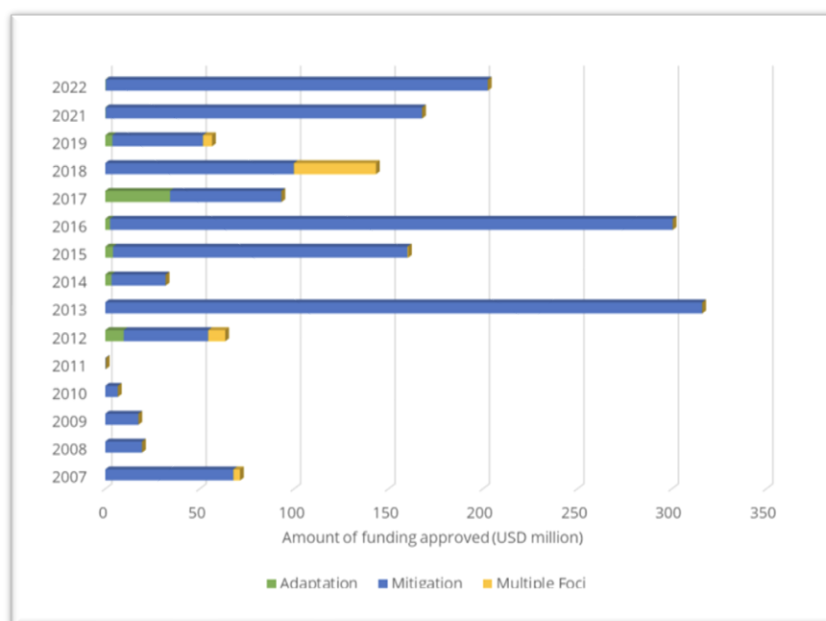
³⁷² University of Calgary, “Accounting for Environmental Liabilities in Bankruptcy,” accessed October 9, 2024, <https://prism.ucalgary.ca/server/api/core/bitstreams/5933a519-5a31-4ef0-84d8-4332db2360b4/content>.

³⁷³ Browne Jacobson, “Sustainable Finance: Risks for Businesses That Do Not Engage,” accessed October 9, 2024, <https://www.brownejacobson.com/insights/sustainable-finance-risks-for-businesses-that-do-not-engage>.

requirements as part of their impetus for transition.³⁷⁴ This may be conceptualised with more emphasis on a variety of creditor rights post-resolution, and an element of negative control or priority in repayment.³⁷⁵

Climate finance flows from various sources like Global Environment Facility (GEF), Green Climate Fund (GCF), Adaptation Fund (AF), Special Climate Change Fund (SCCF), Least Developed Countries Fund (LDCF) (multilateral climate change fund) and Climate Investment Funds (CIF). The data from multilateral climate change fund on the total pledges, deposits and project approvals, tracked by Climate Funds Update, favours climate change mitigation. Figure 1.1 (below) shows that mitigation fund dominates the total multilateral climate funds received in India for the period from 2007- 2022. Domestically, the power generation sector attracts most investments in climate mitigation finance. Almost 80 per cent of the total tracked domestic climate finance flows were directed towards the power sector in 2017–18. In addition to this, domestic transport sector investments have also been increasing.³⁷⁶

Fig. 1.1 – Multilateral climate finance by the objective of investment (for the period 2007- 2022)



³⁷⁴ Climate Policy Initiative, “Developing a Legal and Regulatory Framework for Low-Carbon Transition of Indian Economy on the Path to Net Zero,” accessed October 9, 2024, <https://www.climatepolicyinitiative.org/developing-a-legal-and-regulatory-framework-for-low-carbon-transition-of-indian-economy-on-the-path-to-net-zero/>.

³⁷⁵ Amol Baxi, Interim Finance in Creditor-Oriented Bankruptcy Codes: A Study in the Context of Insolvency & Bankruptcy Code, India.

³⁷⁶ Climate finance in India 2023. Indian Institute for Human Settlements, <https://doi.org/10.24943/CFI11.2023>.

Currently, there is an upward trend in climate finance for addressing global climate mitigation and adaptation needs.³⁷⁷ However, there is a discouragingly limited focus on adaptation strategies in proportion to the total resources dedicated to climate financing which effectively means that debt is the primary source of funding for adaptation requirements. This in turn is a considerable source of risk for vulnerable countries and corporations, thus prompting the need to promote diverse financial instruments to plug the funding gap.³⁷⁸

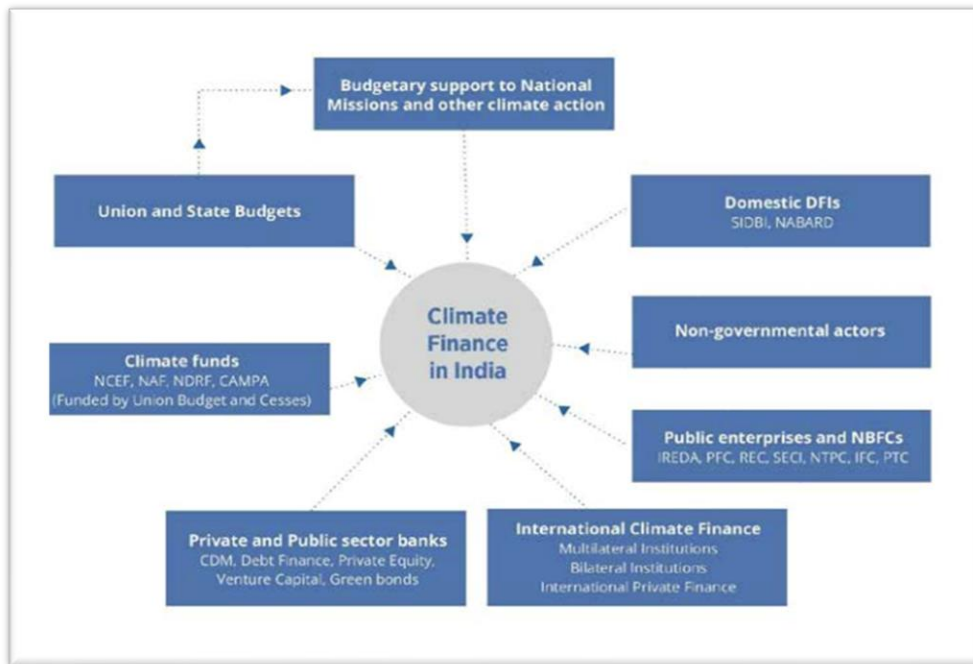
Most companies across the world are medium and small enterprises (MSEs). These companies are more exposed to the effects of climate change, but frequently lack the capital and expertise to embrace climate mitigation strategies and build their resilience in solvent times. Insolvency law could be used as a lever to support the adoption of effective climate mitigation strategies by viable MSEs undertaking restructuring procedures. This encourages MSEs to adopt sustainable practices as a condition for restructuring support, such as committing to reduce carbon footprints or using renewable energy. By mandating sustainability assessments and prioritizing financing for environmentally responsible MSEs, insolvency law not only aids their recovery but also aligns their operations with climate goals. This incentivizes MSEs to integrate effective climate strategies, contributing to emissions reductions and promoting long-term sustainability. To achieve such a goal, legislators could create special provisions for green startups or projects, ensuring that these initiatives receive necessary funding and protection during insolvency proceedings. This would not only preserve innovation in green technologies but also contribute to a broader economic shift towards sustainability, thus emphasizing the transformative nature of insolvency law as a tool for growth and to promote sustainable entrepreneurialism.

The suggestion, on the basis of this discourse, is that the climate insolvency framework should focus on incorporating specialised decarbonisation-focused financing avenues as part of the process itself to enable successful resolution without incurring unsustainable debts. The climate insolvency model may be aligned specifically towards eligibility for capacity-building initiatives geared in the green direction, including disclosures. The ministries and national agencies liaise with major international funds to secure project funding. The various players in the climate finance architecture in India has been illustrated below (see Figure 1.2) The following sources can be capitalized:

³⁷⁷ Global Center on Adaptation, “State and Trends in Climate Adaptation Finance 2024,” April 2024, accessed October 9, 2024, <https://gca.org/wp-content/uploads/2024/04/State-and-Trends-in-Climate-Adaptation-Finance-2024.pdf>.

³⁷⁸ Supra note 5

Figure 1.2 - The various players in the climate finance architecture in India.³⁷⁹



To incentivize investment into transitioning or adaptation as part of the insolvency framework, it might be appropriate to highlight the real value of climate-resilient assets. Restructuring of loans is indicative of a decrease in asset quality and as a principle, they tend to be downgraded in asset classification.³⁸⁰ There is a considerable transition risk premium attached to stocks of firms that have been observed empirically for large-cap companies.³⁸¹ However, the same valuation principle is not necessarily true in the case of climate-induced insolvency wherein the transition may result in the addition of value.³⁸² In contrast to the brown premium imposed due to bad environmental performance or higher carbon risk premium, there is a concept emerging as part of the sustainable investment paradigm, known as the Green Internal Rate of Return (IRR).³⁸³ Green IRR is

³⁷⁹ Climate finance in India 2023. Indian Institute for Human Settlements, <https://doi.org/10.24943/CFI11.2023>

³⁸⁰ Anusha Chari et al., “The NPA Crisis: Issues, Challenges and Way Forward,” Columbia University, April 2019, accessed October 9, 2024, <https://indianeconomy.columbia.edu/sites/default/files/content/201904-Chari%20et%20al-NPA%20Crisis.pdf>.

³⁸¹ Nag, S., Chakrabarty, S.P., & Basu, S. (2021). From Carbon-transition Premium to Carbon-transition Risk, <https://arxiv.org/abs/2107.06518>

³⁸² Organisation for Economic Co-operation and Development, “Financial Markets and Climate Transition: Opportunities, Challenges and Policy Implications,” April 2021, accessed October 9, 2024, <https://www.oecd.org/finance/Financial-Markets-and-Climate-Transition-Opportunities-Challenges-and-Policy-Implications.pdf>.

³⁸³ Ivanhoé Cambridge, “Climate Change: Why We Need to Rethink the Financial Valuation of Our Properties,” July 2023, accessed October 9, 2024,

operationalized within financial modelling to facilitate informed investment decisions by incorporating the carbon value of assets. Carbon value may be negative due to financial sensitivity to climate risk or position by virtue of lower climate transition risk for some assets.³⁸⁴ The value enhancement may also occur since there is now attached a lower uncertainty premium to the transitioned asset.³⁸⁵

Thus, there is scope to direct investment towards such assets. The insolvency process should aim at facilitating the transition of the firm's assets and as a consequence, must contemplate the potential valuation premium that may be associated with a successful transition to low-carbon economic operations.³⁸⁶

Another source of incentive may be found within the supply chain network. Since interactions among supply chain members on material, information and cash flow are becoming increasingly intensive³⁸⁷, insolvency of any component of the chain would result in increased costs and disruption of business. Moreover, where there is also a financial network, the impact of non-payment or default by any one firm may be significantly harm to the financial health of the other firms.³⁸⁸

In light of the above, firstly production uncertainty of manufacturers in the supply chain and the consequential financial impact should be factored in when analysing the sources of risks for an insolvent company. It may be beneficial for policymakers to consider addressing the insolvency process to the entire supply chain of a particular business operation instead of only the corporate debtor to ensure a meaningful transition. Group Insolvency is a growing but inchoate idea in opposition to the current entity-to-entity model.³⁸⁹ While at this stage pushing group climate insolvency may be premature, the concept can be included as a tool for comprehensive resolution.³⁹⁰ Climate insolvency could contemplate designing a process that included mapping the supply chain, conducting a climate risk assessment for the crucial intersections and developing a strategy to mitigate the impact to ensure long-term supply-chain resilience. The pertinent question remains how this proposition may be incorporated within the existing legal

<https://www.ivanhoecambridge.com/en/news/2023/07/climate-change-why-we-need-to-rethink-the-financial-valuation-of-our-properties/>.

³⁸⁴ Ibid.

³⁸⁵ Organisation for Economic Co-operation and Development, "Financial Markets and Climate Transition: Opportunities, Challenges and Policy Implications," April 2021, accessed October 9, 2024, <https://www.oecd.org/finance/Financial-Markets-and-Climate-Transition-Opportunities-Challenges-and-Policy-Implications.pdf>.

³⁸⁶ EDHEC-Risk Climate Impact Institute. "How Will Climate Change Affect Asset Prices? The 30,000-Foot Answer." EDHEC, accessed October 9, 2024. <https://climateimpact.edhec.edu/how-will-climate-change-affect-asset-prices-30-000-foot>.

³⁸⁷ Michi Nishihara, Takashi Shibata, *Optimal capital structure and simultaneous bankruptcy of firms in corporate networks*, Journal of Economic Dynamics & Control 133 (2021)

³⁸⁸ Ibid. Page 2.

³⁸⁹ Kokorin, Ilya. "The Rise of 'Group Solution' in Insolvency Law and Bank Resolution." European Business Organization Law Review 22 (2021): 781-811. Accessed October 9, 2024. <https://link.springer.com/article/10.1007/s40804-021-00220-4>.

³⁹⁰ Ibid.

framework. One suggestion would fall in line with our earlier discussed idea of enlarging the scope of the insolvency professional's duties³⁹¹ as well as pertinent expository documents such as information memorandum³⁹² to include such complex financial information. Moreover, since the impact of climate insolvency of an entity may be closely felt by other entities in its network, it would be beneficial to dilute the effect of S. 29A of IBC as done similarly in the case of pre-pack³⁹³ to enable priority rescue by other entities within the same network or same enterprise.³⁹⁴

Education and Awareness

The process of educating the stakeholders and making them aware of climate change risks and linkages with insolvency policy assumes importance. Insolvency professionals and NCLT play a crucial role in interpreting and enforcing IBC. They will need to be equipped with the knowledge and understanding of climate change-related issues to make informed decisions that balance economic considerations with environmental protection.

Wrongful Trading

Climate-related risk may be minor or highly significant to a firm's economic activities. The fiduciary duty of directors and officers, and the duty of care under corporations legislation, require that they have undertaken efforts to identify risks to their business from climate change in the same way that they must assess other financial risks.³⁹⁵ They should have appropriate strategies in place to manage these risks where they are material to the company's solvency, and should have in place effective oversight and monitoring of the actions of individuals charged with managing these risks. Financial regulators, particularly with regulatory oversight of pension funds, are increasingly formalizing the expectation that investors should consider the materiality of climate-related risks and manage them accordingly, consistent with their fiduciary duties.

³⁹¹ IBC, Section 25.

³⁹² IBC, Section 29.

³⁹³ IBC, Section 240A.

³⁹⁴ Insolvency and Bankruptcy Board of India. "Roles and Responsibilities of Insolvency Professionals under IBC 2016." *Insolvency and Bankruptcy Board of India*. Last modified December 13, 2021. <https://www.ipaicmai.in/IPANEW/UploadFiles/Articles/RolesandResponsibilitiesofInsolvencyProfessionalsunderIBC,2016.pdf>.

³⁹⁵ Supra note 243.

Endnote

Industrial greenhouse gas emissions have driven the world toward a crisis point, jeopardizing the habitability of the environment for both humans and other species. These risks are mounting and pose a threat to financial stability. The bankruptcy and subsequent restructuring of the PG&E case was a wake-up call reminding us that the physical and transition risks of climate change put companies at risk of bankruptcy. It illustrates that climate-related impacts can suddenly manifest themselves in various sectors. The objectives of climate change mitigation and adaptation and the objectives of commercial insolvency systems are not irreconcilable. Increasing numbers of links will be forged between financial viability and environmental sustainability as we face the intensifying pressures of the climate crisis.³⁹⁶ Restructuring practices could more proactively promote climate and sustainability commitments. Insolvency frameworks can also encourage the development and financing of green technologies by supporting the continuation of viable, environmentally focused projects during financial distress. Insolvency law can serve as a critical lever in promoting corporate responsibility and environmental stewardship, aligning financial health with climate goals if effective mitigation strategies are encompassed in the insolvency framework. A shift in thinking is necessary, moving away from a purely financial perspective towards a more holistic approach that integrates environmental sustainability into the core of the insolvency process. This requires a collaborative effort from policymakers, regulators, creditors, investors, and businesses to ensure a sustainable and resilient future. India, which is leading the path for the Global South, can implement a broad range of measures to promote the achievement of climate mitigation goals in insolvency and restructuring procedures, and set a high bar for other countries to follow. This can be accomplished while sustaining our goal of becoming developed country by 2047.

³⁹⁶ Climate Change and Sinking Corporates: Mitigating the Risks, Antonia Menezes and Akvile Gropper, World Bank Group (2023) Climate Change and Sinking Corporates: Mitigating the Risks, Antonia Menezes and Akvile Gropper, World Bank Group (2023) available at: <https://documents1.worldbank.org/curated/en/099060724171014551/pdf/P17566419ac2150e61abc9147e659fb7616.pdf>.

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