



# REPORT ON REPORTS - 2023

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## Abstract

In this article, the authors conducted a comprehensive examination of various types of publications issued by international organizations on a worldwide scale and summarized them. The majority of the reports highlighted numerous challenges that the global community is currently grappling with, such as the impacts of global climate change stemming from both point and non-point sources. Moreover, the reports addressed issues related to migration, including the plight of refugees, as well as global peace and stability, international foreign direct investment, banking failures, market confidence erosion, employment trends, workforce management strategies, rapid advancements in technologies like Artificial Intelligence and Machine Learning, energy sector employment opportunities, severe weather occurrences, climate change, trade dynamics, environmentally friendly investments, declining fossil fuel prices, the increasing demand for solar photovoltaics and electric vehicles, the repercussions of the Israel-Hamas conflict, adaptation and mitigation measures, the Ukraine conflict, CO2 emissions and energy efficiency. This study aids policymakers in devising sustainable approaches to achieve the objectives of sustainable development by the year 2030.

**Keywords:** Global Challenges, Sustainable Development, Technology

## I. Introduction

In 2023, global energy-related CO2 emissions surged by 1.1 per cent, hitting a record 37.4 billion tonnes (Gt), up by 410 million tonnes (Mt) from the previous year. Coal emissions drove over 65 per cent of this increase, with a global hydropower shortage due to droughts adding another 170 Mt. Without this hydropower effect, global electricity sector emissions would have decreased. Total energy-related emissions rose by about 900 Mt between 2019 and 2023. The adoption of key clean energy technologies since 2019, like solar PV, wind, nuclear, heat pumps, and electric cars, slowed emissions growth significantly. Thanks to clean energy expansion, emissions growth has slowed structurally. Over the decade to 2023, global emissions rose at just over 0.5 per cent annually, the slowest rate since the Great Depression. While advanced economy GDP increased by 1.7 per cent, emissions decreased by a record 4.5 per cent, returning to levels seen fifty years ago. Advanced economy coal demand reverted to around 1900 levels. The decline in advanced economy emissions in 2023 resulted from increased renewables deployment, coal-to-gas switching in the US, weaker industrial production in some nations, and milder weather. China saw the largest global emissions increase in 2023, rising by 565 Mt, mainly due to continued emissions-intensive economic growth post-pandemic. Despite this, China led in global clean energy expansions. Cyclical factors, particularly a poor hydro year, accounted for about one-third of China's emissions growth. China's per capita emissions are now 15 per cent higher than those of advanced economies. In India, strong GDP growth caused emissions to rise by around 190 Mt. However, a weak monsoon increased electricity demand and reduced hydro production, contributing a quarter to the overall emissions increase. India's per capita emissions remain significantly lower than the global average.

## II. World Bank: World Development Report 2023

The focus lies on individuals lacking citizenship in their host country, totalling approximately 184 million worldwide, including 37 million refugees, with about 43 per cent residing in low- and middle-income nations. The shifting demographics, notably the ageing populations in both high- and middle-income countries and the burgeoning population in low-income nations underscore the increasing necessity of migration across all income levels. This report offers a robust framework for policymaking, emphasizing the alignment of migrants' skills and attributes with the needs of destination countries and the reasons behind their migration. Effective policy responses are outlined based on this framework. Strong alignment between migrants and destination countries yields significant benefits for both parties, while challenges arise when mismatches occur, particularly among refugees, necessitating shared and reduced costs through multilateral cooperation. For origin countries, proactive management of migration for development is crucial, encompassing strategies such as integrating labour migration into development plans, reducing remittance costs, leveraging diaspora knowledge transfers, enhancing globally sought-after skills, mitigating brain drain effects, safeguarding nationals abroad, and supporting their reintegration upon return. Destination countries can adopt a more strategic approach to migration management by leveraging migration to meet labour needs, ensuring migrants' inclusion while addressing societal concerns, facilitating refugees' mobility and access to services, and managing distressed movements humanely.

International cooperation is vital to harness the developmental potential of migration. Bilateral cooperation can enhance migrants' alignment with destination countries' needs, while multilateral efforts are necessary to share the burdens of refugee hosting and address distressed migration. The development of new financing mechanisms can provide predictable support for countries hosting non-citizens.

### III. United Nations Development Programme: Human Development Report 2023

From conflicts in Gaza, Ukraine, Sudan, Yemen, and elsewhere to rising gang violence and civil unrest, global peace and stability are facing unprecedented challenges. The scale of warfare, including fatalities, has significantly increased over the years, with the number of deaths rising from 95,716 in 1992 to 235,822 in 2022. Additionally, the global population of forcibly displaced individuals reached 108 million in 2022, the highest level since World War II, and more than two and a half times the level in 2010. Furthermore, the impact of climate change is exacerbating coastal flooding, particularly in regions such as Latin America, the Caribbean, the Pacific, and Small Island Developing States (SIDS). According to recent UNDP and Climate Impact Lab (CIL) data, coastal flooding is projected to increase fivefold over this century, affecting over 70 million people and putting critical infrastructure at risk of permanent inundation. Many highly populated cities are expected to face heightened flood risk by the midcentury, including areas home to roughly 5 per cent of the population in cities like Santos, Brazil; Cotonou, Benin, and Kolkata, India. By the end of the century, flood risk exposure is anticipated to double to 10 per cent of the population, with several cities projected to fall permanently below sea level, including Guayaquil, Ecuador; Barranquilla, Colombia; Rio de Janeiro, Brazil; Kingston, Jamaica; Perth, Australia; Newcastle, Australia; and Sydney, Australia.

### IV. United Nations Conference on Trade and Development: World Investment Report 2023

Global foreign direct investment (FDI) fell by 12 per cent in 2022 to \$1.3 trillion, driven mainly by reduced financial flows in developed countries. However, real investment trends were more positive, with increased project announcements across regions and sectors. Developing countries saw a slight uptick in FDI, while smaller nations and the least developed countries (LDCs) experienced stagnant or declining inflows. Industries like electronics, automotive, and machinery saw growing project numbers, especially to address supply chain restructuring. Investment in digital economy sectors slowed after a surge in 2020 and 2021. Energy investment remained stable, alleviating concerns of a fossil fuel investment reversal amid the energy crisis. Oil majors selling assets to private equity firms highlight the need for new deal-making models for responsible asset management. In 2022, international investment in key sectors for the Sustainable Development Goals (SDGs) in developing nations increased. However, progress since the SDGs' adoption in 2015 has been modest. At the midpoint of the 2030 Agenda, the investment gap across all SDG sectors has grown to over \$4 trillion annually, mainly in energy, water, and transport infrastructure. This rise is due to underinvestment and additional needs. Conversely, global capital markets show positive sustainability trends, with the sustainable finance market reaching \$5.8 trillion in 2022. Since 2015, international investment in renewable energy has surged, but primarily in developed countries. Over 30 developing nations have yet to attract significant international investment in renewables due to high capital costs. To address this, UNCTAD proposes a Global Action Compact for Investment in Sustainable Energy for All, outlining recommendations for national and international policies, partnerships, financing, and capital market involvement. UNCTAD's World Investment Report 2023 reveals a troubling \$4 trillion SDG investment gap in developing countries annually, with \$2.2 trillion needed for energy transition. Redirecting net-zero finance to developing economies is crucial, but current policies are insufficient, particularly in poorer nations. While many countries have renewable energy policies, LDCs and SIDS lag, with limited private investment integration. Phasing out \$1 trillion in fossil fuel subsidies could spur renewable investments. UNCTAD's proposed Global Action Compact for Investment in Sustainable Energy for All aims to address these challenges and achieve a balanced energy transition focusing on climate targets, affordable energy access, and energy security.

### V. International Monetary Fund: Global Financial Stability Report 2023

Financial stability risks rose post-October 2022 due to challenges in the global financial system. Market participants took on increased risks amid low-interest rates and high liquidity. Bank failures and loss of market confidence in major institutions like Credit Suisse highlighted vulnerabilities. These events spread globally, leading to asset sell-offs and repricing of policy rate expectations. Policymakers responded, but market sentiment remains fragile. Regulatory changes post-2008 crisis improved resilience, but concerns persist, especially in nonbank financial intermediaries. Impact varied across regions, with emerging market banks facing risks despite stable deposit funding. Funding instability and shifting deposit patterns pose challenges, especially for US regional banks, potentially impacting GDP growth. Financial market stress complicates central banks' tasks amid persistent inflation. Investors now expect central banks to ease policy sooner, despite inflation remaining high. Central banks are reducing balance sheets, potentially challenging sovereign debt markets. Tighter financial conditions may arise due to factors like leverage and liquidity mismatches. Clear communication from central banks is crucial, and policymakers must act promptly to prevent systemic events. Supervisors should ensure banks have robust risk management practices, especially for interest rate and liquidity risks. Prudential rules should require sufficient capital for these risks. Central banks should provide liquidity support for systemic risks while allowing market forces to operate. Further work is needed on resolution reform to avoid risking public funds. International cooperation is essential for drawing policy conclusions and improving resolution mechanisms. Financial market stress complicates central banks' tasks amid persistent inflation. Investors now expect central banks to ease policy sooner, despite inflation remaining high. Central banks are reducing balance sheets, potentially challenging sovereign debt markets. Tighter financial conditions may arise due to factors like leverage and liquidity mismatches. Clear communication from central banks is crucial, and policymakers must act promptly to prevent systemic events. Supervisors should ensure banks have robust risk management practices, especially for interest rate and liquidity risks. Prudential rules should require sufficient capital for these risks. Central banks should provide liquidity support for systemic risks while allowing market forces to operate. Further work is needed on resolution reform to avoid risking public funds. International cooperation is essential for drawing policy conclusions and improving resolution mechanisms.

## VI. World Economic Forum: Future of Jobs Report 2023

The latest edition of the Future of Jobs Survey presents the most extensive coverage to date, including insights from 803 companies representing over 11.3 million workers across various industries and economies. It delves into macroeconomic and technological trends, their impact on jobs and skills, and companies' workforce strategies for 2023-2027. Technology adoption remains a significant driver of business transformation, with over 85 per cent of organizations foreseeing increased use of new technologies and expanded digital access. Other impactful trends include broader implementation of Environmental, Social, and Governance (ESG) standards, rising living costs, and slow economic growth. Job creation and destruction stem mainly from environmental, technological, and economic shifts. Investments in green transition, ESG standards, and localized supply chains are predicted to drive job creation, while technological advancements may lead to job displacement in some sectors. Key technologies expected to influence job markets positively include big data analytics and climate change technologies, while others like AI and digital platforms may disrupt employment patterns. Overall, respondents anticipate a 2 per cent decrease in employment over the next five years, with artificial intelligence likely to contribute to both job growth and losses. The mix of macroeconomic shifts and technology adoption will shape job trends: Fast-growing roles include AI and Machine Learning Specialists, Sustainability Specialists, and Renewable Energy Engineers, while clerical roles like Bank Tellers and Data Entry Clerks are declining. Education, agriculture, and digital commerce sectors anticipate significant job growth, while administrative and traditional roles face losses. Analytical and creative thinking are vital skills, alongside resilience, flexibility, and technological literacy.

## VII. International Energy Agency: World Energy Employment 2023

The report enhances national labour statistics to offer a more detailed perspective on the current energy workforce and projections up to 2030. While many traditional labour statistics lack comprehensive coverage of the energy sector, especially emerging sub-sectors, this report fills the gap by utilizing modelled estimates and other data sources. Energy-related jobs span various economic activities, complicating data capture without secondary surveys. The report covers a wide range of energy and related employment categories and sub-sectors, including energy supply (oil, gas, etc.), the power sector (generation, transmission, etc.), and key end use (vehicle manufacturing, energy efficiency). It focuses on direct jobs related to these activities, excluding indirect and induced jobs, as well as employment in non-energy businesses owned by energy firms. Informal workers are included, and part-time work is normalized to full-time equivalent (FTE) employment for consistency.

## VIII. World Economic Forum: Global Risks Report 2024

Reflecting on 2023, global attention was drawn to various events, including deadly conflicts in regions like Sudan and Gaza, alongside extreme weather events such as heatwaves, droughts, wildfires, and floods. Societal unrest, marked by protests and strikes, also made headlines. While major destabilizing events were largely avoided, the 2023-2024 Global Risks Perception Survey indicates a predominantly negative outlook, with environmental risks, especially extreme weather, taking centre stage. The survey highlights uncertainties in climate change, demographic shifts, technological advancements, and geopolitical dynamics, impacting societies' ability to prepare for and respond to global risks. In a scenario where global warming reaches 1.5°C by the early 2030s, potentially triggering irreversible climate impacts, economies are unprepared for the interconnected risks that could accelerate climate change. Societal polarization and economic downturn are key concerns, intertwined with various other challenges. Misinformation is expected to escalate, especially during upcoming elections, leading to social unrest and undermining the legitimacy of governments. As truth becomes obscured, censorship and propaganda may rise, restricting access to information globally. The cost-of-living crisis remains a major concern for 2024, with inflation and economic downturn emerging as significant risks over the next two years. Economic uncertainty will be particularly burdensome for vulnerable countries, limiting their access to crucial infrastructure, trade, and green investments. This could exacerbate societal and environmental challenges, especially in climate-vulnerable or conflict-prone nations. Additionally, the intersection of technological advancements and geopolitical dynamics may widen the digital gap between high- and low-income countries. If commercial interests drive the development of artificial intelligence and other frontier technologies, vulnerable communities risk being left behind, missing out on the benefits while facing economic isolation. Job creation and destruction may lead to highly divided labour markets within and between economies, posing long-term challenges.

Interstate armed conflict emerges as a top risk over the next two years, exacerbating state fragility and spreading across multiple fronts due to major powers' stretched focus. The potential for frozen conflicts to escalate is heightened by technological advancements, with a lack of global cooperation on regulating frontier technologies further fueling proliferation risks. Over the long term, these advancements, including generative AI, enable both state and non-state actors to develop disruptive tools, blurring the lines between them. Illicit economic activity, triggered by economic hardship and conflict, could lead to increased crime, militarization, and radicalization, further globalizing organized crime. The internationalization of conflicts involving multiple powers may result in deadlier, prolonged warfare and humanitarian crises, with the integration of AI into decision-making processes posing risks of accidental or intentional escalation. A widening gap between global power centres, particularly between the Global North and South, threatens international governance and diverts major powers' attention from crucial global risks. According to the Global Risks Perception Survey (GRPS), most respondents anticipate a multipolar or fragmented global order in the coming decade, with various powers competing for dominance. Dissatisfaction with the Global North's dominance is leading to more states seeking influence across military, technological, and economic domains. The Global South, facing climate change and geoeconomic tensions, may form political alliances that shape security dynamics in key areas like the Russia-Ukraine conflict and tensions over Taiwan. Efforts to isolate "rogue" states may falter, and international governance and peacekeeping efforts may struggle to address conflicts effectively.

In a fragmented world, cooperation faces challenges, yet opportunities for action persist. Localized strategies, supported by investment and regulation, can reduce foreseeable risks, with both public and private sectors playing vital roles. Breakthrough initiatives in research and development also contribute to global safety. Though individual efforts may seem small, their cumulative impact can drive significant risk reduction. Large-scale cross-border collaboration remains essential for addressing critical risks to human security and prosperity.

## IX. International Energy Agency: World Energy Outlook 2023

In the wake of the global energy crisis, certain immediate pressures have eased, but energy markets, geopolitics, and the global economy remain unsettled, posing ongoing risks. Fossil fuel prices have declined from their 2022 peaks, yet markets remain tense and volatile. Continued conflicts in Ukraine and potential instability in the Middle East exacerbate concerns. Meanwhile, global temperatures have risen, leading to increased occurrences of extreme weather events, and greenhouse gas emissions continue to rise, contributing to air pollution and premature deaths worldwide. Amidst these challenges, the emergence of a new clean energy economy, driven by solar PV and electric vehicles (EVs), offers hope for the future. Investment in clean energy has surged by 40 per cent since 2020, with electric vehicle sales on the rise and renewable energy capacity reaching record levels. However, navigating this transition requires informed decision-making, which is facilitated by exploring different scenarios, such as the Stated Policies Scenario (STEPS) and the Announced Pledges Scenario (APS). The global energy crisis may mark the beginning of the end of the fossil fuel era, as the momentum behind clean energy transitions accelerates. In the STEPS, coal, oil, and natural gas are projected to decline in their share of global energy supply by 2030. Additionally, advancements in electric vehicle adoption, heat pump installations, and renewable energy deployment signal progress towards low-emission alternatives. Prospects for nuclear power have also improved, with support for both existing reactors and new builds in various countries. Overall, the shift towards clean energy is evident, with a slowdown in the addition of new fossil fuel assets to the energy system and increasing adoption of low-emission technologies worldwide. Over the past decade, China has been a major driver of global energy consumption, particularly in the oil, natural gas, and coal markets. However, as China's economy matures and its infrastructure nears completion, the focus is shifting towards clean energy. China leads in wind, solar, and electric vehicle markets. Projected GDP growth suggests a peak in total energy demand by the mid-2020s, driven by robust expansion in clean energy sources. Even a slight reduction in China's growth rate could significantly impact global coal, oil, and LNG imports. Previously expected increases in oil and gas investments have been revised due to a stronger emphasis on clean energy. However, current investments in fossil fuels exceed what is necessary for climate goals, posing a risk of prolonged fossil fuel use. Simply reducing spending on oil and gas won't achieve the Net Zero Emissions (NZE) Scenario. Instead, scaling up investment in clean energy systems is crucial for a smooth transition. Policies that retire polluting assets and limit new ones can help, but the urgent need is to accelerate clean energy projects, especially in emerging economies. These regions require a significant increase in investment to meet NZE Scenario targets. In India, Southeast Asia, and Africa are driving energy demand growth, and meeting this demand with low-emission options is essential. Solar energy, particularly solar photovoltaic (PV), is expected to dominate new power capacity additions globally, but further investment and infrastructure enhancements are needed to maximize its impact. Despite China's dominance in solar panel manufacturing, global deployment requires robust trade support. Addressing these challenges is crucial for achieving net-zero goals and accelerating the transition to clean energy. Using 70 per cent of projected solar PV manufacturing capacity could align deployment with NZE Scenario projections, significantly reducing fossil fuel use, particularly coal. In a sensitivity case, adding over 800 GW of new solar PV annually by 2030 could further cut coal-fired generation by 20 per cent compared to current projections, dramatically impacting global coal use. Starting in 2025, a surge in new LNG projects is expected, potentially easing concerns about the natural gas supply.

However, this increased supply coincides with slowing global gas demand growth, posing challenges for market absorption, particularly in mature markets like Europe. The Middle East remains a focal point for oil markets, with seaborne crude oil trade to Asia expected to rise significantly by 2050. The recent global energy crisis underscored the need for rapid, people-centred transitions to clean energy, with a focus on affordability, electricity security, and resilient supply chains. Deploying cost-effective clean technologies, especially in underserved communities and countries, is essential to mitigate future economic burdens. Diversification and innovation are key strategies to manage supply chain dependencies for clean energy technologies and critical minerals. While efforts to strengthen clean energy supply chains are underway, it will take time to see results. Investments in critical minerals exploration and production are increasing globally, but the dominance of top producers remains largely unchanged. Proven policies and technologies exist to align energy security and sustainability goals, but urgent action is needed to limit global temperature rise. The current trajectory points to a peak in energy-related CO<sub>2</sub> emissions in the mid-2020s, pushing global temperatures to around 2.4°C by 2100. To bend the emissions curve downwards, tripling renewable energy capacity, doubling energy efficiency improvements, electrification, and reducing methane emissions is key. Collaboration among nations is essential to address climate risks, especially in today's geopolitical climate. Governments must uphold international cooperation on energy and climate, embrace a rules-based trade system, and promote innovation and technology transfer to limit global temperature rise to 1.5°C. Fifty years after the first oil shock, lasting solutions to energy insecurity and climate crisis exist. Energy decision-makers now have a broader range of competitive clean technologies and policy experience to accelerate their deployment. The crucial step is to implement these solutions effectively.

## X. International Energy Agency: Oil Market Report 2023

Evidence of demand destruction is appearing with preliminary September data showing that US gasoline consumption fell to two-decade lows. Buoyant demand growth in China, India and Brazil, nevertheless underpins an increase of 2.3 mb/d to 101.9 mb/d in 2023, of which China accounts for 77 per cent. Growth slows to 900 kb/d in 2024, as efficiency gains and a deteriorating economic climate weigh on oil use. World oil output rose 270 kb/d in September to 101.6 mb/d, led by higher production from Nigeria and Kazakhstan. The Israel-Hamas conflict has not had any direct impact on oil flows. Driven by non-OPEC+ growth, global output will increase by 1.5 mb/d and 1.7 mb/d in 2023 and 2024, respectively, to new record highs. Overall OPEC+ output is set to decline in 2023, although Iran may rank as the world's second-largest source of growth after the United States. Refinery margins fell sharply from near-record levels throughout September and into October, as gasoline and fuel oil cracks collapsed, but overall remained above the seasonal average. Global refinery throughput rates reached a summer peak of 83.6 mb/d in August, underpinned by record Chinese runs. Refinery crude runs are expected to rise by 1.7 mb/d in 2023 and by 1 mb/d next year. Global observed oil inventories tumbled by 63.9 mb in August, led by a massive 102.3 mb draw in crude oil stocks. Preliminary data suggest that on-land inventories continued to draw in September, while oil on water rebounded as exports recovered. OECD industry stocks fell counter-seasonally by 6.5 mb in August to 2 816 mb, a substantial 105.3 mb below the five-year average. Russian oil export revenues surged by \$1.8

bn to \$18.8 bn in September, their highest since July 2022. Total oil exports rose by 460 kb/d to 7.6 mb/d, with crude oil accounting for 250 kb/d of the increase. The weighted average crude export price rose by \$8/bbl to \$81.80/bbl, narrowing its discount to North Sea Dated to \$12.20/bbl, its lowest since March 2022. ICE Brent crude oil futures rose by \$4/bbl after Hamas attacked Israel on 7 October as traders reassessed geopolitical risks. Tightening balances following Saudi Arabia's extension of voluntary supply cuts had sent prices up by \$8/bbl in September. However, gains subsequently dissipated in early October as renewed macro concerns took hold. At the time of writing, Brent traded at \$87/bbl.

## XI. Intergovernmental Panel on Climate Change: 2023 Synthesis Report

Human activities, particularly greenhouse gas emissions, have unequivocally caused global warming, with temperatures reaching 1.1°C above pre-industrial levels by 2011–2020. Climate change is already impacting weather extremes worldwide, leading to adverse effects on food security, water availability, human health, economies, and ecosystems. Vulnerable communities, historically less responsible for emissions, bear the brunt of these impacts. Efforts to address climate change are accelerating globally, with rising national commitments and public awareness. Mitigation policies have led to decreased global energy intensity, with affordable low-emission technologies available across various sectors. Adaptation planning has yielded benefits, but finance for mitigation and adaptation falls short of requirements. Despite progress, there are gaps between global ambitions and national commitments, hindering effective climate action. Mitigation targets set by countries are insufficient to limit warming below critical thresholds. Adaptation efforts face challenges due to funding constraints, knowledge gaps, and inadequate implementation. Future warming will exacerbate climate risks across all regions, with impacts surpassing current levels. Adaptation options will become increasingly limited with rising temperatures, necessitating urgent and comprehensive action. Achieving net-zero emissions is imperative to limit warming and reduce risks, with mitigation and adaptation efforts crucial for sustainable development. Accelerated mitigation and adaptation actions are needed to mitigate climate risks and safeguard human well-being and ecosystems. Immediate implementation of adaptation measures is essential to address current and future challenges. These actions, while requiring upfront investments and changes, offer significant co-benefits and enhance resilience to climate change impacts. Various climatic and non-climatic risks interact, posing complex challenges. Losses and damages rise with global warming, hitting vulnerable populations hardest. Unsustainable development increases exposure to climate hazards. Prioritizing equity drives sustainable outcomes. Immediate adaptation is crucial for vulnerable communities. Rapid, widespread transitions are needed for lasting emissions reductions. Feasible mitigation and adaptation options exist, aligning with Sustainable Development Goals. Political will, finance, and technology are essential for effective action. Multi-sectoral approaches offer synergistic benefits for human well-being and environmental health.

## XII. United Nations Environment Programme: Emissions Gap Report 2023

Published ahead of COP 28, this Emissions Gap Report annually evaluates the disparity between pledged greenhouse gas reductions and those needed to meet the Paris Agreement's temperature goals. It aligns with the global stocktake's purpose, occurring every five years, to assess the world's response to climate change. To guide COP 28 discussions and shape future NDCs, this report emphasizes the urgency of strengthening mitigation efforts in this decade and beyond. Failure to reduce emissions below current NDC levels will hinder achieving the Paris Agreement's targets. High-income nations must accelerate emissions reductions and support low- and middle-income countries in transitioning away from fossil fuels. Additionally, the report highlights the growing emissions from sectors like fossil fuel combustion and industrial processes, emphasizing the need for urgent action to curb global warming.

The latest Emissions Gap Report, preceding COP 28, reveals a 1.2 per cent increase in GHG emissions across the G20 nations, with notable variations among members. While emissions rose in China, India, Indonesia, and the USA, they decreased in Brazil, the European Union, and the Russian Federation. Despite a surge in primary energy consumption met by coal, oil, and renewable electricity, gas consumption declined by 3 per cent due to the energy crisis and the Ukraine war. However, fossil fuel investments persist globally, challenging emission reduction goals. Per capita, territorial emissions vary greatly, with some countries surpassing the world average by double or more. High-income nations must accelerate emissions reductions and aid low- and middle-income countries in transitioning from fossil fuels. The report underscores the widening emissions gap, highlighting the necessity for more ambitious NDCs. While progress has been made since the Paris Agreement, the gap remains substantial. A continuation of current policies would result in significant emissions increases, further exacerbating climate change. Urgent global action is needed to limit warming to 2°C, with a 66 per cent chance, as per the most optimistic scenario of fulfilling all conditional NDCs and net-zero pledges. Low- and middle-income countries face challenges balancing development with transitioning away from fossil fuels. While addressing basic energy needs for the impoverished is crucial, it won't suffice to curb emissions. Access to affordable finance is vital, with capital costs in these nations far higher than in wealthier ones. International financial aid must be, directed towards low-income countries through mechanisms that lower capital costs. Tailored national low-carbon development strategies focusing on key sectors like housing and transport are essential. Strengthening domestic energy and climate institutions and fostering stakeholder engagement are also vital. Immediate and robust emissions reductions are necessary, alongside increasing carbon dioxide removal (CDR) efforts. CDR, including conventional land-based methods and novel techniques, must be scaled up significantly to meet future demands.

## XIII. International Energy Agency: CO2 Emissions 2023

In 2023, global energy-related CO<sub>2</sub> emissions experienced a 1.1 per cent increase, rising by 410 million tonnes (Mt) to hit a record high of 37.4 billion tonnes (Gt). This marks a slight decrease compared to the 1.3 per cent increase of 490 Mt observed in 2022. The surge in emissions from coal contributed to over 65 per cent of the increase in 2023. Droughts causing a global hydropower generation shortfall led to a rise in emissions by approximately 170 Mt. Excluding this factor, emissions from the global electricity sector would have decreased in 2023. Over the period from 2019 to 2023, total energy-related emissions saw a rise of around 900 Mt. However, the deployment of five key clean energy technologies—solar PV, wind, nuclear, heat pumps, and electric cars—has mitigated emissions growth, which would have been three times higher without their adoption. This trend reflects a structural slowdown in emissions growth, with global emissions increasing by slightly over 0.5 per cent annually over the decade leading up

to 2023, the slowest rate since the Great Depression. Despite a 1.7 per cent growth in advanced economy GDP, emissions declined by a record 4.5 per cent, marking the largest decrease outside of a recessionary period. Emissions have returned to levels seen fifty years ago, with coal demand in advanced economies reverting to levels around 1900. Structural and cyclical factors contributed to the 2023 decline in advanced economy emissions, including increased renewables deployment, coal-to-gas switching in the US, and subdued industrial production in certain regions alongside milder weather. China experienced the largest global increase in emissions, growing by around 565 Mt in 2023, reflecting continued emissions-intensive economic growth post-pandemic. However, China remained a leader in global clean energy additions. Cyclical effects, such as a historically poor hydro year, contributed to about one-third of China's emissions growth in 2023. Per capita emissions in China now exceed those in advanced economies by 15 per cent. In India, robust GDP growth drove emissions up by approximately 190 Mt, with a weak monsoon increasing electricity demand and reducing hydro production, contributing about one-quarter of the total emissions increase in 2023. Per capita emissions in India remain below the global average.

#### **XIV. United Nations Environment Programme: Adaptation Gap Report 2023**

The adaptation finance gap – the difference between estimated adaptation financing needs and costs and finance flows - has grown over the past. The adaptation gap is likely 10-18 times as great as current international adaptation finance flows — at least 50 per cent higher than previous range estimates. The current adaptation finance gap is now estimated at USD 194-366 billion per year. Of the international public finance for adaptation that is also tagged with gender equality as a principal objective, only 2 per cent is assessed as gender-responsive, with a further 24 per cent considered gender-specific or integrative. This report has suggested several ways to enhance financing, they are: Domestic expenditure and private finance are potentially important sources of adaptation finance where domestic budgets are likely to be a large source of funding for adaptation in many developing countries, ranging from 0.2 per cent to over 5 per cent of government budgets. There is also fragmented evidence of increasing private-sector adaptation interventions all over the world and in most sectors such as water, food and agriculture; transport and infrastructure; and tourism. 'Internal Investments' by large companies, financial institutions' provision of finance for activities that contribute to adaptation, and companies' provision of adaptation goods and services are much needed. Also, the options of Corporate Social Responsibility can be explored in India for achieving climate financing and adaptation goals. The report calls for a reform of global financial architecture, to ensure greater and easier access to finance for climate-related purposes from multilateral agencies the World Bank or the International Monetary Fund (IMF) after it has become evident that current levels of international financial flows for fighting climate change are highly inadequate.

#### **XV. International Energy Agency: Energy Efficiency 2023**

Energy Efficiency 2023 serves as the IEA's primary annual assessment of worldwide developments in energy efficiency markets and policies. It delves into recent patterns in energy intensity, demand, investment in efficiency, policies, and technology. This tenth edition of the market report includes a new section spotlighting key issues confronting policymakers this year. Specifically, it outlines the implications of the proposed global objective to double energy efficiency progress and the potential benefits of achieving it. Against the backdrop of ongoing energy and climate challenges, expected to make 2023 the hottest year on record, global energy efficiency progress, measured by primary energy intensity, is projected to slightly lag behind the long-term trend, marking a slowdown from 2022. Nevertheless, the report emphasizes a significant shift occurring in energy efficiency and clean energy more broadly, with numerous governments introducing new policies or reinforcing existing ones, leading to accelerated adoption of efficient technologies. These measures are contributing to the anticipated peak in fossil fuel demand in the coming years.

#### **XVI. REN 21 – Renewable 2023 Global Status Report**

In 2022, energy markets faced volatility due to global events like the COVID-19 rebound and the Ukraine conflict, leading to soaring oil and gas prices and subsequent inflation. Governments responded with initiatives like the EU's RePowerEU and the US Inflation Reduction Act to promote energy efficiency and renewables. Extreme weather events underscored climate change concerns, prompting increased fossil fuel subsidies and coal use in the short term. Despite rising prices, progress towards universal energy access slowed, with millions projected to lose electricity access and resort to traditional biomass for cooking. Renewables made modest gains, comprising 7.5 per cent of primary energy, but fossil fuels still dominated at 82 per cent. Energy-related greenhouse gas emissions rose by 1 per cent, reaching a record 41.5 gigatonnes of CO<sub>2</sub> equivalent, driven largely by energy combustion. However, the power sector saw a slight decrease in emissions intensity globally, attributed to the growth of wind and solar power.

The electrification of various sectors saw significant growth, with the share of electricity in total final energy consumption rising from 15.3 per cent in 2010 to 18.9 per cent in 2020. Agriculture led in electrification at 26.7 per cent, followed by industry (25.3 per cent) and buildings (23.6 per cent), while transport lagged at 1.4 per cent. This shift toward electricity allowed for greater integration of renewable energy sources, with newly installed renewable power capacity rising by 10 per cent in 2022. Electric vehicle sales surged, but charging infrastructure expansion needs acceleration. The renewable share in global electricity generation increased to 29.9 per cent in 2022, with wind and solar power making up 12 per cent. Employment in renewable energy rose to 12.7 million worldwide in 2021, with significant growth projected in hands-on roles for wind and solar plant development. Major policy developments in 2022, like the US Inflation Reduction Act and EU's Fit for 55, emphasized renewable energy investment. Despite high fossil fuel prices due to geopolitical events, subsidies surpassed USD 1 trillion globally, hindering the competitiveness of low-emission alternatives. Globally, new investment in renewable power and fuels reached USD 495.4 billion in 2022, a 17.2 per cent increase from the previous year.

Since 2011, a growing number of institutions globally have divested from fossil fuel companies, totalling around 1,559 institutions with assets of approximately USD 40.5 trillion by October 2022. However, there were fewer new divestment announcements in 2022 compared to the rush leading up to COP 26 in 2021. Sustainable finance taxonomies categorize economic activities to distinguish sustainable or "green" investments from others, with the number of such taxonomies increasing rapidly since the signing of the Paris Agreement in 2015. Green bonds, which earmark proceeds for renewable energy or climate projects,

saw USD 649 billion issued in 2022, a 7 per cent decline from 2021, except for Asia, where issuance grew by 8 per cent. China leads Asia, accounting for 67 per cent of green bonds issued. Despite a decline in total green bonds in Europe, the region remains the largest issuer. The use of Environmental, Social, and Governance (ESG) criteria has shifted from niche to mainstream finance, with net inflows into ESG funds totalling USD 89 billion in 2022, down from USD 405 billion in 2021 due to various factors such as fund relabelling, stricter standards, and debates on ESG definitions.

## XVII. United Nations: Global Sustainable Development Report 2023

The 2023 Global Sustainable Development Report illuminates transformative processes and practices essential for transitioning from commitment to action and from declaration to delivery. It delineates necessary shifts not only in energy sources, consumption patterns, and supply chains but also in values, attitudes, and perceptions. Utilizing up-to-date data and scientific perspectives, the report presents an innovative approach to contemplate and pursue these changes and solutions, aiming to actualize a new, more sustainable paradigm. The report emphasizes the crucial role of science and evidence-based measures in mitigating uncertainty and confronting global issues such as poverty eradication, hunger alleviation, climate change mitigation, biodiversity conservation, and inequality reduction. It highlights that collective knowledge empowers us to navigate towards a brighter future. Multidisciplinary, inclusive, openly shared, and socially relevant science forms the cornerstone for the necessary transformations the world requires.

In 2015, the UN adopted the 2030 Agenda and its 17 Sustainable Development Goals (SDGs) to address global challenges. Yet, as we reach the halfway mark, progress has slowed, warning of the urgent need for transformative change to avoid regressing on previous advancements. The SDGs cover various aspects of life and development, aiming to tackle poverty, hunger, diseases, gender empowerment, and environmental crises. Achieving these goals demands determination, shared responsibility among governments, and global solidarity. The 2019 Global Sustainable Development Report painted a bleak picture of progress towards the Sustainable Development Goals (SDGs), indicating that achieving them by 2030 was unlikely on the current trajectory. While some targets showed progress, such as child mortality and primary school enrolment, many others required accelerated efforts, especially in eradicating poverty and hunger, reducing maternal mortality, improving access to water and sanitation, and advancing gender equality. Furthermore, concerning trends emerged, with setbacks observed in climate action, biodiversity conservation, and inequality reduction. As of 2023, halfway to the 2030 deadline, the situation has worsened considerably.

At the midpoint of the 2030 Agenda, progress towards the Sustainable Development Goals (SDGs) remains significantly off track, with projections suggesting that meeting them by 2030 is unlikely. Nonetheless, there's room for action from United Nations Member States, local governments, businesses, and others to shape a more sustainable future. This chapter examines the evolving landscape of sustainable development, highlighting key trends and conditions shaping SDG prospects. It also discusses ongoing efforts and governance surrounding the SDGs, emphasizing their resilience as a framework for sustainable development. Finally, it explores emerging insights into sustainable pathways unlocked by the SDGs. The Sustainable Development Goals (SDGs) won't be met with business as usual. Global scenarios suggest achievable pathways, but reaching these goals demands ambitious policies and integrated efforts. By focusing on six key transformations, countries can accelerate progress. This chapter outlines interventions drawn from scenario projections, emphasizing the need for simplicity, prioritization, and practical approaches to drive rapid gains.

As the deadline for achieving the Sustainable Development Goals (SDGs) approaches, there's a growing need for practical guidance to speed up progress. While it's not feasible to provide detailed evidence for achieving each of the 17 Goals in every country, some numerous interventions and approaches can yield positive results. Each country has its unique circumstances, making context essential. Global scenario projections offer valuable insights into how progress towards the Goals can be accelerated by 2030. This chapter revisits the framework of entry points and levers introduced in the 2019 Global Sustainable Development Report, aligning them with scenario projections to identify integrated and transformative actions. Finally, it outlines decisive shifts and ambitious interventions for each entry point, which governments and other stakeholders can implement to hasten progress on the Goals.

History teaches us that change is inevitable, but it can also be guided towards positive outcomes through human determination. To achieve the Sustainable Development Goals (SDGs) by 2030, governments and communities worldwide must take bold and unprecedented action. This involves strategically advancing promising solutions through stages of emergence, acceleration, and stabilization, following an S-curve trajectory. Despite facing multiple crises, these challenges can create opportunities for ambitious action when the interlinkages between the Goals are considered. Transformative initiatives must be inclusive, engaging diverse actors globally to ensure that no one is left behind. Over the past two centuries, societies have undergone rapid transformations in areas such as human rights, the economy, health, technology, and living standards. For instance, in the nineteenth and twentieth centuries, many countries expanded education and social welfare systems, with some moving towards universal healthcare and social security. The Green Revolution of the 1970s further transformed farming practices, leading to increased crop yields and reduced undernutrition. However, this transformation also had drawbacks, including leaving many smallholders and women farmers disadvantaged and negatively impacting soil, water, biodiversity, and nutrition due to intensive farming practices.

The scientific method, grounded in observation and hypothesis testing, plays a crucial role in reducing uncertainty, identifying tipping points, and accelerating the adoption of innovations. It also provides evidence to counteract negative pathways and paradigms hindering progress. However, in today's era of rapid information sharing facilitated by the Internet, there are challenges such as the spread of false information by malicious actors or the uninformed. To address these challenges and foster meaningful change towards sustainable pathways, science must be socially robust and inclusive. Collaboration among scientists, policymakers, and various social actors is essential to build trust, establish a scientific foundation for achieving the Sustainable Development Goals (SDGs), and effectively communicate findings to society. Socially robust science is pivotal in advancing human well-being across the phases of the transformation S-curve, as it reduces uncertainty, identifies tipping points, and lays the groundwork for future advancements. While science doesn't provide direct policy solutions, it offers fundamental knowledge and evidence to inform policy decisions. Moving forward, the production of scientific knowledge should be responsive to societal contexts, ensuring transparency and participation in its development and application.

Despite recent challenges and setbacks, the 2030 Agenda for Sustainable Development remains a vital framework for a better future. This report emphasizes the urgent need for science-driven transformations to advance progress towards the Sustainable Development Goals (SDGs). At the halfway mark of the 2030 Agenda, all nations must reinvigorate their efforts to foster SDG-aligned transformations. This entails identifying impactful interventions with systemic effects across the Goals, increasing investment, mobilizing knowledge from scientists, practitioners, and communities, and enhancing policy learning and accountability. While Goals and targets are important, implementation and compliance remain weak. Collective action is crucial in driving sustainable development forward, requiring ambitious public policies, stakeholder consultation, and coalition building. Additionally, international cooperation is essential, especially for the poorest and most vulnerable countries, to support recovery from the pandemic and other crises and to build resilience against future shocks and climate risks. Global solidarity and cooperation are vital for human security and the creation of an inclusive, equitable, and peaceful world. Although achieving all Goals and targets by 2030 is challenging, every step of progress matters, and it must be pursued globally, ensuring that no country, society, or individual is left behind.

### **XVIII. World Health Organisation: World Health Statistics 2023**

Since the turn of the millennium, there have been significant global health improvements, with child mortality halving, maternal mortality decreasing by a third, and declines in infectious diseases like HIV, tuberculosis, and malaria. Global life expectancy has risen from 67 to 73 years by 2019, reflecting enhanced access to health services and reduced exposure to health risks such as tobacco and undernutrition. However, progress has slowed since 2015, challenging the timely achievement of SDG targets by 2030. Reduction rates in maternal and child mortality, as well as premature mortality from major non-communicable diseases (NCDs) and injuries, have declined. Despite efforts, exposure to health risks like alcohol consumption and hypertension remains high, with obesity prevalence increasing. Access to health services has expanded at a slower pace, and financial hardship due to healthcare costs persists, exacerbating inequalities. The COVID-19 pandemic has exacerbated these challenges, resulting in 14.9 million excess deaths globally and significant life years lost. Additionally, infectious diseases and antimicrobial resistance pose ongoing threats, while climate change continues to impact physical and mental health. To meet SDG targets by 2030, concerted efforts are needed to address preventable injuries, maternal and child deaths, and NCDs, and ensure equitable access to essential health services while containing healthcare costs.

### **XIX. World Meteorological Organization: United in Science 2023**

This report seeks to demonstrate how advancements in weather, climate, and water sciences can contribute to goals such as ensuring food and water security, promoting clean energy, improving health, fostering sustainable oceans, and building resilient cities. Despite global surface temperatures reaching 1.15 °C above pre-industrial levels (1850–1900) during 2013–2022, greenhouse gas emissions continue to climb. Urgent and bold action is imperative to both mitigate global warming and adapt to the adverse effects of climate change and extreme weather events, which disproportionately affect vulnerable communities and jeopardize the attainment of the Sustainable Development Goals (SDGs). We find ourselves at a critical juncture in history – the midway point toward achieving the 2030 Agenda for Sustainable Development. With only 15 per cent of the SDGs making progress, we are halfway through the game but far from reaching the global climate objectives. The latest Sustainable Development Goals Report 2022 emphasizes the escalating impacts of climate change and extreme weather events, as well as other interconnected global challenges, hindering development advancements and endangering the full realization of the SDGs by 2030. As we approach halftime for the 2030 Agenda, the evidence is unequivocal – the world is significantly off course in meeting its climate targets. The repercussions of extreme weather and climate change are impeding progress across all SDGs. Leveraging advancements in weather, climate, and water sciences can elevate our efforts to achieve the SDGs. As the match nears its conclusion, investing in and mobilizing the scientific community will turbocharge the pursuit of the SDGs.

Drawing from the insights of the Global Sustainable Development Report 2023, which underscores the pivotal role of science in expediting the realization of the SDGs, *United in Science 2023* offers a comprehensive overview of the latest advancements in weather, climate, and water sciences and services aimed at sustainable development. While these scientific disciplines and services are fundamental to achieving all SDGs, this report focuses on eight specific goals due to constraints on scope, chosen based on their direct connections to these fields.

**SDG 2: ZERO HUNGER** - Estimates suggest that by 2030, close to 670 million individuals could still confront hunger, partly attributed to the heightened frequency and severity of extreme weather occurrences, disrupting all aspects of food security: availability, access, utilization, and stability. Weather, climate, and water sciences are fundamental in providing services that empower farmers to make informed decisions, thus bolstering food and nutrition security. To effectively advance SDG 2, substantial global investments in these sciences and services across agrifood value chains are imperative.

**SDG 3: GOOD HEALTH AND WELL-BEING**- Interdisciplinary research plays a crucial role in examining, tracking, and tackling health risks influenced by climate and the impacts of climate change on the healthcare sector. Projections indicate a substantial rise in illness and premature deaths due to climate change and extreme weather events, leading to heightened exposure to heat waves and related health issues. It is essential to increase investments in healthcare systems that are resilient to climate change and have low carbon emissions while advancing towards universal health coverage (UHC) to meet the objectives of SDG 3.

**SDG 6: CLEAN WATER AND SANITATION**- The impacts of climate change are worsening water-related dangers and disrupting the planet's water cycle, posing challenges to achieving SDG 6. Over 60 per cent of nations struggle with insufficient and diminishing hydrological monitoring capacities. Enhanced scientific cooperation, increased financial support, and improved exchange of data and information are essential for policymakers to make well-informed decisions and expedite the progress of SDG 6.

**SDG 7: AFFORDABLE AND CLEAN ENERGY**- Extreme weather events and human-caused climate change jeopardize the attainment of SDG 7 by disrupting energy supply capacity and altering demand patterns, thus complicating the transition to clean



energy and potentially increasing costs. Enhanced provision of timely and precise weather, climate, and water-related data, science, and services can facilitate the realization of SDG 7 by enhancing energy planning and operations. However, obstacles persist, including issues with data quality, limited availability of certain data types and tools, restricted access to data, and affordability challenges related to data and services.

**SDG 11: SUSTAINABLE CITIES AND COMMUNITIES** - Cities contribute significantly to global greenhouse gas (GHG) emissions and are particularly susceptible to the effects of climate change and extreme weather events, posing a challenge to the realization of SDG 11. Integrated urban services encompassing weather, climate, water, and environmental factors, informed by cutting-edge scientific knowledge, play a crucial role in advancing SDG 11 objectives. Essential components of these services include observations, high-resolution forecasting models, and multi-hazard early warning systems, providing cities with the necessary tools to address climate-related risks and enhance resilience.

**SDG 13: CLIMATE ACTION** - The buildup of heat in the climate system due to human emissions of greenhouse gases (GHGs) has led to significant and swift transformations in the atmosphere, ocean, cryosphere, and biosphere. These changes pose a risk of undoing the advancements made towards attaining all the SDGs. Weather-, climate-, and water-related sciences play a crucial role in supporting ambitious climate actions and the mobilization of climate finance, especially in less affluent nations. Engaging stakeholders, including through initiatives like citizen science, offers a pathway to enhance weather-, climate-, and water-related sciences, thereby facilitating progress towards SDG 13.

**SDG 14: LIFE BELOW WATER**- The impacts of climate change and human activities are jeopardizing our oceans, disrupting marine ecosystems and the well-being of coastal communities dependent on them for sustenance and livelihoods. Ocean science focused on climate-related phenomena deepens our comprehension of these impacts and aids in the development of sustainable management and conservation measures for marine ecosystems. The United Nations Decade of Ocean Science for Sustainable Development presents an unparalleled chance to galvanize the scientific community and expedite research on ocean-related matters.

**SDG 17: PARTNERSHIPS FOR THE GOALS** - Fifty per cent of countries lack multi-hazard early warning systems (MHEWSs), and even where they are present, there are substantial gaps in coverage. Weather-, climate-, and water-related sciences are crucial for robust MHEWSs, as they deepen the understanding of hazards, assess associated risks, and enable hazard detection, monitoring, and forecasting. Collaborative efforts involving various stakeholders, including the weather, climate, and water science communities, are vital for ensuring Early Warnings for All and advancing SDG attainment.

## XX. COP 28 - 2023

This summary document provides an overview of the key outcomes of global climate action across the four pillars set by the COP 28 Presidency: i) fast-tracking a just, orderly, and equitable energy transition; ii) fixing climate finance; iii) focusing on people, lives and livelihoods; and iv) underpinning everything with full inclusivity.

**Fast-tracking a just, orderly, and equitable energy transition:** Achieving the 1.5°C goal requires a rapid shift to clean energy while ensuring fairness, equity, and energy security. The COP 28 Presidency spearheaded the Global Renewables and Energy Efficiency Pledge, with 130 national governments committing to triple renewable energy capacity and double energy efficiency improvements by 2030. Other initiatives, such as the Global Cooling Pledge, Mutual Recognition of Certification Schemes for Low-Carbon Hydrogen, Oil and Gas Decarbonization Charter, and Industrial Transition Accelerator, aim to reduce emissions across various sectors. Additionally, announcements from the Powering Past Coal Alliance, Coal Transition Accelerator, Declaration to Triple Nuclear Energy, and Utilities for Zero Alliance demonstrate global collaboration in advancing energy transition. The High-Level Champions have also played a pivotal role, launching initiatives like the Cement and Concrete Breakthrough, expanding the Race to Zero Campaign, and promoting zero-emission shipping through initiatives like Cargo Owners for Zero Emission Vessels and the Green Maritime Africa Coalition. Lastly, countries in the Latin American and Caribbean Renewables Hub have raised their renewable energy targets to 80 per cent of total electricity generation by 2030.

**Fixing climate finance:** While securing substantial public and private finance is essential, COP 27 recognized the necessity of addressing the debt burden of developing nations and reforming the global financial framework. At COP 28, numerous countries and organizations pledged support for climate finance initiatives such as the Green Climate Fund and Adaptation Fund. Under the COP 28 Presidency, 13 nations endorsed the UAE Leaders' Declaration on a Global Climate Finance Framework, aiming to unlock investment opportunities through collective action. The High-Level Champions highlighted progress in climate finance collaboration, including the publication of Assets to Flows II and the endorsement of the Joint Declaration and Task Force on Credit Enhancement of Sustainability-Linked Sovereign Financing. Additionally, a Call for Collaboration on private finance mobilization for adaptation was issued, and the Global Capacity Building Coalition was formed to enhance climate finance technical assistance programs. The Net-Zero Export Credit Agencies Alliance, supported by eight export credit agencies, aims to decarbonize global trade. Actions for finance for nature include the launch of the Nature Solutions Hub for Asia and the Pacific by the Asia Development Bank, focusing on scaling up finance for nature conservation in the region.

**Focusing on people, lives and livelihoods:** The escalating temperatures and climate-related disasters underscore the urgent need for heightened adaptation and resilience efforts, particularly in vulnerable communities. The Sharm el-Sheikh Adaptation Agenda (SAA), initiated at COP 27, has been driving this action, outlining over 30 global targets for increased resilience by 2030. The first implementation report, released during COP 28, examines progress and challenges, highlighting new Adaptation Outcomes on health, food, and agriculture, as well as nature-based solutions. COP 28 also saw significant financial commitments, with 78 national governments and 40 organizations endorsing the UAE Declaration on Climate Relief, Recovery, and Peace, aiming to bolster support for climate adaptation and resilience. Additionally, initiatives like the COP 28 Joint Statement for Climate, Nature, and People and the Nature Positive for Climate Action Call further emphasize the importance of integrating nature into climate resilience efforts. Notable progress was also made in forest conservation, with countries announcing national packages for forest, climate, and nature preservation. Meanwhile, the Race to Resilience campaign and the Early Warning for All initiative continue to

mobilize stakeholders and improve resilience efforts globally. The COP 28 Presidency's Local Climate Action Summit, along with the formation of the Coalition for High Ambition Multilevel Partnership (CHAMP), further underscores the multilevel approach required for effective climate action. Finally, the launch of Breakthroughs, such as the Buildings Breakthrough, aims to make zero-emission buildings the norm by 2030, signalling a significant step forward in climate resilience efforts.

**Underpinning everything with full inclusivity:** As emphasized in this document, climate change disproportionately affects vulnerable communities and marginalized groups, highlighting the need for inclusive representation in UN processes. Ahead of COP 28, the COP 28 Presidency and the Executive Secretary of the UNFCCC pledged to make COP 28 the most inclusive conference yet. The appointment of the Youth Climate Champion and the convening of the Dubai Youth Dialogue underscored efforts to amplify youth voices. Gender equity was prioritized with the launch of the COP 28 Gender-Responsive Just Transitions and Climate Action Partnership, aiming to advance gender equality in climate initiatives. Additionally, COP 28 focused on Indigenous Peoples' inclusion, launching the Podong Indigenous Peoples Initiative to ensure direct funding to Indigenous communities. Capacity-building events like the 'Capacities for Rights-based Climate Action Day' and the 'Private Finance Capacities Day' aimed to enhance participation from diverse stakeholders. Technological innovation, highlighted through the AI Innovation Grand Challenge, aimed to support climate action in developing countries. Sectors like sports, fashion, and entertainment also joined the conversation, showcasing initiatives to engage society in climate action. The Global Climate Action Awards recognized innovative climate initiatives led by young people worldwide, promoting sustainability and resilience in communities.

## XXI. G20 - 2023

India recently hosted the 18th G20 Summit with a theme centred around sustainable development. Despite initial disagreements, consensus was reached on the New Delhi Declaration. Key topics discussed included UN Sustainable Development Goals, climate action, green initiatives, multilateral financing, digital infrastructure, AI, and international taxation.

**Prime Minister Narendra Modi's diplomatic coup:** PM Modi sees the G20 Summit as pivotal for India's global influence. The outcomes are crucial for him ahead of the elections. India, leveraging its economic clout, secured unanimous support from all G20 members on the Ukraine issue. Modi, as chair, also pushed for UN Security Council reform, backed by the US. The Summit coincided with India's successful Chandrayaan-3 moon landing.

**G20 New Delhi Declaration:** The 2023 G20 New Delhi Leaders' Declaration saw unanimous approval of all 83 paragraphs, without footnotes or the Chair's Summary, a historic moment. It covered strategies for strengthening multilateral development banks, regulating cryptocurrencies, and enhancing financial inclusion while urging faster debt relief for vulnerable nations. On climate change, it emphasized mobilizing funds for clean energy technologies and increasing climate funding.

**African Union accepted as part of the G20:** At the Delhi G20 Summit, the African Union gained full membership, joining South Africa. India aims to secure a permanent UNSC seat and has positioned itself as a champion for developing nations. Seeking support, India invited Nigeria, Egypt, and Mauritius as 'Guest Countries' at the summit.

**Global leadership participating at the Delhi Summit of the G20:** President Azali Assoumani of the Union of Comoros, Chairperson of the African Union, attended along with various leaders. Chinese President Xi Jinping and Russian President Vladimir Putin were absent, represented by Premier Li Qiang and Foreign Minister Sergey Lavrov.

**India – Middle East – Europe Economic Corridor (IMEC):** During the G20 Summit in New Delhi, India, a coalition including the U.S., Saudi Arabia, the EU, the UAE, France, Germany, and Italy signed an MoU to create the India – Middle East – Europe Economic Corridor (IMEC). IMEC aims to improve transportation routes to boost economic development between Asia, the Arabian Gulf, and Europe, as part of the Partnership for Global Infrastructure Investment (PGII). IMEC is seen as a potential alternative to China's Belt and Road Initiative (BRI), which has been connecting global markets for a decade.

**Climate action:** At the G20 Summit, leaders failed to agree on phasing out fossil fuels, despite a UN report stressing its importance for reaching net-zero emissions. This disagreement, among nations responsible for 80 per cent of emissions, looms over upcoming climate talks in the UAE. However, they did commit to tripling global renewable energy capacity and peaking emissions by 2025. The New Delhi Declaration also urged a 43 per cent reduction in greenhouse gases by 2030 and endorsed various sustainability measures, including the Lifestyle for Environment initiative and addressing plastic pollution. The summit saw the launch of the Global Biofuel Alliance and bilateral meetings where PM Modi discussed issues like extremism in Canada and trade relations with leaders like President Biden and President Erdogan. The success of Chandrayaan-3 was praised, and discussions ranged from AI regulation to honouring Mahatma Gandhi at Rajghat.

## XXII. Conclusion

Organizations such as the World Bank, the United Nations Development Programme (UNDP), the International Energy Agency (IEA), the International Monetary Fund (IMF), the World Economic Forum (WEF), and the United Nations Environment Programme (UNEP) have been annually releasing various reports on specific developmental issues in low-income, middle-income, and high-income economies globally. By immersing oneself in these reports, a comprehensive understanding of numerous global issues can be attained. Subsequently, policymakers, politicians, and bureaucrats are able to create and implement regulations, policies, interventions, and adaptation strategies to manage and eliminate any challenges related to economic, social, political, cultural, environmental, technological, historical, and legal aspects. Therefore, it can be inferred that the insights presented in the report discussed in this manuscript may capture the interest of individuals with limited time to dedicate to reading reports in one sitting.

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