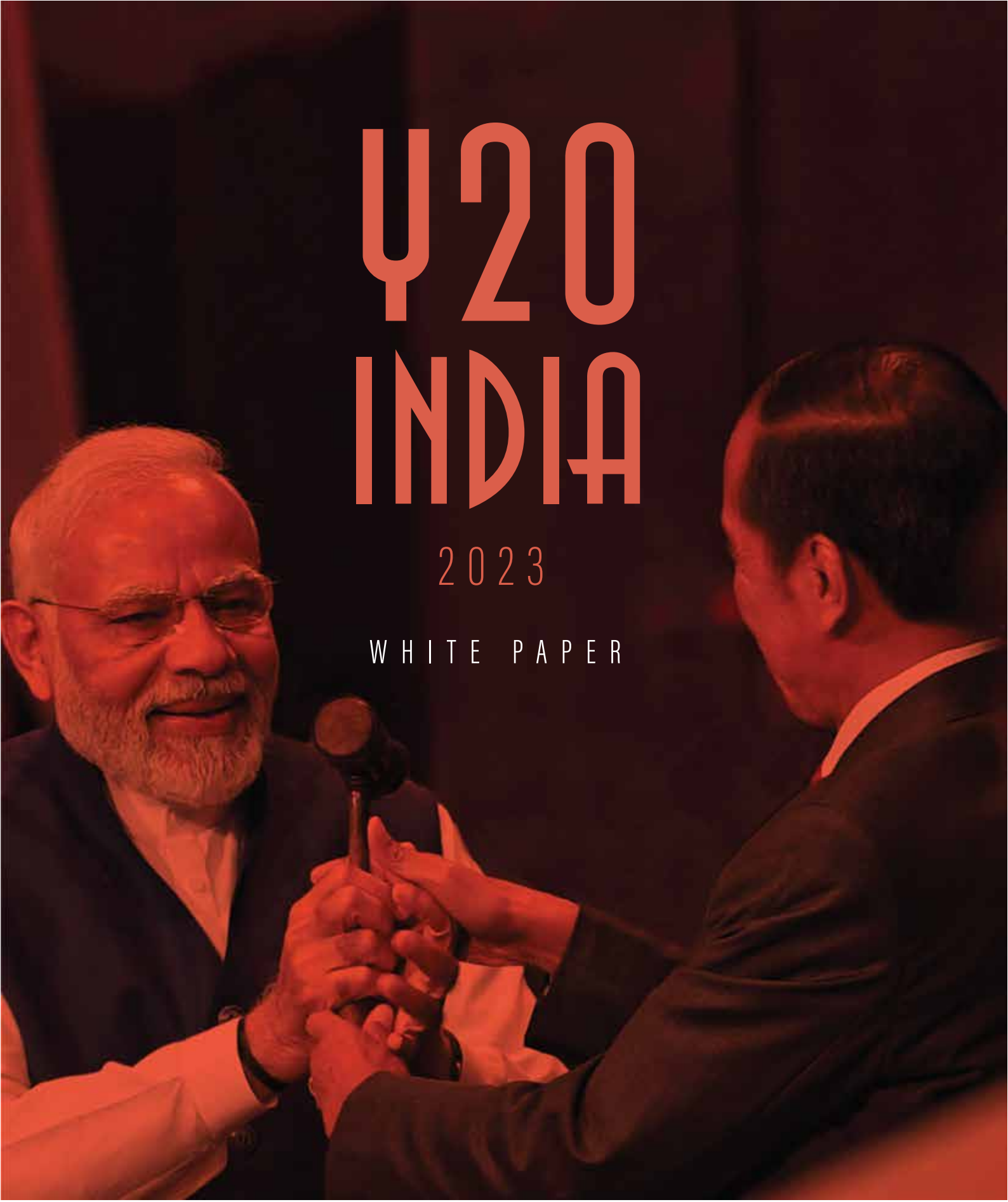




Y20 INDIA

2023

WHITE PAPER



Y20 INDIA 2023

CLIMATE CHANGE & DISASTER RISK REDUCTION

MAKING SUSTAINABILITY
A WAY OF LIFE



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Acknowledgement

This white paper is produced by Y20 India, the official Youth Engagement Group of the 2023 G20 Summit, with the support of the G20 Secretariat, the Ministry of External Affairs and the Ministry of Youth Affairs and Sports. We would like to express our heartfelt gratitude to Dr Vijay Chauthaiwale, Mentor Y20 India, for his valuable guidance and support. We also extend our heartfelt thanks to Dr Anirban Ganguly, Director, Dr Syama Prasad Mookherjee Research Foundation, for his pertinent insights and constant encouragement.

We gratefully acknowledge the interviewers, researchers, and speakers who assisted us in channelling our thoughts by supplying pertinent data and information, as well as literary contributors whose works, which have been already published or have been put up on accessible sources, have been incorporated in the present document. This paper is part of the efforts to include youths' perspectives on current issues of international importance. The white paper can be seen as a meaningful attempt to discuss the diverse perspectives of the concerned themes as well as suggestions that can be implemented.

The views contained in this paper are the sole responsibility of the authors. Any omissions, inaccuracies, or errors are our own. No endorsement is implied for any commercial entity or product mentioned in this publication.

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Executive Summary

Climate change is a burning issue of our time. Disasters, both natural and man-made are their consequences. Even after our best efforts to mitigate climate change, future generations might face negative consequences. This means an increase in the frequency and intensity of the disasters we are already witnessing - storms, floods, wildfires, droughts, and the resulting displacement and damage to human health, economies and businesses is imminent. We also need to adapt to the climate impacts that are already here and grow stronger by the day. For a better and more prosperous future, we need to profoundly balance the developmental matrix and ecological sustainment.

Fortunately, youth have been claiming the front lines as change agents, entrepreneurs, innovators, and leaders. With greater commitments made by nations to realise a sustainable world and global economy, through investments in critical mitigation and adaptation interventions, there is a significant opportunity for youth to become professionalised contributors to the ongoing 'green' recovery in play. Taking these aspects into consideration, Y20 India has included the theme "Climate Change and Disaster Risk Reduction: Making Sustainability a Way of Life" along with relevant sub-themes with an aim to drive meaningful deliberations on the need to accelerate our transition to sustainable living, work towards disaster risk mitigation and expedite our efforts towards finding greener energy alternatives. It becomes imperative to reflect on how modern lifestyle choices impact the world around us, and therefore evolve ways for everyone to live better and judiciously use resources around us. One of the most important ways of tackling climate change is investing in green energy and technologies, which hold the promise to boost sustainability, with this being a key step in the transition to a green economy.

These must be the core focus areas for action for the G20 members to strengthen climate action who are suitably placed to lead the battle against climate change and produce a radical but gradual transformation to how we have dealt with nature. This gives a great starting point to bring youth across G20 members to the centre stage of the discussion, to enable behaviour change, adopt sustainable choices and create the demand for creating infrastructure and enabling framework for sustainable lifestyle choices.



Glossary

- 1. Climate change:** Climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas.¹
- 2. Disaster risk reduction:** Disaster risk reduction is the policy objective of disaster risk management, and its goals and objectives are defined in disaster risk reduction strategies and plans.²
- 3. Green energy:** Green energy is any energy type that is generated from natural resources, such as sunlight, wind or water. It often comes from renewable energy³ sources although there are some differences between renewable and green energy. While most green energy sources are also renewable, not all renewable energy sources are considered entirely green.⁴
- 4. Climate shocks:** Climate shocks are unexpected events due to climate change that cause welfare losses.⁵ It generally relates to high damage, low resilience and stress on individuals.
- 5. Sustainable development:** Sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”, quoted World Commission on Environment and Development, 1987.⁶
- 6. COP 26:** The UN Climate Change Conference in Glasgow (COP26) was hosted by the UK in Glasgow between 31 October - 13 November 2021 to discuss the goals of the Paris Agreement and the UN Framework on Climate Change.⁷
- 7. Carbon footprint:** A carbon footprint is the total amount of greenhouse gases, including carbon dioxide and methane, that are released into the environment by someone’s actions.⁸
- 8. 2 degree celsius:** Intergovernmental Panel on Climate Change (IPCC) set the benchmark for 2 degree Celsius as the upper limit of global warming.⁹

¹UNITED NATIONS CLIMATE CHANGE, www.un.org/en/climatechange/what-is-climate-change (last visited Jan. 26, 2023).

²UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION, www.undrr.org/terminology/disaster-risk-reduction (last visited Jan. 26, 2023).

³THE WELDING INSTITUTE, <https://www.twi-global.com/technical-knowledge/faqs/what-is-green-energy> (last visited Jan. 26, 2023).

⁴NATIONAL GRID, <https://www.nationalgrid.com/stories/energy-explained/what-is-green-energy> (last visited Jan. 26, 2023).

⁵United Nations Development Programme, <https://hdr.undp.org/content/climate-shocks-and-their-impact-assets> (last visited Jan. 29, 2023).

⁶EUR-Lex, <https://eur-lex.europa.eu/EN/legal-content/glossary/sustainable-development.html> (last visited Jan. 29, 2023).

⁷United Nations, <https://www.un.org/en/climatechange/cop26> (last visited Jan. 29, 2023).

⁸The Nature Conservancy, www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/ (last visited Jan. 29, 2023).

⁹IPCC, <https://www.ipcc.ch/sr15/> (last visited Jan. 29, 2023).

THE GLOBAL LANDSCAPE Introduction



The opportunity to delve into the complex and interconnected issues surrounding climate change and disaster risk reduction is deep and profound. Climate-related disasters have almost doubled compared to the previous two decades¹⁰ and the world is on a path to an increase in temperature of over 2 degrees Celsius.¹¹ This will mean an increase in the frequency and intensity of the disasters we are already witnessing - storms, floods, wildfires, droughts, and the resulting displacement and damage to human health, economies, and businesses. It will also mean that the dire warnings outlined by the Intergovernmental Panel on Climate Change (IPCC) in its assessment report, will come true. Today, even if we manage to reduce our greenhouse gas emissions to zero, the impacts of climate change will still be with us for decades to come.

Climate shocks, especially in developing countries, fracture access to essential systems and services of water, sanitation, education, and healthcare.¹² These threats also damage physical, psychological and mental well-being, and affect distress arising from related instability and economic security. Climate change, environmental sustainability, and disaster risk reduction strategies are urgently required for mitigating further damage caused to the environment, climate, and people and for ensuring a more sustainable future for youth. To lead the transition to a sustainable future, it becomes imperative to consult youth that comprises 16 per cent of the global population, and draw on their perceptions, knowledge, and ideas and include their perspective and voices to redefine public policy for sustainable development.¹³

The G20's economic agenda is inextricably linked to a climate agenda as the damages being inflicted by rapid climate change are graver than previously understood. The G20 has acknowledged the need for a concerted international effort to address climate change and other environmental threats and to accelerate the adoption of energy systems that are more adaptable, open, and clean. Adaptation to climate change and extreme weather occurrences were key topics during Argentina's G20 presidency in 2018. As part of the Saudi G20 Presidency in 2020, the OECD published a paper on developing policies for the transition to net zero and an analysis on strengthening adaptation-mitigation linkages for a low-carbon, climate-resilient future.¹⁴ The leaders of the G20 countries pledged to achieve carbon neutrality by the middle of this century at their November 2021 summit. As

¹⁰WORLD METEOROLOGICAL ORGANIZATION, <https://public.wmo.int/en/media/press-release/weather-related-disasters-increase-over-past-50-years-causing-more-damage-fewer> (last visited Jan. 27, 2023).

¹¹UNITED NATIONS ENVIRONMENT PROGRAMME, <https://www.unep.org/resources/emissions-gap-report-2022> (last visited Jan. 27, 2023).

¹²UNITED NATIONS CHILDREN'S FUND, www.unicef.org/stories/impacts-climate-change-put-almost-every-child-risk (last visited Jan. 28, 2023).

¹³UN DEPARTMENT OF ECONOMIC AFFAIRS, <https://www.un.org/development/desa/youth/wp-content/uploads/sites/21/2020/07/2020-World-Youth-Report-FULL-FINAL.pdf> (last visited Jan. 27, 2023).

¹⁴*Climate sustainability - Organisation for Economic Co-operation and Development*, ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, <https://www.oecd.org/g20/topics/climate-sustainability-and-energy/> (last visited Jan 26, 2023, 5:23 PM).

of August 2021, 14 G20 members had pledged net zero targets by 2050, representing 61% of the world's greenhouse gas emissions. If achieved, these targets would significantly contribute to keeping global temperature rise below 1.5°C. The G20 Climatic Risk Atlas, which includes climate scenarios, statistics, data, and forecasts for the G20 countries, was published that same year.¹⁵

The G20 summit in 2022 introduced six actions to be followed for tackling climate change:¹⁶

- A. Making it mandatory for institutions to disclose climate risks.
- B. Reduce the use of fossil fuel production and rely on renewable sources.
- C. Focus on going for lesser energy bills for individuals.
- D. Find ways to increase the cost of carbon.
- E. Cut the public finance for fossil fuels and spend on renewable energy.
- F. G20 members promised for financing climate change & reach the goal of \$100 billion.

Children and youth are not just victims of climate change, but they are also valuable contributors to climate action. Youth have been claiming the frontlines as change agents, entrepreneurs, innovators, and leaders. With greater commitments made by nations to realise a sustainable world and global economy, through investments in critical mitigation and adaptation interventions, there is a significant opportunity for youth to become professionalised contributors to the ongoing 'green' recovery in play.

Let us understand the existing problems from a solution-centric approach and analyse it through the thematic areas of the paper.

I. Transitioning to Sustainable Living

Climate Change is not one country's issue but a global phenomenon. To mitigate the risks of the same, we ought to collectively address the factors driving climate change with coordinated efforts between various governments, non-governmental organisations, businesses, people, and especially youth. We understand there is no Planet B for human survival, hence, we have to shift towards sustainable living and development.

As statistics indicate that changes in modern lifestyle could help the planet reduce emissions by up to 70 per cent by 2050, it is imperative that efforts towards transitioning existing lifestyles are channelized back in sync with sustainable living.¹⁷ While the affordability, accessibility and durability of sustainable goods and services are critical to making sustainable living a preferred option, a broader integration of sustainable living into cultural norms and lifestyle would enable people to consider it a way of life.

Sustainable living means understanding how our lifestyle impacts the globe and developing ways for a happier life for present and future generations.¹⁸ It is also a part of the Sustainable Development Goals (SDGs) given by the UN, as reflected in Goal 4 (Education) and Goal 12 (Responsible Consumption).¹⁹ Sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs", quoted World Commission on Environment and Development, 1987.

¹⁵EURO-MEDITERRANEAN CENTER ON CLIMATE CHANGE, <https://www.cmcc.it/g20> (last visited Jan. 27, 2023).

¹⁶G20 INDONESIA 2022

¹⁷UNITED NATIONS ENVIRONMENT PROGRAMME, <https://www.unep.org/news-and-stories/story/how-sustainable-living-can-help-counter-climate-crisis> (last visited Jan. 27, 2023).

¹⁸UNITED NATIONS ENVIRONMENT PROGRAMME, <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/sustainable-lifestyles> (last visited Jan. 19, 2023).

¹⁹UNITED NATIONS, <https://sdgs.un.org/goals> (last visited Jan. 19, 2023).



By 2050, the world's population will reach 10 billion,²⁰ which means the need for food, shelter, clothing & other requirements will also increase, which will contribute to the factors affecting climate change, including carbon emissions,²¹ with thin resources and loss of biodiversity, our lifestyle choices would be affected. Today's youth are tomorrow's responsible citizens, including leaders and climate activists.

A. Role of Youth Advocacy for Sustainable Living

Youth can play a bridge between traditional and modern techniques of conservation. Leading a sustainable lifestyle, organising awareness campaigns, volunteering in NGOs, networking through national and international forums, research and professional engagements, innovative techniques for conservation, and sustainable startups are some of the climate action plans that youth can adopt, advise and mobilise. More than half of the global youth population is in Asia-Pacific.²² Meaningful climate-consciousness campaigns and youth-led groups can help us achieve a sustainable lifestyle. It includes, for instance, lesser carbon emissions, and a shift to sustainable fashion, food and technology. Youth can influence and lead climate-sensitive policies as well to make a better planet.

B. Promoting Sustainability in Housing and Commercial Infrastructure

Sustainable development in housing projects has the potential to lessen the risks of climate change. Green buildings incorporate features like infrastructure facilities²³ generating less waste; avenues for recycling and reusing; minimizing impacts on biodiversity; less or no pollution; adopting renewable energy; plantation in projects; water conservation and reliable commercial infrastructure with optimum utilization of resources. Sustainable architecture is the future, and youth can get involved in its promotion and development as young architects as well.

C. Encouraging Adoption of Sustainable Transport Practices

Sustainable transportation refers to energy-efficient, low- and zero-emission means of transportation that are also economical, such as electric and alternative-fuel cars as well as domestic fuels.²⁴ It not only includes greener ways of transport like EVs but also the promotion of public transport, to reduce mass carbon emissions by private vehicles.²⁵ Sustainable transport can efficiently reduce climate forces. Sustainable fuels like biodiesel, electricity, ethanol, hydrogen, natural gas, propane, etc. should be encouraged.

D. Shifting from Plastics to Sustainable Alternatives

From the International Space Station to our straws, plastics have been used, which makes it a climate change trigger as it is non-biodegradable. More than 12 million tonnes of plastics are being swept into the oceans to make 'islands of plastics'.²⁶ Plastic pollution is a global problem and nations have signed up to ban it, including India.²⁷ Youth has been at the forefront of the plastic ban campaign and has led advocacy groups, NGOs, and startups. Whether it is about sustainable packaging or bamboo products, a gradual shift can help the planet.²⁸

²⁰UNITED NATIONS, <https://www.un.org/en/desa/world-population-projected-reach-98-billion-2050-and-112-billion-2100> (last visited Jan. 19, 2023).

²¹NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, <https://climate.nasa.gov/vital-signs/carbon-dioxide/> (last visited Jan. 19, 2023).

²²ASIAN DEVELOPMENT BANK, <https://www.adb.org/news/features/understanding-youths-role-achieving-sustainable-development-goals> (last visited Jan. 26, 2023).

²³NBS, <https://www.thenbs.com/knowledge/sustainable-housing> (last visited Jan. 19, 2023).

²⁴OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY (USA), <https://www.energy.gov/eere/sustainable-transportation> (last visited Jan. 19, 2023).

²⁵UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS, <https://sustainabledevelopment.un.org/topics/sustainabletransport> (last visited Jan. 19, 2023).

²⁶UNITED NATIONS, <https://www.un.org/pga/73/plastics/> (last visited Jan. 19, 2023). (last visited Jan 26, 2023, 5:02 PM)

²⁷PRESS INFORMATION BUREAU, <https://pib.gov.in/PressReleasePage.aspx?PRID=1837518> (last visited Jan. 19, 2023).

²⁸Substitute for single use-plastic: Youth contributing big way to support the ban, THE STATESMAN (Jan. 26, 2023, 6:07 PM), <https://www.thestatesman.com/environment/youth-contributing-1503096199.html>.

E. Utilising Traditional Practices to Transform the Lifestyle

Sustainable living is a gradual journey. The modern lifestyle needs to be entwined with traditional techniques like the practice of Yoga, and Ayurveda that promotes healthy and minimalistic living standards. Additionally, community practices of various tribes, forest-dwelling groups and aboriginals can teach us an alternative way to live in an attempt to understand the sustainable practices benefitting our planet. Youth can act as a bridge between traditional practices and modern techniques to upgrade lifestyle with sustainability.

II. Mitigating Disaster Risks

Disasters and hazards seem to be similar but different phenomena. A hazard has the potential to cause harm to lives due to events like earthquakes, floods, cyclones, tsunamis, and fires. A poorly managed hazard can turn into a severe disaster that can cause more loss of human and animal lives including damage to infrastructure. Summarising previous disasters, mankind has witnessed innumerable disasters originating from natural and human causes.

Keeping an eye on the occurrence of natural disasters, and their recurrence either in short intervals or on a large marginal scale can be easily related to climate change as interconnected events. The previous year 2022 witnessed many disasters across the world that are directly considered to be associated with climate change.²⁹ Events included floods, droughts, landslides, avalanches and earthquakes. A historic decision was taken in COP27 that encouraged starting a loss and damage fund for the nations vulnerable to natural disasters arising from climate change. India lost 192 lives in the last monsoon season. Floods in Pakistan in the Month of June were a catastrophe that took more than 1000 human lives including 416 children. The event encouraged the UN to ask for the aid of \$160 Million for handling the crisis. The main reason for triggering was the melting of glaciers and heavy monsoon spells. The drought in the African continent (2020) was the worst hit in the last 40 years leading to the unbearable loss of human and animal life. The earthquake on Indonesia's Java Island with a magnitude of 5.7 on the Richter scale took more than 330 lives. Afghanistan's 2021 earthquake of 6.1 magnitudes took more than 100 human lives. The Philippines was hit by tropical storms and floods resulting in many deaths and evacuations. More than 100 people died due to hurricane Ian in the USA's Florida.³⁰

Strengthening disaster risk reduction governance at the international and regional levels is key to creating valuable partnerships and collaborations.³¹ Moreover, public and private investment in disaster risk reduction with a decentralised approach at the regional level will go a long way in enhancing disaster preparedness. At the international level, states need to relentlessly identify lacunae in existing mechanisms in order to better prepare for future disasters. Early warning and action at a global level with universal access to high-quality data are keys to safeguarding life. Investments made by developed and developing countries in early warning technologies systems will help mitigate the worst impacts of natural disasters in the least developed countries through sharing of data, risk assessment, and capacity building at the last mile. Disaster risk reduction requires a multidimensional approach and,

²⁹EOS, <https://eos.com/blog/natural-disasters-2022/> (last visited Jan 29, 2023).

³⁰Tanya Shrivastava, *Yearender: 2022 - A year of natural disasters*, WION (Jan. 26, 2023, 6:00 PM IST),

<https://www.wionews.com/photos/yearender-2022-a-year-of-natural-disasters-548345#9-hurricane-ian-in-the-united-states-of-america-54834>

³¹Secretariat, *Opportunities and options for integrating climate change adaptation with the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction 2015–2030*, UNFCCC (Jan. 26, 2023, 6:00 PM IST)

https://unfccc.int/sites/default/files/resource/techpaper_adaptation.pdf.

therefore, convergence among diverse stakeholders and authorities, both within and among countries.

The global challenges of disaster management are enormous, and most of them can be associated with specific geographic locations. For instance, events like floods, cyclones, earthquakes, and landslides are recurrent events. Over 8% of the nation's landmass is susceptible to cyclones, while 68% is prone to droughts and 60% to earthquakes.³² Most natural disasters are linked with climate change due to the exponential rise in human population, overburden of natural resources, over-construction, and more. Developing countries have to maintain a balance between rapid economic expansion and the responsible use of resources. These challenges become more intense for developing nations when it comes to mitigating disasters without compromising the livelihood of citizens or socioeconomic growth. To mitigate the risks of disasters, collaborative efforts are needed at the global level.

A. Proliferating Disaster-Resilient Infrastructure: Making it Economical and Accessible

Proliferating Disaster-Resilient Infrastructure Making It Economical and Accessible
Building disaster-resistant infrastructure while considering citizens' economic situations is an important aspect. For developing countries where per capita income is generally low, it is important to consider a gradual speed for construction. New cities and towns should be constructed according to the protocols of their respective hazard zones. In comparison to infrastructure developed without consideration for resilience, the benefits of investing in disaster-resistant structures are substantial. According to a report that was published in 2019 by the World Bank and the Global Facility for Disaster Reduction and Recovery (GFDRR), the average net benefit of investing in more resilient infrastructure in low- and middle-income countries would be \$4.2 trillion, with a benefit of \$4 for every \$1 invested.³³ This was determined by calculating the return on investment (ROI). These numbers reflect a return on investment that is equal to 400%.

B. Constructing Disaster-Centric Roadmaps: Supporting Economic Insurance for all

The disasters in human-inhabited areas end up in great loss of life and property. Apart from mitigating disasters, there should be an ideal approach to constructing life and property insurance policies that cover all disaster events. These policies should be made compulsory for all segments of society including humans, homes and commercial establishments including commercial vehicles for passenger safety and compensation in case of a crisis. More focus should be laid on promoting the development of community-based insurance programmes that are locally administered, self-sustaining, and adapted to the unique requirements of individual communities. Providing subsidies and financial support to help low-income communities for getting smooth access to insurance and risk management tools.

³²Kalpna Srivastava, *Disaster: Challenges and perspectives*, 19 *Industrial Psychiatry Journal* 1 (2010), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3105552/>.

³³World Bank. <https://openknowledge.worldbank.org/handle/10986/31805> (last visited Jan. 31, 2023).

C. Public Involvement in Disaster Training and Preparation Programs

Disasters are always accompanied by chaos and rush. Moreover, the impact is accompanied by greater losses if residents are unaware of their geographic regions' susceptibility to natural disasters. If citizens are properly trained, they can save their own lives as well as those of others. Participating in disaster risk reduction and preparedness initiatives, such as neighbourhood watch groups and community disaster response teams, to build local capacities for disaster response and recovery must be planned and promoted. Such training will enhance action and response between citizens and disaster management teams.

D. Elementary Education Focusing on Disaster Management and Mitigation

Education methods that teach younger children about the types of disasters they are susceptible to along with catastrophe preparedness and management should receive special attention. Apart from that, every educational institute may have a dedicated team for disaster management, and regular drills may be conducted as a part of their extracurricular activities that should involve the active participation of teachers, officials, and students.

E. Focusing More on Technological Innovation for Disaster Risk Reduction

The majority of natural disasters are amenable to accurate forecasting at early stages due to the advancement of technologies such as Remote Sensing (RS), Global Positioning System (GPS) and Geographic Information System (GIS). The ability of remote sensing and associated tools to provide accurate predictions in a timely manner has helped save the lives of millions of people. Collaborative efforts between policymakers and research organisations are required in order to effectively prioritise top research areas for the technical advancement of more accurate, efficient, and reliable data-driven systems and economical early warning systems.

F. Youth Involvement in Creating a Forefront for Disaster Risk Reduction and Resilience

The youth is the most energetic and physically active group. In times of crisis, the youth can form a second front apart from the government agencies combating climatic emergencies and saving lives and resources. As a result, all countries should plan compulsory service tenures for young age groups in order to create a second line of defence against disaster risks and to educate vulnerable sections of society. This mandatory service could take many forms, such as volunteering in disaster relief camps, providing medical assistance, or participating in community programmes and initiatives that promote disaster preparedness for all segments of society.



III. Accelerating the Rise of Green Energy

Fossil fuel burning is the major factor in climate change with an average holding of 75% of total greenhouse gas (GHG) emissions and about 90% of Carbon Dioxide (CO₂) emissions. The burning of coal and oil pollutes the air and their extraction contaminates groundwater and affects marine life. The oil spills in marine water destroy the insulating capacity and water repellence of fur-bearing animals and birds' feathers, exposing them to harsh winters and their possible death.³⁴ Also, the planet's fossil fuel reserves are about to last the next 100 years.³⁵ Their acute shortage may result in power blackouts in the liveliest cities in the next few decades.

One of the most important ways of tackling climate change is investing in green energy and technologies, which hold the promise to boost sustainability, with this being a key step in the transition to a green economy. In order to accelerate the shift away from thermal power plants towards renewable energy sources, it is imperative that green energy continues to receive its due attention. Globally, it is estimated that just a mere 11% of energy demand is met by modern renewable sources. One of the biggest roadblocks in this direction is the financing of green energy and technologies. The risks associated with investing in green technologies, unclear timelines of maturity, and information deficiency have proven to be factors preventing a faster flow of finances into the green space. The overcoming of these must be the core focus of action for the G20 countries in order to strengthen climate action. Also, it is important for the transition towards green energy to happen in a calibrated manner so that it does not end up creating sudden disruptions in the functioning of economies and societies. The challenge for emerging and developing economies is to balance climate risk mitigation framework, green energy transition goals and economic realities to ensure a gradual and seamless transformation so that it does not lead to sudden upheavals in society and economy even while remaining steady in the long-term achievements of those goals.

A. Role of G20 Members in Research and Development of Green Energy

Sustainable Development Goal 7 encourages affordable and clean energy for all. It aims to enhance international alliances for the facilitation of clean and green energy through a mutual investment of G20 nations in R&D projects. Common platforms should be made for sharing research knowledge in the green energy sector.³⁶

B. Challenges to Young Entrepreneurs in Green Technology Development

Choosing a new start-up requires huge financial investments for developing infrastructure and establishing logistical support. Most of the financing bodies charge high interest and offer a short payback tenure with minimal to no grace period. In the renewable sector, huge investments are required for establishing infrastructure, as conventional establishments such as crude oil refineries were not built in accordance with green energy production. The costs of start-ups are even

³⁴CONSERVE ENERGY FUTURE, <https://www.conserve-energy-future.com/effects-of-oil-spills> (last visited Jan 25, 2023)

³⁵STANFORD, <https://mahb.stanford.edu/library-item/fossil-fuels-run/>(last visited Jan 27, 2023).

³⁶UNITED NATIONS ENVIRONMENT PROGRAMME, www.unep.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-7#:~:text=Target%207. (last visited Jan. 26, 2023).

higher where staff training is required. Government policies across many nations also have many shortcomings in safeguarding the interests of young entrepreneurs. The investment models of young entrepreneurs are also low-budget in comparison with those of big firms and multinational establishments.

C. Need for Greater Transparency among Government and Private Sector regarding Success and Failure of Green Technology Projects

The public and government sectors are essential components of a country. Different government policies are framed to uplift the private sector for boosting the economy. The government shelters and subsidises many private sectors for their success during their financial crisis. In most cases, private companies keep a restricted approach towards data synchronising with public funding agencies. This creates loopholes in the system, and less efficient policies are formed in the future. Therefore, there is a strong need for creating more transparent and accountable structures between private sectors and financing or subsidising agencies.³⁷ This could be made possible through strong governance and framing efficient financial audit models for greater accountability and quality reporting during regular time intervals.

D. Greater Incentives for the Flow of Finances into Long-term Green Technology Projects

Green technologies such as green hydrogen are not established enough for commercial models. They also require huge financial investment in infrastructure development, channelizing the availability of raw materials and R&D. Small and micro-establishments often end up in large debts, resulting in the crash of such projects. So, to reduce these types of uncertainties among small investors in green energy, greater incentives are needed to support their financial needs and boost their morale over the journey.

³⁷*Greater Transparency and Accountability in the Public Sector*, IFAC, <https://www.ifac.org/what-we-do/speak-out-global-voice/points-view/greater-transparency-and-accountability-public-sector> (last visited Jan. 26, 2023 02: 34 PM).





Case Study 1: Mission LiFE

In the year 2021, COP 26 was held in Glasgow to address the matters of climate crisis where the Honourable Prime Minister of India Narendra Modi introduced the concept of Mission LiFE. Mission LiFE is a popular worldwide movement led by India that urges individuals and groups to take action to conserve and preserve the environment.³⁸ The mission is conceptualised with the spirit of 'P3- Pro People Planet'. The principles are simple yet effective~ 'Lifestyle of the planet, by the planet and for the planet', making the resistance against climate change firmer with democratic principles. The themes upon which it touches are -

- i. Pushing people to follow simple but effective eco-friendly actions in their daily lives, for impacting the demand segment of the market.
- ii. Enabling manufacturers and sellers to respond swiftly to the changing demand and creating a sustainable yet eco-friendly supply model.
- iii. To stimulate government and industrial policies for creating sustainable demand and supply policies for the future.
- iv. To mobilise more than 1 billion Indians and foreigners to take decisions that will retard environmental degradation up to 2027. The mission also aims to make more than 80% of villages and urban local bodies of India more eco-friendly by the end of year 2028.³⁹

The goal of Mission LiFE is "replacing the prevalent 'use-and-dispose' economy—governed by mindless and destructive consumption—with a circular economy, which would be defined by mindful and deliberate utilization. The Mission intends to nudge individuals to undertake simple acts in their daily lives that can contribute significantly to climate change when embraced across the world."⁴⁰



Case Study 2: India's LPG & LED Reforms

In May 2016, Ministry of Petroleum and Natural Gas (MOPNG), introduced the 'Pradhan Mantri Ujjwala Yojana' (PMUY) as a flagship scheme with the objective to make clean cooking fuel such as LPG available to rural and deprived households which were otherwise using traditional cooking fuels such as firewood, coal, cow-dung cakes etc. The usage of traditional cooking fuels had detrimental impacts on the health of rural women as well as on the environment.

Through government initiatives, India has also attempted to promote LED street lighting and LED bulbs for domestic use. UJALA [Unnat Jyoti by Affordable Light Emitting Diode (LED) for All] was launched in 2015 to provide energy-efficient LED bulbs to domestic consumers at an affordable price. Street Lighting National Program (SLNP) was launched as a National Program for the adoption of LED Street Lighting. The main objective was to convert conventional Street Lights with energy-efficient LED Street Lights. Energy Efficiency Services Limited (EESL) was designated as the implementing agency to implement this program across Pan-India. This initiative was a part of the Government's efforts to spread the message of energy efficiency in the country and bring market transformation for energy-efficient appliances.

³⁸Press Release, PIB Delhi, PM & UNSG Launch Mission LiFE at Statue of Unity, Gujarat (Oct. 20, 2022), <https://pib.gov.in/PressReleasePage.aspx?PRID=1869550>.

³⁹Divyastuti, PM Modi launches Mission LiFE, GKToday, <https://www.gktoday.in/topic/pm-modi-launches-mission-life/> (last visited Jan 26, 2023, 5:02 PM).

⁴⁰Mission LiFE homepage: <https://www.niti.gov.in/life>



Case Study 3: National Green Hydrogen Mission

India's National Green Hydrogen Mission⁴¹ under the supervision of the Ministry of New and Renewable Energy (MNRE) provides a comprehensive action plan for green hydrogen production and making it an affordable and accessible energy carrier. This mission will also boost India's aim of becoming self-reliant in energy. It aims at making India a global hub for the production, use and export of green hydrogen and its derivatives. The focus is on building infrastructure for the production of at least 500 million metric tonnes of green hydrogen by the end of the year 2030 and reaching a further potential of 10,000 million metric tonnes with the gradual development of export markets. Special focus will also be given to curtailing the cost of electrolyzers and input energy. Innovative models for extending decentralised energy production models through a combination of Photovoltaic cells and small hydel plants are also in focus. This could be made possible through different approaches such as biomass-based hydrogen production units, coupled modular electrolyzers and renewable energy units, and the replacement of grey hydrogen with green hydrogen. As a result, about 50 MMT of annual CO₂ emissions are expected to be reduced by the end of 2030.

The mission holds a two-phased approach.⁴² The first phase (2022-23 to 2025-26) will focus on creating demand for green hydrogen in different sectors without compromising the already established energy production and supply systems. This will be aided by providing different incentives for the establishment and scaling up of hydrogen production units. The second phase (2026-27 to 2029-30) will widen the green hydrogen deployment areas. This will promote the establishment of a decarbonised economic model for commercial hydrogen production in potential sectors like railways and aviation. The mission aims at producing 5 million metric tonnes of hydrogen production annually which will also shed annual imports of fossil fuels up to INR one lakh crores.



Case Study 4: International Solar Alliance

International Solar Alliance (ISA)⁴³ was proposed by Honourable Prime Minister of India Narendra Modi and was jointly formed by the initiatives of the Governments of India and France in 2015 to promote the deployment of solar energy solutions in the member countries, currently 123 in number. The vision is to mitigate climate change by shifting energy solutions to renewable sources, primarily solar energy, and the sunshine countries can play a significant role in the same.

ISA is a treaty-based intergovernmental organisation, whose aim is to mobilise investment worth USD 1000 billion⁴⁴ for solar energy deployment. Its objectives include ramping up the solar energy capacity of the world to 1000 GW by 2030, reducing the cost of solar power generation and promoting innovation, research and development in solar energy. It also seeks to assist member nations in establishing low-carbon growth trajectories, with an emphasis on making a difference in the Small Island Developing States (SIDS) and Least Developed Countries (LDCs) is the mission of ISA.

One of the most ambitious projects of ISA is the OSOWOG, which stands for One Sun One World One Grid, which focuses on a framework for global cooperation to build an ecosystem of renewable energy resources, also promoting inter-sharing.

⁴¹MNRE, National Green Hydrogen Mission (2023), www.mnre.gov.in/img/documents/uploads/file_f-1673581748609.pdf (last visited Jan 22, 2023).

⁴²Press Information Bureau, Cabinet approves National Green Hydrogen Mission (2023), <https://pib.gov.in/PressReleasePage.aspx?PRID=1888547> (last visited Jan 20, 2023).

⁴³ISO, <https://isolaralliance.org/> (last visited Jan 27, 2023).

⁴⁴MNRE, <https://mnre.gov.in/isa/> (last visited Jan 27, 2023).



Case Study 5: India's EV revolution

India committed to an aspirational goal of having at least 30% of private automobiles as EVs (Electric Vehicles) by 2030 at the Conference of the Parties 26 (COP26) Summit. EVs boost both the environment and the economy. Automobile companies like Skoda plan to make their EVs in India, and Indian Oil Corporation aims to create 22000 charging stations over the next three to five years. EVs are gaining momentum on Indian roads, be it three-wheelers - e-rickshaws, or two and four-wheelers. The government has allowed 100% FDI in the sector and supports companies through credit guarantee schemes. Remarkably, the highway between Delhi and Chandigarh is the first in the nation to be made e-vehicle friendly by Bharat Heavy Electricals Limited (BHEL), successfully commissioning 20 Solar Based EV Chargers.



Case Study 6: India's Dedicated Disaster Response Force and Technology

In the sphere of disaster management, India is one of the few countries to have a dedicated disaster-resistant force across the country. National Disaster Response Force (NDRF) at the national level and State Disaster Response Force at the state level. The National Disaster Management Authority (NDMA), headed by the Prime Minister of India, is the apex body for Disaster Management in India. Setting up of NDMA and the creation of an enabling environment for institutional mechanisms at the State and District levels is mandated by the Disaster Management Act, 2005. India envisions the development of an ethos of Prevention, Mitigation and Preparedness. The Indian government strives to promote a national resolve to mitigate the damage and destruction caused by natural and man-made disasters, through sustained and collective efforts of all Government agencies, NGOs and People's participation. This is planned to be accomplished by adopting a Technology-Driven, Pro-Active, Multi-Hazard and Multi-Sectoral strategy for building a Safer, Disaster Resilient and Dynamic India.

At the same time, the technology allows us to save crucial time for disaster response, Indian Space Research Organization (ISRO)'s preparedness for disaster risk reduction is appreciated. Its satellites, including Insat 3DR and ScatSat-1, have prevented natural disasters, like Cyclone Vardah as they helped predict the cyclone's movement, enabling authorities to alert the public. While Insat is an advanced meteorological satellite with an imaging system and an atmospheric sounder; Scatsat provides wind vector data products for weather forecasting and cyclone tracking.



WAY FORWARD

Awareness to Mitigate Climate Change

For far too long, humanity has been waging a war against nature. It is a war we cannot possibly win since we depend on nature for sustenance. The world has witnessed increasing frequency and intensity of natural disasters, causing immense loss of life, property and businesses. We need to understand that there is no Planet B and work on cutting emissions, ensuring the establishment of green supply chains, promoting ecological industry and responsible consumption and pave the way for a cooperative and co-dependent lifestyle to mitigate climate change in order to secure our future.

Appeal for Sustainable Living

With the global scenario shaping and constantly changing, the need to work on climate crises is the need of the hour. We need to accelerate our transition to sustainable living and stop further destruction of the environment. Adopting and promoting energy-efficient, zero-emission means of transportation and alternative-fuel vehicles, avoiding single-use products and realising local cultural values will contribute to our efforts towards reversing the environmental loss that we have already caused. With the rising frequency and impacts of natural and man-made disasters, disaster mitigation should also be our priority.

Youth Climate Leadership

It is the need of the hour for the active participation of youth in vital positions for a resounding and robust response against environmental collapse. Youth are the key stakeholders in the climate problem. They possess the enthusiasm, potential and courage to lead the battle against climate change. As activists, entrepreneurs, leaders and researchers, Youth have been at the forefront of this war. Channelising youth leadership to meet climate goals will help us fulfil the SDGs and will help in mitigating the risks of climate disasters, ultimately leading to a brighter future for all and a thriving planet.



Y20 INDIA

2023

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